

Klaus Hock, Gesa Mackenthun (eds.)

Entangled Knowledge

Scientific Discourses and Cultural Difference

Cultural Encounters and the Discourses of Scholarship

Edited by
Gesa Mackenthun

Volume 4

This series seeks to stimulate fresh and critical perspectives on the interpretation of phenomena of cultural contact in both transhistorical and transdisciplinary ways. It brings together the research results of the graduate school „Cultural Encounters and the Discourses of Scholarship,“ located at Rostock University and sponsored by the German Research Foundation (DFG). One of the concerns of the volumes published in this series is to test and explore contemporary theoretical concepts and analytical tools used for the study of intercultural relations, from antiquity to the present. Aware of significant recent changes in the ways in which other cultures are represented, and „culture“ as such is defined and described, the series seeks to promote a dialogical over a monological theoretical paradigm and advocates approaches to the study of cultural alterity that are conscious of the representational character of our knowledge about other cultures. It wants to strengthen a recognition of the interdependencies between the production of knowledge about unfamiliar peoples and societies in various scholarly disciplines and ideologies of nationality, empire, and globalization. In critically investigating the analytical potential of postcolonial key terms such as „hybridity,“ „contact zone,“ and „transculturation,“ the series contributes to international scholarly debates in various fields oriented at finding more balanced and reciprocal ways of studying and writing about intercultural relations both past and present.

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Entangled Knowledge
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Introduction

Entangled Knowledge. Scientific Discourses and Cultural Difference¹

GESA MACKENTHUN AND KLAUS HOCK

One would have to look far into the past to find a beginning of the interaction between scientific learning and cultural contact. Intellectual progress and technological advancement are unthinkable without the constant stimulus triggered by encounters with other people and representatives of other cultures. Lacking a clear beginning of these engagements, we can still look at the present: in the light of a growing decolonization of knowledge, the scientific institutions of the Western world are increasingly confronted with the request to return human remains and sacred artifacts to the descendants of the peoples from whom these bones and objects had once been taken – for ‘scientific purposes’. While American museums like the Smithsonian grudgingly return artifacts to Native American tribes in fulfillment of the Native American Graves Protection and Repatriation Act of 1990, European institutions are still reluctant to endow the repatriation of human remains with a morally requisite official frame. Thus, no high government officials were in attendance as twenty skulls of members of the Herero tribe – victims of imperial Germany’s genocidal war between 1904 and 1908 in what is now Namibia – were ceremoniously returned to their descendants in September, 2011. And academic institutions willing to repatriate are denied the necessary government funds for doing so (Beis, “Kein Wort”). An assessment of the immense holdings of human remains in German museums and anatomical collections is still in its infancy, and the intensity with which such an appraisal is conducted depends on the commitment of individual scholars (Fründt; Kerneck). A London museum’s refusal to bury the skeleton of the so-called “Irish Giant” and eighteenth-century ‘freak’ Charles Byrne is only one of many examples of the repercussions of the colonial past (“Wider Willen”).

Inspired by such distant, or actually not so distant resonances of the colonial legacy, this volume looks at the tandem of “scientific discourse” and “cultural encounters” both systematically and by way of a series of case studies ranging from the early modern period to the present.

1 As always, we thank Paula Ross for her meticulous copy editing. We also thank Lisa Kranig for her help with final proofreading.

The Social Entanglements of Scientific Knowledge

As the work of Michel Foucault, Pierre Bourdieu, Peter Burke and others has shown, the processes of knowledge formation and scientific progress can only be understood from a historical and sociological perspective. In a recent two-volume set on the social history of knowledge, Burke traces the sociological analysis of the history of knowledge to earlier thinkers like Karl Mannheim, who spoke of the ‘situatedness’ of knowledge in the 1920s, and further back to the American sociologist Thorstein Veblen, who very early in the twentieth century reflected on the sociopolitical conditions of what he called the modern “cult of science.” Veblen points out the pervasive matter-of-fact attitude of modern scientists – their rejection of “anthropomorphic” considerations in favor of an impersonal tone:

A civilization which is dominated by this matter-of-fact insight must prevail against any cultural scheme that lacks this element. This characteristic of western civilization comes to a head in modern science, and it finds its highest material expression in the technology of the machine industry. [...]he cultural structure clusters about this body of matter-of-fact knowledge as its substantial core. Whatever is not consonant with these opaque creations of science is an intrusive feature in the modern scheme, borrowed or standing over from the barbarian past. (2; see Burke, vol. 1: 4)

These early critical approaches to the history of knowledge find their common root in Nietzsche’s general suspicion toward all claims to objectivity and scientific truth, which he famously regarded as a “mobile army of metaphors” (880). The contributions to this volume generally subscribe to this position, assuming that science is never innocent of social entanglement. To express this idea with the words of Steven Shapin’s somewhat baroque book title: Science is “*Never Pure. [...] It was Produced by People with Bodies, Situated in Time, Space, Culture, and Society, and Struggling for Credibility and Authority.*” This general insight was decisively strengthened by the work of Foucault and his ‘archaeological’ and ‘genealogical’ accounts of the emergence of major sciences such as medicine, natural history, economics, and linguistics as the result of discursive practices of selection and suppression of knowledge (*Madness and Civilization; Birth of the Clinic; Order of Things*). Using the terminology of *habitus* and *practice*, Pierre Bourdieu has similarly described the processes by which the objects and methods of scientific inquiry are shaped by social determinants and by ‘logics’ that are often unreflected and unconscious (*Logic of Practice* 54, *passim*). Certainly inspired by Bourdieu’s emphasis on the practice of science, Bruno Latour, by studying the practical and concrete ways in which scientific work is conducted in laboratories, through academic publications, and the use of technology, has explored how scientific knowledge comes to be accepted. Determined by processes of selection and exclusion, knowledge formations privilege some

forms of knowledge and ‘logics of research’ while suppressing and marginalizing others, which then become, in Bourdieu’s term, “unthinkable” (5, 54, 130). Foucault, furthermore, speaks of “popular knowledge” (*le savoir des gens*) – “a whole set of knowledges that have been disqualified as inadequate to their task or insufficiently elaborated: naïve knowledge, located low down on the hierarchy, beneath the required level of cognition or scientificity” (Foucault, “Two Lectures” 82). He also emphasizes that the history of knowledge is the history of a struggle between elite or hegemonic knowledge and what he calls “subjugated knowledges”: “In the specialized areas of erudition as in the disqualified, popular knowledge there lay the memory of hostile encounters which even up to this day have been confined to the margins of knowledge” (81, 83). Foucault’s allusion to “hostile encounters” whose “memory” is somehow preserved in the formation of knowledge is crucial to the present volume. As he so often does, Foucault refrains from becoming any more specific as to the kind of encounters he has in mind. The effacement of marginalized knowledges, if we read him correctly, retains the trace of the struggles that were conducted during the processes of scientific canon formation.

Some of these forgotten knowledges have been retrieved while various disciplines have begun to investigate their own intellectual and institutional pasts. The critical history of knowledge that has emerged since the 1980s usefully distinguishes between ‘information’, which Malinowski referred to as “the brute material” that increasingly surrounds us everywhere (qt. Burke, vol. 2: 5); ‘knowledge’ that Burke, following Lévi-Strauss, called “cooked” information in the sense that it includes processes of “verification, criticism, measurement, comparison and systematization” (5); and finally ‘science’, which adds the aspect of the official authorization of knowledge by way of social institutions like the academy, museums, educational journals, foundations. All levels bear the socially engendered danger of ‘freezing’ certain knowledges in place at the expense of others. Especially when assessing the social history of knowledge from an intercultural perspective, it becomes necessary to acknowledge the plurality and multiplicity of knowledges, or epistemic cultures (*Wissenskulturen*) (Burke, Vol. 1: 13 and vol. 2: 4).

The Intercultural Entanglement of Science

Although, as Richard Drayton argues (in agreement with Jack Goody, see below), the interaction between scientific production and cultural contact has existed at least since the so-called Neolithic Revolution, the historical focus of the contributions in this volume begin with the early modern period – one characterized by the synchronicity of geographical expansion, the beginnings of the scientific revolution against church authority, and a new, ‘scientific’ curiosity about the peoples and natural things that were freshly encountered during ventures of trade, discov-

ery, mission, and conquest. The Spanish official and historian Gonzalo Fernández de Oviedo, quoted in this volume by David Boruchoff, captures the spirit of scientific curiosity evoked by the encounter with unfamiliar peoples and strange nature. The craving for knowledge, he writes, is a natural human desire to satisfy which “our will is never content, nor is our mind satisfied with understanding and regarding only a few things, or with seeing those that are ordinary and close by or within our homeland.” The “handsome desire” for knowledge rather forces men to “journey [...] through distant provinces,” both on land and at sea, and to “fend [...] off many and varied dangers” in order to see the “marvelous and innumerable works” of God (✕2r-v). Oviedo’s own contribution to the world of scholarship consisted of an extensive general as well as natural history of the Indies; his work confirms what was famously spelled out by Francis Bacon, that the “thorough passage of the world” and the “advancement of learning” coincided in time (qt. Drayton, “Knowledge” 231). The unfolding of the European scientific revolution since the seventeenth century, which was coterminous with the formation of European colonies around the world as well as with the beginnings of the transatlantic slave trade, was further propelled by the mental liberation offered by the Protestant Reformation: while Martin Luther was standing his ground in front of the Catholic authorities in Worms, Hernán Cortés was exceeding his official commission in New Spain, which resulted in doubling the territories of his monarch, Charles V (see Mackenthun, “Encountering Colonialism” 1-2). Yet both Christian denominations involved in taking possession of the New World shared a strong providentialism which, as Drayton argues, was “the ideological taproot of British [and other] Imperialism” as it “shaped both the quest for knowledge and the push for trade and colonies” (“Knowledge” 233).

One illustration of the religious motif in scientific accounts of non-Christian cultures is a pervasive discourse of Orientalism, part of the semantic stock register commonly employed to describe cultural difference. As Said declared in 1978:

Under the general heading of knowledge of the Orient, and within the umbrella of Western hegemony over the Orient during the period from the end of the eighteenth century, there emerged a complex Orient suitable for study in the academy, for display in the museum, for reconstruction in the colonial office, for theoretical illustration in anthropological, biological, linguistic, racial, and historical theses about mankind and the universe, for instances of economic and sociological theories of development, revolution, cultural personality, national or religious character. (7)

The specific “logic” that generated such knowledge of the Orient, Said continues, was “governed [...] by a battery of desires, repressions, investments, and projections” (8). The same statement can be transferred to all other cultures with which Europe came into contact and which it had subjected to its scientific gaze since the early modern period.

Recent years have produced an expanding critical examination of what is often seen as a too limited European perspective on the history of scientific knowledge. To take just one example: Jack Goody, famous scholar of the sociology of print culture in Western and non-Western societies, critiques a pervasive Eurocentrism in classical accounts of modern civilization in his three recent books, *The Theft of History* (2006), *Renaissances* (2009), and *The Eurasian Miracle* (2009). Instead of tracing modernity, as many other historians of science do, back to ethnically purified Greek roots, Goody argues that until the early modern period, when European powers for various reasons gained the upper hand through key inventions and economic developments, the cultural progress of Europe was deeply entangled with that of Eurasia. He rejects the frequent “bifurcation between the dynamic west, passing through antiquity, and feudalism, to capitalism, and the east that produced a static, hydraulic, bureaucratic despotism, which was not about to modernize” (*Eurasian Miracle* 1). He questions the identification of the Renaissance – in which the seeds for later developments toward the Industrial Revolution, modernization, and global capitalism were sown – as purely ‘European’. This general claim to an essentialized European origin of modernity, Goody states, amounts to a case of “ethnocentric teleology in so far as it attributed that European achievement to deep-rooted, quasi-permanent features of the west” (2). The narrative of the exceptionality of Western civilization, Goody maintains, forgets the fuzziness of the immediate prehistory of the early modern scientific expansion. This prehistory, Goody shows, was characterized by “alternation” – an intense exchange of ideas, forms of knowledge, and technologies between European societies and the “major civilizations of Eurasia” (2). Western Europe, so Goody’s argument goes, “became ‘exceptional’ in the nineteenth century,” but

it is not apparent that earlier on it was out of line with other major civilizations, except in terms of its advantages in the era of the ‘Great Voyages’ perhaps related to technical developments in ‘guns and sails’ and following its adoption of printing long practiced in China, to an alphabetic script using movable type. (*Theft* 66)

The essays collected in this volume show that the linguistic and ideological orientalizations of other cultures is not limited to cultures of Eurasia and the Orient themselves but that it is deployed in many descriptions of ‘lazy’, ‘idolatrous’, ‘effeminate’ and ‘incompetent’ natives around the world. Thus it can be said that Orientalism is the Western master code for describing cultural difference. Neither is it just a thing of the past: orientalist assumptions and crusader-based ideologies still nourish the pronouncements and actions of politicians, mass murderers, and self-declared saviors of civilization.² Moreover, in spite of several decades

2 The 2011 massacre in Oslo is the most gruesome recent example. Such actions are fed by popular, but often scientifically endorsed, ideologies that we have to continue to combat inside and outside the academy.

of powerful deconstruction, racist and orientalist ideologies – in addition to their ubiquity in public discourse – continue to find entrance into scholarly discourse itself: the essays of Feuchter and Wilcox in this volume provide ample examples of this phenomenon.

The volume, then, does not look to address the intersection between scientific thought and interculturality in the more or less discreet historical past alone. Rather, it also seeks to reveal the continuities of colonial and imperial ideologies in the texts of scholarship in the past *and* today. Because even the most critical analyses of empire may unwittingly circulate traditional assumptions about European scientific attitudes toward the rest of the world that stem from colonial times themselves. Tzvetan Todorov's denial of the existence of the art of writing in precolonial Mexico, which was necessary to sustain his neatly 'scientific' binaries between 'mobile Europe' and 'immobile America', is one of the most obvious cases in point.³ In a much more subtle way, Mary Louise Pratt, in her well-known book *Imperial Eyes*, reiterates a colonial mythical narrative when she suggests that from the mid-eighteenth century on, geographical exploration shifted from maritime and coastal areas to the interiors – a move toward what she calls a "planetary consciousness" (9, 15). Moreover, Pratt suggests that this shift coincided with the emergence of a "descriptive paradigm" that was politically more disinterested than the "imperial" form of natural history that preceded it. She terms this new descriptive, or semiotic, system "anti-conquest":

[N]atural history asserted an urban, lettered, male authority over the whole of the planet; it elaborated a rationalizing, extractive, dissociative understanding which overlaid functional, experiential relations among people, plants, and animals. In these respects, it figures a certain kind of global hegemony, notably one based on possession of land and resources rather than control over routes. At the same time, in and of itself, the system of nature as a descriptive paradigm was an utterly benign and abstract appropriation of the planet. Claiming no transformative potential whatsoever, it differed sharply from overtly imperial articulations of conquest, conversion, territorial appropriation, and enslavement. The system created [...] a utopian, innocent vision of European global authority, which I refer to as an *anti-conquest*. The term is intended to emphasize the *relational* meaning of natural history, the extent to which it became meaningful specifically in contrast with an earlier imperial, and prebourgeois, European expansionist presence. (38-39)

It is questionable whether it is really possible to define the two attitudes – an "imperial" one, best represented, say, by Cortés, and an "anti-conquest" one, perhaps best personified by Alexander von Humboldt – as oppositional or mutually exclusive "paradigms." The "anti-conquest" natural history can only be regarded as a system "in and of itself" from the altogether "benign" perspective of the

3 For detailed critiques see Mackenthun, *Metaphors*, chapter 2, and Coronil.

semiotician (whose approach is itself merely descriptive). A *critical* perspective would be very suspicious of any claim to an “utterly benign [...] appropriation of the planet” ascribed to the “anti-conquest” paradigm. Neither may the two versions of “natural history” – the “imperial” and the “anti-conquest” – be easily placed on a chronological scale without taking a look at how the history of European and Western imperialism continued later in the nineteenth century. This period (which is outside the temporal scope of *Imperial Eyes*) would, to use Pratt’s terms, represent a powerful if not quite inexplicable return to the “prebourgeois” system of robbery with violence, now no longer providentially legitimized but couched in similarly deterministic evolutionist rhetoric.

In our view, the quoted passage ranges surprisingly close to Pratt’s earlier description of the “dominant ideologies” of imperial Europe that “made a clear distinction between the (interested) pursuit of wealth and the (disinterested) pursuit of knowledge” (18). It is perhaps owing to the powerful ‘logic’ (or, in Bourdieu’s terms, *habitus*) of scholarly practice that Pratt, in spite of her acute awareness of the ideological character of the Enlightenment claim that dissociates the pursuit of knowledge from the pursuit of wealth, then goes on to imitate that very same claim by offering the rule of the natural history approach as a temporary relief from imperialism – the ‘pure’ pursuit of scientific knowledge as being a somehow politically innocent episode preceded and also succeeded by the more durable imperial paradigm.

Pratt’s assessment of the Enlightenment myth *as a myth* is certainly correct – it continues to exert its mythical influence over the scholarly texts of our own day. In taking a look just at the names of the ships used in the maritime planetary expansion, we can detect a desire of Enlightenment science to define itself as apolitical. As Burke summarizes,

James Cook sailed in the *Discovery*, Alessandro Malaspina in the *Descubierta*, La Pérouse in the *Astrolabe*, Baudin in the *Naturaliste* and the *Géographe*, and Flinders in the *Investigator*, while the French expeditions to the Pacific (1792) and the Arctic (1835) sailed in the *Recherche*. (Vol. 2: 16-17)

In the light of this venerable fleet of scientific idealism, it was certainly a mistake of John Franklin to travel to the Arctic (in 1845) with ships named *Terror* and *Erebus*!⁴

The cases of Cook, La Pérouse, and other maritime expeditioners show that the exploration of the interior really began to take place at the same time that the mapping of oceanic spaces (in search of the Northwest Passage and a trade route to China, for example) and oceanic conquest were being carried out. Pratt notes this problematic complicity and uneasily tries to include Cook’s expeditions in

4 As if in accordance with the gothic ship names, Franklin’s expedition eventually became ice bound; there were acts of cannibalism, and crew members died of lead poisoning. Gruesome photos of some of their bodies, exhumed in 1984, can be seen on the internet.

her narrow definition of “planetary” as relating to interior regions.⁵ Cook’s voyages were of course not undertaken for purely scientific purposes, though the ships were heavily staffed with scientists. He sailed around the Pacific taking possession of extensive territories in the name of the English nation by claiming *terra nullius* (or *vacuum domicilium*), regardless of any indigenous populations being present (Williams 559-60). No matter how much we may strive for finding or creating a utopian moment in the intercultural history of science, it seems, most of us will find reason to concede that ultimately science cannot escape from the untidy realities of social strife and contest, whether in culturally homogeneous or more heterogeneous settings.

The essays in this volume are in various degrees influenced by the groundbreaking work of Edward Said, Mary Louise Pratt, Robert Young, and many others who analyzed the nexus between scientific production and cultural difference. They range between different geographical and historical poles in order to explore the manifold ways in which scientific advancement and cultural encounters – many of them, as Pratt points out, highly asymmetrical – have interacted in the past five hundred years, as well as the mythical narratives and images that Western cultures used in representing the problematic liaison between science and cultural contact.

As hundreds of European accounts of natives struck in awe by the sight of European ‘magical’ technology show, advanced technology – from iron kettles and firearms to printing and clocks – was itself a staple of the civilizing project. More importantly, perhaps, European technological and scientific superiority – even over people like the Chinese, who knew most of these gadgets already – is an important rhetorical trope in colonial narratives of self-confirmation. Scientific apparatuses planted on foreign beaches were frequently tabooed, i.e. invested with a sacred aura, both to prevent pilfering by the natives ‘on the beach’ and to consolidate for the readers at home a feeling of political domination.

As the examples used hitherto suggest, the intercultural exchanges that benefited the development of the sciences often took place in colonial and imperial settings. From the medical, botanical, and culinary uses of tropical plants since the early modern period and the exploitation of energy resources like oil and uranium since the early twentieth century, all the way to the key role played by rare earth elements from China in contemporary communications technology, the advancement of science has been and continues to be inseparably entan-

5 She writes: “These maritime expeditions indeed inaugurated the era of scientific travel, and scientific travel writing. But at the same time, they marked an end: the last great navigational phase of European exploration. Cook discovered and mapped the shores of the last uncharted continent, Australia. In a way, he set the stage for the new phase of inland exploration” (39-40). Even if we exclude the ventures of the United States (e.g., the mammoth United States Exploring Expedition headed by Charles Wilkes in 1838-42) from the paradigm of “European” enlightened scientific exploration, there were numerous maritime European expeditions after Cook. However, one could argue that with Cook’s death in Hawaii in 1779, enlightened idealism received a decisive blow and subsequently began to wane.

gled in a web of colonial and neocolonial dependencies. Within the historical sciences, there is a whole subsection dedicated to studying the imbrications of science and empire, as James McClellan, one of the leading figures of this scholarly field (*Colonialism and Science; The Colonial Machine*), informs us in this volume. Richard Drayton has likewise explored the connections between knowledge and empire (*Nature's Government*). Robert Aguirre, also represented in this volume, provided new archival evidence of the complex interaction between imperial policies and archaeological pursuits in Latin America in the nineteenth century (in *Informal Empire*). These works continue earlier studies on empire and the colonial archive (Richards; more recently Stoler), on the colonial contexts of scientific racism (Young), and on the role of “cultural brokers” and indigenous informants in the formation of modern knowledge (Schaffer et al.).

The science most obviously involved with other cultures is the discipline of anthropology or “ethnology.” Having developed since the late eighteenth century out of the study of natural history in general (see, e.g., Moravia and Pagden), it was anthropology’s *raison d’être* to classify mankind into distinct categories or ‘races’ according to external differences such as skin or hair color and the shape and size of human skulls. The above-mentioned demands for the repatriation of human bones are the lingering legacy of this pervasive scholarly practice. In critical hindsight, the collecting of skulls and bones in order to produce scientific evidence of Europe’s cultural superiority cannot but leave the impression of a cultural pathology, as suggested by the mounting greed for bones, coupled with the failure to extract from these massive collections any innovative scientific results (Laukötter).⁶ While Western nations trod over the graves of dispossessed indigenous peoples (in Andrew Jackson’s famous image),⁷ the scientific institutions – museums, collections of artifacts – became in turn graveyards of indigenous cultures.⁸

While the discipline of anthropology has critically investigated its complicity with colonial policies and ideologies,⁹ other sciences are still holding on to the notion, which can be traced back to the Enlightenment, that the knowledge they generate is ideologically disinterested. Probably the most powerful of these sciences, with regard to understanding cultural interaction and identities, is genetics. The structure of the genome, which includes information on individual and collective heredity, is an incontrovertible fact – ideologically unsuspecting. Yet,

6 Laukötter argues that around the turn of the twentieth century, “the addition of these objects to the scientific archive seems to have been more important than qualitatively examining them” (190). See also Barbara Kerneck, who, based on the work of Sarah Fründt, states that the desire for the possession of skulls by the collectors of imperial European nations increased to such a degree toward the end of the nineteenth century that many museums were incapable of managing the collections.

7 The best treatment of Andrew Jackson’s grave-treading rhetoric is still Rogin (214-18 et passim).

8 For a recent assessment of this, with particular reference to the American craniologist Samuel George Morton, see Ann Fabian.

9 See, for example, Clifford/Marcus, Marcus/Fisher, and Johannes Fabian.

as Michael Wilcox shows in this volume, the scientific study of genetics is determined by at least as many cultural assumptions and prejudices as any other science. What is perhaps more troubling is that the rhetoric of mathematical precision hides an uncanny return of racist ideas whose deconstruction in the human sciences over the last thirty years, it turns out, has not yet reached all domains of science – biology being, ironically, one of them.

Toward a Decolonization of Scientific Knowledge

The ongoing challenge, then, is the question of how to decolonize scientific knowledge. Approaches to this end have frequently taken as their starting point the insight into the end of what Lyotard called the ‘grand narratives’ (31-37 et passim). By trying to specify this postulate in the fields of history, generally, and in the history of science, specifically, various suggestions have been made for breaking up traditional formations of research in order to overcome ‘colonialized’ modes of scholarship.

Traditional paradigms like historicism, as outlined by Leopold von Ranke or Gustav Droysen – with its focus on, among other things, narratives featuring individuals as the main agents of historical development – were long ago ousted by historiographical paradigms that take into account the social, economic, and political dimensions of history. Too, the idea of historiography as a means of uncovering the past and describing it ‘as it really was’ has definitely been brought up short by poststructuralist approaches. Additionally, the various (cultural, linguistic, performative) ‘turns’ have fundamentally questioned views of history that seem to turn a blind eye to its ‘colonialized’ characteristics.

Beginning in the 1980s, the need for decolonizing scientific knowledge in view of the dominant narratives of universal history was taken up on a very practical level by the Subaltern Studies Group in South Asia (Vinayak). Its publishing project aimed to provide history written from the perspective of marginalized and subaltern people in South Asia. This programmatic course was also articulated by the Latin American Subaltern Studies Group in its “Founding Statement,” published in *boundary 2* in 1993.

However, the call for the ‘decolonization of knowledge’ was received with some skepticism – both by critics ‘from the outside’ and by scholars ‘from within’, who are, in principle, sympathetic to an approach focusing on a perspective from the ‘lower’ side of history, or who are even fellow travelers of one of the Subaltern Studies groups. One of these ‘sympathetic critics’, Gayatri Spivak, raised the fundamental question, “Can the Subaltern Speak?” (1988), charging the proponents of Subaltern Studies with facilely positing a ‘subaltern awareness’, not addressing the problem that this subalternity was not easily traced in history, let alone identified in some kind of pure state (Spivak, “Subaltern Studies”). Another concerned scholar, Dipesh Chakrabarty, pointed to the fact that despite

all attempts at rewriting history from subaltern perspectives, it is still Europe that sets the standards for global historiography. Hence, he called for the academic endeavor of “Provincializing Europe.” In a similar vein, Water Mignolo – who is in close contact with the Latin American Subaltern Studies Group – refers to the problem of ‘Western’ dominance in historiography and proposes a review of historiography by decolonizing these dominant narratives and focusing on perspectives from the ‘margins’ (*Local Histories* and *The Darker Side*).

The project of redesigning – and thereby decolonizing – scientific knowledge in the field of historiography takes place on two levels: on a more practical-methodological one, and on a theoretical-conceptual one. To give an example of problems on the first level: historians have to face the challenge of how information on global history, preserved, for instance, in archives, is to be ‘read’ (Blouin and Rosenberg). However, archives are not merely containers of material ‘things’ representing and disclosing ‘facts’ of the past. Rather, they have been instrumental in generating a type of hegemonic knowledge whereby both the process of its production and its hegemonic structure are concealed. Consequently, subaltern views are hidden in the material and can be disclosed only indirectly, that is, by cutting through the limited European perspective. This raises further questions relating to processes of translation or reading hegemonic documents for traces of subaltern agency.

On a more theoretical level, Laura Ann Stoler and others (Cooper and Stoler; Stoler, *Carnal Knowledge*; Pels and Salemink) have warned against operating with ‘Manichean concepts’ in view of colonialism and globalization – a perspective that assumes a totalitarian and overall determining influence of colonial Europe and the West on all facets of life, thereby constructing an essentialist dichotomy between allegedly active ‘colonizers’ and passive ‘colonized’, and consequently promoting a simplistic view that fails to recognize subaltern agency and involvement in emergent discourses on colonialism and globalization.

The (global) history of science in the narrower sense faces similar interrogations: on a practical-methodological level, it has been argued that there is an urgent need for reinventing traditional approaches to sources. So far, the alleged lack of sources in non-European cultures has been used as an excuse for focusing research in the history of science on European topics. As a result, we need “a strategy of ‘cross-contextualization’,” and along this vein, Sujit Sivasundaram has suggested to “experiment with divorcing sources from their usual sites of contextualization so as to take them to quite different contexts [...] – reading a European source within Pacific materials and a Kandyian source within European materials” (“Sciences and the Global” 154).

On a theoretical level, admonishments not to reduce cultural difference to essentializing Manichean concepts may apply to attempts at decolonizing the history of science as well: “To understand colonial science, it is necessary to think beyond categories of colonized and colonial and to fragment traditions of knowledge on all sides” (155). Apart from the need to rethink traditional notions like

‘colonial’ and ‘national’ in order to make the history of science a more globally oriented endeavor, we may also have to reconsider notions well established in postcolonial studies such as practice theory, mestizaje, network theory, contact zone, etc. It is not that these concepts have not proved extremely helpful. But are they really representative, and to what extent have they been instrumental in overcoming Eurocentric conceptions in the history of science? Or, pressing ahead to another aspect raised by Sivasundaram – that of the purposeful withholding of knowledge: “Where do we factor in those non-European peoples who did not share their knowledge with others and, by their refusal, mounted political resistance?” (158) In thinking about knowledge distribution in asymmetrical intercultural relations it is important, it seems, to retain a notion of some local knowledges – whether scientific or not – that were and are intentionally kept from entering the global knowledge machine.

Strictly speaking, the concept of ‘modernity’ itself is at stake when we think of decolonizing scientific knowledge. Traditionally, science is considered one, if not *the* signature of modernity. This view has been linked to an understanding of modernization as a linear and teleological process, assuming a transitional evolution toward modernity as the outcome of increased differentiation and rationalization. While proponents of Critical Theory have fundamentally questioned the positive connotation of, for example, rationalization, thereby taking exception to the positive progress model (Adorno; Adorno and Horkheimer; Habermas), others have pointed to the interrelation between the course of modernization and colonial expansion (see Gillen and Gosh), preparing the way for postcolonial concepts of modernity. Continuing along this track, globalization as the second phase of colonialism has been viewed as bringing about ‘modernity at large’ (Appadurai), whereby the focus was broadened to include aspects of its cultural dimensions and the impact of transnational migration. Furthermore, it is not only the thesis of an immediate correlation between modernization and secularization that has been disputed, but traditional concepts of modernity like the ones just mentioned as well. Even scientific modernity as such – with its traditional distinctions between ‘nature’ and ‘society’, ‘human’ and ‘animal’, and its methods of investigation – has been contested (Latour, *We Have Never Been Modern*). Other scholars again are dismissing any notion of modernity that is linked to claims of superiority over and against allegedly ‘premodern’ cultures. Consequently, concepts referring to theories of a “liquid modernity” (Baumann), “multiple modernities” (Eisenstadt), or “entangled modernities” (Randeria; Therborn) have been tendered, picking up once again the idea of ‘provinzializing Europe’ and rejecting the idea of Western modernity as representing the only thinkable form. Recently, Mignolo has identified ‘dewesternization’ – postulating a shift of power from the West to the East – and ‘coloniality’ – referring to the matrix of power as it had been established since the Renaissance and controlled by the West up until the twentieth century – as the two forces bringing about an undocking of future developments from the paradigm of Western modernity (*Local Histories*).

Chapter Summaries

This volume begins with a section *Setting the Scene: General Reflections on Science and Cultural Contact*, in which Richard Drayton and James E. McClellan lay some of the theoretical and historical groundwork for later case studies. In his chapter “Synchronic Palimpsests: Work, Power, and the Transcultural History of Knowledge,” *Richard Drayton* unfolds the *longue durée* of the interaction of “work” and “play,” starting with the Neolithic Revolutions but moving quickly into postcolonial times. “Work,” in Drayton’s understanding, is “that collective activity through which nature is turned into the path of human history” – an activity whose capacity to adjust to changing environmental conditions is dependent on scientific inquiry. “Play,” on the other hand, refers to “the capacity for imaginative manipulation, through which the world and the self are experienced in shared social life” and are thus transformed. In other words, what is to be explored is the interaction between scientific practices and imaginative and representational practices – united by the fact that both are socially significant and interdependent. “The history of humanity over the truly long term,” Drayton suggests, “may meaningfully be understood as the evolution of increasingly elaborate systems of work and play.” Drayton illustrates this junction with examples from various disciplines and cultural forms (theological writing, linguistics, poetry), and ends with a few suggestions of how a transcultural perspective may guide us to a more satisfactory recognition of the complexities of cultures, reading the phenomena that are produced through cultural interaction as “synchronic palimpsests” – multiply inscribed and polyphonic utterances.

James McClellan’s essay, “Science & Empire Studies and Postcolonial Studies: A Report from the Contact Zone,” establishes a long overdue discussion of the crossovers and mutual blindnesses of the field he represents – Science & Empire Studies – and Postcolonial Studies. Inspired by the work of the Rostock graduate school program “Cultural Encounters and the Discourses of Scholarship,” McClellan presents a new perspective on the scholarly results of Postcolonial Studies from the perspective of a decisively historical investigation of colonial and scientific relationships. He presents a series of historical lessons that “blur [...] the boundaries between any simple notion of a sharp division between native and Western knowledge,” that “undermine [...] our sense of the easy transfer of knowledge across cultural barriers, and [that ...] complicate [...] our understanding of the actors involved in the process of knowledge making in a colonial context.” The history of science offers innumerable examples of how transcultural knowledges circulate between glocal centers and peripheries – “from Africa to the forests of French Guiana, from a hospital in Cayenne to government and scientific circles in Paris and Versailles, and then back to the depths of the Amazonian forests,” thus illustrating the “striking way a global economy of knowledge and knowledge making” operated in a time we often falsely believe to have preceded the era of globalization. After a review of the field of Postcolonial Studies,

McClellan offers “three and a half reasons” why the two fields have been separated so far – leaving us to think ahead as to how they could inspire one another in the future.

The next section, *The Cultural Politics of Scientific Discourse*, offers three case studies of the cultural politics of scientific discourse. In “Europe Penetrated by Islam. The Orientalization of the Order of the Templars,” Jörg Feuchter analyzes the emergence of discourses on cultural difference by focusing on an imagined link between ‘the oriental’ and religious violence. He does so by tracing representations of the order of the Templars in literature and historiography throughout the centuries. Although there has been an ‘orientalizing’ perception of the Templars almost since their founding in the twelfth century, the Enlightenment and Romantic eras gave rise to scholarly discussions that depicted the order of the Templars and their militant tradition as an outcome of their ‘orientalization’ due to a mental ‘penetration’ by Islam. This discursive tradition remains alive in contemporary scholarship. Even scholars and writers “renowned for their pioneering work on cultural fusion are among the most avid supporters of the Ribāt-as-model hypothesis.” This, Feuchter concludes, “shows how even a scholarly representation of cultural transfer can contribute to the creation of difference.”

Focusing on the development of linguistic research and science, *Rüdiger Schreyer*, in his essay “Linguistics and the Discovery of America,” challenges the traditionally ‘teleological’ interpretation of this discipline’s history, one that categorizes any linguistic study conducted prior to the nineteenth century as merely preparatory to comparative historical linguistics as a final, ‘real’ science of today. Against this simplistic teleological view, Schreyer traces the unfolding of linguistic studies that gradually emerged in close relation to European expansion and the encounter with ‘unknown languages’ in newly ‘discovered’ areas, especially the Americas. While in the end, evolutionist conjectural historians’ views on the global dispersal of language won the day over Christian traditionalists, their ‘victorious’ theory was not empirically substantiated: the ‘evolutionalists’ could neither provide evidence of an assumed prototypical language nor were they capable of putting “the postulated artless, confused, ungrammatical language of their ‘savage’ in tune with the many missionary grammars and descriptive statements to which they had access.” Since no language(s) of our earliest ancestors have survived, “most modern linguists are chary of discussing the controversial issue of the origin and development of language.”

One of the most recent examples of the ongoing colonial legacy of modern knowledge is represented by *Michael Wilcox*, who, in “Colonizing the Genome: DNA and the New Raciology in American Archaeology,” discusses the continuously difficult relationship between academic anthropology and indigenous rights claims, newly triggered by controversies around the Human Genome Diversity Project and the discovery, in 1996, of the remains of the so-called Kennewick Man. These cases show, as Wilcox writes, the “fault lines that emerge when science is used to clarify human identity and ancestry.” Trained as an archaeologist

and sensitive to Native American sentiments concerning their distinct identities and human rights, Wilcox shows how the promise of universal humanity implicit in the deciphering of the DNA code has produced significant conflicts between the scientific establishment and indigenous groups because more often than not genetic facts are unwittingly being grafted onto racialist assumptions inherited from the nineteenth century. The cases he provides demonstrate how residual ideologies can impact seemingly objective scientific methods and interpretations. His examples clearly show the extent to which the debate over native rights is still tied to ideas of native racial identity and racial purity, and how the selective interpretation of the human genome can reinforce political inequalities established in the nineteenth century that remain prevalent today.

Section three, *Scientific Encounters in the Early Modern Period*, contains three examples of intercultural scientific encounters from the period between 1500 and 1800. In “The Three Greatest Inventions of Modern Times: Scientific Culture and the Cult of Modernity,” David Boruchoff traces the early modern discussion about three major inventions – the compass, the printing press, and gunpowder – that attained mythical status in the discourse of foreign travel and discovery. Both before and after Francis Bacon’s important philosophical treatises on the advancement of learning, Boruchoff argues, “the paradigmatic value of printing, firearms, and the nautical compass was (and still is today) a cornerstone of the history of modernity.” While scholarly texts still unanimously accept the ‘fact’ that these achievements were indeed the three major inventions of their age, the comments by contemporary intellectuals that Boruchoff has assembled reveal that their civilizational superiority was frequently questioned in the early modern period. These commentaries also point out that the reason for their later cult status (they are mentioned as tokens of cultural superiority in virtually all accounts of colonial encounter and conquest) is owing to the fact that these inventions were in fact the indispensable instruments of Europe’s overseas empire. Boruchoff’s essay shows that, as is so often the case, returning to the original texts exposes the contested status of knowledge that subsequently acquires mythical qualities – in this case, at least two of the inventions whose origin is now dated to the period of the discovery of America had in fact been made in Europe at least a century earlier (gunpowder and print). Not only that: both inventions had also been developed by the Chinese “a thousand years before” the Europeans, as Montaigne asserts in “Des Coches” (1588). Early modern writers were, therefore, careful to emphasize the inferior quality of the Chinese versions of the two inventions. If, as Boruchoff suggests, the appeal of all three inventions lies in their ‘modernity’ (i.e., surpassing the knowledge of the ancients), the modernity he speaks of is defined by its imperialism – the will and the means “to search out, reach, subdue, communicate with, and assimilate the New World” and other worlds outside of Europe.

The next case study in this section is dedicated to “Court ‘Moors’ and Eighteenth Century Racial Anthropology.” *Sünne Juterczenka* brings together research perspectives that have been neglected up to now. For example, she points out

a connection between aesthetic consumption of the exotic and the rise of scientific interests in the field of racial anthropology. Her focus is on the situation of non-Europeans, especially Africans, who had been living in Europe in far greater numbers and from a much earlier time than had once been assumed. So-called ‘Court Moors’ or ‘Chamber Moors’ were not only treated as objects and specimens by aristocratic collectors, but were also used for ‘human experiments’ – both when they were alive and after their death. At a time when bodies were difficult to obtain for dissection purposes, court connections seem to have played a particular role in providing dead ‘Moors’ both for postmortem examination as well as for collectors. Juterczenka concludes that her findings not only raise “the question of precursive phenomena that anticipated later developments” in the field of racial anthropology and beyond, but she also postulates that “in addition to relationships between colonizers and colonized *in situ*, which is what postcolonial studies has concentrated on thus far, we also need to investigate the inner-European dynamics that influenced European scientific interests.”

In “A Critical Cruise ‘Round the World’: Georg Forster’s ‘German’ Comments on English Exploration,” *Helmut Peitsch* explores Georg Forster’s subtle interpretations of English voyages of exploration in the eighteenth century. Having accompanied Captain James Cook on his second voyage, Forster, in various prefaces and translations of British texts, conducts a witty critique of the colonial ambition of Great Britain, as well as of manifold irrationalities exposed during the practice of British expansion. While generally sharing the official British claim that Cook’s voyages were made for purely scientific (i.e., not military or colonial) purposes, Forster nevertheless questions the intellectual superiority of his British colleagues. His texts contain a running commentary on the comparative superiority of German science and philosophy in matters of secularization, ridiculing the British – who generally prided themselves on their common sense approach to knowledge – for their occasional lapses into pre-Enlightenment ideas and attitudes.

Maintaining the volume’s historical chronology, section four is dedicated to the *Professionalization of Scientific Practice* in the nineteenth and early twentieth centuries, comprising two examples from Latin American and one from China. Largely because of the legendary status of Alexander von Humboldt, Latin America has always been a major focus for studying the liaison between science and colonial culture.¹⁰ In “Picturing the Tropics from Humboldt to Darwin,” *Nina Gerassi-Navarro* explores the discursive register of the exotic and how it infiltrated scientific descriptions of the New World, both in texts and in painting. Interested in how scientific knowledge interacts with aesthetic considerations in these cultural productions, Gerassi-Navarro refers to Humboldt as the most influential authority for later writers and artists because of his humanistically inspired blend of Enlightenment science, natural theology, and aesthetic ide-

10 For an excellent study of the earlier Condamine expedition, see Safier, and for a modern German edition of some of the texts, see Gretenkord.

alism (i.e., a disinterested view of the works of nature). This balance, Gerassi-Navarro shows, was severely shattered by the Darwinian revolution. While for Humboldt sentiment became a key to understanding the unfamiliar nature of the American tropics, the American landscape painter Frederic Edwin Church and the biologist Louis Agassiz had to reconcile their Humboldtian heritage with the new findings of evolutionary theory. In a painting resulting from his trip to South America, Church found a way of harmoniously merging geological and botanical knowledge with a romantic aesthetic and religious sensibility. In the process of its reception, however, Church's painting was also integrated into a national narrative of 'natural' origins. Being a scientist and not a painter, Agassiz did not have the same poetic license as Church. Confronted with Darwinian theory, he kept insisting on a notion of God's design and the fixity of species in spite of growing scientific evidence that spoke against a biblically based authority.

Staying in the same period and world region, *Robert Aguirre* in his essay "The Work of Archaeology: The Maudslays in Late Nineteenth-Century Guatemala" sheds light on the collaborative work of the British archaeologist couple Alfred and Anne Maudslay. Visiting Mexico and Guatemala in order to explore Maya culture in the 1880s and 1890s, the Maudslays significantly professionalized scientific methods by their use of new technological instruments like the photographic camera. Aguirre's discussion of Maudslay's travelogue, *A Glimpse at Guatemala* (1899), uncovers interesting intersections between 'gender' and 'work' – culminating in the fact that much of the book was written by Maudslay's wife Anne. Indeed, the coauthored text emerges as a polyphonic document which, if read carefully, shows the fissures in the artificial gender order of the time – an era in which the numbers of women entering the work sphere and beginning to follow scientific pursuits was rising, although they were still excluded from the scientific establishment. The discursive confinement of the female expedition partner to the duties of housework, Aguirre argues, is rhetorically reinforced and doubled by the relegation of the native laborers to inferior tasks, while Maudslay, the male archaeologist, had the privilege of viewing the ruins in all their imperial serenity.

The last essay in this section looks at "Contested Science. Discourse and Competition of Affective Regimes in Early Twentieth-Century China." According to *Angelika Messner*, the alliance of modernity with progress, natural science, and technology is reflected in early twentieth-century concepts of reform and renewal, which in turn were based on the idea of progress coupled with evolutionary development. Against the background of an encounter between Western and Chinese conceptions of science, knowledge, and modernity, and in view of changing epistemologies, Messner analyzes the specifics of Western scientific discourses – which materialized, for example, in hygiene campaigns organized by medical missionaries – in comparison to 'traditional' Chinese approaches to knowledge and science: while Western science focuses on segregating knowledge from the practical aspects of life, "the indigenous epistemological frame encom-

passed knowledge acquisition processes in concert with ethics and the cultivation of the self.”

The last section of the volume deals with the *Poetics of Science*. The first of the literary explorations of science and cultural difference is presented by Heidi Kunz. In “Difference Rising: The Astronomical Other and the Novelty of the American Nation” she reads Nathaniel Hawthorne’s astronomical vision in his classic *The Scarlet Letter* (1850) alongside the considerably lesser known novel *Macaria; Or, Altars of Sacrifice* by Augusta Jane Evans (1864). Both novels were written under the impact of the contribution of female amateur scholars to the scientific exploration of comets, especially that of the American astronomer Maria Mitchell. “Cultural difference” in this case refers to the gendered struggle to gain a scientific voice in a society ruled by a strict Victorian order that insisted on keeping the gendered spheres separate. While Hawthorne, still very much under the sway of the medieval semantics of Puritanism’s notions of ‘illustrious providences’, uses the meteor as a symbol for an emergent social order, Evans incorporates the serious astronomical activity of her female protagonist – she grants “astrophysics an operative role in *Macaria* by writing it as a mechanism of female ascendancy in a gendered contest for authority over space and time” – in a plot that ultimately tones down her revolutionary difference in order to meet the expectations of her conventional Southern genteel readership. Kunz’s discussion shows that the strategies of discarding the scientific activities of social ‘others’ – of writing them out of the history of science – are quite similar to cases where ‘difference’ refers to geographical or ethnic alterity.

Finally, Elmar Schenkel in his chapter “Lunar Dreams. Religion and Politics in Literary Journeys to the Moon” traces the interpretation of the moon in literature as both paradigmatic of fantasies about cultural difference and as a testing ground for alternative ideas, using works by Johannes Kepler and Jules Verne. *Kepler’s Dream* is a striking instance of a multifaceted text sprawling in many directions and representing a kind of ‘hybrid writing’ of science and fiction with the rationale of “work[ing] out, through the example of the moon, an argument for the motion of the earth.” Verne’s *Journey to the Moon* is a similar mixture of scientific lessons and entertainment, but the context has changed: “In Kepler, we have seen that the political situation is becoming unbearable and calls for outlets – metaphysical or geographical flights. In Verne, flight is not meant to be an escape but a triumph of humanity.”

Coming full circle, from the Neolithicum to the Moon, it is hoped that the essays gathered here may fertilize a new and promising field of critical investigation. The study of the manifold entanglements of science and interculturality has only just begun.

Works Cited

- Adorno, Theodor W. *Negative Dialectics*. 1966. New York: Continuum, 1994.
- Adorno, Theodor W., and Max Horkheimer. *The Dialectic of Enlightenment*. 1947. New York: Telos Press, 2000.
- Appadurai, Arjun. *Modernity at Large. Cultural Dimensions of Globalization*. Minneapolis: University of Minnesota Press, 1996.
- Baumann, Zygmunt. *Liquid Modernity*. Cambridge: Polity Press, 2000.
- Beis, Elena. "Kein Wort der Anerkennung." *Tageszeitung* 30 September 2011: 3.
- Blouin, Francis, and William Rosenberg, eds. *Archives, Documentation, and Institutions of Social Memory*. Ann Arbor: University of Michigan Press, 2006. <https://doi.org/10.3998/mpub.93171>
- . *Processing the Past. Contesting Authorities in History and the Archives*. Oxford: Oxford University Press, 2011.
- Bourdieu, Pierre. *The Logic of Practice*. Stanford: Stanford University Press, 1990.
- Burke, Peter. *A Social History of Knowledge. Vol. I: From Gutenberg to Diderot*. Cambridge: Polity Press, 2000.
- . *A Social History of Knowledge. Vol. II: From the Encyclopédie to Wikipedia*. Cambridge: Polity Press, 2012.
- Chakrabarty, Dipesh. *Provincializing Europe. Postcolonial Thought and Historical Difference*. 2000. Princeton: Princeton University Press, 2008. <https://doi.org/10.1515/9781400828654>
- Clifford, James, and George E. Marcus, eds. *Writing Culture. The Poetics and Politics of Ethnography*. Berkeley: University of California Press, 1986.
- Cooper, Frederick, and Ann Laura Stoler, eds. *Tensions of Empire. Colonial Cultures in a Bourgeois World*. Berkeley: University of California Press, 1997. <https://doi.org/10.1525/9780520918085>
- Coronil, Fernando. "Discovering America Again: the Politics of Selfhood in the Age of Post-Colonial Empires." *Dispositio* 14: 315-31.
- Drayton, Richard. "Knowledge and Empire." *Oxford History of the British Empire. The Eighteenth Century*. Ed. P.J. Marshall. Oxford: Oxford University Press, 1998. 231-52. <https://doi.org/10.1093/acprof:oso/9780198205630.003.0011>
- Eisenstadt, Shmuel N., ed. *Multiple Modernities*. New Brunswick: Transaction Publishers, 2002.
- Fabian, Ann. *The Skull Collectors. Race, Science, and America's Unburied Dead*. Chicago: University of Chicago Press, 2010. <https://doi.org/10.7208/chicago/9780226233499.001.0001>
- Fabian, Johannes. *Time and the Other. How Anthropology Makes Its Object*. 1983. New York: Columbia University Press, 2002.
- Fernández de Oviedo, Gonzalo. *La historia general de las Indias*. Seville: Juan Cromberger, 1535.
- Foucault, Michel. "Two Lectures." *Power/Knowledge. Selected Interviews and Other Writings 1972-1977*. Ed. Colin Gordon. London: Harvester Wheatsheaf, 1980. 78-108.
- Fründt, Sarah. *Die Menschensammler. Über den Umgang mit menschlichen Überresten im Übersee-Museum Bremen*. Marburg: Tectum, 2011.
- Gillen, Paul, and Devleena Sydney Gosh, eds. *Colonialism and Modernity*. Sydney: University of New South Wales Press, 2007.
- Goody, Jack. *The Theft of History*. Cambridge: Cambridge University Press, 2006.

- . *Renaissances. The One or the Many?* Cambridge: Cambridge University Press, 2009.
- . *The Eurasian Miracle*. Oxford: John Wiley & Sons, 2009.
- Gretenkord, Barbara, ed. *Reise zur Mitte der Welt. Die Geschichte von der Suche nach der wahren Gestalt der Erde*. Ostfildern: Jan Thorbecke, 2003.
- Habermas, Juergen. *The Philosophical Discourse of Modernity*. Cambridge: MIT Press, 1987 (1981).
- Kerneck, Barbara. "Umstrittene Menschensammlungen." *Tageszeitung* 31 December 2011: 18.
- Latin American Subaltern Studies Group. "Founding Statement." *The Postmodernism Debate in Latin America. boundary 2* 20, 3 (1993): 110-21. <https://doi.org/10.2307/303344>
- Latour, Bruno. *Science in Action. How to Follow Scientists and Engineers Through Society*. Cambridge: Harvard University Press, 1987.
- . *We Have Never Been Modern*. Cambridge: Harvard University Press, 1993.
- Liotard, Jean-François. *The Postmodern Condition. A Report on Knowledge*. 1979. Minneapolis: University of Minnesota Press, 1984.
- Mackenthun, Gesa. *Metaphors of Dispossession. American Beginnings and the Translation of Empire, 1492-1637*. Norman: Oklahoma University Press, 1997.
- . "Encountering Colonialism: A Transnational View of 'Colonial America'." *Colonial Encounters. Essays in Early American History and Culture*. Ed. Hans-Jürgen Grabbe. Heidelberg: Winter, 2003. 1-27.
- Marcus, George, and Michael M.J. Fisher. *Anthropology as Cultural Critique. An Experimental Moment in the Human Sciences*. Chicago: University of Chicago Press, 1986.
- Mignolo, Walter. *Local Histories/Global Designs. Coloniality, Subaltern Knowledges, and Border Thinking*. Princeton: Princeton University Press, 2000.
- . *The Darker Side of Western Modernity. Global Futures, Decolonial Options*. Durham: Duke University Press, 2011.
- Moravia, Sergio. *Beobachtende Vernunft. Philosophie und Anthropologie in der Aufklärung. [La Scienza dell'Uomo nel Settecento]*. 1970. Frankfurt: Fischer, 1989.
- Nietzsche, Friedrich. "Über Wahrheit und Lüge im außermoralischen Sinn." 1873. *Die Geburt der Tragödie, Unzeitgemäße Betrachtungen I-IV, Nachgelassene Schriften 1870-1873*. Kritische Studienausgabe. Ed. Giorgio Colli and Mazzino Montinari. München: DTV; Berlin/New York: de Gruyter, 1988. Vol. 1: 873-890.
- Pagden, Anthony. *The Fall of Natural Man. The American Indian and the Origins of Comparative Anthropology*. Cambridge: Cambridge University Press, 1982.
- Pels, Peter, and Oscar Salemink, eds. *Colonial Ethnographies. History and Anthropology 8*. Basel: Harwood, 1994. <https://doi.org/10.1080/02757206.1994.9960856>
- Pratt, Mary Louise. *Imperial Eyes. Travel and Transculturation*. London/New York: Routledge, 1992.
- Richards, Thomas. *The Imperial Archive. Knowledge and the Fantasy of Empire*. London: Verso, 1993.
- Rogin, Michael Paul. *Fathers and Children. Andrew Jackson and the Subjugation of the American Indian*. New York: Vintage, 1975.
- Schaffer, Simon, Lissa Roberts, Kapil Raj, and James Delbourgo, eds. *The Brokered World. Go-Betweens and Global Intelligence, 1770-1820*. Sagamore Beach, MA: Watson, 2009.

- Safer, Neil. *Measuring the New World. Enlightenment Science and South America*. Chicago: University of Chicago Press, 2008. <https://doi.org/10.7208/chicago/9780226733562.001.0001>
- Said, Edward W. *Orientalism*. New York: Vintage, 1979.
- Shapin, Steven. *A Social History of Truth: Civility and Science in Seventeenth-Century England*. Chicago: Chicago University Press, 1994. <https://doi.org/10.7208/chicago/9780226148847.001.0001>
- . *The Scientific Revolution*. Chicago: Chicago University Press, 1996.
- . *Never Pure. Historical Studies of Science as if it was Produced by People with Bodies, Situated in Time, Space, Culture, and Society, and Struggling for Credibility and Authority*. Baltimore: Johns Hopkins University Press, 2000.
- Sivasundaram, Sujit. *Nature and the Godly Empire. Science and Evangelical Mission in the Pacific, 1795-1850*. Cambridge: Cambridge University Press, 2005.
- . "Sciences and the Global. On Methods, Questions, and Theory." *Isis* 101, 1 (2010): 146-58. <https://doi.org/10.1086/652694>
- Spivak, Gayatri. "Subaltern Studies: Deconstructing Historiography." *Subaltern Studies IV. Writings on South Asian History and Society*. Ed. Ranjit Guha. Delhi/Oxford/New York: Oxford University Press, 1985. 330-336.
- . "Can the Subaltern Speak?" *Marxism and the Interpretation of Culture*. Ed. Cary Nelson and Lawrence Grossberg. London: Macmillan, 1988. 271-313. https://doi.org/10.1007/978-1-349-19059-1_20
- Stoler, Ann Laura. *Along the Archival Grain. Epistemic Anxieties and Colonial Common Sense*. Princeton and Oxford: Princeton University Press, 2009. <https://doi.org/10.1515/9781400835478>
- . *Carnal Knowledge and Imperial Power. Race and the Intimate in Colonial Rule*. Berkeley: University of California Press, 2010.
- Therborn, Göran. *European Modernity and Beyond. The Trajectory of European Societies, 1945-2000*. London: Sage, 1995. <https://doi.org/10.4135/9781446222317>
- . "Entangled Modernities." *European Journal of Social Theory* 6, 3 (2003): 293-305. <https://doi.org/10.1177/13684310030063002>
- Veblen, Thorstein. *The Place of Science in Modern Civilization*. 1906. Reprint Piscataway, NJ: Transaction Publishers, 1989.
- "Wider Willen im Museum. Der Streit um das Skelett des 'Irischen Riesen' Charles Byrne." *Tageszeitung*, 31 December 2011: 18.
- Williams, Glyndwr. "The Pacific: Exploration and Exploitation." *Oxford History of the British Empire. The Eighteenth Century*. Ed. P.J. Marshall. Oxford: Oxford University Press, 1998. 552-75. <https://doi.org/10.1093/acprof:oso/9780198205630.003.0025>
- Vinayak, Chaturvedi, ed. *Mapping Subaltern Studies and the Postcolonial*. London and New York: Verso, 2000.
- Young, Robert J.C. *White Mythologies. Writing History and the West*. London/New York: Routledge, 1990.
- . *Colonial Desire. Hybridity in Theory, Culture and Race*. London/New York: Routledge, 1995.

SETTING THE SCENE
GENERAL REFLECTIONS ON SCIENCE
AND CULTURAL CONTACT

CHAPTER ONE

Synchronic Palimpsests: Work, Power, and the Transcultural History of Knowledge

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As I crossed the Ostsee from Denmark on my way to Rostock in September 2010, I thought of my father almost sixty years ago arriving in Rostock on a boat from England, having already taken another ship from Jamaica. With thirty thousand other students from 111 countries, he was en route to the 1953 World Youth Festival in Bucharest. They were met at Warnemünde by the *Freie Deutsche Jugend* and put on trains for an epic journey south. He spoke no German, and his hosts spoke no English, nor indeed did many of his companions. But they found ways to meet each other's needs and keep each other company, and no one went hungry or without rest. They knew the same songs, although with words in a dozen languages – “the Internationale unites the human race” – and shared a destination, Romania proximately, and the mysterious land of socialism ultimately. But it is likely that few of them understood in the same way what ‘socialism’ meant. Into that distant horizon were entangled ideas of colonial freedom, developmentalism, anti-racism, and dreams of economic justice and political inclusion – a world without war, life without fear, where every child however poor would have food and housing and education and health. We shall leave to one side the question of how far the life of the lands over which they traveled had realized these dreams. What is critical, however, is that out of these mutual understandings and misunderstandings came a cosmopolitan community which worked. Similarly complex kinds of tangled cultural comprehension and incomprehension would have been found among the pilgrims walking to Canterbury, Kevelaer, or San Juan de Compostella, and those they met, or indeed among scholars attending scientific meetings such as the one that engendered this volume. While the symbols we exchange do not mean exactly the same things for each of us, we are able to meet and talk as we walk and work together.

The symposium and volume on “Scientific Discourses and Cultural Difference” shares the work of Rostock's larger research program on “Cultural Encounters and the Discourses of Scholarship.” It is in close dialogue with two earlier collections: *The Fuzzy Logic of Encounter* (Juterczenka and Mackenthun, 2009) and *Human Bondage in the Cultural Contact Zone* (Hörmann and Mackenthun,

2010). *Fuzzy Logic* collected interventions in anthropology and ethnography, creole linguistics, migration and diasporas, museum studies, comparative religion and literature, and asked us to consider how and why cross-cultural encounters worked, while *Human Bondage* compared how slavery was organized and thought about across a very wide time span. I seek here to bridge these interventions to such topics as orientalism, the historical imagination, science, and the colonial imaginary by asking how we might more closely coordinate these two strands of ‘work’ and ‘knowledge’.

Cultures meet around common needs, but the terms of engagement are never simple. The word ‘encounter’, at least to my Anglophone ears, has always had a slightly evasive quality. Evasive because it often leads to a focus on symbolic and communicative practices that assumes a meeting of equals, and often leaves unaddressed the asymmetries of power that surround encounter. The ‘contact zone’ is rarely a space of reciprocity, and tends to be enacted on territory that is the home of only one party. Take the virtual encounter of Vermeer’s Geographer and the Polynesian warrior Mouina, which is the symbol under which we meet (see cover image of this volume, and Juterczenka and Mackenthun 7-11). It is through an act of postcolonial intellectual will, and mustering all we now know about the multitude of Mouinaeses engaged in similar acts of confrontation with representatives of the Geographer, that we may set them up in positions of exchange. But in the seventeenth- and eighteenth-century world, the ‘geographer’, part of networks of war, trade, religion, and intellectual exchange, with powerful technologies of writing and diachronic thinking and the scalar imagination of space through which dispersed phenomena might be ordered into convergent symbols, was something qualitatively different from Mouina. Even if we now recognize that that asymmetry of power was only the consequence of historical and geographical chance and path dependency, rather than some inherent superiority or inferiority of intellect or culture-making, we must still keep in focus that power gap. Power matters to cultural encounters, to the meaning of scientific discourses and their meetings. Let us examine these questions by thinking about the transcultural history of knowledge and its relationship to organized society, work, and power, first in the global history of the sciences, and then, via comparative religion, as a philosophical problem.¹

I

It was not very long ago, perhaps around 150,000 years, that the first *Homo sapiens sapiens*, hopeful sport of nature, stumbled on to the East African savannah. She? He? was naked and vulnerable, as much at the mercy of nature as any other

1 Among critical recent studies with which this essay is in dialogue, two vital interventions are Raj, *Relocating Modern Science* (2006) and Schaffer, Roberts, Raj, and Delburgo, *The Brokered World* (2009).

beast. But unlike them, unlike even its hominid cousins, with which it would breed and after drive to extinction, it had two remarkable gifts, the power of 'work' and the power of 'play'. By 'work' I mean that collective activity through which nature is turned into the path of human history; and by 'play', the capacity for imaginative manipulation, through which the world and the self are experienced in shared social life are transformed. The history of humanity over the truly long term may meaningfully be understood as the evolution of increasingly elaborate systems of work and play. Any social arrangement, any empire, may easily be unlocked by the questions how work is here organized, who orders whom, and how are the good things which work yields distributed. And in 'play' lie those practices that constitute our mental world. What we call knowledge lives between these two, at once enmeshed in material practices of life, and public ways of making and sharing, and in private symbolic and reflective behavior.

I have made you walk from that distant sunrise, because I want you to steal up on what we call 'Science' and 'Empire' before they are armored in their mystique. For it is in that critical engagement of communities with the environment which we call work, and with the mind, which we call play, that techniques and knowledge arise. At the same time, imperialisms ancient and modern have often essentially amounted to the business of forcing, converting, or seducing other people into working for you, or praying, playing, and saying like you. Let us explore more the connection between work and knowledge. There are no preindustrial communities that do not possess their own forms of botany and zoology – for their food and medicine, clothing and building materials had to come from the plants and animals around them (Gremillion and Mason and Hather). From the first use of fire in hunting and cooking we learned how some rocks released hard shiny solids when heated, and in cooking metals from rocks, we began what we call chemistry and geology. There are no pastoral or maritime or agricultural peoples without forms of mathematics (with which the seasons are understood, and directions found) and astronomy.

Let us follow this astral line further, in particular as it leads us to forms of cultural self-consciousness. Thinking about stars has always been connected to the mapping of relations between space and people on earth. Stars were and are tools for relating different places, they were and are tools through which people imagined their relationship with nature and each other. Each mode of production has its own idiom of the astral sciences – nomadic gatherers and hunters, farmers and herders and fishermen, navigators on land and at sea, merchants and warriors forcing their way into strange places, bowmen unleashing arrows of information or explosive project/ile/s to distant targets (Aveni and Xu et al.). And the stars, as they guided, were invited to reflect back a naturalized image of who human beings were, and how they lived together. If the Neolithic farmer philosophized at night, it was first by watching and thinking about the pinpoints of light, stelled and moving, which could be seen when the reign of the sun had fallen. The dreaming of gods and destinies was twined around the work that stars made

possible, and the structure of earthly despotism was given its correlation in the heavens – the government of the sun, and a parliament pantheon of stars.

With the neolithic revolutions of 10,000 BC, as agriculture, animal husbandry, writing, and all the fiery arts of melting rocks into hard and beautiful things, a particular cultural regime of the stars spread east and west through Eurasia; together with them went a new cultural regime of the stars. A continental regime of masters, law makers, and priests, and those servants more or less broken under or at least in tactical cooperation with orders of work, law, and religion, went along with a mapping of place and distance by the heavens. Those who sought correspondences could map anything on earth onto the permanent order of the sky. Nomads and conquerors, Persians, Romans, Arabs, Vikings, Mongols, bridged thousands of miles with local dialects of the star language, which mixed one into the other, much as across the water agrarian regimes and maritime wanderers in the Americas and the Pacific found new ways to name and interpret the lights which moved in darkness.² Within all, there were canons of self-evident understandings of the names and behaviors of the stars and intricate systems which translated their presence above into neat constellations below. Wherever we find Science, whether operating as magic, religion, medicine, or technology, we are looking at the child of work and play, of the human attempt to secure the means of collective survival, in alliance with and in opposition to nature, with science usually reflecting in its vision of nature how human beings imagine themselves and their social order.

The rise of what we call Science, by which we mean the forms of knowledge of nature that matured within Europe from roughly the fifteenth century onward, drew on many non-European cultural resources. It resulted from the cultural interaction of many human communities, the coming together of many diasporas of natural knowledge. This was nothing new. As I have been suggesting, the neolithic revolutions led to more complex forms of social organization that had a profound impact on human cultural life and the knowledge it produced. One critical element of the discovery of agriculture was the instrumentalization of people. People were turned into things, as part of what we now call class society. From the societies of the Fertile Crescent to our own, those who used others as animals not only came to think of the people they used as inferiors, but also to imagine thinking and working as distinct things.

As one ordered and the other was ordered, modes of knowing and feeling arose that privileged some with leisure and with a role as the coordinators of knowledge-making practices, now increasingly divided artificially into two distinct and alienated domains of learning and work, of mind alienated from hand.

The mobility and means of violence that this new techno-social order yielded allowed for dramatic enlargements of the size of social units, both in terms of population and eventually over space itself. The domination of people led inex-

2 On traditional Pacific navigational skills, see, for example, Dening.

orably to that domination of distant space which we now call empire, and new expansive regimes of knowledge. For the military, political, and economic integration of different communities is on every continent associated with the emergence of new, more complex forms of knowledge. The unification of what we call China by the Xia, Shang, and Zhou dynasties around 4,000 years ago led to the elaboration of sophisticated Chinese sciences. Similarly, Hellenic places of science – Aristotle’s fourth century BC Lyceum at Athens, the great museum and observatories of Alexandria – were, due to their location in the Eastern Mediterranean, part and parcel of imperial systems that connected Europe, Asia, and Africa. From the seventh century AD until the fourteenth century, Islam presided over exchanges of science and mathematics between such distant places as Spain, Egypt, and India. Our numerical system is a monument to this imperial order, combining Arab numerals with the Indian idea of the zero, which gave the power of scaling. It is similarly impossible to understand the elaboration of a range of modern scientific disciplines, from Newtonian mathematics to astronomy, botany, anthropology, and political economy, outside of the context of Europe’s reach into the Americas, Asia, and Africa after 1500, which wove into the fabric of European knowledge the natural discoveries made by other people in every corner of the globe.³

Scientific discourses should be seen as engines that integrate the knowledge of people who are local to particular places into central categories and collections. But how does this work in practice, what exactly happens when two ways of knowing meet? I will now try to approach this key question from a few different directions. We might begin by recognizing, in the spirit of my initial remarks, that this is not simply a problem between cultures, but also within them.

II

What happens when two ways of knowing meet is a problem shared by all human cultures. Indeed it arises in communication between any two individuals, as friends, teacher and student, reader and text, speaker and audience, and ramifies with ever greater complexity across the space of the world. It arises indeed perhaps within each of us, as we mediate the competing instincts of our personalities. This problem of how knowledge converges, of how minds meet, found its first, and perhaps fullest, exploration in religious systems. To understand how the sciences meet and exchange, we must thus turn first to religion.

In the Haitian religion of Vodun the Benin trickster god Legba initiates every ceremony, takes us over the threshold to meet the ancestor gods: his shape-shifting brother deities include Elegua in the Yoruba tradition, he who knows twenty-one ways past any obstacle, Anansi in Ghana and the Caribbean, the Norse Loki,

3 For a more elaborate account, see Drayton, “Knowledge and Empire.”

Brer Rabbit in the American South, the ancient Greek Hermes and the Roman Mercury.⁴ These hermeneutic gods sit at the crossroads of meaning, within and outside the individual consciousness. How to get across that crossroads, what might it mean to step across that threshold and to enter into an alternative way of knowing?

We may pursue the Western experience of transcultural encounter via an unlikely voice from medieval Europe, the strange political mystic, the twelfth-century monk Bernard de Clairvaux. Bernard chose an unlikely verse to open a series of sermons, the second verse of *The Song of Songs*, which reads “let him kiss me with the kiss of his mouth” (Clairvaux 10-11). Bernard argues that “the mouth that kisses signifies the Word who assumes human nature,” the kiss is the bridge between the sacred order that is the world, and sacred witness that is the human soul, it is a symbol of “the mediator between God and mankind, [...] Christ Jesus,” it is a revolutionary kiss, a passionate crossroads beyond which lies the revelation of “all the jewels of wisdom and knowledge,” as Paul told the Colossians, and the supreme joy that is the road to Paradise. But Bernard admits that this direct experience of God’s love is at odds with our common experience of the Word and the world, with the many alienations within and between our ethical passions and material hopes, our painful and often incomprehensible collisions with both scripture and the world. The dream of revelation is in tension with the fact that we now see through a glass darkly (1 Corinthians 13:12), and the unity envisioned in the Christian imagination is at odds with the warring division of the world. Which is why for Bernard, *The Song of Songs* is such a consolation: it offers immediate physical participation in that charisma that unifies diversity, that experience, as he put it, of “an inward pulsing of delight, a harmony not of voices but of wills” (Clairvaux 10-11).

What happens, though, in territory in which “wills” are not in harmony? One possibility for Bernard was that through acts of witness and ministry one might seek to heal that breach. But what about those who refused the gospel, returned to old, or took up new heresies? Bernard, in his practical life as political churchman and councilor of Popes, had a rather muscular solution to this problem, what a sister religion would call ‘jihad with a sword’. He was the key propagandist for the second Crusade, and more generally for a campaigning Church with real power and efficiency in the world: “the cutting edge of the spiritual sword must be honed by application of a temporal one [...] the heretics were no longer to be conceived as capable of salvation. Instead they were to be prostrated by war, and subjected to truth” (Kennan 140). Our ideas of knowledge are attracted, in ways of which we are often unconscious, by the gravitational field of these medieval Christian assumptions, by the desire for absolute conversion and even the violent and irrevocable closure of ambiguity and difference.

4 On Anansi, Eshu, and Legba, see Emily Zobel Marshall, “Anansi, Eshu, and Legba: Slave Resistance and the West African Trickster” in Hörmann and Mackenthun 171-86.

The Judeo-Christian construction of meaning as either/or makes it quite difficult for us, at least at a theoretical level, to think about “the fuzzy logic of encounter.” For we carry with us in our intellectual practices a monotheistic impulse to yearn for simple, monolithic or monocentric orders of truth, to wish to resolve complexity, and to prize focus over dispersion, center over margin. Connected to this is an investment in the idea of conversion, the idea of one-way journeys across a middle passage toward a truth or value that lives securely on the right-hand side of the equation. This idea of conversion underlies our habit of taking the price or exchange value of things for their intrinsic value or meaning, and our assumption that those who submit to a contract necessarily consent to it. This is a recurrent problem in the history of ideas, where we tend to assess the meaning of an intellectual intervention relative to ideas, assumptions, and values conventional at the time of speaking or writing.

It matters, too, in our liberal economic assumption that the market price provides some efficient guide to the meaning of an act of exchange. In both cases there is an act of utopian oversimplification: both price and convention tell us more about the terms of trade, the agents, institutions, or assumptions that enjoy power or prestige in a particular context, than they explain how contemporaries really valued the goods, ideas, or turns of phrase in which their transactions occurred. The assumption that there is a finite set of meanings which can and must be mapped through careful reconstruction of the ‘language games’ seems to forget that people may be playing in several ‘language games’ at the same time, and that not all of their games will concern language. Words, as Hobbes famously wrote, are “wise men’s counters but the money of fools,” and one may be compelled, in a given context, to carry and spend a particular symbolic currency without agreeing with your trading partners about either the value of the goods exchanged or the real worth of the coin (*Leviathan* 106).

We may advance our understanding of transcultural knowledge by admitting the dimension of power and recognizing that the implication of this is that when two parties meet in an encounter, the common terms they work with will be the product of both a real congruence of view and a merely tactical agreement to share a symbolic practice. The problem of understanding what happens when two ways of knowing meet is directly connected to the challenge of imagining an act of exchange that is both tactical and syncretic: because the encounter between two ways of knowing is ultimately a problem equivalent to the question of what happens when two languages or two religions meet, and tactical because meaning is made in that syncretic relationship relative to the power locations of its participants. What I mean by this, and its possible implications, I want to explore now by thinking a little about the character of scientific knowledge.

III

In the construction of ideas of nature we can find exact equivalents to what happens at the surface of contact between two languages: the inflections of one language of nature into another, the borrowing (often chaotic) of words and things, a frontier of pidgins preceding the consolidation of an empire of creole knowledge. We see, for example, American corn called ‘Wheate of Turkey’ in the 1550s by William Turner and by John Gerard in the 1590s, this mapping of an Indo-European lexis onto exotic nature perhaps betraying a desire to suppress its strangeness. But by the 1590s, Clusius at Leiden in Holland, with his own complex political and religious agenda, proclaimed its novelty under the Aztec name of ‘Mayz’ in De Bry’s *America*. It was the same plant: but it had traveled from the American imagination into an in-between world, before it served both as a weapon with which the moderns in the person of Clusius could distinguish themselves from ancient science and a touchstone for a new global science of plants. It is Clusius who brings into dialogue the observations in the East and West Indies that Greek botany was incompetent to make sense of the local flora. Dutch imperial natural history consolidated his revolution with Bont’s *Historia Naturalis Indiae Orientalis* and *De Medicina Indiorum* of 1643 and 1658, and Piso and Marcgrave’s *De medicina brasiliense* and *Historia rerum naturalium Brasiliae* of 1648, importing the plants and indigenous knowledge of India and Brazil and weaving them into the fabric of European botany, zoology, and medicine (Drayton, *Nature’s Government*, ch. 1). The most remarkable document of this process is van Rheedee tot Drakenstein’s *Hortus Indicus Malabaricus* (1686-1703), which I like to think of as a synchronic palimpsest (that is to say that it is a document on which distinct historical traces were *simultaneously* inscribed, a category we shall come back to later): each plant was named in Latin, Arabic, Sanskrit, Malayalam, and Tamil, the natural phenomenon becoming the crossroads connecting five cultural universes. It is this Dutch imperial scientific tradition that underlies the achievement of Linnaeus, which in turn would become unraveled by Michel Adanson when he faced the plants of Senegambia and the African taxonomies encoded in Wolof.

This scientific face of cultural hybridity is not merely visible in the spaces of encounter between European and extra-European, nor merely in a pre- or early modern context. Peter Galison, Malinkrodt Professor of Physics and the History of Science at Harvard, in *Image and Logic: A Material Culture of Microphysics* (1997), argues that within twentieth-century physics we may identify what he terms, in a deliberate appeal to Creole linguistics, ‘trading zones’, through which the different languages of experimentalists, instrumentalists, and theoreticians – what he calls the ‘subcultures of physics’ – come into encounter and exchange.

Galison turned to Creole linguistics in order to have a lens with which to examine a key problem in the philosophy of science, which provides an elegant statement of the problem of reconciling two ways of knowing. This is the question of ‘incommensurability’, a category framed by Thomas Kuhn when he

argued in *The Structure of Scientific Revolutions* (1962) that (scientific) knowledge is organized in what he called “paradigms”: these strange offspring of Weberian *Zweckrationalität* (“instrumental rationality”), Wittgensteinian language games, and Gestalt psychology operated as mutually incomprehensible interpretative traditions in which intellectuals had both an ideological commitment and a professional interest, and shared a faith in a set of fields of relevant problems, data, and methods. The dilemma at the heart of Kuhn’s powerful and attractive theory was that if science was defined by these competing theoretical universes, why was it not continually disintegrating into a babel of incomprehensible and disconnected research programs? Why were all the different ways of knowing not simply keeping their own company? Was science merely, Galison asks, “a collection of island empires,” or were there not mechanisms through which larger interpretative communities were constituted out of the seemingly incommensurable partial communities (12)? His solution is to suggest that meaning can be “locally convergent but globally divergent” (46-47): that is to say that there are local contexts in which two communities will do business with a symbolic currency, a boundary language, in which each will, in a global sense, have quite different interpretative investments. Galison is suggesting that around work, around common purpose, human beings have a knack for seeking symbolic convergence, and finding an efficient currency.

What Galison does not make clear is to what extent he attributes the shaping of intellectual outcomes to the politics and economics of the ‘trading zone’. For it cannot be enough simply to say that different ways of knowing can meet and exchange: What is the meaning of the exchange? Who sets the weights and measures, the currencies, and the terms of trade in that zone? And who benefits most from those exchanges? On the one hand, in the introduction, Galison acknowledges the problem of power, referring to the observation of creole linguistics that in communication between unequal groups, the dominant group often provides the lexicon and the less powerful group, in reduced form, the syntax (50). But it is not an issue to which he returns in depth in the narrative chapters. Instead, in the conclusion, with its exaltation of how the ‘intercalated’, ‘laminated’ traditions of the subcultures of physics twist together in a cord to give the discipline its strength, he strays awfully close to an argument that resembles both the ‘hybrid vigor’ argument which Robert Young has indicted as the secret sharer of Victorian race theory, and the optimistic pluralism of the liberal version of the American national myth (Young, chs. 1 and 4). While hybridity often does lend vigor to an organism, as lamination gives strength to a structure and pluralism to a polity, these analogous styles of thinking presume the purity of the antecedent order, obscure how power relations shape outcomes, miss the possibility that these power relations are always open to renegotiation, and indeed prize the status quo over other possible present and future outcomes. The ‘hybrid’ or the ‘transcultural’ is never simply an ‘anything goes’ hodgepodge of identities or perspectives: it is instead an encounter that takes place between distinct interests,

in a field of power, over time. It is often the case that one paradigm, one way of seeing, may claim an ascendancy, either within an individual or a community, with subordinate traditions hiding their faces in its presumed coherent logic. But the hidden actors are nevertheless shaping the drama from below, or perhaps leaping from the background or the margins, seize center stage at some later point. It is this question of how power relations, at particular moments, make visible or invisible, audible or incoherent, conscious or unconscious, various participants in the drama of reason and imagination that we need to examine (see Galison 1-4).

The problem of syncretism, for several reasons, provides us with a powerful lens for understanding this charged theater in which ways of knowing meet. Here I prefer to think of ‘syncretism’ rather than ‘hybridity’, because while ‘hybridity’ points backwards to imagined ancestral communities, syncretism addresses a particular historical context of power and consciousness.⁵ The problem of multiple systems of belief seems central to any discussion of intellectual theaters of hybridity, whether we mean the imagination of personal identity, of Bakhtin’s ‘heteroglossia’, or of Galison’s ‘trading zones’ (814). The question of belief also brings into focus the problem of how the individual conscience makes partial or tactical investments in collective doctrines. We are helpfully reminded that even the ‘subcultures’, of physics, language, faith or political thought, are themselves complex, impure, and fragile. Lastly, in the history of religious syncretism, particularly in the New World, we possess a rich set of examples of the relations of power and meaning over time. Let us turn now to the New World story of what happens when two gods meet at the crossroads.

IV

In the cathedral in Havana, at the side of the altar, is a glass case containing a statue of Saint Barbara dressed in red and white. Throughout Cuba, the Dominican Republic, Puerto Rico, and in their diasporic offshoots in Florida, New Jersey, and the Bronx, you will find images of this saint watching over a red candle that has been lit by people who often think of themselves as faithful Roman Catholics, but who are sometimes also aware of invoking the assistance of the Yoruba Orisha Xango. Xango, whose colors are red and white, is the god of lightning, thunder, and justice, and the patron of prophecy, masculine beauty, music, and dance. In the religion of Santería, or La Regla Lukumi, he is the double for Saint

5 Paul Gilroy: “Which culture is not then hybrid? The idea of hybridity, of intermixture, presupposes two anterior purities [...] there isn’t any purity; there isn’t any anterior purity [...] that’s why I try not to use the word ‘hybrid’, because there are degrees of it, and there are different mixes [...] Cultural production is not like mixing cocktails. What people call ‘hybridity’, I used to call ‘syncretism’ [...] I would prefer to stick with that – syncretism is the norm, but that dry anthropological word does not have any poetic charge to it. There isn’t any purity” (Gilroy 54-55). Among others who express a preference for syncretism as a category over hybridity, see Bromley and Brah and Coombes.

Barbara and sometimes for Saint Michael. Santeria is the descendent of a compromise forged across the Americas between slaves and the planters and priests who sought to baptize and catechize them. The slaves took up Christianity, but they did not give up the structure of African religious assumptions. Across the Americas there are these formal doublings of Christian saints and Yoruban or Benin gods. Elegua, the limping trickster god who presides over the crossroads and who begins every ceremony, is the double of Saint Anthony; he is alive in Candomble in Brazil and as Legba in Vodun in Haiti (“attibon/attibon Legba/ouvri bayi pou moi// ouvri bayi pou moi”); Yemanjá, ocean goddess, is Saint Ann in Grenada; Saint Patrick lives as Damballa in Vodun in Haiti; and Saints Peter, George, and John the Baptist ‘cover’ Santeria’s Ogun. What is mapped varies: Saint Michael the Archangel, in a different context, is a mask of Elegua, in another of Xango, and in others of Ogun, but the doubling and ‘covering’ is a repeated theme.⁶

What should be grasped is that these manifestations are only the visible end of the spectrum of Afro-European religious syncretism. Somewhere in the penumbral middle are the Shango, Shouter Baptists or Spiritual Baptists of Trinidad and Barbados, Pocomania in Jamaica, the Jordanites in Guyana, the Shakers on the island of Saint Vincent, who engage in a ritual practice in which the Bible is central and Protestant doctrine is at the spiritual ‘front end’, but which also summons visions and forms of inspired possession directly parallel to Orisha worship. A little further in is that whole range of ways of thinking about life, death, and authority that permeates New World cultures. The location of Haile Selassie in the Rastafarian religion, the relationship of the Caribbean crowd to a particularly gifted batsman on the cricket pitch or an eloquent public speaker in a church or on the streets, all can be better understood with reference to the spiritual intuitions that are more overtly visible in the New World African religions. Lastly, almost at that moment in which the African gods become invisible behind the Euro-Christian religions, we can find that recurrent flowering of ecstatic forms of worship, prophecy, and glossolalia among people who consider themselves to be orthodox Protestants or Catholics. When the Pentecostal worshipper lifts his hand then rises to announce the arrival of the touch of the Holy Spirit, his gesture is indistinguishable from the Spiritual Baptist who finds herself ‘in the power’, or the Shango adept who is mounted by the divine horseman.

This pan-American phenomenon found one interpretation in the similar if divergent approaches of Melville Herskovits for Haiti and Trinidad, Fernando Ortiz for Cuba, and Gilberto Freyre for Brazil (Herskovits, *Life in a Haitian Valley* and *Trinidad Village*; Ortiz, *Contrapunteo Cubano*; and Freyre, *Casa Grande*

6 On “covering,” see Murphy who writes: “At first, this was probably no more than an adaptive strategy to preserve Yoruba cultural and religious integrity amid the corrosive effects of slave society. However, what began as a pretense of Catholic worship in order to maintain the way of the Orisha [...] became a careful organization of Yoruba and Catholic elements into a meaningful whole” (123). The classic original description of the phenomenon is Melville Herskovits’ essay “African Gods and Catholic Saints in New World Negro Belief.” See also Palmié.

e Senzala).⁷ All of these, it seems to me, considered the transcultural phenomena as way stations, or resting places, on the road to either the Europeanization of the Africans or the mulattoization of New World (and by implicit extension perhaps global) society. Ortiz's idea of 'transculturation', of the complex intersections of African and European traditions in the New World, is perhaps the most sophisticated of these three. But a more profound explanation came from the anthropologists Sidney Mintz and Richard Price in their *Birth of African-American Culture* (1976) (9-10, 20-21, 52-53) which explained the spectrum of behavior with an appeal to Chomskyan linguistics: they compared "underlying values and beliefs" with "unconscious grammatical principle," suggesting that these "deep structures" of African values and beliefs endured and resisted, and were able then to bend the world of the master to their purposes. What is going on here, then, is, to borrow a neologism Peter Burke once used in a conversation, a spiritual "macaronics": the grammar of African religions inflected in the grammar of Christian worship, driving two vocabularies of sanctified authority into a pragmatic alliance.⁸

In bending, African culture created spaces into which other cultural forms could be accommodated. In the Spiritual Baptist churches one might find a cross hanging over fruit-laden altars (which resemble those found in Haitian Vodun), a Star of David and the Free Masonic compass and square over the Archbishop's seat, and lotas (the Indian brass bowls used in Hindu worship) containing water used for sprinkling Vodun. Indeed, I would argue that Rastafarianism, with its dreadlocks, visions of reincarnation, mystical asceticism, and ritual use of ganja, was powerfully influenced by the Hindus who arrived in Jamaica beginning in 1838, at exactly the moment in which emancipated Africans were beginning to construct a life away from the planter's shadow. Another transcultural twist comes with the Banglafarians of the inner cities of England, who weave Jamaican Rastafarianism into their own Anglo-Asian cultural matrix. In Cuba, which received a substantial influx of Chinese in the nineteenth century, it is elements of Chinese mythology and spirituality that have been brought into the fabric of Santería (see Vega).

But what is interesting is that it has only been in the last half century, in almost every New World case apart from that of Haiti, that many neo-African forms became part of the public face of Cuba, Trinidad, and Barbados, let alone the United States. Before that, it had taken the Haitian Revolution for Vodun to emerge into the daylight; the Spiritual Baptists only surfaced in the Eastern Caribbean, to become one of the fastest growing faiths, once Trinidad's parliament repealed the 'Shouters Prohibition Ordinance' of 1917; and it was the Cuban Revolution that took Santería and Palo Monte from the shadows. The larger crisis of the West's cultural dominance has created a space in which the Orishas are now often 'covering' for a variety of other religious traditions. In this season the idea of Africa and its grammars of value and sensibility have seized the stage. There

7 On Freyre, see Burke and Pallares-Burke, and Drayton, "Gilberto Freyre."

8 Burke, *Cultural Hybridity*.

has been a process of reversal that the historian/poet Edward Kamau Brathwaite has attempted to explain via his classic *Development of Creole Society in Jamaica* (1970), in a long essay published as *The History of the Voice* (1984), and in his poetry. Brathwaite offers an important argument about the contemporary period and its implications for what we understand by the transcultural and the hybrid. In an era of clear European dominance, he argues, much of African experience submerged itself, hid underneath the mask of compliance, sought pragmatic alliances with the valued idols and ideals of the colonizer; when in the twentieth century the power balance shifted, and the racial structure of values came into crisis, the equilibrium went in the other direction and African ways of knowing and feeling moved from the back of the stage into the limelight. In “Caliban,” a poem from his *Arrivants* trilogy, Brathwaite dramatizes this process of submergence and recovery using the metaphor of the limbo dance.⁹

And
 Ban
 Ban
 Cal-
 iban
 like to play
 pan
 at the Car-
 nival;
 pran-
 cing up to the lim-
 bo silence
 down
 down
 down
 so the god won't drown
 him
 down
 down
 down
 to the is-
 land town
 [...]

9 On limbo and its meaning, see Stanley-Niaah.

And limbo stick is the silence in front of me
limbo

limbo
limbo like me
limbo
limbo like me

long dark night is the silence in front of me
limbo
limbo like me

[...]
drum stick knock
and the darkness is over me
knees spread wide
and the water is hiding me

limbo
limbo like me

And limbo stick is the silence in front of me

Limbo
Limbo like me
Limbo
Limbo like me

[...]

stick is the whip
and the dark deck is slavery

stick is the whip
and the dark deck is slavery

limbo
limbo like me

But eventually there is the season of recovery:

sun coming up
and the drummers are praising me

out of the dark
and the dumb gods are raising me
up
up
up

and the music is saving me

hot
slow
step

on the burning ground.

(Brathwaite, *Arrivants* 192-95).

Where Herskovits described African ‘retentions’, Brathwaite conceives of reversals, of an era of the reexpansion of African forms. The point to grasp here is that it is not merely that in syncretism a dominant element may force a temporarily weaker party to reduce itself to its essentials. Brathwaite imagines a subordinated form retreating so far into itself that it becomes invisible, a style of perception hiding within the limits of authorized forms and identities, its interventions and agency mistaken for attributes of the dominant element, but erupting into life at another historical moment. The woman who prayed to Saint Barbara in 1852 in the Cathedral of Havana was wholly loyal to Catholic theology, even if the structure of her feelings for the saint was silently commensurable with that of those who worshipped Shango in the secret places of the city. Her descendent in 2002 will address the cross while wearing a necklace of red and white beads around her neck, and will have ways of celebrating the saint that extend beyond prayer.

The fact that syncretism can both conceal itself, and then slip in subversive directions, has always worried those invested in Christianization, as well as, more recently, those committed to stripping from Santeria or Vodun their European elements.¹⁰ There is an important principle at stake here that we may take back from this New World Afro-European religious mosaic to our sunny overworld of knowledge, reason, and interpretation.

10 See Stewart and Straw 14. See also Snudkler’s anxiety that “the syncretistic cult becomes the bridge over which Africans are brought back to heathenism” (297) and Perez y Mena for the denial of the syncretic from the other direction (15-20).

V

Our interest in the transcultural is usually anthropological, by which I mean we locate our knowledge of it in categories of the exotic, the baroque, perhaps the degenerate, the strange fruit of the margins. Its meaning changes, however, if we take the transcultural as the norm, and deduce from it some principles about how power relations organize all ways of knowing and feeling.

We might begin by recognizing that the dominant parties in transcultural encounters generally deny their transcultural character. Even where subordinate elements, through challenging that original dominant, claim a central place, they too, in turn, may disavow its heterogeneity and deny that they are responding to peripheral factors. The ascent of Christianity required the silencing of its transcultural life, as Arnold has shown in *Colossian Syncretism*. At Christianity's zenith it denied the authority of Jewish and Arabic cultures, even as it responded to their cultural influence. In our 'post-Christian' intellectual moment, as I suggested earlier, we similarly deny the ways in which Christian assumptions continue to exert their gravity over our organization of knowledge and meaning.

What might a transcultural approach to intellectual or cultural history involve? It might begin with the assumption that a thought or speech act will usually have to 'fit' into many economies of meaning, many canons of value, and a given argument will have to be congruent with several contemporary intellectual and moral contexts. The search for 'foundations', in political or other thought, would need to give way to a seeking of overlapping but divergent agendas or traditions. We need to apply to our own symbolic currencies the lens that Frederik Barth proposed for New Guinea when he wrote that "multivocality is a regular feature of symbols, each having, as it were, a fan or spectrum of reference" (34). To hear the many voices that may be submerged in a dominant tradition requires an application of what Walter Mignolo calls "border thinking": that sympathetic curiosity that searches for the alienated margins both in a phenomenon and perhaps in one's own critical imagination.

Taking the transcultural seriously involves much more than an endless eclecticism or intertextuality: what is needed instead is the elucidation of the impact of power on culture at a particular moment. We may translate Mignolo's vision into terms that make sense to empirical history, by employing the interpretative presumption that every cultural or material phenomenon should be treated as a 'synchronic palimpsest' (to borrow the figure I sketched earlier), that is to say as a space in which, for historical reasons, several distinct historical traces have become inscribed. In terms of concrete historical practice, this might mean attempting to work simultaneously from two directions. First, in a cyclical, ruminative, repetitive way, the phenomenon might be mapped, using genealogical techniques relative to the several autonomous cultural fields of influence that converge upon it. Second, the 'externalist' lenses of thinkers like Marx, Weber, or Freud might be brought to bear, in a similar repetitive cycle of interpretative

efforts, on attempts to locate how the phenomenon might be situated relative to fields of contemporary economic and political categories – class, status group, or party, gender or generational interest. This second approach requires neither abandoning a respect for the phenomenon’s meaning to its contemporaries nor sensitivity to the autonomy of culture. But this ‘externalist’ lens is committed to examining the forms of power and pressure that are forcing a particular pattern of congruence upon competing but convergent symbolic traditions. A rhythmical alternation between these two kinds of methodologies, a syncretism of idealist and materialist practices if you like, seems to me likely to generate powerful new insights into the past and the present. Farmer’s *Syncretism in the West*, his remarkable study of Pico della Mirandola, is an example of what might be achieved, even if one maintains an interpretive bias toward understanding ideas in their genealogical contexts.

The problem of meaning is one of interpretative communities and of their discontents, of our complex strategies of consent and resistance to the structures of authority and subordination we inhabit. Instead of assuming the unity of truth, we might assume instead its inherent tendency to disaggregate. In discovering the discordant voices, the ways of knowing within ourselves, we open up that capacity to comprehend the incommensurable. If we understand all historical practice to be a transcultural enterprise, to the extent that it involves the mediation of a past world into the values and style of our own, we should openly prosecute the interpretative agenda that makes the best sense to us. In doing so, we expose the operation of our registers of values and meaning, which will be of use to others in locating their own response, and may indeed invite a quality of response in our contemporaries that will bring the object of our study truly into the collective life of our community. It is our business, indeed our responsibility, to speak to the present: that is a core insight of a transcultural historical practice. As a Sante-ria adept put it: “nosotros no ayudamos a la gente para la vida en el otro mundo; nuestro mundo es éste, y es el de los Orishas” (“We do not help people for life in the next world, our world is this one, and it is that of the Orishas”) (quoted after Fernández-Robaina 87). To refrain from bringing our own values and insights to the study of the past can generate a historical practice which, in the name of a respect for the past, fails to honor its responsibilities to the present. It may, as a result, fail the past equally, as its deliberate alienation of moral and aesthetic insight from its reason, its repression of its own values, may make it blind and deaf. A respect for the present involves a willingness to invest our imaginations and emotions in the work of the intellect.

Our values, ideas of beauty and horror, attractions and repulsions, pleasure and pain, approval or disgust – all the powers of sympathy – are our best companions when facing strangeness. The strangeness might give way with further study, as we learn that the strange object is a commonplace in one or more past or present fields of meaning. The strange object might become, however, a secret door through which we enter into cultural universes previously inaccessible to us,

but where we begin to feel strangely at home. As we approach such doors, the object of study opens to us something strange within us, a stirring or sympathy, a quality of feeling and response, about which we were not previously conscious. Our biases and prejudices, our most intimate desires and humiliations, are powerful guides toward interpretative insight. This seems to me the practical implication of Serge Gruzinski's *La Pensée Metisse*, in which he urges us to seek out the glyphic and the grotesque: for it is this kind of symbol, surcharged with relevance for the human imagination, which is traded eagerly across cultural boundaries, and which can guide us toward new angles of insight, of Mignolo's 'border knowledge', that bilingual love that achieves the magic of interpretation.

Here the overall problematic of this volume – the intersections of cultural encounters and scientific ways of knowing – touches on the question of the agency of so-called 'go-betweens' who make the cross-cultural world function in the first place (see Schaffer et al.¹¹). This is a risky endeavor. It is morally risky, for the go-between can, like Ariel in Shakespeare's *The Tempest*, claim an airy irresponsibility for place and people, and dissolve into a disembodied kind of cognition and intellectual practice. The go-between, in knowledge as in economic exchange, is often an agent who transforms plunder into property, capital, and currency. And when knowledge enters commerce, as with sugar and other commodities, we tend to pay more honor to its most recent vendors than we do to those who brought it out of the earth. We must be wary too of the utopian idea of compromise, and of the modern romance of reconciled meaning. For the problem of meaning is one of interpretative communities and of their discontents, of our complex strategies of consent and resistance to the structures of authority and subordination we, and our subjects, inhabit. Behind the coins and notes of abstraction we agree to circulate lie complex fields of political negotiation which we should interrogate.

Works Cited

- Arnold, Clinton. *The Colossian Syncretism: The Interface Between Christianity and Folk Belief at Colossae*. Tübingen: Mohr, 1995.
- Aveni, A. F. *Archaeoastronomy in the New World: American Primitive Astronomy*. Cambridge: Cambridge University Press, 1982.
- Barth, Frederik. *Cosmologies in the Making: A Generative Approach to Cultural Variation in Inner New Guinea*. Cambridge: Cambridge University Press, 1987. <https://doi.org/10.1017/CBO9780511607707>
- Brah, Avtar, and Annie Coombes, eds. *Hybridity and its Discontents*. London: Routledge, 2000.
- Brathwaite, Edward Kamau. *Development of Creole Society in Jamaica*. Oxford: Oxford University Press, 1970.

11 And see the contributions to the next volume in this series, *Agents of Transculturation. Border Crossers, Mediators, Go-Betweens* (forthcoming 2013). The editors.

- . *The Arrivants*. Oxford: Oxford University Press, 1970.
- . *The History of the Voice*. London: New Beacon Books, 1984.
- Bromley, R. *Narratives for a New Belonging: Diasporic Cultural Fictions*. Edinburgh: Edinburgh University Press, 2000.
- Burke, Peter. *Cultural Hybridity*. Cambridge: Polity, 2009.
- Burke, Peter, and Maria Lúcia Pallares-Burke. *Gilberto Freyre: Social Theory in the Tropics*. Oxford: Peter Lang, 2008.
- Clairvaux, Bernard de. *The Works of Bernard de Clairvaux, II: On the Song of Songs I*. Transl. M. C. Halfants. Shannon: Irish University Press, 1971.
- Dening, Greg. "Deep Times, Deep Spaces. Civilizing the Sea." *Sea Changes. Historicizing the Ocean*. Ed. Bernhard Klein and Gesa Mackenthun. London, New York: Routledge, 2004. 13-35.
- Drayton, Richard. "Knowledge and Empire." *Oxford History of the British Empire*. Vol 2: *The Eighteenth Century*. Ed. P. J. Marshall. Oxford: Oxford University Press, 1998. 231-52. <https://doi.org/10.1093/acprof:oso/9780198205630.003.0011>
- . *Nature's Government: Science, Imperial Britain and the 'Improvement' of the World*. New Haven: Yale University Press, 2000.
- . "Gilberto Freyre and the Twentieth-Century Rethinking of Race in Latin America." *Portuguese Studies* 27,1 (2011): 43-47. <https://doi.org/10.1353/port.2011.0008>
- Farmer, S. A. *Syncretism in the West: Pico's 900 Theses*. Tempe: University of Arizona Press, 1998.
- Fernández-Robaina, Tomas. *Hablen Paleros y Santeros*. Havana: Instituto Cubano del Libro, 1994.
- Freyre, Gilberto. *Casa Grande e Senzala*. Rio de Janeiro: Maia & Schmidt, 1933.
- Galison, Peter. *Image and Logic: A Material Culture of Microphysics*. Chicago: Chicago University Press, 1997. <https://doi.org/10.1063/1.882027>
- Gilroy, Paul. "Black Cultural Politics: An Interview with Paul Gilroy by Timmy Lot." *Found Object* 4 (1994): 46-81.
- Gremillion, Kristen J. *People, Plants, and Landscapes: Studies in Paleoethnobotany*. Tuscaloosa: University of Alabama Press, 1997.
- Gruzinski, Serge. *La Pensée Metisse*. Paris: Arthème Fayard, 1999.
- Herskovits, Melville. "African Gods and Catholic Saints in New World Negro Belief." *American Anthropologist*. New Series 39,4 (1937): 635-43. <https://doi.org/10.1525/aa.1937.39.4.02a00080>
- . *Life in a Haitian Valley*. New York: Knopf, 1937.
- . *Trinidad Village*. New York: Knopf, 1943.
- Hobbes, Thomas. *Leviathan*. 1651. Harmondsworth: Penguin, 1968.
- Hörmann, Raphael, and Gesa Mackenthun, eds. *Human Bondage in the Cultural Contact Zone: Transdisciplinary Perspectives on Slavery and Its Discourses*. Münster: Waxmann, 2010.
- Juterczenka, Sünne, and Gesa Mackenthun, eds. *The Fuzzy Logic of Encounter: New Perspectives on Cultural Contact*. Münster: Waxmann, 2009.
- Kennan, Elizabeth. "The Political Crusades." *Innocent III: Vicar of Christ or Lord of the World?* Ed. J. Powell. Washington, D.C.: Catholic University of America Press, 1994. 135-52.
- Kuhn, Thomas. *The Structure of Scientific Revolutions*. Chicago: University of Chicago Press, 1962.

- Marshall, Emily Zobel. "Anansi, Eshu, and Legba: Slave Resistance and the West African Trickster." *Human Bondage in the Cultural Contact Zone: Transdisciplinary Perspectives on Slavery and Its Discourses*. Ed. Raphael Hörmann and Gesa Mackenthun. Münster: Waxmann, 2010. 171-86.
- Mason, Sarah, and Jon Hather. *Hunter-Gatherer Archaeobotany: Perspectives from the Northern Temperate Zone*. Walnut Creek: Left Coast Press, 2002.
- Mignolo, Walter D. *Local Histories/Global Designs*. Princeton: Princeton University Press, 2000.
- Mintz, Sidney, and Richard Price. *Birth of African-American Culture*. Boston: Beacon Press, 1976.
- Murphy, Joseph M. *Santeria: An African Religion in America*. Boston: Beacon Press, 1988.
- Ortiz, Fernando. *Contrapunteo Cubano del tabaco y el azucar*. Havana: J. Montero, 1940.
- Palmié, Stefan. *Wizards and Scientists: Explorations in Afro-Cuban Modernity and Tradition*. Durham, NC: Duke University Press, 2002. <https://doi.org/10.1515/9780822383642>
- Perez y Mena, Andres. "Cuban Santería, Haitian Vodun, Puerto Rican Spiritualism: A Multicultural Inquiry Into Syncretism." *Journal for the Scientific Study of Religion* 37,1 (1998): 15-27. <https://doi.org/10.2307/1388026>
- Raj, Kapil. *Relocating Modern Science: Circulation and the Construction of Scientific Knowledge in South Asia and Europe*. Delhi: Permanent Black, 2006. <https://doi.org/10.1057/9780230625310>
- Schaffer, Simon. "The Asiatic Enlightenments of British Astronomy." *The Brokered World: Go-Betweens and Global Intelligence, 1770-1820*. Ed. Simon Schaffer, Lissa Roberts, Kapil Raj, and James Delburgo. Sagamore Beach: Science History Publications, 2009. 49-104.
- Schaffer, Simon, Lissa Roberts, Kapil Raj, and James Delburgo, eds. *The Brokered World: Go-Betweens and Global Intelligence, 1770-1820*. Sagamore Beach: Science History Publications, 2009.
- Snudkler, Bengt. *Bantu Prophets in South Africa*. London: Oxford University Press, 1961.
- Stanley-Niaah, Sonjah. "Mapping of Black Atlantic Performance Geographies: From Slave Ship to Ghetto." *Black Geographies and the Politics of Place*. Ed. Katherine McKittrick and Clyde Woods. Cambridge, MA: South End Press, 2007. 193-217.
- Stewart, Charles, and Rosalind Straw, eds. *Syncretism/Anti-Syncretism: The Politics of Religious Synthesis*. London: Routledge, 1994.
- Vega, M. M. *The Altar of My Soul: The Living Traditions of Santeria*. New York: One World, 2001.
- Xu, Zhentao Pankenier, W. David, and Yaotiao Jian. *East Asian Archaeoastronomy: Historical Records of Astronomical Observations of China, Japan, and Korea*. Amsterdam: Gordon and Breach, 2000.
- Young, Robert J.C. *Colonial Desire. Hybridity in Theory, Culture and Knowledge*. London: Routledge, 1995.

CHAPTER TWO

Science & Empire Studies and Postcolonial Studies: A Report from the Contact Zone

JAMES E. MCCLELLAN III¹

I accepted Professor Mackenthun's invitation to participate in the 2010 Rostock symposium around the theme of "Scientific Discourses and Cultural Difference" largely because I had some good stories to tell and because I thought the event would be easy to prepare for. The present effort has turned out to be quite something else.

I am a historian of science who has worked in the history of science and colonialism or Science & Empire Studies for quite some time now, and I have become familiar with a literature on the "contact zone" – the nominal interface where colonial and imperialist powers with their science and technologies confronted indigenous cultures and their knowledge systems.²

I decided to proceed by telling a few historiographically cautionary "Taxonomic Tales from the Contact Zone" taken from my own research on French science and overseas expansion in the eighteenth century that I had at my disposal. Let me present two to give a flavor of the kind of work I am used to doing and to illustrate how, for one historian at least, Science & Empire Studies now treats science and cross-cultural contact in historical context.

- 1 I would like to extend my warm thanks to Gesa Mackenthun and the symposium participants for comments and feedback, and also to the College of Arts and Letters seminar participants at Stevens Institute of Technology, Hoboken, when presented there. I thank Jacques Pouchepadass for his comments and bibliographic suggestions that were so helpful in preparing this paper for publication.
- 2 On the term 'contact zone', see, canonically, Pratt, *Imperial Eyes*, esp. 1-11, and further 43, 44, 53, 55; see also Barker et al., "Introduction" 6-7; Pratt, "Transculturation"; Klein and Mackenthun, eds. and most recently Juterzenka and Mackenthun, eds. Following the critical reflections by Raj, *Relocating*, esp. his introduction and conclusion, it can no longer be said that we should think only of a single frontier or contact point, however, in these cultural encounters. Rather, wide networks of exchange that only partly included Europeans extended across wide areas in Asia, Africa, and the New World in the early modern period. Knowledge and expertise circulated freely across and through these zones, knowledge Europeans were anxious to tap. For the latest on postcolonialism and travel literature, see Huigen. Moder adds a key perspective from the world of linguistics.

Ants and the Nightshade

The first case concerns a Native American cure for leprosy the French picked up from the Chicachat Indians in 1784. The report out of New Orleans announced the treatment using the herbaceous flowering plant *Solanum americanum*, or American nightshade. The plant enjoyed something of a vogue as news of it reverberated around the medical world in France and in the colonies. “Waiting the outcome of experiments,” this particular report concluded,

let us admire and bless the effects of *Solanum* against the ravages of leprosy, and let us strip away this unjust and outrageous contempt our civilization inspires in us against the indigenes of America. I have seen these peoples up close, and I dare think and say that they could in many respects be the masters of our botanists and our naturalists in what concerns the properties of plants and the conservation and physical development of the human body.³

That all sounds lovely, but complicating any simple picture of what is cultural transmission, the French actually learned of the Chicachat treatment from an Englishman who had lived among the tribe for thirty years! In thinking about this episode, we also need to consider the anything but patronizing attitude of the reporter vis-à-vis Indian practices, and finally that nightshade doesn’t cure leprosy.

The second case concerns a particular species of small ant in French Guiana in South America that gathers material and makes its nests in the crooks of trees. In the eighteenth century at least, these ant nests were plentiful along the Approuague River in Guiana. The aboriginal peoples of the region seemingly made no use of these nests. Slaves, however, did come to use the nests as tinder. (One presumes these were maroon slaves in independent communities as well as plantation slaves.) They would take some of the brownish-red, spongy nest material, put it in a gourd, light it, and then cover the gourd, letting the material smolder. With this treatment the nest material became an excellent tinder that lit easily with sparks from a flint. The French, however, came to use these ant nests very differently – in a medical capacity to staunch hemorrhages.⁴

The instance is a small, but revealing one. The beauty of the episode is that it blurs the boundaries between any simple notion of a sharp division between native and Western knowledge, it undermines our sense of the easy transfer of knowledge across cultural barriers, and it complicates our understanding of the actors involved in the process of knowledge-making in a colonial context.

3 “Mémoire sur la cure de la Lepre Occidentale.” See McClellan and Regourd 289, for this case and the original French.

4 On this episode, see “Cayenne, nids de fourmis provenant de Cayenne.” See also relevant entries in the minutes of the meetings of the Société Royale de Médecine. McClellan and Regourd present this case (300-02).

The story is quickly told. Raymond Laborde, the French royal doctor at the military hospital in Cayenne, experimented with nest material as a substitute for what was then used (the fungus agaric) to stop hemorrhaging from amputations, wounds, and sores. The nest material proved highly effective as an absorbent and an astringent. Samples were sent to the Minister of the Navy and the Colonies at Versailles, who in turn forwarded the material to the Société Royale de Médecine in Paris with a request for advice on its properties. The Société formed a committee, and the rapporteurs issued a positive report. The minister wrote back that “I have given orders to Cayenne that as much of this material as possible be collected.” So, the French got the local Indians to forage in the forest for ant nests! We know this because of a lengthy bureaucratic exchange over how much to pay the Indians for the ant nests they collected. A price was set in July of 1788. One imagines the Native Americans of Guiana, heretofore apparently indifferent to ant nests, now avidly searching them out in the forests and bringing them by canoe or on foot through the jungle for exchange at the trading post in Cayenne. Whatever and however they were paid, Laborde undoubtedly had it right when he responded to the Société Royale de Médecine that “everything the Indians do for Europeans costs little.” In all of this, from Africa to the forests of French Guiana, from a hospital in Cayenne to government and scientific circles in Paris and Versailles, and then back to the depths of the Amazonian forests, this story depicts in a striking way a global economy of knowledge and knowledge-making that defies easy analysis.

A related case concerns how the French learned about the Louisiana wax plant from Native Americans; there are similar stories to tell for a cure for skin diseases using Guatemalan lizards, and the abortifacient potato with two roots from the Indian Ocean colony of Île de France; there is Jesuit Father Cœurdoux in India being bested by an Indian calculator in predicting an eclipse in 1763, and the reaction of the Chinese to the field researches of the naturalist Pierre Sonnerat. Another theme might have been voodoo Mesmerism, if there was time for a classical essay on Science & Empire. Each case illustrates the ambiguities involved in the cross-cultural production of knowledge; in any case they are examples for thinking about science and cultural contact.⁵

The examples show, I hope, that knowledge-making in cross-cultural contexts is no simple affair. Historical nuance trumps cliché or any rigid or judgmental model for what it meant for European scientists, especially prior to the nineteenth century and the age of imperialism, to make contact with the “Other” and the knowledge systems of the Other. The initial goal of my presentation was to try and articulate a more shaded taxonomy of knowledge-making in such multifaceted cultural contexts.

But my plans changed radically. The explanation will, I hope, clarify the subject I do wish to explore further here. Looking at the “Cultural Encounters

5 For these examples, see McClellan and Regourd.

and the Discourses of Scholarship” website of the graduate school, I did note a dual commitment to both theory and empiricism. I am fine on empiricism, but I thought I should get a handle on this theory in preparing my paper. In short, the website of the graduate school made me suddenly aware of the world of Postcolonial Studies and Postcolonial theory, of whose existence I had before been essentially ignorant.

Given my background as a historian enmeshed in Science & Empire Studies, suddenly encountering Postcolonial Studies and Postcolonial theory in this way and at this stage in my career is astounding and telling. On an individual level an explanation may be that I have not been academically *au courant*; but this leads to the structural explanation, namely, that we are indeed dealing here with two different academic traditions and literatures and two different academic and intellectual communities.

Inspired by the website’s bibliography I ordered books from interlibrary loan. I spent a month at the Bibliothèque Nationale site François Mitterrand (the BnF) in Paris reading up on Postcolonial Studies and Postcolonial theory, and another two months, while nominally “on vacation,” digesting what I had found, and I have had further time since the conference to ponder Postcolonial Studies and its connections (or lack thereof) with the field of Science & Empire Studies. And so, instead of “Taxonomic Tales from the Contact Zone,” what I end up offering here is an examination of what I am taking to be a large and surprising *clef* in the historiographical landscape separating Science & Empire Studies from Postcolonial Studies.

The juxtaposition of these two academic literatures represents a different kind of contact zone, of course, a historiographical interface where different intellectual communities – different tribes, really – have different ways of seeing the world, speak different languages, and talk across academic and cultural barriers of all sorts. You might consider my contribution, then, as a report from this different sort of contact zone.⁶

Enter Postcolonial Studies

Of course, as everyone now knows, Postcolonial Studies has developed vigorously for over thirty years. I have known about Edward Said and his book *Orientalism* since 1978 and of Salman Rushdie and his work and life. Said was, and Gayatri Spivak now is, at Columbia University just across the river from where I live. Yet, in spite of its geographical proximity, from my academic point of view Postcolonial Studies has always been a long way off, the discussion being always

6 I am not the first to see disciplinary boundaries as another kind of contact zone; Peter Childs and R. J. Patrick Williams did so before me; see Childs and Williams 185.

“over there” somewhere.⁷ In 1998 the philosopher Sandra Harding mentioned “postcolonial science and technology studies” (39), but I don’t think that such a thing really existed at that time. Benedikt Stuchtey is probably the first person to bring together very directly Postcolonial Studies and Science & Empire Studies.⁸ But Stuchtey’s work dates only to the early years of this millennium, which testifies to the astounding fact that these two scholarly discourses have existed next to one another for about three decades without entering into a serious conversation with one another.

To start with, then, let me briefly introduce Science & Empire Studies. In effect, the field takes off from the observation that modern world history has been significantly affected by two great historical developments: European colonial expansion since the fifteenth century and the advent of modern science since the scientific revolution of the sixteenth and seventeenth centuries. The temporal concurrence and world historical significance of European colonialism and imperialism on the one hand and of modern science on the other naturally poses the question of their historical interconnections. How did European science affect the course of European colonialism? What was the impact of the colonial experience on the development of the natural sciences in the period after Columbus? What explains the mutual interactions and reciprocal influences of science and overseas expansion from political, sociological, and intellectual perspectives? These questions and the promise of what historical research might uncover provide a compelling rationale for what is now a mature field of scholarly work and research.

An expanding body of work by historians of science since the end of the 1960s has examined in detail the role of science in European colonial and imperial expansion.⁹ George Basalla’s article “The Spread of Western Science,” which appeared in *Science* magazine in 1967, is usually acknowledged as the Ur-source for Science & Empire Studies.¹⁰ Raymon Phineas Stearns’s *Science in the British Colonies of America* (1970) and Lucille Brockway’s *Science and Colonial Expansion: The Role of the British Royal Botanic Gardens* (1979) were other early works in this field. Basalla’s theoretical model triggered a substantial critical response over the years, as scholars sought to add cultural subtlety and historical complexity to the topic. Their work and reflections produced a variety of analytical

7 Incidentally, in informal conversations with other historians of science when I asked what they knew or thought about Postcolonial Studies, their responses generally mirrored my own: that they don’t know much about Postcolonial Studies and that it doesn’t connect to their work and research.

8 See works by Stuchtey and Eckhardt Fuchs listed in the bibliography. Undoubtedly, this is an overgeneralization. Postcolonial Studies scholars will know of historiographies and antecedents that link science/science studies and Postcolonial Studies prior to Stuchtey of which the present author is unaware. What is at issue is not that one scholarly literature has occasionally tapped another, but that deliberate efforts to marry them have been virtually nonexistent until quite recently.

9 McClellan and Regourd review this literature (17-19).

10 See Basalla, “Spread” and “Spread Revisited”; McClellan, *Saint Domingue*, references some other early literature (6).

novelties: concepts of “metropolis/colony,” “center/periphery,” and other models; calls for case studies and comparative national and transnational studies; and approaches that differentiated scientific disciplines, chronological disjunctures, and different national styles in colonial science.¹¹ A series of international conferences in Australia in 1981, Paris in 1990, and Madrid in 1991 gave rise to landmark volumes critically exploring and developing these themes.¹² And since then there has been an explosion of works of ever greater scope and refinement. These have expanded the vistas of “colonial science” beyond the literature’s original Anglo-American and Anglo-Australian orientation to include India and Asia, the French colonial experience, and Latin America. They have also broadened the chronological scope of investigations beyond the heyday of European colonialism and imperialism in the nineteenth and twentieth centuries.

In the last three decades individual, collective, and comparative works have produced an increasingly sophisticated and nuanced understanding of the heterogeneous realities of European science in and of the colonies and the world overseas. Colonial settings are no longer seen as passive environments, but sites for complex interactions of local cultures with exogenous forces that produced a blend of responses, as evident in the above cases of leprosy cured by American nightshade and ant nests in South America transformed into astringents in France. In particular, recent work has made clear that it is no longer possible to envision the topic from a wholly Eurocentric point of view; rather, recognizing the importance of non-European actors and the knowledge systems they brought to the encounter with Europeans has engendered fruitful insights regarding the dynamics of cultural exchange and the development of local knowledge communities.¹³ Europe remains a reference point for the organization and diffusion of scientific knowledge, but historiographically Europe is now integrated into a global and multipolar approach to interpretative problems. It is fair to say that we historians and historians of science have also ‘provincialized Europe’.¹⁴

11 See especially the works of Lewis Pyenson on national traditions and the exact sciences. The volume edited by Marie-Noëlle Bourguet and Christophe Bonneuil in 1999 focused on a particular discipline, botany. Saldaña, ed., published originally in 1996, offered an overview of the Latin American scientific theater. The 2008 volume edited by Delbourgo and Dew on science and the Atlantic world may be grouped with this regional literature. In 2005 Stuchtey observed, “it is now almost a commonplace of modern imperial historiography [of science] to call for disciplinary and national boundaries to be crossed” (21).

12 See Reingold and Rothenberg, eds. with the classic article by MacLeod on the “moving metropolis”; Petitjean et al.; and Lafuente et al. (1993). The 1991 volume edited by Teresa Meade and Mark Walker is an early work that deserves mention here. Richard Drayton’s *Nature’s Government* (2000) is also not to be overlooked in this connection.

13 On this theme, see, among others, the more recent Raj, *Relocating*.

14 The reference is to Chakrabarty, *Provincializing Europe*, who seems to suggest that only specialists in Postcolonial Studies have let go of Eurocentrism. The impressive recent volume by Schaffer et al., eds. on cultural brokers and go-betweens in colonial contexts is only the latest example of these developing perspectives among historians.

Science & Empire Studies is rooted in the academy, largely in history programs. Generally speaking, its themes concern, as I like to put it, the Janus-faced ways in which a) science and medicine undergirded colonial enterprises, and reciprocally, b) the impact of the colonial and overseas experience on science and the scientific enterprise.

The literature of Science & Empire Studies is unusually self-reflective, and, indeed, the history of the historiography of “colonial science” can now be thought of as a subject of its own.¹⁵ Patrick Petitjean’s 1992 *Science and Empires* led the way among more general historiographical surveys. Marie-Noëlle Bourguet and Christophe Bonneuil’s 1999 overview of the literature in the *Revue Française d’Histoire d’Outre-mer* provided another landmark. The same year saw the notable survey by Richard Drayton on the British overseas experience. The special number of *Osiris* in 2000, devoted to “Nature and Empire: Science and the Colonial Enterprise,” included a comprehensive overview by Roy MacLeod; in the same year I contributed my two pages, “Colonialism and Science,” to the *Reader’s Guide to the History of Science*, which surveyed the literature. The 2002 conference held at the University of Paris-Ouest, Nanterre, and the resulting 2005 volume, *Connaissances et pouvoirs. Les espaces impériaux (XVI^e-XVIII^e s): Espagne, France, Portugal*, can be highlighted in the context of the literature review by the editors.¹⁶ The special “Forum on Colonial Science,” edited by Londa Schiebinger, appeared in *ISIS* in 2005 and presented historiographical synopses of colonial science and the British, French, and Spanish cases.¹⁷ Also in 2005, Benedikt Stuchtey added another substantial historiographical assessment; Stuchtey’s survey is noteworthy for treating a neglected swath of literature in German and, as I said, for explicitly incorporating thinking about science into Postcolonial Studies and vice versa.¹⁸

The future of the field of Science & Empire Studies does not seem in doubt; it is well institutionalized with interesting work being done and with second and third generations of scholars training another round of graduate students in a mature scholarly discipline, variously incorporated today under the rubric of Science & Empire Studies.¹⁹

15 McClellan and Regourd 18-19; for bibliographic details of the works mentioned here, see the bibliography below.

16 See de Castelnau-L’Estoile and Regourd, eds. and especially their introduction (11-22).

17 See Schiebinger, ed. with the editor’s introduction and the included articles by Harris, Harrison, Osborne, and Cañizares-Esguerra.

18 Stuchtey, “Introduction,” where he notes one thousand titles on science, technology, and medicine listed in The Royal Historical Society’s 2002 *Bibliography of Imperial, Colonial, and Commonwealth History* (22 et passim). The article by Roy MacLeod in the volume edited by Stuchtey likewise sets the historiographical stage. The papers in Stuchtey’s volume were themselves the result of yet another conference held on the topic of science and imperialism.

19 The 2008 volume edited by Antonella Romano and Stéphane Van Damme on science and world cities might be considered in this context; see the editors’ introduction, esp. 14-16, and the article by Raj, “Régler.” Bleichmar, esp. 237-39, further pushes the historiographical envelope; Safer also represents the cutting edge of the field of colonial

On the other hand, we have Postcolonial Studies and Postcolonial theory. What follows is decidedly the report of an outsider, necessarily based on quickly appropriated knowledge of the field. Those on the inside of Postcolonial Studies may object that the issues are well known, that in what follows central theoretical assumptions are not discussed, and that the presentation is sketchy, lacks critical depth, and even misrepresents crossovers and intersections with other fields. This outsider's report may create the impression that Postcolonial Studies is a homogeneous field, which it is not. Risking the reproach of oversimplification, let me state that the main point of this essay is to remark on the distinctiveness of the scholarly fields of Postcolonial Studies and Science & Empire Studies, even if in somewhat clichéd ways for both, and to suggest explanations for this unexpected disciplinary divide.

Postcolonial Studies is variously described as a field and a discipline. According to Neil Lazarus, editor of *The Cambridge Companion to Postcolonial Literary Studies* (2004), Postcolonial Studies is now a legitimate and prestigious academic endeavor, with many centers, mostly in departments of literature and cultural studies (1). The field has spawned many conferences and has had a strong impact on the academic job market and curriculum in the Anglophone world. It has developed specialized journals, such as *Journal of Commonwealth and Postcolonial Studies*,²⁰ as well as a substantial creative and academic literature. Unlike, say, the science of chemistry, the field of Postcolonial Studies means slightly different things to different people, and hence is not a completely agreed-upon and homogeneous endeavor. But *grosso modo* over the last thirty plus years, from the late 1970s it has produced a substantial, separate literature.²¹ Edward Said, Gayatri Chakravorty Spivak, and Homi Bhabha have been singled out as the “holy trinity” of postcolonial critics (Moore-Gilbert 27). Other well-known scholars include Dipesh Chakrabarty and Ranajit Guha. There are numerous British, Australian, American, and German experts in Postcolonial Studies as well.

Postcolonial Studies, like Science & Empire Studies, is rooted in the academy. Its strong base, indeed dominance, especially at its outset, was and is in English departments and Cultural Studies departments. This has given the field a somewhat, if not decidedly, Anglocentric orientation, despite Francophone roots of Postcolonial Studies in the works of Frantz Fanon and others. For the most part the focus is on literary theory. Postcolonial Studies takes off from the link between knowledge and power made by Foucault, and the connection with Foucault is in fact common stock of both Postcolonial Studies and Science & Empire

science and Science & Empire Studies these days, particularly in articulating the notion of the “strategic effacement” of non-Europeans in the making of contemporary European science.

20 The online journal, *Jouvert: A Journal of Postcolonial Studies* (1997 through 2003) is available at <<http://english.chass.ncsu.edu/jouvert/index.htm>> as of 15 October 2011.

21 Riemenschneider et al. give a detailed sense of the literature before as well as after 1978.

Studies.²² The field of Postcolonial Studies concerns itself with “discourse.” It prides itself on a dissenting and oppositional critical stance, and thinks about Third World intellectuals in the academy and about those who would speak for their otherwise silent compatriots. But the extent to which Postcolonial Studies is or should be ‘merely’ academic or address injustices in the postcolonial world is disputed among participants.

Postcolonial Studies touches on a range of themes and topics. The figure of the ‘subaltern’ is one (epitomized in the Subaltern Studies Group that flourished in the early 1980s).²³ Along with the subaltern comes the epistemological-semantic figure of the ‘other’ and related considerations concerning alterity, hybridity, creolization, and mimicry.²⁴ Another grouping of subjects concerns race, gender, feminism (to be sure), sexuality, and the body; yet another, empire, migration studies and diasporas, the development of capitalism, and a vigorous, neo-Marxist critique of capitalism and globalization. Postcolonial Studies and Postcolonial theory are sensitive to Eurocentrism and self-conscious about discourses that implicitly or explicitly support it.²⁵ Broadly speaking, the field contests any universalism and it is wary of any kind of master narrative. It reads itself and its subject, as it were, against the grain.

This literature is strongly shaped by direct scholarly debate during conferences: many publications in the field are papers from these meetings.²⁶ Postco-

22 On the link between knowledge and power in Foucault and Said, see Riemenschneider et al., “Introduction”; Moore-Gilbert et al., “Introduction” (22); Stuchtey, “Introduction” (32).

23 See Ludden. Note the attack by Bahl and Dirlik regarding the field’s narrowness and preoccupation with colonial identity (8, 14).

24 In this connection see Young, *Colonial Desire*.

25 On Eurocentrism, see Bahl and Dirlik (9); Dirlik (26, 42); Prazniak (229); and Stuchtey, “Europeanization” (29).

26 See Graham Huggan’s *Interdisciplinary Measures: Literature and the Future of Postcolonial Studies* (2008); the second edition of *The Post-Colonial Studies Reader* of 2006, edited by Bill Ashcroft, Gareth Griffiths, and Helen Tiffin, all of whom are independent contributors to the field of Postcolonial Studies. Postcolonial Studies even has its own Cambridge Companion, as mentioned, the 2004 volume, *The Cambridge Companion to Postcolonial Literary Studies*, edited by Neil Lazarus. The introduction Lazarus provides, as well as the chapter by Benita Parry on the institutionalization of Postcolonial Studies, outline the development of the field. The 2004 volume by Dieter Riemenschneider et al., *Post Colonial Theory: The Emergence of a Critical Discourse: A Selected and Annotated Bibliography*, is a landmark, especially setting out the chronology of the movement. The 2007 volume edited by Marie Claude Smouts, *La situation postcoloniale : Les postcolonial studies dans le débat français*, interesting in other ways, also presents another full historiographical review, as does the piece included in her volume by Jacques Pouchepadass, “Le projet critique des *postcolonial studies* entre hier et demain.” Other works setting out the field of Postcolonial Studies prior to 2005 might easily be cited, going back to Leela Gandhi’s *Postcolonial Theory: A Critical Introduction* of 1992. Here, one might signal the 1997 volume by Peter Childs and R. J. Patrick Williams; likewise in 1997 the volume edited by Bart Moore-Gilbert, Gareth Stanton, and Willy Maley; Lawson et al.; and Francis Barker, Peter Hulme, and Margaret Iversen’s 1994 *Colonial discourse/postcolonial theory*. See also Quayson (2000) and Afzal Khan et al. (2000). The 2005 volume edited by Ania Loomba, Suvir Kaul, Matti Bunzl, Antoinette Burton, and Jed Esty, *Postcolonial Studies and Beyond* should be cited in this regard, not least for the article by David Scott on “The

lonial Studies as a critical academic field is marked by a wide range of ideological and scholarly positions. Arif Dirlik, Anne McClintock, and Benita Parry in particular have offered critical interventions into some of the theoretical positions and analytical practices of Postcolonial Studies.²⁷ Also highly critical within the French context is Jacques Pouchepadass. A group of social scientists around Marie Claude Smouts, working out of the École des Sciences Politiques (Sciences Po) in France, voice a whole set of critiques: that the field is superficial, politically dangerous, heuristically and methodologically weak, can't help us understand Europe today, and is pretentious when it comes to speaking for the silenced colonial subject – to the point where one wonders whether she and colleagues embrace Postcolonial Studies only as a flawed approach to help understand the postcolonial situation of France today and France coming to grips with its own colonial past. Postcolonial Studies has expanded beyond English departments and literary and cultural studies, as Smouts exemplifies in enlisting political scientists.²⁸

Graham Huggan, on the other hand, registers a push into cartography, geography, and ecocritical studies.²⁹ His book is part of a series devoted to the issue of the intersections of Postcolonial Studies with other disciplines. The field of Postcolonial Studies faces a recognized set of issues and challenges. It is involuted, to be sure, and Huggan identifies its “stultifying use of indiscriminate jargon” (7). There are sentences in the critical literature that are completely opaque to me. Critics discuss Postcolonial theory's problematic connections to postmodernism and the linguistic turn. To some of them the field seems torn between the self-reflexive language games of deconstruction and ‘talk about talk’ on the one hand and engagements with the postcolonial world in all its complexities on the other (Parry, “Institutionalization” 74). Ethnic studies and multicultural impulses in academe and elsewhere seem to be countercurrents prevailing against Postcolonial Studies. Undeniably, it would seem, the field is most challenged by current thinking about globalization.³⁰ The story, once having started from a particular histor-

Social Construction of Postcolonial Studies.” Also not to be overlooked in this context is Morton (2007). Extending the field of Postcolonial Studies in interesting new directions is Daniel Carey and Lynn Festa, *The Postcolonial Enlightenment: Eighteenth-Century Colonialism and Postcolonial Theory* (2009). Most of these works hark back to the “bible” of Postcolonial Studies, Ashcroft, Griffin and Tiffin's landmark *The Empire Writes Back* (1989), 2nd ed. (2002).

27 Dirlik, esp. 42, 46; Dirlik et al., passim; McClintock; Parry, *Postcolonial Studies*. See also Bahl and Dirlik (2000), on this point (esp. 6, 8-10, 14, 18). On Dirlik, see also Fuchs and Stuchtey (13). Pouchepadass (182-86) and Huggan (1) likewise provide critiques of the ahistoricity of the field, the ineffectiveness of the postcolonial critic/intellectual, and idealized approaches of the field. See also Lazarus on the anti-Marxist bent, institutionally and intellectually, of much of Postcolonial Studies (5). Spivak offered a notable critical turn regarding implicit political positions of postcolonial critics.

28 See Smouts, esp. 25, 56, 60.

29 On environmentalism and Postcolonialism, see also Nixon.

30 On Postcolonialism and globalization, see Brennan (esp. 138); Loomba et al. (2, 8); Dirlik et al. (6-7); and Behdad. Smouts also sees tensions between postcolonial and globalization

ical setting – the decolonization of former colonies – is now increasingly merging with the more general assessment of globalization and the effects of a world that is increasingly being tied into a single whole. The future and direction of the field are in question, as commentators have remarked. Pouchepadass, again, questions “the future of postcolonial studies” and writes of the “exhaustion of the postcolonial paradigm.”³¹ Is the field at a crisis point? Does it need reinvention? Will discourse about globalization eclipse the critique of Orientalism and Postcolonial Studies? Postcolonial Studies is a vibrant field whose intellectual progress is evident in its continuous critique. But let me leave the last word in this connection to Benita Parry: “The task facing postcolonial studies today is not, of course, to abandon the theoretical sophistication that has marked its engagement with Orientalist discourse, Eurocentrism, and the exegetics of representation, but to link such meta-critical speculations with studies of actually existing political, economic, and cultural conditions, past and present” (Parry, “Institutionalization” 80). That statement appeals to me as a historian.

Now, of course, this juxtaposition of these two literatures and scholarly groups, Science & Empire Studies and Postcolonial Studies, cannot represent an altogether “all or nothing” situation, and there does seem to be a convergence of late between Postcolonial Studies literature and that of Science & Empire studies.³² I also note the 2010 “Focus” section in *ISIS* on global histories of science that touches on many of the issues raised here.³³ The title of a Brussels conference, “(Un)disciplined Encounters: Science as Terrain of Postcolonial Interaction between Africa and Europe – Past and Future” in November, 2010 points in the same direction. The 2010 Rostock symposium on science and the discourses of cultural contact and the resulting publication would thus seem timely and on the cutting edge of intellectual inquiry and scholarly conversations about this subject.

Separate Fields – Common Concerns?

So, the historiographical disjuncture just described between Science & Empire Studies and Postcolonial Studies calls out for explanation and comment. Let me all too briefly suggest three and a half reasons to account for the separateness and distinctiveness of these two literatures and why a historian like myself, enmeshed in the one, would be so late in encountering the other.

The first reason concerns institutional and disciplinary boundaries: This one is not rocket science. First of all, historians of science and Postcolonial Studies scholars are housed in different academic departments, where the quest for tenure

studies (34), as do Pouchepadass (205-6) and Childs and Williams (216). For more background, see Hopkins, ed., *passim*; Tilley captures this point (112-14).

31 Pouchepadass (199-214); see also Huggan (16-17).

32 Benedikt Stuchtey’s work I have mentioned. Other examples would be Schaffer et al., and Raj.

33 *ISIS* 101 (2010): 95-158, with the introduction by the organizer, Sujit Sivasundaram.

and the “use value” of scholarship may have led to or justified authorial neglect of science. More precisely, these communities are simply interested in different things. Historians like me are interested in the colonial and imperial push outward from Europe and America and how science both facilitated colonial conquest and at the same time became enlarged by dint of the colonial experience. Postcolonial Studies, on the other hand, is primarily, although not exclusively, literary and cultural criticism and a study of postcolonial literatures and cultures by commentators interested in works written by authors and poets from decolonized countries; their concerns center on style, tropes, relations of power, and literary and cultural theory. These are just not the same concerns as the discourses historians are wrapped up in.

The second, likewise straightforward reason is that our two literatures differ in chronological focus. Not to put too fine a point on it, the one is largely concerned with history previous to 1945, the other with literature and culture since 1945. The transition between post-colonial and postcolonial, with and without hyphen, was telling in this regard.³⁴ Postcolonial theory tips its hat to historical studies, but that’s about it. Historians, again, are pre-post-colonial.

My third, more tentative explanation for the disjuncture between these literatures concerns what happens when we fold thinking about science and technology into discussions within Postcolonial Studies and Postcolonial theory. By that I mean, first, simply that, although there are literary specialties in areas known as science and literature and science fiction, students and professors of the humanities have the reputation of not knowing much about science and/or feeling intimidated by the sciences and technology.³⁵ This cliché may be less applicable to those in cultural studies, but certainly, until recently, the result has been a blind spot in the scholarly literature, and I think it is fair to say that Postcolonial Studies as a whole has hardly included considerations of science or technology in its discussions or perspectives.

There are exceptions that prove this rule, of course.³⁶ But I find it noteworthy that the indices of the Postcolonial Studies literature that I looked at mostly do not contain entries for “science,” “mathematics,” “astronomy,” “botany,” “cartography,” and like subjects. Alan J. Bishop’s provocative essay “Western Mathematics: The Secret Weapon of Cultural Imperialism” of 1990 is likewise exceptional

34 The hyphen or lack of it in Postcolonial Studies is widely remarked; see, for example, Fuchs and Stuchtey 13. The word ‘post-colonial’ with the hyphen started out, I believe, simply to demark the historical divide before and after 1945 and decolonization; this usage seems to have morphed into ‘postcolonial’ without the hyphen to represent a new and different kind of critical discourse.

35 Regarding the literature of technology and colonialism, see the volumes by MacLeod and Kumar, eds. and Sylviane Llinares and Philippe Hroděj, eds. These complement the classic works by Daniel Headrick.

36 See, for example, articles by Whitney and by Rabasa; the science and literature list by Ashgate publishers is to be noted in this regard.

in its subject and singular, but not wholly wrong, in approach.³⁷ In the vast sea of academic literature, however, these exceptions are the merest flotsam. Beyond this observation concerning the treatment of science in the literature of Postcolonial Studies, one might go further and note conversely a general absence of *historical* depth and perspective in too much of the literature in Postcolonial Studies.

Generally speaking, where the postcolonial literature has most abundantly engaged the sciences is in its treatment of anthropology and the ways in which scientific racial theories operated to rationalize and promote European colonialism and imperialism (Huggan 8-9; Thomas; Young, *Colonial Desire*). In other words, the literature focuses only on the ways in which imperial powers used anthropology to buttress colonial ends. The discipline of history has been treated in largely the same way in the literature of Postcolonial Studies not enlisting history, but citing its misuses by colonizing powers.³⁸ Here, my parenthetical complaint is that anthropology (read science) and history are visible in the postcolonial critical literature to the extent that they were tools of empire, and not at all as research tools to be allied with postcolonial inquiries. There is an implicit (and frequently explicit) oppositional stance of Postcolonial Studies toward these other disciplines, as if to suggest that no self-reflexive thought otherwise existed!³⁹

Finally, and this is my third and a half reason, I gingerly want to suggest that thinking about science – again, bringing considerations of science and technology into the mix – complicates postcolonial theory in curious ways touching on cultural relativism, and that these complications may have until recently, in one fashion or another, shaped the development of postcolonial theory and Postcolonial Studies, to wit, to avoid or remain relatively oblivious to science and technology. The complications ensue because to so introduce questions about science can lead to comparing indigenous, non-Western knowledges to the knowledge systems of science and the West, however these might be construed. Put less crudely, as scholars and academics we have little problem validating non-Western modes of discourse; such an analytical move is felt to be more or less acceptable in other intellectual areas, notably, it would seem, in Postcolonial Studies itself. But I'm less convinced that we are at ease applying relativism to modern science, because such an approach would seem to challenge the status and legitimacy of

37 Bishop's piece is contemporary with, and in the spirit of, Ivan van Sertimas' *Blacks in Science* of 1983; he is correct in seeing multifaceted historical roots of modern mathematics, and he makes suggestive points with reference to the teaching of mathematics in Third World countries, but he is highly polemical in seeing Western mathematics as culturally loaded and as a "cultural hegemony" to be opposed.

38 On Postcolonial Studies and the discipline of history, see Cooper, *passim*; Ashcroft et al. (317); Guha; Young, *White Mythologies*; see related defense of history by Dirlík et al., *passim*, including particular remarks by Vinay Bahl and Arif Dirlík in their introduction (3, 14) where they assert: "archaeologists and historians, by ignoring their theoretical premises, become complicit in the ruling-class agenda" (14). Huggan points to a certain disciplinary defensiveness on the part of historians (7). Fuchs and Stuchtey is relevant here.

39 In this connection, see Huggan (16).

science as a system of knowledge, thus juxtaposing a cultural relativism that may not be warranted.

To elaborate, if Postcolonial theory rejects the idea of ‘universality’ or a canon in literature, can or should it claim to do so with regard to the universality of modern science? How much are “standpoint epistemologies,” about which I read, to govern our thinking (Harding 8, 18). How much cultural relativism do we want to introduce to our conceptions of gravity, say, or the age of the earth? And then, in a related way, will, as claimed, Postcolonial Studies produce new sets of values and ideals, new styles of reasoning, alternatives and new directions for Western science and medicine?⁴⁰

I don’t have answers to those questions. The argument I am interested in is a philosophical argument, not a political one, having to do with the universalist claims of science and the epistemology of science’s claims about nature. It is obviously not possible to pursue the topic here, but if we could, I would think Sandra Harding’s 1998 book, *Is Science Multicultural? Postcolonialisms, Feminisms, and Epistemologies*, would be the place to start. Although her “Western” science is something of a strawman, she comes closest to problematizing the issue as I would like to frame it here, namely, what happens when we bring considerations of science (and epistemology) into Postcolonial Studies and Postcolonial theory.⁴¹

Harding’s position seems contradictory, however. On the one hand she is more than sympathetic to the potential impact of Postcolonial Studies on the history and, particularly, the philosophy of science, observing that: “Indeed, postcolonial studies have been able to bring into focus what a tragedy it would be should the human species arrive at one and only one universally valid scientific and technological tradition” (6). She sees much to be gained intellectually in coupling thinking about science with postcolonial thought:

Such a strategy enables postcolonial theory to detect features of different cultures’ scientific and technological thought and practices that are not visible from within the familiar Western accounts of science. This new kind of account does not merely add new topics to conceptual frameworks that are themselves left unchanged. Instead, it forces transformations of them. (8)

Harding deplores a narrow and normative notion of science that limits natural knowledge to science departments and separates it from other epistemologies and bodies of knowledge taught in anthropology and like departments, and she goes on to say, “one does not have to demonstrate that there is no longer anything at all useful in such contrasts in order to justify abandoning them or using them

40 For claims referring to new values and ideals, see Thompson; for “exclusionary forms of Western reason,” see Quayson (3); for alternatives to Western science and medicine, see Bahl and Dirlík (5).

41 Harding; relevant here is also Chakrabarty (238, 253-54).

only very, very carefully in very limited contexts. One can instead point out that the costs outweigh the benefits of continuing to employ them” (9). By this reading, Harding would seem to accept cultural relativism when it comes to thinking about science and other knowledge systems. As it turns out, her position is not merely cultural relativist but actually turns on her understanding of a much more refined theory of “strong objectivity.” So Harding ultimately plays a trumping, etic card (of emic and etic fame in anthropology), writing:

The strong objectivity program [to which she subscribes] rejects the epistemological or judgmental relativism that assumes that because all such assumptions and claims have local, historical components, there is no rational, defensible way to evaluate them. It rejects the idea that all claims are equally valid, that all cultures’ science and technology projects are equally defensible, for any and all purposes. It rejects the assumption that if one recognizes the social, historical relativism of knowledge claims, one is forced to epistemological, judgmental relativism. (18-19)

This statement sounds more like what one would want to say.

In a recent piece, Neil Safier also problematizes the issues of science and cultural relativism. He writes about “epistemological divides” and incommensurability separating European and non-European cultures and indigenous practices and knowledge systems. Although lending a hand to and arguing for “a keen sensitivity toward nonnormative epistemologies,” Safier’s quite proper aim is a historiographical one, namely that our understanding of science and the production of knowledge in historical context is too limited and restrictive if it takes Europe as its sole frame of reference or if it only focuses on the final products of science made in Europe. This, Safier argues, precludes enlarged perspectives that better account for thinking about the development of science, Western or otherwise, over time, or, as Safier seeks to argue more succinctly, “a more inclusive history of natural knowledge production on a global scale” (145).⁴²

Gyan Prakash’s landmark volume, *Another Reason: Science and the Imagination of Modern India* (1999), framed the issue of Western versus indigenous science in another way, notably in contrasting the Indian response to the colonial and imperial success of British rule, the triumphal science (and technology) of the West that made such rule possible, and the submission of the great cultures of India to British dominion. The traditions opposing the science of the West were

42 Helen Tilley’s recent article in the same “Focus” section of *ISIS* [Global Histories of Science] with Neil Safier’s, discussed here, is likewise pointedly concerned with indigenous knowledge and its historical and epistemological rapport with the sciences of the West. She notes the intellectual and institutional marginalization of non-Western knowledge, yet the desire to tap such sources for science, and she identifies what she calls ‘vernacular science’ as bridging the chasm between these two classes of knowledge, knowledge systems, and epistemologies. As much as Tilley’s article, too, raises the philosophical issues, her conclusion, like Safier’s, is to drive home the historiographical point that indigenous knowledge “deserves to be studied part and parcel with other histories of science” (119).

the ancient knowledge traditions of the Vedas, and later, Indian mathematicians, physicians, astronomers/astrologers, and other savants who over the centuries produced a body of undeniably scientific work. Prakash shows that, some exceptions aside, what was at stake was not a clash of cultures or arguments for epistemological equality of East and West or for or against the superiority of ancient Indian learning, but, rather, the appropriation of ancient knowledge for the purposes of fashioning a modern Indian identity. Prakash uses the juxtaposition of ancient Indian science and modern Western science to tell a new story of the making of modern India. In the process he shows how essential it is to cast all these discussions into a historical context and how what happens when knowledge systems intersect does not always entail epistemological warfare.

Prakash's take on ancient and modern science in Indian colonial and national history would merely be exemplary of good history, but, as it turns out, debates over "Vedic science" and science and cultural relativism generally have proven highly contentious and have heated up discussions over the Indian case in particular. The antagonists are notably Ashis Nandy and Meera Nanda. Nandy is the leading proponent of 'alternative science' linked to the rise of Hindu nationalism. Although a recognized thinker in a postcolonial mode, Nandy is a critic of science and of most of postcolonial thought itself, seeing both as wrought by liberal, secular elites in India and beyond in collusion with modernization and the suppression of authentic Indian traditions and culture. For Nandy, in the context of 'decolonizing the mind' (Ngugi wa Thiong'o), the sciences in the Vedas are no less true than modern physics.⁴³ With Ph.D.s in molecular biology and in Science Studies, Meera Nanda, on the other hand, is a powerful defender of science and the epistemological power of science, and she has produced a substantial body of work rebutting Nandy and others representing Hindu nationalism whom she sees as "prophets facing backward." By the same token, she has had to struggle against cultural and epistemological relativism prevalent in Science Studies over recent decades, which Nanda sees as "denying the progress and universality of modern science" (xiii). While performing something of a balancing act, Nanda sharply illuminates the topic of Vedic science, its defenders, and the pitfalls of cultural relativism when it comes to considering modern science.⁴⁴ She does the same with postmodern critiques of science.⁴⁵ In both cases she rejects an unfettered epistemological relativism, but she maintains a strong notion of the truth of science and the nobility and the politically progressive character of the enterprise of science, most understandably in light of fundamentalist movements in India, which she is bravely resisting.

43 See canonically Nandy, *Alternative Sciences*; and discussion in Nanda (esp. 210-14). In "Science, Authoritarianism and Culture," Nandy makes plain the novelty of examining science in postcolonial discourse (283). For Nandy's views on European science and its nefarious complicity in the modernization of India, see Nandy, "Science" (esp. 283-93).

44 On this point, see esp. Nanda's chapter on "Philosophical Justification of Vedic Science" (94-122).

45 Nanda's chapter on "Epistemic Charity: Equality of All 'Ethnoscience'" (125-59).

Over the last several decades the social studies of science and the scientific enterprise, of which Science & Empire Studies has been an important constituent element, have been decisive in showing science to be socially constructed and rooted in particular local and historical circumstances of knowledge making. In other words, no one can take seriously any longer the notion of science being forever true or untainted by agency or political agendas. And so, it is imperative, even in validating modern science as the best way of knowing we have, not to lose sight of science as an actor and an interested party in complex negotiations with indigenous cultures and their scientific perspectives. Science as a social and political entity is not disinterested and never was, perhaps especially in the context of European colonialism and imperialism and as a party to the intellectual and political violence inherent in the subjugation of peoples. This lesson about the nonpartiality of science becomes especially clear in the debate about the Kennewick Man, the skeletal remains of a Paleo-Indian discovered in 1996 on the American Northwest Coast, and the contested claims by archaeologists and Native Americans over the nature and ownership of these remains (see the essay by Michael Wilcox in this volume). On the surface this episode would seem almost paradigmatic of an uneven conflict between modern and ancient forms of knowledge and knowing, where the issue of science and cultural relativism would seem starkly presented, and where science surely ought to carry the day. Yet, as Wilcox made plain, official archaeology and the archaeologists involved were partisan and underhanded players in the contest that followed. The example provides no ground for ‘proving’ – in an older sense of that word – the conflicting claims of modern science and traditional cultures.

Conclusion

But most of these notions are beyond my ken, so rather than a further pursuit of the question of science and cultural relativism in Postcolonial Studies, much less any definitive answers, let me just add a few concluding remarks.

First, I think we can have a discussion of the sort I am suggesting for bringing considerations of science more into Postcolonial Studies without making any essentialist or normative claim for ‘science’, much less for a rigid notion of ‘Western’ science. In addition, contra Nanda, I think it is possible to maintain a postmodernist view of science and scientific knowledge in this discussion. In other words, I think there are ways of combining epistemological relativism for the claims of modern science while rejecting the extremes of any cultural relativism common in postcolonial readings. The history of science, in fact, might come to our rescue here in showing how to deal with once serviceable views of the world that have now been judged passé and superseded.

Secondly, I think it will be productive for considerations of science and technology to be more incorporated into Postcolonial Studies. There are topics involv-

ing science and postcolonial issues that have not been sufficiently broached: the existence and character of whatever ‘colonial science’ may be remaining or being practiced in the former colonies, the Third World Academy of Science, for example, or brain drain, or multinational corporations, biopiracy, biopatents, native patrimony and rights, intellectual property, local control of resources, and, yes, aboriginal knowledge. So, I think that bringing together Postcolonial theory and science/technology can be done and can certainly make a contribution to an expanding inquiry.

Finally, much is to be gained in thinking about cultural relativism and Postcolonial Studies if we drop the strawman of ‘Western’ science and substitute ‘modern science’, or ‘science today’, or even ‘world science’.⁴⁶ We now recognize that from the twelfth century on, ‘Western’ science has been porous, with non-Western antecedents and multicultural inputs. That point notwithstanding, the science today that grew out of the Western tradition is no longer ‘Western’ per se, but has gone global and is a world phenomenon.⁴⁷ Such a change in concept and terminology shifts the emphasis to where it belongs, away from a postcolonial conflict with the West (and its science), away from the legacy of colonized and colonizing countries and tensions in a postcolonial world, literary or otherwise, and toward considering more directly such issues as the distribution of wealth within societies and across the globe, the situation of the nation-state and the global organization of nations, the state of the world economy and world capitalism, the success or inexorability of global or globalizing institutions; centrifugal forces, be they regional, local, or cultural; population, production, consumption, and the huge ecological effects of how we are currently living, in short, to straight thinking about industrial civilization and the state of the planet today.

But that discussion must be saved for another occasion. I hope to have shown how engaging science can potentially challenge Postcolonial Studies and our – certainly *my* – generally liberal views both of postcolonial history and postcolonial literatures. I have made a few suggestions as to why Postcolonial Studies may not have more actively engaged considerations of science and technology and their histories. And I hope to have made a contribution to mending the intellectual gap between Science & Empire Studies and Postcolonial Studies – two important but hitherto virtually separate academic enterprises that would both benefit from stronger ‘transculturations’ in the future.

Works Cited

Archival Sources

“Cayenne, nids de fourmis provenant de Cayenne.” Académie Nationale de Médecine (Paris), Archives of the Société Royale de Médecine. 132 dr. 49.

46 On the historiographical background of this point, see Elshakry.

47 Price, again, makes this point.

“Mémoire sur la cure de la Lepre Occidentale. À la Nouvelle Orléans 17 Mai 1784.”
Signed “Villay, Ch.er de S.t Louis et Commissaire de S.M.T.C. à la Louisiane.”
Archives Nationales (Paris) MAR G 102, dossier 3, #118. Ms.
Société Royale de Médecine. Minutes of the meetings of the SRdM. Ms. 11.

Printed Texts

- Afzal-Khan, Fawzia, and Kalpana Seshadri-Crooks. *The Pre-Occupation of Postcolonial Studies*. Durham & London: Duke University Press, 2000.
- Ashcroft, Bill, Gareth Griffiths, and Helen Tiffin. *The Empire Writes Back: Theory and Practice in Post-Colonial Literatures*. London and New York: Routledge, 1989. 2nd ed., 2002. <https://doi.org/10.4324/9780203402627>
- , eds. *The Post-Colonial Studies Reader*. 1995. Repr. London and New York: Routledge, 2006.
- Bahl, Vinay, and Arif Dirlik. “Introduction.” *History after the Three Worlds: Post-Eurocentric Historiographies*. Ed. Arif Dirlik, Vinay Bahl, and Peter Gran. Lanham, MD: Rowman & Littlefield, 2000. 1-24.
- Barker, Francis, Peter Hulme, and Margaret Iversen. “Introduction.” *Colonial discourse/postcolonial theory*. Ed. Francis Barker, Peter Hulme, and Margaret Iversen. Manchester, New York: Manchester University Press, 1994. 1-23.
- , eds. *Colonial discourse/postcolonial theory*. Manchester and New York: Manchester University Press, 1994.
- Basalla, George. “The Spread of Western Science.” *Science* 156 (1967): 611-22. <https://doi.org/10.1126/science.156.3775.611>
- . “The Spread of Western Science Revisited.” *Mundialización de la ciencia y cultura nacional: Actas del Congreso Internacional “Ciencia, descubrimiento y mundo colonial.”* Ed. A. Lafuente, A. Elena, and M. L. Ortega. Madrid: Ediciones Doce Calles, 1993. 599-603.
- Behdad, Ali. “On Globalization, Again!” *Postcolonial Studies and Beyond*. Ed. Ania Loomba, Suvir Kaul, Matti Bunzl, Antoinette Burton, and Jed Esty. Durham, London: Duke University Press, 2005. 62-79. <https://doi.org/10.2307/j.ctv1134gnk.6>
- Bishop, Alan J. “Western mathematics: the secret weapon of cultural imperialism.” *Race and Class* 32.2 (1990): 51-65. <https://doi.org/10.1177/030639689003200204>
- Bleichmar, Daniela. “Atlantic Competitions: Botany in the Eighteenth-Century Spanish Empire.” *Science and Empire in the Atlantic World*. Ed. James Delbourgo and Nicholas Dew. New York, London: Routledge, 2008. 225-52. <https://doi.org/10.4324/9780203933848-13>
- Bleichmar, Daniela, Paula De Vos, Kristin Huffine, and Kevin Sheehan, eds. *Science in the Spanish and Portuguese Empires. 1500-1800*. Stanford, CA: Stanford University Press, 2009. <https://doi.org/10.1515/9780804776332>
- Bourguet, Marie-Noëlle, and Christophe Bonneuil. “Présentation.” *Revue Française d’Histoire d’Outre-mer* 86 (1999): 7-38.
- Brennan, Timothy. “From Development to Globalization: Postcolonial Studies and Globalization Theory.” *The Cambridge Companion to Postcolonial Literary Studies*. Ed. Neil Lazarus. Cambridge: Cambridge University Press, 2004. 120-38. <https://doi.org/10.1017/CCOL0521826942.007>
- Brockway, Lucille. *Science and Colonial Expansion: The Role of the British Royal Botanic Gardens*. [Studies in Social Discontinuity.] New York and London: Academic Press, 1979. <https://doi.org/10.1525/ae.1979.6.3.02a00030>
- Cañazares-Esguerra, Jorge. “Iberian Colonial Science.” *ISIS* 96 (2005): 64-70. <https://doi.org/10.1086/430679>
- Carey, Daniel, and Lynn Festa. *The Postcolonial Enlightenment: Eighteenth-Century Colonialism and Postcolonial Theory*. Oxford: Oxford University Press, 2009.

- Castelnau-L'Estoile, Charlotte de, and François Regourd, eds. *Connaissances et pouvoirs. Les espaces impériaux, XVI^e-XVIII^e s. France, Espagne, Portugal*. Bordeaux: Presses Universitaires de Bordeaux, 2005.
- Chakrabarty, Dipesh. *Provincializing Europe: Postcolonial Thought and Historical Difference*. Princeton, Oxford: Princeton University Press, 2008. <https://doi.org/10.1515/9781400828654>
- Chaturvedi, Vinayak, ed. *Mapping Subaltern Studies and the Postcolonial*. London, New York: Verso, 2000.
- Childs, Peter, and R. J. Patrick Williams. *An Introduction to Post-Colonial Theory*. Harlow: Pearson Education Limited, 1997.
- Cooper, Frederick. "Postcolonial Studies and the Study of History." *Postcolonial Studies and Beyond*. Ed. Ania Loomba, Suvir Kaul, Matti Bunzl, Antoinette Burton and Jed Esty. Durham, London: Duke University Press, 2005. 401-22.
- Delbourgo, James, and Nicholas Dew, eds. *Science and Empire in the Atlantic World*. New York, London: Routledge, 2008. <https://doi.org/10.4324/9780203933848>
- Dirlik, Arif. "Is There History after Eurocentrism: Globalism, Postcolonialism, and the Disavowal of History." *History After the Three Worlds: Post-Eurocentric Historiographies*. Ed. Arif Dirlik, Vinay Bahl, and Peter Gran. Lanham, MD: Rowman & Littlefield, 2000. 25-47. <https://doi.org/10.2307/1354590>
- Dirlik, Arif, Vinay Bahl, and Peter Gran, eds. *History After the Three Worlds: Post-Eurocentric Historiographies*. Lanham, MD: Rowman & Littlefield, 2000.
- Drayton, Richard. "Science, Medicine and the British Empire." *The Oxford History of the British Empire. Vol. 5: Historiography*. Ed. Robin W. Winks. Oxford: Oxford University Press, 1999. 264-76. <https://doi.org/10.1093/acprof:oso/9780198205661.003.0016>
- . *Nature's Government: Science, Imperial Britain, and the 'Improvement' of the World*. New Haven, CT: Yale University Press, 2000.
- Elshakry, Marwa. "When Science Became Western: Historiographical Reflections." *ISIS* 101.1 (2010): 98-109. <https://doi.org/10.1086/652691>
- Fanon, Frantz. *Les damnés de la terre*. Paris: Maspero, 1961.
- Fuchs, Eckhardt, and Benedikt Stuchtey. *Across Cultural Borders: Historiography in Global Perspective*. Lanham, Boulder, New York, Oxford: Rowman & Littlefield Publishers, 2002.
- Gandhi, Leela. *Postcolonial Theory: A Critical Introduction*. New York: Columbia University Press, 1992.
- Guha, Ranajit. *Dominance with Hegemony: History and Power in Colonial India*. Cambridge, MA, London: Harvard University Press, 1997.
- Harding, Sandra. *Is Science Multicultural? Postcolonialisms, Feminisms, and Epistemologies*. Bloomington, Indianapolis: Indiana University Press, 1998.
- Harris, Steven. J. "Jesuit Scientific Activity in the Overseas Missions, 1540-1773." *ISIS* 96 (2005): 71-79. <https://doi.org/10.1086/430680>
- Harrison, Mark. "Science and the British Empire." *ISIS* 96 (2005): 56-63. <https://doi.org/10.1086/430678>
- Headrick, Daniel R. *The Tentacles of Progress: Technology Transfer in the Age of Imperialism, 1850-1940*. New York: Oxford University Press, 1988.
- . *The Tools of Empire: Technology and European Imperialism in the Nineteenth Century*. New York: Oxford University Press, 1981.
- Hopkins, A. G., ed. *Globalization in World History*. London: Pimlico, 2002.
- Huggan, Graham. *Interdisciplinary Measures: Literature and the Future of Postcolonial Studies*. Liverpool: Liverpool University Press, 2008. <https://doi.org/10.5949/UPO9781846313332>

- Huigen, Siegfried. *Knowledge and Colonialism: Eighteenth-Century Travellers in South Africa*. Leiden and Boston: Brill, 2009. <https://doi.org/10.1163/ej.9789004177437.i-314>
- Juterczenka, Sünne, and Gesa Mackenthun, eds. *The Fuzzy Logic of Encounter: New Perspectives on Cultural Contact*. Münster: Waxmann, 2009.
- Klein, Bernhard, and Gesa Mackenthun, eds. *Das Meer als kulturelle Kontaktzone: Räume, Reisende, Repräsentationen*. Konstanz: UVK Verlagsgesellschaft, 2003.
- Lafuente, Antonio, and José Sala Catalá, eds. *Ciencia colonial en América*. Madrid: Alianza Editorial, 1992.
- Lafuente, A. A. Elena, and M. L. Ortega, eds. *Mundialización de la ciencia y cultura nacional: Actas del Congreso Internacional "Ciencia, descubrimiento y mundo colonial."* Madrid: Ediciones Doce Calles, 1993.
- Lawson, Alan, Leigh Dale, Helen Tiffin, and Shane Rowlands. *Post-Colonial Literatures in English: General, Theoretical, and Comparative, 1970-1993*. New York: G. K. Hall & Co., 1997.
- Lazarus, Neil. "Introduction." *The Cambridge Companion to Postcolonial Literary Studies*. Ed Neil Lazarus. Cambridge: Cambridge University Press, 2004. 1-16. <https://doi.org/10.1017/CCOL0521826942.001>
- , ed. *The Cambridge Companion to Postcolonial Literary Studies*. Cambridge: Cambridge University Press, 2004.
- Llinares, Sylviane, and Philippe Hroděj, eds. *Techniques et colonies (xv^e-xx^e siècles) [Actes du colloque de Lorient (2002)]*. Paris: Publication de la Société Française d'histoire d'outre-mer et l'Université de Bretagne Sud – SOLITO, 2005.
- Loomba, Ania, Suvir Kaul, Matti Bunzl, Antoinette Burton, and Jed Esty. "Beyond What? An Introduction." *Postcolonial Studies and Beyond*. Durham, London: Duke University Press, 2005. 1-40. <https://doi.org/10.2307/j.ctv1134gnk.4>
- , eds. *Postcolonial Studies and Beyond*. Durham, London: Duke University Press, 2005.
- Ludden, David, ed. *Reading Subaltern Studies. Critical History, Contested Meaning and the Globalization of South Asia*. Delhi: Permanent Black, 2001.
- MacLeod, Roy. "Colonial Science under the Southern Cross: Archibald Liversidge, FRS, and the Shaping of Anglo-Australian Science." *Science across the European Empires, 1800-1950*. Ed. Benedikt Stuchtey. Oxford: German Historical Institute/Oxford University Press, 2005. 176-213.
- . "Introduction." *Nature and Empire: Science and the Colonial Enterprise*. Ed. Roy MacLeod. Chicago: University of Chicago Press, 2000. [OSIRIS 15 (2000).] 1-13.
- . "On Visiting the 'Moving Metropolis': Reflections on the Architecture of Imperial Science." *Scientific Colonialism: A Cross-Cultural Comparison*. Ed. Nathan Reingold and Marc Rothenberg. Washington, D.C., London: Smithsonian Institution Press, 1987. 217-49.
- , ed. *Nature and Empire: Science and the Colonial Enterprise*. Chicago: University of Chicago Press, 2000. [OSIRIS 15 (2000).]
- MacLeod, Roy, and Deepak Kumar, eds. *Technology and the Raj: Perspectives on the Transfer of Western Technology and Attitudes towards Industrial change in India, 1700-1947*. New Delhi: Sage Publications, 1995.
- McClellan, James E. III. *Colonialism and Science: Saint Domingue in the Old Regime*. Baltimore and London: Johns Hopkins University Press, 1992; repr. Chicago: University of Chicago Press, 2010. <https://doi.org/10.7208/chicago/9780226514680.001.0001>
- . "Colonialism and Science." *Reader's Guide to the History of Science*. Ed. Arne Hessenbruch. London and Chicago: Fitzroy Dearborn, 2000. 143-44.

- McClellan, James E. III, and François Regourd. *The Colonial Machine: French Science and Overseas Expansion in the Old Regime*. Turnhout, BE: Brepols Publishers, 2011. <https://doi.org/10.1484/M.DDA-EB.5.106699>
- McClintock, Anne. "The Angel of Progress: Pitfalls of the Term 'Postcolonialism'." *Colonial discourse/postcolonial theory*. Ed. Francis Barker, Peter Hulme, and Margaret Iversen. Manchester, New York: Manchester University Press, 1994. 253-66.
- Meade, Teresa, and Mark Walker, eds. *Science, Medicine and Cultural Imperialism*. New York: St. Martin's Press, 1991. <https://doi.org/10.1007/978-1-349-12445-9>
- Moder, Carol Lynn. "Discourse across cultures, across disciplines: An overview." *Discourses Across Languages and Cultures*. Ed. Carol Lynn Moder and Aida Martinovic-Zic. Amsterdam, Philadelphia: John Benjamins Publishing Company, 2004. 1-11. <https://doi.org/10.1075/slcs.68.01mod>
- Moder, Carol Lynn, and Aida Martinovic-Zic, eds. *Discourses Across Languages and Cultures*. Amsterdam/Philadelphia: John Benjamins Publishing Company, 2004. <https://doi.org/10.1075/slcs.68>
- Moore-Gilbert, Bart, Gareth Stanton, and Willy Maley. "Introduction." *Postcolonial Theory: Contexts, Practices, Politics*. Ed. Bart Moore-Gilbert, Gareth Stanton, and Willy Maley. London, New York: Verso, 1997. 1-72. <https://doi.org/10.4324/9781315843452-1>
- , eds. *Postcolonial Theory: Contexts, Practices, Politics*. London and New York: Verso, 1997.
- Morton, Stephen. *Gayatri Spivak: Ethics, Subalternity and the Critique of Postcolonial Reason*. Cambridge: Polity Press, 2007.
- Nanda, Meera. *Prophets Facing Backward: Postmodern Critiques of Science and Hindu Nationalism in India*. New Brunswick, New Jersey, London: Rutgers University Press, 2003.
- Nandy, Ashis. *Alternative sciences: Creativity and authenticity in two Indian scientists*. New Delhi: Allied Publishers, 1980.
- . "Science, Authoritarianism and Culture: On the Scope and Limits of Isolation outside the Clinic." *Bonfire of Creeds: The Essential Ashis Nandy*. Oxford: Oxford University Press, 2004. 277-303.
- Nixon, Rob. "Environmentalism and Postcolonialism." *Postcolonial Studies and Beyond*. Ed. Ania Loomba, Suvir Kaul, Matti Bunzl, Antoinette Burton, and Jed Esty. Durham, London: Duke University Press, 2005. 233-51.
- Osborne, Michael A. "Science and the French Empire." *ISIS* 96 (2005): 80-87. <https://doi.org/10.1086/430681>
- Parry, Benita. "The institutionalization of postcolonial studies." *The Cambridge Companion to Postcolonial Literary Studies*. Ed. Neil Lazarus. Cambridge: Cambridge University Press, 2004. 66-80. <https://doi.org/10.1017/CCOL0521826942.004>
- . *Postcolonial Studies: A Materialist Critique*. London: Routledge, 2004.
- Petitjean, Patrick. "Science and the 'Civilizing Mission': France and the Colonial Enterprise." *Science across the European Empires, 1800-1950*. Ed. Benedikt Stuchtey. Oxford: German Historical Institute/Oxford University Press, 2005. 107-28.
- . "Présentation: Science et Empires: Un thème prometteur, des enjeux cruciaux." *Science and Empires: Historical Studies about Scientific Development and European Expansion*. Ed. Patrick Petitjean, Catherine Jami, and Anne Marie Moulin. Dordrecht: Kluwer Academic, 1992. 3-12. https://doi.org/10.1007/978-94-011-2594-9_1
- Petitjean, Patrick, Catherine Jami, and Anne Marie Moulin, eds. *Science and Empires: Historical Studies about Scientific Development and European Expansion*. Dordrecht: Kluwer Academic, 1992. <https://doi.org/10.1007/978-94-011-2594-9>
- Pouchepadass, Jacques. "Le projet critique des *postcolonial studies* entre hier et demain." *La situation postcoloniale: Les postcolonial studies dans le débat français*.

- Ed. Marie-Claude Smouts. Paris: Presses de Sciences Po, 2007. 173-218. <https://doi.org/10.3917/scpo.smout.2007.01.0173>
- Prakash, Gyan. *Another Reason: Science and the Imagination of Modern India*. Princeton: Princeton University Press, 1999. <https://doi.org/10.1515/9780691214214>
- Pratt, Marie Louise. *Imperial Eyes: Travel Writing and Transculturation*. London, New York: Routledge, 1992.
- . "Transculturation and autoethnography: Peru, 1615-1980." *Colonial discourse/ post-colonial theory*. Ed. Francis Barker, Peter Hulme, and Margaret Iversen. Manchester, New York: Manchester University Press, 1994. 24-46.
- Prazniak, Roxann. "Is World History Possible? An Inquiry." *History after the Three Worlds: Post-Eurocentric Historiographies*. Ed. Arif Dirlik, Vinay Bahl, and Peter Gran. Lanham, MD: Rowman & Littlefield, 2000. 221-39.
- Pyenson, Lewis. *Civilizing Mission: Exact Sciences and French Overseas Expansion, 1830-1940*. Baltimore, London: Johns Hopkins University Press, 1993. <https://doi.org/10.1063/1.2808534>
- . *Cultural Imperialism and Exact Sciences: German Expansion Overseas 1900-1930*. [Studies in History and Culture, vol. 1.] New York: Peter Lang, 1985.
- . *Empire of Reason: Exact Sciences in Indonesia, 1840-1940*. New York: Brill, 1989.
- Quayson, Ato. *Postcolonialism: Theory, Practice, or Process?* Cambridge: Polity Press, 2000.
- Rabasa, José. "Allegories of the Atlas." *Europe and Its Others: Proceedings of the Essex Conference on the Sociology of Literature*. Vol. 2. Ed. Francis Barker et al. Colchester: University of Essex, 1985. 1-6. <https://doi.org/10.1177/0308275X8600600208>
- Raj, Kapil. "Régler les différends, gérer les différences: dynamiques urbaines et savantes à Calcutta au XVIII^e siècle." *Revue d'histoire moderne & contemporaine* 55.2 (2008): 70-100. <https://doi.org/10.3917/rhmc.552.0070>
- . *Relocating Modern Science: Circulation and the Construction of Knowledge in South Asia and Europe, 1650-1900*. Delhi: Permanent Black; Houndmills: Palgrave Macmillan, 2007.
- Riemenschneider, Dieter, et al. *Post Colonial Theory: The Emergence of a Critical Discourse: A Selected and Annotated Bibliography, with a Preface by Homi K. Bhabha*. Tübingen: Stauffenburg Verlag, 2004.
- Reingold, Nathan, and Marc Rothenberg, eds. *Scientific Colonialism: A Cross-Cultural Comparison*. Washington, D.C., London: Smithsonian Institution Press, 1987.
- Romano, Antonella, and Stéphane Van Damme, eds. *Sciences et villes-mondes, XVI^e-XVIII^e siècles*. Paris: Belin, 2008. [Revue d'histoire moderne & contemporaine 55.2 (2008).] <https://doi.org/10.3917/rhmc.552.0007>
- Safier, Neil. "Global Knowledge on the Move: Itineraries, Amerindian Narratives, and Deep Histories of Science." [Focus: Global Histories of Science] *ISIS* 101 (2010): 133-45. <https://doi.org/10.1086/652693>
- . *Measuring the New World: Enlightenment Science and South America*. Chicago: University of Chicago Press, 2008.
- Said, Edward. *Orientalism*. New York: Pantheon Books, 1978.
- . *Culture and Imperialism*. London: Chatto & Windus, 1993.
- Saldaña, Juan José. "Introduction: The Latin American Scientific Theater." *Science in Latin America: A History*. Ed. Juan José Saldaña. Austin: University of Texas Press, 2006. 1-27. <https://doi.org/10.7560/712713>
- , ed. *Science in Latin America: A History*. 1996. Translated by Bernabé Madrigal. Repr. Austin: University of Texas Press, 2006.

- Schaffer, Simon, Lissa Roberts, Kapil Raj, and James Delbourgo, eds. *The Brokered World: Go-Betweens and Global Intelligence, 1770-1820*. Sagamore Beach, MA: Science History Publications, 2009.
- Schiebinger, Londa. "Forum Introduction: The European Colonial Science Complex." *ISIS* 96 (2005): 52-55. <https://doi.org/10.1086/430677>
- , ed. "Forum on 'Colonial Science'." *ISIS* 96 (2005): 52-87. <https://doi.org/10.1086/430677>
- Scott, David. "The Social Construction of Postcolonial Studies." *Postcolonial Studies and Beyond*. Ed. Ania Loomba, Suvir Kaul, Matti Bunzl, Antoinette Burton, and Jed Esty. Durham, London: Duke University Press, 2005. 385-400. <https://doi.org/10.1215/9780822386650-018>
- Sivasundaram, Sujit. "Introduction." [Focus: Global Histories of Science] *ISIS* 101 (2010): 95-97. <https://doi.org/10.1086/652690>
- Smouts, Marie-Claude. "Introduction: Le postcolonial pour quoi faire?" *La situation postcoloniale: Les postcolonial studies dans le débat français*. Ed. Marie-Claude Smouts. Paris: Presses de Sciences Po, 2007. 25-66. <https://doi.org/10.3917/scpo.smout.2007.01>
- , ed. *La situation postcoloniale: Les postcolonial studies dans le débat français*. Paris: Presses de Sciences Po, 2007.
- Spivak, Gayatri Chakravorty. *A Critique of Postcolonial Reason*. Cambridge, MA: Harvard University Press: 1999. <https://doi.org/10.2307/j.ctvjsf541>
- Stearns, Raymond Phineas. *Science in the British Colonies of America*. Urbana, Chicago, London: University of Illinois Press, 1970.
- Stuchtey, Benedikt. "Introduction: Towards a Comparative History of Science and Tropical Medicine in Imperial Cultures since 1800." *Science Across the European Empires, 1800-1950*. Oxford: German Historical Institute/Oxford University Press, 2005. 1-45.
- . "The Europeanization of the World. Colonial Discourses in the French Third Republic." *The Fuzzy Logic of Encounter: New Perspectives on Cultural Contact*. Ed. Sünne Juterczenka and Gesa Mackenthun. Münster: Waxmann, 2009. 97-116.
- , ed. *Science Across the European Empires, 1800-1950*. Oxford: German Historical Institute/Oxford University Press, 2005.
- Thiong'o, Ngugi wa. *Decolonising the Mind. The Politics of Language in African Literature*. Oxford: Heinemann, 1986.
- Thomas, Nicholas. *Colonialism's Culture: Anthropology, Travel, and Government*. Cambridge: Polity Press, 1994.
- Thompson, Dixon. "The Tyranny of Images." *Australian-Canadian Studies* 5.2 (1987): 55-67.
- Tilley, Helen. "Global Histories, Vernacular Science, and African Genealogies; or, Is the History of Science Ready for the World." [Forum: Global Histories of Science] *ISIS* 101(2010): 110-19. <https://doi.org/10.1086/652692>
- Van Sertima, Ivan, ed. *Blacks in Science: Ancient and Modern*. New Brunswick, NJ: Transaction Books, 1983.
- Whitney, Charles C. "Merchants of Light: Science and Colonization in the *New Atlantis*." *Francis Bacon's Legacy of Texts: "The Art of Discovery Grows with Discovery"*. Ed. William A. Sessions. New York: AMS, 1990. 255-68.
- Young, Robert. *White Mythologies. Writing History and the West*. London: Routledge, 1990.
- . *Colonial Desire. Hybridity in Theory, Culture, and Race*. London, New York: Routledge, 1995.

**THE CULTURAL POLITICS OF SCIENTIFIC
DISCOURSE. THREE CASE STUDIES**

CHAPTER THREE

Europe Penetrated by Islam. The Orientalization of the Order of the Templars

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This contribution deals with the construction of cultural difference in scholarly and literary discourses by tracing orientalizing representations of the Templars in historiographical and literary works from the Middle Ages until today. The Templars were the first military order, a novel institution combining the life of the knight with that of the monk. A tendency to connect the Templars with “the Oriental” and to see them as Orientals has existed almost since the order’s founding in the twelfth century in the Kingdom of Jerusalem. In the Enlightenment period of the eighteenth century and in the Romantic Era around 1800 this tendency grew stronger and became intertwined with an evolving, fundamental uneasiness with the phenomenon of religious violence. The combination of the two tendencies has led to the institution of the Templar warrior monks being explained by scholars as the result of a mental penetration of European Christendom by Islam/the Oriental.

The Templars

In 1095 Pope Urban II launched the first Crusade with his famous exhortation “God wills it” at the council of Clermont. In 1099 Christians from the Latin West conquered Palestine and established the Christian Kingdom of Jerusalem. The Christian Kings transformed the Al-Aqsa Mosque on Mount Temple into their royal palace. However, in or around the year 1120, King Baldwin II (reigned 1118-1131) gave the building, or at least a part of it, to a French nobleman by the name of Hugo de Paganis (Bulst-Thiele 19-29). Together with a handful of fellow-minded knights, Hugo had just taken the three traditional monastic vows pledging chastity, poverty, and obedience, but had added a fourth and new one: to protect Christian pilgrims traveling from the coastal city of Jaffa to Jerusalem against the attacks of the Muslims.¹ After difficult beginnings, Hugo’s group

1 The vows were administered by Warmund, the Latin Patriarch of Jerusalem, probably during the council at Nablus in January 1120, though the exact date is unknown (Mayer

soon enjoyed huge success. It became known as “the Order of the Temple,” the mosque being confused with the biblical Temple of Solomon, which had stood not far away.²

The Templars were the first military order,³ a completely new, hybrid type of organization merging the hitherto mutually exclusive spheres of chivalry and monasticism into a single institution of sacred violence.⁴ Beforehand, chivalry and monasticism had been regarded as incompatible spheres. Although an accepted theory of just war had already been established by Augustine (354-430), killing, even in just wars, was considered an act that demanded penance. While monks viewed themselves as the true “soldiers of Christ” (*milites Christi*) (Hehl 1), the worldly trade of the soldier was largely disregarded by the church.

This situation, over time, underwent a slow but steady change (Barber 38-40). In the course of the eleventh century, efforts were made to distinguish good from evil chivalry (Grabois). The Crusades marked a turning point. Now, participating in “armed pilgrimage” was itself conceived of as an act of penance. Still, in 1095 Pope Urban II, launching his appeal for the First Crusade, actually admonished all knights to let go of chivalry at large in order to participate in the enterprise he had inaugurated (Flori 273). In fact, chivalry was in such ill repute with ecclesiastical authors of the time that Bernard of Clairvaux (c. 1090-1153) could employ its Latin name, “militia,” in an annomination with “malitia,” i.e., “malice” (Bernard de Clairvaux 56). Yet he made this pun in his famous panegyric on the Templars, “In praise of the new knighthood” (“De laude novae militiae”). Bernard acknowledged the absolute novelty of the institution, calling it “a new kind of militia, unknown to the world” (“Novum militiae genus et saeculis inexpertum”) and felt obliged to refute the very fundamental and obviously widespread objection against its purpose, namely that “it is not allowed at all to a Christian to kill with the sword” (“percutere in gladio omnino fas non est christiano”) (Bernard 50; 60). Nevertheless, he found more than enough arguments to refute these injunctions and to justify the new order (Barber 42-49; Fleckenstein; Hehl 111-15).⁵

The fusion of chivalry and religious life in the Templars was soon accepted. Not only did the order receive a life rule at the council of Troyes in 1128 (or 1129) as well as wide-ranging privileges granted by Pope Innocent II in 1139, but on the latter occasion it was also officially declared a part of “God’s militia” (“Dei militia”).⁶ The Templar example was inspiring, and many military orders

76-77). However, Bulst-Thiele (21) indicates the year 1119, shortly after a Muslim attack on Christian pilgrims on Easter of that year.

2 The second temple had been destroyed in 70 AD. The building of the Al-Aqsa Mosque was constructed in the seventh century AD, after Muhammed’s death. The neighboring Dome of the Rock was identified by Christians in the Middle Ages with the “Temple of the Lord” (*templum Domini*).

3 The Hospitallers were founded earlier but became a military order only after the Templars.

4 On the novelty of the Templars, see the discussion by Jaspert, esp. 93-97.

5 Bernard de Clairvaux 50.

6 See papal bull “Omne datum optimum,” March 29 1139, (Hiestand, *Papsturkunden* 207).

combining the life of the knight with that of the monk⁷ spread all over the Christian-dominated Near East and Europe, becoming an accepted and normal part of medieval societies. They continued to exist even long after the European Christians had lost their hold of the Holy Land at the end of the thirteenth century. And although the Templars were eventually abolished by the French king at the beginning of the fourteenth century, other military orders, such as the Hospitallers, the Teutonic Knights, and numerous Iberian institutions, remained important players in European history long into the Early Modern Period (Forey, *Military*; Demurger; Barber).

Criticism of the Order and the Construction of a Muslim Antetype

When the Templars were first established in the twelfth century many followed Bernard of Clairvaux and hailed the new religious militia. Yet there were also those who scorned it, like Bernard's fellow Cistercian, Isaac de Stella, who called the Templar Order a monster whose rule of life must have been drawn from the fifth gospel, i.e., that of the devil, because its members forced the infidels to believe in God through the use of lances and clubs, ruthlessly robbing and killing them in a supposedly "religious" way, and yet claiming martyrdom for those of their own brothers who died while committing this carnage ("Sermo 48" 1854). Although Isaac's voice was certainly minoritarian, it was not an isolated one; others joined him in this critical assessment (Barber 59-63, Partner 24-41).

Yet whatever the moral judgments made at the time, during the entire Middle Ages there was never the slightest hint that the invention of the military orders, which had taken place in Palestine, had anything to do with a Muslim influence. It was only at the beginning of the nineteenth century that the suggestion was first made that these orders were inspired by Muslim institutions, a hypothesis that posited the cultural transfer of religious violence and that has made its way into today's academic mainstream. According to supporters of this theory, the context of Christianity provided an insufficient explanation for the birth of these orders. Instead, a Muslim antetype was imputed. The medieval Templars and other similar groups can, in this view, only be understood as a more or less direct imitation of the Islamic *Ribāt*. A *Ribāt* is generally conceived of as a fortified convent populated by Islamic warrior monks, or, more succinctly, as a Muslim military monastery. This assertion of a Muslim model for the military orders evolved and thrived in the twentieth century. Although direct evidence was never put forward to support it, it has endured and continues to be defended by many scholars in religious and medieval studies (Castro 204-18; Cocheril; Glick; Glick and

7 It is, however, important to note that the rule under which the Templars functioned was not a "monastical" one in the narrow sense of the word, but a rule of Canons Regular. Also, the fighting members of military orders are more fittingly described as "semireligious" rather than as monks or Canons Regular (Hiestand, "Ritterorden"; Elm 359-60).

Sunyer; Kedar and Aslanov; Lourie; Miramon 70-71, note 3; Peters 267 and 278). The model is not, however, universally accepted; many scholars remain skeptical or actively reject it as unproven and improbable. Alan Forey, for instance, the leading historian of the military orders, outright dismisses the notion of a Muslim antecedent (Forey, *Emergence*), as do Derek Lomax (3-4) and Joseph O’Callaghan (176-78). Yet most academic discussions on the origins of the military orders consider it as a serious possibility, the current standard work in English (by Barber) on the Templars, serving as one example (40-41).

However, research by Orientalists has revealed that the supposed model institution, the Muslim military monastery, never existed. It has been shown that the notion of the Ribāt as a convent of Muslim warrior monks is the result of an illegitimate conflation of spatially, chronologically, and conceptually dissociated references.⁸ The entry on the Ribāt in the current edition of the authoritative *Encyclopedia of Islam* arrives at the following conclusion: “It can thus be stated with confidence that to define it [i.e., the Ribāt, J.F.] a ‘Muslim military monastery’ is evidence of extrapolation and misinterpretation, and this applies whatever the period and the region” (Chabbi 494).⁹

This does away once and for all with the supposed Islamic institution as model for the Christian military orders. Yet if there never was a Muslim military monastery, why did so many scholars believe it existed and that it was the inspiration for the establishment of Christian military orders? By retracing the historiography on the subject, it has become evident that the idea of a “Muslim military monastery” never had a life of its own. Rather, the concept of the Muslim Ribāt was constructed parallel with Christian military orders and on the conceptual terms of Western monasticism. The analogy and the alleged transfer between the Muslim and the Christian institution formed the self-evident background for the further development of the concept of the Ribāt (Feuchter, *Ribāt*).

Motives for the Transfer Hypothesis

Why was an external, oriental genealogy bestowed upon the Templars (and the Christian military orders at large)? An initial response is that by 1800 religious chivalry had become inexplicable in the frame of its own culture. Enlightenment had provided for a changed look on the distribution of the secular and the religious sphere and for a clearer separation between them. Under the critical eye

8 To measure the extent of the destruction of false certainties, see the statement by Wheatley: “Ribāt is a term virtually incapable of unequivocal definition” (256) (with explicit reference to Chabbi’s article, see below).

9 Chabbi furthermore writes: “It is no longer possible to subscribe, in a global manner, to the definition of G. Marçais, who presents ribāt [...] as ‘a type of establishment, both religious and military, which seems quite specifically Muslim’ and ‘which appeared at an early stage’. It is no longer possible to retain as ‘current’ the interpretation of a ‘fortified convent’” (501).

of the new philosophical movement, violence had more and more come to be seen as alien to true religion. Christian militias exerting sacred violence were now perceived as strange, especially on the background of the New Testament's message of non-violence. Islam, on the contrary, was viewed as a culture naturally prone to religious violence and lacking a clear distinction of politics and religion. An outside stimulus, such as Islam, could explain the uncanny phenomenon of a Christian order that merged the life of the monk and the warrior. Many scholars involved in developing the transfer hypothesis have clearly articulated their uneasiness about the orders and at the same time subscribed to the general view that religious violence was originally alien to Christianity but innate to Islam (see overview in Feuchter, *Ribāt* 134-36). For instance, the Spaniard Jaime Oliver Asín explicitly stated that the orders could not have originated in Christian culture because the concept of propagating its beliefs through armed violence was essentially "anti-Christian." In contrast, he describes "Holy War" as an Islamic religious duty:

Finally, we have to notice in favor of the Islamic origin of the military orders in general, that the military character of both institutions, the Muslim one and the Christian one, could originate only from a people that practiced the holy war as a religious duty, as was the case with the Muslim people. Neither here [i.e., in Spain] nor in any other Christian country could a type of war with an essentially anti-Christian spirit have possibly been born: The propagation of religious belief with armed violence. (Oliver Asín 542)

Yet this is not the whole answer to the question of the oriental genealogy. For the Templars had been perceived as Orientals and as linked to the Orient long before the eighteenth century. This perception of the Templars as being closely associated with the oriental world was already in place by the Middle Ages, and by 1800, this orientalizing of the Templars was in full force. This state of affairs undoubtedly prepared the ground for and contributed to the construction of the transfer hypothesis from Islam that emerged at that time. In the following I will try to retrace some strands of this orientalizing tendency in medieval and modern (scholarly and fictional) texts.

Orientalizing the Templars

Although, as stated above, some medieval contemporaries initially abhorred the idea of warrior monks, within a few decades after the founding of the Templars, their existence within medieval societies had become normalized, with no suspicions of any kind of Muslim inspiration for the general idea of this and other similar orders. However, the fact that the notion of military orders was no longer questioned did not mean that there was no criticism at all. The Templars in par-

ticular, for example, were often accused of pride and greed. They were also seen as involved with Muslims in several ways. The most interesting alleged relationship was that with the Ismailis, one of the most emblematic and (allegedly) fanatic Islamic groups.¹⁰ Better known as "Assassins," they were "famous for their political murders" (Partner 25) – which they allegedly committed with the help of drugs – so famous, in fact, that "assassin" has become the word for "murderer" in many European languages, including English, French (*assassin*), Italian (*assassino*), and Spanish (*asesino*). Twelfth-century chroniclers like William of Tyre report that the Templars forced the Ismailis to pay a tribute to the Templars and that when the Assassin leader, the "Old Man from the Mountain," once considered converting himself and his sect to Christianity, the Templars allegedly had him killed in order not to lose that tribute (Barber 100-4, Partner 24-26).

Since the end of the twelfth century, Christian Rule in Palestine had been successively crumbling. In 1291 Acre, the last Christian stronghold, fell and the occidental Christians left Palestine's coast. The Templars were blamed for playing a role in this downfall, the defeat in the big battle of the Horns of Hattin in 1187 (which had led to the loss of the Kingdom of Jerusalem), and for the vanquishing of the Christian army at Mansourah (Egypt) in 1250 (Partner 28-29). Condemnation of the rich but militarily ineffective order grew. In 1307, the French king, Philipp the Fair, opened a trial against the Templars that ended with the abolition of the order and the execution of many of its members (Barber 280-314, Partner 59-85). The accusations made were all invented, everything from alleged anti-royal conspiracy to heresy to sexual perversions. Pertinent to the discussion here is that the Templars were also said to have venerated an idol by the name of "Baphomet," the contemporary Christian designation of the Prophet Muhammed.¹¹ This was an obvious fabrication since Muslims don't revere idols: "The idea that Muslims were idolaters was itself a part of another system of 'smears', the pejorative representation of the oriental world by the western Christians" (Partner 78).

Today there can be no doubt that this particular charge was without foundation. The same holds true for another accusation made during the trial, one that drew a connection between the Order and the Orient: the Templars had allegedly paid homage to the Muslim leader Saladin at some point during the twelfth century (Partner 75). Far-fetched as they were, these and other allegations were discussed over and over again during the following centuries. The Templars became emblematic either as an innocently bedeviled out-group or as evil conspirators. Both defenders and accusers cherished the idea that the order was powerful, with secret rites and knowledge not accessible to outsiders – if this was not the case, why had the French king abolished them? This idea of a secluded brotherhood with secrets, clandestinely surviving in spite of its ongoing suppression, was the basis for the fascination of the Freemasons with the Templars in the eighteenth century. In a complicated development evolving out of a revived interest

¹⁰ See Lewis and Daftary.

¹¹ On "Baphomet" see the Frenschkowski, esp. 13-17.

in chivalry, and by the embracing of the Crusaders as forerunners of the movement, but initiated specifically by German brethren, the medieval military order was inserted into the Masonic ancestry and began to become the object of ever-growing esotericism and conspiracy theories, a progression we cannot follow in detail here (see Partner 89-180; Barber 314-33). Yet it is important to remember that in the cultural imaginary, the Templars had, by about 1800, become a major part of a chain of secret societies, a chain that had supposedly existed from the beginning of civilization, and whose members were influential, if not omnipotent, in the present.

The Enlightenment of the Crusades was censured, not an entirely new state of affairs: during the sixteenth and seventeenth centuries, crusading had been decried by Protestants and Catholics alike (Wildermann). However, it was not the enterprise itself as such, but the base motives of some of its participants that were assailed during that period.¹² Eighteenth-century historians, including David Hume and Edward Gibbon, and philosophers like Voltaire, differed as they began to consider the Crusades as a whole as expressions of fanaticism and perverted aspirations for glory (Siberry 1-4). In the Middle Ages, crusading had provided the general context for the military orders' activities, and Gibbon and Voltaire each touched on the subject, albeit only briefly. Both took ambivalent positions on the matter. Edward Gibbon in his *The History of the Decline and Fall of the Roman Empire* calls the military order "a strange association of a monastic and a military life, which fanaticism might suggest, but which policy must approve" (465).¹³ He exalts the first generation of the Orders for its braveness, but deplores the decadence of those that followed. Voltaire, in his "Essai sur les moeurs et l'esprit des nations" (1756), expresses outrage at the unjust trial of the Templars by the French king, but he also cites the military orders as proof of the feebleness of the Crusader states in Palestine, because, as he puts it, sound societies do not need such "special associations" ("associations particulières," Voltaire Vol. 23, 311). Even more interesting is Voltaire's remark that the Templars and Hospitaliers were in some ways similar to the militia of the Muslim Mamluk rulers: "Les religieux templiers et hospitaliers, qu'on peut en quelque sens comparer à la milice des mameluks" (386). This casual observation shows that an analogy between Christian and Muslim militias was already in the air.

While the military orders are far from central in the historical perspective of the major figures of the French and English Enlightenment, one of their German counterparts, Gotthold Ephraim Lessing, makes a Templar the focal figure in one of the Enlightenment's greatest plays. In *Nathan the Wise* (1779), Lessing's exhortation to religious tolerance, a *Tempelherr* stands for Christianity. Lessing's choice is all the more remarkable because it is entirely his own. No Christian features in his work's literary inspiration, the late medieval ring parable from

12 For the complex story of early modern views on crusading and Holy War, see Tyerman 98-113.

13 On Gibbon's judgment on the Crusades, see also Tyerman 113.

Boccaccio's *Decameron*, a narrative about the Muslim ruler Saladin and the Jew Melchizedech (Jubb 96, 196–99). Lessing's Templar is morally good and valiant, yet fanatical. Taken prisoner by Saladin, who is presented as an example of a wise king, in the course of the play the Templar's fundamental beliefs are shaken and his zealotry yields to a more tolerant stance. Lessing shared Voltaire's rejection of the Crusades as well as his ambivalent view of the medieval Templars. Consequently, "[h]owever sympathetic Lessing's treatment in *Nathan*, he was never to be reconciled with the Templars' contradictory role of soldier and monk" (Batley 310). The soul searching of his Templar figure includes calling into question the orders's aims. At one point, he asks himself: "What is it my Order wants [me to do]?" (Lessing, Vol. 3, 99 [my translation]). Yet Lessing does not content himself with simply posing a query. In a spectacular twist, the Templar not only falls in love with a Jewish woman but he also turns out to be the son of Saladin's brother. The Templar is thus revealed as an Oriental.

In this, the most well-known literary Templar figure of the Enlightenment closely resembles its counterpart in Romanticism, Brian de Bois-Guilbert, the chief villain in Walter Scott's *Ivanhoe* (1820) and the main opponent of the novel's eponymous hero and his lord, Richard Lionheart. Scott presents de Bois-Guilbert as a European gone oriental: he has "keen, piercing, dark eyes," "thick black moustaches," and "thick curled hair of a raven blackness, corresponding to his unusually swart complexion." His "[h]igh features, naturally strong and powerfully expressive, had been burnt almost into Negro blackness by constant exposure to the tropical sun." In his girdle "he wore a long and double-edged dagger" and "from his saddle hung a short battle-axe, richly inlaid with Damascene carving." His retinue consisted of "two attendants, whose dark visages, white turbans, and the Oriental form of their garments, showed them to be natives of some distant Eastern country." Brian communicates with them in their mother tongue. Already of an oriental phenotype, and equipped with oriental gear, habits, and companions, small wonder that at their first encounter the villainous Templar is named a "Saracen head" by the jester Wamba (Scott, *Ivanhoe*, 36–39).

In another novel by Scott, *The Talisman* (1825), which is set in Crusader Palestine, the evil figure opposed to Richard Lionheart is also a Templar: Lucas de Beaumanoir, the General Master of the Order. He is not described as oriental in his features, but his character is strongly associated with fanatic Muslims. In a murder attempt on the king, de Beaumanoir employs a Kharijite, a member of a small Islamic sect. And when the General Master asks his accomplice, Conrade of Montferrat, "Knowest thou not the people whom the Saracens call Charegites?" Conrade's brash response is one that hardly flatters the Templars: "Surely [...] they are desperate and besotted enthusiasts, who devote their lives to the advancement of religion – somewhat like Templars, only they are never known to pause in the race of their calling" (Scott, *Talisman*, 180). At one point, Scott has King Richard refer to the Templar master as an "amphibious caitiff" (cowardly, despicable person), alluding to his being a soldier-monk: de Beaumanoir had bestowed

upon Richard his benediction as a priest instead of paying him respect as a military leader. “The misproud and amphibious caitiff puts the monk upon me” (211). In Scott’s novels, which formed “the most persuasive modern image of the Templars in Britain” (and throughout the Western world, one may safely add) (Barber 323), the Templars are generally portrayed not only as a hypocritical group with secret aims that verge on, if not actually cross over into, religious fanaticism and a ruthless pursuit of their own self-interest, but they are also deeply connected to the Orient. And they illustrate almost all of the stereotypes that date as far back as the Middle Ages: “Scott’s portrayal of Brian de Bois-Guilbert is everything that William of Tyre [the twelfth century chronicler critical of the Order, J.F.] could have wished for” (Barber 323; see also Partner 26).

The Templars from the Perspective of Nascent Oriental Studies

The negative depiction of the Templars in Scott’s novels¹⁴ testifies to both the uneasiness and fascination with which literary Romanticism viewed the military orders. This same ambivalence is reflected in contemporaneous scholarly works of the then new discipline of Oriental Studies. Joseph Hammer (1774-1856) was among the first to suggest that the institution of the Templars was the result of a cultural transfer from Islam.¹⁵ Hammer, an Austrian, had been educated as a professional interpreter (“Sprachknabe”) at the Oriental Academy in Vienna and had practiced this profession in service to, among others, British Admiral Sir William Sidney Smith during the 1799-1800 naval campaign against Napoleon’s forces in the Eastern Mediterranean. After Hammer’s final return to Austria in 1807 he went on to become a major promoter of Oriental Studies in the German-speaking world (Fück 158-66),¹⁶ especially through his editorship of the first journal of that discipline in German, *Fundgruben des Orients* (“Mines of Information on the Orient”), published between 1809 and 1818/1820.¹⁷ In 1818, Hammer, a prolific author, wrote two works touching on the Templars: first, a long Latin essay titled *Mysterium Baphometis revelatum* (*The Secret of Baphomet revealed*), and second,

14 However, in his nonfictional text, “Essay on chivalry” (1819), Scott’s judgment of the Templars was much more favorable: accepting “devotion as a principal feature in the character of Chivalry” (4) and only rejecting the propagation of the Christian creed with violence, he considered that “the union between spiritual and temporal chivalry” became “perfect” with the institution of the Templars and the Hospitallers (5). On Scott and chivalry, see Siberry 115 and Chandler; on *The Talisman*, see Jubb 202-4.

15 Only late in his life did he take on the title of Freiherr von Hammer-Purgstall.

16 See Fück’s assessment: “Es bleibt ihm das Verdienst, in Deutschland zu einer Zeit, in der die arabischen Studien in eine Sackgasse zu geraten drohten, das neue Orientbild unermüdlich und tatkräftig verkündet zu haben” (165).

17 For detailed information on Hammer, his influence as translator of oriental literature into German, and his reception, notably by Johann Wolfgang Goethe, see Reichl; Elgohary; Polaschegg 147-52. For a reappraisal of his contribution to the increased academic interest in non-European regions in general, see Osterhammel 13, 41, 51, 53 et passim.

a book in German, *Die Geschichte der Assassinen aus morgenländischen Quellen* (*History of the Assassins based on Oriental sources*). Each publication took up a connection between the Order and the Orient that had already been articulated during the Middle Ages: in the Latin essay, Hammer presented (supposed) evidence of a link between the Templars and ancient oriental cults identified by their alleged common veneration of the Baphomet idol. He also connected the Templars to the legend of the Holy Grail. Delirious as they were, his ideas were eagerly taken up and became a major component of the conspiracy theories that already surrounded the Templars and that continue to flourish today (Barber 320-23, Partner 138-45). Hammer's German book about the Assassins was the first monograph about the sect. It faithfully reproduced the medieval myths circling around the Ismailis, drawing numerous parallels between them and the Templars. Among the (allegedly) common features of the two groups were a reliance on mountain strongholds (the Assassins were based in castles in Persia and Syria), a dedication to ruthless murder (Hammer, *Assassinen* 199-200), the wearing of similar habits, and a despising of real, 'positive' religion. At the end of the book, Hammer asserted that the Assassins had exerted significant influence on Christian institutions as evidenced by "similarities [...] which arrived not by chance nor by the same motive, but which were probably transferred through the link of the crusades from the spirit of the Orient into the spirit of the Occident" (336-37).¹⁸ And even though Hammer emphasized that no Christian order was completely identical with the Assassins, he declared the Templars as the Christian organization that certainly bore the most resemblance (337).¹⁹ Although Hammer's linking of the Templars with the Assassins found little support among scholars, it fell on more fertile ground among conspiracy theorists.²⁰ And his work is a valuable demon-

18 My translation (JF). The original reads: "Wir haben zwar im Vorbeigehen mehr als einmal auf die Berührungspunkte hingedeutet, welche die Einrichtung des Ordens der Assassinen mit gleichzeitigen oder späteren Orden darbeut, aber wenn sich auch so manche Aehnlichkeiten finden, die weder zufällig noch aus derselben Ursache entstanden, sondern wahrscheinlich durch die Verbindung der Kreuzzüge aus dem Geiste des Orients in den des Occidents übergegangen sind, so reichen dieselben doch nirgends hin zu einem vollkommenen Seitenstücke mit dem Orden der Assassinen, welchem, Dank dem Himmel! bisher in der Geschichte kein anderer parallel läuft."

19 "Zunächst an demselben [i.e., 'the order' of the Assassins] stand unstreitig der der Templer, dessen geheime Satzungen, besonders in so weit es Verschmähung der positiven Religion und Ausdehnung der Herrschaft durch Erwerb von Schlössern und Burgen betrifft, dieselben wie die des Ordens der Assassinen gewesen zu seyn scheinen. Auch ist die Übereinstimmung zwischen den weißen Kleidern und rothen Binden der Assassinen mit dem weißen Mantel und rothem Kreuze der Templer gewiß äußerst auffallend" (Hammer, *Assassinen* 337).

20 Hammer again applied the concept of the military orders to an Islamic institution in a later work: Hammer-Purgstall, *Ilchane* 323. And he described an outright "Islamic military order" ("dieses moslimischen Ritterordens") in another context: a brotherhood spread all over Asia Minor, with the name of "knight brothers" ("Achewat Fatijan," Hammer traduces in German: "Brüder Ritter") and states that it was either modeled on the Christian military orders or was itself the model for those orders ("waren entweder eine Nachahmung, oder, wenn sie schon vierhundert Jahre früher bestanden haben sollten, das Vorbild derselben").

stration of the inclination at the time to take up old orientalizing tendencies concerning the Templars and to liken and tie the Order to Islamic institutions.

It was another trailblazer in Oriental Studies who had more academic success lodging the origins of the Templars in a Muslim antetype. The Spaniard José Antonio Conde (1766-1820) published his *Historia de la dominación de los árabes en España, sacada de varios manuscritos y memorias arabigas* (*History of the Rule of the Arabs in Spain, Taken from Diverse Arabic Manuscripts and Accounts*) in 1820. This pioneering and very well-received work was the first to describe the history of Islamic Spain entirely based on Arabic sources, albeit in an uncritical fashion and without a systematic citing of references. With just a small footnote, Conde sent the Ribāt hypothesis out into the world (Conde 619, note). It is here that he briefly refers to a special group of Muslim fighters, called *fronteros* (“frontier people”) or *rabitos*, perhaps hispanicizing an Arabic term used in his source. Then he goes on to depict the *fronteros/rabitos* as Muslim “knights,” and finally concludes that the Christian military orders were “very probably derived from those ‘rabitos’ because the two institutions very much resembled each other.” The link between *fronteros/rabitos* and the military orders is not discussed any further in the book, and Conde never mentions the notion of a place or a building named Ribāt. Nevertheless, with these few lines in a footnote, he laid the foundation for the construction of the Ribāt as an academic object as well as launching its career as the immediate model for the military orders that still endures. All this despite the fact that no evidence has ever been offered indicating that there ever was such an institution, and that recently the very existence of the Ribāt as a “Muslim Military Monastery” had been refuted (see Feuchter, *Ribāt* for more details).

Conclusion

The orientalizing scholarly discourse on the Templars reached its peak in the statements of one of the staunchest supporters of the model hypothesis. Brazilian-Spanish medievalist Américo Castro (1885-1972) is famous for his vision of Spain as a cultural fusion of Christian, Muslim, and Jewish elements, marked by the *convivencia* (“living together”) in medieval al-Andalus.²¹ His 1948 book *España en su historia. Cristianos, Moros y Judíos* (published in English under the title *The Structure of Spanish History*) is the most influential work written in the twentieth century on medieval Spanish history. Castro opposed the view that Spain was a nation largely “untainted” by the centuries of Muslim rule in the Middle Ages and that its history comprised a strong national continuity from pre-Islamic to Islamic and post-Islamic Spain, a position defended by the equally famous Spanish historian Claudio Sánchez Albornoz (1893-1984). Cas-

21 On the concept of *convivencia*, which was not a notion invented by Castro himself, see Vones 223.

tro's achievement in restoring Spain's tricultural medieval past was recognized by no other than Edward Said, who in 2002 called Castro a "heroic figure" who had brought to the fore "what was once suppressed or denied in Spain's long history."²² The Ribāt hypothesis figures prominently in the proof Castro provides for the melding of cultures in medieval Spain (204-18). He presents the military orders as one of three exemplary Spanish "Christian-Islamic institutions," the other two being "Holy War" and "tolerance." When writing about the military orders and the Ribāt, he makes the following uncompromising remarks:

This is the way European Christendom was penetrated by a doctrine and certain habits that had been familiar to Islam for centuries although they were novel and unheard of for the French monks of Cîteaux and Cluny. To give over to mystic asceticism and to spill the blood of the enemy were compatible activities for the Muslim, because in him the distance between the corporeal and the spiritual, between the mundane and the divine, was obliterated. (206)

He continues: "the mixture of religious piety and bloody violence was like an oriental garment of the spirit" (206-7). It is hard not to think here of Scott's description of Brian de Bois-Guilbert's attire. But returning to Castro, according to him, when the military orders brought this "oriental garment" of the spirit back from Palestine, it somehow made them strangers in their own world:

There was something in the Templars that was incompatible with French life. [...] Their bellicose piety was tolerated so long as they lived in Palestine. But when they were forced to live once more in the country of their origin, the conflict became patent between church and war, between spirituality and business transactions – opposites which could no longer be integrated in the rationalized life of France, where a banker was a banker and a religious was a religious. (207-8)

Obviously, Castro views France (or Europe in general) as already having a sempiternal culture of secularism (*laïcité*) in the Middle Ages since he goes on to speak of the "incompatibility of the Order of the Templars with the neat separation of heaven and earth, faith and reason, characteristic of French life" (208). This discordant relationship of the Templars with Europe encompassed their oriental mixing of the secular and the religious; the consequence was the abolition of the Order by the French king.

Unfortunately, Castro is not alone in holding this view. It is deeply unsettling that other scholars, also renowned for their pioneering work on cultural fusion, are among the most avid supporters of the Ribāt-as-model hypothesis (e.g., Asín Palacios; Glick). By upholding the idea of the Muslim antetype for the Templars,

²² The quote is from Said's speech at the reception of the "Premio del Principe de Asturias" (Spain's highest cultural award) in the category of "concord" in 2002, which he received together with Daniel Barenboim.
(<http://www.fpa.es/en/awards/2002/daniel-barenboim-1/speech>. Retrieved February 6, 2012.)

these writers have unwittingly reinforced the very cultural boundaries they have otherwise tried to dismantle, illustrating how even a scholarly representation of cultural transfer can contribute to the creation of difference.²³

Works Cited

- Barber, Malcolm. *The New Knighthood. A History of the Order of the Temple*. Cambridge: Cambridge University Press, 1995.
- Batley, Edward M. "Lessing's Templars and the Reform of German Freemasonry." *German Life and Letters* 52 (1999): 297-313. <https://doi.org/10.1111/1468-0483.00136>
- Bernard de Clairvaux. *Éloge de la nouvelle chevalerie*. Ed. Pierre-Yves Emery. Sources Chrétiennes 367. Paris: Editions du Cerf, 1990. 48-132.
- Bulst-Thiele, Marie-Luise. *Sacrae Domus Militae Templi Hierosolymitani Magistri: Untersuchungen zur Geschichte des Templerordens 1118/19-1314*. Abhandlungen der Akademie der Wissenschaften in Göttingen, Philologisch-Historische Klasse, Dritte Folge 86. Göttingen: Vandenhoeck & Ruprecht, 1974.
- Castro, Américo. *The Structure of Spanish History*. Princeton: Princeton University Press, 1954. [*España en su historia. Cristianos, Moros y Judíos*. Buenos Aires: Espasa, 1948].
- Chabbi, Jacqueline. "Ribāt." *The Encyclopaedia of Islam. New Edition*. Vol. 8. Leiden: Brill, 1995. 493-506.
- Chandler, Alice. "Chivalry and Romance – Scott's Medieval Novels." *Studies in Romanticism* 14 (1975): 185-200. <https://doi.org/10.2307/25599968>
- Cocheril, Maur. "Essai sur l'origine des Ordres militaires dans la péninsule iberique." *Collectanea ordinis Cisterciensium* 20 (1958): 228-50.
- Conde, José Antonio. *Historia de la dominación de los árabes en España, sacada de varios manuscritos y memorias arabigas*. Madrid: Imprenta que fue de García, 1820-1821.
- Daftary, Farhat. *The Assassin Legends. Myths of the Isma'ilis*. London: I.B. Tauris, 1994. <https://doi.org/10.5040/9780755612284>
- Demurger, Alain. *Chevaliers du Christ. Les ordres religieux-militaires au Moyen Âge (XIe-XVIIe siècles)*. Paris: Albin Michel, 2002.
- Elgohary, Behar Mohamed. *Joseph Freiherr von Hammer-Purgstall (1774-1856). Ein Dichter und Vermittler orientalischer Literatur*. Stuttgart: Akademischer Verlag Hans-Dieter Heinz, 1979.
- Elm, Kaspar. "Die 'Ordines Militares'. Ein Ordenszötus zwischen Einheit und Vielfalt." *The Crusades and the Military Orders. Expanding the Frontiers of Medieval Latin Christianity*. Ed. Zsolt Hunyadi and József Laszlovszky. Budapest: Department of Medieval Studies, Central European University, 2001. 351-77.
- The Encyclopaedia of Islam. New Edition*. Vol. 8. Leiden: Brill, 1995.
- Feuchter, Jörg. "The Islamic Ribāt – A Model for the Christian Military Orders? Sacred Violence, Concepts of Religions and the Invention of a Cultural Transfer." *Religion and Its Other. Secular and Sacral Concepts and Practices in Interaction*. Ed. Heike Bock, Jörg Feuchter and Michi Knecht. Eigene und fremde Welten 8. Frankfurt am Main and New York: Campus, 2008. 115-41.

23 On representations of cultural transfer, see Feuchter, *Cultural Transfer*, "Introduction."

- . "Cultural Transfers in Dispute: An Introduction." *Cultural Transfer in Dispute. Representations in Asia, Europe and the Arab World since the Middle Ages*. Eigene und Fremde Welten 23. Ed. Jörg Feuchter, Friedhelm Hoffmann, and Bee Yun. Frankfurt am Main, New York: Campus, 2011. 15-37.
- . *Cultural Transfer in Dispute. Representations in Asia, Europe and the Arab World since the Middle Ages*. Eigene und Fremde Welten 23. Frankfurt am Main, New York: Campus, 2011. 15-37.
- Fleckenstein, Josef. "Die Rechtfertigung der geistlichen Ritterorden nach der Schrift 'De laude novae militiae' Bernhards von Clairvaux." *Die geistlichen Ritterorden Europas*. Ed. Josef Fleckenstein and Manfred Hellmann. Vorträge und Forschungen 26. Sigmaringen: Thorbecke, 1980. 9-22.
- Flori, Jean. *La guerre sainte. La formation de l'idée de la croisade dans l'Occident chrétien*. Paris: Aubier 2001.
- Forey, Alan. "The Emergence of the Military Order in the Twelfth Century." *Journal of Ecclesiastical History* 36 (1985): 175-95. <https://doi.org/10.1017/S0022046900038707>
- . *The Military Orders. From the Twelfth to the Early Fourteenth Centuries*. Basingstoke et al.: Macmillan Education, 1992.
- Frenschkowski, Marco. "Einleitung." Ferdinand Wilcke. *Die Geschichte des Ordens der Tempelherren*. Ed. Marco Frenschkowski. Halle, 1860. Reprint Wiesbaden: Marix, 2005. 7-24.
- Fück, Johann. *Die arabischen Studien in Europa*. Leipzig: Harrassowitz, 1955.
- Gibbon, Edward. *The History of the Decline and Fall of the Roman Empire. With variorum notes including those of Guizot, Wenck, Schreiter & Hugo*. London: Bell & Daldy, 1867.
- Glick, Thomas F. "Did the Islamic ribat (military religious communities) serve as the model for the Christian Crusaders?" *The Crusades, 1095-1291*. Ed. Mark T. Abate. History in Dispute 10. Detroit et al.: Thomson Gale, 2003. 158-60.
- Glick, Thomas F., and Oriol P Sunyer. "Acculturation as an Explanatory Concept in Spanish History." *Comparative Studies in Society and History* 11 (1969): 136-54. <https://doi.org/10.1017/S0010417500005247>
- Grabois, Aryeh. "Militia and Malitia: The Bernardine Vision of Chivalry." *The Second Crusade and the Cistercians*. Ed. Michael Gervers. New York: St. Martin's Press, 1992. 49-56. https://doi.org/10.1007/978-1-137-06864-4_5
- Hammer, Joseph. "Mysterium Baphometis revelatum seu Fratres militiae Templi, qua Gnostici, et quidem Ophiniani, apostasiae, idoloduliae et impuritatis convicti per ipsa eorum monumenta." *Fundgruben des Orients* 6 (1818): 1-120 and 445-99.
- . *Die Geschichte der Assasinen aus morgenländischen Quellen*. Stuttgart and Tübingen: J. G. Cotta'sche Buchhandlung, 1818.
- Hammer-Purgstall, Joseph von. *Geschichte der Ilchane, das ist der Mongolen von Persien 1200-1350. Mit neun Beilagen, Textauszügen aus Wassaf und anderen Dokumenten enthaltend und neun Stammtafeln der mongolischen Herrscher*. 1842-43. Reprint Amsterdam: Philo Press, 1974.
- Hehl, Ernst-Dieter. *Kirche und Krieg im 12. Jahrhundert. Studien zu kanonischem Recht und politischer Wirklichkeit*. Monographien zur Geschichte des Mittelalters 19. Stuttgart: Anton Hiersemann, 1980.
- Hiestand, Rudolf. "Ritterorden." *Lexikon des Mittelalters*. Vol. 7. Munich: LexMA-Verlag, 1995. 878-79.
- . *Papsturkunden für Templer und Johanniter. Vorarbeiten zum Oriens Pontificus. Archivberichte und Texte*. Abhandlungen der phil.-hist. Klasse der Gesellschaft

- der Wissenschaften zu Göttingen, 3. Folge 77. Göttingen: Vandenhoeck & Ruprecht, 1971.
- Jaspert, Nikolas. "Frühformen der geistlichen Ritterorden und die Kreuzzugsbewegung auf der iberischen Halbinsel." *Europa an der Wende vom 11. zum 12. Jahrhundert. Beiträge zu Ehren von Werner Goetz*. Ed. Klaus Herbers. Stuttgart: Steiner, 2001. 90-116.
- Jubb, Margaret. *The Legend of Saladin in Western Literature and Historiography*. Lewiston, NY: Edwin Mellen, 2000.
- Kedar, Benjamin Z., and Cyril Aslanov. "Problems in the Study of Trans-Cultural Borrowing in the Frankish Levant." *Hybride Kulturen im mittelalterlichen Europa. Vorträge und Workshops einer internationalen Frühlingsschule*. Ed. Michael Borgolte and Bernd Schneidmüller. Europa im Mittelalter 16. Berlin: Akademie Verlag, 2010. 277-85. <https://doi.org/10.1524/9783050049663.277>
- Lessing, Gotthold Ephraim. *Sämtliche Schriften*. Ed. Karl Lachmann and Franz Muncker. 3rd ed. Stuttgart, Leipzig, Berlin: Göschen 1886-1924. Reprint Berlin: de Gruyter 1968.
- Lewis, Bernard. *The Assassins – A Radical Sect in Islam*. New York: Basic Books, 1968.
- Lomax, Derek. *La Orden de Santiago (1170-1275)*. Madrid: Consejo superior de investigaciones científicas. Escuela de estudios medievales, 1965.
- Lourie, Elena. "The Confraternity of Belchite, the Ribat, and the Temple." *Viator* 13 (1982): 159-76. <https://doi.org/10.1484/J.VIATOR.2.301466>
- Manzanares de Cirre, Manuela. "Gloria y descrédito de D. José Antonio Conde." *Anuario de estudios medievales* 6 (1969): 553-62.
- Marçais, Georges. "Ribât." *E.J. Brill's first encyclopaedia of Islam, 1913-1936*. Vol. 6. Ed. M.Th. Houtsma et al. Leiden: E. J. Brill, 1987. 1150-53.
- Mayer, Hans-Eberhard. *Geschichte der Kreuzzüge*. Stuttgart, Berlin and Köln: Kohlhammer, 2000.
- Miramon, Charles de. *Les données au Moyen Âge. Une forme de vie religieuse laïque, vers 1180-1520*. Paris: Cerf, 1999.
- O'Callaghan, Joseph F. "The Affiliation of the Order of Calatrava with the Order of Cîteaux." *Analecta Sacri Ordinis Cisterciensis* 15 (1959): 161-93.
- Oliver Asín, Jaime. "Origen árabe de rebato, arrobda y sus homónimos. Contribución al estudio de la historia medieval de la táctica militar y de su léxico peninsular." *Boletín de la Real Academia Española* 15 (1928): 347-95 and 496-542.
- Osterhammel, Jürgen. *Die Entzauberung Asiens. Europa und die asiatischen Reiche im 18. Jahrhundert*. München: Beck, 1998.
- Partner, Peter. *The Murdered Magicians. The Templars and Their Myth*. Oxford, New York: Oxford University Press, 1982.
- Peters, Francis E. *The Monotheists. Vol. 1: Jews, Christians, and Muslims in Conflict and Competition*. Princeton: Princeton University Press, 2003. <https://doi.org/10.1515/9781400825707>
- Polaschegg, Andrea. *Der andere Orientalismus. Regeln deutsch-morgenländischer Imagination im 19. Jahrhundert*. Quellen und Forschungen zur Literatur- und Kulturgeschichte 35. Berlin, New York: De Gruyter, 2005. <https://doi.org/10.1515/9783110893885>
- Reichl, Sepp. *Hammer-Purgstall. Auf den romantischen Pfaden eines österreichischen Orientforschers*. Graz, Wien: Leykam, 1973.

- Said, Edward W. Speech at the reception of the “Premio del Principe de Asturias.” 2002. <http://www.fpa.es/en/awards/2002/daniel-barenboim-1/speech>. Retrieved February 6, 2012.
- Scales, Peter C. *The Fall of the Caliphate of Córdoba. Berbers and Andalusis in Conflict*. Leiden: Brill, 1994.
- Scott, Walter. *Ivanhoe*. London, Melbourne and Toronto: Dent, 1959.
- . *The Talisman*. Ed. J.B. Ellis. Edinburgh: Edinburgh University Press, 2009.
- Siberry, Elizabeth. *The New Crusaders: Images of the Crusades in the Nineteenth and Twentieth Centuries*. Aldershot, Burlington: Ashgate, 2000.
- Stella, Isaac de. “Sermo 48.” *Patrologiae cursus completus, seu bibliotheca universalis ... Series Latina*. Ed. Jacques Paul Migne. Vol. 194. Paris: Migne, 1844-1865.
- Sylvestre de Sacy, Antoine-Isaac. “Mémoire sur la dynastie des Assassins, et sur l’étymologie de leur nom.” *Mémoires d’histoire et de littérature orientales*. Ed. Antoine-Isaac Sylvestre de Sacy. Paris: L’imprimerie Royale, 1818. 322-403.
- Tyerman, Christopher. *The Invention of the Crusades*. Basingstoke & London: Macmillan Press, 1998. 98-113. <https://doi.org/10.1007/978-1-349-26541-1>
- Voltaire. *Les oeuvres completes de Voltaire*. Ed. Nicholas Cronk. Oxford: Voltaire Foundation, 2010.
- Vones, Ludwig. “Reconquista und Convivencia.” *Die Begegnung des Westens mit dem Osten. Kongreßakten des 4. Symposions des Mediävistenverbandes in Köln [vom 11.–14. März] 1991 aus Anlaß des 1000. Todesjahres der Kaiserin Theophanu*. Ed. Odilo Engels and Klaus Schreiner. Sigmaringen: Thorbecke, 1993. 221-42.
- Wheatley Paul M. *The Places where Men Pray Together: Cities in Islamic Lands, Seventh Through the Tenth Centuries*. Chicago: University of Chicago Press, 2001.
- Wildermann, Ansgar Konrad. *Die Beurteilung des Templerprozesses bis zum 17. Jahrhundert*. Scrinium Friburgense 3. Fribourg (Switzerland): Universitaetsverlag, 1971.

Linguistics and the Discovery of America

RÜDIGER SCHREYER

Progress in Linguistics

It is often said, and often forgotten, that a history that describes the march of science as progress from insight to insight misrepresents the way science really proceeds. To be sure, historians will never be able to present the whole tangled web we call reality. Historians must simplify. They must select their topics, their questions, their points of view, and their facts. But historians who interpret the vagaries of events and ideas as a progression culminating at some point past, present, or future do not merely simplify, they also pass judgment. As a result they tend to discard past ideas that do not ‘presage’ the accepted science of the present moment: they tend to weed out or simply overlook the many ‘false’ starts, ‘blind’ alleys, and ‘failed’ theories irrelevant to, or incompatible with, their particular line of progress.

‘Teleological’ interpretations of this kind are found in the history of all sciences, especially in times of scientific euphoria. In linguistics, an example is Pedersen’s 1924 *The Discovery of Language*, which is a history of “Linguistic Science in the nineteenth century.” Pedersen (1867-1953) looks on linguistic work before the nineteenth century as preparatory to, and culminating in, comparative historical linguistics.

Historical research in the past half century has amply shown that this is too simplistic a view of the linguistic investigations carried out in the last five hundred years. The following essay aims to question this view by taking a problem-oriented approach. The focus is on the gradual ‘discovery’ of the world, but particularly of America. I will outline how thinkers from the fifteenth to the eighteenth century tried to come to terms with this ‘event’ in a tortuous process that led to a revision of the entire picture of the world and of man’s place in it.

In Western history the period from the sixteenth to the eighteenth century is sometimes called the age of discovery for reasons alien to linguistics. Nonetheless, the age of discovery is also the age of the discovery of languages. This is no coincidence. In “examining the relation between the study of exotic languages and what else was happening to Europeans in that unprecedented period of global expansion” I hope to continue what Percival once called a “fruitful line of future

investigation” (26). Unfortunately, to paint the larger picture I have to neglect much detail.

The Study of Language before the Sixteenth Century

In the European Middle Ages the only language formally taught at school was Latin. Foreign vernaculars were learned but not taught. It is not that people were blind to the multitude and diversity of languages. Scholars could read about them in the classics and later in the popular works of Marco Polo (1254-1324) and John Mandeville (fl. 14th century). And ordinary Christians were often painfully aware of linguistic diversity even within the confines of their own world: wars, invasions, migrations, religious and political persecution, conquest, marriage, captivity, slavery, hostage-taking, exile, diplomacy, trade, commerce, study, and travel brought many Europeans into contact with (speakers of) the languages of Europe and beyond. Thus, in the Middle Ages, too, there was a real need for many to communicate in languages not their own. But there is only anecdotal evidence of how this need was met.

Until the eighteenth century, communication among the educated of Europe could be achieved via Latin. For communication in other languages bilinguals or polyglots were recruited or hired as go-betweens, interpreters, or translators. Very little is known about the early dragomans or latimers, as they were called, and even less about how they acquired the linguistic skills necessary for their trade. Evidence so far suggests that before the sixteenth century there was no formal second language training. Polyglots apparently developed their foreign language proficiency by partial or total – albeit not always voluntary – immersion.

In early modern times this method of second language acquisition did not change for most people. In the early years of conquest and colonization, competent interpreters were a precious and scarce commodity. To meet the growing demand for bilinguals, who were needed as go-betweens, the proven practice of immersion was used more than ever by explorers of both East and West alike. Whenever interpreters were unavailable, natives were kidnapped and converted to Christianity and bilingualism.¹ Columbus (1451-1506) did it and the explorers and exploiters in his wake did it too. Later, less coercive methods of language training were attempted, e.g., by sending indigenous youths to school in Europe and/or embedding European youths in a foreign language culture, practices that were also employed within Europe and the Middle East. Still, some kind of total language immersion was the preferred and often the only way to learn a second

1 When Columbus, on his very first journey, found that the linguistic skills (Hebrew, Chaldean, and Arabic) of his own interpreter, Luis de Torres, were anything but helpful, he abducted six Arawak Indians to take to Spain “that they may learn our language” (*Diario*, entry for 12 October, 1493). However, as he was not the first to find out, forced immersion did not make for reliable interpreters.

language, whether European or exotic. Where there are no textbooks, no dictionaries, no grammars there can be no systematic language training.

The Linguistic Surge after the Sixteenth Century

This situation was to change dramatically from the sixteenth century onward. We observe a revival first of Greek and then of Hebrew studies. We note several polyglot editions of the Bible, a number of Bible translations, but also translations of secular writings from and into European languages. A host of grammars, phrasebooks, bi- and multilingual dictionaries are published, both of European and exotic vernaculars. Language samples are collected worldwide, word lists are amassed and compared. The first compendia of all known languages are compiled. Universal artificial languages are invented and sign languages for the education of the deaf are devised. There is a wide interest in writing systems, cryptography, steganography, and stenography. Studies are published on universal grammar and the theory of language, on the relation of language, mind, and society. The eighteenth century sees the beginnings of an endless Europe-wide debate on the origin and development of language.

This remarkable surge of linguistic interests in the early modern period can be no accident. What was it that prompted and gave momentum to all this linguistic research?

One could, of course, cite the usual suspects in this age of discovery: the reformation (Bible studies), the beginnings of nation-states (elevation of the vernaculars to national languages), the emergence of a middle class aspiring to improve its knowledge (democratization of learning), the invention of printing (emergence of a standard language, wider dissemination and affordability of knowledge), the new science (focus on empirical research), etc. There is little doubt that these well-studied and highly interconnected phenomena promoted the study of language(s).

Further research is needed on the impact of the extension of European political, economic, and religious interests beyond the fuzzy boundaries of the world depicted in the medieval T and O maps. The contact with the new peoples, civilizations, and languages of the largely unexplored continents of Africa and Asia, but especially of the New World, changed the direction of linguistic research both in theory and practice. We still do not fully understand the factors and their intricate interactions that caused the linguistic surge in early modern times. There is, however, no doubt that the driving force behind the study of languages was evangelization. The making of bilinguals by total immersion in a foreign culture may work in many cases, but not in all. Different purposes in different situations require different communicative skills and different levels of linguistic sophistication. Not many require linguistic analysis or formal language training. Evangelization does.

The Beginnings of Missionary Linguistics

The study and description of the languages of this world began with the arrival of Augustinian, Dominican, Franciscan, and Jesuit missionaries in Asia and Central and South America in the sixteenth century, and of French Recollects and Jesuits, English Protestant and Moravian missionaries in North America in the seventeenth.

All missionaries had one goal: to save the souls of the poor deluded heathens, whether civilized like the Chinese or savage like the ‘rude’ nations of North America. However, faith is not something you can impose on people and baptism does not turn heathens into instant believers. You need to instruct them in the articles of your faith. Therefore, among the first missionary writings were translations of a catechism (*doctrina*), the Lord’s Prayer, and a confessionary, usually made with the assistance of a more or less helpful, more or less bilingual speaker, who was (usually) not very versed in the “mysteries of our holy religion” (Sagard 88) or, for that matter, in the religious customs and superstitions of the converts-to-be. And while bad translation was better than nothing, it was usually unsuccessful in proselytizing the natives. If your chosen heathens had no religion – as was often assumed – they would not even understand such basic concepts as sin or charity. If – as was more likely – they were given to some devilish superstition you had to eradicate the Satan in their minds; you had to explain to them how and why your God was more powerful than their idols. You had to listen and talk. You had to learn and teach. Missionaries were quick to realize that sustainable evangelization required a thorough knowledge of the culture and language of their reluctant heathen targets.

So missionaries all over the globe began their fieldwork in the garden of the Lord by doing linguistic fieldwork, something that had not been done by Europeans before.² The first missionaries learned the languages and customs of their converts by combining total immersion with the questioning of uncooperative informants, getting themselves ridiculed, abused, and sometimes killed in the process. But their ambition went beyond the short word lists and phrases compiled by their lay predecessors. They composed large vocabularies, but, more importantly, they struggled to ‘reduce to art’ these recalcitrant alien languages and to compose grammars (*artes*) for the benefit and instruction of their confreres and successors. Indeed, missionary letters and reports, from China to Huronia, testify to a veritable obsession with linguistic studies.

In their analysis, missionaries employed the familiar grammatical concepts of Latin. They had no other. However, their knowledge of Latin did not equip them for the analysis of languages with radically different grammatical and semantic structures. Most alien languages did not fit the mold of Latin, and the formal and informal descriptions of their European students tended to interpret differences

2 In fact, the first grammars of European vernaculars were published about the same time, and sometimes even later, than those of exotic languages.

as shortcomings: the initial missionary failure to ‘reduce’ alien languages ‘to rules’ was frequently blamed on their inherent lack of ‘grammar’. They lacked, for example, certain parts of speech, certain letters/sounds, abstract terms (even for the most fundamental religious concepts), and words for numbers higher than ten, etc. The earlier descriptions, in particular, were marred by prejudice in favor of the learned languages. Recalcitrant indigenous languages were branded as disorderly, primitive, poor, and degenerate, much like their speakers. Frustrated missionaries in South America even attributed the multitude, diversity, and difficulty of Amerindian languages to the devil’s attempt to thwart evangelization. Nonetheless, they struggled on valiantly, adapting or abandoning the categories of Latin grammar where they proved unhelpful and introducing new ones where it seemed appropriate. And negative judgments were revised as missionaries grew more familiar with the languages and cultures they studied.

Many of these linguistic works never saw print, and many are now lost. But even if we only consider the printed works, the linguistic output of the missionaries was stupendous. Naturally these works only reflect the state of the missionary art at a given time, and they are often lacking in detail, accuracy, and reliability.

European Access to Language Studies

The scholars of Europe showed great interest in the discoveries of their day. Much of the travel literature of the time contained word lists and remarks on one or the other of the hundreds of languages encountered by conquerors, traders, travelers, and adventurers of all sorts. Although better linguistic information could be gleaned from the reports, linguistic sketches, word lists, phrase books, dictionaries, grammars, and translations, sent or brought back and published by missionaries from all the corners of the earth, much of this material remained inaccessible to scholars in the Old World, either because it was printed solely for local consumption or because it was not published at all.

Still, European scholars had to take what they could find and where they could find it, in the oral reports, letters, and writings of others. Some began to excerpt, collect, compile, compact, and order the diffuse linguistic data scattered throughout these publications. Early examples of such compendia are Conrad Gessner’s (1516-1565) *Mithridates* (1555) and Claude Duret’s (1556-1611) one thousand-page *Thresor de l’histoire des langues de cest univers. Contenant les origines, beautés, perfections, décadences, mutations, changemens, conversions et ruines des langues* (1613). In 1784 Catherine the Great (1729-1796) of Russia initiated a more systematic collection of word lists of the languages and dialects of her Empire and beyond, a project ultimately resulting in Adelung (1732-1806) and Vater’s *Mithridates* (1806-1817). Titles, prefaces, and ordering principles of these language compendia reflect the shifts in interests and new insights of their

time, but their primary purpose was to catalogue and describe the languages of the world.

Explanations: The Standard Theory of Linguistic Diversity

However valuable, these collections did not set out to explain either the origin or the incredible multitude and diversity of languages. Although the “ancient heathen” had speculated on the “original of languages and letters,” Bishop Wilkins observed: “But to us, who have the revelation of Scripture, these kind of scruples and conjectures are sufficiently stated” (2).³ In other words, Christianity did not need an explanation.

The relevant revelations are in Genesis 2, 19-20 the naming of creatures by Adam in 4004 BC, which accounts for the origin of language, and Genesis 11, 1-9, which accounts for the diversity of languages: at Babel in 2247 BC God confounded the one tongue, thus initiating the gradual dispersion of the children of Israel to all corners of the earth. A minor complication (which was to cause a lot of headaches later on) was introduced by the Flood (Genesis 6-9) in 2349-2348 BC, which dramatically reduced the number of native speakers of Adam’s language by drowning all but the members of Noah’s family. Good Christians knew, then, that the languages of this world had descended, strictly speaking, from the language of Noah.⁴

Unfortunately, Genesis is none too specific about the finer technical details of these various miracles and thus leaves plenty of room for exegesis. Christian scholars argued about many linguistic hypotheses teased from the words and silences of the holy text. There was, for instance, some disagreement about God’s preferred method of language confusion and the number of different languages after Babel (approximately seventy-two, most believed). There were questions as to whether the old Adamic language had been preserved, whether it had been preserved in its pristine purity, whether it was perfect, and whether it was Hebrew. These and many other problems were debated through the centuries by appealing to history, observation, common sense, and, of course, the Bible, which ultimately determined the questions to be asked, thus constraining the range of permissible answers. In the end, all linguistic hypotheses had to fit, or to be made to fit, the biblical framework.

3 John Wilkins (1614-1672), one of the founders of the Royal Society of London, was the author of a universal language scheme (1668), which, he hoped, would lift the curse of Babel. The work (1-21) is prefixed by a critical state of the art report on the linguistic questions of his day.

4 All figures are according to the calculations of Archbishop Ussher’s (1581-1656) *Annales* (there were slightly deviating calculations, too). Consequently, no language could be older than the time passed between the Flood and the present i.e., ca. 3850 years, with the languages produced by the confusion being no older than ca. 3747 years.

Towards a Genealogy of Languages

Europeans were struck with wonder by the myriad of different languages spoken in the world. The number of Amerindian tongues, in particular, elicited Old World amazement: in America there must be thousands of tongues, said John Wilkins in the mid-seventeenth century. Where did they all come from? Or in biblical terms: How did the seventy-two or so post-Babelic languages change into the thousands of languages observed today? The question, which was to be of great importance for the development of linguistics, became more urgent as ever more languages were being discovered. The Bible had no answer, but it pointed the way. The proliferation and diversification of languages, it was suggested, was merely a continuation of the curse: ever since Babel, languages had been subject to creeping decay. As groups of speakers split up and migrated to different parts of the earth they lost contact, and in the course of time their speech became mutually incomprehensible. However, some traces of their former common tongue remained, and correspondences between languages might evidence their family relation:

I allow that a living language is subject to continual changes, and as all languages have been so, we may say with truth that none of them have preserved their original purity. But it is no less true that in spite of the changes introduced by custom, they have not lost everything by which they are distinguished from others, which is sufficient for our present purpose; and from the rivulets arising from the principal springs, I mean, the dialects, we may ascend to the mother tongues themselves. (Charlevoix 57)

Hence, the comparative study of linguistic features may discover genealogical relations between languages and suggest the varying routes taken by their speakers after parting company. Ideally the detection of linguistic affinities may enable scholars to revert to the few original languages (Charlevoix's "mother tongues"), or perhaps even the original language itself.

Thus, in the sixteenth and seventeenth centuries we find a host of serious scholars using a rather freewheeling comparative 'method' to prove that Phoenician, Chinese, Swedish, Dutch, or German, were, or were closest to the original language.⁵ Other no less serious scholars censured, or poked fun at, these ety-

5 Johannes Goropius Becanus (Jan van Gorp 1519-1579) proved, to his satisfaction at least, Dutch to be closest to the first language, while Adrianus Schrieckius (Adriaan van Schrieck; 1560-1621) believed that Flemish best preserved the original features. Other sixteenth- and seventeenth century authors maintained that their own language – Swedish, German – was, or was at least closest to, the original language. Right into the eighteenth century some scholars defended the thesis that Celtic was the first language of mankind. Others pronounced in favor of Scythian or Phoenician. Foertsch lists E. Guichat (1618), M. Causabon (1615), L. Tomasino (1693 and 1694), S. Morino (1694), A. Calmet (1739) as being in favor of Hebrew; Philippus Cluverius (1616), Olavus Rudbekius (1659), G.G. Eckhart (1712), J.C. Jordan (1745), J.D. Schoeptlin (1751), and Ch. Wallancey (1782) as advocates of Celtic (*Missionsmaterialien* 77). Other attempts were even more fanciful: Adam Preyel

mologizers, their dubious methods, and the liberties they took with their data. Andreas Kempe (1622-89) (1688) claimed, presumably tongue in cheek, that in Paradise God spoke Swedish, Adam conversed in Danish, and the serpent in French (Elert 224-25). Leibniz (1646-1716) ridiculed the fanciful hunt for the primitive language as Goropianism. Edward Lhuys (ca. 1660-1709), in his *Archeologica Britannica* (1707), records a common objection to these etymologizers, i.e., that “according to the latitude they take, one may derive one language out of any other” (Cram 195), and tries to impose methodical constraints on etymologizing.⁶ Nonetheless, the *furor etymologicus* sometimes led to the serendipitous discovery of what we now think are genuine family relationships, like those between Greek, Latin, German, and Persian, or between Sanskrit and Italian. But these inspired guesses were not followed up by comprehensive and systematic comparative studies.

The search for linguistic relationships was authorized, even prompted, by the word of the Bible. Etymologizers were, in a sense, only trying to link one or the other language to one of the (unknown) languages of Genesis by tracing out its genealogical tree. Their terminology was woolly, their concepts were vague, and their methods were haphazard, but these were all gradually refined until, in the nineteenth century, a reliable comparative method emerged: “In spite of its very different appearance, the linguistic science of the nineteenth century carries on logically from the earlier development: the butterfly bursts forth from its cocoon as a result of the growth it has experienced within its winter shelter” (Pedersen 12).

There is some truth in this piece of linguistic poetry. But comparative linguistics did not succeed in confirming the common origin of language or of mankind: no doubt, the early etymologizers would have considered the efforts a failure.

The Provenance of the Americans

Christian linguistic thought was part and parcel of a complex picture of the world and its history, a picture ultimately anchored in the words of the Bible. Comparative activity was carried on within the limits set by the Bible. Any new observation would have ramifications, very undesirable ones if incompatible with bibli-

1655 (fl. 1655) detected traces of Hebrew in Chinese, a language then virtually unknown to European armchair linguists. John Webb (1611-1672) even claimed Chinese itself to be the original language. And in 1787, his namesake Daniel Webb (c. 1719-1798) presented “Some Reasons for Thinking that the Greek Language was borrowed from the Chinese.”

6 Polyglot Adriaan Reeland (1676-1718), professor of Hebrew at Utrecht, criticizes Goropius, Schrieckius, and others (Bastiaensen 45-54). We also find more methodical comparisons based on core vocabularies, grammatical and syntactic features. Some, like Joseph Justus Scaliger (1540-1609), attempted taxonomies of the European languages. Marcus Zuerius Boxhornius (1612-1653) suggested that Greek, Latin, German, and Persian started as dialects of a postulated Scythian, while Abraham Mylius (1563-1637) argued for a common origin of Flemish and German with Latin, Romance, Greek, Celtic, and Persian.

cal truth. The discovery of the peoples (and languages) of Asia did not pose too serious a threat to the traditional explanatory framework. Migration and linguistic change could account for their existence, even if the details were still to be worked out. The presence of Asian people and their languages did not really challenge the monogenesis of man – or of language.

The discovery of America did. ‘The Indies’ were indubitably inhabited by creatures gifted with a measure of reason, language, and sociability, that is, therefore, – human beings (once Pope Paul III had so decided in 1537). How did they get there and wherefrom? The Jesuit José de Acosta (1540-1600) succinctly formulated the problem:

But seeing on the one side, wee know for certaine that many years ago there were men inhabiting in these parts, so likewise, we cannot deny but the scripture doeth teach us cleerely that all men are come from the first man, without doubt we shall be forced to beleeeve and confesse that men have passed hither from Europe, Asia, or Affricke, yet must wee discover by what means they could passe. (*Natural and Moral History*, I, 45)⁷

“Few questions have excited more attention,” writes Barton in the “Preliminary Discourse” of his *New Views on the Origin of the Tribes and Nations* at the end of the eighteenth century, and “the opinions of writers concerning the origin, or parental countries of the Americans are as numerous as the tribes and nations who inhabit this vast portion of the earth” (I-II). Were the first Americans settlers from Atlantis, Phoenicia, or Carthage, or Spaniards from the Canaries, or Romans, or Tartars, or Chinese? Or were the Americans descendants of one of the ten (conveniently) lost tribes of Israel?

Cultural Evidence

The learned spent much time and displayed considerable ingenuity elaborating or refuting convoluted theories about the provenance of the Americans. In the absence of direct biblical evidence or historical documents, writers founded their conjectures on the cultural affinities observed between the ‘Americans’ and whatever peoples in the Old World they fixed on as their ancestors. But whether one compared religion, government, customs, or artifacts, there always remained the possibility that correspondences between peoples of the New World and the Old might not be due to common parentage and that similarities might be the product of similar living conditions or even chance. Therefore, when cultural comparison

7 See also Acosta: “The reason that inforceth us to yeeld that the first men of the Indies are come from Europe or Asia, is the testimony of the holy scripture, which teaches us plainly that all the men came from Adam. We can therefore give no other beginning to those at the Indies...” (I, 57).

did not yield convincing results, scholars pinned their hopes on the comparison of languages.

Linguistic Evidence

For the Jesuit Charlevoix (1682-1761) language comparison was the safest path through the branches of the genealogical tree: “[I]t seems to me that the knowledge of the principal languages of America, and the comparison with those of our hemisphere, which are considered to be primitive [...] is the least doubtful means of going back to the origin of nations” (Charlevoix 36). As a preliminary to this “confrontation des langues” Charlevoix proposed that grammars and vocabularies of voyagers and missionaries be collected. In the same vein, in 1787, Thomas Jefferson urged that vocabularies of the Amerindian languages be compiled to enable future scholars to determine the provenance of the Americans:

Assemble the vocabularies of all the languages spoken in North and South America, preserving their appellations for the most common objects in nature, those things that every nation, barbarous or civilized, must possess. Include the inflections of their nouns and verbs, their principles of regimen and concord. If all of this information was deposited in all the public libraries, it would furnish opportunities to those skilled in the languages of the Old World to compare them with the new languages found in America – as they were then, or at any future time. This would help construct the best evidence of the derivation of this hitherto unknown part of the human race. (181-82)

Others, less fastidious about data collection, still opted for Hebrew as the obvious ancestor (Smith 33). Although its parentage had been rejected centuries before by Acosta (1540-1600), Reland (1676-1718), Cobo (1580-1657), and others, the search for correspondences between Hebrew and the Amerindian languages continued.

As late as 1788, Jonathan Edwards (1745-1811) in his brief description of Mohegan, dutifully notes certain similarities with Hebrew. But he wisely refrains from drawing inferences:

How far the use of prefixes and suffixes, together with these instances of analogy, and perhaps other instances, which may be traced out by those who have more leisure, go towards proving, that the North American Indians are of Hebrew, or at least Asiatic extraction, is submitted to the judgment of the learned. The facts are demonstrable; concerning the proper inferences everyone will judge for himself. (14)

Edwards is sanguine that by “a comparison of the languages of the North-American Indians, with the languages of Asia, it may appear, not only from what quar-

ter of the world, but from what particular nations, these Indians are derived” (16-17). Of course, efforts to prove an Asian parentage of the Americans had been made before (Haas 112) and were still being made: in 1797 Barton claims that the extensive word lists he had collected from many different Amerindian languages “render it certain, that the nations of America, and those of Asia have a common origin” (lxxxviii).

One man’s conjecture is another man’s truth. Whichever side of the debate scholars were on, the endeavors to establish the Old World ancestry of the Americans did much to boost and refine the comparative study of languages and to develop a more reliable comparative method. However, as the method improved, hopes to forge a linguistic link between the peoples of the Old and the New World waned. Some scholars pronounced the whole lengthy enterprise a waste of time:

Zealous advocates stand forth to support the respective claims of those people; and though they rest upon no better foundation than the casual resemblance of some customs, or the supposed affinity between a few words in their different languages, much erudition and more zeal have been employed, to little purpose, in defence of the opposite systems. Those regions of conjecture and controversy belong not to the historian. His is a more limited province, confined to what is established by certain or highly probable evidence. (Robertson I, 266-67)

The failure to forge a convincing link between the cultures or languages of the Americans and those of Asia or Europe cast doubt on the monogenesis of man and, in consequence, the monogenesis of language. With the advent of the Enlightenment, the orthodox biblical view of history was phased out and other avenues of explanation were explored. Perhaps the Americans were not the children of Adam, after all. Perhaps they had descended from humans living before, or contemporaneously with, Adam.⁸

The polygenesis of man was excluded by the Bible, although not *expressis verbis*. Isaac la Peyrère (ca. 1596-1676) offered a reading that allowed polygenesis by suggesting that Adam was not the first man. La Peyrère did not hesitate to point out that his interpretation reconciled “the first of Genesis [...] to those [people] of Mexico, not long ago discovered by Columbus” (van Gelderen 67). His work was promptly banned, first as a manuscript and then as a book. Its author was arrested and not released until he recanted. This did not put an end to speculation. A century later Bernard Romans (c.1741-1784) put forward the idea “that God created an original man and woman in this part of the globe, of different species from any in the other parts” (38), while Father Charlevoix tried to save monogenesis by warily suggesting that if any “mother tongues” were to be dis-

8 The subversive thesis that there had been men before Adam had been advanced before the discovery of America by the Roman Emperor Julian Apostata (331-361) and thereafter in 1591 by Giordano Bruno, who was burned as a heretic in 1600.

covered in America, their speakers would have arrived there shortly after the Flood, having been instructed by Noah, the great mariner, in the “art of navigating a calmer ocean” (58). Why not?

Designing imaginary scenarios of what might have been, while inventing the occasional miracle as a way out of a conjectural deadlock, was not a lasting solution. As the centuries went by, miracles went out of fashion, especially miracles the Bible does not even mention. As early as 1653 Father Cobo, in his chapter “on the origin of these peoples of America,” ruled “that we do not have to recur to miracles where they can be dispensed with” (47).

Miracles are by definition exceptions to the laws of nature, and seventeenth-century philosophers did not like such exceptions. Miracles made nonsense of their new philosophy, which was, after all, based on the uniformity of nature’s laws. This was the age of the new science, the time of Bacon, Galileo, and Newton. Following in their footsteps, moral philosophers tried their hardest to introduce the experimental method into moral philosophy, the science of man. Enquiries into the principles of human nature made up the analytical part, conjectural history the synthetical part of this new science.

Eighteenth-Century Conjectural History

It is not always clear what the moral philosophers meant by “the experimental method.” They certainly shared a belief in the uniformity of human nature, were optimistic that analysis would reveal its underlying principles, and that a combination of these principles would allow them to (re-)construct a history of all societal artifacts by tracing their progress from ‘rudeness’ to civility, from simplicity to complexity. To avoid conflict with biblical orthodoxy and (I suspect) with noncompliant facts, such histories were presented as conjectural accounts of what would ‘naturally’ happen.⁹ Dugald Stewart (1753-1828) defines this new conjectural history as the attempt to show how an event in the history of mankind “*may have been* produced by natural causes” (293).¹⁰

When, in such a period of society as that in which we live, we compare our intellectual acquirements, our opinions, manners, and institu-

9 “In most cases, it is of more importance to ascertain the progress that is most simple, than the progress that is most agreeable to fact; for, paradoxical as the proposition may appear, it is certainly true, that the real progress is not always the most natural” (Stewart in Smith 296).

10 Schiller calls this type of history *Universalgeschichte*, and Kant terms it *allgemeine Geschichte*, but it also goes by the name *histoire raisonnée* in France, or *natural, philosophical, or theoretical history* in Britain. Conjectural history was developed and elaborated in the eighteenth century by thinkers like Vico in Italy, Condillac, Rousseau, Turgot, and Condorcet in France, Bernard Mandeville (1670-1733) in England, Hume, Millar, Hutcheson, Ferguson, and Smith in Scotland, Kant, Herder, and Schiller in Germany, and by many lesser writers.

tions with those which prevail among rude tribes, it cannot fail to occur to us an interesting question, by what gradual steps the transition has been made from the first simple efforts of uncultivated nature, to a state of things so wonderfully artificial and complicated. (292)

The central question of conjectural history is *whence*: “Whence the origin of the different sciences and of the different arts” (292)?

Conjectural history strove, then, to explain the development of any societal phenomena or artifacts (institutions, ranks, laws, religion, science, or language) by constructing a causal chain. Histories often started out with the *factio philosophica* of a primeval couple in the state of nature – i.e., endowed only with the principles of human nature – and then derived from these principles the further stages of the emerging phenomenon up to the wonderful state of modern ‘polite’ or ‘civil’ society. The teleological principle informing this view of history is the idea of progress: “In every part of this earth human progress has been nearly the same, and we can trace it from the rough simplicity of savage life through to the achievements of industry, the arts, and the elegance of polished society” (Robertson I, 268).

Conjectural historians collect ‘experiments of history’, believed to be analogous to the experiments of the natural philosophers, but not quite.¹¹ Actual historical events are but evidence for this new history. When historical documents cannot be found, the conjectural historian will “draw conclusions from the most recent phenomena, which are within the compass of our observations, back to such as are in historyless times” (Schiller 129-30). The use of these “artificial links” finds its justification “in the uniformity and immutable unity of the laws of nature and the human mind, which unity is the reason why events of the remotest antiquity, under the influence of similar external circumstances, repeat themselves in the most recent times” (129-30).

Conjectural historians popularly divided their history of progress into three main stages: savagery, barbarism, and civility. By rating contemporary cultures on a scale from ‘savage’ to ‘civil’ and projecting this taxonomy onto a temporal scale they conjured up an inexhaustible source of evidence, especially essential for the first undocumented stages of the social phenomenon to be explained:

The philosophical traveler, sailing to the ends of the earth, is in fact travelling in time; he is exploring the past; every step he takes is the passage of an age. Those unknown islands that he reaches are for him the cradle of human society. Those peoples whom our ignorant vanity scorns are displayed to him as ancient and majestic monuments of the origin of ages. [...] They] recreate for us the state of our own ancestors, and the earliest history of the world. (Gérando 63)

11 “Moral philosophy has, indeed, this peculiar disadvantage, which is not found in natural, that in collecting its experiments, it cannot make them purposely, with premeditation, and after such a manner as to satisfy itself concerning every particular difficulty, which may arise” (Hume xix).

As luck would have it, the Americans – with the exception of the more advanced Mexican and Peruvian barbarians – have all been arrested at the stage of savagery: “[...] the discovery of the New World enlarged the sphere of contemplation, and presented nations to our view, in stages of their progress, much less advanced than those wherein they have been observed in our continent. In America man appears under the rudest form in which we can conceive him to subsist,” declares Robertson (1721-1793) in his *History of America* (I, 282). Thus American savagery is invested with documentary significance for the first historyless stage of societal progress. “That’s the way we were,” exclaims Professor Schiller (1759-1805) in his inaugural lecture of 1789. And in this he is in line with all conjectural historians.

Language in Conjectural History

Theoretical historians assigned language a prominent role in human progress. It is the bond of society, the means of transmitting information from one mind to another, and (in its written form) from generations past to generations present. No progress without language! However, language is not natural to man; it is a product of an evolving society and progresses, like all human arts and sciences, from ‘rudeness’ to civility. It is therefore essential for the conjectural historian to trace the development of language:

Whence has arisen that systematical beauty which we admire in the structure of a cultivated language; that analogy, which runs through the mixture of languages spoken by the most remote and unconnected nations; and those peculiarities by which they are all distinguished from each other? (Stewart 292)

The key role of language in the progress of society sparked off the Enlightenment debate on the origin and development of language. It turned into a battle between the evolutionist conjectural historians and the Christian traditionalists, between the advocates of a ‘natural’ and the defenders of a ‘divine’ origin of language.

Conjectural historians assumed a positive feedback between the progress of language, mind, and society. Consequently, language, mind, and society will develop *pari passu* from simplicity to complexity: humans at an early stage will be literally simple-minded and therefore, if you will, ‘simple-tongued’. To support their thesis, evolutionists needed to find primitive societies that spoke primitive languages. They scrutinized the ‘rude’ and primitive American tribes for suitable examples. For Lord Monboddo (1714-1799), the Hurons exhibited the requisite correlation of cultural, intellectual, and linguistic ‘rudeness’, at least the Hurons described by the Franciscan brother Sagard (?-1650) in 1632. He characterized their language as nearly without rule, and therefore imperfect: its vocabu-

lary was rather poor, “lacking words in several fields, and especially concerning the mysteries of our holy religion” (Sagard 88).¹²

Witness, too, Robertson’s prototypical Indians: “The powers of their uncultivated understandings are so limited, their observations and reflections reach so little beyond the mere objects of sense, that they seem hardly to have the capacity of forming abstract ideas, and possess not language to express them” (II, 385).

The Christian traditionalists, on the other hand, scrutinized the primitive Americans for sophisticated, well-formed, grammatical languages. One of them, Süßmilch (1707-1767), came up with the well-nigh perfect language of the “miserable Greenlanders” (29): How can anyone believe, he asks, that people “who seem hardly more intelligent than bears and seals” (81) would ever have had the wits or energy to create such an artful and regular language? They wouldn’t, and so, accordingly, their language must have been created by a divine artificer.

In the end the evolutionists won the day – and the next two centuries as well – but not because of the evidence they presented. Their ‘facts’ were, after all, creatures of their theory of progress, particularly the analogical evidence for the all-important undocumented stages of societal development. The prototypical savage they had cobbled together from the available literature is, upon closer scrutiny, incompatible with the facts they themselves adduced, let alone with those that slipped their rather selective attention.

Neither is the postulated artless, confused, ungrammatical language of their ‘savage’ in tune with the many missionary grammars and descriptive statements to which they had access. Charlevoix, for instance, ascribes to the Huron language “an abundance, energy and nobleness, which one may not find united in any of the most beautiful we know,” “a richness of expression, a variety of turns, a propriety of terms and a regularity which astonish” (III, 196). Is this the same language Lord Monboddo based his evolutionary theory on?

“No philologist now supposes that any language has been deliberately invented; it has been slowly and unconsciously developed by many steps,” writes Charles Darwin (1809-1882) in 1871 (50). The statement is still true of linguists today.¹³ It is not that they have better evidence than their eighteenth-century predecessors: the language(s) of our earliest ancestors are irretrievably lost. To make matters worse, linguistics today eschews the most fertile field of analogical evidence opened up by the early evolutionists: no linguist now believes in the continued existence of primitive languages. That leaves us with evidence gathered from the observations of animal communication, the so-called ‘deaf-mutes’ and ‘feral children’, or genetics and brain research. However, this is but circumstantial evidence, whose relevance and value depend on the prevailing concept of lan-

12 For a detailed analysis, see Schreyer, “‘Savage’ Languages.”

13 I refer to individuals who hold a degree in language studies. Note that ‘linguist’ is not a protected term. The Internet teems with self-styled ‘linguists’ rehashing the arguments of their Enlightenment forefathers, often without even being aware that their scholarly positions are several centuries old.

guage. It is, therefore, hardly surprising that most modern linguists are chary of discussing the controversial issue of the origin and development of language.

Nonetheless, linguistics has not returned to a belief in the 'divine' origin of language. After all, the concept of 'intelligent design' goes against current thinking on scientific explanation. In the eighteenth century the Abbé de Condillac (1715-1780), one of the earliest conjectural historians of language, defended his evolutionist theory by maintaining that for a philosopher (i.e., scientist) to say that something has come about by extraordinary means ("qu'une chose a été faite par des voies extraordinaires") is not good enough, that it is his duty to explain how it could have come about by natural means (I, 60 n.). Miracles are banished from science. They do not explain, they put paid to explanation.

Unintended Consequences

The discovery of the Americans and their languages promoted the development both of comparative linguistics and the conjectural history of language. The attempt by Christian apologists to trace the ancestry of the American Indians to peoples of the Old World lent a new impetus to linguistic comparison. The idea that all languages descend from one pristine tongue and are, therefore, genealogically related, was elaborated over many centuries in harmony with Christian doctrine, eventually being refined into a comparative linguistics that lead to the discovery of language families both in America and Eurasia. The early etymologists did not, however, achieve their primary goal: they failed to establish links between Old and New World languages, thus putting in jeopardy the monogenetic biblical 'explanation' of language origins.

This failure induced Enlightenment thinkers to develop alternative explanations modeled on the analytic-synthetic method that had proved so successful in the natural sciences. The new science of man elaborated a secular theory of the progress of society and its products, including the arts and sciences. Theoretical historians postulated that language evolves 'naturally', in parallel with all other societal products, proceeding from simple beginnings to the complex and 'artificial' structures found in 'civilized' languages.¹⁴

Thanks to the weird and wonderful ways of linguistics in the past we today know more about language in general, about individual languages and their history and prehistory than our predecessors. According to Percival, "it is reasonably clear that without the European political expansion general linguistics in the West would have been rudimentary" (26). There is little doubt that the slow discovery of America and its languages had a decisive impact on the development of linguistics. It made European scholars rethink and revise traditional answers

14 In doing so they created a systematic place for the American Indians and other 'savages': they were vestiges of earlier stages of civilization, conveniently saved by a "wise hand" (Schiller 114) to serve as analogical evidence for the conjectural historian.

and opened up new avenues of linguistic research, thus widening the horizon of European linguists and improving and refining linguistic theory and practice. But we still do not have the answers to the problems that preoccupied them. In the ‘progress’ of linguistics, too, we can perceive Merton’s law of unanticipated consequences at work, unless, of course, we prefer to believe in the guidance of a ‘wise hand’.

Works Cited

- Acosta, José de. *Historia natural y moral de las Indias*. Sevilla: Iuan de Leon, 1590.
- . *The Natural and Moral History of the Indies*. Reprinted from the English translated edition of Edward Grimston and edited with notes and an introduction by Clements R. Markham. 2 vols. 1590. London: The Hakluyt Society, 1880.
- Adelung, Johann Christoph, and Johann Severin Vater. *Mithridates oder allgemeine Sprachenkunde mit dem Vater Unser als Sprachprobe in bey nahe fünfhundert Sprachen und Mundarten*. 4 vols. 1806-17. Hildesheim: Olms, 1970.
- Andresen, Julie Tetel. *Linguistics in America, 1769-1924: A Critical History*. London & New York: Routledge, 1990.
- Axtell, James. “Babel of Tongues. Communicating with the Indians in Eastern North America.” *The Language Encounter in the Americas 1492-1800*. Ed. Edward G. Gray and Norman Fiering. New York, Oxford: Berghahn, 2000. 15-60.
- Barton, Benjamin Smith. *New Views on the Origin of the Tribes and Nations*. 1797. Philadelphia: Bioren, 1798.
- Bastiaensen, Michel. “Adrien Reland à la recherche d’une méthode comparative.” *Histoire, Épistémologie, Langage* 6 (1984): 45-54. <https://doi.org/10.3406/hel.1984.1187>
- Borst, Arno. *Der Turmbau von Babel. Meinungen über Ursprung und Vielfalt der Sprachen und Völker*. 4 vols. in 6. Stuttgart: Anton Hiersemann, 1957-63.
- Burnett, James, Lord Monboddo. *Of the Origin and Progress of Language*. 1773-1792. 6 vols. Menston: Scolar Press, 1967.
- Charlevoix, Pierre François-Xavier de. *Journal of a Voyage to North America*. 2 vols. 1744. Ed. Louise Phelps Kellogg. Chicago: The Caxton Club, 1923.
- Cobo, Bernabe. *History of the Inca Empire. An Account of the Indians’ Customs and their Origin together with a Treatise on Inca Legends, history, and Social Institutions*. Transl. and ed. by Roland Hamilton from the holograph manuscript in the Biblioteca Capitulary y Colombina de Sevilla. Foreword by John Howland Rowe. 1653. Austin & London: University of Texas Press, 1979.
- Columbus, Christopher. *The Diario of Christopher Columbus’ First Voyage to America, 1492-1493*. Ed. and transl. Oliver Dunn and James E. Kelley. Norman: University of Oklahoma Press, 1989.
- Condillac, Etienne Bonnot Abbé de. *Essai sur l’origine des connaissances humaines. Oeuvres Philosophiques. Texte établi et présenté par Georges Le Roy*. 3 vols. (Corpus Général des Philosophes Français) Paris: Presses Universitaires de France, 1947.
- Cowan, William. “Native Languages of North America: The European Response.” *American Indian Culture and Research Journal* 1 (1974): 3-10. <https://doi.org/10.17953/aicr.01.2.63375wj2109n5p53>

- Cram, David F. "John Wallis' English Grammar (1653). Breaking the Latin Mould." *Beiträge zur Geschichte der Sprachwissenschaft* 19 (2009): 177-201.
- Darwin, Charles Robert. *The Descent of Man, and Selection in Relation to Sex*. 1871. *The Complete Work of Charles Darwin Online*. Ed. John van Wyhe. <https://doi.org/10.5962/bhl.title.24784>
- Diderichsen, Paul. "The Foundation of Comparative Linguistics: Revolution or Continuation?" *Studies in the History of Linguistics. Traditions and Paradigms*. Ed. Dell Hymes. Bloomington/London: Indiana University Press, 1974. 277-306.
- Droixhe, Daniel *De l'origine du langage aux langues du monde. Études sur les XVIIe et XVIIIe siècles*. Tübingen: Gunter Narr, 1987.
- Duret, Claude. *Thresor de l'histoire des langues de cest univers. Contenant les origines, beautés, perfections, décadences, mutations, changemens, conversions et ruines des langues*. 1613. Genève: Slatkine Reprints, 1972.
- Edwards, Jonathan. *Observations on the Language of the Muhhekaneew Indians: in which the extent of that language in North-America is shewn; its genius is grammatically traced: some of its peculiarities and some instances of analogy between that and the Hebrew are pointed out*. New Haven: Josiah Meigs, 1788.
- Elert, Claes-Christian. "Andreas Kempe (1622-1689) and the Languages Spoken in Paradise." *Historiographia Linguistica* 5 (1978): 221-26. <https://doi.org/10.1075/hl.5.3.02ele>
- Foertsch, Henrike. "Missionare als Sprachensammler. Zum Umfang der philologischen Arbeit der Jesuiten in Asien, Afrika und Lateinamerika. Auswertung einer Datenbank." *Wege durch Babylon*. Ed. Reinhardt Wendt. Tübingen: Narr, 1998. 43-73.
- . "Spracharbeit zwischen Theorie und Praxis: frühneuzeitliche Jesuiten in Südostindien, Nordwestmexiko und Peru." *Wege durch Babylon*. Ed. Reinhardt Wendt. Tübingen: Narr, 1998. 75-129.
- . "Missionsmaterialien und die Entdeckung amerikanischer Sprachen. Vom Sprachensammler Lorenzo Hervás de Panduro zum Linguisten Wilhelm von Humboldt." *Sammeln, Vernetzen, Auswerten*. Ed. Reinhart Wendt. Tübingen: Narr, 2001. 75-130.
- Gelderden, Martin van. "Hugo Grotius und die Indianer. Die kulturhistorische Einordnung Amerikas und seiner Bewohner in das Weltbild der Frühen Neuzeit." *Aufbruch in neue Welten und neue Zeiten*. Ed. Martin Schulz. München: Oldenbourg, 2003. 51-78.
- Gérando, Joseph-Marie, Baron de. *The Observation of Savage Peoples*. 1800. Ed. F. C. T. Moore. Berkeley: University of California Press, 1969.
- Gessner, Conrad. *Mithridates. De differentiis linguarum tum veterum tum quae hodie apud diversas nationes in toto orbe terrarum in usu sunt*. Reprint of the Zurich edition of 1555. Ed. with an introduction by Manfred Peters. Aalen: Scientia Verlag, 1974.
- Gray, Edward G. *New World Babel: Languages and Nations in Early America*. Princeton: Princeton University Press, 1999. <https://doi.org/10.1515/9781400864966>
- Gray, Edward G., and Norman Fiering, eds. *The Language Encounter in the Americas 1492-1800*. New York, Oxford: Berghahn, 2000.
- Haas, Mary Rosamond. "The Study of American Indian Languages." *Language, Culture and History*. Selected and introduced by Anwar S. Dil. Stanford: Stanford University Press, 1978. 110-29.
- Hovdhaugen, Even, ed. ... *and the Word was God. Missionary Linguistics and Missionary Grammar*. Münster: Nodus, 1996.

- Hume, David. *A Treatise of Human Nature: Being an Attempt to Introduce the Experimental Method of Reasoning into Moral Subjects*. 1739. Ed. L. A. Selby-Bigge. 2nd edition P.H. Nidditch. Oxford: Clarendon Press, 1978. <https://doi.org/10.1093/oseo/instance.00046221>
- Jefferson, Thomas. "Notes on the State of Virginia." *The Works of Thomas Jefferson*. Vols. 3-4. 1782. New York and London: G.P. Putnam's Sons, 1905.
- Karttunen, Frances E. "Interpreters Snatched from the Shore: the Successful and the Others." *The Language Encounter in the Americas 1492-1800*. Ed. Edward G. Gray and Norman Fiering. New York, Oxford: Berghahn, 2000. 215-29.
- Klein, Wolf Peter. "Die ursprüngliche Einheit der Sprachen in der philologisch-grammatischen Sicht der frühen Neuzeit." *The Language of Adam/Die Sprache Adams*. Ed. Allison P. Coudert. Wiesbaden: Harrassowitz, 1999. 25-56.
- . "Was wurde aus den Wörtern der hebräischen Ursprache? Zur Entstehung der komparativen Linguistik aus dem Geist etymologischer Spekulation." *Gottes Sprache in der philologischen Werkstatt. Hebraistik vom 15. bis 19. Jahrhundert*. Ed. Giuseppe Veltri and Gerold Necker. Leiden: Brill, 2004. 3-23. https://doi.org/10.1163/9789047407188_004
- Lafitau, Joseph François. *Moeurs des sauvages américains comparées aux mœurs des premiers tems*. Paris: Saugrain l'ainé, 1724.
- . *Customs of the American Indians Compared with the Customs of Primitive Times*. Ed. and translated by William N. Fenton and Elizabeth L. Moore. 2 vols. Toronto: The Champlain Society, 1974.
- Lhuyd, Edward. *Archaeologia Britannica; an Account of the Languages, Histories, and Customs of the Original Inhabitants of Great Britain*. English Linguistics 1500-1800, no.136. 1707. Menston: Scolar Press, 1969.
- Mandeville, Sir John. *The Travels of Sir John Mandeville*. Transl. C. W. R. D. Moseley. Harmondsworth: Penguin, 1983.
- Merton, Robert K. "The Unintended Consequences of Purposive Social Action." *American Sociological Review* 1 (1936): 894-904. <https://doi.org/10.2307/2084615>
- Metcalf, George J. "The Indo-European Hypothesis in the Sixteenth and Seventeenth Centuries." *Studies in the History of Linguistics. Traditions and Paradigms*. Ed. Dell Hymes. Bloomington: Indiana University Press, 1974. 233-57.
- . "Adelung Discovers the Languages of Asia." *Histoire Épistémologie Langage* 6 (1984): 101-15. <https://doi.org/10.3406/hel.1984.1192>
- Nowak, Elke, ed. *Languages Different in All Their Sounds. Descriptive Approaches to Indigenous Languages of the Americas 1500 to 1850*. Münster: Nodus, 1999.
- Pedersen, Holger. *The Discovery of Language. Linguistic Science in the 19th Century*. 1931. Transl. by John Webster Spargo. Bloomington, IN: Indiana University Press, 1962.
- Percival, W. Keith. "Nebrija's Linguistic Oeuvre as a Model for Missionary Linguistics." *Languages Different in All Their Sounds. Descriptive Approaches to Indigenous Languages of the Americas 1500-1850*. Ed. Elke Nowak. Münster: Nodus, 1999. 15-29.
- Peyrère, Isaac de la. *Men before Adam, Or A Discourse upon the Twelfth, Thirteenth, and Fourteenth Verses of the First Chapter of the Epistle of the Apostle Paul to the Romans. By which are proved that the First Men were created before Adam*. 1655. London: 1656.
- Polo, Marco. *The Travels of Marco Polo*. Transl. by Ronald Latham. 1958. Harmondsworth: Penguin, 1987.

- Relandus, Hadrianus (Reland, Adriaan). "Dissertatio de Linguis Americanis." *Dissertationum miscellanearum pars tertia, et ultima*. Bibliopolae: Gulielmus Broedellet, 1708. 143-229.
- Robertson, William. *The History of America*. 2 vols. 1777. London/Edinburgh: Strahan, Caddell & Balfour, 1778.
- Romans, Bernard. *A Concise Natural History of East and West Florida*. New York: R. Aitken, 1775.
- Sagard, Gabriel Théodat. *Le grand voyage du pays des Hurons, situé en l'Amerique vers la mer douce, és derniers confins de la Nouvelle France, dite Canada ... Avec un Dictionnaire de la langue Huronne pour la commodité de ceux qui ont a voyager dans le pays, & n'ont d'intelligence d'icelle langue ...* Paris: Denys Moreau, 1632.
- Salmon, Vivian. "The Study of Foreign Languages in Seventeenth-Century England." *Histoire, Épistémologie, Langage* 7 (1985): 45-70. <https://doi.org/10.3406/hel.1985.1314>
- Schiller, Friedrich. "Was heißt und zu welchem Ende studiert man Universalgeschichte?" *Der Teutsche Merkur* 4 (1789): 105-35.
- Schmidt-Riese, Roland. "Ordnung nach Babylon. Frühneuzeitliche Sprachinventare in Frankreich und 'Deutschland'." *Sammeln, Ordnen, Veranschaulichen*. Ed. Octave Mirbeau. Münster: List, 2004. 53-83.
- Schreyer, Rüdiger. "Evidence and Belief. Arguments in the 18th Century Debate on the Origin of Language." *Matériaux pour une histoire des théories linguistiques*. Ed. Sylvain Auroux, A. Joly, and R. Rosier. Lille: Presses Universitaires de Lille, 1984. 325-36.
- . "Linguistics Meets Caliban or the Uses of Savagery in 18th Century Theoretical History of Language." *Papers in the History of Linguistics*. Ed. Hans Aarsleff, Louis Kelly and Hans-Joseph Niederehe. Amsterdam: John Benjamins, 1987. 301-14. <https://doi.org/10.1075/sihols.38.36sch>
- . "Pray what language did your wild couple speak when first they met? Language and the Science of Man in the Scottish Enlightenment." *The 'Science of Man' in the Scottish Enlightenment. Hume, Reid and their Contemporaries*. Ed. Peter Jones. Edinburgh: Edinburgh University Press, 1990. 149-77.
- . "Deaf-Mutes, Feral Children and Savages: Of Analogical Evidence in 18th Century Theoretical History of Language." *Anglistentag 1993 Eichstätt*. Ed. Günther Blaicher and Brigitte Glaser. Tübingen: Niemeyer, 1994. 70-86.
- . "Take your Pen and Write. Learning Huron: A Documented Historical Sketch." *...and the Word was God. Missionary Linguistics and Missionary Grammar*. Ed. Even Hovdhaugen. Münster: Nodus, 1996. 77-121.
- . "Gabriel Sagard's Dictionary of the Huron Tongue (1632)." *Languages Different in All Their Sounds ... Descriptive approaches to Indigenous Languages of the Americas 1500 to 1850*. Ed. Elke Nowak. Münster: Nodus, 1999. 101-15.
- . "'Savage' Languages in Eighteenth-Century Theoretical History of Language." *The Language Encounter in the Americas 1492-1800*. Ed. Edward G. Gray and Norman Fiering. New York, Oxford: Berghahn, 2000. 310-26.
- Stewart, Dugald. "Account of the Life and Writings of Adam Smith, LL.D." *Essays on Philosophical Subjects*. Ed. W.P.D. Wightman and J.C. Bryce. Oxford: Clarendon Press, 1980. 269-332.
- Stüßmilch, Johann Peter. *Versuch eines Beweises, daß die erste Sprache ihren Ursprung nicht vom Menschen, sondern allein vom Schöpfer erhalten habe*. Berlin: Buchladen der Realschule, 1766.

- Tovar, Consuelo Larrucea de. "José Celestino Mutis (1732-1808) and the Report on American Languages Ordered by Charles III of Spain for Catherine the Great of Russia." *Historiographia Linguistica* 11 (1984): 213-29. <https://doi.org/10.1075/hl.11.1-2.11tov>
- Ussher, James. *Annales Veteris Testamenti, a prima origine mundi deducti una cum rerum Asiaticarum et Aegyptiacarum chronico, a temporis historici principio usque ad Maccabaicorum initia product.* London: Crook and Baker, 1650.
- Webb, Daniel. *Some Reasons for Thinking that the Greek Language was Borrowed from the Chinese: In Notes on the Grammatica Sinica of Mons. Fourmont.* 1787. Gale Eco Print Editions. 2010.
- Webb, John. *The Antiquity of China, or An Historical Essay Endeavouring a Probability that the Language of the Empire of China is the Primitive Language Spoken through the Whole World before the Confusion of Babel.* 1669. London: Nathan Brook, 1678.
- Wendt, Reinhart, ed. *Wege durch Babylon. Missionare, Sprachstudien und interkulturelle Kommunikation.* Tübingen: Narr, 1998.
- , ed. *Sammeln, Vernetzen, Auswerten. Missionare und ihr Beitrag zum Wandel europäischer Weltsicht.* Tübingen: Narr, 2001.
- Wilkins, John. *An Essay Towards a Real Character and a Philosophical Language.* 1668. Menston: Scholar Press, 1968.

CHAPTER FIVE

Colonizing the Genome: DNA and the New Raciology in American Archaeology

MICHAEL WILCOX

Few events have attracted as much public attention in the world of anthropology as the Kennewick and Human Genome Diversity Project controversies. Both of these subjects have highlighted the contentious historical relationships between Indigenous peoples and anthropologists. Each has become a flashpoint in which the Indigenous body has emerged as a new kind of territory – sought after, acquired, and reconstituted in a grand narrative of universal human history. Both controversies demonstrate the centrality of scientific discourses and cultural difference within contemporary Western society and reveal the fault lines that emerge when science is used to clarify human identity and ancestry.

The prospect of discovering a universal human past connecting human beings within a single evolutionary narrative has long been viewed as an antidote to racist thinking. For many, the scientific methods of archaeology and genetics promise to provide the secular Western world with an alternative to both the perilous and contested biblical narratives of pre-Enlightenment Europe and the racially inspired anthropological narratives of the nineteenth century. But the quest for this narrative has continued to generate ill will and mistrust between Indigenous peoples and the scientific community. The concepts of race and racialist thinking, largely abandoned and deconstructed as artifacts of colonial and imperialist scientific discourses, reemerged at the close of the twentieth century. A series of recent contentious debates have demonstrated the ease with which the ethics of archaeological practice and scientific inquiry can be abandoned when the stakes are high enough. Three seemingly unrelated events have come to shape the future direction of anthropology and archaeology in the twenty-first century. The first is the discovery of Kennewick Man in 1996, the second is the passage of repatriation legislation in the United States in 1990, and the third is the launch of the Human Genome Diversity Project that same year.

The Discovery of Kennewick Man (The Ancient One)

On July 26, 1996, a pair of spectators attending a boat race on Washington State's Columbia River literally stumbled across history. Wading into the waters along the shoreline, one man's foot hit a smooth stone resting in the shallow water. Reaching into the river his hand grasped a hollow object and raised it to the light. In his hand was a human skull.

In the United States (as is the case in most countries) the discovery of human remains triggers a homicide investigation. The two men placed the skull in a bucket and turned it over to the Kennewick (Washington) Police Department, which in turn passed it along to the Benton County Coroner. The coroner noticed that the teeth were well-worn – a telltale sign that the remains most likely belonged to a prehistoric population of Native Americans. People who use their teeth as tools or whose diets contain large amounts of silica frequently show unusual dental wear and use patterns. Based upon his initial observations the coroner telephoned James Chatters, a local archaeological contractor who had worked with the lab in the past, and the two headed to the river. The rest of the remains were carefully retrieved from the shallow waters and transported to the archaeologist's basement. Chatters laid the bones on a lab table and made a number of observations: the skull was more oblong than round, the cheekbones were relatively narrow, and the upper jaw protruded slightly. Chatters had extensive experience documenting the more rounded skulls and protruding cheekbones of local Indigenous peoples and this skull had a very different look and feel. Measuring the long bones of the arms and legs, he estimated the height at about 5 feet 9 inches (175 cm) and documented a list of healed injuries: fractured skull, broken ribs, trauma to the left elbow, and a small projectile buried in the right hip. Based upon the unusual skull shape, Chatters concluded that the remains were of a Caucasian male, 40-55 years old, probably long deceased. X-rays were taken of the hip at a local hospital, but the object embedded in the bone did not present the signature of a metallic substance. A CAT scan revealed that the object was a leaf-shaped stone tool similar to the "Cascade Points" used by Native Americans between 4,500 and 9,000 years ago. Puzzled by the remains, Chatters sent a bone fragment to a radiocarbon laboratory in California. In a few weeks the results came back – the sample was likely 9,500 years old (Marks, *What It Means* 229).

The discovery of relatively ancient human remains in the Americas is extremely rare. Only twenty osteological samples dating from the end of the last glacial period in North America (roughly 10,000 years BP) have ever been documented (Haynes 17). The Kennewick finding was of great interest to archaeologists who study the migration of *Homo sapiens* into the Americas. Scholars of paleo-Indian archaeology typically use diagnostic projectile points to verify the most ancient sites; most of the evidence collected is in the form of rudimentary artifacts, bone fragments, and cooking hearths. Chatters realized that he possessed one of the very few complete American paleo-skeletons in existence. But there was a problem: six

years prior to the discovery of Kennewick, the United States Congress had passed legislation requiring all museums, universities, and other publicly funded institutions holding Native American archaeological materials to take inventories of their collections, contact descendent communities, and return “funerary items, human remains, and objects of cultural patrimony” to culturally affiliated tribes (Watkins, *Indigenous Archaeology* 53). News of the discovery had reached the tribe whose ancestral territory included the area where Kennewick had been found. Under the law, Chatters realized that he was obligated to turn over any Native American remains to the Umatilla Nation for immediate reburial. Worried that federal officials would confiscate the materials before they could be studied, Chatters sent out emails to archaeological colleagues throughout the country begging them to intervene and disrupt the process of repatriation (71). Past and current officials in the Society for American Archaeology (SAA), the flagship organization of professional archaeologists, sprang into action. If the remains were repatriated according to federal law, the evidence would be lost forever.

Collecting and Returning the Dead

NAGPRA (the Native American Graves Protection and Repatriation Act) marked a turning point in the relationship between Native Americans and archaeologists. Beginning in the late 1960s, Native American activists had fought to reform Indian policy in the United States. Poverty, poor health, low educational levels, and disastrous administrative oversight by the Bureau of Indian Affairs had led to a crisis in Indian Country. The American Indian Movement (AIM), led by Dennis Banks and Russell Means, had staged a number of high profile media events in order to bring attention to the struggles of “America’s forgotten minority.” In 1970, a replica of the Mayflower was occupied in Plymouth, Massachusetts; a year later Mount Rushmore in South Dakota was the site of protest. The same year, the Bureau of Indian Affairs building in Washington D.C. was seized and occupied. In 1973 at Wounded Knee on the Lakota Pine Ridge Indian Reservation (in 1890 the site of one of the largest massacres of Indian people), AIM activists fought a 71-day gun battle against federal agents and U.S. Marshalls (Warrior 30). A persistent issue raised by the protesters was the collection, treatment, and possession of Native American human remains and artifacts by archaeologists, museums, and universities. By the mid-1980s leaders in the Native American Rights Fund had organized a campaign to pass legislation requiring the return of these items and the exertion of greater control over the excavation, curation, and display of Native American materials.

The SAA, panicked by the prospect of losing control over the materials and data collected over the past two centuries, countered with its own lobbying efforts and fought against the repatriation movement (Wilcox 178). Prior to the passage of NAGPRA, Indian remains were viewed as the cultural property of an over-

whelmingly Euro-American profession of archaeologists. In letters and journal articles, Native Americans were depicted as thwarting the efforts of scientists to pursue the study of American prehistory on purely religious or political grounds (Meskell 62). But for Native Americans, the issue of the treatment and possession of the dead was viewed as a fundamental human right. Many of the remains had been collected by the U.S. military on battlefields during the Indian wars and shipped to museums for scientific study at the close of the nineteenth century. In several cases, the actual names of the dead had been recorded (Echo-Hawk). Appealing to the sensibilities of two highly decorated World War II veterans, then-President George H. W. Bush and Senator Daniel Inouye (then head of the Bureau of Indian Affairs), Native American advocates for repatriation were able to convince key members of the government that the collection of battlefield dead had long outlived its purpose. Once the movement gained momentum, archaeologists were forced to accept a much more restrictive role in archaeological and osteological scholarship. Large numbers of remains, sacred objects, and funerary goods were to be returned to descendent communities. Archaeological projects on government lands would be subject to a strict process of consultation and review by local Indigenous communities. With the stroke of a pen, the balance of power between archaeologists and Native Americans had shifted and NAGPRA, the most transformative legislation since the Indian Reorganization Act (1934), became law.

The contexts in which collections were amassed reflect the complicated histories of American colonialism and the sciences of anthropology and archaeology. During the NAGPRA hearings, archaeologists had great difficulty in defending the scientific theories and government policies that had led to the collection of hundreds of thousands of Native American dead (Bray 169). American anthropology had developed in the midst of the nineteenth-century social milieu of Social Darwinism, colonial expansion, Manifest Destiny, and racial science. The discipline of that brand of anthropology, the offspring of these epistemological frameworks, provided Westerners with a means of categorizing human differences and variability, designating Western civilizations as the centers of progress, enlightenment, and economic exploitation, and justifying both the removal of Indians and the enslavement of Africans. Scientific inquiry promised to categorize human diversity – then understood in terms of morality, intellectual capacity, personality, and temperament – according to ‘objective’ and ‘biological’ criteria.

The concept of race, initially used to describe physical variation among a variety of peoples, adopted the language and authority of science in categorizing the bewildering diversity of human variability. Physical differences between human societies and communities have always been noted and written about, but the idea of race is a relatively recent (yet pervasive) Western construct. The fixity and stability of racial types (a fundamental concept in the biological classifications introduced by the early Enlightenment) mapped biological differences in skin color, hair texture, and skull shape onto newly colonized geographical spaces. Seven-

teenth-century French physician and traveler Francois Bernier's *New Division of the Earth* (1684) is often cited as providing the "physico-biological notion of race foundationalist status in the classification of the human species" (Stuurman 1). Bernier was the first to divide the human species into four classes: a "First Race," comprising Europe, North Africa, India, the Middle East, Southeast Asia, and the Americas; a "Second Race," representing Africans; a "Third Race," constituting north and east Asian populations, and a "Fourth Race," consisting of Lapps. Bernier was instrumental in promoting a nonbiblical narrative of the development of human beings. His monogenic (as opposed to polygenic) view supplanted the sacred narrative of Christianity with a scientific alternative.

The entire project was largely speculative and used different criteria for the definition of types. Natural historian Carl Linnaeus's *Systema Naturae* (1758) categorized humans into four subspecies based upon skin color: Black Africans, White Europeans, Brown Asians, and Red Americans. French naturalist Georges Cuvier's *Tableau elementaire de l'histoire naturelle des animaux* (1798) elaborated upon the concept with references to each of three categories' (Caucasian, Mongolian, and European) capacities for civilization: "The white race, with oval face, straight hair and nose, to which the civilized people of Europe belong and which appear to us the most beautiful of all, is also superior to others by its genius, courage and activity" (Cuvier 710). Samuel Morton (1799-1851) was the first natural scientist to popularize the use of cranial capacity and skull shape as an index of group intelligence. The "cephalic index" (a measurement of the ratio of skull length to width) identified three basic human types: "round-headed" or *brachycephalic*, "long-headed" or *dolichocephalic*, and "intermediate" or *mesocephalic*. The three categories are reflective of the principal categories of late nineteenth-century American society – Africans, American Indians, and Europeans. The simplicity of this new 'mathematical' logic provided anthropologists with a powerful, empirical, and measurable system of classification. Morton's principal contribution was in measuring cranial capacity (and brain size) among and between the three populations. Museum officials commissioned Indian Agents and archaeological expeditions to newly acquired Western territories to collect and ship Indian crania to eastern museums (Echo-Hawk 26). Aleš Hrdlička (1869-1945), a Czech anthropologist trained in the United States, was a central figure in American Raciology. His observations of American Indians in the Western territories convinced him that an Asiatic migration must have served as the basis for the initial human settlement of the Americas (Patterson 58).

Together with Harvard anthropologist Earnest Hooton (1887-1954), Hrdlička was pivotal in the founding of American racial anthropology, and both men served in advisory capacities to national academic institutions in the United States (Patterson 56). Both worked at an important Pueblo Indian (Towa) archaeological site in New Mexico, including a cemetery, at Pecos Pueblo. At Pecos, crania were collected and categorized using the same system applied by Chatters more than forty years later. There was one problem though. The crania should have dem-

onstrated a single shape and form (round-headed). Instead, Hooton and Hrdlička observed a high degree of variability among a prehistoric population. Puzzled by the results, Hooton culled the initial population of 1800 skeletons down to 129 of the most complete male skeletons. What about the females? Females were (and continue to be) viewed by physical anthropologists as “nondiagnostic.” Hooton further sorted the crania into eight morphological types. Describing the 1600 other specimens as “nondescript specimens of a generalized Southwestern Indian appearance,” Hooton did what any scientist might do with samples of evidence that did not support his system of classification – he threw them out. Faced with crania that did not “look” Indian, he simply created new types: “Pseudo-Caucasoid,” “Pseudo-Negroid,” “Pseudo-Alpine,” even a “Pseudo-Australoid.” Convinced that the populations must be from actual “Negroids” (immigrants from Africa), he arranged the specimens in chronological order. To his surprise the eight outlying “non-Indian” types spanned the entire occupation of the village. Searching for an explanation, Hooton posited that the more ‘primitive’ (Negroid) specimens were indicative of an earlier stage of Indian ancestry. These populations must have been eventually replaced by more advanced (Caucasoid) members of the community, “later invaders [...] capable of higher cultural development than the early pioneers [...] and responsible for the development of agriculture and for the notable achievements of New World civilization” (Thomas 108). Hooton’s theories about race were far from marginal, and he believed in the superiority of Nordic races, advocating national immigration policies that excluded members of less desirable Asian and southern and eastern European countries (Thomas 109). In 1939, he published an essay titled “Noses, Knowledge and Nostalgia – The Marks of a Chosen People” in which he argued that German Jews were responsible for their recent histories of oppression in Germany and elsewhere. Assimilation, the best possible solution to the “Jewish Problem,” could only be facilitated through interbreeding: “The Jew possesses as part of his heritage, perhaps reinforced by the traditions of his people, a certain emotional intensity which expresses itself in modes of behavior alien to certain northwest European stocks – especially Anglo-Saxons [... T]he peculiar merits of essentially Jewish culture can be preserved only through the maintenance of inbreeding and social exclusiveness” (Hooton quoted in Thomas 109).

Not surprisingly, Hooton’s theories of racial superiority were not shared by all of his contemporaries. One scholar in particular, a Jewish American immigrant from Germany named Franz Boas (1858-1942), was instrumental in refuting racial theories and disproving Hooton’s and Morton’s notions of race and racial science. Working with immigrants from New York City, Boas measured the crania of Russian immigrant children and compared them to people born in Russia. The crania showed marked differences in shape and size. Refining his methods, Boas assembled measurements from 18,000 immigrants and compared these with those of their children (Boas 647). The results were the same: crania were not stable indices of race. Changes in diet and nutrition generated a whole new set of

measurements that did not match those of even the immigrants' most immediate ancestors. Boas's tests showed that "all the evidence is now in favor of a great plasticity of human types, and permanence of types in new surroundings appears rather as the exception than as the rule" (Senate Document 208 [1911], quoted in Stocking 178; see also 176-77, 191). The idea that skull shape was determined by race or that variations in skull shape were stable through time – a scientific orthodoxy since the period when it was aggressively pronounced by Samuel G. Morton – was disproven by scientific methods. And any anthropologist trained after the 1940s would have been well acquainted with Boas and his work.

How was it, then, that nineteenth-century systems of racial classification were still being used by archaeologists working in the late twentieth century? The answer lies in what was at stake for these scientists – a potential discovery that might undermine the exclusive claims of Native Americans to the human remains of their near and distant relatives. If Kennewick could be described as *Caucasoid*, he might provide a link between Euro-American archaeologists and ancient Native Americans. This finding would effectively reverse the mandates of repatriation and reburial and allow Euro-Americans to make their own claim as a descendent community. Racial science could once again be revived through the colonization of the past.

Archaeological Claims on the Indigenous Body: If Caucasians Colonized the Americas, Kennewick is Ours, Too

Rather than waiting to have the remains examined and the results published by other archaeologists, Chatters was advised by other archaeologists to use any means possible to prevent the reburial of "The Ancient One." He contacted local media and held a press conference stating that the remains were "*Caucasoid*" (Chatters 171). Soon, media outlets across the world carried news that the bones of an ancient Caucasian individual had been found in Washington State. The storm of publicity generated a whole host of colonialist claims to the prehistory of the Americas. White supremacist groups used Chatters's findings to argue that the Americas had first been populated by Europeans, and that these people had been "pushed out by the Indians" (Chatters 171). In an instant, Kennewick (and Chatters) had become celebrities. In the span of a couple of months the story had attracted the attention of President Bill Clinton who quizzed Stanford Dean of Research and Senior Science Advisor Artie Bienenstock on the potential implications of the discovery.¹ What was a Caucasian doing that far away from Europe, 10,000 years ago (Bienenstock)? If Kennewick was white, the exclusive claims to land and sovereignty by Native Americans might be questioned. If America had been settled first by Europeans, the whole legacy of Indian removal and dispos-

1 Arthur Bienenstock, personal communication with author, October 30, 2011.

session – indeed, the whole moral basis for colonization – would instantly acquire a new meaning – this time cloaked in a narrative of restoration.

American archaeologists rallied to the cause of a group of Smithsonian Institution scientists who sued the Federal Government over the repatriation of the remains to the most likely geographic descendants, the Umatilla Tribe (Bonnichsen et al. v. United States, Civil No. 96-1481JE, District of Oregon). The case dragged through the courts until 2002 when Ninth District Federal Appellate Court Judge John Jelderks shocked the plaintiffs, the public, and the tribes, declaring that “[t]he available evidence does not support a finding that Kennewick Man is related to any particular identifiable group or culture, and the culture to which he belonged may have died out thousands of years ago.” He further stated that the Secretary of Interior had “erred in extending the definition ‘Native American’ to automatically include all remains predating 1492 that are found in the United States” (Watkins, “Beyond the Margin” 273). In a statement almost as shocking as the judge’s determination that Kennewick Man was not Native American, Society for American Archaeology President Robert Kelly issued a press release stating that “the SAA was pleased with the decision, that it provides an urgently needed corrective to the expansive interpretations of the Act” and that “Jelderks’ decision in the Kennewick case will go a long way toward restoring the balance between the interests of science and those of Native Americans that Congress mandated when it passed NAGPRA in 1990” (Society for American Archaeology).

As the chairperson of the Society for American Archaeology’s Committee on Native American Relations, I delivered a statement of protest on behalf of the group asking how the president of the 7,000-member society had arrived at such an endorsement without discussion or vote. As troubling as the SAA’s silence on the political ramifications of the decision is the fact that DNA samples had been collected by the archaeologists as part of a package of scientific evidence to be presented to the court. Up until that time, not a single article demonstrating a genetic basis for Native American, European, or Umatillan identity had appeared in the pages of *American Antiquity*, the flagship journal of the Society. In fact, from the time the remains were found until the present, not a single article has appeared demonstrating a scientifically verifiable basis for the classification of Native Americans by race, much less the Umatillas.

After a century of data compiled by Franz Boas (1940), Ashley Montague (1942), and geneticist Richard Lewontin (2000), the concept of racial identification had been quickly endorsed and mobilized as a valid scientific (as opposed to a cultural) concept (330). The Kennewick debacle unmasked much of the hostility privately expressed by some archaeologists about (living) Native Americans and NAGPRA. Further, in an intellectually dishonest defense of scientific racism, the SAA leadership used the Kennewick case in a nakedly political act of data reclamation. The thinking seemed to follow an ethically dubious argument: the interests of scientific research should not be impeded by politics – archaeological scientists, it is assumed, are not political, and to prove this point they remain silent

on the scientific validity of the race concept – especially as it serves the interests of archaeology. Based on a politically ‘neutral’ system of racial classification, scientists supported the legal determination that Kennewick Man was not Native American. They thus used science as a political tool to support the claim that science is not political.

It would be a mistake, however, to characterize the decision as having wide support among archaeologists. There were significant ethical questions raised by the endorsement. On what basis, for example, had the SAA determined and validated the racial identification of the remains? And on what authority had DNA samples been collected and sent for analysis? Even if the race concept did have any scientific validity, whose DNA – out of a mass of at least five hundred different tribal groups – would serve as a representative comparative sample? Which living Native American community would submit to such testing? Was the DNA of one living Native American the same as every other Native American? How had the concept of race been so quickly resuscitated? How could the SAA possibly pretend that there was scientific unanimity on the concept of race? What was the basis for this new raciology? The answers lie in the combination of the persistence of race as a cultural icon and the emergent science of human genetic research, best embodied in the Human Genome Diversity Project (HGDP). In both cases Native Americans and other Indigenous peoples have once again become the targets of a new kind of biocolonialism. The search for a genetic basis for race masks and reinforces a new objectification of the Indigenous body, where geneticists, few of whom engage or reference anthropological critiques, are the new stewards of racial science. This literature has in recent years been cited and recycled in an echo chamber of pop-science, where genetic research promises to clarify and affirm a new biogenetic reality of human identities.

Mapping the Genome and Marketing Race: Biocolonialism of the Vanishing Primitive

In the 1991 issue of *Genomics*, eminent geneticist Luca Cavalli-Sforza called upon geneticists, as well as public and private agencies, to collaborate in a project of unparalleled importance: Cavalli-Sforza stated that “the populations that can tell us the most about our evolutionary past are those that have been isolated for some time, and are likely to be linguistically and culturally distinct. These populations are being rapidly merged with their neighbors, destroying irrevocably the information needed to reconstruct our evolutionary history.”² Cavalli-Sforza went

2 The quote continues: “Population growth, famine, war, and improvements in transportation and communication are encroaching on once stable populations. It would be tragically ironic if, during the same decade that biological tools for understanding our species were created, major opportunities for applying them were squandered” (Cavalli-Sforza et al. 490).

on to say: “We must act now to preserve our common heritage before these populations vanish.” He called upon the World Health Organization, UNESCO, and the U.S. National Science Foundation to aid the quest. “By an intense scrutiny of human diversity,” he writes “we will make enormous leaps in our grasp of human origins, prehistory, evolution and potential” (Cavalli-Sforza et al. 491).

The Human Genome Diversity Project (HGDP), launched at Stanford University in 1991, initiated a virtual explosion of literature extolling the potential medical and scientific benefits of human genetic mapping and the development of race specific drugs. Cavalli-Sforza’s ebullient pronouncements about the potential benefits of genetic mapping to archaeologists, biologists, and linguists heralded a second wave of controversy about the possibility of mapping and determining the specific histories of human populations. In an instant, the Human Genome Project breathed new life into a whole host of outdated concepts long ago deconstructed by anthropologists. The scientific validity of the concept of human races had been debunked for some time by biologists, and Cavalli-Sforza was careful in the early days of the project to distance himself from the race concept, insisting at first on using the concept of ‘genetic populations’. Of no concern to any of the organizers initially was the degree to which the goals of genetic mapping were intimately linked and driven by racist and essentialist characterizations of Indigenous groups as racially pure, perpetually vanishing, fossilized isolates capable of revealing clues to a collective human past, and threatened with being contaminated by admixtures of other races. Although presenting a public persona with an anti-racist stance, the sampling methods, the proprietary use of genetic mapping data by corporations, and the machinery, capital, and marketing vehicles of pharmaceutical companies are indicative of the active commercializing of a new racism – ostensibly advancing the interests of humanity through the study of DNA (Marks, *What It Means* 198).

In a troubling reincarnation of nineteenth-century racial anthropology, the study of Indigenous peoples is once again being mined as a way to reveal to the West the evolution of a universal narrative – nested within a larger imaginary construct in which science rescues humanity by propounding a totalizing truth. But a quick look at the research methods employed by geneticists reveals a troubling pattern of marketing and manipulation. Genetic research, far from being the accessible and public pursuit for the common good espoused by HGDP scientists, has instead been co-opted by the machinery of capitalism. The territory of the genome has now become a proprietary resource: coupled with the deep pockets of pharmaceutical companies, genetic researchers have used the cultural concept of race as a marketing device, selling the public a seemingly irrefutable version of biological identity. But one does not need to be a geneticist to understand and unmask the unsound and tendentious science being sold and gobbled up by a public hungry for simple explanations of human identity.

First on the list is the issue of sampling. Returning to the Kennewick case, the public was asked to believe that Native Americans are a physiologically homoge-

nous and discrete population and that the totality of Native American phenotypic diversity in both time and space is both known by human osteologists and quantifiable. Rather than expand the category of 'Native American' to include Kennewick, a presumably disinterested scientific practice excluded data that contradicted its theoretical basis. And so a new Pseudo-Indian was created by academic fiat. The case did not trigger, as it should have, a discussion about the usefulness of sampling as a scientific method and of racial categorizations providing its ideological logic. Where, according to the newly invigorated nineteenth-century logic of scientific racism, do 'Native Americans' end? In Greenland? Northwestern Asia?

The Genome project has run into its own sampling troubles. Exactly what is an 'isolated' population? Isolated from what? Project researchers exercised their own sampling power when they excluded any anthropologists from the project, but the problems associated with the process of constructing a race-based family tree were multiple. First, the 'pure' Indigenous peoples had to be identified and selected by the researchers. Language seemed to provide a good proxy, but so-called "agricultural" or "urban" Indigenous people were to be excluded (Cavalli-Sforza). Samples would be collected from twenty-five people representing each of the four hundred identifiable ethnic groups around the world. What any first-year statistics student could see was that just like at the cemetery at Pecos, the samples were clearly loaded in order to simulate a genetic reality that simply did not exist in the real world. In selecting subjects in this manner, the scientists were using their methods to reinforce their own version of Indigenous identity. Science and the social order reinforced one another and created a new calculus of identity. The Indigenous tribes' cultural self-ascriptions, as well as their objections to such a project of identity-making, were of no consequence to researchers.

The second basic issue involved is the technology itself. While DNA samples can determine relationships between parents and children, identifying the relationship between ethnicity, race, and the individual requires a similarly dubious sampling strategy. What exactly do the genetic markers for race look like? To date, there are no definitive markers for any sections of the genome that code for combination of skin color, skull shape, or any of the other attributes defined by nineteenth-century anthropologists. Knowing that populations vary continuously across the surface of the earth, which features on the genome are definitive? Which scientific agency determines the criteria of inclusion or exclusion of specific genetically defined population groups? The linguistic properties of race ('black' or 'white') imply discrete and bounded conceptual categories or "ideal types." But the biological reality, whether located in a cranium or in a strand of DNA, is that human phenotypic diversity is pervasive and continuous (Marks, *What It Means* 100).

Finally, the two methods used by many of the companies that market racial ancestry kits use one of two technologies. The processes of identification record and imprint a very narrow bandwidth of genetic inheritance. The Y Chromo-

some DNA test only records material passed from fathers to sons (fathers' fathers' fathers) (Figure 1).

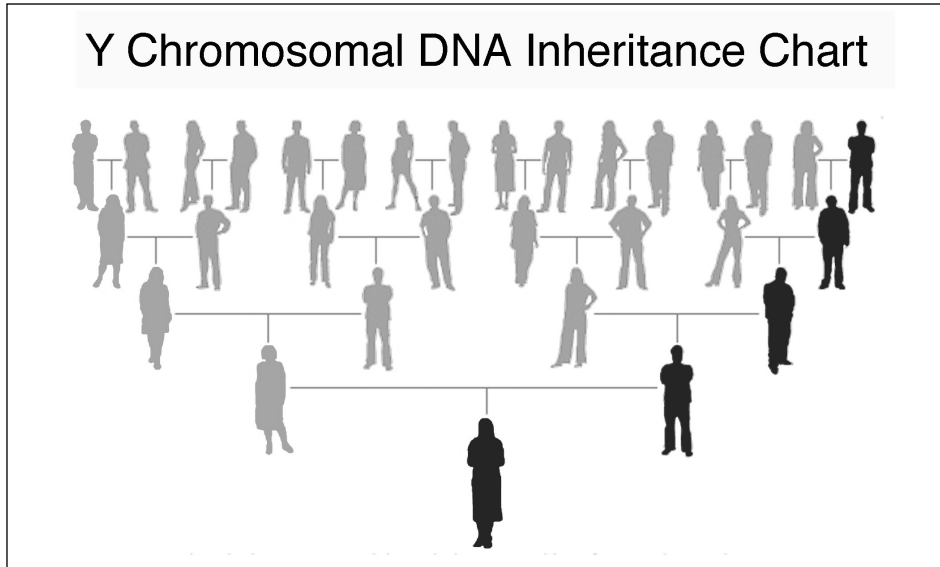


Figure 1: Y Chromosomal DNA Inheritance Pattern. The Y chromosome only records genetic information from one's father's father's father. All of the other genetic information is excluded in this test. Illustration by Wilcox. See TallBear.

Similarly, Mitochondrial DNA tests only encode information passed along a matriline (mothers' mothers' mothers) (Figure 2).

The vast majority of genetic material that an individual carries is simply excluded from the sample. Defined in such a way, racial samples (collected from self-identified customers) are skewed to reflect a new biofictional lineage, having no relationship whatsoever to the overall genetic structure – let alone the social realities – of the ancestral subjects. The geneticist controls the means, methods, and modes of racial authenticity, supported by an older scientific logic of research inherited from nineteenth- and early twentieth-century kinship anthropology. This is dominated by the classic kinship chart in which the entire system of relationships and identity definitions are collapsed down to a thin matrilineal or patrilineal band. As a result, DNA testing can tell you very little about, for example, the cultural complexity of being Cherokee (Gilbert) (Figure 3).

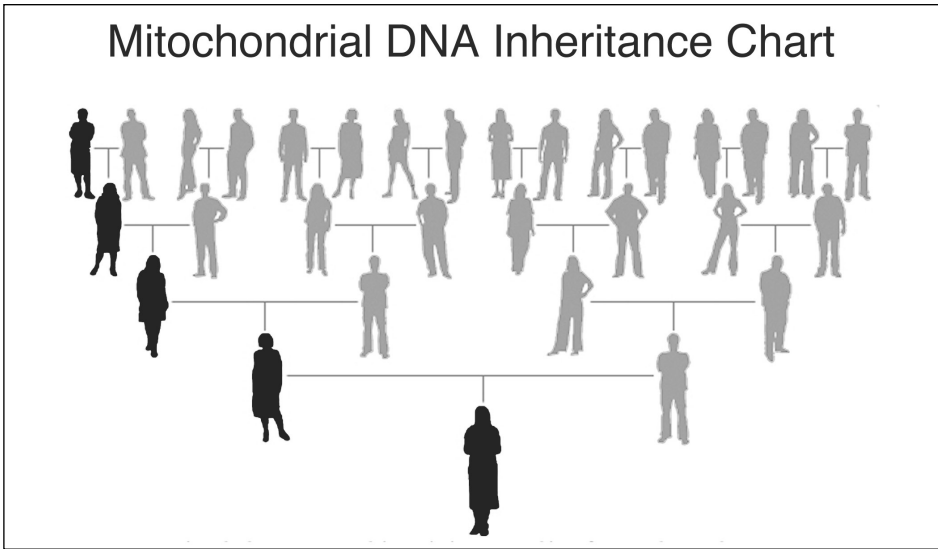


Figure 2: Mitochondrial DNA Inheritance Pattern. The Mitochondrial DNA test only records genetic information from one’s mother’s mother’s mother. All of the other genetic information is excluded in this test. Illustration by Wilcox. See TallBear.

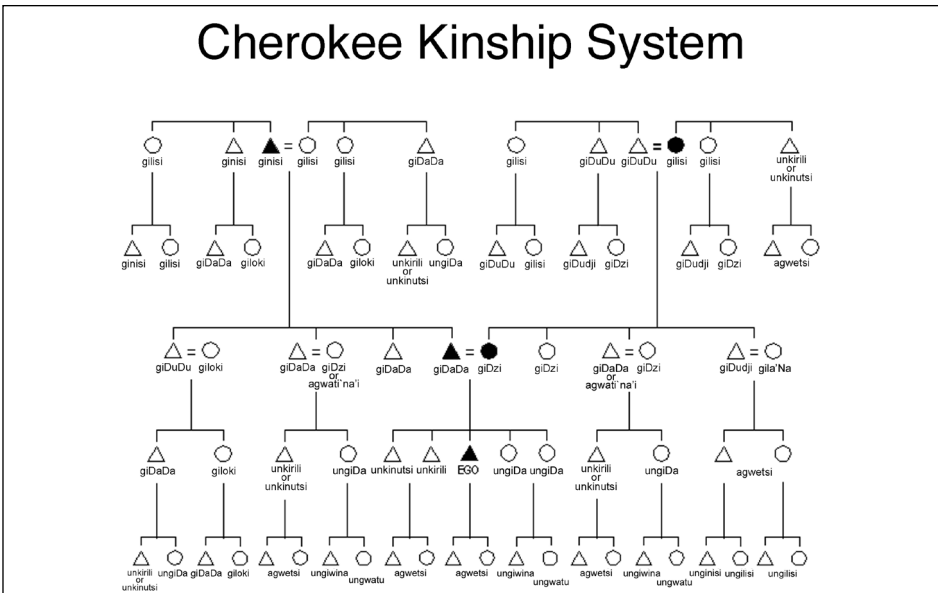


Figure 3: Cherokee Indian Kinship Chart. Cherokee kinship systems, like many non-Western societies, reveal an incredibly complex pattern of relatedness to one’s relations. None of this complexity is revealed in a purely patrilineal or matrilineal genetic test.

Source: Gilbert, *The Eastern Cherokees* 177. Illustration by Wilcox.

Scant attention is paid to the biological and cultural complexity of human identities and relationships in these studies. A fundamental question arising from this selective application of DNA information is how the concept of the gene has come to breathe new life into racial anthropology. It powerfully illustrates the dangers of scientific discourse's unacknowledged intellectual continuities, as when a new methodology that has the potential to accurately reflect human variability unwittingly resuscitates the troubling misuse of race and racialist thinking. Will Indigenous populations once again be marginalized in the name of scientific progress?

After a concerted effort, Indigenous peoples eventually derailed the Genome project (but not its many offspring). Unfortunately, rather than being celebrated for protecting their rights against the power of science, they have been attacked by genomics supporters for placing spiritual and superstitious concerns ahead of the interests of science (TallBear). Once again the motives of Indigenous peoples have been misread. Yet the real threat against the advancement of scientific knowledge does not come from Indigenous activists. Rather, it is the selective and arbitrary application of outdated concepts of racial science by ideologically motivated scientists that puts at risk the great potential of a science which, if judiciously practiced with the utmost controls and proclamations against racism, could provide humanity with an untainted version of human evolution. Both the Kennewick case and the Human Genome Project demonstrate that Indigenous peoples and the power of outmoded ideas and disingenuous scientific practice have been brought to a new territory and a new intellectual battleground. "Race," as Jonathan Marks has said, "is good to think with. As long as you don't think too hard" (*What It Means* 1).

Works Cited

- Boas, Franz. *Race, Language and Culture*. New York: The Macmillan Company, 1940.
- Bray, Tamara L. *The Future of the Past: Archaeologists, Native Americans, and Repatriation*. New York: Garland Pub., 2001.
- Cavalli-Sforza, L. L., et al. "Call for a Worldwide Survey of Human Genetic Diversity: A Vanishing Opportunity for the Human Genome Project." *Genomics* 11.2 (1991): 490-91. [https://doi.org/10.1016/0888-7543\(91\)90169-F](https://doi.org/10.1016/0888-7543(91)90169-F)
- Chatters, James C. *Ancient Encounters: Kennewick Man and the First Americans*. New York: Simon & Schuster, 2001.
- Cuvier, Georges. *Tableau Élémentaire de l'Histoire Naturelle des Animaux*. Paris: Baudouin, imprimeur du Corps législatif et de l'Institut national, 1798. <https://doi.org/10.5962/bhl.title.45918>
- Echo-Hawk, Roger C. and Walter R. Echo-Hawk. *Battlefields and Burial Grounds: The Indian Struggle to Protect Ancestral Graves in the United States*. Minneapolis: Lerner Publications Co., 1994.

- Gilbert, William Harlen. *The Eastern Cherokees*. Washington, D.C.: United States Government Printing Office, 1943.
- Haynes, Gary. *The Early Settlement of North America: The Clovis Era*. Cambridge/New York: Cambridge University Press, 2002.
- Lewontin, Richard C. *It Ain't Necessarily So: The Dream of the Human Genome and Other Illusions*. New York: New York Review of Books, 2000.
- Marks, Jonathan. *What it Means to be 98% Chimpanzee: Apes, People, and their Genes*. Berkeley: University of California Press, 2003. <https://doi.org/10.1525/9780520930766>
- . *The Realities of Races*. Social Science Research Council Web Forum. <http://race-andgenomics.ssrc.org/Marks/>. 2006. Accessed 31 January 2012.
- Meskill, Lynn and Peter Pels. *Embedding Ethics*. Oxford/New York: Berg, 2005.
- Montagu, Ashley. *Man's Most Dangerous Myth: The Fallacy of Race*. New York: Columbia University Press, 1942.
- Patterson, Thomas Carl. *A Social History of Anthropology in the United States*. Oxford/New York: Berg, 2001.
- Smith, Paul Chaat and Robert Allen Warrior. *Like a Hurricane: The Indian Movement from Alcatraz to Wounded Knee*. New York: New Press/W.W. Norton, 1996.
- Society for American Archaeology. "SAA Responds to the Kennewick Man Court Decision." *SAA Legal Briefs and Other Matters*. Society for American Archaeology, September 3, 2002. <http://www.saa.org/Portals/0/SAA/repatriation/Kmanrelease.2002-09-03.pdf>
- Stocking, George W. *Race, Culture, and Evolution. Essays in the History of Anthropology*. New York: Free Press, 1968.
- Stuurman, Siep. "François Bernier and the Invention of Racial Classification." *History Workshop Journal* 50 (Autumn 2000): 1-21. <https://doi.org/10.1093/hwj/2000.50.1>
- TallBear, Kimberly. "DNA, Blood, and Racializing the Tribe." *Wicazo sa review* 18.1 (2003): 81-107. <https://doi.org/10.1353/wic.2003.0008>
- Thomas, David Hurst. *Skull Wars: Kennewick Man, Archaeology, and the Battle for Native American Identity*. New York: Basic Books, 2000.
- Watkins, Joe E. *Indigenous Archaeology: American Indian Values and Scientific Practice*. Walnut Creek, CA: Alta Mira Press, 2000.
- . "Beyond the Margin: American Indians, First Nations, and Archaeology in North America." *American Antiquity* 68.2 (2003): 273-85. <https://doi.org/10.2307/3557080>
- Wilcox, Michael V. "NAGPRA and Indigenous Peoples: The Social Context and Controversies, and the Transformation of American Archaeology." *Voices in American Archaeology: Society for American Archaeology 75th Anniversary Special Volume*. Society for American Archaeology Press. 2009. 178-92. <https://doi.org/10.7183/0002-7316.75.2.221>

**SCIENTIFIC ENCOUNTERS
IN THE EARLY MODERN PERIOD**

The Three Greatest Inventions of Modern Times: An Idea and Its Public¹

DAVID A. BORUCHOFF

The title page of Francis Bacon's *Instauratio magna* (1620) famously depicts two magnificent ships under sail on the broad expanse of the Ocean, as seen from the confines of the Mediterranean Sea (Figure 1). The turbulence of the Ocean and the force of nature, which together oblige the ships to tack close-hauled in opposite directions, are set against the classical and solid form of the two Pillars of Hercules, which also frame them. Raised on the coasts of Africa and Europe, on either side of the Strait of Gibraltar, these columns symbolize the limits of the ancient world and of ancient learning. For, as Tacitus wrote in regard to their origin, if once the Ocean impeded inquiry into the mysteries of geography and the natural world, it was subsequently "thought more holy and reverent to believe the deeds of the gods than to know them with certainty" (n.p.).

Bacon was troubled that such cultural impediments still constrained the pursuit of knowledge in his own time, in which, as he complained to King James I in 1605, "a few received Authors stand vp like *Hercules Columnes*, beyond which, there should be no sayling, or discovering" (*Twoo Books 2: 1v*). Nevertheless, he was far from despondent. The title page of his *Instauratio magna* not only alludes to the triumph of divine and human learning foreseen for the so-called latter times in Paul's Letter to the Ephesians,² but also features the prophetic caption *Multi pertransibunt et augebitur scientia* (many shall pass through, and knowledge shall be increased), from the Book of Daniel.³ This is a hopeful,

- 1 The research in this essay was supported by a Major Collaborative Research Initiative (MCRI) grant from the Social Sciences and Humanities Research Council of Canada for the project "Making Publics: Media, Markets and Association in Early Modern Europe, 1500-1700" (www.makingpublics.mcgill.ca). All translations from foreign languages are my own and intend to convey both the literal sense and the style of the original texts, in accord with the premise that one may trace patterns of thought through the patterns of discourse that are their vehicle.
- 2 "Having made known unto us the mystery of his will [...]: That in the dispensation of the fulness of times he might gather together in one all things in Christ, both which are in heaven, and which are in earth" (*Holy Bible*, Ephesians 1:9-10).
- 3 Bacon's citation of Daniel 12:4 is a cross between the Vulgate approved by Catholic authorities ("plurimi pertransibunt, et multiplex erit scientia," *Biblia Sacra* 991) and the text made for Protestants by Tremellius and Junius ("percurrēt multi & augebitur cognitio," 4: 299). When this passage again appears in *Instauratio magna*, it is instead "Multi

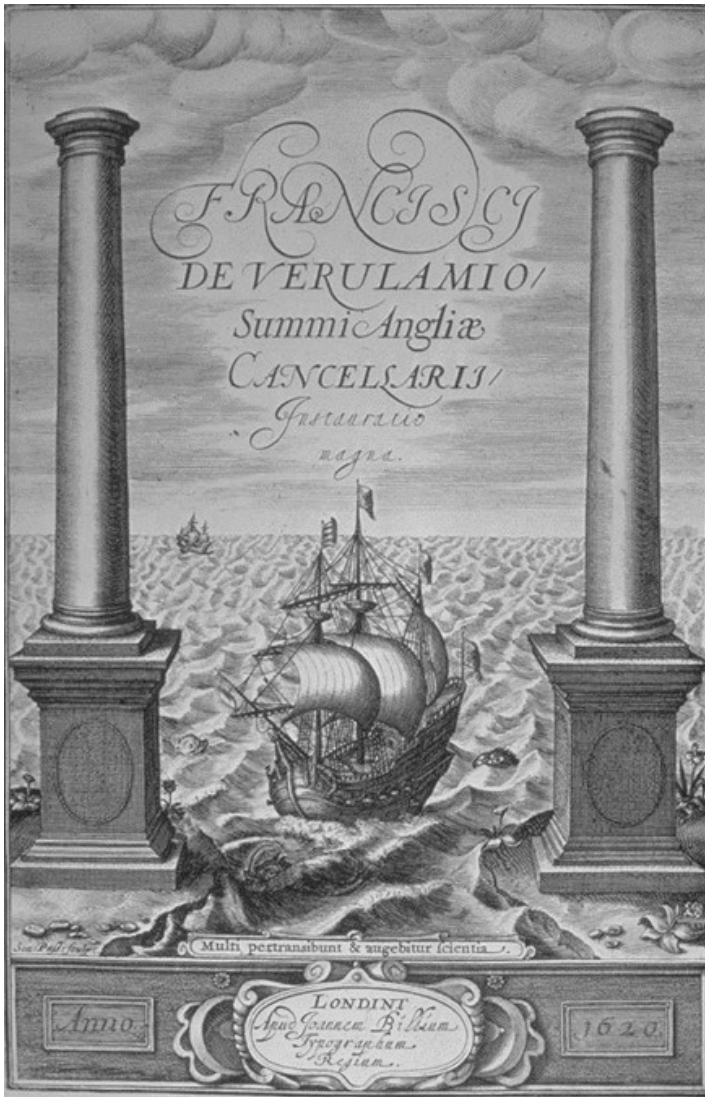


Figure 1: Title page of Francis Bacon. *Instauratio magna*. London: Apud Joannem Billium, 1620. Photo: David Boruchoff.

indeed expectant, statement, and as a result, even as the pillars of classical wisdom dwarf the ship of modern endeavor in the foreground, in defiance of perspective, they do not halt or circumscribe its progress. Although mighty, these pillars are unfinished, artificial, and lifeless; and, as the open space above them suggests, their reach is limited. So, too, is the vast expanse of the Ocean overtopped by a remarkably broad and serene sky to show the still greater power of the heavens, which here proclaim the dawn of the great instauration. For this, as in the

pertransibunt, & multiplex erit scientia” (113). Bacon’s earlier treatise from 1605 follows the Vulgate (*Two Books* 2: 15v).



Figure 2: Title page of Antonio de León Pinelo, *Tratado de Confirmaciones Reales de Encomiendas, Oficios i cosas, en que se requieren para las Indias Occidentales*. Madrid: Iuan Gonzalez, 1530. Photo: David Boruchoff.

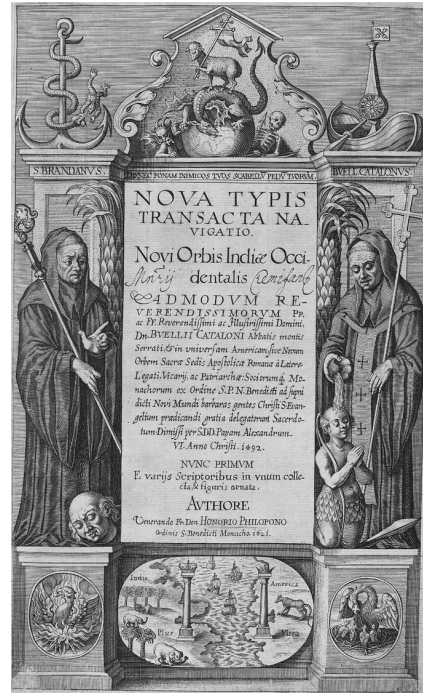


Figure 3: Title page of Honorius Philoponus (Caspar Plautius), *Nova typis transacta navigatio. Novi Orbis Indiae Occidentalia*. Linz: n.p., 1621. Photo: David Boruchoff.



Figure 3a: Title page of Honorius Philoponus, *Nova typis transacta navigatio*. Detail. Photo: David Boruchoff.

iconography commonly used in other works about the East and West Indies, the locus of discovery is unseen, far-off in that indeterminate *plus ultra* beyond the Pillars of Hercules (Figures 2, 3 and 3a).

Were I an art historian, I might speculate on how the horizon signifies subjectivity by figuring the space between what is and is not present to the viewer. But, as an intellectual historian, I would instead note that in early modern times the horizon was frequently used in philosophical and scientific discourse as an image of what John Locke would call “the Bounds between the enlightened and

the dark Parts of Things; between what is, and what is not comprehensible by us” (3). Yet, whereas Locke therefore demands a halt to inquiry, lest we lose our way in the “vast Ocean of *Being*, as if all that boundless Extent were the natural and undoubted Possession of our Understanding” (3), Bacon is not deterred by the abyss between the security of solid land and the enigmata of the Ocean and (by definition uncivilized) *apeirōn* beyond. Instead, he constructs his title page around two domains over which man explicitly lacks dominion: the pelagic and the empyreal.

This focus is typical of early modern writings on discovery, and it is here that the seeds of the great instauration are found. Before detailing the many benefits that have derived from navigation, Polydore Vergil recalled the embargo put upon this activity by both classical and religious authorities, so that man might not transgress his appointed place in the great scheme of creation. In his wildly popular and influential *De inventoribus rerum* (1499), Vergil wrote the following, making clear the aberrant and supposedly sinful aims of those who dare to explore the world by sea:

Who will not concede that the human race gets its due reward when, found out in its madness and audacity, it does not know to keep safe within its own limits? For although good God almighty looks after him abundantly, man nevertheless rushes headlong into danger of his own volition. God indeed gave us land, which is solid and the element fit to sustain us, yet we probe the sky and sea. Did not Daedalus approach heaven itself on man-made wings? Blinded by a savage lust for riches, do we not only plough the sea, trusting to a narrow board, but, I should say, almost live there? (*De rerum* 237)⁴

With a similar understanding, Pedro de Medina observed in the 1552 edition of his *Regimiento de navegación* that the Ancients held navigation to be a dangerous, if not contemptuous, act:

The royal prophet David says in Psalm 113: *The sky or heavens are of the Lord; and he gave the land to the sons of men*. He means that the abode of God, his angels, and saints is the empyreal sky. The abode and dwelling of men is the land. And hence, when men pass through the sea, which is the dwelling and abode of fish, they leave their proper place and great dangers result. (a4r).⁵

4 Due to the many revisions and additions to Vergil’s work over the course of his lifetime (d. 1555), I cite the 1536 edition, as this incorporates all changes relevant to the present study. In those cases where Vergil’s original intentions are at issue, I cite the princeps of 1499.

5 The distinction between the domains of different species is maintained throughout the Hebrew Bible and Apocrypha, for example, in Genesis 1:26-28, Psalms 8:8, and Ezekiel 38:20, all of which refer to the fish of the sea and the birds of the air. It would seem, nevertheless, that a more particular injunction against trespass operated in the early modern fear of travel. Even at the end of the sixteenth century, Thomas Nashe not only advised against experiencing foreign lands directly – “what is heree but wee maye read in bookes and great deale more too, without stirring our feete out of a warme studie” (L4r) – but went

In 1575, when the burden of an overseas empire had become evident in Spain, Jerónimo Román would again use the notion of man's transgression against a divine order at the start of his chapter on navigation:

The greed of men was great, for, although God provided the land with everything that men required to live, they, not content with what they had securely and free of danger, threw themselves, like desperate [or suicidal] men, into the midst of the waters, some on planks, others on skins, and sometimes on reeds. And although God gave the waters to the fish, man has sought to usurp for himself what was not given to him, and thus men go through the water and waves as though through the streets, and they sleep and eat there, and do everything else that they do on land, other than to sow it. (276)

These statements are but three among a multitude of classical and biblical injunctions against oceanic navigation adduced in works on exploration and science in the sixteenth century.

Holding instead to a providential view of history, in which recent advances in the science of navigation, and the attendant expansion of Europe's sphere of influence, were intended by God, when Bacon again cites Daniel's thoughts about the triumph of learning in the body of his essay, it is no longer just a prophecy, but above all a reality of modern times. If inquiry was before inhibited by superstition and the despotic order of scholastic and ecclesiastical dogma (*Instauratio magna* 107), news of lands beyond the confines of the ancient world made it possible, if not imperative, for modern scholars to question ancient wisdom itself. Bacon therefore declares:

Nor is the prophecy of Daniel about the last times of the world to be disregarded: *Many shall run to and fro, and knowledge shall be increased*; this clearly signals and signifies that it is in Fate, that is, in Providence, that the through passage of the world (which is plainly seen to be accomplished, or now in the works, by so many distant voyages) and the growth of the sciences shall occur together in the same age. (*Instauratio magna* 113)

In voicing similar conceits in *Of the proficience and aduancement of Learning, diuine and humane* (1605), Bacon took care to note that, if recent achievements surpass those of prior times by having direct experience of matters about which the Ancients could only conjecture (*Twoo Books* 2: 15v), this is wont to occur only at peril to the lives and reputations of modern scholars, who therefore find

on to proclaim: "The sea is the natiue soyle to fishes, take fishes from the sea, they take no ioy nor thriue, but perish straight. So likewise the birds remoued from the aire (the abode wherto they were borne) the beasts from the earth, and I from England. [...] Belieue mee, no aire, no bread, no fire, no water agree with a man, or dooth him anye good out of his owne country. Colde frutes neuer prosper in a hot soile, nor hot in a cold. Let no man for any transitorie pleasure sell away the inheritance of breathing he hath in the place where he was born" (M1r).

themselves obliged to defy the classical and religious injunctions under which science then had to operate.

In 1734, Voltaire would dub Bacon “the father of experimental philosophy,” citing as proof the difference between his orderly insights and the allegedly fortuitous discovery of “astonishing secrets” before his time (111-12). This favorable appraisal, which reflects the culture wars of the eighteenth century and the Enlightenment view that anything not grounded in reason is “of the most stupid barbarity” (Voltaire 112), disregards the esteem in which Bacon himself held the inventions that Voltaire claimed to be accidental. These are most principally the printing press, firearms, and the nautical compass, all of which, Bacon avowed, were intended by divine Providence for the benefit and glory of modern times. He wrote:

It is helpful to note the strength and virtue and consequences of inventions, which present themselves most clearly in these three that were unknown to the Ancients; although recent, their origins are obscure and inglorious. These are, of course, the art of printing, gunpowder, and the nautical compass. For these three have altered the face and state of the world: first, in literary matters; second, in warfare; third, in navigation. Innumerable changes have followed from these, so that no empire, no sect, no star has been seen to exercise a greater effect and, as it were, influence on human affairs than these mechanical devices. (*Instauratio magna* 147-48)

This is by no means an original idea. Both before and after Bacon, the paradigmatic value of printing, firearms, and the nautical compass was (and still is today) a cornerstone of the history of modernity. Unlike eyeglasses, distillation, the water mill, the mechanical clock, stirrups, or the air pump, as well as other inventions famously placed alongside and below them, in an inferior position, by Johannes Stradanus (Jan van de Straet) on the title page of his *Nova Reperta* (Figure 4), these three, along with the discovery and description of America – for which Stradanus, in the caption encircling an inset map of the New World, cites the importance, not only of Christopher Columbus as America’s discoverer (*inventor*), but of Amerigo Vespucci as its uncoverer and namer (*repector et denominator*) – “altered the face and state of the world,” as Bacon later said, meaning the Old World, changing how peoples and nations would henceforth relate to one another.

Despite persistent claims that these inventions were perfected and “applied to the most important purposes” only in recent times (Falconer 74) – an idea possibly as old as writings about inventions themselves⁶ – the consequence that print-

6 See, for example, the prologue of Gabriel Alonso de Herrera: “Who, then, will doubt that tents are finer, more polished, and more perfect today than those that Jabal made in ancient times. But, as he was the first who made tents, and Tubal-cain the first to invent the forge, holy scripture calls them the fathers of those arts and trades, not because others have not been more accomplished in these arts, but because they were the first” (2r).

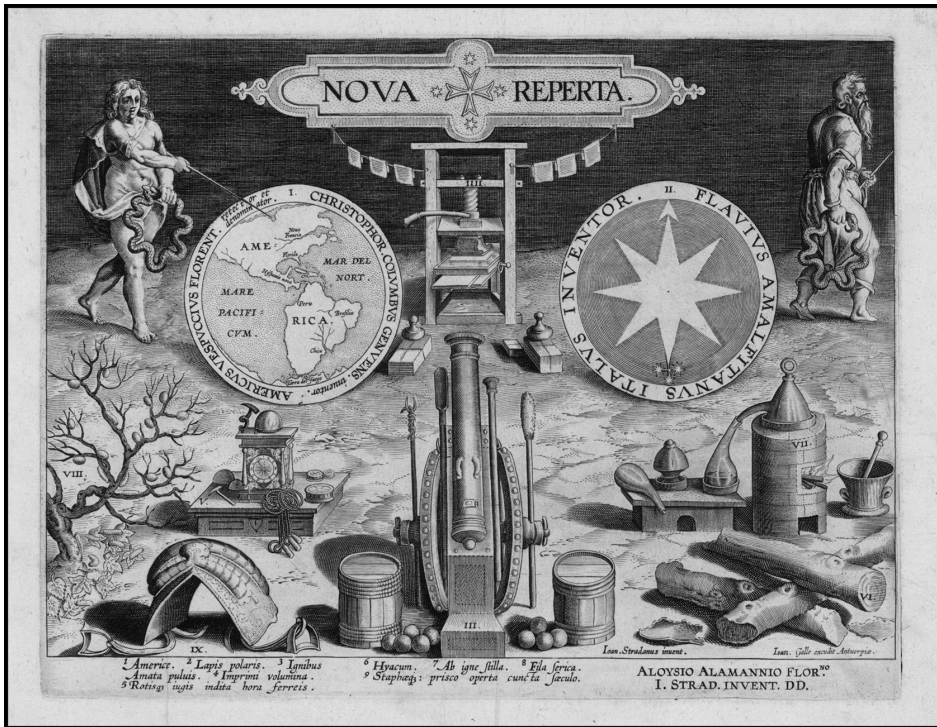


Figure 4: Title page of Johannes Stradanus (Jan van der Straedt), *Nova reperta*. Antwerp: n.p., n.d. Engraved (c. 1600) by Philipp Galle after a design (c. 1584) by Jan van der Straedt. *Courtesy: Max Planck-Institut für Wissenschaftsgeschichte, Berlin.*

ing, firearms, and the compass had for Europe and the world beyond its borders was dramatic, as writers even in the sixteenth century were quick to observe. Indeed, these inventions were held up as a badge of distinction and of God's Providence. The Italian humanist Lazzaro Buonamico, for one, wrote in 1539, in a widely disseminated letter to the Portuguese historian Damião de Gois: "Take care not to believe that anything can bring more luster to our time, or any before, than the science of printing and the discovery of the New World. I have always judged these two things not only to contend with antiquity, but moreover to compare with immortality itself" (Gois flv).

Given the emphasis that early modern authorities gave, not merely to the material benefits of printing, firearms, and the compass, but moreover to their importance as a sign of something greater, it is surprising that scholars have paid almost no attention to the origins of their juxtaposition, that is, to the rapidly and widely disseminated *topos*, or intellectual commonplace, of *the three greatest inventions of modern times*. In contrast to what we shall see in the pages that follow – which document sixteenth-century appraisals of the significance of the seemingly coetaneous and providential advent of printing, firearms, and the nautical compass – more recent writers assume the greatness of these inventions as

a fact, in order to chart the history of technology, science, Western civilization, religion, or labor. The range of examples is dizzying, with well-known texts by Voltaire, Robert Hooke (*Micrographia*, 1665), David Hume (*History of England*, 1778), and even Karl Marx (*Das Kapital*, 1867), among hundreds of others, right up to the present. My focus is instead the *topos* of the three inventions, that is, their collective value in the scientific imagination of the Renaissance.

The rebirth of humane letters that we associate with the Renaissance was hastened if not driven by new inventions, as François Rabelais famously noted in 1534, so much so that modern scholars could rightly see themselves to rival their Greek and Roman masters in learning. A letter from Gargantua to his son, Pantagruel, emphasizes both the advances that have occurred in education after the dark times subject to “the infelicity and calamity of the Goths, who destroyed all *belles lettres*,” and the role that the printing press has played in producing reliable texts for study:

Today, all of the disciplines [of the classical curriculum] are again established, with the addition of languages: Greek (without which it is shameful that a person call himself learned), Hebrew, Chaldean, Latin. Such elegant and correct printed books [are also] in use, which were invented in my time by divine inspiration, as, on the other hand, was artillery by diabolical suggestion. All the world is full of learned people, very educated teachers, very ample libraries, and thus, in my judgment, neither in the time of Plato, nor in those of Cicero or of Papinian, was there such ease of study as one sees now. (1: 257-58)⁷

Similar opinions were voiced by the French polymath Louis Le Roy, whose writings on the ebb and flow of culture exerted considerable influence in the sixteenth and seventeenth centuries. In his commentaries on Plato’s *Phaedo* (1553), and then in *Consideration svr l’Histoire Francoise, et l’vniuerselle* (1567) and *De la vicissitvde ov variete des choses en l’vnivers* (1575), Le Roy made the invention of printing, firearms, and the compass an emblem, not only of the limited scope of ancient knowledge, but of the great merits of his own time:

In the past hundred years, not only have things formerly covered by the darkness of ignorance come into evidence, but also a number of others entirely ignored by the Ancients have become known: new seas, new lands, new sorts of men, morals, laws, and customs; new plants, trees, gums, liqueurs, fruits, minerals, birds, fish, and other animals; new routes in the sky and in the Ocean that were not yet tried; new stars have been seen and new inventions found, such as printing, artillery, and the use of the needle and magnet for navigation. [...] Some think that men are always in decline and that human matters are getting worse;

⁷ This statement is from *La vie très horrifique du grand Gargantua* (1534), the second book of Rabelais’s oeuvre. Rabelais returns to the topic of inventions in book four (1552), attributing firearms and the compass, among other innovations, to the genius of Gaster, the “noble master of arts” (2: 504-09).

if this were so, in the long time that the world has already endured, we would all be totally annihilated and there would no longer be anything of value among us. (*Consideration 9r-v*)⁸

Since the fall from the heights of classical learning feared by others had not come to pass, Le Roy triumphantly concludes, citing the signal importance of printing, firearms, and the compass, and sounding a note often repeated throughout the sixteenth century: “This age has produced many other great and illustrious inventions, about which I will nevertheless not insist, as they are more accessory to ancient affairs than surpassing the understanding of our ancestors; yet all of antiquity had nothing that might compare to these three” (*De la vicissitvde* 101r).

Although my interest is the first flourishing of the commonplace of the three great inventions, rather than its later uses, I would note that the tension between the opinions of Bacon and Voltaire points to the crucial role that religion initially had in the rivalry of the Ancients and Moderns. For if the age of Voltaire was ruled by Reason, that of Bacon was ruled by Providence. Yet, even as Bacon admonished those who presumed to impose religious strictures on the pursuit of natural science, he himself did not scruple to employ scripture to the opposite end. Twice in his *Instauratio magna* he willfully misquotes or mistranslates the Proverbs of Solomon to turn the teaching that it is a king’s glory to seek out the hidden word of God into a mandate for inquiry into the secrets of nature.⁹ So, too, does he assert, in reference to the dominion lost in the biblical Fall, that it is right “to strive to restore and increase the power and mastery of the human race itself in universal affairs.” For, indeed, he asseverates, “were the human race only

- 8 Le Roy elsewhere comments: “Certainly, nature is not more sterile now than in times past. [...] I would willingly ask those who object [...] if the cosmography of old sufficed to know the world, which was never completely rounded and discovered until our time? And is mention made in Greek and Latin books of the needle and magnet [the compass], which mariners use to guide their navigation, or of artillery and firearms, which have completely changed the art of war, or of printing, the principal guardian of letters?” (“L’origine” 14-16).
- 9 Proverbs 25:2 states in the Latin Vulgate: “Gloria Dei est celare verbum, et gloria regum investigare sermonem” (*Biblia Sacra* 689). The Protestant *Testamenti Veteris* is instead: “Honor Dei est abscondere rem, honor autem regum pervestigare rem” (3: 214). Seemingly following the English of the Authorized or King James version (1611), which reads “It is the glory of God to conceal a thing: but the honour of kings is to search out a matter” (Holy Bible), Bacon melds the Catholic and Protestant texts in Latin, first in the preface of *Instauratio magna* – “Gloriam Dei esse celare rem; gloriam Regis autem rem inuenire” (11) – and again, differently, in the body of the work: “Gloriam Dei esse, celare rem; gloriam Regis, inuestigare rem” (147). In each case, his intent is to avow the propriety of scientific inquiry, as he also does in glossing Proverbs 25:2: “*Salomon* the King, although he excelled in the glorie of treasure and magnificent buildings of shipping and Naugation, of seruice and attendance, of fame and renowne, and the like; yet hee maketh no claime to any of those glories; but onely to the glorie of Inquisition of truth: for so he sayth expressly: *The glorie of God is to conceale a thing, But the glorie of the King is to find it out*, as if according to the innocent play of Children the diuine Maiestie tooke delight to hide his workes, to the end to haue them found out, as if Kinges could not obtaine a greater honour, than to bee Gods playfellowes in that game, considering the great commaundement of wits and meanes, whereby nothing needeth to be hidden from them” (*Two books* 1: 30r).

to regain the jurisdiction in nature that is its due by divine inheritance, and were it also given the means, then it shall surely govern [nature's] use in accord with right reason and sound religion" (147-49). Thanks to recent inventions, such mastery had become possible.

In attempting to trace the first fruits of the commonplace of the three inventions, it has become evident that the greatest interest lies, not in their technological workings, or in their countries of origin, but instead in the symbolic value with which these devices were endowed almost from the start. These were expressly *modern* inventions "unknown to the Ancients," as Bacon, among others, avowed, although there is evidence that firearms and the magnetic compass had both been in use in Europe for at least a century before the issue of their invention was first discussed in print.¹⁰

In keeping with the Latin term *inuentio*, inventions were not defined by the fact of their discovery, but instead, far more, by the effort to explain their ties to the past, so as to make their significance intelligible to scholars in the present.¹¹ The weight that classical *auctoritas* continued to have on Renaissance scholarship is accordingly evident in virtually all early writings on invention. Niccolò Tartaglia began his *Noua scientia* (1537), or *Quesiti et inventioni diverse*, with a Latin address "To readers, / who long to see new inventions, / not taken from Plato, nor from Plotinus, / or from any other Greek or Latin, / but instead from art, measurement, and reason alone" (n.p.). These new inventions stand apart because of their origin in experience and experimentation, rather than in an inherited culture. This is what Voltaire also sought to underscore in wrongly attributing the dawn of the "scientific age" to Bacon in the early seventeenth century.

The endeavor to make new technologies intelligible is apparent in the unwieldy names first given to the compass, which was commonly called *pyxis* (little box) in Latin, and *needle, magnet, loadstone*, or the more exact *mariner's compass* in English, depending on the writer's understanding of what this instrument was and how it worked. Authors such as Bacon often translated from vernacular languages to coin Neo-Latin terms such as *acus nautica*, a ship's needle. The Roman word for catapult (*tormentum*) gave rise to the terms for gunpowder (*pulvis tormentarius*) and firearms (*tormentum aeneum*), in the latter case by indicating that these catapults were made of bronze, that is, of metal. The names given to particular weapons (*bombarda, arcusbusius, clopus, coluber, scorpio*) were even more picturesque, inspired either by the sounds they made, or by the peculiarities of their construction. Several smaller firearms were indeed named for the similarity of their form to those of worms, snakes, or insects, as Flavio Biondo noted with approval (F1v). As early as 1472, Roberto Valturio wrote that he had "found the word *bombarda* nowhere among the best writers of the Latin language, yet such a name was imposed because of its sound. [...] For what is

¹⁰ The use of firearms, beginning in the 1320s, is amply documented by Partington (97-129).

¹¹ "Invention is the thinking out of truthful or probable arguments that render one's cause credible" (Cicero 18).

bombarda if not the rumble or buzzing [*bombus sive bombizatio*] of something burning?" (261). In later editions of *De inventoribus rerum*, Polydore Vergil explained more extensively:

This weapon is named *bombarda* after *bombo*, that is, the sound called *bombos* in Greek, though certain others prefer to designate it a bronze catapult. Nevertheless, there are now many species of this weapon, and these are called by diverse names in common speech. The smallest one, which infantrymen now use, is called by the made-up name *sclopus*. For *sclopus* is the sound that erupts from expanding the cheeks, as Persius says in warning: "do not puff out your cheeks to burst in a *sclopus*." And this weapon is called by still another name – *arcusbusius* – as a result, I imagine, of the hole through which fire is directed into the powder held in its tube; for in common speech the Italians call a hole *busium*, and [they call the tube] *arcus* because it is equivalent to the bow intended for fighting. Indeed, this sort of catapult is normally used today in the first stage of combat, as they once gave it to archers to begin the onslaught with their missiles. (*De rerum* 133-34)¹²

This etymological tangle accounts in part for the attraction that these inventions had for philologists such as the Vatican librarian Giovanni Tortelli, in the mid-1400s, and the French poet Joachim Du Bellay nearly one hundred years later, in 1549. Both not only discuss the suitability of newly-minted names such as those given to firearms,¹³ but, more important, weigh the social impact of these inventions and the relationship of ancient to modern culture. This was also the interest of Lorenzo Valla (1407-57), who used the recently invented *bombarda* to illustrate the difference between the Latin adverbs *nuper* (of late) and *iampridem* (long ago) (*Elegãtiar[um] liber 2.4*, n.p.). The growing acceptance of vernacular languages as a medium for scholarly endeavor, as well as the Latin evolved by Renaissance humanists, had an analogue in modern inventions, insofar as all were seen to challenge the hegemony and perfection of the Ancients. Hence, Du Bellay's insistence that there is no difference in merit between the languages used in ancient and modern times, and in all parts of the world, because the variability

12 Vergil's explanation of the names given to firearms was far shorter and less colorful, in all editions of his work prior to 1536 though it continued to evolve. For example: "This weapon is called *bombarda* after *bombo* in Greek, although others prefer to designate it a bronze catapult; nevertheless, there are many species of it called by diverse names in common speech" (*De inventoribus* f8r).

13 In an entry titled "Horologiũ" (the clock), Tortelli discusses the uses, importance, and etymology of the names given to a range of modern inventions, in addition to the clock: the compass, firearms, stirrups, the water mill, etc. Vergil (see note 24 below) was clearly inspired by his comment on the *bombarda*: "Close to the status of a superior marvel is that invention we call the *bombarda*. Despite not knowing his identity, it is right that we curse its inventor as deserving to be destroyed by lightning in the manner of Salmoneus, seeing that there is nothing so similar to lightning as the *bombarda* in brightness, sound, and odor. This name is made up from the noun *bombus* [a rumble or booming], which is Greek, though indeed some Latins have taken it up, and from the verb *ardeo* [to burn]. Some prefer instead to say *tormenta aenea* [bronze catapults]" (f7r).

and free will inherent in humankind demands that each people speak its own natural language (a4r-v). A similar appeal to nature in the guise of Providence was made, as we have seen, by Bacon in support of the renewal of learning in modern times. Citing the three great inventions, the French royal physician Jean Fernel also proclaimed in *De abditis rerum causis* (1550): “Now, indeed, when, by the beneficence of God most excellent, the selfsame light of truth has shone upon us through Christ, many things not entirely grasped by the mind of the Ancients have been conveyed to us all at once by his divine power” (A3r). Similar assertions about the relative merits of the Ancients and Moderns, and their inventions, were made by a range of once popular authors such as Levinus Lemnius, whose *Occulta naturae miracula* appeared in a number of languages after its first issue in 1559 (253v-54v). Jean Bodin wrote, for example, in his *Methodvs ad facilem historiarum cognitionem* (1566):

Some might say that the Ancients were the inventors of the arts, and to them must go the glory. They unquestionably discovered a great many branches of study that are healthful to the human race, [...] yet they left most of these unfinished, which we [now] pass on perfected to our descendants. And so, looking more deeply into this matter, there can be no doubt to anyone that our inventions can indeed be not only compared to the inventions of our ancestors, but esteemed more highly than most of them. While there is indeed nothing in all natural phenomena more remarkable than the magnet, the Ancients were nevertheless ignorant of its clearly divine use; and whereas they confined themselves in the Mediterranean basin, men of our day round the whole world each year with frequent navigations, and establish colonies in another world, if I may put it in this way, so that we have already opened up the inner reaches of India. From this, there has resulted not only abundant and gainful commerce (which was formerly meager or not suitably known), but, indeed, more amazing, the accord of all men in a worldly republic, as in a single city. (359-60)

Christians on both sides of the rift between Catholics and Protestants affirmed that recent inventions not only portend, but are a means to attain, what both groups awaited in the final times: the unity and harmony of all the world’s peoples. For example, Tommaso Campanella wrote in 1602:

We know not what we do, yet we are instruments of God. Spaniards go searching for new lands out of a craving for riches, but God intends a higher end. [...] If you only knew the things said by astrology and the prophets [...] about our present age, which has produced more history in one hundred years than the world had in the preceding four thousand; and more books have been published in this century than in the past five thousand; the stupendous inventions of the compass, printed books, and the harquebus are great portents of the world’s unification. [...] There

will be a great new monarchy, the reform of laws and the arts, prophets, and renewal. (*Città del sole* 459)¹⁴

Campanella's association of the classical and Christian ideal of "perfection" – that is, the attainment of unity, harmony, knowledge, and faith – with an accelerated rate of historical progress is indeed recurrent in writings about the three great inventions in the sixteenth century. In 1560, to explain why Christianity was certain to triumph over Islam and other faiths, Guillaume Postel lauded, not only the pace of European learning – "today, we clearly see in a sudden change that Greek, Latin, and Hebrew letters, along with all divine and human doctrines, are [...] in less than fifty years more understood and commented than they were in a thousand years" (53) – but also the decisive benefits of the compass to navigation, and of printing and firearms to knowledge and power:

We see an even greater change and marvel in the last ten years when we consider that the New World, which is greater than ours, was not only discovered and conquered by the power of sailors and merchants almost alone, but also converted to the Christian religion. [...] I shall leave aside the arts of artillery and printing found among Latin Christians, the one to perfect the world's knowledge, and the other to complete its power, which has been restored to Christians by Providence alone, so that they might see that it is God alone who kills and gives life. (54)

Similar conceits were used by George Best in 1578 to explain how printing and firearms have "nowe growen to excelencie," and how, because of the compass, "within these foure score yeares, there hath bæne moe newe Countries and regions discouered, than in fiue thousande yeares before" (5-6).

The same aspiration to harmony, unity, and the triumph of Christian faith informs George Hakewell's analysis of the three great inventions in his *Apologie of the Power and Providence of God* (1627). After examining the advantages that have derived from printing and firearms, Hakewell draws on a variety of Spanish authorities to ascribe a similar benefit to the mariner's compass:

By means of it, was *Navigation* perfected, the liues and goods of many thousand haue bin, and daily are preserved: It findes out a way thorow the vast Ocean, in the greatest stormes and darkest nights, where is neither path to follow, nor inhabitant or passinger to inquire. [...] By means of it are the commodities of all countries discouered, trade, and traffique, and humane societie maintained, their seuerall formes of gouernment, and religion obserued, & the whole world made as it were one *Com-*

14 Providentialism is even stronger in Campanella's *Civitas solis*, which affirms Christianity's ascendancy "in all the terrestrial sphere" and explains in patently religious conceits that the three great inventions are a "notable sign, and also instrument, of the unification of the world's peoples in a single flock" (461). The three inventions are also described as contributing to Spain's rise as an empire in *De monarchia hispanica* (9).

mon-wealth, and the most distant *Nations fellowes citizens* of the same bodie politique. (263)¹⁵

Similarly imbued with Christian sentiment is Camillo Agrippa's praise for the compass in the dedication of his *Nvove inventioni ... Sopra il modo de Nauigare* (1595): "everything good derives from it, and by means of it one can enter the true port of salvation" (n.p.).

The enigmatic action of the compass was held by Hakewell and others in the sixteenth and seventeenth centuries to be a sign of God's beneficence, for which, in discussing its origins, it is reasonable that no one presumed to know its inventor, or the date and place of its invention, although all agreed that it was unknown to the Ancients. So, too, did they all – whether Catholic or Protestant – avow that the compass was intended for the salvation and conformity of all men. In 1588, the Spanish Jesuit José de Acosta wrote in words partially quoted by Hakewell:

[Sailors] do not find imprinted in the great Ocean any traces of a path, nor do they come upon any travelers who might show the way. [...] Even so, by the power of the loadstone, the Ocean and all of the world are passable to mortal men, for an energy was assigned to it by the everlasting and most wise Creator. [...] Let others probe and seek to know the cause of so great a marvel and argue I know not what opinion: when I reflect on the potency and Providence of the most high Artificer, I more strongly admire and joyfully celebrate [him]. [...] For surely it is not among God's lesser marvels that the force of a tiny pebble prevails in the immense abyss and compels the infinite expanse of the sea to yield very readily to its command. [...] It nevertheless behooves us to respect God's wisdom and give thanks for such a great boon. For as it was decreed by divine judgment that the Indian peoples, who were unknown for so many centuries, be met and frequented by us, so they might attain by this means salvation, which is in Jesus Christ, so was it seen to by divine inspiration that men be given a sure guide on such a long and unaccustomed journey, namely the guidance and command of the loadstone. (47-48)

The compass was fêted for similar reasons by the English preacher and scientist William Barlow in 1597. Declaring that "nowe towards the ende of the worlde,

15 Hakewell echoes Cortés (7r) and Medina (*Regimiêto* 2r), both of whom aver that "lands are provisioned, and people are saved, by navigation." Another of Hakewell's key intertexts – "like a ship that runs through the billowing sea, of which, when it has passed, there is no trace to be found, no track of its keel in the waves" (Wisdom 5:10) – is also used by Medina: "It is certainly a great danger to make one's way through the sea, where there is no path nor sign of one. It is a very arduous thing to guide a ship through a sea gulf, where one can see only sky and water. It is a great deed that men do when they make their way through something so large and spacious as the sea, which encircles all the roundness of the world. And thus it seemed very difficult to Solomon, and so he marked it in his proverbs, saying that one of the difficult things to find is the path that a ship leaves though the sea" (2v).

[God] ordeyned the sayling Compassee to be the notable meanes and Instrument [...] to ioyne dispersed Nations, not onely into the Ciuill or rather Cosmopoliti-cally vnion of humane societie, but also [...] into the spirituall and mysticall fellowship of that Heauenly Ierusalem” (b.1v-2r), Barlow set this invention above printing and firearms, not only for altering Europe’s understanding of the world – something to which other devices and technologies could not lay claim – but, more important, because even those adept at using the compass could not explain the source of its power. As a result, the compass reminds man of the greater glory of God:

Experience testifieth, that this [instrument] began to be in common vse about the time that Printing was inuented, and the making of Gunnes. Both which, although they are of very excellent vse and great wonderments to the world, yet doeth this farre excell and exceede. For all things performed by them, are marshalled within the limittes and bounds of humane reason; and therefore their causes being knowen, their wonder ceaseth. But this being incomprehensible vnto humane reason, carieth it away captiue vnto the astonishment thereof, and leadeth it to the admiration of him, whose wisdome comprehendeth all things. (A4v)

Such encomia for the nautical compass were increasingly coupled, over the course of the sixteenth century, to a more polemical issue in scientific culture: the discrepancy of modern experience from ancient teachings. Whereas Columbus, Acosta, and other historians of America cautiously ascribed this conflict to the different nature of the New World,¹⁶ so as not to invalidate classical *auctoritas* as a whole, scientists were more wont to explain it in terms of the deficiency of theory absent practical experimentation. Thus, for example, even as Edward Wright’s preface to William Gilbert’s *De magnete* (1600) echoes Acosta by asserting that the compass allows sailors to steer a course at sea, where no visible path exists, and thereby find and explore a nearly infinite number of lands that had been hidden for so many centuries (*3v), Gilbert himself addresses the trials of a different *ne plus ultra*. As a scientist, his obstacle was not the Ocean, but instead a body of doctrines and opinions based on speculation, rather than demonstration,

a vast Ocean of books, by which the minds of studious men are confused and exhausted; as these books are quite senseless, the general public and very misguided men are intoxicated, made mad, and puffed up by them, and, in their confusion, they write [nonsense] and profess themselves philosophers, physicians, mathematicians, and astrologers, and disregard and contemn learned men. (*2v)

16 See Columbus’s letter of 1498 on his third voyage: “Ptolemy and others who wrote about the world had no notice of this half, since it was very unknown. They based themselves only on the hemisphere where they were” (Colón 214-15). See also the similar statements in Acosta (1-6).

Gilbert's work illustrates that in the latter decades of the sixteenth century studies about the compass came to differ from those concerned with printing and firearms, in that the rise of science as a practical philosophy invested works about the compass with an instructive or revelatory purpose akin to that ascribed to the compass itself. This development, in which the compass and the author are both said to be instruments of God's Providence, is visible in the terms used by Robert Norman in the dedication of *The newe Attractiue* (1581):

And seeyng it hath pleased GOD to make me the instrument to open this noble Secrete, that his name might bee glorified, and the commoditie of my Countrey procured thereby, I thought it my dutie to aduenture my credite, [...] rather then suche a Secret should be concealed, and the vse thereof vnknown. How beneficiall the Art and exercise of Nauigation is to this Realme, there is no man so simple but sees, by meanes whereof we beeyng secluded and diuided from the rest of the worlde, are not withstanding as it were Citizens of the worlde, walking through euery corner, and round about the same, and enioiying all the commodities of the worlde. How necessarie the perfecte knowledge of the Needle or Compasse is. (A3r)

Although these later studies presumed to explain the mysterious action of magnetism, the compass never lost its reputation as a divine aid. Campanella maintained that "the invention of gunpowder for the harquebus, printing, and the use of the magnet was a thing of magic, or devised by a guiding divinity" (*De sensu rerum* 282-83). The more common opinion was, nevertheless, that printing and firearms were of mortal inspiration. Judgments as to their value were accordingly diverse and on occasion negative. Uncertainty also reigned as to where these devices first appeared, with credit for their invention abruptly shifting from Germany to China after the publication of Juan González de Mendoza's *Historia de las cosas mas notables, ritos y costumbres, Del gran Reyno de la China* (1585).

Earlier works by Spanish and Portuguese historians had alerted a select number of readers to the claim that the Portuguese, amazed to find printing presses and artillery in China, "came to understand that [these inventions] were had among the Chinese many years before they were in Europe," as Bernardino de Escalante observed in 1577 (62v, 86v). Similarly, Le Roy commented that reports by Portuguese merchants in China regarding "books printed in the language and writing of that land [...] have led some to believe that the invention [of printing] was brought via Tartary and Muscovy to Germany, and then communicated to other Christians, for whom the perfection of divine and human knowledge was especially reserved by the Providence of God" (*De la vicissitvde* 100r). The reluctance of Escalante and Le Roy to assign credit for the invention and first use of firearms and printing to the Chinese reflects a debate brewing in Europe since the mid-sixteenth century, when eyewitness accounts by Portuguese sailors, captives, and missionaries began to circulate in manuscript and then, more widely,

in print. Among the earliest, a letter sent from Guangzhou (Canton) in 1534 or before by Cristóvão Vieira is typical in attesting to the crudeness of Chinese technology, and in stating that the Chinese “did not have *bombardas* before the Portuguese arrived, but only some [firearms] constructed like the vessels of Montemor, a vain thing” (Loueiro 44).¹⁷ A similar assessment was made by João de Barros in 1563, in the third installment of his widely read history of Portugal’s discoveries and conquests in Asia. Taking the primitiveness of Chinese firearms as a sign that they were older than those of Europeans (46r), Barros asserts that “after they saw the form of our artillery, they immediately copied its design” (47r). The claims regarding the poor state of Chinese technology recorded by the Augustinian Martín de Rada in the wake of his mission to Fukien in 1575 merit special note due to his publications on hydrography, cosmography, other emerging sciences, and the manufacture of clocks. Rada not only disparaged Chinese artillery as “most inferior, for it consists only of small iron guns,” but also noted the simplistic design and lesser precision of other common instruments such as the compass, which, he wrote, is “not like ours, for it is only a very sensitive little tongue of steel which they touch with a loadstone. They place it in a little saucer full of sea-water and on which the winds are marked. They divide the compass into twenty-four parts, and not into thirty-two as we do” (trans. Boxer 273, 295).

Mendoza’s immensely popular and influential work, which saw some thirty editions in various languages before the close of the sixteenth century, waded into the midst of this conflict by declaring that the use of artillery

was far older in [the realm] of China than in those of Europe, where it had its start in the year 1330 by the industry of a German whose name no history states; this German (according to what the Chinese say and is evident) does not merit the title of *inventor*, but instead of *discoverer*, for the Chinese pride themselves on having been the first to invent it, and say that its use was communicated from there to the realms that have it today. (111-12)

This declaration, though lacking the authority of firsthand testimony, quickly found traction among a reading public favorably disposed by other accounts then in vogue to conceive of the Chinese as a people “endowed with so much prudence and discretion in natural matters, and in the government of their republics, that no other nation, however civilized it may be, can surpass it, not even in genius for all the arts,” as Escalante proclaimed (5r-v). Such hyperbole was common in works about the East Indies in the latter decades of the sixteenth century as authors – principally of the missionary orders – sought to redirect the focus of Spanish and Portuguese settlement toward the lands of Asia. Indeed, the Dominican Gaspar da Cruz went so far as to avow, in 1569, that “many Chinese live bet-

17 The date of 1524 given in Loueiro’s title is speculative; an early copy of Vieira’s letter in the Bibliothèque Nationale in Paris instead reads 1534.

ter, and are better Christians, than the bulk of the Portuguese who go about in those parts” (92v).

In light of their propagandistic aim, it is logical that these authorities would not wish to undermine their claims regarding the priority of Chinese inventions by calling attention to their relative crudeness. An idealized picture of Chinese technology was indeed painted by Mendoza and others such as the Jesuit Giovanni Pietro Maffei. The latter said in his *Historiarvm Indicarvm* (1588) that “it is established that the manufacture of canons, and of books and images forged under type in a press, devices on which Europe prides itself so much in recent times, were very long ago in use among the Chinese” (94v-95r). Such assertions did not put an end, however, to claims that printing and firearms came to be perfected only in Europe, as one reads at the outset of the revised edition (1595) of Giovanni Botero’s *Relationi vniversali*. Botero, as expected, places these two inventions in the company of the nautical compass:

But what shall I say of the very noble art of printing and the inestimable invention of artillery, which pertain to Europe? For, although some say that the Chinese and Cathayans had the one and the other before we did, both were nevertheless found anew here, and brought to such excellence and perfection, that they do not appear to be of the same species among us and among the barbarians. For neither Africa nor Asia has anything worthy of comparison to the use of the compass, which was found out on the Amalfi coast, or to the excellence of [our] peoples in navigation, by whose aid the Spanish have discovered a new world, guided by an Italian, and the Portuguese have sailed along all the coast of Africa and found infinite routes and lands that did not come even to the attention of the Ancients. In truth, nothing better demonstrates the power of human creativity [*ingegno*] and the valor of his spirit. (2)

The groundswell caused by González de Mendoza’s claims about China is nevertheless evident in “Des coches,” which Michel de Montaigne added to his *Essais* in 1588. For here, European boasts about “the miracle of the invention of our artillery and of our printing” are silenced by the remark that “other men at the other end of the world, in China, had these a thousand years before” (397v). In contrast, even as a few scholars presumed to defend the primacy of ancient learning by reporting, like Petrarch and Valturio, that explosive missiles and the *bombarda* were possibly or probably invented by Archimedes,¹⁸ most writers in the sixteenth century instead followed Flavio Biondo’s *Historiarum* (c. 1453; 1st ed.

18 Petrarch: “It is strange that you are not aware as well of bronze missiles, which, making a dreadful noise of thunder, are hurled ablaze with flames. Man was not content with the wrath of God immortal thundering from heaven. Oh cruelty joined to arrogance!, he had to thunder from earth as well, with inimitable lightning, [...] which some think was an invention of Archimedes” (65v). Valturio: “It is thought that the *bombarda*, as it is called in common speech, [...] is an invention of Archimedes” (261). Despite its popularity among humanists, Petrarch’s *De remediis* was rarely cited by authors who sought to credit Archimedes with the invention of the *bombarda*. For the history of such claims, see Simms.

1483) in asserting that the *bombarda* “is for certain a modern instrument” that was devised by Germans, and then supplied to the Venetians, who first used it in battle against the Genoese in Chioggia in 1378-81 (Biondo F1v).¹⁹ Despite copying this account, Raffaele Maffei insists that the *bombarda*’s origin is uncertain. He therefore asserts in his *Commentariorum Urbanorum* (1506), perhaps confusing Polydore Vergil with his classical namesake, that “[t]here are nonetheless some who may wish that there were this sort of weapons among the Ancients in accordance with Virgil’s verses ‘I saw the cruel punishments given to Salmoneus as he simulated the fires of Jove and the rumblings of Olympus’” (322r).²⁰

To the chagrin of many authorities from Romance-language-speaking nations, and especially Italians such as Biondo, the invention of printing and firearms was normally credited, throughout most of the sixteenth century, to Germans, a group defined by culture and language, rather than geopolitical interests. For Hartmann Schedel, this was a matter of pride, as well as a way to push back against disparagement of Germans as uncouth “barbarians,” in the narrow sense of the term. His *Liber Cronicarum* (1493) indeed stresses the debt that the advancement of learning owes to the art of printing, and to the intellect (*ingenium*) of the Germans who came to invent it:

The art of printing books first arose in these times in Germany. There is no sort of speech that can sufficiently express how much students of letters therefore owe to Germans for the method of printing books, which they say was invented by clever minds in this Rhenish city of Mainz in 1440. It has now spread to almost all parts of the globe, and what was read in all antiquity is of little substance compared to the infinite volumes that followed. Reasons for its praise are already in the introduction of the work previously specified.²¹ Certainly, nothing could be more worthy, nothing more deserving of praise or more useful. (252v)

In contrast to Jacobus Philippus of Bergamo (Bergomensis) – from whose *Supplementum cronicarum* (1483) the first and last phrases of this statement are taken nearly verbatim – Schedel makes the science of printing a mark of distinction for its German inventors, rather than solely a boon to scholarship. To this end, he abbreviates Jacobus Philippus’s praise for printing – “Certainly, nothing in the world could be more worthy, nothing more deserving of praise or more useful, or more divine and more holy” (173v) – secularizing it to privilege the human contributions of its inventor. Similarly, where Jacobus Philippus and Schedel’s other

19 Among Biondo’s followers is Vergil: “[this German] first showed the use of the *bombarda* to the Venetians in that war waged with the Genoese at the lagoon of Chioggia, which was in the year of man’s salvation 1380” (*De rerum* 133). This statement first appeared in the 1521 edition.

20 The verses cited are from Virgil’s *Aeneid* 6.585-86. For Polydore Vergil’s use of the same verses, see note 24 below.

21 Schedel here refers to a statement added by Matthias Palmer of Pisa to the 1483 edition of Eusebius of Caesarea’s *Chronicon* (199v) and reproduced verbatim by Schedel, save for giving credit for the invention of printing to Gutenberg.

source, the edition of Eusebius of Caesarea's *Chronicon* published in 1483, both name Johannes Gutenberg as the inventor of printing,²² Schedel makes this art the result, not of a single man's clever mind, but of an entire German city instead.

The invention of printing was also a matter of national pride for the Dutch humanist Petrus Montanus. The entry "De laudibus Germanorum" (In praise of the German people), from his now lost *Adagia* (1504), notes that "Germans are always deemed to be born more for acting than for thinking, and indeed rightly so." Yet, "their minds are not only better, but more ready and more polished." As proof, Montanus insists, "the greatest inventions of all the ages are by Germans: *bombardas*, printing, the nautical compass, and paper" ("De laudibus Germanorum," transcribed by Geldenhauer, *Historia Batavica* 26r). This assertion was repeated, in 1520, by Gerard Geldenhauer in his own *Lucubratiuncula de Batavorum Insula* (a2r). Jakob Wimpheling's *Epithoma rerum Germanicarum* (1505) also extols, not only the triumphs in science, architecture, painting, and the arts of Germans, but moreover their fortitude, nobility, dexterity, and liberality. Before recounting in detail "the invention of that most honored art of printing," Wimpheling reports more prosaically: "In the year of our Lord 1380, the class of war machine that is commonly called *bombarda* for its sound, which I think is akin to thunder, was invented by our Germans. There is nothing more ingenious than this device, and nothing more terrible" (38v).

If, for most of the sixteenth century, the Germanic origin of firearms was taken as a fact – albeit of the tenuous sort, given the qualifiers *it is thought*, *it is alleged*, *they report*, etc. – it was also a cause of discomfit for Germans such as Sebastian Münster. For despite a few apologists (especially in England) such as Hakewell, who called the dreadful power of firearms a boon, since it has "deterred [men] from assaulting one another in hostile and warlike manner, And [...] since the invention and vse thereof, fewer haue bene slaine in the warres then before" (260),²³ this invention was usually vilified as a scourge contrived by the devil. In this vein, Polydore Vergil wrote:

They report that its inventor was a German man ignoble in other respects, [...] indeed a man born for the destruction of the human race. [...] And therefore the discoverer of such a deadly apparatus got his due, I imagine, in that his name will always be hidden, lest it be heard with vexation by mortals in all times. To be sure, he instead deserved to be

22 Jacobus Philippus in fact states that some attribute its discovery to Gutenberg, and others to Johannes Fust or to Nicholas Jenson (173v).

23 Similar conceits were used in 1574 by Richard Eden: "As touchyng which terrible inuentions, and the lyke, although some men be of opinion that they were inuented by the instigation of the deuyll, for the destruction of mankynde: yet other weyghyng the matter more indifferently, thynke that the inuention of Gunnes hath been the sauynge of many mens lyues, because before the vse of them, men were not woont so long tyme to lye batterynge in the besiegyng of Townes or Fortresses, but in short space to come to hande strokes, and to foughten feeldes, to the great slaughter of great multitudes" ("The epistle dedicatorie," in Taisner (*2v)). For other apologies for gunpowder and firearms, see Wolper.

destroyed by lightning, like Salmoenus, seeing that this invention is akin to lightning in its odor, brightness, sound, and force. (*De rerum* 132-33)²⁴

Münster, as stated above, was more conflicted. In contrast to his unqualified praise for Johannes Gutenberg's role in creating the printing press, "a clearly divine invention, and a thing worthy of no small admiration" (488), he goes through contortions to argue that the *bombarda* is but the latest in a long line of projectile-throwing devices (*ballistae*) used in war. He also presumes to mitigate the ignominy of its Germanic provenance by ascribing its invention, in 1354, to a monk named Berthold Schwartz (488-90), that is, to a Catholic from before the Reformation. Protestants such as Hakewell would seize on this idea to set forth the evil side of firearms and other "engines of warre" (260-62), yet Münster's assertions in regard to the Catholic invention of the *bombarda* were not among those designated for expurgation in the Antwerp *Index expurgatorivus* of 1572 (73-77). The even more extensive censorship of Vergil's *De inventoribus rerum* (*Index expurgatorivus* 69-73) also did little to tarnish its authority in Counter-Reformation Europe. Indeed, this censorship may have won Vergil new readers elsewhere.

The common acceptance of the surname *Schwartz* likely derived from a misreading, or mistranslation, of Felix Hemmerlin's claim, in the 1490s, that "a certain black [i.e., evil] Berthold, a cunning alchemist," accidentally stumbled upon the formula for gunpowder, before deliberately devising the *bombarda*. Although Hemmerlin faults Berthold for misapplying his genius, he proclaims – with a redundancy that perhaps betrays his misgivings – that his invention is "most worthy of admiration, most warlike in warfare, most perilous to enemies, most sought after in combat, most invincible in battle, unknown to soldiers of old, unfamiliar to ancient warriors and fighters, and fully unknown to the most learned commanders of war" (116v-17r). Other early works on the invention of firearms display even greater ambivalence toward their worth. For example, Johannes Aventinus (Turmair) wrote that Berthold "was by birth a Teuton, by religion a Franciscan, by profession a philosopher practiced in magic and metallurgy, which are both very deceitful arts (if in fact they are to be called *arts* and not foolish sports)" (639-40).²⁵

With more restraint than most Protestants, or even Catholics, who retold the tale of Berthold's discoveries, Münster states that "some judge the *bombarda* to be divine and extremely necessary; others, instead satanic and very destruc-

24 These ideas recur in a later chapter: "I can barely be brought to believe that the bronze catapult that they call the *bombarda* – which merits the admiration and execration of all, and was devised for the destruction of men – was invented by human creativity; rather, by Hercules!, I think it was shown to mortals by some evil demon, so that they might fight among themselves, not only with arms, but indeed with bolts of lightning, for the *bombarda* is, as we have shown in another place, so very akin to lightning" (*De rerum* 250). See also note 13 above.

25 This portrait was incorporated in part into Pantaleon's catalogue of famous Germans (3: n.p.).

tive.” Yet, because it can help to combat selfishness where the force of law is insufficient, “it is not proper that most people condemn the inventor of the *bombarda*, without which good men cannot live securely, cities cannot be as strong and affluent, and merchants (who are the prime factor in civic power and greatness) cannot exercise their trade.” So, as animals are not despised for having teeth and horns, which nature gave to them as weapons, one ought not to condemn the inventor or the invention of firearms, but rather abhor its misuse (489). Such apologies for the *bombarda* were again probably inspired by Hemmerlin, who comments: “What is itself good should not be blamed when it makes a good man join in evil” (117r).

Similar arguments were also made in defense of printing, both before and after the Protestant Reformation. On May 4, 1515, at the Fifth Lateran Council, Pope Leo X lauded “the art of printing books, which was invented or improved and refined particularly in our time, with the favor of divine assistance, [...] so that clever minds might suitably be put to literary pursuits.” Nevertheless, he insisted that care be taken to ensure the benefit of the books actually printed, “lest what was invented for the glory of God and the increase of faith, and for the healthful propagation of the liberal arts, be turned to the opposite purpose and harm the health of faithful Christians” (*Conciliorvm omnivm* 4: 652). It bears note that Leo did not blame printing for spreading heresy, as would indeed occur with the rise of Protestantism, particularly given the Germanic origin of both the printing press and Martin Luther. Instead, Leo joined the chorus of voices against the proliferation of what both Catholics and Protestants called “deceitful” or “useless” works, that is, works (principally of poetry, as fiction was then commonly known) that might distract from the study of doctrine, philosophy, history, and other serious matters. This notwithstanding, certain Protestants would attempt to capitalize on the idea that printing had been invented by divine inspiration, unleashing an extraordinary increase in learning and knowledge. Like John Foxe, beginning with the 1570 revision of his *Actes and Monuments*, they contended that the printing press came into use to subvert oppression by the Pope when it was at its peak. With conventional imagery and conceits, and a nod to the critical methods of Humanism, Foxe declared:

In this very tyme so daungerous & desperate, where mans power could do no more, there the blessed wisdome and omnipotēt power of the Lord began to worke for his Churche, not with sworde and tergate to subdue his exalted aduersarie, but with printyng, writing, and readyng, to conuince darknesse by lyght, error by truth, ignoraunce by learnyng: So that by this meanes of printyng, the secret operation of God hath heaped vpon that proude kyngdome a double confusion. [...] The reason wherof is this: for that hereby tongues are knowen, knowledge groweth, iudgemēt increaseth, bookes are dispersed, the Scripture is sene, the doctours be red, stories be opened, times cōpared, truth decerned, falsehode detected, & with finger poynted, and all (as I sayd) through the bene-

fitte of printyng. Wherefore I suppose that either the Pope must abolishe printyng, or hee must seke a new worlde to reigne ouer: for els, as this worlde standeth, printyng, doubtles, will abolishe hym. (837)

Although printing was instrumental in disseminating new and at times unorthodox ideas, there is little evidence for the premise that it was therefore embraced by Protestants, and reviled by Catholics. Rather, like other claims in regard to the origins and authorship of new inventions discussed in these pages, the declarations made by Foxe and other Protestants – especially in England during the reign of Elizabeth I – took part in a rhetorical strategy, by means of which a particular group sought to cast itself as the beneficiary of God’s Providence. While it is true that Catholic authorities increasingly regulated the publication of books in the sixteenth century, the criteria they applied were, as in the decree by Leo X (above), mindful of both spiritual and social interests. For this, censorial approvals would invariably assert that the work in question “contains nothing against the Christian faith or against good habits.” As a result, most writers, on both sides of the rift between Catholics and Protestants, shared the opinion of Pedro Mexía, who, in 1540, concluded his analysis of the invention of printing with the assertion:

I do not deny that excess license has been taken in printing books of little consequence and benefit, of fables and lies; thus, it would be better if there were no type in which to set them, for they destroy and tire the mind, and lead it away from wholesome lessons and study. But the ill use that some people make of art does not rob it of its goodness and perfection. (99v)

As it applied to firearms, this line of argumentation was extended, in 1554, by the anonymous French translator of Battista della Valle’s handbook on weapons, warfare, and the conduct proper to military officers, *Vallo: libro continente appartenentie ad capitani* (1521). Observing that “nature armed all brute animals with either offensive or defensive instruments,” such as nails, teeth, spikes, hooves, and horns, yet left “man, the king of all animals, exposed and completely bare of adornments, without any arms, like a pacific lover made for peace, and not for war,” the French text concludes that men can therefore invent any and all genre of weapons, “and even to forge the fulgurant arms of thundering Jupiter, as now seen in harquebuses and artillery” (*Vallo. Dv faict de la gverre* C1v-2r).

Such apologies for firearms and printing rest on a key *topos* of humanist thought: the idea that creativity (*ingenium*) is central to human dignity (*dignitas*), in that the ability to create and invent not only elevates man above all other animals, despite their greater aptitude for physical tasks, but also assimilates him to God the Creator. For this, as Petrarch famously wrote, it is not the strength of body, but instead the strength of mind that is to be desired (82v), for indeed “man himself is commander of the earth and ruler of all living beings; he alone, with

the steering-oar of reason, will be deemed able to plot a course in this life, and find his way tranquilly in this swollen and turbulent sea” (80v). As noted earlier, Bacon would make an analogous appeal in support of recent inventions in his *Instauratio magna*.

Such arguments did little to deter another commonplace attending the invention of firearms: the greater heroism, or alternatively villainy, of modern soldiers. As Fernando de Herrera observed in 1572, due to the force and reach of cannon, armies (and navies) now face “a fire more terrible and frightening than anything antiquity could fear,” for which one may witness a degree of bravery not found among even the most honored of the Ancients (L8v). Hakewell similarly wrote that the invention of firearms does not serve “(as is commonly objected,) to make men cowards, but rather hardens them. For hee that dares present himselfe to the mouth of a *Cannon*, cannot fear the face of death in what shape soeuer it present it selfe” (260). More frequently, however, writers lamented the erosion of chivalric and personal honor concomitant with the use of firearms, with which, as Don Quixote famously said in Part One (1605) of Cervantes’s novel, “an ignominious and cowardly soldier may take the life of a valorous knight” (491).²⁶ The same knell was rung by Pierre de Ronsard in the poem “Les arms,” written in the mid-1560s: “Due to [firearms], one no longer sees, as in olden days, any Hectors, Achilles, or Ajaxes, by God!; for today the strongest are killed by a coward in hiding, with a shot from a harquebus or musket. In times when one fought hand to hand, without fraud, one indeed knew who was fearful or instead self-assured, and one did not fancy to believe that Thersites deserved as much glory in combat as Achilles. But today, Theresites kills Achilles from afar, and triumphs over him” (127v). Jerónimo Román spoke for his contemporaries when he wrote, in 1575, that many defenses and types of armor have been abandoned because “today they are all of little value, for one does not fight in the manner of good noblemen, with a lance and arms, as in olden days, and with a sword and buckler or shield, but instead with things that win no honor, such as field guns, harquebuses, and muskets, in brief, with what we today call artillery in vulgar speech” (171r).

Such invectives against firearms habitually extended to their diabolical inspiration and are epitomized in the stanzas dealing with Olympia interpolated into the 1532 edition of Ludovico Ariosto’s *Orlando Furioso*. Not content with a detailed (albeit anachronistic) account of the invention, design, and terrible power – which “resembles a bolt of lightning in all respects” – of the weapon defeated by his hero, Ariosto has the latter dispose of it in the depths of the sea, explaining that “he had always deemed it an act of a cowardly spirit to proceed with an [unfair] advantage in any sort of undertaking.” Addressing the weapon directly, Orlando declares: “So that no knight again be put at risk because of you, nor any villain ever again boast that he is worth as much as a good man because of you,

26 Don Quixote also denounces “the frightful fury of those demonic instruments of artillery” and hopes that “they are giving their inventor the reward [that he deserves] in hell for his diabolical invention” (491).

you shall remain here below. Oh accursed, oh abominable ordnance! You were built in the forge of the underworld by the hand of the malevolent Beelzebub, who designed to ruin the world by this means. I consign you to the hell from which you came!” (42v). As if this speech were not sufficient to make clear the deleterious effect that firearms have had on chivalry, Ariosto goes on to report that the weapon thrown into the sea by Orlando “was brought to the surface by enchantment and carried first to the Germans, who, trying one experiment after another, at last rediscovered its use when the devil sharpened their wits, much to our detriment.” The aftermath, as Ariosto complains to the weapon itself, has been disastrous: “Military glory is ruined because of you; the profession of arms is without honor because of you; valor and virtue are diminished because of you; for a scoundrel often seems better than a good man. Because of you, gallantry and daring can no longer excel on the field of battle” (50r-v).

As these statements show, the goodness of individual inventions was contested in the sixteenth century. The same cannot be said of the uniquely positive value accorded to printing, firearms, and the compass as a group. The idea that these were the three greatest inventions of modern if not all times was repeated by a who’s who of Renaissance letters, indeed by the brightest luminaries. For, in addition to the authors already cited, Girolamo Cardano, Petrus Ramus, and George Abbott – to name only a few of the most outstanding from the sixteenth century alone, without even touching on the many hundreds to follow in the seventeenth and eighteenth centuries – discussed the benefit that these devices had already brought to Europe and the world at large, extolling them either together or sequentially, and always in preference to other inventions.

What was it, then, about this commonplace that let it transcend political, linguistic, and religious divisions, and appeal to so many great minds? It was, without doubt, the idea of being modern itself. For these inventions not only signaled a break from the hegemony of classical and ecclesiastical culture, due to their status as phenomena explicitly unknown to both the Ancients and the Church Fathers, but also afforded a practical means to search out, reach, subdue, communicate with, and assimilate the New World beyond the physical and mental boundaries of the Old. It is not by chance that when Polydore Vergil’s treatise on invention was rendered into Spanish in 1550, the original’s uneasiness about the worth of recent discoveries was missing, replaced by a celebration of what we have come to see as the spirit of the Renaissance. In words that, perhaps by design, closely echo those used by Gonzalo Fernández de Oviedo in the dedication of his *Historia de las Indias* (1535),²⁷ Vergil’s translator, Francisco Thamara, exclaimed:

27 Fernández de Oviedo: “Every man naturally desires knowledge, and rational understanding is what makes him more excellent than any other animal; and in this excellence he is akin to God. [...] [F]or this, our will is never content, nor is our mind satisfied with understanding and regarding only a few things, or with seeing those that are ordinary and close by, or within our homeland; rather, journeying through other very distant provinces, fending off many and varied dangers, those who most strongly take part in this handsome

[O]ur spirit and understanding are never satisfied by any thing of this world. They are never sated, never contented, always hungry, always impatient, always restive, continually wanting more, awaiting more, striving for more. And hence it follows that they do nothing but inquire, investigate, imagine, and think new, unheard, and never before seen things, in whose inquisition, invention, and knowledge they then steep and grieve until at last, hitting or missing the mark, falling down, stumbling, or as best they can, they finally attain what they want. (*2r)

Similar were the conceits with which George Best presumed, in 1587, to explain why his own time “may rightly bee called the liberall and flourishing age,” in which the world is “growen to more perfection, not only in all the speculative Artes and Sciences, but also in the practicall application of the same” (2). Before going on to state that printing, firearms, and the nautical compass have made possible the liberties now enjoyed by mankind, after “so many yeres [...] shut vp in so narrow bounds” (3-6), Best avers that the root cause of this transformation “is the searching wit of man, which being more curious and inquisitiue of new and strange deuises, thã hæretofore, bringeth out dayly more strange inuentions, and causeth others, through emulation, to do the like, not onely in prouiding y^e necessary things aforesaid, but also a continual care & cōstâcie to find out other new Arts[,] occupatiōs & faculties” (3). So, too, would Bacon insist, as an explanation of scientific inquiry and inventiveness, that “human understanding is steadily increasing, nor can it halt or rest, but instead seeks to go further, even to no purpose. It is therefore unthinkable that there exist some limit or end of the world; instead, it always occurs, of necessity, that there be something beyond” (*Instauratio magna* 61).

The rhetorical commonplace of the three greatest inventions of modern times is, in the final accounting, not simply a reflection of new technological prowess, or of the worth newly accorded to the mechanical arts, but instead testimony to the force of human nature and the triumph of man’s genius. In this sense, although modern inventions may resemble those of the Ancients by increasing and refining the things that abet political existence (as the bare-bones inventories of inventions compiled by authors such as Giovanni Matteo of Luna suggest), they had an additional and singular importance in Renaissance culture as an emblem of man’s freedom from the intellectual and geographic constraints of the past, and as a means to shape the future. The great popularity of the commonplace of the three inventions in the sixteenth century also makes it clear that this revolution, which had such significance in the transformation of Western thought and culture, began far earlier than is commonly supposed, indeed nearly two centuries before the works of Alessandro Tassoni and Charles Perrault gave birth to the so-called *Querelle des Anciens et des Modernes*.

desire do not cease inquiring on land and at sea into the marvelous and innumerable works that God himself, the lord of all, shows us so that we might praise him more greatly, [thus] satisfying the lovely wantonness of this, our journey” (✕2r-v).

Works Cited

- Abbott, George. *A briefe description of the whole worlde. Wherein are particularly described all the Monarchies, Empires, and kingdomes of the same: with their seuerall titles and situations thereunto adioyning*. London: T. Iudson for Iohn Browne, 1599.
- Acosta, José de. *De natvra Novi Orbis libri dvo, et De promulgatione evangelii apvd barbaros, sive De procvranda Indorvm salvte libri sex*. Salamanca: Apud Guillemem Foquel, 1589 [1588]. <https://doi.org/10.5962/bhl.title.137960>
- Agrippa, Camillo. *Nvove invention ... Sopra il modo de Nauigare*. Rome: Domenico Gigliotti, 1595.
- Alonso de Herrera, Gabriel. *Obra de agricultura copilada de diuersos auctores*. Alcalá de Henares: Arnao Guillē de Brocar, 1513.
- Ariosto, Ludovico. *Orlando Fvrioso ... con la givnta di cinque canti D'un nouo Libro del medesimo*. Venice: Gabriel Giolito de' Ferrari et Fratelli, 1555.
- Aventinus [Turmair], Johannes. *Annalivm Boiorvm libri VII*. C. 1521. Basel: Petrus Perna, 1580.
- Bacon, Francis. *Instauratio magna*. London: Apud Joannem Billium, 1620.
- . *The Twoo Bookes of Francis Bacon. Of the proficience and aduancement of Learning, diuine and humane*. London: [Thomas Purfoot and Thomas Creede] for Henrie Tomes, 1605.
- Barlow, William. *The Navigators Svpply. Containing many things of principall importance belonging to Nauigation, with the description and vse of diuerse Instruments framed chiefly for that purpose; but seruing also for sundry other of Cosmography in generall*. London: G. Bishop, R. Newbery, and R. Barker, 1597.
- Barros, João de. *Terceira decada da Asia ...: Dos feytos que os Portugueses fizeram no descobrimento & conquista dos mares & terras do Oriente*. Lisbon: Ioam de Barreira, 1563.
- Best, George. *A trve discovrse of the late voyages of discoverie, for the finding of a passage to Cathaya, by the Northwest, vnder the conduct of Martin Frobisher Generall: Deuided into three Bookes*. London: Henry Bynnyman, 1578.
- Biblia Sacra juxta Vulgatæ exemplaria et correctoria Romana*. Ed. Aloisius Claudius Fillion. 4th ed. Paris: Letouzey et Ané, 1887.
- Biondo, Flavio. *Historiarũ ab inclinatiõe Romanorũ Imperii*. Venice: Octavianũ Scutum Modoetiësem, 1483.
- Bodin, Jean. *Methodvs, ad facilem historiarvm cognitionem*. Paris: Apud Martinum Iuuenem, 1566.
- Botero, Giovanni. *Delle Relationi vniversali ... Da lui corrette, & Amplitate in più luoghi*. Ferrara: Vittorio Baldini, 1595.
- Boxer, Charles R., ed. and trans. *South China in the Sixteenth Century: Being the Narratives of Galeote Pereira, Fr. Gaspar da Cruz, O.P., Fr. Martín de Rada, O.E.S.A. (1550-1575)*. London: The Hakluyt Society, 1953.
- Campanella, Tommaso. *Città del sole*. C. 1602. *Scritti Scelti di Giordano Bruno e di Tommaso Campanella*. Ed. Luigi Firpo. Turin: Unione Tipografico-Editrice Torinese, 1965.
- . *Civitas solis. Idea reipvblicæ philosophicæ*. [Appendix to the *Politica*.] *Philosophicæ epilogisticæ Partes Quatuor, Hoc est de rervm natvra, hominvm moribvs, politica, ... & oeconomica*. Frankfort: Imprensis Godefridi Tampachii, 1623. 415-64.

- . *De monarchia hispanica Discursus*. C. 1599. Amsterdam: Apud Ludovicum Elzevirium, 1640.
- Cardano, Girolamo. *De svbtilitati libri XXI*. Paris: Michaelus Fezandat, & Roberti Gran Ion, 1550.
- . *De sensv rerum et magia*. C. 1590. Frankfurt: Apud Egenolphvm Emmelivm, 1620.
- Cervantes, Miguel de. *Don Quijote de la Mancha*. 1605-1615. Ed. Francisco Rico et al. Barcelona: Galaxia Gutenberg; Círculo de lectores; Centro para la edición de los clásicos españoles, 2004.
- Cicero, Marcus Tullius. *De inventione. De optimo genere oratorum. Topica*. Ed. and trans. H. M. Hubbell. Loeb Classical Library. 1949. Cambridge, MA: Harvard University Press, 1968. https://doi.org/10.4159/DLCL.marcus_tullius_cicero-de_optimo_genere_oratorum.1949
- Colón, Cristóbal. *Textos y documentos completos*. Ed. Consuelo Varela. 2nd ed. Madrid: Alianza Editorial, 1984.
- Concilium omnium, tum generalium, tum provincialium atque particularium, quae iam inde ab apostolorum temporibus vsque in praesens habita sunt*. 4 vols. Cologne: Apud Geruunium Calenium, & Hæredes Iohannis Quentelij, 1567.
- Cortés, Martín. *Breve compendio de la sphaera y de la arte de navegar*. Seville: Antón Alvarez, 1551.
- Cruz, Gaspar da. *Tractado em que se cõtam muito por estêso as cousas da China, cõ suas particularidades, & assi do reyno dormuz*. Evora: Andre de Burgos, 1569.
- Della Valle, Battista. *Vallo. Dv faict de la gverre et art militaire. Tractant de L'office des Capitaines et Soldards: De assaulx, & defenses de villes, ou places fortes: Formes de Bataillons: Artifices de feu, de diuerses pouldres, & machines. ... Le tout nouvellemêt ordõné et augmête*. Lyon: Iaqués Moderne, 1554.
- . *Vallo: libro continente appartenentie ad capitaniij: retinere et fortificare vna cita con bastioni, artificij de fuoco, poluere, et de expugnare vna cita con ponti, scale, argani, trombe, trenciere, artegliarie, caue, ... opera molto vile con la esperienza de larte militare*. Naples: per Antonium de Frizis Corinaldensis, 1521.
- Du Bellay, Joachim. *La Deffence, et Illvstration de la Langue Françoyse*. Paris: Arnoul l'Angelier, 1549.
- Escalante, Bernardino de. *Discvrso de la navegacion qve los Portugueses hazen à los Reinos y Prouincias del Oriente, y de la noticia q[ue] se tiene de las grandezas del Reino dela China*. Seville: biuda de Alonso Escriuano, 1577.
- Eusebius, of Caesarea. *Chronicon id est temporvm breuiarium qvem Hieronymvs praesbiter divino eivs ingenio latinvm facere cvrauit: et vsqve in Valentẽ Cęsarem Romano Adiecit Eloquio. Quẽ et Prosper deinde Mathe[us] palmeri[us] qui ea quę cõsecuta sũt adiiicere curauere eidẽ postpositi subsequunt*. Venice: Erhardus Ratdolt, 1483.
- Falconer, William. *Remarks on the Influence of Climate, Situation, Nature of Country, Population, Nature of Food, and Way of Life, on the Disposition, and Temper, Manners, and Behaviour, Intellects, Laws and Customs, Form of Government, and Religion, of Mankind*. London: C. Dilly, 1781.
- Fernández de Oviedo, Gonzalo. *La historia general delas Indias*. Seville: Juan Cromberger, 1535.
- Fernel, Jean. *De Abditis rerum causis Libri duo*. Venice: apud Andream Arriiabenum, 1550.

- Foxe, John. *The first Volume of the Ecclesiasticall history contaynyng the Actes and Monumentes of thynges passed in euery kynges tyme in this Realme, especially in the Church of England principally to be noted*. London: John Daye, 1570.
- Geldenhauer, Gerard. *Historia Batavica, cum appendice de vetustissima Nobilitate, Regibus, ac Gestis Germanorum*. Strasbourg: Apud Christianam Egenol, 1530.
- . *Lycvbrativncvla ... de Bathaur[um] Insula*. Antwerp: Per Michaellem Hellenium Hoochstrata, 1520.
- Gilbert, William. *De magnete, magneticisque corporibus, et de magno magnete telure; Physiologia noua, plurimis & argumentis, & experimentis demonstrata*. London: Petrus Short, 1600.
- Giovanni Matteo, of Luna (Johannes Matthaeus Lunensis). *De rerum inventoribus avreas libellus*. Paris: In Barrana Chaleographia, 1520.
- Gois, Damião de. *Aliqvot opvscula*. Louvain: Ex Officina Rutgeri Rescij, 1544.
- González de Mendoza, Juan. *Historia de las cosas mas notables, ritos y costumbres, Del gran Reyno de la China, sabidas assi por los libros delos mesmos Chinas [sic], como por relacion de Religiosos y otras personas que an estado en el dicho Reyno*. Rome: a costa de Bartholome Grassi en la Stampa de Vicentio Accolti, 1585.
- Hakewell, George. *An Apologie of the Power and Providence of God in the Government of the World, or An examination and censvre of the common errovr tovching natvres perpetvall and vniversall decay*. Oxford: John Lichfield and William Tvnrer, 1627.
- Hemmerlin, Felix. *De nobilitate et Rusticitate Dialogus. sacre Theologie: iurium: Philosophorum et poeta[rum] sententijs: hystorijs & facetijs refertissimus*. [Strasbourg: Johann Pruss, c. 1493-1500].
- Herrera, Fernando de. *Relacion de la gverra de Cipre, y svceso de la batalla Naual de Lepanto*. Seville: Alonso Escriuano, 1572.
- The Holy Bible: Containing the Old and New Testaments. ... Authorized King James Version*. Cleveland: World Publishing Company, [197?].
- Index expvrgatorivs librorvm qui hoc seculo prodiervnt, vel doctrinae non sanae erroribus inspersis, vel inutilis & offensivae maledicentiae fellibus permixtis, iuxta Sacri Consilij Tridentini Decretum*. Antwerp: Ex officina Christophori Plantini, 1571.
- Jacobus Philippus, of Bergamo (Bergomensis). *Supplementum cronicarum*. Venice: per Bernardinũ de Benalijs, 1483.
- Lemnius, Levinus. *Occvltta natvræ miracvla, ac varia rerum documenta, probabili ratione atque artifici coniectura explicata*. Antwerp: Apud Guilielmum Simonem, 1564.
- Le Roy, Louis. *Consideration svr l'Histoire Francoise, et l'vniuerselle de ce Temps, dont les merueilles sont succinctement recitees*. Paris: Federic Morel, 1568.
- . *De la vicissitvde ov variete des choses en l'vnivers, et concvrrence des armes et des lettres par les premieres et plus illustres nations du monde, depuis le temps où à commencé la ciuilité, & memoire humaine iusques à present*. Paris: Pierre l'Huilier, 1575.
- . "L'origine, progres et perfection de la philosophie, avec la comparaison de Platon & d'Aristote, qui l'ont mis au plus hault qu'elle fut iamais, Discours de son estat & condition iusque à nostre temps." *Le Phedon de Platon traittant de l'immoralite de l'ame*. Paris: Sebastien Nyuelle, 1553. 1-17.
- Locke, John. *An Essay concerning Humane Understanding*. London: Eliz. Holt for Thomas Basset, 1690. <https://doi.org/10.1093/oseo/instance.00018020>

- Loueiro, Rui Manuel, ed. *Cartas dos cativos de Cantão: Cristóvão Vieira e Vasco Calvo (1524?)*. Macao: Instituto Cultural de Macau, 1992.
- Maffei, Giovanni Pietro. *Historiarvm Indicarvm libri XVI*. Venice: apud Damianum Zenarium, 1588.
- Maffei, Raffaele. *Commentariorum Vrbanorum Raphaelis Volaterrani: in octo & triginta libri*. 1506. Paris: ab Joanne Paruo & Jodoco Badio Ascensio, 1511.
- Medina, Pedro de. *Regimiento de Navegacion. En que se cõtienen las reglas, declaraciones y auisos del libro del arte de nauegar*. Seville: Juan Canalla, 1552.
- . *Regimiẽto de nauegaciõ*. Seville: Simon Carpintero, 1563.
- Mexía, Pedro. *Silua de varia lecion*. Seville: Juã Crõberger, 1540.
- Montaigne, Michel de. *Essais. ... Cinquesme edition, augmentée d'un troisesme liure et de six cens additions aux deux premiers*. Paris: Abel l'Angelier, 1588.
- Münster, Sebastian. *Cosmographiae uniuersalis Lib. VI. in quibus, iuxta certioris fidei scriptorum traditionem describuntur, Omniũ habitabilis orbis partiũ situs, propriæq[ue] dotes. Regionum Topographicæ effigies. Terræ ingenia, quibus sit ut tam differentes, & uarias specie res, & animatas & inanimatas ferat. Animalium peregrinorum naturæ & picturæ. Nobiliorum ciuitatum icones & descriptiones. Regnorum initia, incrementa & translationes. Omnium gentium mores, leges, religio, res gestæ, mutationes: Item regum & principum genealogiæ*. Basel: apud Henricvm Petri, 1552.
- Nashe, Thomas. *The vnfortvnate traveller. Or, The life of Iacke Wilton*. London: T. Scarlet for C. Burby, 1594.
- Norman, Robert. *The newe Attractiue, Containyng a short discourse of the Magnes or Lodestone, and amongest other his vertues, of a newe discouered secret and subtiil propertie, concernyng the Declinyng of the Needle, touched therewith vnder the plaine of the Horizon*. London: Ihon Kyngston for Richard Ballard, 1581.
- Pantaleon, Heinricus. *Prosopographiæ herovm atqve illvstrivm virorvm totius Germaniæ*. 3 vols. Basel: in officina N. Brylingereri, 1565-66.
- Partington, J. R. *A History of Greek Fire and Gunpowder*. Cambridge: W. Heffer & Sons, 1960.
- Perrault, Charles. *Parallele des anciens et des modernes, en ce qui regarde les arts et les sciences. Dialogues*. Paris: Jean Baptiste Coignard, 1688.
- Petrarca, Francesco. *De Remediis utriusq[ue] fortunæ: ad Azonem*. 1366. Cremona: Bernardini de misintis Papiësis ac Cæsaris Parmensis, 1492.
- Postel, Guillaume. *Histoire et consideration de l'origine, loy, et covstyme des Tartares, Persiens, Arabes, Turcs, & tous autres Ismaelites ou Muhamediques, dits par nous Mahometains, ou Sarrazins*. Poitiers: Enguilbert de Marnes, 1560.
- Rabelais, François. *Les oevvres ... Cõtenãs la vie, faits & dits Heroïques de Gargantua, & de son filz Pantagruel*. 3 vols. Lyon: N.p., 1564.
- Ramus, Petrus. *Scholarvm mathematicarvm, libri vnvs et triginta*. Basel: Per Evsebivm Epistorvm, & Nicolai Fratris hæredes, 1569.
- Román, Jerónimo. *Segvnda parte de las Repvbllicas del mvndo*. Medina del Campo: Francisco del Canto, 1575.
- Ronsard, Pierre de. *Les poemes. ... Tome Troisesme*. Paris: Gabriel Buon, 1567.
- Schedel, Hartmann. *Liber cronicarum*. Nuremberg: Anthonius Koberger, 1493.
- Simms, D. L. "Archimedes and the Invention of Artillery and Gunpowder." *Technology and Culture* 28.1 (1987): 67-79. <https://doi.org/10.2307/3105477>
- Tacitus, Cornelius. *De origine et situ Germanorum liber. Opera minora*. Ed. Henri Furneaux. Rev. J. G. C. Anderson. 1939. Oxford: Clarendon Press, 1962.

- Taisner, Jean. *A very necessarie and profitable Booke concerning Nauigation ... named a treatise of continuall Motions*. Trans. Richard Eden. London: Richarde Iugge, 1574.
- Tartaglia, Niccolò. *La noua scientia ... con una giunta al terzo libro*. Venice: Nicolo de Bascarini, 1550.
- Tassoni, Alessandro. *Dieci libri di pensieri diversi. ... Aggiuntoui nuouamente il decimo Libro del paragone de gl'ingegni antichi, i moderni, e la confutazione del moto della terra, con altri varj Quisiti*. Carpi: Girolamo Vaschieri, 1620.
- Thamara, Francisco. "Proemio y prefacion nvnepatoria sobre la obra y libros de Polidoro Virgilio." *Libro de Polidoro Vergilio, qve tracta dela invencion y principio de todas las cosas. Agora nueuamēte traduzido y trasladado en lengua Castellana, para nuestra doctrina y exemplo*. Trans. Francisco Thamara. Antwerp: Martin Nucio, 1550. *2r-4v.
- Tortelli, Giovanni. *Commentariorvm grammaticorvm de orthographia dictionvm e Graecis tractarvm*. Vicenza: per Stephanvm Koblinger Viennensem, 1479.
- Tremellius, Immanuel, and Franciscus Junius. *Testamenti Veteris Biblia Sacra siue Libri Canonici. ... Accesserunt libri qui vulgo dicuntur Apocryphi, ... quibus etiam adjunximus novi Testamenti libros*. London: Henricus Middletonus, im-prensus W. N., 1580.
- Valla, Lorenzo. *Elegātiar[um] liber ... Tractatus de recip[ro]catione sui & suus ... Liber in errores Antonii Raudensis*. C. 1440. [Paris]: U. Gering, M. Crantz, & M. Friburger, 1471.
- Valturio, Roberto. *De Re Militari Libri XII, multò emaculati, ac picturis, quæ plurimæ in eo sunt, elegantioribus expressum, quàm cum Veronæ inter initia artis chalcographicæ Anno M.cccclxxxiii*. C. 1472. Paris: Apud Christianum Wechelum, 1535.
- Vergil, Polydore. *De inventoribus rerum libri tres*. Venice: Christophorus de Pensis, 1499.
- . *De rerum inuentoribus libri octo, per authorem quarto iam, ac diligentius recogniti, & locupletati, quia longior in studijs labor semper plus cumulet inuentis licet. Eiusdem in dominicam precem commentariolum*. Basel: [Ioannes Bebelius], 1536.
- Voltaire [François-Marie Arouet]. *Lettres philosophiques*. Amsterdam: E. Lucas, 1734.
- Wimpheling, Jakob. *Epithoma rerum Germanicar[um] vsq[ue] ad nostra tempora*. [Strasbourg]: Iohannes Prüss, 1505. [Published with several other works, each with its own pagination, under the general title *Hic subnotata cōtinentur*.]
- Wolper, Roy S. "The Rhetoric of Gunpowder and the Idea of Progress." *Journal of the History of Ideas* 31.4 (1970): 589-98. <https://doi.org/10.2307/2708262>

**‘Chamber Moors’ and Court Physicians.
On the Convergence of Aesthetic
Consumption and Racial Anthropology
at Eighteenth-Century Courts in
Germany**

SÜNNE JUTERCZENKA

Throughout the early modern period, aesthetic vogues reflected an intensified interest in different cultures. For example, the Jesuit missions to the Far East incited a taste for chinoiserie that epitomized the dream of an intellectually refined, peaceable realm that was pleasantly set off against a war-ridden Europe. Similarly, turquerie, which had inspired artists since the sixteenth century, became more and more fashionable as the military threat posed by the Ottoman Empire abated and trade relations flourished, evoking a fantasy world whose bright colors and elaborate decorations outshone European design.

Even though such exotic fashions coincided with debates surrounding extra-European cultures, historians tend to discriminate between the study of cultural difference on the one hand and aesthetic consumption of the exotic on the other. In postcolonial studies, scholarly practices, for example the documenting and collecting activities of someone like Alexander von Humboldt, are suspected of veiling the blatant “imperial gaze” in a strategy of “anti-conquest” (Pratt), whereas conspicuous aesthetic consumption has mainly been perceived in terms of demonstrating wealth or power and is seldom seen as coupled with scientific interests. Exotic paintings, music, architecture, and literature as well as exotic gardens and menageries are classified as amusing luxuries, displaying their owners’ prosperity and far-reaching connections. Even colored people (especially children) employed at European courts are placed in this category: dressed in costly and fanciful costumes, they were fashionable (and occasionally eroticized) “fads” (Debrunner 92), and as such often appeared in representative portraits as counterpoint accessories, highlighting the pale complexions of their noble employers.¹ Meanwhile, the

1 For a list of early modern paintings showing African servants, see Debrunner 92-96. Vera Lind bases her ongoing research project on (among other sources) over four hundred such paintings (Lind, “Africans”).

study of cultural difference, particularly the subsequent formulation of race theories, is most frequently associated with colonization and the transatlantic slave trade. The presence of non-Europeans in Europe, which is considered a mere side effect of these pursuits, is rarely discussed.

There are a number of reasons why this almost total silence should be interrogated. Firstly, beginning in the sixteenth century, aristocratic patronage of the sciences at European courts included the evolving ‘science of man’. Secondly, private gardens, menageries, and curiosity collections in Europe may have been created by aristocratic dilettantes for amusement and the exhibition of courtly splendor, but they also reflected an interest in cultural difference as well as natural history, and over time some of them were transformed into sites of ‘serious’ scholarly study. Some subsequently became powerful scientific institutions, like the Botanic Gardens at Kew (originally a royal pleasure garden), the Schönbrunn Zoo in Austria (founded as an imperial menagerie), and the British Museum (begun as a private curiosity collection). Thirdly, it is well known that in the nineteenth and early twentieth centuries, people who were brought to Europe for entertainment and displayed publicly in freak shows, world fairs, and so-called *Völkerschauen*, were often appropriated as subjects of scientific inquiry.

The fact that consumption of the exotic and the study of cultural difference somehow seemed to converge in the early modern court has hardly been discussed as a contribution to the history of racial anthropology. This paper explores that convergence, which was by no means exclusive to those countries actively engaged in colonial projects, such as France and Great Britain. It is firmly established that some of the most eminent eighteenth- and nineteenth-century scholars who contributed substantially to the development of race theories were Germans.² As we shall see, German aristocrats, by employing Africans to show off courtly magnificence, also provided an environment and a basis for learned discourses surrounding cultural, religious, and – increasingly – ‘racial’ difference. The contemporary label for dark-skinned people during the early modern period was ‘Mohr’ (Moor), and dark-skinned servants at German courts were usually called *Hofmohr* (court Moor) or *Kammermohr* (chamber Moor). While the term Moor (which was not used in any deliberately derogatory way) was used to denote any colored person, (and included people from both Indies and even China), it seems to have derived from the Latin *Mauros*, i.e., those from Mauritania in North Africa, and most ‘court Moors’ originated from Africa.

Even before the Atlantic triangle was fully operational, far greater numbers of Africans lived in Europe than is popularly assumed today (see, for instance, Earle and Lowe; Martin), and historians have highlighted the diversity of their biographies (see Debrunner). Trade, Christian missions, colonialism, and the slave economy, especially around the Mediterranean, all contributed to this situation. As a result, numerous Africans, enslaved and free, had lived in Italy, Spain, and

2 Some scholars have attributed this remarkable paradox to a “frustrated nationalism” that was “sublimated in racial thinking.” See Pieterse 47.



Figure 1: Georg David Matthieu, *Duchess Louise Friederike of Mecklenburg-Schwerin with Caesar* (1772). Staatliches Museum Schwerin, Inv. No. G 758. Collection Christian Ludwig Herzog zu Mecklenburg.

Portugal since the late Middle Ages. During the eighteenth century, slaves were brought into Britain, France, and the Netherlands via American and Caribbean plantations. Networks like those developed through long-distance trade generally and the slave trade in particular, in combination with the transnational connections that existed between various European courts, allowed German aristocrats to procure a sizeable number of dark-skinned servants: as a “by-product of the slave-trade and other trading activities” (Debrunner 87), these people were a commodity available in even the remotest territories.

Take, for example, the double portrait painted by Georg David Matthieu (Figure 1), one in a series of similar works held in the State Museum in Schwerin.³ Caesar, the little black boy peering over the shoulder of the Duchess Louise Friederike of Mecklenburg-Schwerin, is thought to have been born in Guinea, but he grew up in the Duchess's retinue on the German Baltic coast (see Steinbruch, "Moor"; id., "Taufe"; id., "Mohren"; id., "Zufallsfund").⁴

The Duchess acquired Caesar when he was seven years old, probably from the merchant Heinrich Carl von Schimmelmann (Martin 106), who lived in the neighboring Duchy of Holstein, made a fortune in the slave trade, and was one of the wealthiest plantation owners in the Caribbean during the eighteenth century (see Degn). In 1777 (at the age of fifteen), Caesar was baptized in the residential town of Ludwigslust. Like corresponding occasions in other German regions, his baptism was publicly celebrated: the so-called *Mohrentaufen* resembled the *Türken-taufen*, i.e., the baptizing of Muslims, as well as of Jews, which usually combined the candidate's ritual initiation into Christian society with popular spectacle and a confirmation of the congregation's shared religious principles. At Caesar's baptism, members of the ducal household (among them Prince Friedrich, later Duke Friedrich Franz I) acted as godparents and Caesar was therefore given the new, Christian names of Friedrich Ludwig Carl Ulrich. The sermon, speeches, and the examination he had to undergo in the course of the ceremony were published in a small booklet that has survived in the special collections of Rostock's university library (Figure 2). As in other, similar publications,⁵ its author, court chaplain Georg Gottlieb Beyer, placed particular emphasis on the anticipated global dissemination of Christianity and on the capability of black 'heathens' like Caesar to become good Christians. He pointed out that "not only in far-away lands – praised be God – considerable numbers of ignorant and idolatrous heathens recognize Jesus as their savior, but even in our place we find evidence of God's faithfulness" (Beyer 9).⁶ In his sermon, Beyer celebrated Caesar as a kind of vanguard of all the 'heathens' he soon expected to convert, and admonished him to present their case to God in his prayers: "When you have learned to pray properly, remind the Lord diligently of the blind people from which you originated, so that more of them will be enlightened by the Gospel, and moved to believe in

3 Three different versions of this portrait alone are held in the museum's collections. I would like to thank the curator, Dr Kristina Hegner (Staatliches Museum Schwerin), for this information.

4 The 'court moors' in Mecklenburg-Schwerin have been the subject of a series of articles written by Karl-Heinz Steinbruch for a local magazine (the *Mecklenburg-Magazin*), to which I owe most of the information that follows.

5 That same year, for example, a seventeen-year-old from Guinea was baptized in Rellingen; see Damman. For further examples, see Sauer ed., *Soliman* 21 (with a focus on the symbolic content of the ritual) and Völlert, "Mohren- und Türkentaufen."

6 "Es lernen nicht nur Gottlob! alle Jahr in entfernten Landen eine nicht geringe Zahl unwissender und abgöttischer Heiden, Jesum als ihren Erlöser kennen, sondern selbst an unserm Ort m.G. finden wir einen Beweis von dieser Treue Gottes." All English translations from the German in this essay, if not otherwise stated, are my own.



Figure 2:
*Sermon of Caesar's
 Baptism by Court Chaplain
 Georg Gottlieb Beyer.* Uni-
 versitätsbibliothek Rostock.
 Special Collections, FL-3289.

Jesus” (Beyer 39; compare Dammann, “Mohren-Taufe”).⁷ This discourse was certainly not specific to the Mohrentaufen in Germany, but accompanied contemporary Christian missions everywhere. During Caesar’s lifetime, Moravians and Halle Pietists were actively evangelizing in Africa, the Caribbean Islands, and in India.⁸ Duke Friedrich (The Pious) of Mecklenburg-Schwerin was influenced by Pietism, and Beyer had previously worked as a teacher at August Hermann Francke’s orphanage in Halle, so it was no accident that the chaplain’s sermon reverberated Pietist rhetoric.

In 1790, Caesar married Maria Stut, the daughter of a local brewer, in St. James’ (Jakobikirche) in Rostock, and subsequently had three children by her. He served the Duchess and her husband’s nephew and successor, Friedrich Franz, as ‘court Moor’ for thirty-six years and eventually died from an illness at the

7 “Wenn er künftig im Nahmen Jesu wird erhörllich beten gelernt haben, so trage er Gott fleißig das blinde Volk vor, aus welchem er entsprossen ist, damit ihrer immer mehrere durchs Licht des Evangelii erleuchtet, und zum Glauben an Jesum gebracht warden.”

8 Moravian missionaries claimed the right to care for some of their African converts even after Schimmelmänn had relocated them from the Caribbean to Holstein (Martin 164-66).

age of forty-three. There is evidence of at least fourteen ‘Moors’ working at the court of Mecklenburg-Schwerin during the last two decades of the eighteenth century (and of Africans serving other wealthy employers in this region, although numbers are difficult to come by). Some, for example August Stern who arrived at the court in 1788, were educated there, and some later taught the children of the ducal household (Steinbruch, “Taufe” 8). Like Caesar, several of them married local women and had children, and a few became quite well-to-do. One of Caesar’s sons, Friedrich Ludwig, was later employed as castellan (a kind of governor, combining the responsibilities of supervising domestic staff with those of military administration) at the Residence in Schwerin (Steinbruch, “Mohr” 12).

The situation of Africans living in Mecklenburg-Schwerin is typical of the ambivalent social position of ‘court Moors’ generally (for a more extensive discussion of the latter, see Häberlein 84-91): They might have been purchased as ‘playthings’ (Debrunner 97) from a slave trader at a young age, but as adults they were usually put to work and paid like other domestics. Some enjoyed special privileges and acquired property, even real estate, and at least theoretically, they were free to leave their employer’s service. So their plight cannot easily be compared to that of agricultural laborers living on New World slave plantations. ‘Court Moors’ depended almost entirely on aristocratic patronage. Unlike other servants they often experienced problems finding employment outside the court. Their situation usually deteriorated dramatically if their wages were cut, if they were made redundant when new priorities or lack of money caused their employer to reduce court expenditures, or if the employer died and his successor decided to completely abolish the position of ‘court Moor’ from his household. Legally, they found themselves in a gray area since they had arrived as slaves, a status that did not officially exist anywhere in Germany.

The question of how far ‘court Moors’ were socially integrated and accepted as ‘equals’ by the German population of comparative social rank has been debated, and the evidence is inconsistent. On the one hand, many married locally and socialized with white servants, and some became respected, even esteemed members of their local communities. This suggests – in accordance with the more general thesis that ‘race’ only became a discriminating and socially exclusive category either as a justification of plantation slavery or as a reaction to the success of the abolition movement (Pieterse 45) – that their skin color and origin did not really matter when it came to their social integration. On the other hand, some Africans in Germany evidently suffered from isolation, their social networks inevitably being limited and connections with their families of origin having been severed. Sporadically, isolation contributed to or even directly resulted in suicide (Schäfer 46-47).

Colored servants like Caesar lived at many courts from around the middle of the seventeenth and into the nineteenth century, including, for instance, the Imperial court at Vienna, the courts of Saxony (Martin 109-11), Braunschweig-Wolfenbüttel (Kittel, “Mohren”), Hessen-Kassel (Schäfer, “Kammermohren”), Würt-

temberg (Firla and Forkl, "Afrikaner"), and Prussia, but also at smaller courts like those in Eastern Friesland (Kuhlmann-Smirnov, "Globalität"), Bentheim (Voort, "Hauch"), Mecklenburg-Schwerin, and the sister Duchy Mecklenburg-Strelitz.⁹ Like the courts in Mecklenburg, few of these smaller courts have been investigated systematically with regard to their African staff. And little attention has been devoted to the presence of such staff in relation to the burgeoning 'science of man', although clearly this was central to the Enlightenment (philosophers, including Rousseau, Kant, and Herder shared a strong interest in it) and black servants were wide-spread. What can be said about this relationship between the exotic as part of court culture and scholarly interest in the varieties of the human species, which at this stage, i.e., before the separation of physical, cultural, social, and philosophical anthropology, included all kinds of differences and often related the one to the other (Petermann 282-83), is therefore fairly preliminary. In the following, I concentrate on the phenomena of collecting, experimenting with, and dissecting the bodies of 'Moors' as cultural practices that exemplify the overlap between aristocratic and scholarly interests.

Collecting 'Moors'

Back in Mecklenburg in 1782, another small African boy, Avanturie, escaped from his employer, Otto von Kamptz of Waren (who owned land and slaves in Africa). The child was caught by Duke Friedrich, who showed such an interest in him that Kamptz felt obliged to present the boy as a gift, declaring that he was meant as an addition to the Duke's natural history collection. The present was graciously accepted and Kamptz received a gilded box in return (Steinbruch, "Zwei Mohren" 8). Kamptz's statement echoes a connection increasingly made in the late eighteenth and nineteenth centuries: that between exotic curiosa, exotic plants and animals, and exotic looking people. Aristocrats and scholars alike shared a lively interest in all of these, and they often appear together in contemporary images.¹⁰ The barter between Kamptz and the Duke also shows how African children were commodified in the context of European expansion and as a sideline to the slave trade. Recognition of this potential market generated a brisk trade: the French governor of Senegal, for instance, indiscriminately supplied all kinds of *souvenirs vivants* – be they parrots, ostriches, or dark-skinned children – in a kind of mail order business (Debrunner 99).

Avanturie was not the only African treated as a precious collectors' object and a 'specimen' simultaneously. Among other well-known examples was the transformation of the famous Ethiopian Angelo Soliman (Mmadi-Make) into a special type of collector's item. His case is contentiously debated and telling of how the

⁹ For further examples of small courts see Collenberg 274-77.

¹⁰ For example, in a painting by the Swedish court painter David Klöckner Ehrenstrahl showing an African with parrots and monkeys (Debrunner 92).

entanglements between court culture and learned interests led to situations anticipating later developments usually associated with nineteenth- and twentieth-century scientific racism. Soliman was purchased by the Prince of Liechtenstein at Vienna and brought to his court via France and Italy around the middle of the eighteenth century. Exceptionally well educated, he served as tutor at the Liechtenstein court, joined a Viennese Masonic lodge, befriended contemporary intellectuals, including the geologist Ignaz von Born and the naturalist Georg Forster, and acquired considerable renown as an intellectual himself. He fell from grace temporarily when he secretly married another servant of the royal household, Christiana Kellermann, but was reinstated as tutor a few years later. Soliman seems to have lived quite comfortably, and his daughter Josephine married into the aristocracy (Martin 233-39).

What happened after his death (1796), however, calls into question the general esteem in which Soliman was held as a distinguished intellectual and member of the Viennese court. After being examined at the medical faculty in the university, his dead body was flayed and the skin stuffed, fit out in an exotic costume, and put on display in a cabinet in the imperial natural history collection alongside three other similar human exhibits and numerous animal displays. Soliman's daughter protested and, with the support of the bishop's consistory, attempted to retrieve (in order to bury) his remains. Her efforts were unsuccessful, and the exhibit remained in the imperial museum until it perished in a fire in 1848.

The presentation of human remains as show pieces was actually not unusual. While still alive, a number of scholars and literati directed that their bodies were to be lodged in similar collections upon their deaths. Others were exhumed for the same purpose: the anatomist Samuel Thomas Soemmering placed his friend Wilhelm Heinse's skull in his library next to Heinse's own poetry, and Johann Friedrich Meckel stated that after his demise his skeleton was to be added to his own collections. Not belonging to any particular anatomical collection, the controversial remains of Friedrich Schiller and Jeremy Bentham's famous 'Auto-icon' are among the most extreme cases of such posthumous exhibitionism. Given the manner in which Soliman was displayed in the Emperor's natural history cabinet, however, he was probably not exhibited as a tribute to his genius, and it is questionable whether prior to his death he had a say in the decision to utilize his body for show.

The phrenologist and physiognomist Franz Joseph Gall included Soliman's death mask in his collection of *Nazionalköpfe*, or skulls from members of different nations. Again, this was not unusual; Gall possessed masks of many famous people. However, his characterization of Soliman's physiognomy (along with that of others) as 'typically African' suggests that he used it in his comparison of brain sizes, and on which data he based his claim that Europeans were intellectually superior to Africans (Wigger and Klein 104). In effect, collecting African alongside European anatomical 'specimens' enabled scholars to construct a 'racial' contrast not unlike the visual contrast in the double portrait of Caesar

and the Duchess (and hundreds of similar representative courtly images).¹¹ Soemmering made the connection between contemporary fine art and scientific documentation by comparing the quality of drawings of Africans' heads and skulls by Andreas Range (who otherwise specialized in historical subjects and animal portraits) with William Hogarth's work: "I only know few truly characteristic drawings of Moors' heads apart from one by Hogarth" (Soemmering xviii).¹² Describing, depicting, and categorizing different heads (or skulls) according to their (deceased) owners' supposed intellectual capacity were part of comparative anatomy, a subdiscipline of physical anthropology. Inventions like the Dutch anatomist Pieter Camper's method for measuring facial angles, which he and his colleagues across Europe performed on countless individuals from various ethnic backgrounds, were among its tools (Peterman 326).

Experimenting with 'Moors'

Confronted with Josephine's church-backed protest against the treatment of her father's body, imperial officials denied that it had been unlawfully appropriated and that he had been denied a Christian burial (Martin 238-39). Even today, some scholars (notably Monika Firla) maintain that Soliman voluntarily 'donated' his skin before his death. While this idea has been emphatically rejected by many historians (among them Walter Sauer),¹³ most agree that Soliman's body was designated as an object for collection before his death (Martin 236), although who did so may not be clear. Most recently, Iris Wigger and Katrin Klein have posited a connection between this and other aspects of Soliman's treatment by his scholarly friends and colleagues during his lifetime: while they may have welcomed him into their learned circle, their appreciation was ambivalent. Wigger and Klein claim that these acquaintances subjected Soliman to a sort of long-term 'human experiment', the aim of which was to determine whether or not Africans possessed the same intellectual capacities as Europeans. Thus one member of the cir-

11 For related imagery, see Pieterse 42 (comparing Africans and primates) and 48-49 (comparing different human 'races').

12 "Charakteristisch richtig gezeichnete Mohrenköpfe kenne ich ausser einem von Hogarth nur wenige." Samuel Thomas Soemmering, *Über die körperliche Verschiedenheit des Negers vom Europäer* (Frankfurt, Mainz: Warrentropp Sohn und Wenner, 1785). I am quoting from the reprint with critical introduction and notes by Oehler-Klein. Soemmering does not specify which of Hogarth's works he had seen – some of those showing Africans are satirical genre pieces rather than realistic paintings (compare the list in Debrunner 95). Hence, they distort facial features to achieve a humorous effect, mocking both aristocrats and their servants.

13 See the summary in Wigger and Klein 105.

cle of which Soliman had been part conjectured that he had only been purchased to “find out if culture will refine a Moor as much as a European white person.”¹⁴

Like the question of whether it was possible to transform Moors, Turks, and Jews into real Christians, this was a subject of considerable debate. As we have seen, the clergy answered the former in the affirmative and ritually confirmed their claim through the so-called *Mohrentaufen* and *Türkentaufen*, and the Catholic Church, which considered Soliman one of its members, did not approve of his body’s treatment and insisted that he should be buried according to church customs. At the then recently founded University of Göttingen, the famous anatomist Johann Friedrich Blumenbach answered the latter question by referring to Soliman as an example of human perfectibility (Wigger and Klein 84). His friend Georg Forster, who was personally acquainted with Soliman through their membership in the same Masonic lodge, and who was an expert on cultural difference (he had accompanied James Cook on his second circumnavigation and had met many Pacific Islanders) called Soliman “good brother moor” in his diary. This epithet may or may not be interpreted as condescending (99), but in any case, Forster strongly objected to slavery and believed that people everywhere should have the same access to education. By contrast, the Scottish philosopher David Hume dismissed in no uncertain terms the accomplishments of the Jamaican scholar Francis Williams, who was said to have been subjected to a similar ‘human experiment’ by the Duke of Montagu¹⁵: “In Jamaica indeed they talk of one negroe as a man of parts and learning; but ‘tis likely he is admired for very slender accomplishments, like a parrot, who speaks a few words plainly” (quoted after Wigger and Klein 99).

Some ex-slaves did earn reputations as scholars in early modern Europe: Anton Wilhelm Amo from West Africa received an exceptional education at the court of Braunschweig-Wolfenbüttel, later studied and embarked on an academic career, teaching Philosophy at the universities of Halle, Wittenberg, and Jena (see, for instance, Martin 308-27). Similarly, the controversial ‘go-between’ Quassie (Kwasi) van Timotibo from Guinea acquired equal renown as a botanist and headhunter, catching escaped slaves in Suriname. He visited the Netherlands in 1776, during which time Linné named the Quassia (or bitterwood) after him and he was honored at a reception by Prince William V of Orange (Schaffer et al. xxix). ‘Moors’ at European courts were sometimes subjected to rather more pragmatic and less scholarly treatment. For example, the Swedish Queen Louisa Ulrika used Couschi Badin, who arrived at her court as a teenager, to gauge the effects of a libertarian education (Debrunner 105). Heinrich Carl Schimmelmann, who also kept colored servants, conducted an entire series of tests. In 1765, he began to

14 “[...] um herauszubekommen, ob die Kultur einen Neger genauso bildet wie einen europäischen Weißen.” Ferenc Kazinczy in a letter quoted by Firla, here after Wigger and Klein 90.

15 He bestowed similar patronage on Job ben Solliman (no relation of Soliman’s) (see Debrunner 72-73).

import African slaves from the Caribbean Island St. Croix (then a Danish colony) to be apprenticed as craftsmen (bricklayers, carpenters, coopers, and smiths) at his estate in Ahrensburg near Hamburg. He demanded that his inspector provide regular and detailed reports regarding their progress and even prescribed special training for some of them (Martin 162-67). From the point of view of these various involuntary subjects, most 'experiments' produced mixed results: Amo did not succeed in establishing himself as an academic in Germany and eventually returned to his birthplace, where he spent the remainder of his life as a hermit; the Swedish Queen soon gave up her project since her antiauthoritarian methods lead to undesirable outcomes, deciding instead to bring Couschi up according to strict pious principles; and most of the Africans at Ahrensburg died from various illnesses before they could even complete their apprenticeships.

All these examples suggest that while Africans living in eighteenth-century Europe (and especially at the many German courts) played an important part in the machinery of courtly representation (by demonstrating their employers' power and prosperity), they simultaneously aroused the interest of clergy, scholars, and aristocratic amateurs. This interest was grounded in contemporary debates surrounding issues like those of religious perfectibility and intellectual capacity. Since most European scholars were unable to travel to other continents, the presence of the 'court Moors' could be a welcome opportunity to study Africans nearer home.

Dissecting 'Moors'

While the 'experiments' performed on Soliman and the public exhibition of his body have been contentiously debated and sharply criticized on moral grounds, other cases of bodily manipulation to which Africans living at German courts were subjected have not been discussed in the same way. This may be because most, unlike Soliman, were nameless, or because their treatment seemed justifiable as more strictly 'scientific' since it was performed by professional anatomists, like, for example, Samuel Thomas Soemmering.

In 1784, Soemmering published a treatise entitled *Ueber die körperliche Verschiedenheit des Mohren vom Europäer* (On the physical difference between the Moor and the European) (Figure 3). Since it was met by a mixed reception, he produced a substantially revised edition the following year, altering the title slightly by replacing the word 'Moor' with 'Negro'.¹⁶ This subtle change indicates that the work appeared exactly at the time when the disparaging word 'Neger' began to supersede the word 'Mohr'. It also underlined the racial hierarchy that he was trying to establish scientifically in his treatise (Hund 25), and marked the shift from a more ambivalent attitude to one of 'superior condescen-

¹⁶ Whether the change in terminology in the title corresponded with textual changes poses an interesting question, which, however, exceeds the scope of this paper.

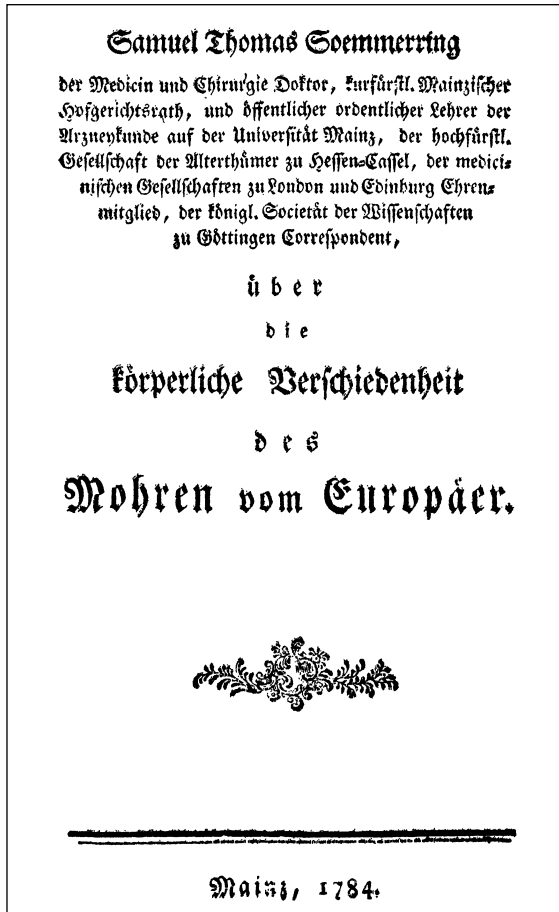


Figure 3:
Samuel Thomas Soemmering,
Ueber die körperliche Verschiedenheit des Mohren vom Europäer.
First edition, 1784. Niedersächsische Staats- und Universitätsbibliothek Göttingen. 8 HLP 5, 246/5:2 (7).

sion' (Pieterse 34). Although Soemmering, like his friend Forster (to whom he dedicated the paper),¹⁷ was passionately opposed to slavery and initially defended the hotly debated common origin of all humans (monogenesis), in this treatise he concluded that Africans came closer to apes than Europeans and should therefore be regarded as lower down in the racial hierarchy that was beginning to take shape in European scholars' minds. Like those conducting practical experiments on 'Moors', he was especially interested in their intellectual capacity.

Unlike other publications, however, Soemmering's exposition was not speculative. In fact, he was in an unusually advantageous position that allowed him to make empirically grounded statements concerning African anatomy. As a professor at the Collegium Carolinum in Kassel (a college preparing students for university), he enjoyed access to the court of Duke Friedrich of Hessen-Kassel. But more importantly, a sizeable group of Africans lived at the court. Beginning in 1783, soldiers who had fought in the American Revolution began to trickle back into Kassel, bringing with them around fifty Africans from Senegal, Guinea, and

17 For Forster's reception of Soemmering's treatise, see Oehler-Klein, "Der 'Mohr'."

different places in the Caribbean who had been hired as servants to the senior military or as replacements for German troops diminished in battle (Sömmering 34).

Soemmering was able to observe this group for several years, and some of the anatomical findings in *Verschiedenheit* were based on such observations. He relates, for example, how he watched the 'Moors' bathe (34), and how the Duke's personal physician (*Leibarzt*), Ernst Gottfried Baldinger, permitted him to examine them at his leisure (xvii). What really aroused Soemmering's colleagues' envy, however, was that he was able to dissect their dead bodies (Schäfer 46). At that time, corpses for dissection were difficult to source: usually, only those of the poor, prisoners, executed criminals, and suicides could be legally claimed for such purposes. Only occasionally were the bodies of illegitimate children, their mothers, casualties of accidents, 'persons found dead', i.e., vagabonds, and foreigners (*Fremde*) without kin delivered to anatomists (see Stukenbrock ch. 2). At Kassel, the bodies of *all* Africans who died (and many died prematurely) were submitted to dissection (Oehler-Klein, "'Mohr'" 152, n80). Soemmering based the arguments in *Verschiedenheit* on the anatomization of at least fourteen of these Africans from Kassel, and he incorporated their preserved body parts, skeletons, and skulls into his anatomical collection for future reference (xxiv). He also sent body parts to his colleague Blumenbach in Göttingen and to his academic tutor Pieter Camper in the Netherlands. Upon leaving Kassel for the University of Mainz, he even took the head of a recently deceased African with him to dissect for his new students. His student and successor in Kassel, Johann Christian Billmann, was able to continue claiming for dissection the corpses of Africans who died at the court; and from Mainz, Soemmering instructed Billmann on how to examine the living, for example, by counting their teeth (Schäfer 47). Soemmering also asked Billmann to verify his theses – for example, regarding the color of the Africans' lips – empirically (Soemmering 13).

Soemmering, Billmann, and Camper were not the only anatomists who collected and dissected Africans' bodies. Others in Germany included Soemmering's rival Justus Christian Loder (who, based on his own anatomical collection, wrote a critical review of the first edition of *Verschiedenheit*), Johann Friedrich Meckel, Nicolaas Pechlin, and Bernhard Siegfried Albinus (Meijer 56). Court physicians seem to have played an important intermediary role in supplying bodies for dissecting and collecting. In Kassel, Soemmering thanked his "unforgettable patron" Baldinger, "whose officiousness obligingly supports so many scholars" (Soemmering xvii).¹⁸ In Vienna, the anatomist and personal physician to the empress, Anton von Störck, made available to his colleagues at least one African corpse: that of the girl Victoria Arcate, who died in 1789 (see Sauer and Wiesböck 35). Loder as well as Pechlin, the author of a treatise on 'Ethiopian' physiology and skin color (*De habitu & colore aethiopum*, 1677) and himself a personal physi-

18 "dessen Dienstfertigkeit so viele Gelehrte zuvorkommend unterstützt."

cian to Duke Christian Albrecht, may even have been in a position to source African bodies for dissection directly. Not all these scholars' objects of study originated from circumstances similar to those of Soliman and the soldiers at Kassel. African bones could in fact be procured from neighboring countries, where a veritable army of black slaves served royals, aristocrats, and bourgeois households. While the origins of most African bodies or body parts in anatomical collections are obscure, it seems likely that in this respect, too, court connections played a certain role. Camper, for example, received 'negro skulls' from England (Meijer 56). So did Blumenbach, evidently profiting from his university's close connections with the Hanoverian court. He also used his network of traveling pupils for the same purpose (Petermann 327-28).

While anatomists also collected numerous human 'specimens' from Europe (and, as we have seen, Heinse and Meckel even asked to have their own bones included in anatomical collections), the treatment of the remains of Africans reflected the insecure social and legal status of the latter as well as contemporary scientific evaluations of their position in the racial hierarchy. The fact that all the other groups from which anatomists could source bodies for dissection were on the social fringes (Stukenbrock 29, esp. n29) further calls into question the unrestricted social integration of 'court Moors'. That said, neither all legally designated corpses (47) nor all deceased 'court Moors' were in reality subjected to dissection.

Conclusions

Besides amusing rulers, aristocrats, and prosperous elites, the exotic – a category that included people like the Africans Caesar, Avantage, Soliman, Arcate, and the many anonymous soldiers in Kassel – was a status symbol. It represented the ambition to achieve European global influence as much as the rivalry for such influence between European rulers and aristocrats: acquiring, possessing, and displaying the exotic were ways of emphasizing the claim to power abroad and at home. While Germany (with few exceptions) was not directly involved in the early modern colonizing process, German aristocrats nevertheless took an active part in the competition for renown. They strove to emulate more splendid courts, collecting exotica and exotic people even in provincial and politically less significant locales. As a way of demonstrating prestige and global connections such activities may have been a medium of self-affirmation perhaps especially from the provincial perspective.

While the primary function of exotic items, animals, and even people was thus representative, they also became objects of learned inquiry. As princes sought to match their rivals' collections, scholars profited by gaining access to what their noble patrons had acquired. All examples suggest that from the point of view of such scholars the presence of Africans at German courts was an exceptional

opportunity because it provided them with empirical data that they would not otherwise have had at their command. While African corpses were not the only ones that became collectors' items, and while court connections were not the sole way of obtaining such objects, the synergies are noticeable.

Subsequent historical developments were notoriously exploited by German racial anthropologists: for example, the colonization of South West Africa enabled scholars like Eugen Fischer (Freiburg im Breisgau) and Rudolf Virchow (Berlin) to obtain Herero 'specimens'. Curators are currently struggling to deal with this problematic heritage, and the repatriation of foreign body parts from such collections has only just begun. Meanwhile, the eighteenth-century connection between the presence of Africans in Europe and practices of collecting and subjecting them to experiments (both alive and dead) as well as utilizing their remains as scientific raw material is underresearched. Where this connection has been revealed (notably in Soliman's famous case), a thoroughly polarized debate has followed that seems at an impasse. This has not helped in comprehending the complex interplay of different contemporary discourses: There were those (like the bishop's consistory at Vienna) who insisted on the equality of members of the different 'races' and therefore objected to the exhibiting of Soliman's skin. Others, while they may have rejected slavery on moral grounds, actively engaged in the collection of Africans' body parts (Soemmering and his colleagues being a case in point). Some scholars today are also inclined to either play down racist tendencies or, in contrast, attribute full-fledged racism to a period that in fact was marked by highly ambivalent attitudes. More detailed research than is possible within the scope of this essay may well show that the equivocation inherent in the word 'Mohr', in the aesthetic fascination for dark skin, and in the 'court Moors' social situation of "privileged dependency"¹⁹ was indicative of a range of different positions and interests that coexisted but were not necessarily conclusive or even compatible.

If, in keeping with such a complex situation, we conceptualize the eighteenth century as an "incubation period of racist ideas" (Häberlein 92), this raises the question of precursive phenomena that anticipated later developments. For example, did the fact that exotic looking persons were often grouped with exotic animals in the context of courtly representation perhaps influence anatomists (like Soemmering), who ascribed simian features to Africans (thus declaring them to be the 'missing link' in the Great Chain of Being)? What role did the enforced residence of Africans, with an uncertain legal and social position in European societies, play in the development of racial anthropology? If, as I conjectured at the beginning of this paper, one of the characteristics of exotic fashions was the recurring theme of pleasing, complimentary contrast, why did it turn into hostile exclusion only in the late eighteenth century? Such questions point to a range of unresolved issues connected with the presence of non-Europeans in Europe

19 Lind, "Africans" 2.

during the period of the European expansion, an area that historians have barely begun to tackle. More generally, the findings presented in this paper confirm that in addition to relationships between colonizers and colonized *in situ*, which is what postcolonial studies has concentrated on thus far, we also need to investigate the inner-European dynamics that influenced European scientific interests – be it the rivalry between courts that spurred aristocrats’ desires for exotic servants, the networks that enabled them to procure these, the circumstances that allowed anatomists to source Africans’ bodies for collection and dissection, or the discourses surrounding the various forms of treatment to which African servants were subjected. I believe this may contribute to a more comprehensive and more nuanced picture of the relationship between scientific discourses and cultural difference.

Works Cited

- Beyer, Georg Gottlieb. *Predigt und Reden am 5ten Sonntage nach Trinitatis als der Durchlauchtigsten regierenden Frau Herzogin von Mecklenburg, Mohr in der Hof-Kirche zu Ludwigslust öffentlich getauft worden gehalten und auf höchsten Befehl dem Druck überlassen von Georg Gottlieb Beyer Prediger zu Ludwigslust*. Rostock: Koppensche Buchhandlung, 1777.
- Collenberg, Weygo Comte Rudt de. “Haus- und Hofmohren des 18. Jahrhunderts in Europa.” *Gesinde im 18. Jahrhundert*. Ed. Gotthardt Frühsorge, Rainer Gruenter, Beatrix Freifrau Wolff Metternich. Hamburg: Meiner, 1995. 265-80.
- Damman, Ernst. “Die ‘Mohren-Taufe’ in Rellingen.” *Jahrbuch für den Kreis Pinneberg* (1997): 107-16.
- Debrunner, Hans Werner. *Presence and Prestige: Africans in Europe. A History of Africans in Europe before 1918*. Basel: Basler Afrika Bibliographien, 1979.
- Degn, Christian. *Die Schimmelmans im atlantischen Dreieckshandel: Gewinn und Gewissen*. 3rd ed. Neumünster: Wacholtz, 2000.
- Earle, T.F., and K.J.P. Lowe, eds. *Black Africans in Renaissance Europe*. Cambridge: Cambridge University Press, 2006.
- Firla, Monika, and Hermann Forkl. “Afrikaner und Africana am württembergischen Herzogshof im 17. Jahrhundert.” *Tribus* 44 (1995): 149-93. https://doi.org/10.1007/978-3-476-03676-6_1
- Häberlein, Mark. “‘Mohren’, ständische Gesellschaft und atlantische Welt. Minderheiten und Kulturkontakte in der Frühen Neuzeit.” *Atlantic Understandings. Essays on European and American History in Honor of Hermann Wellenreuther*. Ed. Claudia Schnurmann and Hartmut Lehmann. Hamburg: Lit, 2006. 77-102.
- Hund, Wulf D. “Die Körper der Bilder der Rassen. Wissenschaftliche Leichenschändung und rassistische Entfremdung.” *Entfremdete Körper: Rassismus als Leichenschändung*. Ed. Wulf D. Hund, Bielefeld: transcript, 2009. 13-79. <https://doi.org/10.1515/9783839411513-001>
- Kittel, Ingeborg. “Mohren als Hofbediente und Soldaten im Herzogtum Braunschweig-Wolfenbüttel.” *Braunschweigisches Jahrbuch* 46 (1965): 78-103.
- Kuhlmann-Smirnov, Anne. “Globalität als Prestigemerkmal? Die Hofmohren der Cirk-sena und ihres sozialen Umfeldes.” *Adel und Umwelt. Horizonte adeliger Existenz*

- in der Frühen Neuzeit. Ed. Heike Düselder, Olga Weckenbrock, Siegrid Westphal, Köln, Weimar, Wien: Böhlau, 2008. 287-309.
- Lind, Vera. "Africans in Early Modern German Society: Identity – Difference – Aesthetics – Anthropology." *German Historical Institute Washington Bulletin* 28 (Spring 2001). <<http://www.ghi-dc.org/publications/ghipubs/bu/028/b28lindframe.html>> [accessed 28 April 2011].
- Martin, Peter. *Schwarze Teufel, edle Mohren. Afrikaner in Geschichte und Bewusstsein der Deutschen*. Hamburg: Hamburger Edition, 2001.
- Meijer, Miriam Claude. *Race and Aesthetics in the Anthropology of Petrus Camper (1722-1789)*. Amsterdam et al.: Rodopi, 1999. <https://doi.org/10.1163/9789004456716>
- Oehler-Klein, Sigrid. "Der 'Mohr' auf der 'niedrigeren Staffel am Throne der Menschheit'?" *Georg-Forster-Studien* 3 (1999): 119-66.
- Petermann, Werner. *Die Geschichte der Ethnologie*. Wuppertal: Peter Hammer Verlag, 2004.
- Pieterse, Jan Nederveen. *White on Black. Images of Africa and Blacks in Western Popular Culture*. New Haven, London: Yale University Press, 1992.
- Pratt, Mary Louise. *Imperial Eyes: Travel Writing and Transculturation*. London: Routledge, 1992.
- Sauer, Walter, ed. *Von Soliman zu Omofuma: Afrikanische Diaspora in Österreich 17. bis 20. Jahrhundert*. Innsbruck: Studien-Verlag, 2007.
- Sauer, Walter, and Andrea Wisböck. "Sklaven, Freie, Fremde: Wiener 'Mohren' des 17. und 18. Jahrhunderts." *Von Soliman zu Omofuma: Afrikanische Diaspora in Österreich 17. bis 20. Jahrhundert*. Ed. Walter Sauer. Innsbruck: Studien-Verlag, 2007. 23-56.
- Schäfer, Wolfram. "Von 'Kammermohren', 'Mohren-Tambouren' und 'Ost-Indianern'. Anmerkungen zu Existenzbedingungen und Lebensformen einer Minderheit im 18. Jahrhundert unter besonderer Berücksichtigung der Residenzstadt Kassel." *Hessische Blätter für Volks- und Kulturforschung* N.F. 23 (1988): 35-79.
- Schaffer, Simon, et al. "Introduction." *The Brokered World. Go-Betweens and Global Intelligence, 1770-1820*. Ed. Simon Schaffer, Lissa Roberts, Kapil Raj and James Delbourgo. Sagamore Beach: Science History Publications, 2009. ix-xxxviii.
- Sömmering, Samuel Thomas. *Werke*. Ed. Sigrid Oehler-Klein, Vol. 15: Anthropologie. Über die körperliche Verschiedenheit des Negers vom Europäer (1785). Stuttgart et al.: Fischer, 1998.
- Steinbruch, Karl Heinz. "Ein schöner Moor und treuer Diener. Auch an Mecklenburgs Höfen wurden Afrikaner getauft und in Dienst genommen." *Mecklenburg-Magazin* 2002/5: 11-12.
- . "Taufe bei der Frau Herzogin." *Mecklenburg-Magazin* 2002/6: 8.
- . "Zwei Mohren im Marstall. Nicht nur die Herzöge leisteten sich 'exotische' -Bedienstete." *Mecklenburg-Magazin* 2002/7: 8.
- . "Zufallsfund in Kirchenbüchern. Noch einmal: Mohren an Mecklenburgs Höfen." *Mecklenburg-Magazin* 2004/2: 7.
- Stukenbrock, Karin. *'Der zerstückte Körper': Zur Sozialgeschichte der anatomischen Sektionen in der Frühen Neuzeit (1650-1800)*. Stuttgart: Steiner, 2001.
- Vollert, Gerhard. "Mohren- und Türkentaufen." *Mitteldeutsche Familienkunde* 3 (1970-72): 367-68.
- Voort, Heinrich. "Ein Hauch von Exotik: Mohren am Bentheimer Hof." *Bentheimer Jahrbuch* (1997-98): 193-96.

Wigger, Iris, and Katrin Klein. “‘Bruder Mohr’. Angelo Soliman und der Rassismus der Aufklärung.” *Entfremdete Körper. Rassismus als Leichenschändung*. Ed. Wolf D. Hund. Bielefeld: transcript, 2009. 81-115. <https://doi.org/10.1515/9783839411513-002>

CHAPTER EIGHT

A Critical Cruise “Round the World”: Georg Forster’s ‘German’ Comments on English Exploration

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Georg Forster commented on English texts, not only when writing reviews, but also in the prefaces and notes to the travelogues he translated. He even rendered his own *Voyage Round the World* into the German *Reise um die Welt* by – as he wrote in 1789 – “following the course of my ideas without a hitch and by repeating in German phrases that I had already said in English” (Forster, *Schriften* 331).¹ Invoking this formulation in the preface to his translation of George Keate’s *Account of the Pelew Islands*, the “hitch” that allowed Forster to comment on his own English text in the German translation, has disappeared. In the first part of my paper, I will examine the comments, which, in the German version of the *Voyage*, refer to the Admiralty’s instructions to James Cook: despite having sailed with Cook, Forster gained knowledge of these secret instructions only with the publication of John Douglas’s *A Second Voyage Round the World in the Years 1772, 1773, 1774, 1775, by James Cook*. In the second part of the paper, I analyze Forster’s translations of Keate’s *Pelew Islands* and Cook’s *Last Voyage to the Pacific Ocean*, also by Douglas, in order to question Birgit Tautz’s generalization that, in the late eighteenth century, German translators of English travelogues dealing with European expansion “create images of non-Western cultures that lent themselves to setting Germans apart from their European counterparts” (156) and that “[t]ranslators [...] expose the British imperial ideology as such and make Germans the guardians of humanity, Enlightenment, and [...] knowledge” (170). In making this assertion, Tautz combines the opposing views of Susanne Zantop in *Colonial Fantasies* (1997) and Russell Berman, in *Enlightenment or Empire* (1998), by reversing Berman’s evaluation and claiming for Forster’s translations what Zantop (with Sara Friedrichsmeyer and Sara Lennox) calls *The Imperialist Imagination*:

Despite or because of the absence of state-sponsored colonial activity, stories of imaginary enterprises proliferated [...], in which ‘German’ protagonists were able to exhibit the qualities that marked the superiority of German colonizers. [...] As fantasies of German difference they

1 All translations of quotations from Forster’s German texts are mine (HP).

reinforced the posture of the ‘disinterested’, ‘objective’ observer whose colonial abstinence entitled him to criticize the excesses of others. (Tautz 29)

I

In the texts of both the English and the German version of *A Voyage Round the World* there are several passages that support the claim that the “main object” (Forster, *Voyage* 630; *Reise* 940) of the expedition of the ships *Resolution* and *Adventure* had been scientific. In his preface, Forster refers to the “more enlarged and majestic plan” (Forster, *Voyage* 9; *Reise* 11) which, in contrast to earlier British and non-British voyages, allowed Cook’s second voyage to become “an example of such disinterested efforts, towards the enlargement of human knowledge” (Forster, *Voyage* 9; *Reise* 11). In his introduction, Forster refers to the “originality of our plan of travelling” (Forster, *Reise* 23) also vis-à-vis earlier “genuine voyages of discovery” (23), and not only those whose “object” was “robbing and looting” (24). The voyage’s plan, which proved that for the first time “science” demonstrated its “triumph” over the wish for “new [...] source[s] of gain” (Forster, *Voyage* 9; *Reise* 11), is, however, linked in a striking manner from the very beginning of Forster’s text with the costs of its implementation. The German title, which differs from the English, succinctly presents this connection: “Dr Johann Reinhold Forster and his son Georg Forster’s voyage round the world, undertaken at the expense of the government of Great Britain in order to expand the knowledge of nature and carried out during the years 1772 to 1775 in the ship The *Resolution* under the command of Captain J. Cook” (Forster, *Reise* 39). However, the harmonious relationship of public good and science, on the one hand, and glory and government, on the other, appears less the case as the text attempts to eulogize the “great and generous enterprise of a monarch who protects the Muses” (22). The metaphorical transformation of the sciences into free arts does indeed renew the hope that “friendship between Plutus and the Muses” should be “sincere” and that it should “last” (Forster, *Voyage* 9; *Reise* 11); yet it not only weakens the scientific aspect of this enterprise in the name of the common weal, by subordinating science to praise of the ruler; it also invokes wealth as a motive for discovery precisely at a point in the argument where this is denied.

In the German translation, Forster’s explicit comments on Cook’s instructions follow accordingly. The alleged aim of the voyage is to falsify a scientific hypothesis, namely that, first, the Southern continent exists, and, secondly, that its extent is analogous to the land masses in the northern half of the globe. On the question of the supposed Southern continent, however, the text first states, “that the continent has been thought to extend to the 30th degree of latitude, i.e., under an advantageous climate, and that it therefore must be an important object of European politics” (Forster, *Reise* 29). Then, in the following passage, the polit-

ical dimension is subordinated to science: "In order to put an end to this dispute about such a continent, our voyage took place by order of His Royal Great British Majesty" (29). The first account of Cook's "order" (30) does not go beyond discoveries "towards the Southern Pole" and a more precise identification of the "islands discovered previously" (30). The abridgements of the order, or "instruction," taken by Forster from the English travelogue by John Douglas "as a supplement to my work for the German public" (42), are crucial. Forster reproduces the ship's course until Bouvet's Cap de la Circoncision, both alternatives (mainland or island) and the retreat toward the north during the Antarctic winter in order to allow the crew to rest and repair the ships. The rules of engagement for the officers and sailors either on the new continent or on new islands to be discovered are slightly abridged; however, the instructions "to take possession" (Beaglehole CLXVIII) are, in both cases, completely elided. This omission is significant because in Cook's instructions 'taking possession' occurs each time as the last part of a paratactically presented list. The political act concludes with those activities expected from astronomers, maritime geographers, artists and natural historians, which are: "observing the true situation [...] both in Latitude & Longitude," "surveying & making Charts & taking views," "to observe the nature of the soil & the produce thereof; the Animals & Fowls [...], the Fishes," "to describe them as minutely, & to make as correct Drawings of them, as you can," "to bring home specimens" of "Mines, Minerals, or valuable Stones," "to collect" "Seeds" (CLXVIII). Forster abridges this list to say, "observations to the benefit of commerce, navigation, and natural history" (Forster, *Reise* 43). His abridgement of the remainder, from which the taking of possession is absent, reads: "If one would meet inhabitants, Captain Cook should observe their character, temperament, genius and numbers and seek, if possible, friendly dealings with them" (43). In the general clause of friendly dealings, which dominates Forster's entire text, the following more specific rules of conduct contained in the official instructions to Cook are not mentioned:

making them Presents of such Trinquets as they may value, inviting them to Trafick, & shewing them every kind of Civility & Regard; but taking care nevertheless not to suffer yourself to be surprized by them, but to be always on your guard against any Accident. You are with the consent of the Natives to take possession of convenient Situations in the Country in the Name of the King of Great Britain, and to distribute among the Inhabitants some of the Medals with which you have been furnished to remain as Traces of your having been there. But if you find the Country uninhabited you are to take possession of it for His Majesty by setting up proper marks & Inscriptions as first Discoverers & Possessors. (Beaglehole CLXVIII)

In the case of those islands to the north of the Antarctic “which have not hitherto been discovered by any Europeans [...] the same manner as directed, with respect to the Continent” (CLXIX) is explicitly reaffirmed.

Although Forster’s very lengthy paraphrase of Cook’s instruction fails to mention a great many matters, it does summarize some problems of representation that already characterized his English text. These include the hypothetical subjunctive “If you” and the opposition of “discovery” and “refreshment” (Forster, *Reise*, 43). His silence regarding the colonial purpose of the voyage – the summons to take possession – conforms to the marginalization of the corresponding ceremonies in the text itself: the “performing” of “the idle ceremony of taking possession” (Forster, *Voyage*, 433, *Reise*, 647) is mentioned three times, but only briefly, and the tone is generally ironic; in contrast to science, the colonial ritual is described as a waste of time. A sarcastic formulation of this conflict can be found in the description of South Georgia – the only point in the whole work, actually, where the journey’s political purpose is alluded to:

Here Captain Cook displayed the British flag, and performed the ceremony of taking possession of these barren rocks, “in the name of his Britannic Majesty, and his heirs for ever.” A volley of two or three muskets was fired into the air, to give greater weight to this assertion; and the barren rocks re-echoed with the sound, to the utter amazement of the seals and penguins, the inhabitants of these newly discovered dominions. (Forster, *Voyage* 532, *Reise*, 633)

Forster brings into play penguins and seals as appropriate replacements for colonists. The German version continues with an allusion to the recently lost North American colonies: “In this way, one repairs the crown by replacing the lost diamond with a pebble” (Forster, *Reise* 943).

Three points of conflict still appear in the marginalizing thematization of taking possession, conflicts which existed between the governmental instructions and the cause of science, to which the travel writer Forster laid claim. The conflicts concerned first of all the question of which route would lead to the envisioned discoveries, secondly the time for discoveries, and thirdly the dealings with those discovered (see Agnew). These conflicts become visible in the English as well as the German text – firstly, because as a narrative Forster’s text could portray the conflicts inherent in the enterprise, in so far as a narrative deals with actions of a variety of people; and secondly because the literary public for whom Forster’s account was intended differed from the “public” addressed by the official report of Cook’s voyage (Forster, *Voyage* 690; see Strack 183), in whose name Lord Sandwich, for example, could ban all publication of personal observations about the voyage.

The narrator tries to control the conflicts that were becoming evident on the level of the narrated events: place, time, and dealings, by recourse to his own comments. In this respect, Georg Forster endeavors to resolve the contradiction

between colonialism and science in two different ways, which thereby result in a new contradiction. First of all, England is set in opposition to the other European colonial powers; and, secondly, the narrator's language is privileged at the expense of the English language in the German version of the travelogue.

Forster sets Great Britain against the "other maritime powers" as "so laudable and generous an example" in so far as the "zealous and candid concern for the advancement of the sciences [...] animates the British government" (Forster, *Voyage* 641; *Reise* 955). When Forster's text maintains the categorical opposition between Britain's scientifically motivated voyages of discovery and those without scientific motives undertaken by Spain, Portugal, Holland, and France, it is always at this point that the contradictions revealed by his narrative disappear. From the preface onward, there is an ongoing polemic in the text against the "first navigator," who had to promise his government that, "he [had] opened a new and evident source of gain" (Forster, *Voyage* 9; *Reise* 11). In addition to the motive of taking possession, the methods by which that possession was effected are also criticized: "The first discoverers and conquerors of America have often, and very deservedly, been stigmatised with cruelty, because they treated the wretched nations of that continent, not as their brethren, but as irrational beasts, whom it was lawful to shoot for diversion" (Forster, *Voyage* 351; *Reise* 520). This "spirit of the previous discoverers" (Forster, *Reise* 453) is attributed not only to the Spanish but also to the Dutch voyages that also "defiled with the blood of innocent nations" (Forster, *Voyage* 301): "From the expressions of the historians of Roggewein's voyage, it should seem, that the Dutch very wantonly fired upon the natives [on Easter Island], who gave no provocation, and killed a considerable number of them, intimidating the rest to a great degree" (Forster, *Voyage* 335; *Reise* 498). The French voyagers Crozet (Forster, *Reise* 892) and Bougainville also appear as discoverers who above all asserted "the power of Europeans" (Forster, *Voyage* 463; *Reise* 693) over the indigenous inhabitants. An opposition is constructed between British 'generosity' and Spanish, Portuguese, Dutch, and French "incitement" through "riches" (Forster, *Voyage* 548; *Reise* 820-21). This opposition is further reinforced by means of a specific aspect of the exemplariness of the British government, namely "not [...] to conceal the improvement which different branches of knowledge have received under their auspices" (Forster, *Voyage* 641; *Reise* 955). In the German version of *A Voyage Round the World*, too, the publishing of the voyages' accounts is held up as an example to the other European powers who "at present seem to steal into the South Seas, and to be ashamed of owning that they have been there" (Forster, *Voyage* 41; *Reise* 955). This is what Forster has to say, for instance, about a Spanish voyage of discovery by Don Juan de Langara y Huarte made at almost the same time as Cook's: "but what the particulars of that voyage are, has never transpired" (Forster, *Voyage* 185; *Reise* 285).

However, his travelogue at the same time contains a few polemical sideswipes against Britain. These remarks are directly paralleled in letters written concu-

rently with the text's composition: both Georg Forster and his father Johann Reinhold had had negative experiences with the Admiralty after Johann Reinhold tried to assert his right to author the official account of Cook's second voyage. Consequently, the younger Forster generalizes the lack of recognition granted his father's scientific accomplishments, which he suspected was implied in the failure to grant Johann Reinhold official authorship.

Forster does not confine himself to polemics against English and French claims to scientific preeminence (see Forster, *Reise* 892, 979); he also develops a justification for German superiority. In comparison to other languages, in Forster's view German is privileged: he maintains that it is better suited to the transcription of Pacific languages. Forster addresses the reader directly with an objection to John Hawkesworth's spelling of the name Tupaya as 'Tupia' in *An account of the voyages undertaken by order of His present Majesty for making discoveries in the Southern Hemisphere* (1773):

You can be sure to find his name like many other words from the languages of the South Seas spelled more correctly than in the previous work because the author of the present work is a German who, in general, not only have a greater disposition to learn foreign languages, but also tend to be more precise with regard to pronunciation and orthography. (Forster, *Reise* 202)

On the basis of this claim it can be understood not only why corrections occur regarding "the English way of spelling" (246) as "an incorrect way" (334), but also why Bougainville's discovery of the "proper name" of Tahiti necessitated a limiting qualifier: "as well as the nature of the French language will permit"; by this he meant that French, unlike German, did not "catch" the "slight aspirate" with which the islanders pronounce "Tahitee, or Tahitee" (Forster, *Voyage* 157; *Reise* 244). The aspiration in French corresponds to the nasal and guttural in English, and Forster states that in the language of New Caledonia: "the vocabularies which several of our shipmates collected, disagreed remarkably. Though they have a few harsh consonants, they have a frequent return of gutturals and sometimes a nasal sound, or rhinismus, which commonly puzzled those who were not acquainted with any other language than the English" (Forster, *Voyage* 578; *Reise* 862). It is therefore consistent that, time and again, Forster emphasizes instances when Cook misunderstood names. One example was Cook taking the names mentioned to him on the island of Tanna as those of neighboring islands when in fact they were the names of districts (Forster, *Reise* 766-67).

Based on the importance that the immanent anthropology and philosophy of history of the *Voyage Round the World* attributed to the reciprocity of exchange, it follows that Forster's depiction of the linguistic skills of the inhabitants of Mallicollo is used in order to declare them "the most intelligent people we had ever met with in the South Seas" (Forster, *Voyage* 457, *Reise* 683):

They were not only assiduous in teaching us their language, but had curiosity enough to learn our language, which they pronounced with such accuracy, that we had reason to admire their extensive faculties and quick apprehension. Observing their organs of speech to be so flexible, we tried the most difficult sounds in the European languages, nay, we had recourse to the compound Russian *shtch*, all which they pronounced at the first hearing, without the least difficulty. [...] They were surprised at our readiness to remember, and seemed to spend some time in pondering how it was possible to preserve the sound by means of pencil and paper. (Forster, *Voyage* 460, *Reise* 688)

It is the linguistic proof of an "acuteness of understanding," Forster claims, that makes the Mallicolese stand out among the South Sea islanders in the same way that Germans do among other Europeans (Forster, *Voyage* 460, *Reise* 688).

The claim of excellence via privileging the German language gains an additional polemical dimension when the problem is linked to the question of taking possession. Here, the correctness of the names of the Pacific islands becomes all-important. Only in the German version is a fundamental distinction made between the 'arbitrary' names of the discoverers and the 'natural' ones, so to speak, of the islanders. However, it is precisely because Forster avoids the counterterm 'natural' that associating of the act of naming with the act of possession becomes evident. By the same token, it highlights Forster's attempt to differentiate scientific discovery from colonialism:

On this occasion, I have to remark that we had taken it as a rule, in all foreign countries to be visited, to explore the original [*eigenthümlichen*] names which they bear in the language of the country, since only these are independent [*selbständig*] and not as often subject to change as the arbitrary names which every seafarer has the right to give his own and others' discoveries. (Forster, *Reise* 731)

In this passage, Forster recognizes, on the one hand, the islanders' independence and, on the other, the arbitrariness of the discoverers. The phrasing in the German text offers two solutions to these problems: if friendly dealings are successful then the inhabitants' name will be adopted; if all communication fails, however, Forster does not shy away, for example, from formulating the following conclusion: "The island [...] got from us the name [...] Savage Island" (649). The report of the failure of every landing on that particular island attributes the reasons for the arbitrary naming to nature: "We now embarked, and resolved to abandon a set of people, whom no entreaties could prevail upon to become our friends. The nature of their country, which is almost inaccessible, seems to have contributed to make their tempers so unsociable" (Forster, *Voyage* 434, *Reise* 648).

II

In the second part of this paper, I would like to examine Forster's treatment of 'German' in his comments on the travelogues of John Douglas and George Keate. In the prefaces to both translations, Forster calls upon "the need of the German reader" (Forster, *Schriften* 186), when giving his opinion on "the presumptions of the translator," "to give to and to take from the original what – according to his terms – it lacks or what seems to mar it" (325). By giving explicit reasons for additions and cuts, Forster presents an image of the addressee that is marked as national: "The needs of the English public and of ours are very noticeably different" (187), he writes with "respect" to Douglas's introduction to Cook's *Last Voyage*. Forster cites four reasons for cutting the introduction and replacing it with his own essay, "Cook the Discoverer": the first being the religious tendentiousness of Douglas's prelude. Here, he ironically blames Douglas for making "a narrative of discovery the decisive factor for the reputation of Moses and the authenticity of the revelation." At issue is the biblical account of the peopling of the earth by the sons of Noah and the necessity to include Polynesia in that account. However, in the name of "furthering enlightenment," Forster provides a national frame to Douglas's attempt "to save the Mosaic story about the populating of the earth against its mockers by referring to Cook's discoveries": "In England, Herr Douglas was still allowed to present certain sentences unchallenged which, in Germany, one would not be allowed to get away with anymore" (189). So Forster attributes a stereotypical feature of a national character to the addressee, even if again in a slightly ironic manner, alluding to Paul's letter to the Galatians (6, 7: "God is not mocked"): "The philosophical spirit of our people is not mocked; and even if sometimes the consequences of excessive reading can become detrimental to the sanity of reason, among us, the unbridled love of reading has resulted in a revision of ideas which is comparatively more widespread than in any other country" (189). The second reason has to do with an age-old auto- and hetero-stereotype, "German industriousness"; the translator points to the fact that Douglas relies on Müller, Stähelin, and Pallas with regard to the "discoveries in the North"; they "are the sources from which in England too one had to take." Forster draws the following conclusion: "A German, however, would hardly be forgiven for lacking literary knowledge if he took back from the English what German industriousness had first brought to light" (188).

The third reason for eliding Douglas's introduction concerns the difference between "people who have a perfect understanding of the great importance of seafaring for trade and who have the clearest ideas about maritime affairs" (188), versus people on the Continent: "For inhabitants of landlocked countries, [...] the merits of the discoverers and the dangers of seafaring, the organization of long voyages into unknown regions and the hardship of life on the high seas all had to be analyzed in some detail, if readers were to fully appreciate the value of these great undertakings" (189).

The fourth reason, like the third one, similarly refers not only to Germans, but also to "foreigners" living outside Britain, people whose "hands are not bound" and whose "lips are not sealed" (190) by the "intention" to flatter the "former minister of maritime affairs," Lord Sandwich: "I have spared the German public, which knows honest statesmen in both its monarchies [i.e. Prussia and Habsburg], the annoyance of having to blush at such a eulogist" (191). By claiming "impartiality," the translator promises the German public the "correct point of view," something that Douglas apparently "lacked" because his 'eulogizing' on behalf of the First Lord of the Admiralty led him to elevate "Cook's predecessors in the South Sea" "to equal rank" with Cook. Forster, in contrast, thought that Cook alone deserved the "name of discoverer." Forster's turn to the addressee here becomes a panegyric in itself: "the discoverer is just as rare a phenomenon as the monarch who by himself is epoch-making" (190).

In the preface to the German translation of *An Account of the Pelew Islands*, Forster also appeals to stereotypes and opposes national advantages and shortcomings in a way that modifies the claims to the superiority of the German language.

In his comments on Cook's *Last Voyage*, Forster contends that the "uncertainty in the pronunciation of the English vowels" (Forster, *Kleine Schriften* 305) causes "constant confusion": "The authors of the various English accounts constantly mix up the pronunciation of their own ou (au) and oo (u), when they pronounce some French [syllables] like a [short] 'u', and others like a long 'o'. Sometimes their 'i' and 'y' have to be pronounced as 'i' sometimes as 'ei' or 'ai'" (305). The fact that the English authors "do not draw on any fixed rule of orthography" (305) is not contrasted with the supposed superiority of German. Forster does, however, challenge Douglas's own explanation for this variability: the English author of the *Last Voyage* "blames the indistinct pronunciation of the islanders for all these dissimilarities" but Forster attributes it to the fact that Douglas was not an eye- (and ear-) witness: "In this respect, it does make a difference if the translator of such a voyage has been to the South Sea himself" (305).

In commenting on Keate's *Pelew Islands*, Forster also does not challenge the shortcomings in Keate's transcriptions by invoking the superiority of German. Rather, Forster cites a general postulate: "Imitating the sounds of an alien language, which is itself not subjected to orthography, needs philological precision and predetermined rules" (341). Forster thus allows the "orthography of the names of some islands [to go] unchanged and remain in the original," citing as a reason that "the orthography is determined by the maps" (341). He does, on the other hand, make changes to Keate's orthography "in the case of the names of individual human beings, where the correct pronunciation is absolutely crucial" (332).

In contrast to the claim to superiority that he made for the German language in the German version of the *Voyage*, in the comments on Keate, Forster combines a stereotype with reflections on the relation between linguistic and cul-

tural advantages and shortcomings. The commentator uses an inclusive ‘we’ when invoking the stereotype of “German fairness [Billigkeit] when it comes to appreciating foreign value” (325). He does so in order to localize the addressee midway between two extremes: this ‘fairness’ as a “character trait” is distanced “from the high spirits of peoples who have climbed the highest steps of an artificial education and from the beggars’ pride of ignorant barbarians” (325-26). In keeping with this middle position, Forster drafts a German mode of reading for the English travelogue, yet with a fundamental qualification: “the German too feels the pride of the English reader still partly together with him, because the German, more than all the other Europeans, has educated himself to a degree of sympathy with his neighbors which enables him to easily put himself in the place of every one of them” (325). As remarkable as the limitation (“partly together”) is the generalization, extending beyond the English to all European neighbors. This also marks the comments on the limited nature of readerly sympathy which, in the end, Forster admits is disputed in Germany. He concedes that not all readers are “of such a gentle mood as to be able to identify with the soul of one Englishman to such a degree as to take to heart the fates of his fellow-countrymen” (326). Yet Forster ultimately appeals to his readers’ capacity for cross-cultural empathy by stating that he “tends to believe in their readiness to sympathize,” and thus he ascribes to them an opposite standpoint to German writers, whom he characterizes in the following way:

Repeated attempts of a certain class of writers to pour down our throats a dismissive contempt for everything foreign, inventions as well as intellectual products, have hitherto been unable to overcome the better mood of our public. One even took the anti-French and anti-British tone of these barbaric honest men [Biedermänner] for a symptom of wounded vanity, for a well-worn trick – anything to spare oneself the unpleasant feeling of one’s own shortcomings by disdaining foreign accomplishments. (326)

What Forster presents as the predominant ‘mood’ returns in sharp comments on “newest philosophy” (314) in both the Cook and the Keate translations; in both commentaries, Forster reproaches German philosophers for construing shortcomings as special strengths. Without specifically naming Immanuel Kant and Christoph Meiners, Forster states: “One of the most disadvantageous consequences of pseudo-knowledge [Scheinwissen] is the incurable vanity with which one boasts about one’s weaknesses as if they were advantages” (329).

In his note on the question of cannibalism on Hawaii, Forster quotes a sentence by Kant which he had already quoted in his essay “Something Else on Human Races”: “in experience, one only then finds what one needs, if one previously knows what one has to look for” (314). Sarcastically, Forster uses Kant’s sentence for an ironic defence of the ship’s doctor Anderson, “because Herr A. has gone to work according to the latest rules of enquiry”:

Herr Anderson had already imagined what an inhabitant of the Sandwich Islands would look like: 'he is the nearest relative of the New Zealander, consequently also a cannibal.' Anderson began with this precept, which he had previously determined so precisely and then he did not have much trouble confirming the precept through experience. Apart from the little error that he took pork to be human flesh his procedure can be justified according to the strictest principles of the newest philosophy. (314)

In his preface, Forster recommends the Pelew Islands and their inhabitants to the German reader for their friendly and innocent nature since "according to one of our newest philosophies the possibility of such a phenomenon [i.e., such innocent islanders] must 'a priori' be denied" (328). Forster alludes to Kant's article "Speculative Beginning of Human History," in which Kant "allowed himself to use a holy document as map" (Kant 72), i.e., Genesis, chapters 2-4. Forster accuses Kant of promoting a notion of "popularity" which "consists in denying all critique and in raising common prejudices to philosophical dogmas" (Forster, *Kleine Schriften* 328). By urgently recommending "our Pelewans to the attention of the researcher of mankind whose concerns are truth and independence of all prejudice" (328), Forster polemically takes issue with "compulsory formulas of despotic wisdom" – not only Kant's, but also Meiners's – when he turns the Kantian image of the "baby-walker [Gängelwagen]" (329; see Kant 78) against Meiners:

With regard to vanity which praises weaknesses as if they were advantages, whole nations have not fared differently from individual human beings; they boasted about their education which, at closer examination, was only a leash or a baby-walker or a ring in the nose. One understands how the disdain of others must be closely related to such decisive self-satisfaction; and so it does not strike one too much, if, finally, somebody with the firm conviction of possessing the best formula for wisdom, dares to deny others the possibility of thinking up something similar or even the assumption of this possibility on the grounds of both, physical and moral impotence. (Forster, *Kleine Schriften* 329)

Ironically Forster uses religious language against Kant's interpretation of Genesis that "the history of freedom starts from evil" (Kant 79). He thanks 'providence' as well as 'heaven' for both the 'phenomenon' of the Pelew Islands and for those who 'bring them to us':

If, by means of the Antelope's shipwreck, Providence had wished to cause nothing more than, at last, by the speaking example of a people, amiable in its simplicity and good-natured, the most powerful and most conclusive refutation of that disastrous idea which leads to endless confusion and to eternal servitude of the human spirit, of the idea of an innate, effective tendency in the human nature towards evil, and if nothing less than the free constitution and the global trade of Great Britain

were required to bring a truth from the farthest end of the world to us, then thanks be to heaven that there is a free country and a people that is active to bring about this ultimate aim on our planet. (Forster, *Kleine Schriften* 337-38)

The preface and the notes to the translation of Keate refer constantly to Meiners's version of an 'innate tendency towards evil' (337), his "hypothesis," as Forster wrote to Friedrich Heinrich Jacobi on November 1, 1789, "of two kinds of human beings, Celts and Mongols, of whom the first morally and physically perfect, the latter, however, by nature ugly and equipped with evil tendencies": "According to the genealogical tree that Meiners developed, the inhabitants of the Pelew Islands must be of Mongolian origin" (Forster, *Briefe* 363). Forster poses the question rhetorically in order to contrast Meiners's 'hypothesis' with what it is that the reader can 'experience' in Keate's book, and to suggest an evaluation of Meiners' position, based on the obvious contradiction:

Will one dare to offer proof that only a certain national form has been originally created to perfection, others, however, from the beginning formed to commit vice, as long as it is undeniable that the refining or disfiguring of any human organisation directly depends on the conditions of climate, location, way of life, food and society? That national pride and that self-sufficiency which do not acknowledge anything perfect besides oneself, might therefore well deserve a less honorable name. (Forster, *Kleine Schriften* 329-30)

Forster's appeal to the 'providential' role of British politics and economy, to bring the 'truth' about the Pelew Islands to Germany (see Stummann-Bowert and Guthke), is supported by the notes, which apply Keate's political judgements to the German context. Forster draws his reader's attention from something that Keate criticizes – the British courts that operate before the "gathered people" – and he directs the reader's attention instead to what goes on in the Holy Roman Empire and "so many states of Europe" behind "closed doors": "If an Englishman speaks of the judiciary of his fatherland in such a way, what is he not entitled to think of the judiciary abroad?" (338)

Forster's support of strong criticism is mirrored by his sharp defence against the possibility that readers might interpret Keate's claim that under certain circumstances a despotic regime may create human happiness as a justification of despotism as such. Forster appeals to his readers to distance themselves from slaves: "If a Briton is fair enough to concede that a despotic state may, under certain conditions, provide for a people to be happy, one does not have to be a slave to conclude that a despotic constitution would be fitting for educated people who have outgrown the stage of cultivation [Zucht]" (339).

By commenting on the English texts of Douglas and Keate, Georg Forster not only takes methodological issue with philosophical-anthropological positions held in Germany, which, like those of Meiners and Kant, could foster ethnocen-

trism (see Barnouw), but also discusses their consequences for German views of Britain. Alison Martin has shown that in the Keate translation, Forster "is more than willing [...] to grant the English the upper hand [...] on issues of justice and political freedom" (198). This refutes the thesis that, in his paratexts, Forster would construct a homogeneous German cultural nation, which he would set up against British colonialism.

On the contrary, in both translations, of *Pelew Islands* and of *Cook's Last Voyage*, Forster's commentary harbors a contradictory legitimization of Europe's expansion *round the world*. This is particularly evident if we take into consideration the "singularity" of Forster's *Voyage*: Horst Dippel sees this in Forster denying Europeans the right to punish, even in the face of cannibalism (33). The comments on *Cook's Last Voyage* thus strike us not only because of their explicit justification of Cook's right to punish according to British law, but also because of the European character of this justification.

Two cases stand out – the enforced return of a goat by destroying houses and ships, and corporal punishment (by mutilation) in response to the theft of a sextant. Forster turns Cook's overweening response into a matter of principle in order to discuss the legitimacy of voyages of discovery: "As far as I can judge, what in his behaviour might appear reprehensible, falls back not so much on him, but on Europeans in general. Europeans are driven by a motivating force – be it greed or politics or a noble thirst for knowledge – to embark on voyages of discovery. If one judges the matter cold-bloodedly, incidents of this kind are inseparable from such voyages" (Forster, *Kleine Schriften* 307; see also 308). Forster stresses the "importance of travellers not allowing themselves to be robbed," as in general, "that the strangers know to insist on their rights" (307), dependant on the answer to the "question of the curiosity of the Europeans to visit strange people without being invited"; his answer is positive, if not with the "advantage of voyages of discovery," then with the philosophy of history "one ought not limit the activity of mankind, which also in this case is capable of admirable development": "therefore one has, at the same time, to disregard the small inconveniences which are inseparable from such undertakings; and be aware that, as everywhere, fate has linked growth and destruction together" (308). Forster answers "the question of whether Europeans have the authority [befugt] to make voyages of discovery" by distinguishing between higher and "lower stages [Stufen] of culture" (310). He transforms the "right of the stronger" into that of the 'wiser': "And if the stronger is, at the same time, a wise and just man, perhaps, he will create something good among a people of children, by punishing their misdemeanors expediently and by showing them what actually belongs to maintaining good order and instituting a state, flowering through safety of property" (309).

In Forster's comments on *Cook's Last Voyage* and Keate's *Pelew Islands*, there is no opposition between German cultural nationalism and British colonialism to be found.

Works Cited

- Agnew, Vanessa. "Exchange Strategies in the Travel Accounts of Cook's Second Voyage." *Cross-Cultural Encounters and Constructions of Knowledge in the 18th and 19th Century. Non European and European Travel in Comparative Perspective*. Ed. Philippe Despoix, Justus Fetscher. Kassel: Kassel University Press, 2004. 163-96.
- Barnouw, Dagmar: "Political Correctness in the 1780s: Kant, Herder, Forster and the Knowledge of Diversity." *Herder Jahrbuch/Herder Yearbook* (1994): 51-76. https://doi.org/10.1007/978-3-476-03581-3_4
- Beaglehole, J. C., ed. *The Journals of Captain James Cook, on His Voyages of Discovery*. Vol. 2: The Voyage of the Resolution and Adventure, 1772–1775. Cambridge: Cambridge University Press, 1961.
- Berman, Russell A. *Enlightenment or Empire. Colonial Discourse in German Culture*. Lincoln/London: University of Nebraska Press, 1998.
- Dippel, Horst. "Revolutionäre Anthropologie? Oder der Versuch, Georg Forster neu zu lesen." *Historische Zeitschrift* 291 (2010): 23-40. <https://doi.org/10.1524/hzhz.2010.0032>
- Douglas, John. *A voyage to the Pacific Ocean. Undertaken, by command of His Majesty, for making discoveries in the Northern Hemisphere to determine the position and extent of the west side of North America; its distance from Asia; and the practicability of a northern passage to Europe*. Vol. 1-3. London: Strahan, 1784.
- Forster, Georg. *Reise um die Welt. Werke in vier Bänden*. Vol. 1. Frankfurt/M.: Insel, 1967.
- . *A Voyage Round the World*. In: *Sämtliche Schriften, Tagebücher, Briefe*. Vol. 1. Berlin: Akademie, 1968.
- . *Briefe Juli 1787-1789*. In: *Sämtliche Schriften, Tagebücher, Briefe*. Vol. 15. Berlin: Akademie, 1981.
- . *Kleine Schriften zur Völker- und Länderkunde*. In: *Sämtliche Schriften, Tagebücher, Briefe*. Vol. 5. Berlin: Akademie, 1985.
- Friedrichsmeyer, Sara, Sara Lennox, and Susanne Zantop. "Introduction." *The Imperialist Imagination. German Colonialism and Its Legacy*. Ann Arbor, MI: University of Michigan Press, 1999. 1-29. <https://doi.org/10.3998/mpub.23579>
- Guthke, Karl S. "Edle Wilde und Barbaren auf Palau. Imagewandel des Pazifikinsulaners in der Vorgeschichte des deutschen Kolonialismus, von der Spätaufklärung bis zur Goethezeit." *Die Erfindung der Welt. Globalität und Grenzen in der Kulturgeschichte der Literatur*. Tübingen: Narr, Francke, Attempto, 2005. 334-66.
- Kant, Immanuel. *Ausgewählte kleine Schriften*. Hamburg: Meiner, 1965.
- Keate, George. *An Account of the Pelew Islands [...], composed from the journals and communications of Captain Henry Wilson and some of his officers, who, in August 1783, were there shipwrecked in the Antelope, a packet belonging to the East India Company*. London: Nicol, 1788. <https://doi.org/10.5962/bhl.title.160285>
- Martin, Alison E. "Annotation and Authority: Georg Forster's Footnotes to the 'Nachrichten von den Pelew-Inseln' (1789)." *Translation and Literature* 15,2 (2006): 177-201. <https://doi.org/10.3366/tal.2006.0021>

- Strack, Thomas. *Exotische Erfahrung und Intersubjektivität: Reiseberichte im 17. und 18. Jahrhundert. Genregeschichtliche Untersuchung zu Adam Olearius, Hans Egede, Georg Forster*. Paderborn: Igel, 1994.
- Stummann-Bowert, Ruth. "Georg Forster: Übersetzer, Herausgeber und Rezensent am Beispiel der 'Nachrichten von den Pelew-Inseln in der Westgegend des stillen Oceans' (1789)." *Georg-Forster-Studien* 9 (2004): 181-223.
- Tautz, Birgit. "Cutting, Pasting, Fabricating: Late 18th-Century Travelogues and their German Translators between Legitimacy and Imaginary Nations." *German Quarterly* 79 (2006): 155-74. <https://doi.org/10.1111/j.1756-1183.2006.tb00037.x>
- Thomas, Nicholas. "'The Pelew Islands' in British Culture." *George Keate: An Account of the Pelew Islands*. Ed. Karen L. Nero and Nicholas Thomas. London/New York: University of Leicester Press, 2002. 27-36.
- Zantop, Susanne. *Colonial Fantasies. Conquest, Family, and Nation in Precolonial Germany, 1770-1870*. Durham, NC: Duke University Press, 1997. <https://doi.org/10.2307/j.ctv11cw4kw>

**THE PROFESSIONALIZATION
OF SCIENTIFIC PRACTICE**

CHAPTER NINE

Picturing the Tropics from Humboldt to Darwin¹

NINA GERASSI-NAVARRO

For centuries Western representations of tropical nature have been characterized by images of exoticness, difference, and untamed primitiveness. They have been a mixture of empirical descriptions and imaginary visions of the natural world. From Christopher Columbus's 'marvelous' descriptions of his encounter with the New World, to Claude Lévi-Strauss's sharper and more contemporary observations, tropical nature has evoked a mental picture of difference and exuberance. To quote Lévi-Strauss:

Tropical nature seemed to be of quite a different order from the kind of nature we are familiar with; it displayed a higher degree of presence and permanence. As in the Douanier Rousseau's paintings of exotic landscapes, living entities attained the dignity of objects. (91)

The French artist Henri Rousseau, known as Le Douanier, apparently never traveled to the tropics. His inspiration came from illustrated books and visits to the Jardin des Plantes as well as the zoo in Paris.² Yet his paintings seemed to have emblemized the European imaginary of the tropics that envisioned a primitive exuberance with overgrown, "untamed," strange vegetation, populated with stylized wild animals as portrayed, for example, in *The Tropics* (1910), *Tiger in a Tropical Storm (Surprised)* (1891), and *Dream* (1910).³ This essay explores the ways in which these images of exoticness and overabundance circulated at a time in which scientific knowledge became a fundamental tool for exemplifying nature. How did science inform the image of tropical exoticness during the nineteenth century? In what ways did science and art bond to represent the tropics?

During the nineteenth century, Prussian naturalist and explorer Alexander von Humboldt (1769-1859) traveled extensively throughout the American conti-

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2 This is a recurrent topic in many discussions of Rousseau's paintings of the tropics. See André Breton 186-87.

3 An interesting comparison to Rousseau's *Dream* is Cuban artist Wilfredo Lam's *Jungle* (1943). Rousseau's serene landscape with the woman gently stretching out her hand and reaching toward the jungle contrasts sharply with Lam's Primitivist painting in which masked figures blend with the foliage, creating a dynamic surrealist and suffocating image of tropical nature. See Sims 106-07.

ment, playing a key role in the construction of the American tropics imaginary. By ‘American tropics’ I am referring to the torrid zone of the American continent, geographically limited by the Tropics of Cancer to the north, and of Capricorn to the south; a region that also encompasses more desolate terrains such as the semiarid Brazilian *Sertão* and the Chilean Atacama Desert, as well as the alpine tundra of the snow-capped Andes.⁴ Humboldt traversed this region for five years (1799-1804) collecting, measuring, and categorizing the extraordinary nature he encountered. He spent the following three decades (1805-1839) publishing and revising the results of his renowned expedition. His writings on the tropics introduced a new conceptual framework to the study of the natural sciences. Straddling the rationalism of the Enlightenment and the sensibility of Romanticism, Humboldt’s vision of nature was a complex and harmonious composition of empiricism and sentiment. He believed that through scientific observation and experimentation, science could explain the laws that governed all the phenomena of nature; yet that totality had to be grasped through the contemplation of nature as a panoramic composition, a “view.” Nature’s unity had to be comprehended through its multiplicity: “Nature considered *rationally*, that is to say, submitted to the process of thought, is a unity in diversity of phenomena; a harmony, blending together all created things, however dissimilar in form and attributes; one great whole (*to πᾶν*) animated by the breath of life” (*Cosmos* I, 24). For Humboldt, the rational foundation had to be complemented by both the affective and aesthetic senses; it had to “engage the imagination” because reason alone could not have direct access beyond the phenomena. The tropics, with their “rich luxuriance of organic life” offered a unique example of that interconnectedness while also inciting the imagination (*Views of Nature* 1). Humboldt’s vision reinforced the distinct connection that existed between art and science, as both were instrumental in comprehending nature. Thus, he encouraged scientists and artists to travel and observe tropical nature, where the exuberance of the natural world exceeded what the European eye knew.⁵

In 1859, the publication of Charles Darwin’s *On the Origin of Species* marked a dramatic shift in the methods used to observe nature. Although Humboldt had avoided referring to God explicitly, preferring terms such as “breath of life,”

4 Depending on the criteria used, the tropics can be conceptually expanded to include other areas technically not within the 23.5° latitude North and South of the Equator. See, for example, Philip P. Boucher’s historical analysis that includes Florida in France and the American Tropics; and the scholarly American Tropics project based at Essex University, which extends the region from Charleston, South Carolina in the United States to Bahia, Brazil (<http://www.essex.ac.uk/lifts/American_tropics/index.htm>). The term ‘American tropics’ can also be understood metaphorically, as in Allan Punzalan Isaac, *American Tropics*.

5 In Humboldt’s words: “The regions of the torrid zone not only give rise to the most powerful impressions by their organic richness and their abundant fertility, but they likewise afford the inestimable advantage of revealing to man [...] the invariability of the laws that regulate the course of the heavenly bodies, reflected, as it were, in terrestrial phenomena” (*Cosmos* I, 34).

as reflected in the previous quote, his optimistic model of unity in nature was clearly in sympathy with natural theology, in which reason and ordinary experience affirmed God as Nature's designer.⁶ But evolutionary theory unraveled the comfortable mixture between science and religion, forcing artists and scientists to observe and represent nature in new ways. Evolution was not intended as a theory for disproving God, but because it introduced the concept of strife in nature its implications questioned God's balanced design of unity.⁷ Darwin's analytical approach fragmented nature, undermining an all-encompassing harmonious view.⁸ This new vision had devastating consequences for the scientific and religious communities, as well as for those artists who, sparked by Humboldt's work, traveled to the tropics. Analyzing and focusing on two figures, one artist and one scientist, each of whom was inspired by Humboldt and resisted the conceptual changes prompted by the advent of the theory of evolution, I will illustrate how that theory challenged the ways in which nature was perceived and represented during the nineteenth century.

New Views of the Tropics

Influenced by Kantian philosophy, Humboldt was convinced that the precondition for attaining knowledge was describing phenomena as they occurred and coexisted in nature. Comprehending nature was a means of acquiring information about the world. His vision is best articulated in his multivolume work, *Cosmos*, the first part of which appeared in 1845, in which he attempts to synthesize existing scientific knowledge into a grand theoretical system that can explain the underlying principles of the universe:

The most important result of a rational inquiry into nature is, therefore, to establish the unity and harmony of this stupendous mass of force and matter, to determine with impartial justice what is due to the discoveries of the past and to those of the present, and to analyze the individual parts of natural phenomena without succumbing beneath the weight of the whole. Thus, and thus alone, is it permitted to man, while mindful of the high destiny of his race, to comprehend nature, to lift the veil that

- 6 Humboldt's view resonates with William Paley's *Natural Theology or Evidences of the Existence and Attributes of the Deity* (1802) that was highly influential during the first half of the nineteenth century.
- 7 In fact, Michael Ruse argues that Darwin arrived at evolution "because of his religious beliefs, rather than despite them" (37). Ruse underscores that Darwin began by following Paley's rigorous teleological approach to organisms (which proved that God had carefully provided organic creatures with just the characteristics they needed to survive); however, in seeking to establish the principal mechanism that brought about changes in those characteristics, Darwin would arrive at natural selection, a notion that ultimately counteracted the assumptions of natural theology.
- 8 Highlighting this fragmentation, Luciana Martins suggests that Darwin's vision might be best illustrated by the cubist paintings of Pablo Picasso and Georges Braque (28).

shrouds her phenomena, and, as it were, submit the results of observation to the test of reason and intellect. (*Cosmos* I, 24-25)

Humboldt's grand cosmological vision was, as he advanced in his 1805 *Essay on the Geography of Plants*, a "physique générale," a physical description of the globe, a synthetic science that demanded a new geography of plants.⁹ This new geography entailed recording both scientific observations of phenomena as well as their aesthetic impressions. Humboldt's geography of plants was not just a botanical cartography. It included climatic, physical, political, moral, and aesthetic aspects of nature as well. Scientific exploration was for him an essential part of natural inquiry, and thus a prime motivation for his extensive trips to the Americas.

From 1799 to 1804, Humboldt traveled with his companion, the French botanist Aimé Bonpland, through the American tropics, exploring and describing the continent in great scientific detail. He collected some 60,000 plant specimens, drew countless maps, and documented his observations of volcanoes, earthquakes, flora, fauna, plagues of insects, bird migrations, as well as the customs, food, dress, and language of each region. His travels produced thirty-four volumes, illustrated by 1,200 copper plates, which include material on botany, zoology, barometric measurements, geographical and geopolitical descriptions. *Essay on the Geography of Plants* (1805), *Views of Nature* (1808), *Political Essay on the Kingdom of New Spain* (1811), and his unfinished *Personal Narrative of Travels to the Equinoctial Regions of America* (1814-1825) are his most well-known works regarding his tropical expeditions.

Despite Humboldt's rigorous scientific endeavors, his writing is filled with emotive language. As he steps into the tropics, images of a New Eden flourishing with profuse and exuberant vegetation are conjured in his mind, much like Rousseau's paintings or Columbus's famous description of the Caribbean in his "Letter to Luis de Santángel"¹⁰:

When a traveler newly arrived from Europe penetrates for the first time into the forests of South America, he beholds nature under an unexpected aspect. He feels at every step that he is not on the confines but in the centre of the torrid zone; not in one of the West India Islands, but on a vast continent where everything is gigantic – mountains, rivers, and the mass of vegetation. [...] It might be said that the earth, overloaded with

9 In *Science in Culture*, Susan Faye Cannon coined the term "Humboldtian science" to characterize this new type of inquiry that marked the first half of the nineteenth century. For a more contemporary and nuanced reading of Humboldt's scientific method, see Michael Dettelbach, "Humboldtian Science." Malcolm Nicolson traces the development of Humboldt's plant geography and his influences.

10 Latin American scholars refer to the "Letter to Luis Santángel," dated February 15, 1493, as Columbus's first letter on the New World; U.S. scholars, on the other hand, tend to refer to the almost identical text as "Letter to Sánchez" (dated March 14, 1493) as the first such letter. See Cristóbal Colón 138-46; Myra Jehlen and Michael Warner, eds. 11-17.

plants, does not allow them space enough to unfold themselves. (*Personal Narrative I*, 215-16)

Although Humboldt was specifically interested in observing nature, he could not avoid describing the populations that inhabited the regions he explored, not only because he relied on the local indigenous communities he encountered (as guides, informants, and collectors) as well as on prominent Creole naturalists such as José Celestino Mutis and Francisco José de Caldas, but also because he believed that “the forms of plants determine the physiognomy of nature; and this physiognomy influences the moral dispositions of nations” (*Personal Narrative II*, 257-58). For Humboldt, vegetation produced a determining imprint on mankind both materially and spiritually. Hence, his texts offer copious descriptive details of tropical nature entangled with lengthy observations and comments on both indigenous inhabitants and Creole society.

Critics, like Mary Louise Pratt, have characterized Humboldt as an omnivorous, godlike viewer who tries to see and taxonomize everything with an all-consuming imperial gaze. In Pratt’s view, Humboldt’s “rhapsodic invocation of a flourishing primal world” echoes Columbus’s portrayal of America as a primal nature “brought into being as a state in relation to the prospect of transformative intervention from Europe” (126, 127). Like Columbus before him, Pratt sees Humboldt as appropriating the tropics within a European world perspective, contrasting and measuring the new continent against the old. Aligned with Pratt’s reading, Mauricio Olarte argues that Humboldt’s comparisons ultimately reproduce the traditional dichotomy between culture and nature, assigning to the inhabitants of America a distinct lack of the former. Humboldt writes in a letter to his brother, linguist Wilhelm von Humboldt: “The inhabitants are sweet, good natured and talkative, in reality carefree and ignorant, yet simple and without pretensions [...] The only thing that one laments in this solitude is to be away from the progress of civilization and science in Europe, and to lack the benefits that result from the exchange of ideas” (qtd. in Olarte 141).¹¹

While it is certain that Humboldt saw the tropics from a European perspective, his desire to “know” them leads him to suspend, reassess, and even correct many preconceptions that he himself had believed were true. Upon meeting the impressively muscular, copper-toned Guayquiera Indians of Venezuela, he states, “We were the more struck with their appearance, as it did not correspond with the accounts given by some travelers respecting the characteristic features and extreme feebleness of the natives” (*Personal Narrative I*, 144). Humboldt is constantly citing European and non-European authorities, revising their assessments and myths about the American continent. Consequently, his texts are peppered

11 “Los habitantes son dulces, buenos y conversadores, en verdad despreocupados e ignorantes, pero sencillos y sin pretension [...] La única cosa que se podría lamentar en esta soledad es permanecer ajeno al progreso de la civilización y de la ciencia en Europa y estar privado de las ventajas que resultan del intercambio de ideas” (Humboldt, *Cartas Americanas* 58). My translation.

with sentences that challenge prior observations that he cannot corroborate.¹² Although he differentiates America from Europe, he also recognizes the interconnection of the two continents: “Barbarous nations have a physiognomy of tribe or of horde, rather than individuality of looks or features. The savage and civilized man are like those animals of an individual species, some of which roam in the forest, while others, associated with mankind, share the benefits and evils which accompany civilization” (I, 304). The savage and the civilized belong to the same species, and while civilization and mankind may be the preferred states, they too have their downfalls. Distinguishing the “savage” from the “civilized” manifests Humboldt’s Eurocentrism, but this is simultaneously tempered by linking both categories to a common species and advancing the possibility of improvement. Furthermore, Humboldt is aware of the language he employs: “I use with regret the word *savage*, because it implies a difference of cultivation between the *reduced* Indian, living in the Missions, and the free or independent Indian”; adding: “It is a common error in Europe, to look on all natives not reduced to a state of subjection, as wanderers and hunters. Agriculture was practised in the American continent long before the arrival of the Europeans” (I, 295). It is because of this nuanced and complex reading of tropical nature and its inhabitants that critics have more recently argued against cataloguing Humboldt as an “imperial observer.”¹³ While the vegetation of the tropics, luxuriant and untamed, provides him with a broad array of descriptive possibilities, he wrestles with language and interpretation as he uncovers the fuzzy human ‘landscape’ of the tropics.¹⁴ And as Laura Dassow Walls affirms, “wherever Humboldt goes he looks for traces of the human” (19). Humboldt’s quest to interlace both human and nature’s heterogeneity is present throughout his work in myriad ways, overlapping and unfolding into diachronic and synchronic perspectives that undermine facile categorizations (Ette 43-59).

Nevertheless, tropical nature, in terms of vegetation, was much easier for him to represent than the taxonomically elusive human presence – given its racial diversity. He depicted it in great detail and measured it with scientific accuracy using a wide array of instruments.¹⁵ His texts are filled with visual aids: sketches, drawings, charts, tables, and maps, all designed to complement the collected data. His most stunning example is the emblematic *Tableau physique des Andes et Pays Voisins* (Figure 1), which accompanied his *Essay on the Geography of*

12 Humboldt takes the time to talk with the local inhabitants through his guides and includes many of their myths and stories in his writings, often prefaced with comments such as: “I could not judge the accuracy of this assertion” (*Personal Narrative* II, 70); “I know not whether we can give credit to this story” (I, 166); “I am inclined to think” (I, 167).

13 Walls; González Deluca.

14 For Europeans, it was much easier to describe nature with its luxuriant array of vegetation than the different races that were encountered. Europeans could understand the concepts of ‘black’ and ‘Indian’, but the ethnic mixtures of America were much more difficult to categorize. This provoked anxiety for both Europeans as well as for Creoles, as exemplified, for example, by the Casta paintings of the 1800s.

15 On Humboldt’s instruments, see Dettelbach, “Global Physics.”

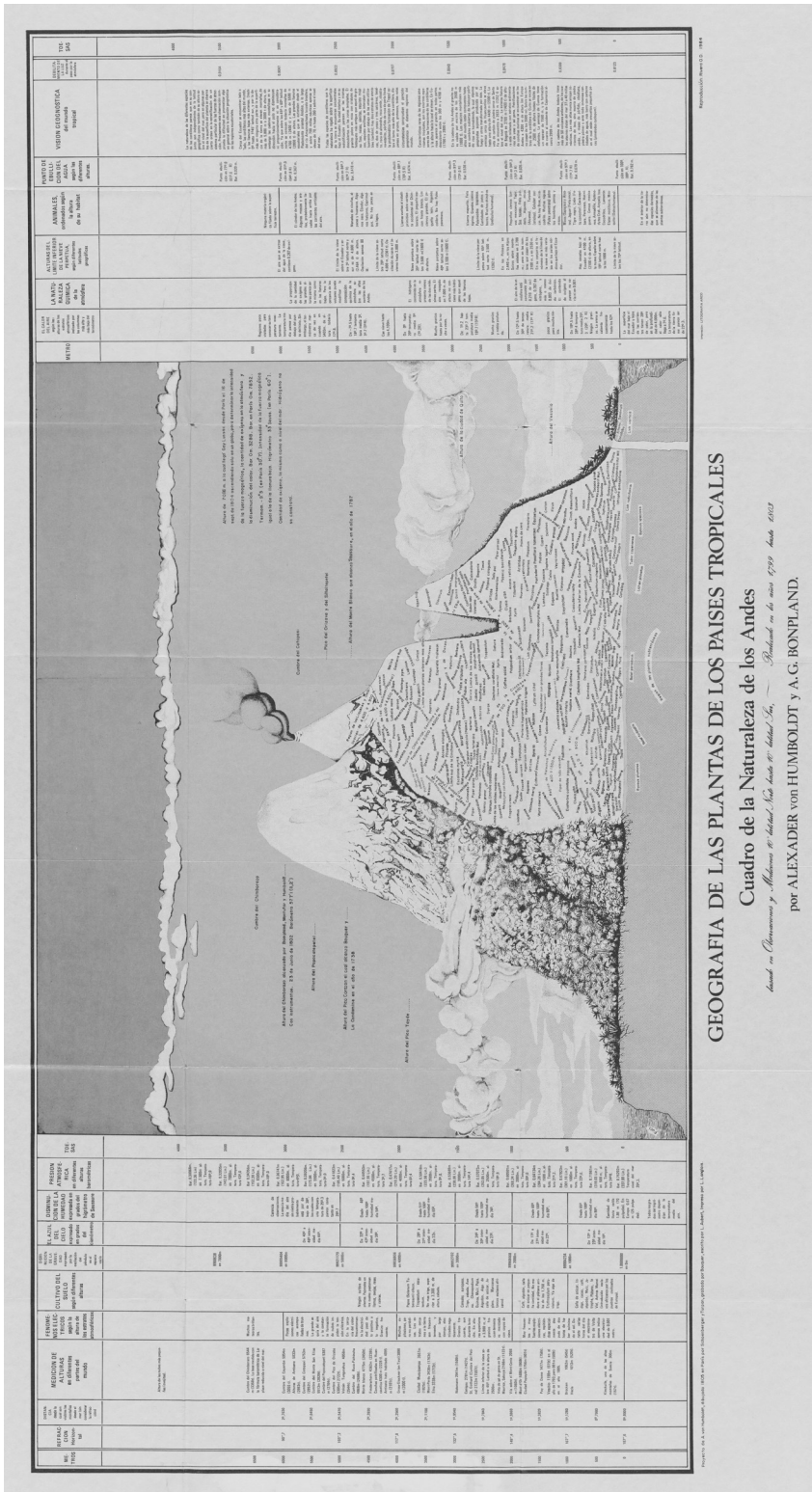


Figure 1: Alexander von Humboldt, "Tableau physique des Andes et Pays Voisins." Essay on the Geography of Plants (1803). Source: see "List of Illustrations"

Plants: a visual microcosm condensed into three volcanoes that display the different types of vegetation. Much like a triptych, the hand-painted images of the Chimborazo, Cotopaxi, and a third unnamed volcano in the center panel (which, as seen in Figure 1, serves as the book's cover) illustrate the vegetation according to altitude and climate, with the names of plant species displayed as if the names themselves were meandering up the mountain. Flanked on each side of the center panel two smaller panels unfold, with columns listing additional data: heights, distances, composition of soil, gravitational forces, sky color, barometric pressure, etc.¹⁶ More than a map or a painting of the Andes, the tableau displays a new understanding of natural order in which botany and geography are integrated and support each other artistically. In this new order, time and space are contracted, reinscribed, and translated so that the immensity of the American tropics, symbolized by the volcanoes, can be understood and transported to Europe (Latour 19-68).

The tableau also exemplifies Humboldt's attention to landscape and its representation. He was so adamant on the importance of painting as a means of uncovering nature's laws that in the second volume of *Cosmos* he dedicates an entire chapter to the topic. Here he writes: "Descriptions of nature, I would again observe, may be defined with sufficient sharpness and scientific accuracy, without on that account being deprived of the vivifying breath of imagination" (II, 81). He advocated on-site sketching, recording detailed facts with scientific precision based on observation. Yet, despite his insistence on accuracy, he did not expect the painter to offer a photographic transcription of the landscape, but rather to capture the "essence" of a particular region. The result would be a "heroic landscape painting" that used creative imagination and maintained a connection with the great traditions of painting but was modern in its scientific accuracy:

Landscape painting, though not simply an imitative art, has a more material origin and a more earthly limitation. It requires for its development a large number of various and direct impressions, which, when received from external contemplation, must be fertilized by the powers of the mind, in order to be given back to the sense of others as a free work of art. The grander style of heroic landscape painting is the combined result of a profound appreciation of nature and of this inward process of the mind. (*Cosmos* II, 94-95)

Humboldt's vision was based on the union and positive interaction between feeling and analysis, sentiment and observation (Gould, "Church" 98). Sentiment, properly channeled, was not a force of ignorance but rather a prerequisite to any deep appreciation and knowledge of nature. In Humboldt's eyes artists were the ones capable of transmitting and recreating the sublime, the sense of awe the viewer experienced in the presence of the vast and mysterious nature of the trop-

16 Dettelbach lists sixteen different measurements in the tableau (270).

ics, which revealed to the soul, “by a mysterious inspiration, the existence of laws that regulate the forces of the universe” (*Cosmos* I, 25). In other words, art was also a form of knowledge.

Humboldt’s teachings resounded throughout Europe and the American continent. In the United States, two figures were deeply influenced by his inquiries: the landscape painter Frederic Edwin Church and Harvard scientist Louis Agassiz. Their work reveals how Humboldt’s aesthetic and scientific worldviews were reframed as they proceeded to the tropics and confronted evolutionary theory.

The North Heads to the Tropics

As the United States embraced its self-appointed Manifest Destiny in the early nineteenth century, scientific knowledge became a fundamental tool for national growth that could enhance both economic and territorial expansion. Among the sciences, geology stood out for enabling the discovery of untapped riches, stimulating intellectual curiosity, and helping to understand the past and the process of creation. Critic Russel Nye asserted, “Nearly every leader of American thought agreed that science provided the best possible tool with which man might discover those fundamental laws and truths – in nature and human nature [...] – on which progress depended” (qtd. in Novak 48). It was that same excitement for geology that led artists, much like scientists, to unveil those truths about nature through their depictions of landscape.¹⁷

Frederic Edwin Church, a preeminent member of the Hudson River School – the first truly American style of landscape painting, which flourished between the mid-1830s and the mid-1870s – is considered to have created a new kind of landscape, fresh and inventive in its expression of U.S. American values (Kelly, “A Passion” 32). Church embraced Humboldt’s didactic approach to representing landscape. Like other artists at the time, he studied geology, attended public lectures on the topic, and even participated in geological surveys. As critic Henry Tuckerman stated, Church’s paintings were considered “accessory to and illustrative of natural science” (370). However, once the debate regarding evolution took center stage and scientists advocated for the separation of science and art, many artists promoted scientific study as a way to understand God. Barbara Novak’s work on American landscape painters points to the ways in which these painters underscored the relations between science and religion, favoring a conservative, Christianized geology that resisted the new directions of science (17, 49).

In his “Essay on American Scenery” (1836), Thomas Cole, founder of the Hudson River School, described the American landscape as distinct from Europe,

¹⁷ Pennsylvania artist Russell Smith produced several scientific illustrations for Charles Lyell’s public lectures on the principles of geology delivered at the Lowell Institute, as well as for Yale professor Benjamin Silliman, founder of the *American Journal of Science and Arts* (Bedell 69).

highlighting its most impressive feature, “wildness” (5). Evoking images of the original Paradise and primordial wilderness, American Romantics claimed that if God expressed himself through nature, then the American wildness, or wilderness, was unmatched since it lacked the artificiality of the old continent (Nash 69). Endowing nature with a spiritual significance elevated the American landscape to the sublime, “the strongest emotion which the mind is capable of feeling.”¹⁸ In this way, as the nation consolidated and expanded its identity, the American landscape became “a repository for national pride” onto which religious, moral, philosophical, and social ideas were projected (Novak 20). Artists set out to uncover those truths and riches embedded in the American wilderness; some, like Albert Bierstadt and Asher Brown Durand, headed west, while others headed south, among them George Catlin, Louis Mignot, and Frederic Church.¹⁹

The sense of futurity espoused by American culture and encoded in its landscape was nevertheless paradoxical (Johnson 68-74; Miller, “Fate” 92). If the unspoiled ‘virgin land’ was America’s signature when facing Europe, then the success of the American dream of futurity and progress demanded cultivating that wilderness and thus destroying its purity. Cole himself was well aware of these contradictions, which he specifically addressed in his essay and explicated in the landscape series *Course of Empire*, in which he traced the rise and fall of an imperial nation.

Church was also cognizant of these contradictions, yet by embracing Humboldt’s aesthetic worldview he could blend the real with the ideal, merging exploration, exoticism, and scientific observation with flashes of transcendentalism (Novak 67). Church believed science, religion, and art were bound together harmoniously, and thus as scientists and archaeologists headed south to uncover the exotic nature that endowed the United States with a geological and mythical past, Church followed,²⁰ making two trips to the Andes. The first was in 1853 when he accompanied Cyrus W. Field. An entrepreneur interested in the commercial possibilities of South America, Field was to become instrumental in laying the first

18 Burke 36. The sublime was a concept associated with landscape and its representation in art and literature during the eighteenth century. In contrast to Burke, Immanuel Kant emphasized that the sublime was not to be found in the landscape or things in general, but rather in the individual emotions: “A pleasure that arises only indirectly, produced by the feeling of a momentary inhibition of the vital forces followed immediately by an outpouring of them that is all stronger” (98).

19 While Church’s and Mignot’s travels to South America are well known, George Catlin’s are not. He is mostly noted for his extensive travels to the American West and his commanding representations of North American Indian figures. However, between 1854 and 1860 Catlin traveled through South America, from Venezuela to Tierra del Fuego, inspired by Humboldt whom he had met in Paris. He referred to his South American oil paintings as the “Cartoon Collection” for the sketchy painting technique he developed due to the climate. On Catlin’s South American travels, see Mann 19-21, Dippie 346-70, and Catlin.

20 John Lloyd Stephens’s exploration of the Maya ruins in Central America (1839-1841) together with Frederick Catherwood’s illustrations played a crucial role in the rediscovery of the Mayan civilization, which underscored the continent’s rich archaeological past. See *Incidents of Travel in Central America, Chiapas and Yucatán* (1841), and *Incidents of Travel in Yucatán* (1843).

transatlantic cable in 1858, an event Walt Whitman praised “as a great triumph of man’s ingenuity” (159). While Field explored mines, waterfalls, and bridges, Church sketched artifacts and landscapes. His spectacular painting of the Cotopaxi volcano (1855), outlined during that trip, imaginatively merges geology and industry with striking beauty. A few years later, in 1857, Church returned to the Andes, this time retracing Humboldt’s ascent up the Chimborazo.²¹ His famed work, *The Heart of the Andes* (1859, Figure 2), was made after this trip and is still considered his most ambitious and thematically complex painting, one in which he combines the geological, meteorological, and botanical history of South America into a colossal panorama (Boime 61; Kelly, *Frederic Edwin Church* 55).

Exhibited for the first time in 1859 as a one-work show at the Tenth Street Studio Building in New York, it was described by critics as a sensation that marked a “new epoch” in U.S. American art.²² During its three-week presentation the painting was displayed in a darkened showroom with special lighting that came from gas jets concealed behind silver reflectors, a technical innovation at the time.²³ There were potted plants and large withering palm leaves hanging from above that had been brought from the Andes. Upon the benches, arranged in a semicircle facing the painting, lay a pair of opera glasses that allowed the viewer to observe the precise scientific details of the painting. Two booklets, available for purchase, accompanied the display, one by the writer Theodore Winthrop and the other by Reverend Louis Noble.

In *A Companion to ‘The Heart of the Andes’* Winthrop provides, as if it were a journey through the landscape, a guided tour that directs the traveler’s gaze at each stage of the composition,²⁴ and identifies ten regions that he discusses in great poetic detail. The visual excursion begins an hour or two before sunset, focusing on the sky in the upper left hand corner. The next feature is a great snow dome, the “master,” identified as the Chimborazo volcano (14). But Winthrop, alluding to the symbolic nature of Church’s composition, emphasizes that it is not “Cayambé or Chimborazo, or any other peak of the equatorial group. It is each and all of them, and more than any” (17). The itinerary continues on to the

21 In 1802, together with Bonpland, Carlos Montúfar, and an Indian guide, Humboldt had made the first known attempt to scale the Chimborazo, which at the time was believed to be the tallest mountain in the world. Although their ascent was an amazing feat (they climbed 19,286 of the 20,702 feet of the Chimborazo’s highest peak), they were unable to reach the summit. Edward Whymper would be the first to reach the summit in 1880.

22 *New York Herald*, December 5, 1859, 6. The Tenth Street Studio Building was central to the development of the national art scene. See Blaugrund; David Huntington notes that the crowds’ reaction was “close to hysteria” (6).

23 There are several versions as to how exactly the painting was exhibited, particularly regarding the lighting. As the painting toured the country the type of lighting seems to have been altered; however, whatever form it took the lighting was always an aspect noted by newspaper reviews. For an excellent account of what is known and what is inferred regarding the exhibition, see Avery, “The Heart of the Andes.”

24 Noble, on the other hand, focuses on the geological aspect embedded in Church’s painting, foregrounding “the sense of the great physical forces, and of the modifying power of the elements” (13).



Figure 2: Frederic Edwin Church, *The Heart of the Andes* (1859).
Source: see “List of Illustrations”

llano (central plain), proceeded by the ascent of the cordillera (mountain range) until the viewer reaches the clouds “of translucent vapor” in the upper right hand corner. As the traveler returns to earth he encounters the hamlet, the *montaña* (mountain), central forest, the cataract and its basin, and, in the right foreground, a glade. The journey ends at the road in the lower left, which leads to a simple cross. Winthrop concludes his narrative by declaring: “‘The Heart of the Andes’ is in itself an education in Art. No truer, worthier effort has ever been made to guide the world to feel, to comprehend, and to love the fairest and the sublimest scenes of Nature” (43).

Sitting on the bench, the viewer was positioned at the same level as the trees, looking slightly down into the landscape, a location that tenuously evoked the magisterial gaze from the summit, assuming a perspective akin to that of the divine (Boime 22). But the view was directly onto the scene, submerging the viewer in the delineated space and recreating the panoramic views that mimicked the human perception of landscape popular earlier in the century. The dense foliage of the foreground opened up in an expansive prospect that flooded the canvas. This effect was a crucial step in breaking down the distinction between pictorial space and the space of the viewer; it brought the visual scenery to life (Kelly, *Frederic Edwin Church* 97).

Critics agreed that the painting was epic in scope but meticulous in its detailed depiction of plant life, geography, light, and atmosphere. Like Humboldt’s tableau, nature is presented horizontally in broad bands leading to the majestic rising volcano. Its mesmerizing effect on viewers was sublime. As Novak notes, during this period the sublime is absorbed into a religious and frequently nationalistic concept of nature; it becomes a Christianized sublime, more accessible to everyone and more democratic (38).²⁵ *The Heart of the Andes* not only evoked Humboldt’s description of the Chimborazo; it consolidated his “feeling of unity and harmony of the Cosmos.”²⁶

Critics could not, however, agree on the frame (Figure 3). It was gargantuan. The debate was whether it created a counterfeit reality or enhanced an actual reality. Elaborately designed in dark walnut, the monumental structure added twelve feet of height and extended the painting two feet on each side.²⁷ Cloaking it was an elaborate arrangement of dark green fabric. The dark wood absorbed the light, allowing the painting to stand out as if it were a window casement, especially since the painting did not hang within but rested on the frame, coinciding with

25 This Christianized sublime is also reflected in other European painters such as Caspar David Friedrich, whose paintings often depicted nature as divine creation, transporting crucifixes, and sometimes whole cathedrals, into the high mountains. I thank Gesa Mackenthun for pointing this out to me.

26 In his annotations inscribed at the base of his sketches, Church favors a vocabulary typical of the sublime (“dazzling,” “exquisite,” “lofty,” “magnificent”) found in Humboldt’s *Cosmos*. See Avery, *Church’s Great Picture* 25.

27 The painting itself was 10- ft wide by 5- ft high; with the frame, the dimensions were 17- ft high by 14- ft wide. Today the painting is exhibited in the newly renovated American wing of the Metropolitan Museum in New York City in a regular gilded frame.

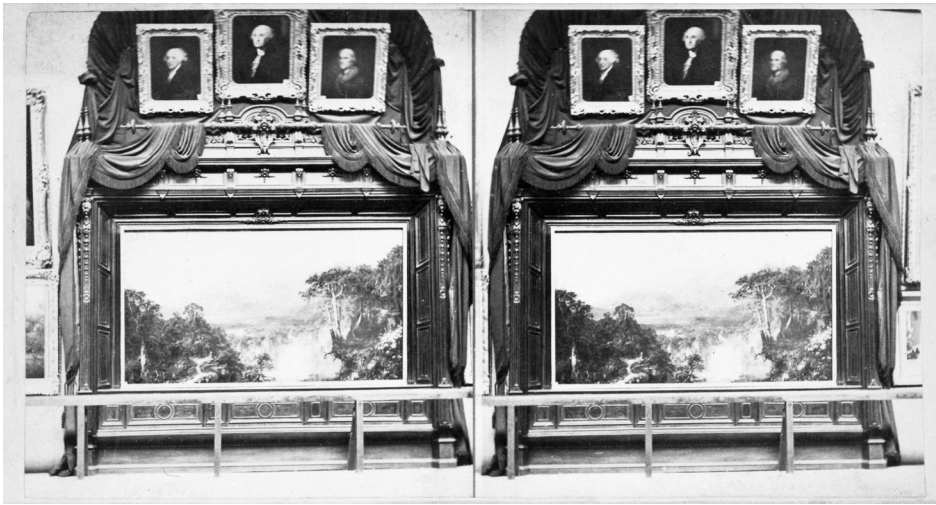


Figure 3: Frederic Edwin Church, *The Heart of the Andes*. As exhibited at the Metropolitan Sanitary Fair, 1864.
Source: see “List of Illustrations”

the eye level of the seated viewer. This reinforced the feeling of being transported elsewhere, as if we imaginatively crossed “a threshold into a post-biblical Eden” (Avery, “The Heart of the Andes” 58).

The Heart of the Andes expressed the profound religiosity that permeated U.S. culture at the time. The simple cross at the end of the path that overlooks the scenery and was absent in the preliminary sketches is its premier symbol, and critics particularly commented on this spiritual aspect. The unobtrusive peasants gaze at the cross, gently covered by vines, as if the power they worshiped was embedded within the majestic landscape of the painting. As one critic reported on the painting, it was a “truly religious work of art” (qtd. in Kelly, *Frederic Edwin Church* 58).

Despite the detailed narrative guiding our gaze, what is striking is the way in which the distinct geography of the tropics has been unbound. What happened to the spatial setting the landscape represents? The portrait of *The Heart of the Andes*, the essence of a “new” region for U.S. Americans, exhibits nothing distinctly Latin American in its landscape. The presence of the peasants is “a cheerful incident” (Winthrop 41). Nothing reminds viewers that the painting represents a land where more than half of the population is mestizo – the visual signs of otherness have been erased and Nature is revealed at its purest. Winthrop praises Church for this, proudly affirming, “Nature here can be felt without aid from the past. Historic drapery is not needed” (31).

Humboldt had underscored the importance of scientific observation and creative imagination. Church exemplifies this process, for the carefully crafted ferns and other tropical plants notwithstanding, the scientific accuracy of the overall picture is flawed: from the imaginary viewpoint that Church assumes it is impos-

sible for a spectator to grasp all that is represented. The composition is much like Humboldt's tableau in which an entire region is condensed visually. As Winthrop stated, it is a "lesson in Art" in which "Mr. Church has condensed the condensation of Nature. It is not an actual scene but the subtle essence of many scenes combined into a typical picture" (12).

Thus framed, the nationalist imagination of *The Heart of the Andes* becomes disturbingly obvious as it encases the heart of a foreign territory. The portraits of George Washington (center), John Adams (left), and Thomas Jefferson (right) that figure at the apex of the monumental frame are the emblems of United States Americanness.²⁸ This political triumvirate, or trinity of Founding Fathers, perched above the landscape in a godlike fashion, elevating the heights of the landscape beneath, both literally and metaphorically appropriates the wilderness of the South. Except for the title, South America is erased from this imaginary continental map. Hence, it is not surprising that critics concluded that it was not only an "American" example of art, but, as the *Cosmopolitan Art Journal* stated, it was "the finest landscape ever to be painted in this country" (qtd. in Howat 85).

The act of sweeping across a foreign landscape to place it within the borders of a national landscape is a "symbolic maneuver" that echoes the politics of the United States during its period of national expansion (Wertheimer 9). While the United States occupied a space of futurity, it lacked an archaeological, historical past like that of the Incas, Mayas, and Aztecs, and so felt obliged to undertake a quest for national self-definition. Wilderness, untamed and pure, could fill that lack and reach back to a primordial time. Landscape painting could create that sense of primevalness. Within that national framework the imperialist rhetoric cannibalized the southern hemisphere, referring to it as "our own tropical regions" (Manthorne, *Tropical* 3). Thus, in painting the tropics Church synthesized science and idealism, while projecting a unity of vision that embodied his faith in nature and in the United States.

Evolutionary theory challenged the benign view of nature. Where Humboldt and his followers saw unity and accord, Darwin saw strife and struggle. There was no such thing as higher harmony. But not all scientists would be swayed by evolution. Swiss-born Harvard scientist, Jean Louis Rodolphe Agassiz, a staunch creationist, not only argued against Darwin's theory, but set out to disprove evolution by finding "Traces of Glaciers under the Tropics."²⁹ From different perspectives and with different results, all three individuals shared a search for origins through geology: Church, via his representation of nature, evoked primordial

28 The three portraits were rendered by prominent United States artists, particularly the portrait of George Washington by Gilbert Stuart, also called the *Athenaeum* or *Unfinished Portrait*, which is the image on today's one-dollar bill. John Adams was painted by Bass Otis after a portrait by Gilbert Stuart, and the painting of Thomas Jefferson was executed by Rembrandt Peale.

29 This is the title of the paper Louis Agassiz presented at the National Academy of Sciences in Washington on August 12, 1866.

times; Darwin's research brought him to evolution; and Agassiz affirmed the fixity of species and God's divine design.

A Scientific View of the Tropics

Considered the “founding father” of the American scientific tradition, Louis Agassiz revolutionized the study of nature in the United States, both promoting and advancing its professionalization.³⁰ Mentored by naturalists George Cuvier and Humboldt, Agassiz was well known in Europe for his studies in ichthyology and glaciation. But it was in the United States where he became a preeminent scientist. Among his achievements, he was instrumental in the creation of the Lawrence Scientific School and the Museum of Comparative Zoology. He also helped transform the Association of American Geologists and Naturalists into a broader organization that would encompass all phases of scientific study, which eventually would result in the founding of the American Association for the Advancement of Science (Lurie 132). Following Humboldt's approach, Agassiz trained a whole generation of scientists to observe nature. He believed that students could only truly understand nature through rigorous and painstaking observation in the field and with the aid of a pencil, which he considered, “one of the best of eyes” (Cooper 58). He was an inspiring teacher and researcher, who made science vibrant and exciting, drawing thousands of people to his public lectures.

It was at the height of his career that Agassiz was confronted with Darwin's evolutionary theory. Until mid-century there did not seem to be a conflict between scientists and their religious tenets; in fact, the elaborate and intricate design of nature and the multispecies array of living things seemed to reinforce the belief that God had designed the world, created all living things, and maintained them in majestic permanence. Although questions regarding this balance had been raised since the eighteenth century, it was only in the 1850s that scientists began to accumulate more substantial evidence of geological changes and species variation to seriously unsettle the reigning harmony.³¹ But the absence of a plausible theory to explain these more recent findings left them as exceptions to the divinely ordained rule until Darwin published his theory of natural selection in 1859. What was remarkable about Darwin's argument was that using the theory of plausibility, he attempted to translate into new forms, which radically altered their meanings, the preexisting questions that naturalists and geologists had been addressing; among those reformulated questions was the designfulness of organic

30 For Agassiz's biography, see Lurie; Cary Agassiz; Menand, ch. 5.

31 Prior to Darwin's *On the Origin of Species*, Robert Chambers argued for the evolution of species in his anonymously published *The Vestiges of the Natural History of Creation*, in 1844. The book's hostile reception most likely contributed to Darwin's delay in publishing his own theory.

nature. For this Darwin invited his readers to imagine how natural selection might have brought about changes that could actually be observed (Dear 91-103).

Agassiz dismissed evolution because it did not offer proof; it was only a theory of plausibility, hence he called it “a scientific mistake” (Agassiz, *On the Origin* 15). He argued that theories that presupposed change as the result of physical agents were as false as they were fanciful; they were “the curse of science” (qtd. in Lurie 254). And Agassiz was not the only scientist to criticize Darwin’s thinking, as Richard Owen has noted: “We do not want to know what Darwin believes & is convinced of, but what he can prove.”³² Under conditions that Agassiz argued should effect changes, Darwin could not explain why some characteristics remained the same and others did not. As a steadfast creationist, Agassiz maintained that Darwin’s argument did not stand up to God’s design:

Until they tell us why certain features of animals and plants are permanent under conditions which, according to their view, have power to change certain other features no more perishable or transient themselves, the supporters of the development theory will have failed to substantiate their peculiar scientific doctrine. (Agassiz, *Geological* 43)³³

Agassiz remained undeterred from his position even as the scientific community began to lean toward evolutionism. By the time of his death in 1873, he would be largely alone in his opposition.

In 1865, Agassiz set sail for Brazil to collect specimens for his recently founded Museum of Comparative Zoology and to disprove evolution. Known as the Thayer expedition, Agassiz traveled with a group of twelve assistants: six professionals, among them geologist Charles Frederick Hart, who would return to Brazil to continue his own explorations, and Jacques Burkhardt, a draftsman who had worked with Agassiz in Europe and who would produce more than two thousand watercolors of Brazilian fish. Among the students were William James, future psychologist and philosopher, and Walter Hunnewell, who would become the expedition’s photographer.³⁴ Agassiz’s wife, Elizabeth Cabot Cary, whom he had married in 1850, would be the expedition’s scribe and self-appointed historian. Cary Agassiz, a Boston Brahmin with strong family ties to Harvard, not only helped promote Agassiz’s work, she also became his traveling companion, administrator, collaborator, and biographer. In 1869, she was elected to the American Philosophical Society and continued her work in education well beyond her hus-

32 Reported by Darwin to Charles Lyell in his letter, December 10, 1859. Charles Darwin vol. 7: 422. See also Hull.

33 Asa Gray would publicly debate Agassiz on evolution at the Academy of Arts and Sciences in 1859. For an excellent analysis of the debate see Croce 35-58.

34 The photographs of the expedition were to be published in a separate book, which was never produced.

band's death. In 1894, she became the founding president of Radcliffe College, Harvard's sister institution.³⁵

The group spent three months in Rio de Janeiro and then traveled more than a year along the Amazon River from Belém to the Peruvian border, exploring many of the river's tributaries and towns as they collected fish specimens. The narrative of the trip, entitled *A Journey in Brazil* (1868), was authored by both Agassizs, but was primarily written by Cary Agassiz.³⁶ Adopting Agassiz's methodology of observing it all, she describes their expedition through the Amazon in great detail. We see her trekking through the jungle, sleeping in hammocks, fighting off insects, and we hear her thoughts on both racial diversity and women, while Agassiz spends his time "geologizing and botanizing" (*Journey* 328). Louis Agassiz's voice is present through his lectures and a few letters his wife transcribed, in addition to his notes, footnotes, and appendices.³⁷

Aware of the discursive hybridity, Agassiz states in his preface how *A Journey in Brazil* came about:

Partly for the entertainment of her friends, partly with the idea that I might make some use of it in knitting together the scientific reports of my journey by a thread of narrative, Mrs. Agassiz began this diary [...] In this volume I have attempted only to give such an account of my scientific work and its results as would explain to the public what were the aims of the expedition, how far they have been accomplished. (*Journey* ix)

The two voices that coexist correspond to two forms of knowledge: the scientific one, serious and empirical, and the narrative, or "minor thread" that turns the text into "entertainment," or, in Humboldt's terms, that adds "sentiment" to "science." Yet in *Journey* these forms of knowledge are no longer in harmony.

Like Humboldt before him, Agassiz presents a "physical history" of the Amazon. But in Agassiz's view it is a history that disproves evolution. Agassiz argues that Brazil has a glacial past, which he considers cosmic: "If the geological winter existed at all, it must have been cosmic" (*Journey* 398-99). Following Cuvier's theory of catastrophism, Agassiz maintained that the earth had been periodically hit by global upheavals, after which new species of animals and plants had appeared. For Cuvier, the biblical flood was the last catastrophe, but for Agassiz it was ice. The continental ice sheet, he believed, had destroyed everything in its path, moving forward and retreating, grinding the earth into different contours,

35 For Cary Agassiz's biography see Paton; in relation to her scientific work, see Baym 91-112.

36 All quotes from *A Journey in Brazil* are from Elizabeth Cary Agassiz. When quotes refer specifically to Louis Agassiz, they will be prefaced by the tag L. A.

37 Most critics consider that Cary Agassiz performed a "disappearing act," effacing her own experience (Baym 92); also Irmscher 249-51. My view is aligned with Linda Bergmann's position, who argues that Cary Agassiz is able to articulate her own voice despite her husband's overwhelming presence.

depositing drift, boulders, and primitive rocks, thus accounting for the appearance and distribution of mysterious land configurations. This also explained patterns of extinction of flora and fauna, known only through fossil remains, as well as their particular geographical distribution. As a result, there could be no connection between past and present species. Glaciers were in Agassiz's view "God's great plough" (Agassiz, *Geological Sketches* 99).

Agassiz interprets tropical nature from this scientific perspective. With every discovery, every new fish he encounters, every unique geological formation, he reaffirms and pushes forward his scientific theories. While Cary Agassiz accompanies and shares her husband's views, her task is to simply observe. It is her "entertaining" discourse that tells us about Brazil, its geography, flora, and fauna, including its inhabitants, presenting a valuable portrayal of the country's landscape.

Although Agassiz stressed the importance of visual representations in science, he did not include any of the fish drawings in his narrative; instead, he incorporated Burkhardt's scenic illustrations, based on photographs made by several renowned photographers in Brazil, such as George Leuzinger, and the imperial photographers of Dom Pedro II, Germano Whanschaffe and Augusto Stahl, who in addition produced a number of human portraits for Agassiz.³⁸ Agassiz was shocked by the racial configuration of Brazil. As a proponent of polygenism, he endorsed racial typology, arguing that human races had different lineages.³⁹ Perhaps because evolutionary theory had serious implications for the origin of man, if Agassiz wanted to refute Darwin, he needed to address the consequences of evolution not only for animal and plant life but also for humans.⁴⁰ Agassiz had articulated his views regarding race in *Types of Mankind* (1854), a tribute to Samuel Morton, edited by Josiah Nott and George Gliddon. Agassiz had corresponded with Morton, whose *Crania Americana* (1839) had impressed him, and upon whose death he had contributed an essay to Nott and Gliddon's volume supporting polygenism, contending that the distinction between races coincided with their geographical distribution.⁴¹ Agassiz had also been consulted on the issue of racial integration by Samuel Gridley Howe, a member of the American Freedman's Inquiry Commission (AFIC) established under President Lincoln.⁴² Although he opposed slavery, he did not believe in social equality between Blacks, Indians, and Whites, and argued forcefully that races should remain separate in order not to degenerate (Gould, *Mismeasure* 79-82; Ménand 114-16):

38 On Agassiz's photographs and racial ideas, see Gerassi-Navarro; Stepan.

39 For the arguments regarding polygenism versus Monogenism, see Haller.

40 The debate regarding the common ancestor between man and apes had already occurred in 1860 between Archbishop Samuel Wilberforce and Darwin's defender, Thomas Huxley. In 1863 Huxley argued in *Evidence as to Man's Place in Nature* that evolution applied to man as well as to all other life. Darwin, however, would not publish his *Descent of Man* until 1871.

41 For a succinct explanation of Morton's work, see Gould, *Mismeasure*, esp. 82-101.

42 For a history of the commission and its legacy, see Furrow.

Let any one who doubts the evil of this mixture of races, and is inclined, from a mistaken philanthropy, to break down all barriers between them, come to Brazil. He cannot deny the deterioration consequent upon an amalgamation of races, more widespread here than in any other country in the world, and which is rapidly effacing the best qualities of the white man, the negro, and the Indian, leaving a mongrel nondescript type, deficient in physical and mental energy. (*Journey* L.A. 293)

While Agassiz pontificates on fish, glaciers, and race, descriptions of nature and Brazilian life are left to his wife. Although she reports on her husband's findings, her language is less vehement and more nuanced than his. For example, when explaining Agassiz's study of Brazil's geological past, she states: "The more he considers the Amazons and its tributaries, the more does he *feel convinced* that the whole mass of the reddish, homogeneous clay, which *he has called* drift, is the glacial deposit brought down from the Andes and worked over by the melting of the ice which transported it" (250, my emphasis). Instead of conjectures that respond to particular theories, she prefers to keep her focus confined to what she observes. Initially her depictions of the tropics resemble Humboldt's views, with hints of Le Douanier, as images of exuberance and chaos permeate her portrayals:

The first view of high mountains, the first glimpse of the broad ocean, the first sight of tropical vegetation in all its fullness, are epochs in one's life. This wonderful South American forest is so matted together and intertwined with gigantic parasites that it seems more like a solid, compact mass of green than like the leafy screen [...] Many of the trees in the region we passed through to-day seemed in the embrace of *immense serpents*, so large were the stems of the *parasites winding about them*; orchids of various kinds and large size grew upon their trunks and the vines climbed to their summits and threw themselves down in garlands to the ground. (54)

This careful description presents the tree entwined by the sipo vine, struggling to overcome its unwieldy parasites (Figure 4). Although absent from her narrative, the illustration shows a man sitting at the base of the tree, almost imperceptible – perhaps that is why there is no mention of him in the text. His hut on the right, with a small fire in front of it, emerges from the landscape. His plow, in the lower left, is resting, like the man himself. Given the persistent portrayal of the native population as "lazy," it is not difficult to read the man's exclusion from the description as one more sign of class superiority toward the indigenous population, who are consistently portrayed as indolent.⁴³ In opposition, tropical nature is prominent and active: the vines "embrace," "climb," and thrust, while the inhabitants, represented by the man sitting under the tree, evoking Church's peasants in *The Heart of the Andes*, are languid, unobtrusive, and passive.

43 For a similar attitude of social supremacy in colonial scientific writing, see the essay by Robert Aguirre in this volume.

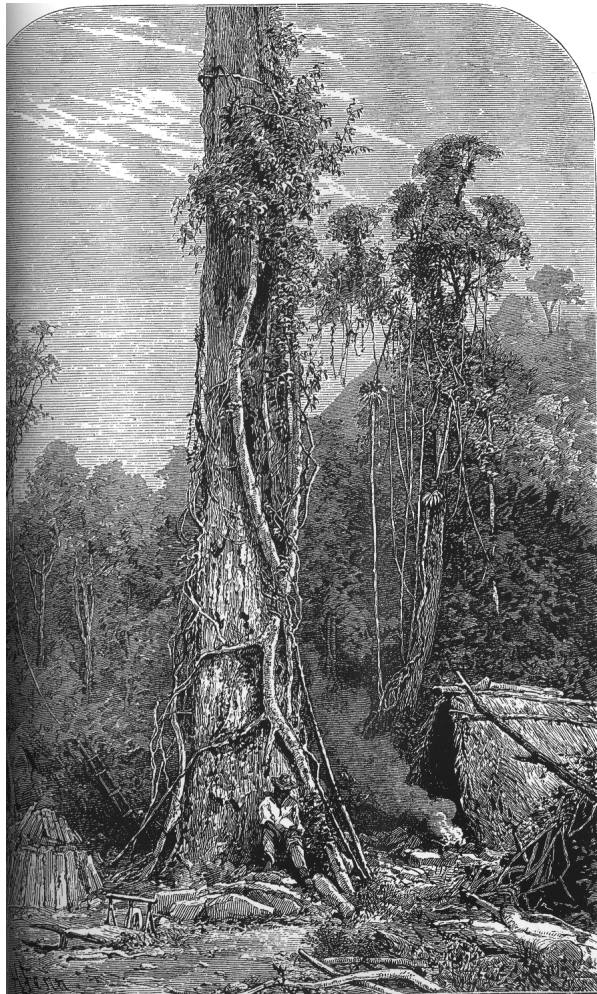


Figure 4:
Figure 4: *Sipo Vine*.
Source: see “List
of Illustrations”

As the expedition enters the tropical zone the scene Cary Agassiz presents is no longer Humboldt’s sublime but rather that of the picturesque – in William Gilpin’s terms, beauty with a certain roughness (6). The view is a “motley scene” full of winding roads carving through intense uncombed vegetation and a faint population that contributes to the entertaining prospect. A drive through Rio de Janeiro leaves her with “an impression of picturesque decay; things seemed falling to pieces, it is true, but mindful of artistic effect even in their last moment” (Journey 53). Although Cary Agassiz is impressed with the size of tropical nature, “the proportions of everything in nature amaze one here” (164), she is not frightened or intimidated by the vegetation; in fact, for the most part she is “delighted.” Faced with what, to the superficial eye, may seem a monotonous scenery heading up the Amazon, she asserts, “to me it seems delightful to coast along by these woods, of a character so new to us, to get glimpses into their dark depths or into a cleared spot with a single stately palm here and there” (156); and further

along the river, upon sighting a group of strange looking trees rising from within the waters, which could easily have created an eerie effect, she calmly states: “numerous blackened and decayed trunks stood up from the water in all sorts of picturesque and fantastic forms” (264). Tropical nature in Cary Agassiz’s hands becomes approachable, pleasant even in its foreignness. She does not tender grand portraits of nature, but rather small, comprehensible, nonmenacing scenes, much like snapshots of nature that tame the sublime into the picturesque.

Yet, like Humboldt’s, her view of the landscape is also marked with people; they are in effect an essential part of the landscape. In trying to apprehend the totality of the tropics, she applies aesthetic metaphors of landscape painting in order to acclimate to the exoticness of the landscape and its inhabitants. On scanning the outskirts of Rio, her gaze is arrested by half-naked black carriers and black women dressed in white strolling down the narrow streets that are lined with unkempt, painted stucco houses. As she sharpens her gaze she uncovers “another picture: an old wall several feet wide, covered with vines, overhung with thick foliage,” where she spies “a powerful negro looking over into the street, his jetty arms crossed on a huge basket of crimson flowers, oranges and bananas, against which he half rests, seemingly too indolent to lift a finger even to attract a purchaser” (51). Nature seems to ingest its inhabitants, engulfing them in its overpowering leafage.

Unlike Church’s landscapes in which human traces are eliminated so that nature could be captured at its purest – the Edenic paradise – the human landscape in *A Journey in Brazil*, however dwarfed, is thoroughly enmeshed with the tropical scenery. Perhaps the human spectacle is so salient in *Journey* because Agassiz’s racial theories were such an integral aspect of his scientific practice that they also permeated his view of nature. As Lilia Moritz Schwarcz has stated, Brazil offered the greatest “spectacle of humans.” So it is not surprising that *Journey* devoted so much attention to the mixture of races (4).

Although Cary Agassiz shared her husband’s views regarding race, she seems less disturbed by the racial mingling.⁴⁴ Unlike her husband, she has much more direct contact with the women and children, and through her everyday dealings is able to look beyond their racial difference. She has no particular theory to prove and she does not hide her subjective views; instead she exposes them, recognizing the possibility that she might be misreading her surroundings. Her descriptions are often preceded by a brief qualifier that punctuates her role as observer: “So far as we could understand” (48); “to me it seems” (155); “I am not yet accustomed to” (331). Acknowledging her own limitations, she seeks to give as much

44 In describing her house maid, Cary Agassiz is captivated by “her extraordinary hair, which though it has lost its compact negro crinkle, and acquired something of the length and texture of the Indian hair, retains, nevertheless, a sort of wiry elasticity, so that, when combed out, it stands off from her head in all directions as if electrified” (246). And before including Agassiz’s remarks on the amalgamation of races she adds, as if corroborating her husband’s views: “In the examples of negro and Indian half-breeds we have seen, the negro type seems the first to yield” (246).

detail as possible and consequently sees much more, her nuanced gaze allowing for contradictions. Thus, despite her deploring of racial mixing, she is still able to perceive progress in Brazilian society:

It seems to me that we may have something to learn here in our own perplexities respecting the position of the black race among us [...] The absence of all restraint upon free blacks, the fact that they are eligible to office, and that all professional careers are open to them, without prejudice on the ground of color, enables one to form some opinion as to their ability and capacity for development. (128-29)

As the expedition penetrates deeper into the Amazonian forest, Cary Agassiz seems to refine her gaze to focus much more on the population. She begins to accept and adjust to the slow rhythm that an unaccustomed American would look upon with “incredulous astonishment” (197). She details the variety of palm trees (e.g., the *Sumaumeria*, the *Palmetto*, the *Coccoeiro*, the *Icaree*), the fish, the rocks, the different types of glacial drift, as well as the towns and people they encounter, while Agassiz focuses on “making the best use of his time and opportunities” (201). Her goal is to be curious and observe. Despite striking cultural differences between herself and the local women, she admires their moral and physical autonomy, as demonstrated by their freedom to move without men’s supervision, smoke pipes, and travel alone in canoes. Although she finds indigenous women generally ugly and dirty, she notes that “the primitive life of the better class of Indians on the Amazon is much more attractive than the so-called civilized life in the white settlements” (175). Observing a Mundurucu Indian couple who allow themselves to be portrayed, she is struck by their fine features, calmness, and poise. She is particularly impressed with the way they wait patiently: the woman sews, while her husband rolls a cigarette, “certainly very civilized occupations for savages” (317). Throughout the narrative of *Journey*, one could almost say that Cary Agassiz was Agassiz’s best student, for despite her own affinities and cultural values (which never disappeared), she observed both the natural and human landscape without forcing what she saw to fit into a predetermined account.

A Journey in Brazil received little attention from professional scientists compared to other travel accounts such as Henry Walter Bates’s trip to the Amazon (1863), Darwin’s expedition of the *Beagle* (1839), and Humboldt and Bonpland’s voyage (1814), perhaps because of Agassiz’s scientific views that were becoming outdated or because of the hybrid character of *Journey*’s narrative. The value of Elizabeth Cary Agassiz’s portrait depends on recognizing her own subjectivity. Her narrative subverts her husband’s because she makes science relative and does not impose her ideas upon nature, while Agassiz used his observations to confirm or advance his own theories.

If Humboldt offered a model of unity in nature that Frederic Church materialized in the sublime of *The Heart of the Andes*, Church did so by imposing

a nationalistic view that swept away the foreignness of the landscape. Perhaps Stephen Jay Gould's suggestion that Church could no longer continue painting grandiose landscapes once evolution took center stage warrants new consideration ("Church" 105). Evolutionary theory undoubtedly shattered the harmonious unity between nature and God, opening up an abyss between science and art. This is not to say that Darwin did not write or think about beauty in nature, but that he concentrated on the beauty embedded in survival, the "peculiar features that gave an advantage – in some cases only a minute one – to the organism in question" (Donald 15). Evolution entailed a major shift in the way nature was read. Agassiz's resistance to evolution in the end highlighted his inability to shift his ways of thinking. His perspective on nature had been primarily shaped by his geological insights and study of fish fossils. But evolution had introduced a new approach that seemed unscientific to him because it involved probabilities and hypotheses instead of verifiable proof (Croce 41). This lack of empirical confirmation would encourage Agassiz to reassert his creationist views, which he offered as evidence. He held firmly to his beliefs, resisting Darwin and disciplining the observations of others to sustain his own position. Elizabeth Cary Agassiz, on the other hand, was not as rigid. In that sense, her gaze, both personal and technically unscientific, opens a third space that mirrors some of the issues scientists and landscape artists would have to confront when dealing with biological models. Perhaps of the three travelers – Church, Louis Agassiz and Elizabeth Cary Agassiz –, she is the only one who could look at nature through a new lens introduced by evolution, even if it meant facing the unknown.

Works Cited

- Agassiz, Louis. *Geological Sketches*. Boston: James R., Osgood & Co, 1866. <https://doi.org/10.5962/bhl.title.166203>
- . *Geological Sketches*. Boston: James R., Osgood & Co, 1876.
- . *Professor Agassiz on the Origin of Species*. New Haven: S. Converse, 1960.
- , and Elizabeth Cary Agassiz. *A Journey in Brazil*. 1868. Repr. Boston: Fields, Osgood, & Co., 1871.
- Avery, Kevin J. "The Heart of the Andes' Exhibited: Frederic E. Church's Window on the Equatorial World." *American Art Journal* 18.1 (Winter 1986): 52-72. <https://doi.org/10.2307/1594457>
- . *Church's Great Picture: 'The Heart of the Andes'*. New York: Metropolitan Museum of Art, 1994.
- Baym, Nina. *American Women of Letter and the Nineteenth-Century Sciences*. New Brunswick: Rutgers University Press, 2002.
- Bedell, Rebecca. *The Anatomy of Nature: Geology & American Landscape Painting, 1825-1875*. Princeton: Princeton University Press, 2001.
- Bergmann, Linda. "A Troubled Marriage of Discourses: Science Writing and Travel Narrative in Louis and Elizabeth Agassiz's 'A Journey in Brazil'." *Journal*

- of American Culture* 18 (Summer 1995): 83-88. <https://doi.org/10.1111/j.1542-734X.1995.00083.x>
- Blaugrund, Annette. "The Tenth Street Studio Building: A Roster, 1857-1895." *American Art Journal* 14 (Spring 1982): 64-71. <https://doi.org/10.2307/1594309>
- Boime, Albert. *The Magisterial Gaze*. Washington: Smithsonian Institution Press, 1991.
- Boucher, Philip P. *France and the American Tropics to 1700: Tropics of Discontent?* Baltimore: Johns Hopkins University Press, 2008.
- Breton, André, and André Masson. "Creole Dialogue." *Refusal of the Shadows: Surrealism and the Caribbean*. Ed. Michael Richardson. Trans. Michael Richardson and Krzysztof Fijalkowski. London: Verso, 1996. 185-90.
- Burke, Edmund. *Philosophical Enquiry into the Origin of Our Ideas of the Sublime and the Beautiful*. 1757. Repr. Oxford: Oxford University Press, 2008.
- Cannon, Susan Faye. *Science in Culture: The Early Victorian Period*. New York: Science History Publications, 1978.
- Cary Agassiz, Elizabeth, ed. *Louis Agassiz: His Life and Correspondence*. 1885. Repr. Boston: Houghton, Mifflin and Co., 1997. <https://doi.org/10.5962/bhl.title.20887>
- Catlin, George. *Last Rambles Among the Indians of the Rocky Mountains and the Andes*. London: Sampson Low, Son, and Marston, 1868.
- Cole, Thomas. "Essay on American Scenery." *American Monthly Magazine* 1 (January 1836): 1-12.
- Colón, Cristóbal. *Textos y documentos completos*. Ed. Consuelo Varela. Madrid: Alianza Universidad, 1984.
- Cooper, Lane. *Louis Agassiz as a Teacher; Illustrative Extracts on His Method of Instruction*. 1917. Repr. Ithaca: Comstock Publishing, 1945. <https://doi.org/10.5962/bhl.title.2072>
- Croce, Paul Jerome. "Probabilistic Darwinism: Louis Agassiz vs. Asa Gray on Science, Religion, and Certainty." *The Journal of Religious History* 22.1 (February 1998): 35-58. <https://doi.org/10.1111/1467-9809.00049>
- Darwin, Charles. *The Correspondence of Charles Darwin*. Ed. Frederick Burkhardt and Sydney Smith. 18 vols. Cambridge: Cambridge University Press, 1985-2010.
- Dear, Peter. *The Intelligibility of Nature: How Science Makes Sense of the World*. Chicago: The University of Chicago Press, 2006. <https://doi.org/10.7208/chicago/9780226139500.001.0001>
- Dettelbach, Micheal. "Humboldtian Science." *Cultures of Natural History*. Ed. N. Jardine, J.A. Secord, and E.C. Spary. Cambridge: Cambridge University Press, 1996. 287-304.
- . "Global Physics and Aesthetic Empire: Humboldt's Physical Portrait of the Tropics." *Visions of Empire: Voyages, Botany, and Representations of Nature*. Eds. David Philip Miller and Peter Hanns Reill. Cambridge: Cambridge University Press, 1996. 258-92.
- Dippie, Brian W. *Catlin and His Contemporaries: The Politics of Patronage*. Lincoln: University of Nebraska Press, 1990.
- Donald, Diana. "Introduction." *Endless Forms: Charles Darwin, Natural Science and Visual Arts*. Ed. Diana Donald and Jane Munro. New Haven: Yale University Press, 2009. 1-25. https://doi.org/10.1111/j.1467-8357.2010.01113_5.x
- Ette, Ottmar. "Wandering Networks. Euphoria and the Dead Ends of Science in Alexander von Humboldt's Personal Narrative." *Homenaje a Alejandro de Humboldt: Literatura de viajes desde y hacia Latinoamérica. Siglos XV-XXI/Hom-*

- age to Alexander von Humboldt: Travel Literature To and From Latin America XV Through XXI Centuries. ACTAS (Junio/June 18-22, 2001) Oaxaca, México: Humboldt State University and Universidad Autónoma "Benito Juárez" de Oaxaca, 2005. 43-59.
- Furrow, Matthew. "Samuel Gridley Howe, the Black Population of Canada West, and the Racial Ideology of the 'Blueprint for Radical Reconstruction'." *Journal of American History* 97. 2 (2010): 344-70. <https://doi.org/10.1093/jahist/97.2.344>
- Gerassi-Navarro, Nina. "The Art of Observation: Race and Landscape in 'A Journey in Brazil'." *Surveying the American Tropics: A Literary Geography From New York to Rio*. Ed. Maria Cristina Fumagalli, Peter Hulme, Owen Robinson, Lesley Wylie. Liverpool: Liverpool University Press, forthcoming.
- Gilpin, William. *Three Essays: on Picturesque Beauty; on Picturesque Travel; and on Sketching Landscape to Which is Added a Poem on Landscape Painting*. London: Blamire, 1794.
- González Deluca, María Elena. "Humboldt y la nación americana en cierne." *Alemanes en las regiones equinociales*. Comp. José Angel Rodríguez. Venezuela: Alfadil, 1999. 58-87.
- Gould, Stephen Jay. "Church, Humboldt, and Darwin: The Tension and Harmony of Art and Science." *Frederic Edwin Church*. Ed. Franklin Kelly. Washington: National Gallery of Art: Smithsonian Institution Press, 1989. 94-107.
- . *The Mismeasure of Man*. Rev. ed. New York: Norton & Company, 1996.
- Haller Jr., John S. "The Species Problem: Nineteenth-Century Concepts of Racial Inferiority on the Origin of Man Controversy." *American Anthropologist* 72 (1970): 1319-29. <https://doi.org/10.1525/aa.1970.72.6.02a00060>
- Howat, John K. *Frederic Church*. New Haven: Yale University Press, 1997.
- Hull, David L. *Darwin and His Critics. The Reception of Darwin's Theory of Evolution by the Scientific Community*. Cambridge: Harvard University Press, 1973.
- Humboldt, Alexander von. *Cartas Americanas*. Comp. Charles Minguet, trad. Marta Traba. Caracas, Venezuela: Biblioteca Ayacucho, 1980.
- . *Cosmos: A Sketch of the Physical Description of the Universe*. 2 vols. Baltimore: Johns Hopkins University Press, 1997.
- . *Personal Narrative of the Travels to the Equinoctial Regions of America, During the Years 1799-1804*. Trans. Thomasina Ross. 3 Vols. London: Henry G. Bohn, 1852.
- . *Views of Nature: or Contemplations on the Sublime Phenomena of Creation; with Scientific Illustrations*. London: Henry G. Bohn, 1850.
- Huntington, David. *The Landscapes of Frederic Edwin Church. Vision of an American Era*. New York: George Braziller, 1966.
- Irmscher, Christoph. *The Poetics of Natural History. From John Bartram to William James*. New Brunswick: Rutgers University Press, 1999.
- Isaac, Allan Punzalan. *American Tropics: Articulating Filipino America*. Minneapolis: University of Minnesota Press, 2006.
- Jehlen, Myra, and Michael Warner, eds. *The English Literatures of America 1500-1800*. New York: Routledge, 1997.
- Johnson, Rochelle L. *Passions For Nature. Nineteenth-Century America's Aesthetics of Alienation*. Athens: University of Georgia Press, 2009.
- Kant, Immanuel. *Critique of Judgment*. 1790. Repr. Indianapolis, Cambridge: Hackett, 1987.
- Kelly, Franklin. "A Passion for Landscape: The Paintings of Frederic Edwin Church." *Frederic Edwin Church*. Franklin Kelly, Stephen Jay Gould, James Anthony

- Ryan, and Debora Rindge. Washington: National Gallery of Art/ Smithsonian Institution Press, 1989. 32-75.
- Kelly, Franklin, Stephen Jay Gould, James Anthony Ryan, and Debora Rindge. *Frederic Edwin Church and the National Landscape*. Washington D.C.: Smithsonian Institution Press, 1988.
- Latour, Bruno. "Visualisation and Cognition: Drawing Things Together." *Representations in Scientific Practice*. Ed. Michael Lynch and Steve Wolgar. Cambridge: MIT Press, 1990. 19-68.
- Leitner, Ulrike. "Los diarios de Alexander von Humboldt: un mosaico de su conocimiento científico." *Alexander von Humboldt: Estancia en España y viaje Americano*. Ed. Mariano Cuesta Domingo and Sandra Rebok. Madrid: Real Sociedad Geográfica, 2008. 163-76.
- Lévi-Strauss, Claude. *Tristes Tropiques*. 1955. Trans. John and Doreen Weightman. New York: Penguin Books, 1992.
- Lurie, Edward. *Louis Agassiz: A Life in Science*. Chicago: University of Chicago Press, 1960.
- Mann, Donna. *George Catlin (1796-1872)*. Washington: National Gallery of Art, 1992.
- Manthorne, Katherine Emma. *Tropical Renaissance: North American Artists Exploring Latin America, 1839-1879*. Washington: Smithsonian Institution Press, 1989.
- . *Creation & Renewal. Views of Cotopaxi by Frederic Edwin Church*. Washington D.C.: Smithsonian Institution Press, 1985.
- . "The Quest for a Tropical Paradise: Palm Tree as Fact and Symbol in Latin American Landscape Imagery, 1850-1875." *Art Journal* 44.4 (Winter, 1984): 374-82. <https://doi.org/10.1080/00043249.1984.10792571>
- Martins, Luciana. "A Naturalist's Vision of the Tropics: Charles Darwin and the Brazilian Landscape." *Singapore Journal of Tropical Geography* 21.1 (2000): 19-33. <https://doi.org/10.1111/1467-9493.00061>
- Menand, Louis. *The Metaphysical Club*. New York: Farrar, Strauss and Giroux, 2001.
- Miller, Angela. *The Empire of the Eye: Landscape Representations and American Cultural Politics, 1825-1875*. Ithaca: Cornell University Press, 1993.
- . "The Fate of Wilderness in American Landscape Art." *American Wilderness: A New History*. Ed. Michael Lewis. Oxford: Oxford University Press, 2007. 91-112.
- Miller, Perry. *Errand into the Wilderness*. 1956. Repr. Cambridge: Harvard University Press, 2000.
- Nash, Roderick. *Wilderness and the American Mind*. 1967. Repr. New Haven: Yale University Press, 2001.
- Navas Sanz de Santamaría, Pablo. *The Journey of Frederic Edwin Church through Colombia and Ecuador April-October 1853*. Trans. Jimmy Weiskopf. Colombia: Villegas Editores/Universidad de los Andes, 2008.
- Nicolson, Malcolm. "Alexander von Humboldt and the Geography of Vegetation." *Romanticism and the Sciences*. Ed. Andrew Cunningham and Nicholas Jardine. Cambridge/New York: Cambridge University Press, 1990. 169-85.
- Noble, Rev. Louis L. *Church's Painting: 'The Heart of the Andes'*. New York: D. Appleton and Company, 1859.
- Novak, Barbara. *Nature and Culture: American Landscape and Painting 1825-1875*. New York: Oxford University Press, 1980. <https://doi.org/10.2307/1594227>
- Olarte, Mauricio Nieto. "Alexander von Humboldt y Francisco José de Caldas: americanismo y eurocentrismo en el Nuevo Reino de Granada." *Alexander von Hum-*

- boldt. Estancia en España y viaje americano*. Ed. Mariano Cuesta Domingo and Sandra Rebok. Madrid: Real Sociedad Geográfica, 2008. 127-42.
- Paley, William. *Natural Theology or Evidences of the Existence and Attributes of the Deity*. 1802. Repr. Oxford: Oxford University Press, 2008. <https://doi.org/10.5962/bhl.title.51240>
- Paton, Lucy Allen. *Elizabeth Cary Agassiz: A Biography*. Boston: Houghton Mifflin Company, 1919. <https://doi.org/10.5962/bhl.title.6551>
- Pratt, Mary Louise. *Imperial Eyes: Travel Writing and Transculturation*. London and New York: Routledge, 1992.
- Ruse, Michael. *The Evolution Wars: A Guide to the Debates*. Santa Barbara, California: ABC-CLIO, 2000.
- Santos, Fabiane Vinente dos. “‘Gold Earrings, Calico Skirts’: Images of Women and Their Role in the Project to Civilize the Amazon, as Observed by Elizabeth Agassiz in ‘A Journey in Brazil’: 1865-1866.” *História, Ciências, Saúde – Manguihnos*. 12.1 (Jan-Apr. 2005): 1-21. <https://doi.org/10.1590/S0104-59702005000100002>
- Schwarz, Lilia Moritz. *The Spectacle of Races. Scientists, Institutions, and the Race Question in Brazil, 1870-1930*. Trans. Leland Guyer. New York: Hill and Wang, 1999.
- Sims, Lowery Stokes. *Wilfredo Lam and the International Avant-Garde 1923-1982*. Austin: University of Texas Press, 2003.
- Stepan, Nancy Leys. *Picturing Tropical Nature*. London: Reaktion Books, 2001.
- Tuckerman, Henry T. *Book of the Artists: American Artist Life Comprising Bibliographical and Critical Sketches of American Artists Preceded by an Historical Account of the Rise and Progress of Art in America*. New York: G. P. Putnam and Son, 1867. <https://doi.org/10.5479/sil.348043.39088006316236>
- Truettner, William H. and Alan Wallach, eds. *Thomas Cole: Landscape into History*. New Haven: Yale University Press, 1994. <https://doi.org/10.1111/j.1467-8357.1994.tb00219.x>
- Walls, Laura Dassow. *The Passage to Cosmos: Alexander von Humboldt and the Shaping of America*. Chicago: University of Chicago Press, 2009. <https://doi.org/10.7208/chicago/9780226871844.001.0001>
- Wertheimer, Eric. *Imagined Empires: Incas, Aztecs and the New World of Empires, 1771- 1876*. Cambridge: Cambridge University Press, 1999.
- Whitman, Walt. “Moral Effect of the Cable.” *I Sit and Look Out: Editorials from the Brooklyn Daily Times*. Ed. E. Hollaway and V. Schwarz. New York: Columbia University Press, 1932. 159-60.
- Wilton, Andrew, and Tim Barringer, eds. *American Sublime: Landscape Painting in the United States 1820-1880*. London: Tate Publishing, 2002.
- Winthrop, Theodore. *A Companion to the Heart of the Andes*. New York: D. Appleton and Company, 1859.

List of Illustrations

- Figure 1: Alexander von Humboldt. *Ideas para una geografía de las plantas de los países tropicales más un cuadro de la naturaleza de los países tropicales* Bogotá: Jardín Botánico, “José Celestino Mutis”: Litografía Arco, 1985.
Widener Library, Harvard University.

Figure 2: Frederic Edwin Church (1826-1900). *The Heart of the Andes*, 1859. Oil on canvas, 66 1/8 x 119 1/4in (168 x 302.9 cm). Bequest of Margaret E. Dows, 1909 (09.95). The Metropolitan Museum of Art, New York, NY, U.S.A.

Image copyright: The Metropolitan Museum of Art / Art Resource, NY.

Figure 3: *The Heart of the Andes* by Frederick Church as exhibited at the Metropolitan Sanitary Fair, 1864, stereograph by unidentified photographer. Negative #61263.

Collection of The New York Historical Society.

Figure 4: Louis Agassiz and Elizabeth Cary Agassiz. *A Journey in Brazil*. 1868. Repr. Boston: Fields, Osgood, & Co., 1871.

Photo by Nina Gerassi-Navarro.

CHAPTER TEN

The Work of Archaeology: The Maudslays in Late Nineteenth- Century Guatemala

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“We had come to Copán to work...”
(Maudslay and Maudslay, *Glimpse* 118)

No account of Maya studies is complete without reference to Alfred Percival Maudslay (1850-1931). A true polymath, Maudslay spent several seasons between 1881 and 1894 researching Maya sites from Honduras to Mexico, in the process transforming the hobby world of gentlemanly archaeology into a modern science, the province of professionals. He focused particularly on the recording and analysis of Maya writing, using pencil and camera to make accurate records, and forming plaster casts of large objects to enable off-site study. He issued his findings in a variety of media: scientific treatises (the archaeological volumes of *Biologia Centrali-Americana*); popular travel narratives (*A Glimpse at Guatemala*); large-format photographs that rank as works of art in their own right; detailed maps and plans; collections of antiquities and indigenous textiles; and the aforementioned plaster casts, some four hundred of which are preserved in the British Museum. These materials have proven invaluable to the modern field of pre-Columbian studies, allowing present-day scientists to study aspects of Maya life that might otherwise have been lost to looters and unscrupulous collectors.¹ They also speak to Maudslay’s far-sightedness in recognizing the value of Maya culture and to his care in studying its material remains.

Maudslay’s work, however, cannot be understood solely within the scientific field that claims it as its own, but must be placed in the wider cultural matrix it both reflects and shapes. Since he crossed cultural boundaries, we must consider the culture that produced him as well as the one he sought to interpret – the world of late Victorian Britain and its transatlantic counterpart in Central America – not as separate zones but as mutually constitutive ones. To focus this discussion, I will examine two discursive strands, gender and work, that entwine in *A Glimpse at Guatemala* (1899), a travel narrative Maudslay coauthored with his wife, Anne Cary Maudslay. Composed in an engaging, accessible style, *A Glimpse* recounts

1 See, for example, Houston and Matthews.

the Maudslays' 1894-1895 journey through the Maya heartland with their trusted mestizo guide, Gorgonio, and varying numbers of mules and indigenous laborers. *A Glimpse* was not, of course, the first collaborative work in this field; John Lloyd Stephens and Frederick Catherwood had joined forces in their 1841 volume, *Incidents of Travel in Central America, Chiapas and Yucatan*. But the Maudslays took a rather unusual approach to their joint effort, dividing the work along gender lines, with each spouse assuming control over one part of the text. Anne's discourse focuses intently on matters of cultural difference, with lengthy descriptions of landscape, local customs, and encounters with Central Americans, while Alfred's strives for the detached tone of the scientist, with tables, graphs, and charts, but also with considerable attention to logics of value that inform practices of collecting and ideologies of ownership. *A Glimpse at Guatemala* thus molds into the familiar form of the travel narrative complex issues surrounding scientific discourses and cultural difference. In doing so, it articulates problems in both the objects of analysis – the people and cultures of Central America – and the subjects that produced the analysis, the husband and wife team of Alfred and Anne Cary Maudslay, and beyond them the late nineteenth-century culture of scientific travelers and cultural observers from which they came.

Situating Maudslay

Maudslay's work belongs in a larger ensemble of practices and discourses I call the discourse of Mesoamerica.² In brief, this entailed the development of a conceptual grid through which European and American travelers, geographers, scientists, and government officials conceived the newly opened regions of Mexico and Central America, which for three centuries had been under the colonial domination of Spain. In the wake of Alexander von Humboldt's journeys and especially after independence movements swept the land, these regions became of acute interest to a significant number of cultural and political actors, from investors seeking the next El Dorado to antiquarians scouring the interior jungles for buried cities. In the British context, there was little attempt to conquer and colonize. Rather, an informal style of imperialism emerged, based on trade, backed by the Royal Navy, and supported discursively by a decentered and multinodal network of cultural activities that framed the land and peoples for British subjects in the metropole. Among these representational modes were travel writing, mapping, photography, ethnography, natural history, collecting, and exhibiting – activities in which Maudslay excelled. Loosely intertwined and individually motivated, never unified or centrally directed as part of a policy program, these practices never-

2 I am indebted here, of course, to Edward Said's discussion of Orientalism, but note the key difference that aside from the small settlement at Belize, there was no attempt to establish formal British colonies in Central America. Hegemony was almost entirely a function of economic and ideological forces.

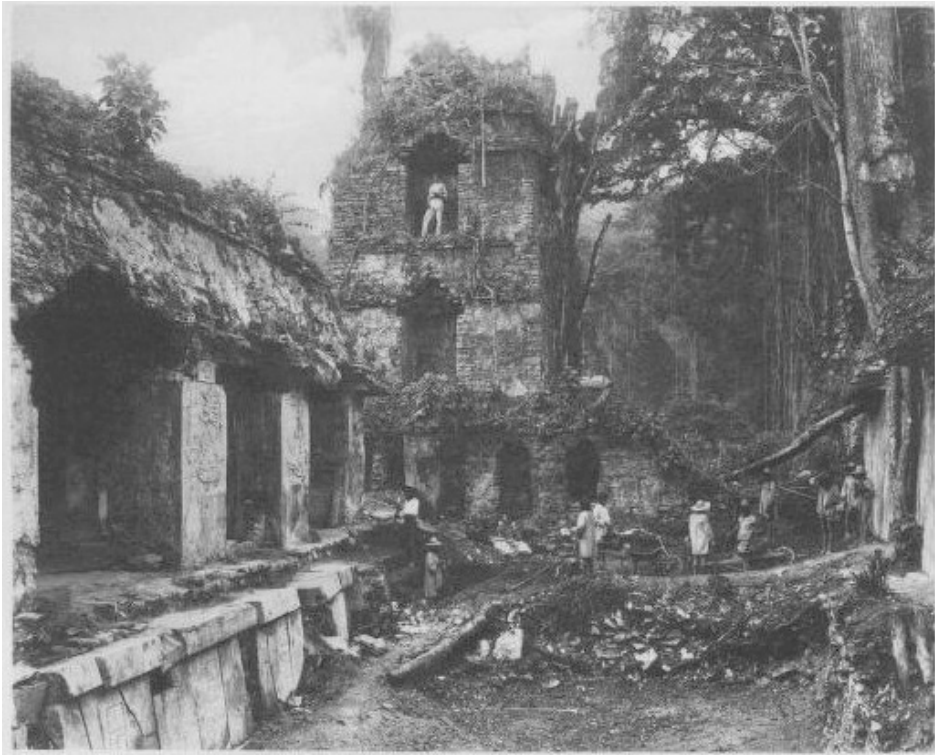


Figure 1: The high tower of his mind. Alfred Maudslay and indigenous workers at Palenque.
 Source: Alfred Maudslay, *A Glimpse at Guatemala* (1899). Photo: Robert D. Aguirre.

theless combined to create a relatively coherent discourse of post-independence Mexico and Central America. This discourse represented the region as rich in precious minerals but poor in cultural sophistication; the interior as largely empty or overgrown with bush; contemporary Mexicans and Central Americans as little interested in, or knowledgeable about, the advanced pre-Columbian civilizations whose sculptured remains lay deep within the forests; the worth of pre-Hispanic art as calculable predominantly in ethnographic rather than aesthetic terms and occupying a rank well beneath the cultural productions of comparable societies (e.g., Greece, Rome, and Egypt); and the emerging discipline of pre-Columbian studies as the domain of European and U.S. elites without recourse to, and frequently with condescension toward, Mexicans and Central Americans, whether Creole or indigenous.

In this framework, scientific discourses and cultural difference are closely knit, though not in predictable, uniform, or coherent patterns. Take, for example, the question of cultural rankings or grades. For British scientific travelers, ‘difference’ actually translated into British superiority – technological, scientific, racial, and cultural. Ethnography and the entire spectrum of late Victorian racial science played key roles in forming and sustaining the core attitudes, including the distinction, reinforced in nearly every nineteenth-century travel account, between

the grandeur of by-gone civilizations such as the Maya, and the degeneracy of the nineteenth-century inhabitants who occupied the ruins. More than one traveler reports asking the local people who had built the monuments, only to be told, shoulders shrugging, “quien sabe?” British travelers, scientists, and cultural historians also ranked their own civilization over that of the Spanish, and lamented what they perceived as three centuries of ignorance and superstition that had reigned in Spanish America since Columbus’s landfall. The Spain they described seemed not to have enjoyed a Renaissance or an Enlightenment. “Such art as the Spaniards brought with them,” the Maudslays write, “was a degraded form of the renaissance, and the innumerable churches which they built are without any architectural merit but mass” (*Glimpse* 12). Not surprisingly, figures of illumination dominate the entire discourse of British travel to the region, from Catherwood’s Piranesi-inspired drawings in the 1840s to Maudslay’s glass plate photographs fifty years later. Ideas about the uneven development of knowledge and modernity, however, also operated internally in the writings of Central American elites, who similarly described the indigenous people as plunged into darkness and resistant to the modernity and social progress they sought to encourage through liberal schemes of nation building. Creole elites, furthermore, self-consciously embraced the worldview of European experts (*sabidos*) like Alfred Maudslay, even if such men held Creole cultural achievements in low regard.

Archaeological travel figured centrally in this discursive ensemble and generated the oft repeated narrative of Central American archaeology in which great men, like their cinematic avatar Indiana Jones, braved malarial jungles, insalubrious swamps, and backward local officials to reveal (and rescue) hidden treasures and the ancient mysteries they disclosed.³ Stephens, whose journeys to Central America are widely (though incorrectly) thought to have launched the study of Maya culture, depicts himself and his British illustrator, Catherwood, as truth seekers beset by overgrown jungle on one side and superstitious locals and corrupt government officials on the other. Adapting a version of quest narrative, Stephens narrates a journey from New York to the British settlement in Belize, where he cuts a path through the bush to the ruined cities in Honduras. He presents the emplotment of this route as isomorphic with the progress of the narrative and the gradual attainment of knowledge. “The ground,” he writes, “was entirely new; there were no guide-books or guides; the whole was virgin soil” (1: 119). As his narrative unfolds, light gradually dawns on the reader through a riveting parable of emerging consciousness and knowledge. In Stephens, the realization of vision, the founding of a historical narrative (the birth of Maya archaeology), and the clearing of the underbrush prepare the reader for the apprehension of the newly revealed treasures. The overall effect is of a peeling back – in the first instance of jungle, and in the second of ignorance.

3 Graham’s recent biography of Maudslay largely repeats this familiar story. For notable exceptions, see Trigger and Diaz-Andreu.

Central to the disciplinary narrative of pioneering knowledge is a calculated exclusion of local knowledge. Stephens depicts Central Americans not only as ignorant of the monuments and the civilizations that produced them, but also hostile to the forces of scientific modernity that would uncover the buried past. In a typical aside, he decries the “ignorance, carelessness, and indifference of the inhabitants of Spanish America” (1: 98). Such claims, however, erase the Central American Creole elites who preceded him at the sites he himself claims to have discovered. We know, for example, that Stephens had prepared for his journey by reading not only the *Description of the Ruins of an Ancient City, Discovered near Palenque* (1822), a translation of a report on the ruins written in 1787 by Captain Antonio del Río, but also the more significant work of Juan Galindo, recognized today as the “first archaeologist in the Maya field” (Graham, “Juan Galindo” 12).⁴ In the decade before Stephens’s arrival Galindo had surveyed the ruins of important Maya sites described in *Incidents of Travel: Copán*, which lies near the Honduras/Guatemala border, and Palenque in southern Mexico, which he portrays as the center of a “civilised, commercial, and extended nation” (Galindo 665-66). Driven by patriotic fervor, Galindo had published his findings in British, American, and French learned journals. And he was not alone among Central Americans in proclaiming the value of Maya civilization.⁵ Stephens, however, sweeps these investigations aside while claiming the field for himself, drawing on a larger ideology of possession and the proper domains of science in which European and U.S. travelers interpreted Central American “neglect” of antiquities as a writ to void the local peoples’ claim to their own cultural patrimony.

If, in writing archaeology as heroic enterprise,⁶ early practitioners diminish the assistance and collaboration of local elites and the indigenous population alike, they also downplay the symbiosis between archaeological travelers and the imperial structures, hard and soft, that made their own work possible. Stephens journeyed through Central America on a U.S. diplomatic passport, but represents his archaeological work largely as a matter of individual effort. The massive authority of the United States, which shapes his entire mission, exists for the most part as an unspoken force, referred to but only rarely invoked. In Maudslay’s case, the ground was laid by a vast albeit ad hoc system of diplomatic connections, introductory letters, and official and semiofficial relationships that meshed closely with the larger British presence in the region. He notes in his chapter on Copán, for example, that “through the courtesy of the Foreign Office I had been recom-

4 Del Río’s report was translated into English and published in London by the bookseller Henry Berthoud, who issued it with seventeen engravings (Brunhouse 14). For more on Galindo, see Griffith, and Brunhouse (31-49).

5 For a concise overview of Central American archaeology before Stephens, much of it conducted by Central Americans themselves, see Chinchilla Mazariegos. Williford covers the liberal programs of Central American nation-building, of which archaeological research was a part.

6 Adopting Harold Bloom’s theory of influence, Harvey considers Stephens a “post-heroic” traveler, laboring in the shadow cast by Humboldt and other towering predecessors (160-63).

mended to the care of the English Minister to the Central-American States” who, as the chapter reveals, possessed important contacts that furthered Maudslay’s work (128). Staff in the Colonial Office, which administered the settlement at British Honduras (now Belize), and the Foreign Office, which managed relations with the Central American republics, frequently coordinated events from afar. To be sure, British hegemony was always fragile and incomplete, its impact limited by inexact maps, fragmentary knowledge of the local people, and slow communications. Colonial and Foreign Office personnel were hampered by considerable official duties and their isolation within major towns and cities. This only meant, however, that traveler-archaeologists such as Maudslay, with their experience in the hinterlands, were uniquely placed to reciprocate government assistance with valuable contributions of their own. In a political context where knowledge was at a premium, the government relied on a network of loosely affiliated British subjects – scientists, travelers, businessmen, and cultural go-betweens – to supply crucial, up to date information. Maudslay was perfectly tailored to this role, for he moved easily between British and Central American settings. His popular and scientific works demonstrate a wide familiarity with local conditions – the land itself (topography, natural features, and climate) as well as the cultures that sprung from it, indigenous and Creole alike. He journeyed to regions far beyond the ken of the average traveler, and his unusually large repertoire of skills – writing, surveying, drawing, photographing, and mapmaking – complemented this experience.⁷

Engendering Labor

Within this cultural fabric, *A Glimpse* stands out for the odd thing it is – a double-voiced text in which two authors, one male and the other female, combine to create a work at once recognizably scholarly but also touristic enough to generate popular appeal. Yet despite the text’s insistence on the feasibility of this approach and the division of labor that stands behind it, the conflicts and contradictions of the arrangement remain unresolved. The text never attains a unity, but remains divided by clashing rhetorics and generic confusion. The most visible site of these warring energies is the text’s discussion – and exemplification – of work, one of the most sacred of all Victorian ideologies, a term profoundly shaped in turn by ideologies of gender. In the first instance the term means the scientific work of British archaeology, and more specifically the kind of field-work Maudslay practiced in Central America during his seven seasons of exploration. Of course the discourse of Mesoamerica that lies behind this work is almost

7 Maudslay’s expertise in Central America led to his involvement in a British government scheme during the 1880s to build a railroad from British Honduras to Guatemala, which had long opposed British territorial claims in the region. For the complete discussion, see Clegern.

exclusively a product of upper-class, male subjects associated with the all-male institutions of the diplomatic corps and military, as well as the learned societies in London that sponsored expeditions such as the Royal Geographical Society. Once again, Stephens's collaboration with Catherwood defines a pattern, in which men from the privileged classes bond together in a homosocial adventure at the colonial fringe. Central to their pact (it was actually written down as a contract) is a division of labor specifying Stephens as writer and Catherwood as illustrator. Their fellowship is exclusively male: no women accompany the travelers into the forest depths, and thus the privilege of first sight – the “virgin soil,” as Stephens aptly writes – is reserved for the male gaze only. Stephens occasionally leers at the indigenous women he encounters, but these gazes render the objects all but invisible except as elements of fantasy for the lonely male traveler far from the civilized comforts of home.

In *A Glimpse*, Anne's presence, both as character in the narrative and as narrating subject herself, disrupts the all-male world of the archaeological traveler; yet, like the Mesoamerican discourse in which she participates, never in uniform or predictable ways.⁸ Although the title page lists her as first author, with her husband Alfred following, her role in Guatemala functions merely to supplement his eight-years' work as an archaeologist in the decade and a half prior to their joint journey. Alfred's preface notes that “the archaeological results of my seven expeditions to Central America are in [the] course of publication” (ix). That work – professional, detached, scientific, issued in learned volumes – precedes and towers over her writing, also a kind of work, with its emphasis on quotidian matters and scenes of domesticity. Indeed, Anne acknowledges her secondary status by repeatedly referring to “my husband's work” as the expedition's *raison d'être*. Accordingly, Anne takes up a quintessentially middle-class, Victorian role, shaped by a gendered understanding of separate spheres. Like their metropolitan counterparts in London, the Maudslays divide their labor into separate, gendered domains: a masculine zone of outdoor work involving both intellectually challenging and physically dangerous pursuits, and a feminine zone of indoor work involving myriad domestic duties. While Alfred sets up his photographic apparatus or treks into the jungle to hunt for ruins, Anne cooks and sweeps. She makes this clear in her narration of the work at Copán: “by 7 o'clock all were off to work: my husband provided with note-books, tape-measures, and drawing-board [...] My duties lay mostly in the camp, and were purely housewifely in character” (118-19).

The division of labor extends to the work of writing the text as well. The arrangement, as Alfred indicates in the preface, was that Anne “should keep a diary and write the book, and I would add some archaeological notes!” (ix) This makes it appear as if the notes are of small importance, but the finished text reveals otherwise. Anne begins the narration in *A Glimpse* by describing the

8 For an overview of the tropes and conventions of women's travel writing, see Basnett.

arrival in Central America and first steps on the journey, but her narration is interrupted after only twenty-nine pages and four chapters, with the first of her husband's "notes." These chapter-length notes, as the text proceeds, increasingly come to dominate the narrative, compromising both her authorship and textual authority. The first interruption occurs after Anne's description of the couple's ascent of a volcano, a staple of Central and South American travel since Humboldt. Her account dwells on the extraordinary difficulty of ascending the peak, the many stops necessary in order to rest, and the physical discomfort caused by extreme temperatures: "At such moments one's nerves, already at full tension, became unmanageable, and one's mind conjured up fantastical pictures and forebodings of danger from the treacherous nature of the mountain to whose mercies we had confided ourselves" (35). Alfred's note, which immediately follows, briskly relates his solo ascent up the same volcano and a journey up another one nearby in the company of Dr. Otto Stoll, a physician practicing medicine in Guatemala. Serving no ostensible archaeological purpose, the note represents the climb as effortless. What for her is a journey fraught with danger is for him a pleasant, recreational stroll. Anne's narrative foregrounds her own subjectivity, while Alfred's strives for the more detached – and conventionally male – tone of the scientist. The juxtaposition has the effect of a rebuttal.

Further notes expand Alfred's role as center of discursive authority in the text. They address ethnography (ch. VIII, "The Quichés and Cachiuels"), famed ruined cities such as Copán (chs. XVI-XVII), Chichén Itzá (ch. XXI), and Palenque (ch. XXIII), the nature of Maya writing itself (ch. XXVI), and a lengthy chapter of general conclusions. Anne's portion includes the first third of the text, which concerns travels in the Guatemalan highlands but not discussions of the archaeological sites themselves. Once the party arrives at the centers of ancient Maya culture, in chapter XV, Anne gradually recedes as narrator, and with her the focus on gendered labor, both her own and those she encounters. Alfred writes eleven of the last twelve chapters, including the final eight, all of which address scientific matters. Cultural questions arise, but only as they shape the primary activity of archaeological inquiry, which is Alfred's domain. Alfred's narrative authority is further cemented by his control over the camera, through which we glimpse the land. He takes nearly all of the several dozen photographs in the work and becomes the seeing and recording eye behind the lens.

Hierarchies of Labor and Value

Just as Victorian ideologies of gender and labor shape the Maudslays' distribution of work between themselves, they also color their interaction with the peoples their book describes. And despite her gradual disappearance from the text as narrator, Anne assumes a key role in providing the terms that define those interactions, and by extension, the cultural ground in which her husband's scientific

work proceeds. This act of discursive ground-laying begins immediately in *A Glimpse*. Acting as proxy for the armchair reader, she writes that her husband worried “as to what effect this sudden plunge into semi-civilization might produce on a novice” (19). The reader, too, is presumably a novice, perhaps even a female one, so this device places her in a structurally similar position to the narrator. Both glimpse Guatemala for the first time, and what they see is a world thoroughly classed and stratified by what counts as work.

Alfred Maudslay’s scientific work turns out to depend on the largely invisible Central Americans who cart his belongings and clear brush from overgrown ruins. Some idea of their task emerges from the following list, which Alfred provides in the chapter on Copán: “axes, machetes, pickaxes, spades, crow-bars, wheel-barrows, surveying and photographing apparatus, dry plates and chemicals, a barrel of lime, four tons of plaster of Paris and some four or five hundredweight of moulding-paper, in addition to food, personal baggage and camp kit” (128). Alfred focuses on the “articles which I knew to be necessary to the carrying out of my plans” (128). His impersonal formulation mentions only his own work and the objects; the labor itself is elided by his impersonal constructions. For Anne, the question of how to transport items is almost entirely a matter of cultural interaction, which pivots around her obsession with the workers’ perceived laziness. In each village along the route, the Maudslays have to hire laborers to convey their things to the next town. For this, they turn to the town alcalde, a kind of municipal magistrate:

I soon learnt that the alcaldes never hurry themselves to find the mozos [the laborers], and that the mozos are never in a hurry to come; and when at last they are all assembled, much time is lost in fussing over the size, weight, and general make-up of the cargos. Even when the mules were all saddled and loaded, and we were making a start, one of the mozos was sure to find that the tent-poles were too long, or the camera-legs inconvenient to adjust. This discovery was followed by a demand for more pay and we had to wait whilst Gorgonio [the guide] smoothed the ruffled feelings of the mozos to whose lots these awkward burdens had fallen. (21)

Although crucial to the enterprise, the laborers’ work is invisible; its only record is in the published work of the Maudslays. The workers themselves are imaged in the narrative as static ethnographic types or as reluctant laborers. Imperialism thus here appears in its familiar guise as a set of techniques for compelling others to work for you while denying their agency.

More precisely, it is certain kinds of work that the Maudslays extract from the locals. For their division of labor reinforces the larger hierarchy of European observers over their subjects, reproducing at the level of work a series of familiar oppositions: civilization/savagery; rationality/superstition; modernity/backwardness. The Central American mestizos and the present-day indigenes, figured

as racially and culturally degenerate, are excluded from the world of scientific modernity represented by the work of archaeology. They are not useful as guides to the culture of their forefathers, but only as silent assistants who are engaged in carrying burdens, “clearing brush,” and “scrubbing moss and lichens from the sculptures” (119). They occupy the bottom rung of the ladder of work, which descends from Alfred Percival Maudslay at the top, to Anne Cary next, then to the Creole elites, then to the *mozos*, or workers, themselves. This is to say that the domestic separation of spheres is embedded in another partitioning, involving both labor and notions of value. The text’s operative assumption is that only the British (or other like-minded European subjects) are fit to do the crucial work of discovering, observing, and preserving the Mesoamerican monuments. This belief is stated repeatedly by both Maudslays, and at one point Anne writes:

The ordinances issued from time to time by the Government [of Guatemala] prohibiting excavations and the removal of sculptures and pottery have confirmed both Indians and Ladinos in the belief that the mounds contain hidden treasure, and the result may easily be disastrous, for it is as likely as not that the Indians may themselves begin rummaging amongst the ruins in search of treasure which does not exist, and will destroy in the process much that, although it is valueless to them, is of the highest importance to the archaeologist. (86)

That the Maudslays themselves carted off priceless artifacts (a kind of treasure) to the British Museum recognizes no contradiction here. Neither is there any self-consciousness about the propriety of the British traveler in questioning Guatemalan laws governing sacred objects. But beyond that, the Maudslays assert that the cultural inheritance of these peoples is *valueless* to both the Ladino and the indigenes. In this crucial formulation of the British discourse on Mesoamerica, the objects are represented as having no resonance within Guatemalan culture itself. They are meaningless ciphers, signifying nothing. They acquire meaning only when the archaeologist himself *confers* value upon them, either by “discovering” them or placing them in a European museum alongside other objects of recognized value.

These assumptions have a long history in the British discourse on Mesoamerica, dating as far back as the 1820s when foreign travelers first examined Mesoamerican sites. William Bullock, who came to Mexico in the early 1820s, notes that the natives marveled at him when he took plaster casts of Aztec ruins in Mexico City, presumably because they did not value their own cultural heritage. As I have already noted, Stephens and Catherwood consistently troped the indigenes as indifferent to the pre-Columbian past. Official dispatches and British Museum memoranda from the 1840s, likewise, reveal a secret plan to acquire, that is, *take*, the ruins of Copán and other Maya sites, a plot driven by a similar rhetoric of differential value. British Foreign Secretary Palmerston launched the effort with language very similar to that used by the Maudslays forty years later,

writing to his chargé d'affaires in Guatemala: "You will be careful therefore that in making any inquiries in pursuance of this instruction you don't lead the people of the country to attach any imaginary *value* to things which they consider at present as having no value at all" (qtd. in Aguirre 68; emphasis mine). Again, the determination of real value is the exclusive prerogative of the European subject, to be distinguished at all times from "imaginary value." For Palmerston, who operates by the competitive logic of the marketplace, what matters is depressing prices by concealing the discoveries from other potential buyers. Such a strategy made sense in a context of emerging global demand for Central American antiquities, as archaeologists from France, Germany, and the United States competed to corner the market.

Few travel accounts, however, take such pains to make the argument about differential value and labor as *A Glimpse of Guatemala*. Not only are the local people relegated to menial tasks, but when they are represented as showing curiosity the Maudslays go to great lengths to belittle their ability to comprehend high-level archaeological work. Toward the end of her part of the narrative (ch. XIV), Anne reports the arrival of a small delegation of local officials, who

seating themselves on the floor – chairs being scarce – would make polite speeches and ask what progress Don Alfredo was making with his work. These conversations would promise to be of interest, as our visitors always professed to know much about the monuments, and to appreciate the reason why foreigners took so much interest in them, until some stray remark showed that our minds were travelling on totally different planes of thought – theirs, I fear, being weighed down with an unmovable belief in buried treasure. Then the conversation would flag, and the pauses become longer, until we produced a brandy-bottle, when they all stood up and solemnly drank our health, and, that ceremony over, took leave of us with the same formal politeness and filed out the door. (124)

The account presents the local people as ignorant and clownish, interpreting their polite speeches and decorous, submissive language ("Don Alfredo") as indicative of a hidden motive, i.e., discovery of the buried treasure's location. Left unexplained is the difference between an artifact, an object of authentic scientific inquiry, and mere 'treasure'. Perhaps this is because the narrative assumes that the reader, seated comfortably in London or New York, will have already accepted the Maudslays' claim of having only disinterested scientific motives, which is internally legitimated by frequently drawing contrasts with those who merely want to fill their purses with gold. The entire authority of the Maudslays' scientific enterprise rests on this distinction, and it is never opened up for question, but only reiterated.

The key figure in its reiteration is Alfred Maudslay, who, as noted above, writes the latter half of the work. As he assumes the dominant share of the writ-

ing, he also asserts narrative control by returning the reader to the scenes of his earlier research, conducted in 1881-85, moving the discourse from touristic details to the work of archaeological science. In doing so, he maintains several points of discursive continuity with Anne Maudslay's narrative, the most important of which is the distinction between his own work and the locals' amateur efforts. But in his hands that difference underpins a larger narrative featuring the professionalization of archaeology itself, a process in which Maudslay played a leading role. Historians such as Harold Perkin and Eliot Friedson have pointed out that during the nineteenth century newly established professions codified their place in the labor economy by erecting and maintaining barriers to entry: education, credentials, and the like. Professionals, as Friedson puts it, are defined by the "degree to which they, as occupations rather than classes, have gained the organized power to control themselves the terms, conditions and content of their work in the settings where they perform their work" (22). For Perkin, the society of professionals is "enhanced by strategies of closure" (2).

Throughout his narration Maudslay erects partitions both internally (with respect to previous workers in the field) and externally (with respect to those outside it). In the first instance, he acknowledges in *A Glimpse* the labors of Stephens and Catherwood at Copán, but only to relegate them to the category of the "charming" and "delightful," characteristics insufficient "for a detailed study of Maya art and inscriptions" (127-28). For that, he sets himself the task of gathering and publishing "a collection of accurate copies of the monuments and inscriptions," one that would enable further work of "examination and comparison" by scholars in distant centers of learning (128). In the process of setting forth his work he reveals that Foreign Office personnel stationed in Guatemala facilitated his efforts by recommending him to the Honduran President, Luis Bográn, who would later do Maudslay an enormous favor (more on that below). But more immediately, the introduction to Bográn results in a crucial opportunity for Maudslay to represent the officious but bumbling efforts of the local archaeologists that Bográn sends to assist him. This is the second partitioning, and beyond consolidating his status among fellow professionals, it serves to harden the distinction, elaborated throughout Maudslay's chapters, between the scientific approach of the European traveler-archaeologist and the well-intentioned but hopelessly inexperienced efforts of the local people, this time not a ragtag group of nearby villagers, but officials and academics in the Honduran government itself.

After first acknowledging that the introduction to Bográn turned out "not a little to my advantage" (129), Maudslay proceeds to convey his "astonishment" at the elaborate preparations made for his arrival at the small, remote village of Copán, where "triumphal arches" had been set up to welcome him and where he was received by a "guard of honour of barefooted soldiers, and by an ex-Minister of State and a professor from the Government College." They present him with an "official-looking" document addressed to "El Sabio" (the learned one) informing him that the President, who had taken a "really sympathetic interest in

my work,” had appointed the men “as his commissioners” to assist in Maudslay’s efforts. Yet after only a week Maudslay, convinced of their ineptitude, is able to impress on them “the value of the *work* they had accomplished” and recommend them to “rest from their *labours* and return to their homes” (129; emphasis mine). For “pleasant and genial” as they were, these were “not persons altogether suited to carry out the task entrusted to them” (129). Maudslay doesn’t say in what ways they were unsuited to archaeological research, but rests his case on the implied contrast between the two cultures: one florid and ceremonious, the other reserved and carefully qualified. A master of tonal control, Maudslay speaks volumes in few words, relying on the reader’s complicity in judging the Central Americans as “not altogether suited” to the work that he considers properly his own.

The clinching evidence for Maudslay’s thesis comes at the end of the same chapter, where once again he is visited by an “official-looking” person, a general in the Honduran army. Maudslay recounts an initial meeting, in which they pay “formal visits” and he is forced to endure “some very pretty speeches” about “Progress, and Liberty, and Science, which had they been printed with a free use of Capital letters, would have read like a leading article in a Spanish-American newspaper” (131). The officer’s ceremonious behavior and high-minded rhetoric signals that he, too, might be unsuited to the necessarily dispassionate work of archaeological science. To sharpen the point, Maudslay remarks that the general “accepted with *effusion* my offer to take him round the ruins” (emphasis mine), a gesture that turns out to be a crucial test. The next morning the officer appears, pencil and notebook in hand, prepared for his guided tour. Maudslay observes that while the general’s “fingers played caressingly round his pencil, he never took a note,” that is, until they stand in Copán’s central court before one of the stela, carved with a “well-preserved inscription” (131). Here, Maudslay provides the damning evidence that the general, instead of tracing the inscription, copies into his notebook the letters “J. HIG” – graffiti scrawled by a previous traveler (J. Higgins).⁹ The general’s exclamation – “Don Alfredo, after all, these hieroglyphics are very much like the characters we use now!” (131) – illustrates not only his ignorance, but furthermore evokes the broader anthropological trope that distinguishes between cultures based in writing, inscribing, and perceiving and those plunged into darkness. The scene inscribes a carefully modulated account of otherness in which the general’s crucial failing is his inability to perceive cultural alterity. He can only recognize writing if it is in European script, whereas Maudslay’s project involved the attempt to crack the Maya code. Given in one of Maudslay’s “notes,” the account turns on the inefficacy of the general’s own note-taking, and serves to support the larger assumption that the Central Americans’ neglect of the ruins (their failure to study them, to *write* about them) ultimately justified their removal to distant museums where these actions could be safely and assiduously undertaken.

9 John Boddam-Whetham, a previous traveler to the region, notes seeing the graffiti in the 1870s (179).



Figure 2: Maya Head.
 Source: Roger Fry, *Last Lectures* (1939). Photo: Robert D. Aguirre.

This interconnected logic is embedded in Maudslay's narrative, encoded in his offhand (and again understated) remark that his introduction to Bográn turned out "not a little to my advantage." This refers to Maudslay's request, in a telegram to Bográn, to remove antiquities from Copán. Maudslay's biographer Ian Graham claims that the request was for "certain pieces" (*Alfred Maudslay* 140), but as Graham's own transcription of the original telegram makes clear, Maudslay asked for "unas pocas pedecitas [sic]" (295), a few small pieces. That's no small difference, for among those *pocos pedacitos* was an extraordinary stone bust, sometimes called the corn god, that the renowned modernist art critic Roger Fry later compared to the greatest sculpture in Europe, praising its "equilibrium between system and sensibility," its "power at once to suggest all the complexity of nature and to keep every form within a common unifying principle" (87, Figure 2).

Along with other pieces Maudslay removed from Central America, this bust forms the core of the British Museum's Maya collection. Of course, as Maudslay well knew, it was impossible for Bográn to know what he was being asked to let go; a few small pieces is a rather vague request. But Maudslay certainly did know, and thus the only reasonable conclusion we can draw is that his minimizing of the sculptures' value was also "not a little to his advantage," and was per-

haps informed by his frequently stated disdain for the abilities of the local people, working class and elite, to comprehend their own material past and the *value* of the very things that lay in their midst. We can also assume by Maudslay's remarks about the diplomatic reception that he was aware of his prestige as a British subject with high government connections, and that his status certainly smoothed the transaction. Honduran legislation explicitly protecting antiquities in the valley of Copán had been on the books since 1845, just after Stephens's journey, and though we cannot know precisely why Bográn assented to Maudslay's request, economic dependency within the context of informal imperialism may have had something to do with it.

No such authorizing telegram from a head of state, however, is known to exist for the other large cache of Mayan masterworks Maudslay carted off from Central America: that is, the Yaxchilán lintels. After reporting his discovery of a "beautifully carved lintel," Maudslay announces that "this excellent example of Maya art I determined to carry home with me" (239-40, Figure 3). The lintels are large and heavy, and Graham describes in detail how Maudslay employed his logistical mastery, and his native bearers, to remove the carvings to Belize, the place of embarkation for London:

as for the lintel, estimated by Maudslay still to weigh about a quarter of a ton even though reduced to half its original thickness, there was no other way to carry it than lashed to a pole borne on men's shoulders. Not surprisingly the men took several days to reach Sacluk. There Maudslay was able to reduce its thickness a little further with a saw he bought from a lumberman. [... Eventually it was] carried by sixteen Indians as far as El Cayo, British Honduras, whence it could be taken downriver to Belize for shipment. (*Alfred Maudslay* 105)

Giving scholarly sanction to the logic of dispossession voiced repeatedly in *A Glimpse*, Graham suggests that Maudslay was well within his rights to dig at Yaxchilán because Mexican authorities in the distant capital were uncertain of its exact location and, what's more, "no objection was made at the time" (106). Beyond the question of how officials could object to excavations at a site unknown to them, there is in Graham's account no awareness of the breach of national sovereignty committed by Maudslay *et al.* Graham's reference to poorly informed officials repeats the frequently uttered nineteenth-century claim about Creole and indigenous ignorance as a rationale for nullifying local claims. Mexico's legal traditions regarding the preservation of cultural patrimony predate those of the Central American republics, going back to the early 1820s when the *Museo Nacional* was established. Clearly, the validity of those laws does not hinge on whether an "objection" was made at the time, but on the legal right of sovereign nations to control their own jurisdictions and cultural treasures.¹⁰ What matters for

10 Greenfield outlines the legal, political, and ideological stakes in debates about the return of cultural property.



Figure 3: Yaxchilán lintel.
 Source: Désiré Charnay, *The Ancient Cities of the New World* (1887). Photo: Robert D. Aguirre.

Graham, however, is that, thanks to Maudslay's efforts, the lintels "reached England safely" (105); as Maudslay puts it, "I presented these sculptures also to the National Collection, and they are now to be seen at the British Museum" (241).

Written at a key moment in the disciplinary genesis of Mesoamerican archaeology, *A Glimpse* represents culturally determined orderings of labor and the often implied notions of cultural hierarchy that uphold them. The text's division of the labor of writing, resting on Victorian ideologies of gender and separate spheres, functions as a template for other labor divisions, the most crucial of which is the relegation of the local people to menial work, which structurally parallels Anne's confinement to domestic duty while Alfred studies the ruins. These partitions, in other words, are in fact not separate at all but closely interrelated, and bespeak the dense intertwining of cultural differences and scientific discourse in the founding documents of the travel narratives of nineteenth-century British archaeologists and the larger discourse of Mesoamerica of which they form a crucial part.

Works Cited

- Aguirre, Robert D. *Informal Empire: Mexico and Central America in Victorian Culture*. Minneapolis: University of Minnesota Press, 2005.
- Basnett, Susan. "Travel Writing and Gender." *The Cambridge Companion to Travel Writing*. Ed. Peter Hulme and Tim Youngs. Cambridge: Cambridge University Press, 2002. 225-41. <https://doi.org/10.1017/CCOL052178140X.014>
- Boddam-Whetham, John W. *Across Central America*. London, 1877.
- Brunhouse, Robert L. *In Search of the Maya*. Albuquerque: University of New Mexico Press, 1973.
- Chinchilla Mazariegos, Oswaldo. "Archaeology and Nationalism in Guatemala at the Time of Independence." *Antiquity* 72 (1998): 376-86. <https://doi.org/10.1017/S0003598X00086646>
- Clegern, Wayne. "Maudslay's Central America: A Strategic View in 1887." *Studies in Middle American Economies* 29 (1968): 73-94.
- Del Rio, Antonio. *Description of the Ruins of an Ancient City, Discovered near Palenque*. London, 1822.
- Diaz-Andreu, Margarita. *A World History of Nineteenth-Century Archaeology. Nationalism, Colonialism, and the Past*. Oxford: Oxford University Press, 2007. <https://doi.org/10.1093/oso/9780199217175.001.0001>
- Friedson, Eliot. "The Futures of Professionalisation." *Health and the Division of Labour*. Ed. Margaret Stacey et al. London: Croom, 1977. 14-40.
- Fry, Roger. *Last Lectures*. Cambridge: Cambridge University Press, 1939.
- Galindo, Juan. "Ruins of Palenque." *The Literary Gazette* 15 (1831): 665-66.
- Graham, Ian. *Alfred Maudslay and the Maya: A Biography*. Norman: University of Oklahoma Press, 2002.
- . "Juan Galindo, Enthusiast." *Estudios de cultura Maya* 3 (1963): 11-35.
- Greenfield, Jeanette. *The Return of Cultural Treasures*. Cambridge: Cambridge University Press, 1989.
- Griffith, William Joyce. "Juan Galindo, Central American Chauvinist." *Hispanic American Historical Review* 40.1 (1960): 25-52. <https://doi.org/10.1215/00182168-40.1.25>
- Harvey, Bruce A. *American Geographics: U.S. National Narratives and the Representation of the Non-European World, 1830-1865*. Stanford University Press, 2001. <https://doi.org/10.1515/9781503619159>
- Houston, Stephen D, et al., eds. *The Decipherment of Ancient Maya Writing*. Norman: University of Oklahoma Press, 2001.
- Matthews, Peter. *Pilot Study of the Maudslay Casts in the British Museum, 1998*. <<http://www.famsi.org/reports/97082/index.html>> Accessed April 29, 2011.
- Maudslay, Alfred Percival. *Biologia Centrali-Americana, or Contributions to the Knowledge of the Fauna and Flora of Mexico and Central America*. With Appendix by J.T. Goodman. Ed. F. DuCane Godman and Osbert Salvin. Vols. 55-59, Archaeology. London, 1889-1902. <https://doi.org/10.5962/bhl.title.50141>
- Maudslay, Anne Cary Morris, and Alfred Percival. *A Glimpse at Guatemala, and Some Notes on the Ancient Monuments of Central America*. London, 1899.
- Perkin, Harold. *The Rise of Professional Society: England since 1880*. London: Routledge, 1989.
- Said, Edward. *Orientalism*. New York: Vintage Books, 1979.

- Stephens, John Lloyd. *Incidents of Travel in Central America, Chiapas and Yucatan*, 2 vols. New York, 1841. <https://doi.org/10.5962/bhl.title.84376>
- Trigger, Bruce. *A History of Archaeological Thought*. Cambridge: Cambridge University Press, 1989.
- Williford, Miriam. "Las luces y la civilización: The Social Reforms of Mariano Gálvez." *Applied Enlightenment: 19th-Century Liberalism*. Ed. Margaret A. L. Harrison and Robert Wauchope. Middle American Research Institute Publications No. 23. New Orleans: Tulane University, 1972. 33-41.

Contested Science. Discourse and Competition of Affective Regimes in Early Twentieth- Century China

ANGELIKA C. MESSNER

Introduction

In the late nineteenth and early twentieth century in the Western and Eastern hemispheres, ‘science’ was unanimously perceived as natural science, as objective, and as universal. And it was the factor common to all the modernizing discourses in early twentieth-century China. However, there, its discursive formations were colored by a Chinese sense of inferiority and linked with the struggle for national survival. This was how things stood at least as early as 1895, when China suffered defeat at the hands of the Japanese, and attempts to save the old order became bracketed with efforts to renew the country’s position of strength and power. The feelings of inferiority were shared by scholars and students alike, who later supported the Communist Party and, a few decades further on, became part of the national elite.

Chinese scholars in the early twentieth century who claimed science as being the key to the nation’s continuance were not generally interested in the Western idealization of science as an end in itself. Knowledge for knowledge’s sake held no attractions for them. Moreover, the scope of the application of knowledge in early twentieth-century China was the domain of morals and religion. When Chinese scholars and students accused China of lacking a scientific spirit, they were referring, in an unspoken way, to a particular feature of an indigenous perspective on knowledge and knowledge acquisition, namely, the inseparability of knowledge from its context.

The association of modernity with progress, natural science, and technology is a metanarrative that still informs historians when linking Chinese modernity with the beginning of the discourse on enlightenment (*qimeng* 启蒙) surrounding the May Fourth movement of 1919, which contributed to the overthrow of the Qing dynasty. This view, however, marginalizes every ‘modern’ process prior to 1919 as somehow ‘pre-modern’ (Fogel 168-85; Cohen 10; Zurndorfer 461-85). In fact, a Chinese modernity had already been detected in much earlier periods by the

Japanese historian Naitō Konan (1866-1934). The Naitō thesis suggests that Chinese modernity (*kinsei* 近世) was in place at the beginning of the Song dynasties, 960-1279. This early modern period was followed by a second period in the fourteenth century that ended in 1911. In the early twentieth century, the assumption of an early modernity in Chinese history facilitated China's relationship with the international community of nations. In addition, this model had already called into question the idea of a single kind of modernity, that is, the Western one. Modifications of the Naitō Thesis were further utilized for research projects that focused on economic, political, and military changes in the tenth century (Eberhard 236). "Late Imperial China," a term that today historians mostly apply to the period between the tenth and nineteenth centuries, represents China's modernity as existing from about 1000 to 1900, as opposed to that of the Western, Indian, and Islamic worlds.

In order to evaluate Chinese modernity discourses, we also have to take into consideration the propagators of the self-strengthening movement (*zhiqiang yundong* 自強運動, 1861-1895), who suggested a significant distinction between the two postures: Western knowledge was only important in a practical sense; Chinese knowledge was still seen as the essential foundation (*tiyong* 體用 formula of science and technology, with *ti* meaning "essence" and *yong* meaning "practical use"). According to Prasenjit Duara, a discursive tension between Chinese traditional scholarship as being the national essence (*guo cui* 國粹) on the one hand, and Western-derived technological knowledge as only superficial useful knowledge on the other hand, was part of an emerging nationalism (*renmin zhuyi* 人民主義) and/or patriotism (*aiguo zhuyi* 愛國主義) that played a crucial role in early twentieth-century Chinese modernizing discourses.

Research on early twentieth-century Chinese history conventionally focuses on two areas that have been most radically transformed: the nation and urban spaces.

My contribution adds a third area, one that changed significantly during the early twentieth century: the human body. This article investigates discourses and practices that were concerned with the total renovation of the Chinese self. For this purpose, it is not necessary to demonstrate the Chinese advancements and failures in science and technology realized in the late nineteenth century between 1865 and 1895. Rather, I will trace the importing of science vocabularies, with a particular focus on psychology, a rhetoric that urged people to seek a radical reimagination and transformation of themselves. This process of appropriation can be tracked in terms of competitions of affective regimes.

Semicolonial Settings

The revolution in 1911 led to the collapse of two millennia of imperial government and its replacement by the Republic of China. This event was preceded by a complex semicolonial era that began with the Opium Wars in 1840-42, and

catapulted China into highly uneven sociopolitical relations. The 1860 Treaties opened China up to foreigners, especially to missionaries, who increased in number from about one hundred in 1835 to about one thousand in the 1870s (Latourette 479; Feuerwerker 42). Chinese treaty ports, put in place as early as 1842, were sites of Sino-foreign interaction with regard to business, newspapers, arsenals, schools, and hospitals (Rogaski 108-11). The schools and hospitals founded by missionaries were intended to help distribute the benefits of Western civilization throughout China and, simultaneously, to convert Chinese people to Christianity: from about 1850 onward, Protestant missionaries and their Chinese coworkers translated a huge number of books on astronomy, mathematics, medicine, botany, geography, geology, mechanics, and navigation into Chinese. In 1861, the Chinese government established a General Affairs Office, which included a School for Foreign Languages, with locations in Beijing, Shanghai, and Guangzhou. In 1865, an American machine shop in the Shanghai Foreign Settlement was purchased and the Jiangnan Arsenal (the Jiangnan Machine Manufacturing General Bureau – *Jiangnan jiqi zhizao zongju*) was founded. Nearly thirty arsenals, machine shops, arms manufactures, and naval stations were opened in China between the 1860s and the 1890s (Elman, *On Their Own Terms* 389), with the Jiangnan Arsenal serving as the new industry's headquarters and incorporating a department for the translation of scientific and technical texts. Technical work was still carried out by foreign machinists, and by 1870 the arsenal had become the greatest manufacturing center of modern arms in East Asia (Wright 211-12; Elman *On Their Own Terms* 360). Beginning in 1867, the translation department came under the guidance of John Fryer (1839-1928), a former teacher of English at the School of Foreign Languages in Beijing (from 1863 to 1865), and at the Anglo-Chinese School in Shanghai (from 1865 to 1867). Although his Chinese collaborators were much more versed in Chinese and in scientific studies, Fryer, as David Wright has convincingly shown, is remembered as the most prominent and prolific translator and as the most important popularizer of Western science. He published about thirty-four translations of natural science and technology texts between 1870 and 1880 (Spence 140-54; Svarverud 516-18).

The Boxer uprising (1900) was the last major attempt by the imperial government to control the foreign powers within its borders. The rebellion's failure finally resulted in the New Policy (*xinzheng* 新政) reforms in 1902 whose aim was to install and operate an efficient bureaucracy and tax regime. In 1905, France, Germany, the United Kingdom, and the United States claimed important mining rights as well as control of railroad construction in China. In 1905, the court at Qing enacted a new criminal code (based on the Japanese codex, which was in turn based on that of Germany), formed new regional armies, and instituted political and educational reforms.

From 1905 to 1911, the Qing government experimented with constitutional practices at the local level, and economic reforms were launched, with many Chinese-owned factories being set up in the treaty ports between 1903 and 1908.

After 1905, the total number of Protestant schools increased to 2585 with a total of 572,683 pupils (Morse 413). Despite these significant changes, the impression of both national and individual inferiority remained:

At the turn of the century, boys of my age who lived in treaty ports like Shanghai grew up with a strong inferiority complex. The best buildings in Shanghai were occupied by Westerners and most carriages were owned and used by foreigners. Racial segregation was unashamedly the order of the day. Public parks had signs at the entrances that dogs and Chinese were not admitted inside, and a tall Sikh police man, whom the Chinese called ‘the Redheaded Devil’, enforced the order with a big stick.¹

Soon after the fall of the Qing dynasty in 1911, China was divided and controlled for the next ten years by warlords and bandits. It was during this period that the New Culture movement (*Xin wenhua yundong* 新文化運動) was formed. Another initiative, the May Fourth Movement (*wusi yundong* 五四運動) of 1919, came as a reaction to the Treaty of Versailles settlement, one that was dominated by the Western Allies and paid little attention to Chinese concerns. In Article 156 of the treaty, France and the United Kingdom, in their attempt to punish Germany, transferred German concessions in China to Japan rather than returning sovereign authority over these territories to China. In response, on May 4, 1919, more than 3000 students attending Beijing University and other schools gathered in front of Tian’anmen Square and demonstrated against the betrayal of China by the Allies and the government’s inability to secure Chinese interests at the conference. In early June, the movement traveled from Beijing to Shanghai and workers and businessmen there also went on strike. Iconoclastic students and scholars within the movement adopted the radical position of opposing any kind of antiscientific efforts, based on the view that science was universally applicable regardless of its cultural (Western) origin. In the face of this sweeping claim for science as the key for national survival (*jiuguo* 救國), historians in 1919 began to link Chinese modernity with the beginning of a discourse of a specifically Chinese Enlightenment.

Contested Conceptions of Science, Knowledge, Morality, and Modernity

The first thing I learned in [... my Sino-Western school] was that the earth is round like a ball. To me it was decidedly flat. I was dumbfounded on being further told that lightning is created by electricity and is not the reflection from the mirror of a goddess; that thunder is a by-product of the same electricity and not the beating of a drum by

1 Fu-liang Chang, quoted in Saari 215-16.

the god of thunder. In elementary physics I learned how rain is formed. It made me give up the idea that a gigantic dragon showers it from his mouth like a fountain high above the clouds. To understand the meaning of combustion was to banish the idea of fire gods from my mind. One after another, the gods worshipped by my people melted away in my mind like snowmen in the sun. It was the beginning of what little science I know and the end of animism in me. (Monglin Chiang, quoted in Richard Smith 41-47)

The foreigner appeared [...] half divine and half devilish [sic!], double-faced and many-handed like Vishnu, holding an electric light, a steam boat, and a pretty doll in one set of hands, and a policeman's club, revolver, and handful opium in the other. When looked at his bright side, he was an angel, on the dark side he was a demon. (Monglin Chiang, quoted in Saari 215)

This reminiscence of a missionary schoolboy describes his perception of the gradual replacement of indigenous orders of knowledge by modern knowledge regimes. This simultaneously reflects the competition of two differing affective regimes that cannot be separated from their epistemological backgrounds. In the late nineteenth century, the term *gezhi* 格知 was already being used by Chinese students educated abroad in Western and Japanese universities to denote science in a modern sense. They regarded modern science in the light of the Japanese version of Western science, that is, as *kagaku* 科學 (*kexue*), meaning “branch of learning” (Masini 185). As with many thousands of terms and words, the word *kagaku* 科學 was also taken from the Japanese versions of English-Chinese dictionaries, where it had first appeared in its “modern” meaning. In classical Chinese (*wenyan* 文言), *kexue* 科學 meant to “study for the official examinations (*keju* 科举).” In the modern China, starting in about 1865, an emerging group of artisans, technicians, and engineers from the arsenals were no longer relying on the traditional fields of learning in mathematics and astronomy. Alongside the efforts to popularize modern science (*gezhi xue* 格知學) in the treaty ports and among the literati, private printing houses rapidly grew into huge publishing companies in the larger metropolises. The attempts to establish new morals for education started as early as 1902, when the Commercial Press started publishing textbooks of new knowledge to be used in primary schools (Dikötter 5-10). In particular, ideas concerned with the cultivating of one's personality included notions about how to govern oneself (*zizhi* 自治), a skill that was considered as the basis of freedom, and explained as a necessary and integral part of the progress of civilization (Schulz Zinda 689-700). Public health and racial health (*weisheng* 衛生) began to be associated with the concept of civilization itself; *weisheng* now became a crucial term in the move to renew society and as well as the whole Chinese population (Lei 1999). As Rogaski (22-47) has shown, the semantics of *weisheng* in Chinese history prior to the twentieth century referred to various ways of protecting and guarding life: for example, leaving the table slightly hun-

gry and knowing when to stop drinking wine were matters that medical officials were appointed to monitor in Zhou-times (ca. 1046-771 BCE). Furthermore, these views became part of the Confucian precepts on leading a life in balance with societal duties and connections. The way of health (*weisheng zhi dao* 衛生之道) therefore depended heavily on knowing how to restrain oneself from indulging in food, drink, or sexual excess, on knowing the right time and place for sitting, sleeping, getting up, moving, eating, and drinking. These mores were consonant with a view of the human body as part of cosmic activities. As Donald Harper has demonstrated, these regulative ideas regarding the human body predated the emergence of Daoism, which operated between 200 BCE and AD 200, as a conceptual system of thought (Harper 53). At that time, *yangsheng* 養生 (nurturing life) was not considered a part of medicine. Nurturing life comprised various practices to prevent disease and increase longevity, and as such, it was integrated into Daoism. By the late nineteenth century, the contents of *yangsheng* and *weisheng* appeared in syncretistic textbooks on the preservation and extension of life, based on Daoist views of internal body processes and focusing on the circulation of vitalities in the various parts of the body.

Similar to the significant reshaping and reimagining of *kexue* (studying for the examination) into “science,” as well as of *weisheng* (nurturing life) into “public health,” the terms *gewu zhizhi* 格物致知 (investigating things and extending knowledge) and *zhi* 知 (knowledge) were used to communicate the newly imported connections of public health to civilization; a modern and healthy person within a strong nation.

As mentioned in the introduction to this essay, Chinese propagators of science sought to employ science in aid of China’s survival, and they were generally disinterested in the idealist concept in which science was an end in itself. Accordingly, they also were not concerned with any historical perspective on the semantics of knowledge (*zhi* 知) and of *gewu zhizhi* 格物致知 (extending knowledge by investigating things) in China. Such a historical reconstruction, however, will help shed some light on the ways indigenous categories of knowledge in Chinese history changed without epistemologically separating knowledge from its practical contexts and from the cosmological order.

***Gewu zhizhi* 格物致知 (Extending Knowledge by Investigating Things)**

Accompanying the efforts made by arsenals and official schools, private initiatives popularized the notion of *gezhi* 格知學 (lit.: learning of investigating things) among scholars and official literati in the treaty ports. The term and concept *gezhi* 格知 (investigation of things) at that time (late 19th century) was used as an epistemological tool for fighting traditional thinking and ethics (anti-Confucianism). However, the term *gezhi* 格知 referred to an old concept that

had been used by Chinese scholars and students when referring to their attempts to extend knowledge by investigating things (*gewu zhizhi* 格物致知). The locus classicus of *gezhi* 格知 can be found in the chapter *Daxue* 大學 (The Great Learning) of the book *Liji* 禮記 (Record of the Rites), which was one of the five classics of the Confucian canon. The chapter *Daxue* describes the governmental system and ancient rites of the Zhou dynasty (ca. 1046-256 BCE). This text was reworked and reedited several times and by several scholars during the Han dynasty (202 BCE-220 CE), and this edition from the Han dynasty was used by scholars as preparatory material for the official examinations until the early twentieth century.

In the following, I quote from those passages in the *Daxue* chapter that explain and define knowledge and the ways people should and could achieve it:

大學：大學之道，在明明德，在親民，在止於至善。知止而後有定，定而後能靜，靜而後能安，安而後能慮，慮而後能得。物有本末，事有終始，知所先後，則近道矣。(Liji zhuzi suoyin 禮記逐字索引 43, 1)

Daxue: What the Great Learning teaches is to show luminous virtue, to renovate the people and to rest in the highest excellence. The point where to rest being known, the object of pursuit is then determined and, that being determined, serenity may be attained. To that calmness, there will succeed a tranquil repose. In that repose, there may be careful deliberation, and that deliberation will be followed by the attainment of the desired end. Things have their roots and their branches. Affairs have their ends and their beginnings. To know what is first and what is last will lead closely to what is taught in the Great Learning.

These students rejected the traditional Chinese epistemology of learning (*gezhi xue*).

古之欲明明德於天下者，先治其國；欲治其國者，先齊其家；欲齊其家者，先修其身；欲修其身者，先正其心；欲正其心者，先誠其意；欲誠其意者，先致其知，致知在格物。物格而後知至，知至而後意誠，意誠而後心正，心正而後身修，身修而後家齊，家齊而後國治，國治而後天下平。自天子以至於庶人，壹是皆以修身為本。其本亂而末治者否矣，其所厚者薄，而其所薄者厚，未之有也！此謂知本，此謂知之至也。(Liji zhuzi suoyin 禮記逐字索引 43, 1)

Daxue: The ancients, who wished to show luminous virtue throughout the empire, firstly ordered well their own states. Wishing to order their own states well, they firstly regulated their families. Wishing to regulate their families, they firstly cultivated their persons. Wishing to cultivate their persons, they firstly rectified their hearts. Wishing to rectify their hearts, they firstly sought to be sincere in their thoughts. Wishing to be sincere in their thoughts, they firstly extended to the utmost their knowledge. Such extension of knowledge lay in the investigation of things. Things being investigated, knowledge became complete. Their knowl-

edge being complete, their thoughts were sincere. Their thoughts being sincere, their hearts were then rectified. Their hearts being rectified, their persons were cultivated. Their persons being cultivated, their families were regulated. Their families being regulated, their states were rightly governed. Their states being rightly governed, the whole kingdom was made tranquil and happy. From the Son of Heaven down to the mass of the people, all must consider the cultivation of the person as foundation. It cannot be, when the root is neglected, that what should spring from it will be well ordered. It has never been the case that what was of great importance has been slightly cared for, and, at the same time, that what was of slight importance has been greatly cared for.²

Knowledge here is clearly connected to refinement of behavior: *wu* (things) as behavior (in an ethical way) implies that only when behavior (things) is investigated, does knowledge become complete. Knowledge, therefore, is in no way separated from ethics. The root of all knowledge lies in cultivation of the self (*xiu shen* 修身). It is important to note that prior to the abolition of the testing system in 1905 this epistemology was the authoritative one for everyone studying for examinations in Imperial China.

Zhi 知 (Knowledge)

In the eighth century BCE, when the state administration grew increasingly complex, *Zhi* became a crucial category. Privately directed academies educated young people for their future duties as administration officials. Once appointed to their posts, in addition to their proved loyalty to the emperor, they also had to demonstrate their abilities to carry out their jobs. Consequently, loyalty and kinship ties, knowledge and skills were utilized to bind subjects to their imperial rulers.

Officials were recruited through examination, which at least as early as the fourteenth century consisted primarily of memorizing neo-Confucian texts, including the classics quoted above. This material became officially sanctioned since the fourteenth century as the exclusive fundamentals of the examination (Elman, *Cultural History* 148; Esherick and Rankin; Wagner 118-34). With minor changes, it remained central to the examinations system until 1905. An enormous number of private and official library catalogues and bibliographies were critical to scholars working under the pre-1905 knowledge regime. As printed books, they shaped knowledge and its classification. The bibliographic organization of these catalogues was adjusted from time to time when new lines of argument and new perspectives and topics appeared, and when fields of knowledge fused or became differentiated. In the eighth century, for instance, when Confucianism gradually became the foundation of state ideology, we can observe one of these

2 My translation differs slightly from the translation provided by James Legge.

radical restructurings: skills in fields of practical knowledge such as martial arts, numerology, treatment methods, and recipes, lost their relevance for the examinations. They were integrated into scholarly canonical texts in a four-field classification: *Jingbu* 經部 (classics), *Shibu* 史部 (history), *Zibu* 子部 (philosophy), and *Jibu* 集部 (literary works) (Siebert; Kaderas). Under the Qing dynasty (1644-1911), when China reached geographical dimensions hitherto unknown, spatial expansions produced knowledge about rural ethnic groups, flora and fauna, and stimulated exploration into new spheres (Hostetler; Zögner 33-57; Selin 569-70). Between 1708 and 1718, Jesuits, together with local officials, were asked to serve as surveyors of the expanding empire's borders. Local officials were called on to carry out ethnographical investigations of the newly integrated non-Han populations since the empire now included Mongolia, Tibet, Manchuria, and Turkestan (Xinjiang) in the Northeast, and Yunnan and Guangxi in the Southwest. Moreover, in the eighteenth century, the knowledge bases from earlier periods had to be reordered in a systematic way. The court launched mammoth projects, encyclopedic works that would today include as distinct fields of knowledge mathematics (*suanfa* 算法) and astronomy (*tianwen* 天文). An adequate assessment of the knowledge classification that took place during this period is nearly impossible. Knowing that the nearly 900,000 pages of the *Gujin tushu jicheng* 古今圖書集成 (imperially approved synthesis of books and illustrations past and present), which were presented to the throne in 1726, were divided into six categories, which in turn were subdivided into thirty-two sections (*dian* 典), which themselves were subdivided into ten thousand subsections (*bu* 部), is not really helpful in translating terms or establishing lists from these texts. Furthermore, lists and terms shed light only in a restricted sense on the knowledge traditions that have been recorded in catalogues on the origin of things and on the technical and cultural innovations since the tenth century.

These fragmentary snapshots from the historical landscape of the knowledge-order/s in China illustrate that changes in the perception of knowledge and its relevance for societal positions and roles, as well as for innovation, have been on the agenda throughout Chinese history. As shown above, the notion of the category *zhi* 知 (knowledge) was an integral part of ethical duty as well as of aesthetic and sensitive perception. However, scholars also debated the relation between ethic-generalistic contents, on the one hand, and the more specific skills and qualifications, on the other hand; and although they mostly favored the ethic-generalistic contents, the formula "Investigation of things in order to extend knowledge" (*gewu zhizhi* 格物致知), which since the twelfth century was meant to exercise authority over every action and practice, included a few uncertainties. This formula was based on the preposition that everything inherited a principle, a structure (*li* 理) that had to be investigated. In practice, investigation of things meant studying and memorizing the canonized classics, reading them carefully, and looking for (hidden) references. In addition, the formula was also to be used as a guide for refinement and ethical self-accomplishment via cultivation (*xiu shen* 修

身) of the self. Simultaneously, this formula also served as the starting point for “concrete investigations” (*shice* 實測), e.g., “concrete, practical studies” (*shixue* 實學), which in the sixteenth and seventeenth centuries became of special interest to many scholars and official literati, and which also served as a means for legitimizing technical innovations. This is the background for the historical observation of the emergence of an epistemology of empirical knowledge in seventeenth-century China, which had already been suggested in the 1960s (Levenson).

On the other hand, historians generally agree that Imperial China lacked an equivalent to the Latin concept of “*scientia*” because during that era knowledge was never separated from its context. In opposition to earlier studies in the field of Chinese science, which, since the seminal studies of Joseph Needham (1900-1995), beginning in the 1950s, mostly dwelled on progress and innovations, historians have recently turned their attention to configurations of knowledge and innovations in their relation to practices in specific fields, for instance, screws and bores in mining, as well as technological improvements in bookprinting, the production of silk, and porcelain work. When dealing with handcrafting modes of production in sixteenth- and seventeenth-century China, historians look at the relationship between module production and aesthetics. Additionally, in the field of curative strategies (i.e., ‘regulation-knowledge’), new formations of identities within social spaces can be observed in the case of physicians who, in order to elevate their social status, tried to demonstrate their superior expertise using fashionable scholarly rhetoric. These new formations should be seen in connection with new etiological challenges since epidemics of unknown scope and origins could not be addressed using conventional methods (Messner, *Zirkulierende Leidenschaften* 145-68).

These epistemological and conceptual changes in knowledge, skills, and the social self during Late Imperial China differ significantly from those attempted in the early twentieth century.

Changing Epistemologies: Changing Selves in the Twentieth Century

Revolutionary discourses in the early twentieth century focused heavily on the total renewal of the Chinese mind. Most of the political elite characterized the Chinese nation as being a sick person, referring to that sickness as “insanity.” This rhetoric was used by these aristocrats, a high percentage of whom were Christians. Many were also doctors trained in Western medicine, Sun Yatsen (1866-1925) being one example. He played an instrumental role in inspiring the overthrow of the Qing dynasty in 1911. The first provisional President of the newly founded (1912) Republic of China (ROC), Sun Yatsen used the concept of psychological construction (*xinli jianshe* 心理建設) to explain that in order for the revolution to succeed, hearts and minds would need to be reformed. This

proclamation served as a powerful metaphor in the campaigns against superstition (Nedostup 91). Sun Yatsen had been educated in Christian schools in Hawai'i and Hong Kong (Goossaert 213), and in 1884, at the age of eighteen, he was baptized. The introduction of such Western dichotomies as "religion and superstition" (*zongjiao* 宗教 *mixin* 迷信) were popularized in early twentieth-century China (Goossaert 215), and Western-trained Chinese physicians utilized these kinds of dualities, especially when dealing with cases of insanity. They charged traditionally trained Chinese doctors of holding "absurd" and "totally wrong" notions about derangement, of being ignorant about its "psychological" (*xinli* 心理), and "physiological" (*shengli* 生理) causes (Messner, *Medizinische Diskurse* 245). This observation was congruent with the perception that the Chinese did not feel as intensely as Europeans did, and with the image of China as static and unchanging: from a Western perspective, change and activity were connected to the ability to experience strong emotions. Ultimately, these assumptions and perceptions solidified the view that China was less civilized than and inferior to the West.

Hsü Dau-lin (1906-1973), who began his graduate studies in law at the University of Berlin in 1929, published several scholarly articles on China and its citizens in the sinological journal *Sinica* during his years in Berlin. He wrote: "Sie können nie sehr leidenschaftlich lieben, nie sich ganz hingeben, und der chinesische Liebesbegriff ist viel zu eng, um eine Verehrung oder eine Anbetung in sich zu schließen" (Hsü 247). The modernization of Chinese minds was essentially a matter of the reformation of their hearts. Some people observed that the Chinese could not really *feel* humility, although they could *show* it. Western observers somehow felt disappointed and frustrated when they realized that the Chinese just followed etiquette and did not 'really' feel what they put on display (Smith 1902).

Reforming hearts and minds was also the goal of the purity and mental health campaigns run by missionary doctors. People were expected, for instance in Canton, to attend meetings during which presentations were made by doctors, as well as by the police, the senate and governor of Canton, and deputies of the Board of Trade, who were invited as speakers (Messner, "Translations and Transformations"). This kind of cooperation, between police and physicians, had first occurred in nineteenth-century North America and Central Europe. In China, physicians were now instructed to be alert to issues of 'racial purity' and to 'educating the young to an orderly, clean social life without sexual excess' in order to prevent insanity. This aspect of practicing medicine paralleled the problematization of venereal diseases at the 1899 conference on "Social Hygiene" in Brussels, one of whose proposals was the confinement of prostitutes to special hospitals (Oldt 777).

Indigenous views of mental health focused on the five inner viscera (heart, lungs, kidney, spleen, and liver) as the loci of mental and emotional processes. They dealt with imbalances and disturbances in body fluids that were connected to *qi* 氣-malfunctions, such as *qi*-reversal, states of repletion and depletion, and blockages of *qi* within the various organ systems. Eventually, it was neurosci-

ence (at the time, recently introduced and categorized as a branch of biology) and psychology that ultimately defined insanity as a disease of the brain (*naobing* 腦病) and helped shape the understanding and educating of the human being in early twentieth-century China. From this perspective, the indigenous views of mental health, including the concept of “sputum which blocks the heart holes” or of “demons and ghosts,” were considered ridiculous, beliefs held only by dumb people (*wuzhi yumin* 無知愚民) in China (Wang Wanbai 127).

The notion that the brain was the part of the body that directed all intellectual, mental, and psychic activities was alien to Chinese indigenous medical training. At the same time, it was also an idea that had been promulgated in the late nineteenth century by Tan Sitong 譚嗣同 (1865-1898), one of China’s most prominent intellectuals. He was among the reformers at the Court in Beijing who, between June 11 and September 21, 1898, succeeded in implementing reforms (Hundred Days Reform in 1898) based on Russian and Japanese models. The result was that he and five other intellectuals were executed later that same month. As the son of a high official, Tan Sitong had been educated in conventional Confucian ethics and philosophy. However, as Shek and Kwong have pointed out, after having read the Chinese translation of Henry Wood’s (1834-1909) *Ideal Suggestion through Mental Photography* (1893) in 1896, he eagerly supported the necessity of founding a school devoted to the study of the mind (the power of the heart, *xinli* 心力): “We can say that senses (knowledge, *zhi* 知) come from the heart. But as the heart controls the circulation of the red and purple blood, how can you see the so-called senses (knowledge) there? They must, then, come from the brain” (Tan Sitong 251).

This shift in approach could not take place without creating new terms in Chinese, which were partly based on translations from Japanese and were partly neologisms. For instance, both the terms “psychology” (*xinlixue* 心理學), on the one hand, and “physiology” (*shenglixue* 生理學), on the other, were neologisms that were introduced through Japanese translations from Western textbooks. No Chinese term existed for the word “nerves,” and a new one had to be invented, and the term *shenjing* 神經 (a compound of two words: 1. life force (spirit) and 2. warp) is still in use. Another example is the term *shenjing shuairuo* 神經衰弱 (lit.: weakness of the nerves) for neurasthenia, which is no longer employed in Western contexts, but in China remains as a general classifier for derangement.

Wang Wanbai 王完白, a Christian physician who also worked as a missionary, accused the Chinese people of being oblivious to the fact that ex-prisoners and bandits stirred up trouble everywhere (*raoluan defang zhi feitu* 擾亂地方之匪徒), and idiots (*chunyu* 蠢愚) were actually a disguised kind of mad people (*fengren* 瘋人) who could only be cured in special hospitals. Demands for a nationwide construction of such institutions were based on the argument that they would protect society from the handicapped (*canzei* 殘賊), stupid (*yu* 愚), and weak (*ruo* 弱) since reproduction among members of these groups could be prevented if they were so constrained. In order to segregate problematic individuals from society,

the provision of more than one thousand hospitals for the insane was proposed by Ross in 1926 (Ross 12). The purity campaigns in the 1920s animated several thousand Chinese Christians to participate in prayer groups and Bible reading courses whose focus was explaining the dangers of prostitution as a source of insanity. The monograph *Social Pathology in China* by Herbert Day Lamson (1934) cited North America as the standard example of facilitating the separation of the insane from their families. The Chinese custom of keeping at home patients so declared was characterized as emblematic of an uncivilized country (Lamson 383, 385). North America and Germany were held up as the standard bearers of public health, and it was against this background that in 1913 China made the decision to officially recognize Western medicine; in 1915 it became the sole examination subject in the medical curriculum. In 1921, however, Chinese medicine was again officially acknowledged as part of medical studies in the country. Nonetheless, the improvement of the Chinese health infrastructure was based on the basis of Western-style medicine. When the Nationalist government came to power, among their first activities was to set up a Ministry of Health on November 1, 1928. The ministry's plans included the rapid dissemination of Western scientific medicine with the old style medicine (*jiu yixue* 舊醫學) opening up for its "scientification" (*kexue hua* 科學化) and for the new medicine (*xin yixue* 新醫學) (Taylor 30-60). The site from which most of the public health campaigns mentioned above took place was the First Hospital for the Insane. It was established by the American medical missionary, John Glasgow Kerr (1824-1901), in Canton in 1898. During the hospital's first ten years patients came from the city's (and its hinterland) Christian convert families and their friends. Later, patients included people from Hong Kong, from well-to-do families as well as uprooted vagabonds. Gradually, First Hospital grew into a functional poor house, and beginning in 1915, poor and helpless people were also brought there by the Canton police. Around 1915 the time seemed to be ripe to promote the orientation, among Chinese scholars and physicians as well, that insanity was to be treated as a major medical and social problem (Messner, *Medizinische Diskurse* 63-67). Accordingly, the Hospital for the Insane can be seen as the most explicit and concrete attempt to change Chinese bodies and selves into civilized and Christian beings in the late nineteenth and early twentieth centuries. Among the therapeutic methods used – informed by the ethics of Puritanism and Protestantism – in addition to hydrotherapy and other calming formulas, were work, occupational therapy, development of detailed daily schedules, instructions in personal hygiene, and as hours of prayer and Bible study. Starting in 1909, restraint methods were implemented, and in special cases people were kept in horizontal positions in metal cages or were forced to wear strait jackets. First Hospital for the Insane was closed down in 1927, and between then and 1949, only six smaller Hospitals for the Insane were opened in China.

Conclusion

The ontology of all reform and renewing conceptions in the late nineteenth and early twentieth century was based on the idea of progress and evolutionary development. These ideas were integral to Sun Yatsen's views on the revolution and reformation of China. Consistent with the goal of renewing Chinese hearts and minds, the notions of sentiment, passion, and free love came to be celebrated in early twentieth-century literary works. The hygiene campaigns conducted by medical missionaries in the early twentieth century were partly based on Christian views of purity and partly on the so-called scientific evidence of racial purity. Both attitudes prompted the segregation of certain identified segments of society, such as prostitutes and the insane, from societal and familial contexts. Chinese Christians who had been trained as doctors demanded the complete renewal of the Chinese population via psychological construction. They repeatedly made use of the metaphor of China as being sick and its population insane. Most significantly, they reproached the Chinese for being completely ignorant of the real causes of insanity, and argued that superstitious views should be replaced by scientific perspectives, that the idea of the brain as the single and only cause of insanity should replace the multiple indigenous concepts of madness (e.g., *qi* 氣-disturbances). These discordant concepts of madness mirrored differing affective regimes. The opposing affective regimes were reflected in the different ways in which authenticity was conceived – Chinese people were accused of not being able to feel deeply – and last but not least, by different approaches to knowledge and the ways knowledge should be acquired and science employed. Whereas the newly imported concept of science rested on a foundation of the separation of knowledge from its practical contexts, the indigenous epistemological frame encompassed knowledge acquisition processes in concert with ethics and the cultivation of the self.

Works Cited

- Alitto, Guy S. *The Last Confucian Liang Shu-ming and the Chinese Dilemma of Modernity*. Berkeley: University of California Press, 1979.
- Barlow, Tani E. *Formations of Colonial Modernities in East Asia*. Durham, N.C.: Duke University Press, 1997. <https://doi.org/10.1215/9780822399117>
- Bennett, Adrian Arthur. *John Fryer: The Introduction of Western Science and Technology into Nineteenth-Century China*. Cambridge, MA: Harvard University Press, 1967. <https://doi.org/10.1163/9781684171552>
- “Brussels Conference of Social Hygiene.” *The British Medical Journal* 2 (1899): 676-78. <https://doi.org/10.1136/bmj.2.2019.676>
- Cohen, Paul A. *Discovering History in China: American Historical Writing on the Recent Chinese Past*. New York: Columbia University Press, 1984.
- Chang, Fu-lian. *When East Met West: A Personal Story of Rural Reconstruction in China*. New Haven: Yale-in-China Association, 1972.

- Chiang, Monglin. *Tides from the West: A Chinese Autobiography*. New Haven, CT: Yale University Press, 1947.
- Dikötter, Frank. *Sex, Culture and Modernity in China: Medical Science and the Construction of Sexual Identities in Early Republican Period*. London: Hurst & Company, 1995.
- Duara, Prasenjit. *Rescuing History from the Nation: Questioning Narratives of Modern China*. Chicago: University of Chicago Press, 1995. <https://doi.org/10.7208/chicago/9780226167237.001.0001>
- Eberhard, Wolfram. *Geschichte China. Von den Anfängen bis zur Gegenwart*. Stuttgart: Kröner Verlag, 1971.
- Elman, Benjamin A. *A Cultural History of Civil Examinations in Late Imperial China*. Berkeley/Los Angeles: University of California Press, 2000.
- . *On Their Own Terms: Science in China. 1550-1900*. Cambridge, MA, and London: Harvard University Press, 2005.
- Esherick Joseph W., and Mary Backus Rankin, eds. *Chinese Local Elites and Patterns of Dominance*. Columbia and Princeton University Presses, 1993.
- Fenzel, Birgit. "Made im alten China." *MaxPlanckForschung. Das Wissenschaftsmagazin der Max-Planck-Gesellschaft* 3 (2008): 27-31.
- Feuerwerker, Albert. *The Foreign Establishment in China and in the Early Twentieth Century*. Ann Arbor Center for Chinese Studies: The University of Michigan, 1976. <https://doi.org/10.3998/mpub.19996>
- Fogel, Joshua A. *Politics and Sinology. The Case of Naitō Konan (1866-1934)*. Cambridge, MA: Harvard University Asia Center, 1984. <https://doi.org/10.1163/9781684172481>
- Goossaert, Vincent. "Republican Church Engineering: The National Religious Associations in 1912 China." *Chinese Religiosities: Afflictions of Modernity and State Formation*. Ed. Mayfair Mei-Hui Yang. [Global, Aream, and International Archive] Berkeley, Los Angeles, London: University of California Press, 2008. 209-32. <https://doi.org/10.1525/9780520916203-010>
- Gulick, Edward V. *Peter Parker and the opening of China*. Cambridge, MA: Harvard University Press, 1973. <https://doi.org/10.4159/harvard.9780674284463>
- Harper, Donald. *Early Chinese Medical Literature: The Mawangdui Medical Manuscripts*. London and New York: Kegan Paul International, 1998.
- Hostetler, Laura. *Qing Colonial Enterprise. Ethnography and Cartography in Early Modern China*. Chicago/London: University of Chicago Press, 2001.
- Hsü, Dauling. "Die chinesische Liebe." *SINICA, Zeitschrift für Chinakunde und Chinaforschung*. Ed. Richard Wilhelm. 4.6 (1929): 241-51.
- Kaderas, Christoph. *Die Leishu der imperialen Bibliothek des Kaisers Qianlong (reg. 1736–1796): Untersuchungen zur Chinesischen Enzyklopädie*. Asien- und Afrika-Studien der Humboldt Universität zu Berlin 4. Wiesbaden: Harrassowitz, 1998.
- Kuhn, Dieter. *Die Song-Dynastie (960 bis 1279). Eine Gesellschaft im Spiegel ihrer Kultur*. Weinheim: Acta Humaniora, 1987.
- Kwong, Luke S. K. *T'an Ssu-t'ung, 1865-1898: Life & Thought of a Reformer*. Leiden: Brill, 1996. <https://doi.org/10.1163/9789004482920>
- Lackner, Michael, Iwo Amelung, and Joachim Kurtz, eds. *New Terms for New Ideas: Western Knowledge and Lexical Change in Late Imperial China*. Leiden: Brill, 2001. <https://doi.org/10.1163/9789004501669>
- Lamson, Herbert Day. *Social Pathology in China*. Shanghai: Commercial Press, 1934.
- Latourette, Kenneth Scott. *A History of Christian Missions in China*. New York: The Macmillian Company, 1929. <https://doi.org/10.2307/2750529>
- Lei, Sean Hsiang-Lin. "When Chinese Medicine Encountered the State: 1910-1949." Ph.D. Dissertation University of Chicago, 1999.

- Lee, Haiyan. *Revolution of the Heart. A Genealogy of Love in China, 1900-1950*. Stanford: Stanford University Press, 2007. <https://doi.org/10.1515/9780804768078>
- Legge, James. *The Chinese Classics in Five Volumes. I. Confucian Analects, The Great Learnin, The Doctrine of the Mean*. Hong Kong: Hong Kong University Press, 1960.
- Levenson, Joseph. *The Abortiveness of Empiricism in Early Ch'ing Thought: Confucian China and its Modern Fate: A Trilogy*. Vol. 1. Berkeley and Los Angeles: University of California Press, 1968.
- Liji zhuzi suoyin 禮記逐字索引 [The ICS Ancient Chinese Text Concordance Series, A Concordance to the Liji], The Chinese University of Hong Kong Institute of Chinese Studies. Hong Kong: The Commercial Press, 1992.
- Liu, Lydia H. *Translingual Practice: Literature, National Culture, and Translated Modernity. China 1900-1937*. Stanford: Stanford University Press, 1995.
- Masini, Federico. *The Formation of Modern Chinese Lexicon and Its Evolution Toward a National Language: The Period from 1840 to 1898*. Berkeley: Journal of Chinese Linguistics [Monograph Series No. 6], 1993.
- Messner, Angelika C. *Medizinische Diskurse zu Irresein in China (1600-1930)* [Münchener Ostasiatische Studien 78]. Stuttgart: Franz Steiner Verlag, 2000.
- . "Some Remarks on Semantics and Epistemological Categories in early Scientific Translations." *Monumenta Serica Journal of Oriental Studies*. Vol. LIII (2005): 429-59. <https://doi.org/10.1179/mon.2005.53.1.014>
- . *Zirkulierende Leidenschaften. Zur Rekonstruktion von Emotionswissen im China des 17. Jahrhunderts*. Unpublished Habilitation Thesis. University of Kiel, 2007.
- . "Translations and Transformations: Toward Creating New Men in the Early Twentieth-Century." *Biomedicine as a Contested Site: Some Revelations in Imperial Contexts*. Ed. Poonam Bala. Lanham, New York, Plymouth, UK: Lexington Books, 2009. 99-113.
- Morse, Hosea B. *The International Relations of the Chinese Empire. 1894-1911*. Reprint. Taipei: Book World Company, 1960. Vol. 3.
- Nedostrup, Rebecca. "Ritual Competition and the Modernizing Nation-State." *Chinese Religiosities: Afflictions of Modernity and State Formation*. Ed. Mayfair Mei-Hui Yang. Global, Aream, and International Archive. Berkeley, Los Angeles, London: University of California Press, 2008. 87-112. <https://doi.org/10.1525/9780520916203-005>
- Oldt, Frank. "Purity Campaign Canton." *The China Medical Journal* (August 1923): 776-82.
- Qinding gujin tushu jicheng* 欽定古今圖書集成. Compiled by Chen Menglei 陳夢雷, Jiang Tingxi 蔣廷錫 u. a. [1726]. 80 Vols. Chengdu, 1988.
- Rogaski, Ruth. *Hygienic Modernity: Meanings of Health and Disease in Treaty-Port China*. Berkeley, Los Angeles, London: University of California Press, 2004. <https://doi.org/10.1525/california/9780520240018.001.0001>
- Ross, Robert M. "Mental Hygiene." *The China Medical Journal*, Vol. XV (January 1926): 8-13.
- Saari, Jon L. *Legacies of Childhood. Growing up Chinese in a Time of Crisis. 1890-1920*. Cambridge, MA: Harvard University Press, 1990. <https://doi.org/10.1163/9781684172740>
- Schulz Zinda, Yvonne. "Propagating New 'Virtues' – 'Patriotism' in Late Qing Textbooks for the Moral Education of Primary Students." *Mapping Meaning: The Field of New Learning in Late Qing China*. Ed. Michael Lackner and Natascha Vittinghoff. Leiden, Boston: Brill, 2004. 685-710. https://doi.org/10.1163/9789047405641_030
- Schwarcz, Vera. *The Chinese Enlightenment. Intellectuals and the Legacy of the May Fourth Movement of 1919*. Berkeley and Los Angeles: University of California Press, 1986. <https://doi.org/10.1525/9780520341203>

- Selin, Helaine, ed. *Encyclopaedia of the History of Science, Technology and Medicine in Non-Western Cultures*. Dordrecht, Boston, London: Kluwer Academic Publishers, 1997. <https://doi.org/10.1007/978-94-017-1416-7>
- Shek, Richard H. "Some Western Influences on T'an Ssu-t'ung's Thought." *Reform in Nineteenth-Century China*. Ed. Paul A. Cohen and John E. Schrecker. Cambridge, MA: East Asian Research Center, Harvard University, 1976. 194-203. https://doi.org/10.1163/9781684172030_029
- Siebert, Martina. *Die bibliographische Kategorie der pulu. Abhandlungen und Aufstun- gen zu materieller Kultur und Naturkunde*. Opera Sinologica 17. Wiesbaden: Harrassowitz, 2006.
- Smith, Arthur H. *Proverbs and Common Sayings from the Chinese*. Shanghai: American Presbyterian Mission Press, 1902.
- Smith, Richard J. *Fortune-tellers and Philosophers: Divination in Traditional Chinese Society*. Boulder, San Francisco, Oxford: Westview Press, 1991.
- Songshi yanjiu tongxin* 宋史研究通信. "Necrology of Hsü Daoling." *Sung Studies Newsletter* 9 (June 1974): 42-43.
- Spence, Jonathan. *The China Helpers*. London: The Bodley Head, 1969.
- Svarverud, Rune. "The Formation of a Chinese Lexicon of International Law 1847-1903." *Mapping Meanings: The Field of New Learning in Late Qing China*. Ed. Michael Lackner and Natascha Vittinghoff. Leiden: Brill, 2004. 507-36. https://doi.org/10.1163/9789047405641_022
- Tan Sitong, Renxue 仁學 (An Exposition of Benevolence) [1896] in *An Exposition of Benevolence: The Jen-hsüeh of T'an Ssu-t'ung*. Translated by Chan Sin-wai. Hong Kong: The Chinese University Press, 1984.
- Taylor, Kim. *Chinese Medicine in Early Communist China, 1945-63*. London, New York: Routledge Curzon, 2005. <https://doi.org/10.4324/9780203311271>
- Wagner, Rudolph G. "Neue Eliten und die Herausforderung der Moderne." *Länderbericht China. Politik, Wirtschaft und Gesellschaft im chinesischen Kulturraum*. Ed. Carsten Hermann-Pillath and Michael Lackner. Bonn: Bundeszentrale für Politische Bildung, 1998. 118-34.
- Wang, Hui. "The Fate of 'Mr. Science' in China: The Concept of Science and its Application in Modern Chinese Thought." *Formations of Colonial Modernity in East Asia*. Ed. Tani Barlow. Durham, NC: Duke University Press, 1996. 21-81. <https://doi.org/10.1215/9780822399117-002>
- Wang Wanbai 王完白. *Fengrenyuan zhi zhongyao yu biyi* 瘋人院 之重要與裨益 (On the importance and benefit of lunatic asylums). *Zhonghua yixue zazhi* 3,5 (1919): 127-31.
- Wang Yangzong 王揚宗. *Fulanya yu jindai Zhongguo de kexue qimeng* 傅蘭雅與近代中國的啟蒙 (Fryer and the enlightenment in Modern China). Beijing: Kexue chubanshe, 2000.
- Wright, David. *Translating Science: The Transmission of Western Chemistry into Late Imperial China, 1840-1900*. Leiden and Boston: Brill, 2000. <https://doi.org/10.1163/9789004489516>
- Wright, Mary Clabaugh. *The Last Stand of Chinese Conservatism*. New York: Atheneum, 1996.
- Zögner, Lothar. *China cartographica. Chinesische Kunstschatze und europäische Forschungsdokumente*. Berlin: Staatsbibliothek Preussischer Kulturbesitz, 1983.
- Zurndorfer, Harriet T. "China and 'Modernity': The Uses of the Study of Chinese History in the Past and the Present." *Journal of Economic and Social History of the Orient* 40.4 (1997): 461-85. <https://doi.org/10.1163/1568520972601530>

**THE POETICS OF SCIENCE: LITERARY
EXPLORATIONS AND CULTURAL DIFFERENCE**

Difference Rising: The Astronomical Other and the Novel American Nation

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When Caroline Herschel died on the ninth of January, 1848, the *Monthly Notices of the Royal Astronomical Society* acknowledged her passing. True to its custom of marking the deaths of members – and honorary members, such as Herschel had been since 1835 – the obituary outlines her long career in astronomy, distinguished by publications and awards; it notes her distinguished connections (she was the sister of Sir William Herschel and the aunt of Sir John Herschel, the RAS president at the time of her death). The penultimate sentence, however, is strikingly unconventional: “Her memory will live, with that of her brother, as long as astronomical records of the last and present century are preserved; and it will live on its own merits, even though, as may reasonably be hoped, the time should come when the astronomical celebrity of a woman will not, by the mere circumstance of sex, be sufficient to excite the slightest remark” (*Monthly Notices of the Royal Astronomical Society* 66). The obituary ventures much more than elegiac praise and acknowledgment of the anomaly of the “lady astronomer.” It predicts that the gendering of an entire scientific discipline will change, and asserts that such an eventuality would be welcome. The statement invites further logical extrapolation that tends toward radicality: if it be reasonable to consider sex a “mere circumstance” in astronomy, might it not also be in other sciences? In other intellectual pursuits? In any other pursuits? Perhaps one day; just not now. “It must be a matter of congratulation,” the notice concludes, “that she survived to see the enormous undertaking commenced by her brother extended and perfected by her nephew” (66). The achievements of the female astronomer, in the end, must be suited to mid-nineteenth-century norms of ladylike behavior (i.e., more or less passive observing rather than active doing), particularly in relation to the heroic and “perfect” science that only men may practice. The final sentence reassigns Herschel to a sort of privileged spectatorship of the astronomical feats of the men in her family. Her anomaly and the “reasonable” ideas it inspired ultimately are written into subordination to mid-nineteenth-century imperatives of domestic propriety. In fact, the radical logic broached in the Herschel obituary seems to have been buried on the Continent along with her. Later that very year would begin the various Revolutions of 1848-1849, that series of populist uprisings that would democratize civic institutions and cultures across Europe, but no

figure of a female physical astronomer would inspire Europeans to seize upon the crisis in governance as an opportunity to open political structures (or the social structures they may predicate) to women.

The same volume of the *Monthly Notices* published the work of another female astronomer, fresh to the record: Maria Mitchell (9). The diffident Quaker from Nantucket, Massachusetts, had discovered a telescopic comet on October 1, 1847 and, calculating with advanced mathematics, correctly predicted its hyperbolic orbit (Booker 72). Mitchell's accomplishment "excited remark" aplenty as first the New England, then the national U.S. press heralded the event and fanned the embers of her "astronomical celebrity." Documentation disproved a rival claim of first sighting by a priest in Rome, and a high-profile, transatlantic diplomatic campaign of many months' duration finally succeeded in securing for her the widely-publicized gold medal awarded by the King of Denmark for cometary discoveries in 1849.¹ As the first American to win an international prize in science, Mitchell became the darling of celebrators of American priority. Her assiduous champion Edward Everett, the president of Harvard University, wrote in a letter how gratifying he found it "to have the Nantucket girl carry off the prize from all the Greybeards and observatories in Europe" (Booker 77). That Everett calls Mitchell, who was twenty-nine years old at the time, a "girl," is telling: even her admirers did not easily reconcile her accomplishment with contemporary constructions of True Womanhood. Mitchell biographer Renee Bergland explains, "To many eyes, a 'woman's comet' signified new political possibilities for women," whether or not the discoverer herself was inclined to feminism (57). To be sure, the writer Fanny Burney had expressed a similar thought about the first comet sighted by Caroline Herschel in 1786, and the writer Mary Shelley once reminisced that her father, the philosopher William Godwin, had said much the same thing about the Herschel comet that coincided with her birth in 1797 (Fara 149, Bergland 60).

Unlike Herschel's sightings of the late eighteenth and very early nineteenth centuries, however, Mitchell's took place at a time when many of her countrymen and women were prepared to contemplate its significance more broadly. The first formal Women's Rights Convention, held in Seneca Falls, New York, in July 1848, coincided with Mitchell's vogue. The manifesto of the Seneca Falls Convention, the "Declaration of Sentiments," paraphrases the 1776 U.S. Declaration of Independence, complete with a list of "Resolutions" that replaces grievances against George III of Great Britain with grievances against male privilege, and so draws emphatic parallels to the original American Revolution. The appearance of a "woman's comet" at just this historical moment suggested a handy symbolism that worried U.S. intellectuals as well as thrilled them. Writers ensconced in the canon of literary studies and writers of less exalted critical stature capitalized on the occasion by featuring astronomical events and symbolic values in

1 Caroline Herschel discovered eight comets between 1786 and 1797; the award was not established by Frederick VI of Denmark until 1832.

their works. Nathaniel Hawthorne (1804-1864) and Augusta Jane Evans (1835-1909), for example, attest their fascination with “Miss Mitchell’s Comet” and its implications for a changing America in their respective novels *The Scarlet Letter* (1850) and *Macaria; Or, Altars of Sacrifice* (1864). The classic *Scarlet Letter* and the decidedly noncanonical polemic *Macaria* are fictions deeply interested in the narrative of national identity, and in the power that difference may exert to redirect or even revise it, should opportunity arise.² Both novels employ astronomy to characterize a feminist female figure as revolutionary Other in order to explore the vexed issue of managing difference in the tumultuous historical present and beyond.

Recent interdisciplinary scholarship explores various ways American Romantic writers implemented what they understood of contemporary science to novelistic purpose.³ The discipline of astronomy presents a ready example of “the increasing mathematizing of all the sciences” in the nineteenth century (Baym 2). While Astronomer Royal William Herschel (d. 1822) had no command of calculus, by 1835 the premier position at the Royal Greenwich Observatory in England was filled by physicist Sir George Airy; and by the 1840s “celestial mechanics was cutting-edge astronomy” (Booker 74). Criteria for winning the Danish prize for first sighting of a telescopic comet – Airy chaired the award committee until the contest was discontinued in 1850 – required that the discoverer stipulate the shape of the comet’s orbit and compute its likely path. Intriguingly, the ascendancy of physical astronomy, newly termed “astrophysics,” challenged the male gendering of the field, since two women figured among its early giants: Mary Somerville, who in 1831 published *The Mechanism of the Heavens*, her lucid English translation of Pierre-Simone LaPlace’s foundational *Mécanique Céleste* (1799-1825), and Caroline Herschel, who published several catalogues of computations of her brother’s and her own observations that proved indispensable to the international community of practicing astronomers. Seneca Falls Convention co-organizer Lucretia Mott considered Mitchell the American counterpart of Herschel and Somerville, and saw suasive potential in Mitchell’s celebrity. In her “Discourse on Woman,” Mott poses questions to bolster her argument for

- 2 In spite of her manifest failings as a literary artist, Evans held a position of considerable significance in the world of nineteenth-century letters: her 1866 sentimental novel *St. Elmo* was one of the two or three best-selling U.S. novels of the nineteenth century (Sexton xxi). *Macaria*, the book that preceded it, was published in Civil War South Carolina, and sold twenty thousand copies in the Confederate States of America alone before the end of the Civil War – an astonishing figure, given the blasted state of publishing and the financial vicissitude of most southern households in 1864, that last, desperate year of the Confederacy’s decline before its final, inglorious end (Faust xvii). Evans’s critical reputation languishes in a special netherworld of oblivion because of her unfortunate politics; even the 1990s surge of scholarly interest in sentimental fiction could not brook her lifelong opposition to woman suffrage, or the Confederate propaganda that freights the last nine chapters of *Macaria*.
- 3 Clark Davis construes narrative as a photochemical process; Sam Halliday sees electrophysics at work in depictions of personal relationships; Brett Zimmerman explores Melville’s proficiency in celestial navigation.

women's civil equality: "Do we shrink from reading the announcement that Mrs. Somerville is made an honorary member of a scientific association? That Miss Herschel has made some discoveries, and is prepared to take her equal part in science? Or that Miss Mitchell of Nantucket has lately discovered a planet, long looked for?" (12). Mott may have misstated the exact nature of Mitchell's accomplishment, but she well understood the rhetorical efficacy of linking an American woman with "cutting-edge astronomy" in the mid-nineteenth century, the era when "ideas about scientific advance fitted seamlessly into the Protestant-republican synthesis whereby a free people would inevitably reach the greatest intellectual as well as political and religious heights," and thus could invoke Mitchell to promote the suffragist cause (Baym 3).

Hawthorne perceived it, too. Composing *The Scarlet Letter* during the same winter of 1849 that Mott did her "Discourse," he similarly exploits the association of independent-minded women with astrophysics. Fourteen years later, so did Evans, who, in the estimation of literary critic Nina Baym, provides in *Macaria* "the strongest representations of science and a scientific woman [...] in any woman's novel of the century" (162). If we accept scholar Millicent Bell's postulate that "The Custom-House" preface to *The Scarlet Letter* is "a necessary part of the fictional whole, giving character to the narrating voice," we find that both these novels use mathematized astronomy to express concern and judiciously covert eagerness, respectively, for incipient revisions of the national narrative effected by a constituent subversive Other (13).

In his important essay "*The Scarlet Letter* and Revolutions Abroad," literary scholar Larry J. Reynolds improves our appreciation of Hawthorne's "romance" by expanding the sense of history with which the work should be read. He accounts for certain narrative mysteries and finds meaning in critically neglected passages of the novel by resituating it among a multinational company of fictions commonly inspired by revolutions, including the Revolutions of 1848-49 and, especially, the French Revolution (Reynolds 48). In a reading at once transnational and historicist, he traces Hawthorne's nuanced engagement with then-current events on both sides of the Atlantic interwoven with the romancer's imaginative reconstruction of the seventeenth-century New England past. Reynolds's focus on what he calls "actual revolutions" abroad prompts my interest in revolutionary energies at home, where the most recent decade of years had witnessed literal and figurative reconstitutions of the United States (44). The physical map of the country changed swiftly and spectacularly in 1845 with the annexation of the Republic of Texas and then again in 1848 with the acquisition of California by the terms of the Treaty of Guadalupe Hidalgo that brought to a close the Mexican-American War. Political volatility festered as the fundamentally incompatible economic principles of the northern and southern regions of the country drove development along disparate trajectories. Growing sectional differences defied the negotiating skills of senatorial geniuses of compromise such as Henry Clay and Daniel Webster. Small but vocal constituencies for the abolition of slavery and

the enfranchisement of women organized and agitated for change. Utopian communities determined to create heaven on earth and Spiritualist doctrines claiming to bridge life and afterlife defied old verities of faith and ritual. When Hawthorne explains in “The Custom-House” that the time “in which the story shaped itself” was a “period of hardly accomplished revolution, and still seething turmoil,” he contextualizes his “romance” in an America also engaged in reshaping itself as a nation (*Scarlet Letter* 156).⁴

Incorporating “The Custom-House” into *The Scarlet Letter* effectively conjoins the nineteenth century and the seventeenth, and relieves some of the novel’s “insistent ambiguity” (Bell 15). Hawthorne himself invites the reader to merge the authorial present with colonial history when he claims to enter the seventeenth-century past through a scrap of cloth in the attic of the Massachusetts building where he was employed as a Surveyor of Customs from 1846-1849. “Certainly,” he muses, “there was some deep meaning in it, most worthy of interpretation, and which, as it were, streamed forth from the mystic symbol, subtly communicating itself to my sensibilities” (146). The gold-embellished red letter “A” is both historical artifact and transtemporal signifier. When he places the letter upon his own breast as a way of augmenting his “cogitations” on its meaning, he catalyzes “a sensation not altogether physical, yet almost so, as of burning heat; as if the letter were not of red cloth, but red-hot iron” (146). Thus author-ized by his personal experience of a textually fragmentary past, he sets his “intellectual machinery [...] to work” on the account begun by his seventeenth-century predecessor in office (156). Hawthorne, in effect, declares that the ensuing romance is both history and his story. To put it another way, his tale is an expression of his own politicized imagination, and he wants us to know it. “I must not be understood as affirming that [...] I have invariably confined myself within the limits” of the historical record, he writes (147). “What I contend for is the authenticity of the outline” (147). He states point-blank that he allows himself “nearly or altogether as much license as if the facts had been entirely of [his] own making” (147). The characteristic ambiguity of “nearly or altogether as much” becomes gratuitous if Hawthorne’s, rather than his fictional characters’ story may be considered the primary one. In a historicist reading, the point will be less Hawthorne’s felicity to the facts of colonial America and more his response to the revolutions underway in his own time. For example, the celestial letter “A” at the heart of *The Scarlet Letter* is historically inaccurate (no such event marked the death of Massachusetts Bay Colony Governor John Winthrop) and scientifically preposterous (no phenomenon approximating this description ever has been authenticated). It therefore demonstrates the sort of artistic license that Henry James disdained as Hawthorne’s “want of reality and [...] abuse of the fanciful element,” his occasionally “superficial symbolism” (110). However, taken as a historicist referent to Miss

4 A significant body of Hawthorne scholarship dating to the 1990s apprehends *The Scarlet Letter* in terms of a national narrative. See Berlant and Goddu.

Mitchell's Comet, the "meteoric appearance" operates at once to denote difference and as a metonym of the narrative of nation (Hawthorne 251).

Hawthorne prioritizes astronomy in the semiotics of *The Scarlet Letter* by writing a "meteor" into Chapter XII (251). By placing the astronomical event near the middle of his twenty-four chapter scheme, Hawthorne underscores its centrality to the system of situations whose regular distribution provides the much-discussed structural symmetry of the novel. To further emphasize its importance, Hawthorne causes the "meteor" to trace the capital letter "A" in red across the sky in transcendent reification. Literary criticism that considers the "meteor" takes it for an expedient symbol, and glosses the bizarre path of the apparition as Romantic license that makes it possible for Hawthorne to project the Reverend Arthur Dimmesdale's adulterous guilt onto the sublime canvas of Nature. However, if we think of the "meteor" as a celestial event in the nonreligious sense of the adjective – as a bonafide astronomical phenomenon instead of an example of Hawthornean "over-ingenuity" – we may discover his appropriation of contemporary science to *The Scarlet Letter*, and find that the celestial re-inscription of Hester Prynne's "A" is another transtemporal signifier that merges the fictional seventeenth-century past with the factual mid-nineteenth-century present (James 111). The "deep meaning" in this one, too, is "most worthy of interpretation," and can be "worked" out by a historicist "intellectual machinery" that references Mitchell's celebrity astrophysics and signals revolutionary change to the American narrative.

In such a reading, Arthur Dimmesdale's protracted observation of the "meteor" shows him enacting the role of astronomer. The title of Chapter XII, "The Minister's Vigil," gestures toward a set of secular meanings: clearly, astronomy requires the holding of night watches. The vigil actually begins at the close of Chapter XI, where Hawthorne writes religio-scientific double-entendre to make the transition to the novel's climactic chapter:

It was [Arthur's] custom, [...] as it has been that of many other pious Puritans, to fast [...] in order to purify the body and render it the fitter medium for celestial illumination [...]. He kept vigils, night after night, sometimes in utter darkness [...]. In these lengthened vigils, his brain often reeled, and visions seemed to flit before him; perhaps seen doubtfully, and by a faint light of their own, in the remote dimness. (242-43)

Doing astronomy involves a repetitive discipline of lengthy observations, when the circumstances of night-watching tax stamina and tease perception. Like celestial visions, celestial bodies are likely to be "seen doubtfully," necessarily "by a faint light of their own," and only from a vast and dark distance. Once Arthur exits "The Interior of a Heart" and slips outdoors into the night of Chapter XII, the minister's experience more obviously doubles the astronomer's experience. An unbroken cloud formation seems to shape the sky into a "great vault" topped by a "dome" – that is, into the distinctive architecture of an observatory (245,

251). Once atop the municipal scaffold in the heart of the village, so like the telescope pedestal that in the nineteenth century usually stood in the center of the observatory, he endures stiffness and cold, the physical discomforts of the astronomer's lot (251). He focuses on a starry light, and experiences an astronomer's issue of night vision: when he looks away, "it seemed still to remain painted on the darkness" (253). His perception is that of an astronomer to the extent that he sees the progress of church elder Mr. Wilson, wending his way home from a late errand, as the errant movement of a celestial body: "[Arthur's] eyes [...] were soon greeted by a little, glimmering light, which, at first a long way off, was approaching [...]. It threw a gleam [...] on here a post, on there a garden-fence, and here a latticed window-pane, and there a pump, with its full trough of water, and here, again, an arched door of oak" (247). Hawthorne underscores the dual role of the minister/astronomer by inserting a brief history of astronomy just as the celestial "A" appears (252). The expository strategy emphasizes the role of astronomer by default: while Hester Prynne and the physician Roger Chillingworth have spent the evening ministering to the dying governor of the colony, the Reverend Dimmesdale has been eyeing the night sky.⁵

Arthur's imaginative interpretation of the meteor would have been quite typical in the seventeenth century. "Nothing was more common, in those days, than to interpret all meteoric appearances [...] as so many revelations from a supernatural source. Thus, a blazing spear, a sword of flame, a bow, or a sheaf of arrows, seen in the midnight sky, prefigured Indian warfare. Pestilence was known to have been foreboded by a shower of crimson light" (251). Arthur is just that sort of unmathematical astronomer, an "eyewitness, who beheld the wonder through the colored, magnifying, and distorting medium of his imagination" instead of through a proper apparatus, a premodern star-gazer who "shaped [the 'meteor'] more distinctly in his after-thought" than according to calculus-based physics (252). By Hawthorne's time, lights that gleamed "over all [...] the muffled sky [...] with the distinction of mid-day" were termed *meteors*, which sometimes fall in showers. These were categorically distinguished from *comets*, whose variously conformed "tails" inspired the ancient folkloric iconography that included primitive weapons (Sagan and Druyan 16). The narrator's refinement of diction from "meteor" to "meteoric appearance" suggests the improved discernment of astronomy in the authorial present. Hawthorne brings Hester to the platform in time for the celestial event, but because she literally does not observe the "meteoric appearance," she shares the astronomer's position without sharing Arthur's astronomical practice. Arthur's astronomy is normative: the narrator generalizes that belief in the divine significance of comets "was a favorite one with our forefathers," and indeed the sexton will utter a Puritan interpretation of the celestial "A" in the first person plural a few pages later (252, 254). Because Hester is an outcast, however, the sexton does not speak for her. She does not even speak for

5 For a cogent theoretical elucidation of Hawthorne's use of indirection see Arac.

herself. By excluding Hester from active participation in the minister's astronomical practice, Hawthorne effectively denotes her difference from the consensus of obsolete astronomers that Hawthorne uses to represent the discourse of community. By setting her in an astronomer's place yet dissociating her from the norm of male-expressed science, Hawthorne replicates the position of the late Caroline Herschel and, especially, of the newly-distinguished Maria Mitchell in the extra-textual community of mid-nineteenth-century astronomers. Hawthorne secures this association by affirming the celestial "A" as a "woman's comet": the crimson letter in the sky reiterates the glittering emblem of difference that Hester herself embroiders and alone wears.

The cometary episode in Chapter XII, then, wittily makes associations with astrophysics to portend Chapter XIII, "Another View of Hester," where the narrator considers the implications of astronomically-identified difference for her and for America. "The effect of the symbol – or rather, of the position in respect to society that was indicated by it – on the mind of Hester herself – was powerful and peculiar" (258). In this alternate view of Hester, her peculiarity is intellectually empowering. "Standing alone in the world, [...] she cast away the fragments of a broken chain. The world's law was no law for her mind" (259). Hester the adulteress is an outlaw in the ecclesiastical organization of the Massachusetts Bay Colony. Hester the Mitchell referent may benefit from the view from the platform, from whence can be seen

The wooden houses, with their jutting stories and quaint gable-like peaks; the doorsteps and thresholds; with early grass springing up about them; the garden-plots, black with freshly turned earth; the wheel-track, little-worn, and, even in the market-place, margined with green on either side; – all were visible, but with a singularity of aspect that seemed to give another moral interpretation to the things of this world than they had ever borne before. (251)

The site of the astronomer potentiates radical insight: to be an exception in the community is also to be excepted from the "iron framework of its reasoning," to be free to pursue one's own (257). "In her lonesome cottage, by the sea-shore, thoughts visited her, such as dared to enter no other dwelling in New England," not random thoughts but ideas about civil structure "with reference to the whole race of womanhood" (259, 260). After her experience on the platform, Hester envisions a future world where a different moral logic will redress the imbalance of power between men and women. "As a first step, the whole system of society is to be torn down, and built up anew. Then, the very nature of the opposite sex, or its long hereditary habit, which has become like nature, is to be essentially modified, before woman can be allowed to assume what seems a fair and suitable position" (260). The astronomical Other of Hawthorne's novel is the eminently reasonable gender revolutionary who imagines razing and reconstructing the polity. He describes the late 1840s as a "period of hardly accomplished revo-

lution, and still seething turmoil” in “The Custom-House,” and triangulates contemporary astronomy in *The Scarlet Letter* to let us know just which revolution he means.

Like the writer of Herschel’s obituary, Hawthorne uses domesticity as a strategy to contain the radical extrapolations of astronomy-identified difference. He freights the narrative with domestic preoccupations before and after Hester’s revolutionary vision, so that her relationships with the father of her child and with that child materially outweigh the aspiration born of her Otherness. “Little accustomed, in her long seclusion from society, to measure her ideas of right and wrong by any standard external to herself, Hester saw – or seemed to see – that there lay a responsibility upon her, in reference to the clergyman, which she owed to no other, nor to the whole world besides” (255). For all that she is the Other, Arthur is still the One. Hawthorne’s phrase, “Hester saw – or seemed to see –” begs the question of to whom the seeing seems: does Hester seem to some observer(s) to see an imperative obligation to Arthur, or is Hester herself not entirely convinced she sees it? What might be taken for “insistent ambiguity” is rather a double-barreled insistence on the priority of the procreative relation. But for her daughter Pearl, Hester “might, and not improbably would, have suffered death from the stern tribunals of the period, for attempting to undermine the foundations of the Puritan establishment” (260). Although in Hester’s mind and heart “The scarlet letter had not done its [nominal] office,” Hawthorne labors to bring her audacity to maternal heel: “in the education of the child, the mother’s enthusiasm of thought had something to wreak itself upon. Providence, in the person of this little girl, had assigned to Hester’s charge the germ and blossom of womanhood, to be cherished and developed” (261, 260). In the opening and closing paragraphs of “Another View of Hester,” the narrator asserts the priority of the heroine’s “obligations” to her family, including her demonstrably evil estranged husband, over her potential contributions to the advancement of intellectual freedom in American history (255, 260). The narrative design of Chapter XIII thus strives to imprison Hester’s revolutionary vision in an “iron framework” of domestic duty. Hawthorne busies her thereafter with female-coded social service tasks such as mothering Pearl, tending the sick, and comforting the lovelorn, and, just for good measure, suggests that the eventual result of her symbolic empowerment is sexual unattractiveness of body – there is “nothing in Hester’s form, though majestic and statuesque, that Passion would ever dream of clasping” – and “repulsiveness” of character, “had she possessed friends or companions to be repelled” (258). He will allow her to ascend the platform on a single occasion more – and then only to hold up the dying Arthur, in the bright light of day (337).

The overall narrative design of *The Scarlet Letter*, however, belies Hawthorne’s confidence in domesticity as the answer to the “Woman Question.” The final chapter, “Conclusion,” reaches back beyond the opening chapter of the tale, “The Prison-Door,” to the prefatory essay, by returning to Hawthorne’s erstwhile discovery in the attic of the Custom House. “The authority which we have chiefly

followed – a manuscript of old date, drawn up from the verbal testimony of individuals, some of whom had known Hester Prynne, while others had heard the tale from contemporary witnesses – fully confirms the view taken in the foregoing pages,” he writes (341). If we consider the correspondence of the preface and conclusion as another balanced frame, then “The Custom-House” becomes the twenty-fifth structural unit of *The Scarlet Letter*. In a historicist reading, we may find a literary expression of the progressive function of mathematics in the mid-nineteenth-century sciences that so interested Hawthorne. The expansion of the text in this way effectively re-centers it in Chapter XIII, “Another View of Hester,” where the narrator conveys the private radicality fulminating behind Prynne’s public persona of uncomplaining acquiescence to her male-imposed role in early Boston, where the narrator observes that “It is remarkable that the persons who speculate the most boldly often conform with the most perfect quietude to the external regulations of society” (259-60). The narrator and the structure combine to emphasize to the reader the dramatic irony that the original writer and firsthand witnesses of her public story could not have known the truest Hester. Hawthorne makes a feint of aligning his story with the seventeenth-century version: “In fine, the gossips of that day believed, – and Mr. Surveyor Pue, who made investigations a century later, believed, – and one of his recent successors in office, moreover, faithfully believes, – that Pearl was not only alive, but married, and happy, and mindful of her mother” (344). However, he subsumes the seventeenth-century story in his own, thereby rendering Hester’s revolutionary difference central, pivotal to nineteenth-century U.S. history. If *The Scarlet Letter* is ultimately a novel about the America of 1850, then it is a narrative of nation that turns on the astronomical Other, who sees “tearing down the entire system of society” as the “first step” toward a new America in the offing.

Appropriately to its subject, Hawthorne crashes Hester’s story through the conventional domestic denouement. He overwrites Pearl’s dutiful adult daughterhood with Hester’s singularity by continuing the sentence with “[Pearl] would most joyfully have entertained that sad and lonely mother at her fireside,” a subjunctive coda that indicates Hester’s ultimate rejection of any role arising from orientation to family (344). The phrase “sad and lonely” expresses the view of the community that ever imputes emotions to Hester she does not actually feel, and that is invariably mistaken. The volitional task of mothering finished, Hester actively prefers “a more real life” in the New World than she might find in conventionally gendered terms grounded in the Old (344). As the female head of household in a home of her own choosing, Hester crafts an alternative, idiosyncratic domesticity, and repurposes social service within her reshaped sphere as opportunity to advance revolution. In her isolated cottage where she dwells alone, the Other “comforted and counselled [her visitors], as best she might. She assured them, too, of her firm belief, that, at some brighter period, when the world should have grown ripe for it, in Heaven’s own time, a new truth would be revealed, in order to establish the whole relation between man and woman on a surer ground

of happiness” (344). Hawthorne writes past “the foregoing pages” a page or so further. His story so inextricably involves hers that his cannot end until hers has ended. Indeed, the novel continues beyond even Hester’s demise: he ends *The Scarlet Letter* by reinscribing the “A” yet again, this time as an epitaph that transforms the marker of her grave into a symbolic transtemporal text (345). The metonym of Hawthorne’s American narrative persists as a cryptic artifact, ready to revolutionize the experience of some new author, to catalyze a new narrative of nation – at some indefinite point in the future.

Just past midcentury, Augusta Jane Evans composed *Macaria* during what Reynolds might term an “actual revolution.” According to her own account, she drafted her novel in intermittent bursts, as duty permitted during her service to the Confederate States of America as a hospital nurse at the height of the Civil War (Fidler 95).⁶ Evans herself was a passionate patriot of the Confederacy, that rebellious entity that in 1861 seceded from the Union in order to extract itself from federal policies that increasingly threatened its region-specific socio-economic organization heavily dependent on human chattel slavery. Because certain iconic “founding fathers” of the United States – Washington, Jefferson, Madison, to name a few – were southern planters who owned slaves, supporters of the Confederacy claimed the legacy of 1776 and referred to their armed insurrection as the “Second American Revolution.” In fact, the Confederate Constitution was closely modelled on the original U.S. Constitution that southern states of a previous generation had ratified back in the 1780s. Historian Drew Gilpin Faust leverages Evans’s biography to posit the standard scholarly pronouncement upon *Macaria*: “Evans intended the novel both as her own contribution to Confederate nationalism and as a narrative that would provide women with models for emulation in their search of ‘agency’ within the Confederate cause” (xvii). Baym, who attends to *Macaria* as a serious work of literature, feels that the novel “has been understandably analyzed much more for the relation of white women southerners to [sectional] politics” than for other cultural insights it might contain, and in her own analysis deems it an interesting but finally formulaic treatise on “Womanly Usefulness” in the mode of sentimental/domestic fiction (163). Certainly, Evans writes the Civil War into her novel; her book opens with a florid dedication, in which she “would fain offer a woman’s inadequate tribute to the noble patriotism and sublime self-abnegation of her dear and devoted countrymen” serving in the Confederate army, and she backloads the last quarter of *Macaria* with battle scenes, anti-Lincoln diatribes, and lugubrious encomia to the “Red Dripping Altar of Patriotism, where lay, in hallowed Sacrifice, her noble, darling Dead” (3, 405). And yes, its idealized and idealistic main characters proceed through elaborately star-crossed courtships, and the primary heroine is extravagantly dedicated to home and family. But as Reynolds has brought us to understand in the case of *The Scarlet Letter*, transnational and historicist approaches can improve

6 Melissa Homestead challenges salient details of Evans’s account.

our appreciation of *Macaria*. To read *Macaria* as a Confederate propaganda novel only is to constrain its significance to unduly severe geopolitical limitation. As an historian, Faust of course reads the novel as a piece of primary evidence, and, as a consequence, understands the title as a reference to the mythic archetype most germane to her reading: Macaria the daughter of Heracles, who according to Greek legend, offered up her life to save Athens from wartime invasion. The novel's heroine herself articulates the reference; she also declares its insufficiency to her situation, a declaration that Faust seems to have overlooked (Evans 329). To read *Macaria* as a didactic variation on the domestic/sentimental novel, on the other hand, is to acknowledge that it contains an unusual quantity of information about contemporary science, but to subordinate science to the genre convention of the genteelly "amateurish" education of its presumably female readership (Baym 161-62, 165). The novel's heroine practices astrophysics as more than an avocation; she "prosecuted it, not as a mere pastime, not as a toy, but as a life-long labor, for the labor's sake," – with regular, professional discipline – she even sends off an article for publication in a scholarly journal (Evans 176). If we read Evans's novel in a transnational context of fiction that treats women and astronomy, we find that its title likewise hearkens to Makarie, the otherworldly astronomer-prophetess of Goethe's 1829 *Wilhelm Meisters Wanderjahre*, a work familiar to Evans, as she quotes it several times. When we set aside the assumption that the astronomy in *Macaria* serves exclusively pedagogical goals, we discover that it operates in the novel to advance a political argument quite distinct from Confederate propaganda; after all, the narrator states plainly that "The Congress of Lilienthal possessed far more of interest for her [primary heroine Irene Huntingdon] than any which ever sat in august council over the fate of nations, and the names of Herschel, Bessel, Argelander, Struve, Arago, Leverrier, and Maedler were sacred"; and we note that the names of Confederate statesmen and military leaders never warrant such reverence (177). The first of several "altars of sacrifice" specified in the novel predates and persists through its preoccupation with the "Second American Revolution"; in violation of female-coded compliance with the directives of the male head of her household, the primary heroine devotes herself to astrophysics, declaring "I take my heart, my intellect, my life, and offer all upon the altar of its penetralia" (174). If we grant Evans's novel the benefit of historicism, we see that it facilitates cultural work with revolutionary political science.

Evans brings astrophysics into *Macaria* more overtly than Hawthorne brings it into *The Scarlet Letter*: she uses astronomy to characterize her primary heroine directly. As a young child left to follow her own inclinations, Irene "would climb upon the morocco-covered tables where stood two globes, one celestial, the other terrestrial, and spend hours in deciphering the strange, heathenish figures twined among the stars" instead of playing with dolls (38). Her training in astronomy parallels her development as a woman:

From her earliest recollection, and especially from the hour of entering school, astronomy and mathematics had exerted an over-mastering influence upon Irene's mind. The ordinary text-books only increased her interest in the former science, and while in New York, with the aid of a professor of astronomy, she had [...] pursued her studies perseveringly, methodically, and, despite her father's prohibition, indefatigably. (176)

Astronomy is likewise essential to her adult regimen. During the day, exemplary southern lady Irene manages her father's household and the "servants" of his plantation, arranges flowers, embroiders, fills gift baskets for neighbors, dispenses hospitality, reads to the blind, nurses the sick, and succors the poor. (Lest we miss what Evans means by all this, Irene's constant companion is a surpassingly well-trained greyhound named Paragon.) At night, however, she retires not to her well-earned bed but to her sanctuary atop the manorial roof, in order to observe celestial phenomena with her "fine telescope" (176). Evans uses Irene's astronomical practice to develop Irene's characteristic difference. "Most [school-]girls patronize certain branches of investigation with fitful, spasmodic vehemence, or periodic impulses of enthusiasm; but Irene knew no intermission of interest, she hurried over no details, and when the weather permitted, never failed to make her nightly visit to the observatory" (176). Unlike them, she reasons inductively, studies meticulously, and considers thoroughly (38). The study and practice of astronomy are integral to heroine Irene's difference: "her real life was apart from the world in which report said that she ruled supreme. She [...] ministered, a solitary priestess, at the silent, blazing shrine of Astronomy" (232). Irene's is a mathematized astronomy. The observatory furniture includes two chairs, to indicate the obsolete practice of observational astronomy that required both an observer and a counter of seconds, but Irene occupies the space alone and works through "subtle" calculations several times until they "[accord] fully with the tables of Leverrier by which she was computing" (175). Because Evans locates the circular observatory at the top Huntingdon Hall, with its "row of small columns [...] and a tessellated floor of alternating white and variegated squares of marble," as the analogue of "the solemn temple of womanhood, with its chequered pavement of light and shadow," Irene's astrophysical anomaly supersedes the conventional womanhood of the domestic sphere below (160, 161).

Evans assigns astrophysics an operative role in *Macaria* by writing it as a mechanism of female ascendancy in a gendered contest for authority over space and time. Chapter XVII begins with intrafamilial civil war between Eric Mitchell, who is both maternal uncle and recently arrived guest, and Irene, his niece and hostess.⁷ From the doorway of the study where Irene prepares for her nightly skysweeping, Eric opens their exchange typically for his sex, age, and relation: he addresses her with avuncular triteness, apprising her of the lateness of the hour,

7 By giving Uncle Eric the surname Mitchell, Evans secures Irene's connection to the Nantucket astronomer Maria Mitchell; in effect, the heroine of *Macaria* is a daughter of (a) Mitchell.

reminding her of the curfew her father has set (173). Without preamble or warning Irene receives his platitudes as interruptions of her work, and responds with social inappropriateness to her sex, age, and relation: ““You need not sit up to tell me the time of night; I have a clock here. Go to sleep, uncle [sic] Eric”” (173). By returning his condescension and highlighting his assumptions with the pointedly raised tone of her riposte, she instantly transforms the chamber of learning into a symbolic battlefield where science-girded female autonomy challenges unexamined conventions of male privilege: her occupation dramatizes defiance of patriarchal limits on her temporal and intellectual independence; her unapologetic rudeness, her refusal to honor female-coded conventions of hospitality that would diminish her attention to her own priorities – as well as her refusal to honor her uncle’s adoption of authority-by-male-association. She consults her own time-piece, showing her preference for her own sense of time. She does not invite him in or even welcome his presence on the threshold of the room, projecting her own power over her own space.

Astrophysics also affects their personal relationship in more subtle ways. Upon his arrival scant days before, the narrator observed of Eric and Irene that ““Instinctively they seemed to comprehend each other’s character, and while both were taciturn and demonstrative, a warm affection sprang up between them”” (168). Surrounded by astronomical charts and mathematical catalogues, however, Irene becomes incomprehensible to him. He signals the deterioration of his position by shifting to the interrogative voice for his last platitude (174). Irene blasts him with heated erudition.

““You men doubt women’s credentials for work like mine; but this intellectual bigotry and monopoly already trembles before the weight of stern and positive results which women lay before you – data for your speculations – alms for your calculation. In glorious attestation of the truth of female capacity to grapple with some of the most recondite problems of science stand the names of Caroline Herschel, Mary Somerville, Maria Mitchell [...]”” (174)

Just as she maintains the boundaries of the physical territory of her study by a strategy of equivalence, Irene claims the intellectual domain of the study of astronomy with a declaration of equal entitlement. Her dropping of the names of famous women mathematicians and scientists completely disarms Eric; he has nothing further to say. Irene states firmly, ““Uncle Eric, [...] I do not like to be watched”” as she matches him look for look (174). The female Mitchell will do the watching in this space and time. She bests the physical imperative of time by enacting superiority to diurnal custom. She dominates the physical space by moving actively about the room, gathering her materials, while Eric remains passively stationary. Armed with her mathematical tables, the astronomical Other of this novel ““passed her uncle and mounted the spiral staircase leading to the observatory”” in choreographed victory (174).

Evans declines to write celestial spectacle into her novel as Hawthorne does in his. She rejects hermeneutical triangulation in favor of open deployment, and depicts her heroine a private revolutionary in consequence of her actual doing of astrophysics. Evans prioritizes Irene's nonobservational activities in the observatory:

She took from the drawer a number of loose papers, and prepared the blank book for registering the observation; then laid before her a slate covered with figures, and began to run over the calculation. At the close of fifteen minutes she placed herself at the telescope, and waited patiently for the appearance of a small star which gradually entered the field; she noted the exact moment and position, transferred the result to the register, and after a time went back to slate and figures. (175)

Neither the "small star," nor even her eventual success in "threading the maze" of computation is the highlight of Irene's evening, however. Finished with her professional tasks, she lingers in the gallery as the hours advance toward dawn, contemplating the attempts of astronomers around the globe and throughout history to conceptualize and reconceptualize the universe (177). She asks herself daringly, "Had Maedler, with telescopic insight, climbed by mathematical ladders to the starry adyta of nature, and triumphantly raised the mystic veil?" (178). An astrophysical cosmology apprehends the universe as an Infinite ruled by scientific laws, of which Johann Heinrich Maedler's Central Sun Hypothesis was one recent example: "mathematics unrolled her figured scroll, and proclaimed that Time had but begun; that the chaliasms must elapse, that aeons on aeons must roll away, before the first revolution of the starry universe could be completed about its far-off alcyon centre" (178). According to this view, mathematically verifiable laws of science eventually, inevitably must replace the moral laws that originate in more subjective religious cosmologies. Christian doctrine, for example, is destined to be supplanted by "the magnificent trinity of astronomic laws framed by the Divine Architect when the first star threw its faint shimmer through the silent wastes of space" (177). After all, among "the myriad members of the shining archipelago" that likely are "peopled with orders of intelligent beings, differing from our race even as the planets differed in magnitude and physical structure, [...] our earthly races [...] stood but as one small family circle amid clustering worlds" (179). The perspective of astrophysics, a field rapidly growing and changing by virtue of advances in technology, a discipline open to new theories derived from laws more objective than cultural, renders specious and finally negates extant social and political constructions. Not Irene but the narrator exclaims,

Oh, bigotry of human nature! By what high commission, by what royal patent, do men and women essay to judge of fellow-men and sister-women by one stern, inexorable standard, unyielding as the measure of Damastes? The variety of emotional and intellectual types is even great-

er than the physical, and, as the ages roll, we need other criteria [...] new types stalk among men and women, whose elements will neither be lopped off nor elongated to meet the established measure. (124-25)

Astrophysics informs difference in *Macaria*, and premises the logic that empowers difference to transcend what Hawthorne calls the “iron framework” of social mores. When Irene quotes geometer Blaise Pascal to redefine the woman’s sphere as “a sphere of which the centre is everywhere, the circumference nowhere,” mathematized astronomy operates to make a gender revolutionary of Irene and, effectively, of the author herself (317).

Evans departs from the Hawthornean precedent by declining to punish her female astrophysicist for imagining revolution. Irene’s friends and admirers do not diminish in number or ardor after Chapter XVII. Nor does Evans permit the association of revolution with astrophysics to detract from Irene’s domestic, romantic, or sexual desirability. In a subsequent chapter, Eric – whose social authority she has flouted with her astrophysics and the unconventional behavior it inspires – invites her to reside in his house, and Russell Aubrey, the hero of *Macaria*, is so involved in staring at her – with “every statue-like curve and moulding of her proud ivory face stamping themselves on his recollection” – that Irene must bring to his attention the fact that she has dropped her glove at his feet (190). If anything, Irene’s scientific nightwatches underscore her consummate femininity, not just in Chapter XVII but, the narrator suggests, more generally:

She sat there just as [Eric] had seen her several times before, with her arms crossed on the table, the large celestial globe drawn near, astronomical catalogues scattered about, and a thick folio open before her. She wore a loose wrapper, or *robe de chambre*, of black velvet, lined with crimson silk and girded with a heavy cord and tassel. The sleeves were very full, and fell away from the arms, exposing them from the dimpled elbows, and rendering their pearly whiteness more apparent by contrast with the sable hue of the velvet, while the broad round collar was pressed smoothly down, revealing the polished turn of the throat. The ivory comb lay on the table, and the unbound hair, falling around her shoulders, swept over the back of her chair and trailed on the carpet. (173)

Evans purples the image of Irene at work with Victorian markers of sensuality, and controls their suggestiveness by locating the male gaze in a member of her family who notes them without responding to them. Lest Irene’s “intellect [that] was of the masculine order, acute and logical, [. . .] keenly analytical” threaten to detract from our sense of Irene’s emotionality, Evans imbues Irene’s pursuit of science with such passion that the vigil we are privileged to witness culminates in Spiritualistic rapture (38).⁸ Ninety minutes of sleep at night and a two-hour

8 Evans associates Irene’s astronomy with the Spiritualism of Andrew Jackson Davis (1826-1910), the “Seer of Poughkeepsie,” whose many works, including *The Penrealia* (1856),

nap suffice to sustain Irene's surpassing beauty, so that, as far as Evans gives us to know, Irene's scientific pursuits – and revolutionary visions – incur no penalty whatsoever, and the narrator makes no pronouncement against them (180).

Evans is thinking carefully about the function of astrophysics in *Macaria*, and about its potential to advance her proposal of latent yet abiding feminism. Like Hawthorne, Evans subordinates the heroine's radicality to volitional, more or less performative domesticity. Unlike Hawthorne, however, Evans shows her heroine insinuating astronomic practice into her daily lady's routine. In the morning that ends Chapter XVII, Irene resumes the quotidian: "She invariably rode before breakfast when the weather permitted; and [...] generally retired to her room immediately after dinner [...] Such was a portion of the regimen she had prescribed for herself on her return from school, and which she suffered only the inclemency of the weather to infringe" (180). Evans causes the skills of the professional scientist to transfer easily to spheres of action more conventionally gendered female, such as the household or, later in the novel, the war hospital, so that astrophysics effects gradual, unwitting acceptance by Irene's observers within the text. Eric, who might be expected to recognize the transference, fails to connect Irene's characteristic *modus operandi* to her astronomical practice, and so he "often wondered at the admirable system and punctuality she displayed – at the grave composure with which she discharged her daily duties" in conventional realms of female activity (372). Her performance of typical southern ladies' occupations such as household management, interior decoration, flower arranging, neighboring, and gender-coded philanthropy is so thorough, in fact, that it seems to have obscured Irene's ongoing engagement with astronomy from critical observers outside the text. Baym, for example, repeats the common error that Irene "abandons her astronomical studies in favor of charitable activities categorized by the author under the rubric 'Womanly Usefulness'" (380). Yet the novel plainly shows Irene repeatedly keeping watch in her observatory, choosing to occupy it here for its panoramic view of a military encampment in the daytime, there for its privacy during the whole of an emotionally turbulent night; by caus-

describe dream-state time-travel in which Davis alleges to have conversed with, among others, great scientists of the ancient world and recently dead. Once Irene has completed her observation and computation, she gives herself up to Davisean reverie: "In panoramic vision she crossed the dusty desert of centuries, and watched with Chaldean shepherds the pale, sickly light of waning moons on Shinar's plains; welcomed the gnomon (the first-born of the great family of astronomic apparatus); toiled over and gloried in the Zaros; stood at the armillary sphere of Ju, in the days of Confucius; studied with Thales, Anaximander, and Pythagoras; entered the sacred precincts of the school of Crotona, hand in hand with Damo, the earliest woman who bowed a devotee at the starry shrine, and, with her was initiated into its esoteric doctrines; puzzled with Meton over his lunar cycle; exulted in Hipparchus' gigantic labor, the first collection of tables, the earliest reliable catalogues; walked through the Alexandrine school of *savans*, misled by Ptolemy; and bent with Uleigh Beigh over the charts at Samarcand," until "with a feeling of adoration which no language [of her own] could adequately convey she gazed upon nebulae, and suns, and systems" and quotes the "feverish yet sublime" *Dream Upon the Universe* (1824) of J. H. P. Richter (1763-1825) (176-77, 178-79).

ing Irene to return repeatedly to the astronomical space, Evans trains the reader to associate it with the domestic space, and normalizes it as woman's space. The observatory – being a space of science but also a woman's 'room of her own', functions as a semantically mixed space or heterotopos (Evans 311, 314). When at last in Chapter XXXIII Irene makes explicit that she is going up to observe "the nebula in Orion" and the rising Pleiades, her use of the astronomical space for its overriding purpose has become an unremarkable part of the household routine: a lamp "had been placed in readiness on the table," the use of which "had long been familiar" to all categories of resident at Huntingdon Hall (377). Although Eric has learned the futility of gainsaying her many chapters before, he still chides her, as is ever his wont: "You, surely, are not going up to that ice-house on such a night as this? [...] What a devotee you are!" (377). This time her rejoinder is mild, polite, confiding; as this exchange takes place during her period of mourning for her dead father, she explains that doing astronomy results in her "forget[ting] my loss. In the observatory my griefs slip from me, as did Christian's burden" (378). Irene's excuse is the astronomy-involved dramatic irony of *Macaria*. She elides mathematical science with her reference to that classic work of English devotional literature that enjoyed renewed popularity in the nineteenth century, John Bunyan's *Pilgrim's Progress*, presumably for Eric's benefit; the reader knows what Eric does not, that Irene's astrophysics-induced ecstasies are more Spiritualist than Christian. The irony signals that, behind her expertly-performed conventionality, Irene's difference invisibly, quietly persists. Her tone and allusion may sound reassuring, but she vanquishes Eric's objections just as conclusively as she has before: "I cannot lose such an opportunity," she insists, and he is done (377). The exchange during the literal U.S. Civil War recapitulates in gentler guise the early skirmish of the household civil war that predates it, and recalls Eric's view of Irene during the "priestess's" definitive vigil. Like Hawthorne's Hester, Irene comes to assemble an ersatz family in a household of her own arranging, and to minister to her community in idiosyncratic ways that allow her to facilitate unobtrusively the dismantling of mid-nineteenth century gender norms from within that deliberately modified domestic sphere. But because Evans allows Irene to include the astronomical space in the domestic sphere, domesticity in *Macaria* serves less to contain her revolutionary notions than to protect them from injudicious exposure. Irene, in the role of Southern lady, offers several designated sacrifices on the public altar of the Confederacy, but astronomy is not one of them. Throughout the Civil War of the novel, Irene perpetuates the radicality to which she dedicated herself long before the Second American Revolution.

According to scholars of Evans's work, the strident Confederate propaganda that freights the last section of the novel supplants the feminist proposal predicated on the astronomy Evans weaves through the entire novel. The Civil War, reasons the critical chorus, presented circumstances "excusing women from exclusive domesticity and providing them a critical role in the public life of the new nation," so that the latent revolution in *Macaria* derives from "the

special demands of war upon women in the invaded South” (Faust xxii, xxiii). According to this interpretive logic, Evans’s support for the Confederacy affirms a nation “where traditional notions of woman’s proper place [are] most assiduously defended,” and she “ultimately [...] [steps] back from a celebration of genuine female autonomy” (xxiii, xxv). Transnational and historicist approaches to *Macaria*, however, reveal a tendency of astronomical logic in the text that does not coincide with the reasoning of these scholars, however feminist their allegiances. The astronomical Other of Evans’s novel, like her counterpart in *The Scarlet Letter*, is associated with a final reinscription of the title in a pictogram that promises the gender revolution to come. In the closing chapter, the secondary heroine, Electra Grey, is at work on her sacrifice, a painting she calls “‘*Modern Macaria*,’” which she hopes to “‘lay [...] upon [her] country’s altar, as a nucleus around which nobler and grander pictures’” will one day “cluster” (Evans 409). It is telling that Electra looks not to the war taking place in the narrative (and, for the original readership of *Macaria*, the historical) present, but to the Confederate States of America of the future, where Irene joins her in projecting a nation in which women may “extend the circle of their appropriate occupations” (410). Electra’s “canvas [...] contained an allegorical design representing, in the foreground, two female figures,” despite the fact that the title is singular, not plural; also despite the classical allusion of the title, no woman in the painting is immolating herself, or shows signs of even the slightest injury (411). The “mangled heaps of dead” in the painting are gruesomely bloodied corpses of soldiers left behind after a battle, and the several women in the background variously grieve over them, but no female self-sacrifice seems appropriate to the situation (411). The major female figure of Peace, who is “wonderfully serene and holy” and has Irene’s eyes, blesses the battlefield, while the major female figure of Independence, who is “crowned with stars,” holds the “Confederate Banner of the Cross,” with “triumph and exaltation in the luminous eyes” (411). Electra’s painting is less a Confederate update of the ancient Greek legend of Macaria than it is complementary depictions of Irene in an American elaboration of Goethe’s astronomer-prophetess Makarie, connected to Confederate nationalism by rhetorical gesture. The iconography of the image suggests that the Civil War is an “opportunity” that the astronomical Other “cannot lose.” Neither Peace nor Independence appears to mourn particularly; in fact, the face of astronomically adorned Independence is “all athrob with national pride, beaming with brilliant destiny” (411). The *Modern Macaria* is the metonym of Evans’s Confederate narrative, which, when liberated from the “iron framework” of historical reasoning, keys new systems of meaning that premise fresh interpretation of the novel in radical directions. The quotation from Elizabeth Barrett Browning’s “Drama of Exile” (1844) – “Rise, woman, rise! / To thy peculiar and best altitudes” – with which Evans concludes her novel of nation, proclaims the ascendant power of difference (415). To the end, Evans asserts the determination of the astronomical Other to direct the narrative of an America to come, true to her revolutionary vision: Irene,

“calmly fronting her Altars of Sacrifice, [...] dedicated herself anew to the hal-
lowed work of promoting the happiness and gladdening the paths of all who jour-
neyed with her down the chequered aisles of Time” (414). We know she looks
into the future and experiences joy only in her private practice of astrophysics;
and we know that the only “chequered aisle” where we may join this Mitchell
figure is in the observatory atop Huntingdon Hall.

The Scarlet Letter and *Macaria; Or, Altars of Sacrifice* are products of
extraordinarily stressful times in their respective Americas, times when the United
States of America and the short-lived Confederate States of America underwent
crises of collective identity. That female-associated astrophysics should factor sig-
nificantly in such categorically disparate fictions suggests the efficacy of trans-
national approaches in illuminating even works of literature expressly concerned
with historical nationality. Indeed, these novels participate in a transnational dis-
course that enlarges the meanings of them both.

The writer of Caroline Herschel’s obituary in 1848 would not have found his
wish fulfilled very soon; neither by 1850 nor yet by 1864 had the time arrived
when “the astronomical celebrity of a woman” such as Maria Mitchell would
transpire without especial attention to the circumstance of her sex. But remarks
Mitchell excited did serve to advance a set of ideas as literary efforts of vari-
ous stripes explored the tendency of the obituarist’s hopeful thought. *The Scar-
let Letter* and *Macaria; Or, Altars of Sacrifice* acknowledge and affirm, respec-
tively, the symbology of the “woman’s comet,” and the cultural work it accom-
plishes toward a future America. The implications of revolution arising from the
astronomical Other logically extend beyond issues of gender to issues of differ-
ence more generally, even universally. This is quite appropriate; as Hawthorne
and Evans demonstrate, the rising of difference is written in the stars.⁹

Works Cited

- Arac, Jonathan. “Reading the Letter.” *Diacritics* 9.2 (Summer 1979): 42-52. <https://doi.org/10.2307/464783>
- Baym, Nina. *American Women of Letters and the Nineteenth-Century Sciences: Styles of Affiliation*. New Brunswick, NJ: Rutgers University Press, 2001.
- Bell, Millicent. “The Obliquity of Signs: *The Scarlet Letter*.” *The Massachusetts Review* 23.1 (1982): 9–26.
- Berlant, Lauren. *The Anatomy of National Fantasy: Hawthorne, Utopia, and Everyday Life*. Chicago, IL: University of Chicago Press, 1991.
- Bergland, Renee. *Maria Mitchell and the Sexing of Science: An Astronomer among the American Romantics*. Boston: Beacon Press, 2008.
- Booker, Margaret Moore. *Among the Stars: The Life of Maria Mitchell*. Nantucket, MA: Mill Hill Press, 2007.

9 “I would like to acknowledge my gratitude to Susan V. Donaldson, College of William and Mary.”

- Davis, Clark. *Hawthorne's Shyness: Ethics, Politics, and the Question of Engagement*. Baltimore/London: Johns Hopkins University Press, 2005.
- Evans, Augusta Jane. *Macaria; Or, Altars of Sacrifice*. 1864. Baton Rouge, LA and London: Louisiana State University Press, 1992.
- Fara, Patricia. *Pandora's Breeches: Women, Science and Power in the Enlightenment*. London: Pimlico/Random House, 2004.
- Faust, Drew Gilpin. "Introduction: Macaria, a War Story for Confederate Women." Augusta J. Evans, *Macaria; Or, Altars of Sacrifice*. 1864. Baton Rouge, LA: University of Louisiana Press, 1992. xxiii-xxix.
- Fidler, William Perry. *Augusta Jane Evans Wilson 1835-1909: A Biography*. University, AL: University of Alabama Press, 1951.
- Goddu, Teresa A. *Gothic America: Narrative, History, Nation*. New York, NY: Columbia University Press, 1997.
- Halliday, Sam. *Science and Technology in the Age of Hawthorne, Melville, Twain, and James: Thinking and Writing Electricity*. London/New York: Palgrave-Macmillan, 2007. <https://doi.org/10.1057/9780230605091>
- Hawthorne, Nathaniel. *The Scarlet Letter: A Romance*. 1850. New York, NY: Literary Classics of the United States, 1983.
- Homestead, Melissa. "The Publishing of Augusta Jane Evans's Confederate Novel *Macaria*: Unwriting Some Lost Cause Myths." *Mississippi Quarterly* 58.4 (Fall 2005): 665-702.
- James, Henry. *Hawthorne*. 1879. New York: Harper, 1901.
- "Miss Mitchell's Comet." *Monthly Notices of the Royal Astronomical Society* 8.1 (November 12, 1847): 9-11. <https://doi.org/10.1093/mnras/8.1.9>
- Mott, Lucretia Coffin. "Discourse on Woman." Philadelphia: T. B. Peterson, 1850.
- Obituary of Caroline Lucretia Herschel (untitled). *Monthly Notices of the Royal Astronomical Society* 8.4 (February 11, 1848): 64-66.
- Reynolds, Larry J. "The Scarlet Letter and Revolutions Abroad." *American Literature* 57.1 (March 1985): 44-67. <https://doi.org/10.2307/2926312>
- Sagan, Carl and Ann Druyan. *Comet*. London: Michael Joseph, 1985.
- Sexton, Rebecca Grant. *A Southern Woman of Letters: The Correspondence of Augusta Jane Evans Wilson, 1859-1906*. Columbia, SC: University of South Carolina Press, 2002.
- Zimmerman, Brett. *Herman Melville: Stargazer*. Montreal: McGill-Queen's University Press, 1998.

Lunar Dreams. Religion and Politics in Literary Journeys to the Moon

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One of the greatest mirrors offered to humanity is stretched out every night above our heads. The night sky, however, is a very broad mirror. One representing the sky on a smaller scale is the moon. It is the largest object in the nocturnal panorama and this is why it has often been seen as another earth. Every culture has projected its own images onto this screen – the rabbit, the woman, the man in the moon. Scientists and artists have discovered islands and mountains, caves and cities. One of the earlier theories, as communicated by Plutarch in his “On the Face in the Moon” (*De facie in orbe lunae*), proposed that the moon is an exact mirror of the continents of the earth. Apart from these attempts to make sense of the shapes on the moon, the satellite has also been a playground for all kinds of fantasies, most of them satirical or utopian/dystopian. In this essay, I wish to show to what extent the moon has become the testing ground for alternative ideas, but also a foil for cultural difference. The satellite can be seen to be paradigmatic in that it permits the evolution of ideas otherwise prohibited on earth. At the same time it is a territory of negotiations between the political and cultural present with the past and the future, and tries to come to terms with the ‘alien’, as does much of travel writing in general.

Lucian of Samostata (c. 125-180 AD) was the first to set a satirical work on the moon, and his example was followed by many a writer. Literary depictions of trips to the moon are scarce in the Middle Ages, but gain momentum with the waning power of the medieval worldview in which the moon was part of the crystal world of spheres, an immaculate and unearthly object. Hence the term *sublunary* for everything that happens in the corrupted world of Earth and her atmosphere extending to the moon, but not beyond it (Lewis 3-4).

One of the earliest modern examples of a trip to the moon takes place in Ariosto’s *Orlando Furioso* (1516-32). The English knight Astolfo travels to the moon in order to restore the good sense of the raving hero Orlando. John the Evangelist acts as his interpreter and explains to him why the moon is full of things: spilled soup, snares, bellows, burst crickets. Every object has a specific meaning and relates back to earthly actions: the heaps of burst crickets are the verses in praise of great lords, the bellows are favors, spilled soup is charity, and so on. Here again, the moon is another, a different earth, a place where everything that

has been lost or forgotten on earth can be found again: lover's tears, memories, and even reason. Orlando's reason is preserved in one of many bottles. Thus it is not only a Lost Property Office, but also a neurological device against forgetting. But above all, "it is the Earth's dump" (Lambert 24).

With the advent of modern astronomy, or, to be more precise, the Copernican Revolution, the moon itself began to change its face. It now gained new astronomical values. As the other Earth, views from the moon increased and served to confirm the New Astronomy. At the same time, however, the moon remained a mirror, or a Rorschach projection area, in that it continued to reflect very earthly issues: it became a new frontier long before Kennedy claimed space as such. As a blank spot about which much was still unknown up to the arrival of modern telescopes in the twentieth century, it was bound to mirror, embody, deflect, negate, or confirm whatever people thought about it on earth (Montgomery; Brunner).

In this paper, I wish to look at two examples of this mirroring, one in the seventeenth century and the other in the nineteenth. Both views, embedded as they are in narratives, mark certain positions of our age, the first at the beginning of the Thirty Years' War and the other in the heyday of positivism and materialism, exactly a century before the actual moon landings. In particular, I want to look at the various strategies of demythifying and remythifying this ancient symbolic object in the night sky. How does its aura survive in the age of scientific revolutions and how does the moon reflect preoccupations on earth in these two periods?

It was at about the same time when Galileo Galilei discovered the mountains of the moon and the moons of other planets with his new telescope that the astronomer Johannes Kepler began to write a text that he called *Somnium*. This was in 1609 when he was Imperial Mathematician at the Court of Rudolph II in Prague. One year later, Galilei in his *Sidereus Nuncius* announced to the world that the moon, contrary to received opinion, was not even and perfect like a sphere, but rather was full of craters and mountains, just like the earth itself. Kepler admired Galilei, but wrote to him that he had already said as much in his 1593 dissertation project, a manuscript relating to questions of the moon (*Kepler's Dream* 2-3). Anyway, the moon was back on center stage and this may have inspired Kepler to write his *Dream*. It was published posthumously in 1634 by his son under the title of *Somnium, seu opus posthumus de astronomia lunari*.

Dream is a strange text: multilayered, self-reflective, using narratives embedded like Russian dolls and thereby creating a kind of mirror hall full of echoes and visual parallels. If it were not an early modern text, we should be inclined to call it postmodern. Besides the narrative, the book also contains some 223 footnotes (taking three times as much space as the central text) and two appendices: Kepler's own translation from Plutarch's *De orbe* and a text on "selenography." Although the notes are meant to clarify the text, they actually deconstruct it and sometimes they also deepen the mystery. In any case, they add to its scientific intent. They are partly humorous, partly serious, at times relating to Kepler's autobiography, and even to the reception of the first draft of *Kepler's Dream* as

it was handed around after 1610. It took Kepler some twelve to fifteen years to complete the little work that he had started in 1609. Is it a *Gedankenexperiment*, a useful fiction, an allegory, a treatise, an early piece of science fiction, or is it simply a hoax, *une drôle de pensée* comparable to Leibniz's? Is it folkloristic astronomy or veiled autobiography, a travel book or a satire, a vision or a dream? All these epithets have been showered on this small work and they are probably all applicable to some extent, though never exclusively (see Lambert 82). The main reason Kepler gave for writing this book can be found in note 3: using the *Gedankenexperiment* of traveling to the moon he wanted to confirm Copernican theories about the solar system: "The object of my *Dream* was to work out, through the example of the moon, an argument for the motion of the earth, or rather, to overcome objections taken from the general opposition of mankind" (*Kepler's Dream* 89). This may have been his intention, but the text sprawls in all directions and is certainly a witness to the diversity of Kepler's interests. Leaving out the explanatory notes, we can summarize his text in this way: The author tells us that in 1608, when he became worried about political quarrels in Prague, he developed an interest in Bohemian legends and the mythical founder of the city, Libussa, "famous for her magic art" (87). On one of these nights, after watching the stars and moon, he fell asleep and in his sleep seemed to be reading a book he had just bought at the Frankfurt Book Fair. The story that follows is from this book and introduces a new narrator, an Icelander by the name of Duracotus. The boy lives with his mother, a wise woman who sells bags of magical herbs to sailors. One day, the inquisitive boy opens one of the bags. Upon discovering this his mother punishes him by selling him to a captain who takes him to the Danish isle of Hven. The island belongs to the great Tycho Brahe, with whom the boy begins to study the stars. After his apprenticeship, he returns to Iceland, where his mother regrets her actions and rewards him with knowledge. Together they go to one of the great volcanoes, Mount Hekla, because this is where she communes with the demons. One of them is particularly close to her. His or her name is Levana, the moon spirit. This demon tells them how humans can travel to the moon, albeit only under very specific conditions. First of all, the pilots should be trained people, not Germans, who are gluttons, but ideally Spaniards, because they are used to travel, hardship, and living on very little. They are the perfect colonizers of exotic worlds, as it were. The demon also anticipates what space flight will later corroborate: the intense pressure on the travelers at the start, the need to take an opiate in order to survive the initial explosion, and the influence of gravity and its loss.

The demon also tells them what the moon is really like, the climate, the habitat of moon creatures, but even more importantly, they learn about the astronomy of the moon, its periods of darkness and light, its caves and mountains, its position and motion vis-à-vis the earth and the sun. When the demon speaks about cloudiness and rain, the sleeping narrator suddenly wakes up, disturbed by rain and wind, and finds that the last part of his book has been destroyed.

We thus have three narrators in this text: the autobiographical narrator, Duracotus, and the Demon. But these voices are embedded in dreams and books, which in their turn reflect each other and build up this strange labyrinth of mirrors mentioned above. So if truth is hidden in this text, it is written in a cipher. Obviously, the notes help to clarify some phenomena. First of all they give astronomical details relating to the experiences described in the story. Second, they unravel some allegories, which, however, at times complicate things even further. For example, in note 3 Kepler calls Ignorance the mother, Science the son, and Reason the father. Ignorance equated with the feminine sounds like a familiar stereotype, but Kepler is a little more enlightened than his contemporaries when he explains that what he means by this is “untaught experience” and “empirical practice” (89). However, Kepler’s text appears at the beginning of the so-called Scientific Revolution and participates in the repression of the Feminine/Female for the sake of male science (Merchant; Schiebinger *passim*).

The fact that Kepler translates images into meanings shows to what extent he still adheres to medieval visual strategies, as for example when he describes geographical features in terms of the human body (141). However medieval his allegorization may be, he values Duracotus’s mother in spite of her lack of education, which probably reflected his own filial loyalty to his mother. But the story about the moon also helped him to disentangle superstition and reason, while at the same time juxtaposing them. However, Kepler was quite aware of the magical residues of modern science, and here he certainly is our contemporary. When they meet with the Demon, mother and son follow a certain ritual:

My mother withdrew from me to a nearby crossroads and after crying aloud a few words in which she set forth her desire, and then performing some ceremonies, she returned, right hand outstretched, palm upward, and sat down beside me. Scarcely had we got our heads covered with our robes (as was the agreement) when there arose a hollow, indistinct voice, speaking in Icelandic to this effect. (*Kepler’s Dream* 100-1)

They thus create a ritual space in which the spirit can appear. This type of space, an artificial cave as it were, is also connected to the dream itself, because when Kepler awakes at the end he finds himself covered by a pillow, “even as they had their heads covered” (163; see Lambert 86-87). Kepler then declares in notes 44-47 that this magical ceremony corresponds to his own methods of teaching astronomy and I think that we here have a clue to the intention of his magical text itself:

Whenever men or women came to watch me in a particular observation which I performed frequently in Prague in those years, I would first remove myself from them to a nearby corner of the house which I had chosen for this activity. There, after shutting out the daylight, I would fashion a small window out of a tiny aperture, and put a white covering on the wall opposite. Having done all this, I would summon the spectators. These were my ceremonies, my rituals. (*Kepler’s Dream* 100)

In note 49 he makes an observation about this covering up of one's head: "With this very ritual (how magically magic!) we had observed an eclipse of the sun a little before I got the idea for this book, that is 1605 2/12 October" (101).

Another translation from magic to modernity is effected in note 50, where Kepler remarks on the Demon's "hollow, indistinct voice." Here, he considers the possibility of reproducing the human voice by means of mechanical instruments. It would be a kind of rumbling and mumbling, but even "in this device, I believe, are traps for the superstitious and the credulous, so that sometimes they will think that demons are talking to them, when art is imitating magic tricks" (101). Here Kepler comments on a technology that was explored and developed by the Counterreformation (Swinford 159-60). Athanasius Kircher (1602-1680) certainly belongs to those baroque churchmen who practiced such cunning craft, and we can still see echoes in the techno-Gothic novels of the late nineteenth century, *Le château des Carpathes* by Jules Verne and *L'Eve future* by Auguste Villiers de L'Isle-Adam. Technology replaces and suppresses the supernatural and then gains a ghostly quality in itself. Interestingly, the Demon's voice is then compared to the melancholy voice of a fellow student who suffered from a mental disorder and was killed by a stroke because he computed too much and could not relax (*Kepler's Dream* 101-2).

Kepler treads a very thin line when he distinguishes between magic and technology in this Janus-faced age. We should not forget that he still produced astrological horoscopes, e.g. for Wallenstein, while working on the laws of planetary motion.

This is why Kepler's *Dream*, which is as ambivalent, has a deep autobiographical stratum. From a psychological point of view, the relationship between mother and son (and the distant father) is of particular importance. The son is taught involuntary lessons both by his mother's disciplining, which leads him to Brahe on the Danish island, as well as by her herbal and spiritual knowledge, which, through the Demon, teaches him about the moon. In their communication with Levana, the old world of superstition joins hands with Copernican knowledge. Kepler's *Dream* manifests both antagonism and communion between mother and son. When he calls Duracotus's mother "Fiolxhilde," Kepler confesses that he didn't know the meaning of "Fiolx," but knew it was Icelandic and liked its "rugged sound," while Hilde was "a common designation for females in the ancient tongue" (89). His own mother certainly was rugged. The quarrelsome woman was accused of being a witch, locked away, and for several years was threatened to be executed had not her son defended her in the trials. This was a dismal story, an elderly lady hiding away in a box. Ultimately, the judges could not force her to confess and so had to release her, but she died some months later in 1622. Some critics believe that Kepler only started his notes to *Kepler's Dream* after her death, which would explain note 3. He was very much involved in her difficulties with the authorities and often had to travel from Linz to Swabia because of the various trials. Some of the strain of this situation is translated into Kepler's

Dream. Thus Duracotus says he could only write this after his mother's death because she had warned him to be silent about these secrets: "She used to say that there are many wicked folk who despise the arts and interpret maliciously everything their own dull minds cannot grasp" (89). In note 3, he explains that this is not only a psychological question but that Science itself cannot divulge secrets as long as ignorance/untaught experience still cling to things.

There is even a political agenda at work, if we consider the beginning where Kepler refers to the other herbal woman and witch, Libussa, the founder of Prague. The quarrels between Rudolph II and his brother Matthias, which would eventually turn into the Thirty Years' War, were in a similar way still magically connected to a world of superstition. Thus an ancient quarrel – that between Libussa and the male part of her people – seemed, in the eyes of contemporaries, to be repeating itself. When Kepler calls Science male and Ignorance female, he suggests similar conflicts between male and female positions.

But Kepler's involvement with his mother's trials also contains a note of guilt. Kepler states in note 8 (*Kepler's Dream* 90) that he was satirized by an anonymous author in a work called *Ignatius, His Conclave*. In fact, Kepler did not know that it had been written by the British poet John Donne, who, ironically, was to visit him on October 23, 1622. From this satire, Kepler concludes that his little work had been circulated even in England. He believed that it was certainly talked about in Swabian barbershops, and that this contributed to the slander he and his mother endured. This may well be a reason why he started to add notes to his work, thereby demystifying it: "It has pleased me therefore to avenge the trouble my dream has caused me by publishing this work, which will be another punishment for my adversaries" (91).

The moon, as we said at the outset, has always been a mirror of human questions. What kind of earthly reflections, then, are to be seen on Kepler's moon? Kepler first of all distinguishes between Privolva and Subvolva. Privolva is the hidden side of the moon, while Subvolva is the one seen from the earth, which is called Volva. The name is related to Latin *volvere* (to turn), and reflects the motion of the earth as assumed by a Copernican. The division into Subvolva and Privolva follows along the lines of civilized and noncivilized, substance and shadow, so to speak: "For, on the whole, the Subvolvan hemisphere is comparable to our villages, towns and gardens; the Privolvan hemisphere is like our fields, and woods and deserts" (156). Privolvans are nomads, they wander over the moon on foot or in boats, and most of them are amphibious divers and can live under the water (155). In the notes, he refers to his reading of travel books on Africa and Scythia with whose creatures, imaginary or not, he populates the moon: serpents they are, savages, mixtures of animals and humans. The main thing is, however, that Kepler never saw them or pretends to have seen them, he simply concludes from the environment what kind of beings would be able to survive in it. In this sense, Kepler also anticipated evolutionary models in which adaptation is crucial for survival.

But the point of the dream is possibly not the moon, but the earth. As a Copernican, he uses his fiction to show the earth as it is: a wonderful object in the solar system, such as it would be seen three hundred sixty years later by the astronauts. With Kepler, the earth is seen through the eyes of the man in the moon and at the same time through the eye of the medieval mapmaker:

In the eastern part is what looks like the front of a human head cut off at the shoulders [Africa, as explained in note 158], approaching a young girl [Europe, note 159], with a long dress, [Sarmatia, Thrace, the Black Sea region, Muscovy, Tartary, note 160] to kiss her. (*Kepler's Dream* 141)

This is only the beginning of a description of certain features of the earth as they appear from the moon. Of course, Kepler is fully aware of the allegory and this is why one could call his watchers on the moon medieval. But whether, as Campbell put it, the moon is offered as “an alternative to Bohemia” (Campbell 238) remains doubtful since the moon shows rifts and tensions similar to those that existed in Bohemia.

I have highlighted some features of this remarkable and complex text. Kepler's *Dream* was to have a continuous influence, albeit often as an undercurrent, on future lunar travel writing (Nicolson 47-54, Parrett 50). He changed the view of the moon in terms of its physics and geology (selenology), but he also changed the view of the earth, since he is the first to look at the earth space. He also strengthens a tradition that we might call the plurality of the worlds, which had been propagated by Giordano Bruno and was to become an important topic for early Enlightenment thinkers such as Bernard de Fontenelle. Relativity of viewpoints on a planetary scale coincided with the idea of relativity of cultures. With some justice, Kepler could be called the first writer to bridge the ‘Two Cultures’ by writing a work of science and fiction (Parrett 50).

Some of these ideas and images would be taken up by later lunar writers such as Francis Godwin (*The Man in the Moone*, 1638) and Cyrano de Bergerac (*Les États et Empires de la Lune*, 1657). In the eighteenth century, however, the moon loses some of its attraction, maybe because colonialism was by that point in full swing on earth; however, in the nineteenth century it returns to center stage, especially in America. There is the great Moon Hoax performed by Richard Locke, who mesmerized the readers of the *New York Sun* in 1835 with reports about the inhabitants of the moon allegedly seen through Herschel's telescope. And attendant to Locke is Edgar Allan Poe's satire “The Unparalleled Adventure of One Hans Pfaal” (1835), in which the eponymous protagonist escaped from his creditors via a balloon trip to the moon.

So when Jules Verne took up his pen to write what are arguably the most famous books on trips to the moon, the public had already been disillusioned about life on the moon, the notion at this point surviving only in deceptions and farces. Though the question was not resolved completely, most scientists and car-

tographers tended to dismiss the possibility of life on the moon. Verne's task, then, was different from that of previous writers: How could a trip to the moon be kept interesting without using the trump of the Selenite, as the inhabitant of the moon was called? His two books, *De la terre à la lune* (1865) and *Autour de la lune* (1870) appeared roughly a century before the moon landings. Some of his predictions were stunningly close to what was going to happen in 1969. His launch pad was situated some 150 miles off Cape Canaveral and he foresaw the competition between Texas and Florida for control over space flight. He also chose the Americans as the most likely candidates to reach the moon, while the Brits have become negligible in this race. The Russian conquest of space, however, he did not predict. As a patriot, Verne obviously had to include a Frenchman in the party. He anticipates the great media hype surrounding the event and the splashdown in the Pacific Ocean. Obviously, his carelessness vis-à-vis certain problems in both books has been pointed out a number of times: his treatment of the loss of gravity, of which he is at one point aware but then forgets when the astronauts pour a drink, let alone the chickens on board, the drawing-room atmosphere inside, and so on (Clamen 19-23). Whatever his shortcomings, Verne's otherwise precise representations certainly contributed to turning his fiction into a self-fulfilling prophecy. As a schoolboy, Hermann Oberth refuted some of Verne's points and later went on to become one of the pioneering theoreticians of space flight. Similarly, other innovators, including the Russian Konstantin Tsiolkowski, the American Robert Goddard, and the German Wernher von Braun were deeply affected by Verne's fantasies (Crouch 17). When Neil Armstrong set foot on the moon he immediately thought of Jules Verne, at least this is what he said in Paris years after his landing (Evans 31).

Verne was great at anagrams, and he combined this playfulness with prophetic vision when naming two of his heroes Michel Ardan (anagrammatic for Verne's friend, the photographer Nadar) and air balloonist Captain Nicholl. As we all know, Michael Collins and Buzz Aldrin were two of the 1969 Apollo 11 crew.

Apart from technical and political considerations (the launch pads in both cases were very close to each other, there was rivalry between Texas and Florida) that demonstrate the amazing parallels between fiction and future facts (see Wehrenalp 211-13), why are these novels still of interest to us, even after the lunar landings of the latter part of the twentieth century?

For several reasons, I think. Let me name two that are relevant to our discussion here: the military-industrial complex in which Verne's spaceflight is located and the function of scientific discourse in his novels. Both illustrate the extent to which even modernity and rationality are informed by modes of magic, the sacred, and the religious.

Satire was never far from the moon, as we saw in Ariosto, Kepler, and de Bergerac. With Verne, however, satire is much more rooted on earth at the beginning of *De la terre*. He presents the bored members of the Baltimore Gun Club – out of work after the ending of the Civil War –, who are looking for new and

decent objects for their engines of destruction. Having made clear that the sole aim of this venerable society is the annihilation of humanity for philanthropic reasons (Verne, *De la terre* 3), the author goes on to show the apocalyptical-bourgeois nature of this enterprise: “C’était une réunion d’Anges Exterminateurs, au demeurant les meilleurs fils du monde” (7).

The club’s statistician calculates that these angels of destruction possess about one arm for four people and two legs for six, their various limbs being made of silver, rubber, gutta-percha, wood, etc. These cripples, or nineteenth-century cyborgs, show no mercy, either with humanity or with themselves. Now they are looking for ways and means of overcoming their boredom and eventually find a way out: sending a rocket to the moon. Why do they do this? First of all, they want to be kept busy, to develop and employ their military know-how. Second, they are patriots and want to prove to the world that they can surmount the obstacles of any frontier. Columbus is their symbol and this is why their gigantic cannon will be called the Columbiad. They even pay homage to their literary antecedents, first the American Moon Hoax of 1835 and then to Poe himself, whose Hans Pfaal of Rotterdam set the bar for moon trips: “Hurrah pour Edgard [sic] Poe!” shouts an electrified audience when they hear their president, Barbicane, speak. These people also want to evade earthly problems – in this case, the dearth of wars and destruction. They testify to American qualities, which from the outset Verne sets in contrast to other nationalities:

On sait avec quelle énergie l’instinct militaire se développa chez ce peuple d’armateurs, de marchands et de mécaniciens. [...] Les Yankees, ces premiers mécaniciens du monde, sont ingénieurs, comme les Italiens sont musiciens et les Allemands métaphysiciens, – de naissance. (Verne, *De la terre* 1-2)¹

Let’s remember that Kepler also indulged in such generalizing *Völkerpsychologie* when he played off the Spaniards against the Germans.

The whole venture is characterized by phallic gigantism and a complete absence of women. Compare this to Kepler’s *Dream* in which Duracotus’s mother is central and so is probably a female demon, though, of course, we also saw that ignorance was allegorically represented by the mother. It thus seems that Verne’s shot to the moon is the ultimate realization of male fantasies: depriving the feminine Luna of her imaginative powers over humans, thereby symbolizing the complete conquest of nature. When every blank spot on earth is covered by human knowledge and control, the ‘heart of darkness’ is removed to outer space. The second part of the novel makes clear that this only works in theory because the three astronauts never reach the moon. Yet they will circle it closely enough to

1 “Everyone will remember the vigor with which that nation of shipowners, shopkeepers, and mechanics discovered their instinct for warfare. [...] The Yankees, the world’s greatest mechanics, are engineers the way Italians are musicians and Germans are metaphysicians – by birth.” (translated by Walter James Miller, *The Annotated Verne* 1).

report back a very bleak idea of it to the rest of humanity: there is no life on the moon, and it is simply covered by holes and mountains, craters, and possibly lakes. The attempt to rule over the universe fails and the astronauts have to return. Interestingly, this trip is a one-off without any consequences for humanity. Or, as Michel Clamen put it:

Elle [la conquête de l'espace] ne produit rien, ni connaissance de notre satellite, ni même un progrès des transports dans l'espace. Proclamer, comme dans *De la Terre à la Lune*, que des trains y emmèneront la moitié de l'humanité est un fantasme [...]. Les héros ne parviennent même pas à mettre le pied sur la lune, leur exploit reste sans lendemain. (Clamen 23)²

Sans lendemain, yes, in fiction, but not in reality, because here, as we saw, Verne sowed the seeds for future pioneers.

My second point is that Verne's books are a mixture of scientific lessons and entertainment/suspense. He uses narrative devices like competition (between Barbicane and Nicholl or Florida and Texas) and polarities (such as the Frenchman versus the Americans in the capsule as well as Europe versus the New World). On the whole, the plot in both books is rather meager in this case and most of the author's energy is devoted to outlining the effort to send men to the moon. He dexterously alternates chapters of information – about cartography, the history of cannons and telescopes, astronomy, and lunar features – with chapters on the human perception and the myths about the moon. Apart from the French astronaut Ardan, who is invested with humor and a scintillating French spirit of reckless carelessness (*je m'enfoutisme*), all the other characters are pretty flat. Ardan is a daredevil, caring neither about whether there is enough air on the moon nor how to effect a return journey to earth. He is, moreover, the one who suggests that the flight should be manned. He brings an air of irrationality and light-heartedness into the craft, not to mention *la cuisine française*. In the other chapters, however, science is not based on imagination but on numbers. Verne celebrates a real cult of mathematics, and his *Book of Exodus* is, as it were, intimately connected to a *Book of Numbers*. These are the pages you skip as a child reader, but also as a student of the humanities. Take this for example, when Barbicane addresses the workers at the Tampa pad:

Il s'agit de couler un canon mesurant neuf pieds de diamètre intérieur, six pieds d'épaisseur à ses parois et dix-neuf pieds et demi à son revêtement de pierre [...] habilité. (Verne, *De la terre* 177-78)

2 “It [i.e. the conquest of space] produces nothing, neither knowledge about our satellite nor even progress in terms of transport technology in space. To claim, as it is done in *De la Terre à la Lune*, that trains will take half of the human population there, remains sheer fancy. The heroes do not even succeed in putting a foot on the moon and their adventure is without any future” (my translation, E.S.).

Verne cherishes long columns of figures, such as in the chapter “Un Meeting,” a catalogue of the different speeds of planets (Verne, *De la terre* 236) and the distances of nebulae and constellations from the Earth (239). Obviously, Verne simply copied from encyclopedic works here, but writing economy aside, there is a sort of inebriation to be found in these lists and the way they are chanted by the experts. It is here that rationality itself is on the wane and replaced by intoxicating repetitions reminding one of the chants and mantras in temples and churches. The cult of figures in Verne is first of all a cult, and only secondarily a tool of calculation. Barbicane’s audience and the contemporary reader are meant to be mesmerized by these incantations. This is where science turns into a mythical venture, using similar anthropologically proven channels to influence people. Figures for Verne are not only important in scientific calculations but also in computing numbers of people. He devotes page after page to showing the increase in the masses of spectators gathering around the launching pad, in media attention, and the speed of telegraphic messages sent around the world. All this is meant to demonstrate the extreme level of excitement triggered by a great technological event in human history. As the landings in 1969 proved, Verne was not far off the mark in this regard. What this level of hype also shows, however, is the degree of sacredness that has been achieved. It is only comparable to a certain cultic act, and that is sacrifice.

What is thrown into relief in *De la terre* is that the three men are actually on a suicide mission, but they don’t care. So who is sacrificing them, and for whom? As the columns of figures and terms suggest, the god they are sacrificed to is Science. Concomitantly, as science is mainly represented by the avant-garde United States, raising its flag on the moon is a way of confirming the achievement of the most recent technology: “Quant aux Yankees, ils n’eurent plus d’autre ambition que de prendre possession de ce nouveau continent des airs et d’arborer à son plus haut sommet le pavillon étoilé des États-Unis d’Amérique” (Verne, *De la terre* 75).³ Ironically, it is the Frenchman Ardan who is the first to suggest a manned flight and who does not care about a return. He is then celebrated by the media as the real superstar. Barnum actually offers one million dollars to present him in a show that would travel around to American cities, an offer that Ardan rejects. But his portrait is reproduced endlessly and collected and exhibited all over the globe. He is shown on stamps and could have made a fortune by selling such relics as strands of his hair (Verne, *De la terre* 289). All this indicates to what extent the public mind is still ‘wild’ or keen on charismatic people and events.

There is another aspect linking science with magic, the new world with the archaic. Kepler, as we saw, aimed his demonic flight at a volcano on Iceland, Mount Hekla, which furthermore was associated with purgatory or even hell and

3 “As for the Yankees, their sole ambition now was to take possession of that new continent in the sky, to plant on its highest peak the starry flag of the United States of America” (translated by Walter James Miller, *The Annotated Verne* 34).

witchcraft. Verne goes out of his way to describe the effort it takes to dig a hole in order to fix the gigantic cannon in it. The Columbiad may be likened to an artificial volcano from which the human spirits can enter orbit and reach the moon. When they are eventually launched in Chapter xvi, the earth experiences a cataclysm as it did on the day of Christ's sacrifice in Golgotha: day is replaced by night, a meteor is sighted, and an artificial hurricane is set off. The detonation of the cannon causes something like an earthquake. Humans have produced an artificial volcanic eruption: "Une immense gerbe de feu jaillit des entrailles du sol comme d'un cratère" (Verne, *De la terre* 348).

Why, then, should one go to the moon? For Kepler, this question is only theoretical. By going to the moon, at least virtually, one can reach a new understanding of the earth's position in the solar system that would corroborate Copernicus. Kepler's projections are still humble; there is no idea of what to do with the Selenites, no plan to enslave or otherwise exploit them. By Verne's time, this attitude has changed completely. While on their flight, the astronauts start to discuss the reasons for going. Why, Captain Nicholls wants to know, should I go to the moon? As always, Ardan, the Frenchman has his answers ready:

Pourquoi! s'écria Michel, bondissant à la hauteur d'un mètre, pourquoi? Pour prendre possession de la Lune au nom des États-Unis! Pour ajouter un quarantième État à l'Union! Pour coloniser les régions lunaires, pour les cultiver, pour les peupler, pour y transporter tous les prodiges de l'art, de la science et de l'industrie! Pour civiliser les Sélénites, à moins qu'ils ne soient plus civilisés que nous, et les constituer en républiques, s'ils n'y sont déjà! (Verne, *Autour* 115)⁴

Thus Ardan sums up a century of values and events: the Enlightenment, the French Revolution, Napoleon's invasion of Egypt, the American Republic, industrialization, nationalism, colonialism, progress, and technology. But the claim of encompassing all these values by a trip to the moon is too simplistic, and this is why Verne satirizes such an assertion in the very moment of its being pronounced. The scene turns into a farce (maybe due to a lack of oxygen, and the chapter is tellingly called: "Un moment d'ivresse" – a moment of intoxication): What if there are no Selenites? Down with the Selenites!

A nous l'empire de la Lune, dit Nicholl.

A nous trois, constituons la république! (Verne, *Autour* 116)

And they begin a mad dance in which they are joined by a bunch of excited chickens (Verne, *Autour* 117-18). These are scenes worthy of *commedia dell'arte*

4 "Why! Michel exclaimed, leaping up a meter or so, why? In order to take possession of the moon in the name of the United States! In order to add a fortieth state to the Union! In order to colonize the lunar regions, to cultivate them, to populate them, to bring all the wonders of art and science and industry there! To civilize the Selenites, unless they are already more civilized than we are and to establish republics, unless they do not already have them" (my translation, E.S.).

or even Beckett. In the face of a great void, humans first become inebriated, then mad.

The animals hurtling around with the astronauts are suggestive of another possibility: the space capsule as a kind of Noah's ark. Of course, this was denied by Barbicane (*De la terre* 330), but the illustration by Bayard et De Neuville facing the page on which this denial is voiced suggests the opposite. It indicates that the ark, actually on its way to the moon, suffers a major shake-up.

There is another type of biblical symbolism present that is closely linked to the ark. The other great model for the Columbiad and the capsule is the Tower of Babel. Here, as in the biblical tale, humans are striving to reach the utmost reaches of the heavens and to replace God. As opposed to Genesis (1, Moses 11), humans in Verne first seem to overcome the cosmic barrier and to build the gigantic tower, represented by the cannon and the launch as a kind of extension into space. There are three people on board embodying humanity, but as a result of their fame and their forming of a trinity, they have already attained somewhat godlike status. Babel is mythically connected to the great hunter and king Nimrod, the founder of cities and possibly of the Tower of Babel. Thus in the legendary Nimrod, we have two characteristics that are joined in the construction of the Columbiad: artillery as embodiment of the hunting instinct combined with the construction of a gigantic towerlike machine. Nimrod had the tower built, according to a tale recounted by Josephus Flavius, in order to escape God's revenge, which would take the form of the Flood (Muscheler 27-28). *Spaceflight*, then, becomes an ambivalent term. What are these people fleeing from?

In Kepler, we have seen that the political situation is becoming unbearable and calls for outlets – metaphysical or geographical flights. In Verne, flight is not meant to be an escape but a triumph of humanity. If people are fleeing from anything, it is boredom, inconspicuousness, and namelessness. Humans want to leave an imprint on the solar system in order to gain meaning for their own existence. They flee from meaninglessness. But, as Verne's novels show, they will not be able to outdo the gods. They may well strip the moon of its mythical character and rob it of its poetry, but they will also be exposed to an uninhabited and senseless world. This may be the deeper reason behind their mission's failure, forcing them to return to Earth without touching the moon. There is a deep disillusionment in Jules Verne about the universe, and the only way he sees of overcoming it is by steeping himself more and more in science. But science, as the travelers learn, will keep repeating this one message: ultimately, there is nothing, apart from humans being illuminated by their own insights. And meanwhile, if humans think they have become like gods, to what avail would that be? For Kepler, the trip to the moon was a virtual escape from a muddle on earth, but it was also a confirmation of the divine design the New Astronomy was to reveal. For Verne, the escape route is blocked because from now on humans know it would be a path to nothingness. What remains for him, however, is the joy in scientific dis-

covery itself. And his divine design has thus turned into the patterns of human perception itself.

Works Cited

- Brunner, Bernd. *Moon. A Brief History*. New Haven: Yale University Press, 2010.
- Campbell, Mary Baine. "Alternative Planet: Kepler's *Somnium* (1634) and the New World." *The Arts of 17th-Century Science. Representations of the Natural World in European and North American Culture*. Ed. Claire Jowitt and Diane Watt. Burlington, VT: Ashgate, 2002. 232-49.
- Clamen, Michel. *Jules Verne et les sciences – cent ans après*. Paris: Belin, 2005.
- Crouch, Thomas D. "'To fly to the world in the moon': Cosmic Voyaging in Fact and Fiction from Lucian to Sputnik." *Science Fiction and Space Futures: Past and Present*. Ed. Eugene M. Emme. San Diego: American Astronautical Society, 1982. 7-26.
- Evans, Arthur B. "Jules Verne and the French Literary Canon." *Jules Verne. Narratives of Modernity*. Ed. Edmund Smyth. Liverpool: Liverpool University Press, 2000. 11-39. <https://doi.org/10.5949/liverpool/9780853236948.003.0002>
- Hallyn, Fernand. *The Poetic Structure of the World. Copernicus and Kepler*. New York: Zone Books, 1990.
- Kepler's Dream*. 1634. Ed. John Lear. Berkeley/Los Angeles: University of California Press, 1965. <https://doi.org/10.1525/9780520323209>
- Lambert, Ladina Bezzola. *Imagining the Unimaginable. The Poetics of Early Modern Astronomy*. Amsterdam: Rodopi, 2002.
- Lewis, C.S. *The Discarded Image*. Cambridge: Cambridge University Press, 1995.
- Merchant, Carolyn. *The Death of Nature*. New York: Harper, 1990.
- Miller, Walter James, ed. *The Annotated Jules Verne: From the Earth to the Moon*. New York: Gramercy 1995.
- Montgomery, Scott L. *The Moon and the Western Imagination*. Tucson: University of Arizona Press, 1999.
- Muscheler, Ursula. *Die Nutzlosigkeit des Eiffelturms. Eine etwas andere Architekturgeschichte*. München: Beck, 2005.
- Nicolson, Marjorie Hope. *Voyages to the Moon*. New York: MacMillan, 1948.
- Parrett, Aaron. *The Translunar Narrative in the Western Tradition*. Burlington, VT: Ashgate, 2004.
- Schiebinger, Londa. *Nature's Body*. Boston: Beacon Press, 1993.
- Swinford, Dean. *Through the Daemon's Gate. Kepler's Somnium, Medieval Dream Narratives, and the Polysemy of Allegorical Motifs*. New York, London: Routledge, 2006.
- Verne, Jules. *De la terre à la lune*. Paris: Hachette, 1966.
- . *Autour de la lune*. Paris: Hachette, 1966.
- Wehrenalp, Erwin Barth von. "Die erstaunlichen Prognosen des Jules Verne." *Man sollte es nicht für möglich halten. Unglaubliches aus der Weltgeschichte*. Munich: Piper 1992. 210-14.

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