Journal for the History of Knowledge

PETTER HELLSTRÖM

A New New World

Unmapping Africa in the Age of Reason

▼ **SPECIAL ISSUE** in *Mapping Uncertain Knowledge*

▼ **ABSTRACT** Over the course of the eighteenth century, European maps of Africa became increasingly empty. Rivers and mountains, kingdoms and towns that had been mapped for centuries suddenly disappeared and were replaced by unmapped, blank spaces. Though historians have scrutinized the role of the blank spaces in creating and sustaining the perception of Africa's interior as an unknown and unclaimed territory, the blanks themselves have long been understood as the bi-products of improved scientific standards. Geographers in the European Enlightenment, we have been told, cleared their maps of imaginary wonders, and drew a sharp line between the known and the unknown. This explanation for the continent's unmapping is not, however, congruent with the empirical evidence. Though eighteenth-century geographers argued eloquently for the principled suppression of uncertain knowledge, they were no less at the mercy of conflicting reports than their predecessors had been. Leaving parts of a map blank to represent unknown or unexplored regions was similarly not their invention—it had long been a feature on maps of the New World. What was new about the blank spaces on eighteenth-century maps of Africa was not so much the blanks as such, as their appearance in a previously mapped part of the Old World.

▼ **KEYWORDS** History of Cartography; Map of Africa; Blank Spaces; Unmapping

▼ **ISSUE** Volume 5 (2024)

Petter Hellström • Uppsala University, SE, petter.hellstrom@idehist.uu.se

Cite this article: Petter Hellström, 'A New New World', *Journal for the History of Knowledge*, 5 (2024), xx–xx
<https://dx.doi.org/10.55283/jhk.13955>

DOI: 10.55283/jhk.13955

BREPOLS

A New Map of Africa

In his 1650 map of the Indian Ocean, the Dutch mapmaker Jan Janssonius (1588–1664) depicted Australia as a fragmented coastline with an empty interior. Located at the other end of the ocean, Africa presents a striking contrast: not only the coastal regions, but even the continent's interior boasts a detailed, diverse topography, along with the unmistakable signs of human habitation and culture [**Fig. 1**]. This differentiated strategy for mapping the Old as opposed to the New World was by no means unique to Janssonius. Mapping the African interior in detail, while leaving the Australian interior empty, remained common practice until the beginning of the eighteenth century.[1]

By the end of the eighteenth century, however, the unmapped, blank spaces previously seen on cartographic representations of Australia, had also come to dominate cartographic representations of Africa. Beyond the regions of which the Europeans had first-hand experience, and parts of the northern interior for which they trusted their Greek, Latin, and Arabic sources, Africa had been virtually unmapped.[2] If never quite as blank or empty as once Australia or America, the new presentation of Africa would dominate European maps of the continent for most of the nineteenth century, a period of intensifying exploration, evangelization, and exploitation in the course of European empire building. Widely disseminated maps from this period—such as John Cary's (c. 1754–1835) *New Map of Africa*—underwrote a counterintuitive yet persistent set of mental and discursive images, where blank spaces represented dark places, and the "Dark Continent" had a "white heart" [**Fig. 2**].[3]

1 Cf. Netten, "New World Map," 42–43.

2 Armel Cornu has pointed me to an earlier use of the term in cultural geography, where Richard Phillips has described *unmapping* as "a critical project, a kind of resistance to a received or mapped world view." Phillips, *Mapping Men and Empire*, 143. It will be noted that I apply the term in a more literal sense.

3 For Cary's map, see Tooley, *Collectors' Guide to Maps*, 35. For Africa as "the Dark Continent," see Jarosz, "Constructing the Dark Continent." For the "white heart of Africa," see Conrad, "Geography and Some Explorers," 271.

Figure 1. Jan Janssonius, *Mar di India*, Amsterdam, 1650. Engraved map, printed 45 x 55 cm. Published in idem, *Atlantis majoris quinta pars*. Image reproduced courtesy of the David Rumsey Map Collection, David Rumsey Map Center, Stanford Libraries (10056010).

Figure 2. John Cary, *A New Map of Africa from the Latest Authorities*, London, 1805. Engraved map, printed 48 x 53 cm. Published in idem, *New Universal Atlas*. Image reproduced courtesy of the David Rumsey Map Collection, David Rumsey Map Center, Stanford Libraries (1657050). Note the large, unmapped region labelled as "Unknown Parts."

An Old Story

In the opening scene to Joseph Conrad's novella *Heart of Darkness*, the protagonist recalls his childhood passion for maps. Waiting for his ship to set sail, Marlow tells his audience of fellow travelers how the "delightful mystery" of unmapped, blank spaces enticed him, as a young man, to seek out "the biggest, the most blank" of all blank spaces in Africa's interior.[4] The lure exercised by the blank spaces, which saw not only Marlow but also Conrad himself enlist for the colonial project, has been famously studied by J. B. Harley, who approached the blank spaces on maps as "silences," or active omissions.[5] In a seminal series of essays concerned with the colonial mapping of New England, Harley argued that the maps of the European colonizers, to the extent that they kept silent about the native Americans, not only negated indigenous presence in—and rights to—the territory, but also encouraged colonial settlement to fill the void.[6]

Whereas numerous studies have examined the role of blank spaces on maps in incentivizing and legitimizing European expansion, in Africa as elsewhere, in the following I will be less concerned with any effect the blanks may have exercised once they were in place, and more interested in their rather sudden appearance on European maps of Africa.[7] For if before the eighteenth century, the more successful mapmakers had generally been those who produced the most detailed maps of the continent, then toward the end of that same century, the more successful mapmakers were, in a way, those who mapped the least. This remarkable development is without parallel in the history of cartography. Not because there was anything particularly innovative about the use of blank spaces to represent unknown or poorly known regions, but because there is no other example of a continent or significant part of the world being unmapped once it had been mapped.[8] In contrast to Australia and the Americas, which only gradually appeared on European maps, Africa was a part of the Old World. It had been mapped by Europeans since Antiquity.

The large-scale suppression of previously mapped features at the hands of eighteenth-century geographers has conventionally been rationalized as the bi-product of improved scientific standards. In the European Enlightenment, or so we have been told, geographers drew a sharp line between the known and the unknown, and purged their maps of unauthenticated, uncertain knowledge,

---

4 Conrad, "Heart of Darkness," 197.

5 For Conrad's personal relationship to Africa's blank spaces, see Hiatt, "Blank Spaces," 245–47. For blank spaces as "silences," see Harley, "Silences and Secrecy."

6 Harley, "Power and Legitimation," 144–46; Harley, "New England Cartography," 187–90.

7 For two helpful entries into the more recent scholarship on blank spaces, see Laboulais-Lesage, *Combler les blancs*; Surun, *Dévoiler l'Afrique?*

8 For the various meanings of blank spaces in early modern maps, see Haguet, "Specifying Ignorance," 361–64. For the longer history of blank spaces on maps, see Hiatt, *Terra Incognita*; Lois, *Terrae incognitae*.

even when there was nothing better to place in its stead.[9] In a somewhat circular manner, the story has also been told the other way round, as the blank spaces on eighteenth-century maps have been cited as evidence of scientific progress. In his widely read geography primer, first published in 1938, Erwin Raisz thus juxtaposed two continental maps of Africa—one produced in 1628 by the above-mentioned Jan Janssonius, and one produced in 1749 by the French geographer Jean-Baptiste Bourguignon d'Anville—to illustrate the "fundamental changes" that had occurred in the intervening period. Dismissing Janssonius's map as "decorative," Raisz praised d'Anville for his "omission of all doubtful data." "Gone are the monsters, elephants, lions, and swash lines," Raisz wrote, "a cartouche around the title is the only decoration. The map looks empty; the regions of which nothing is known are left blank; where information is doubtful, a note to that effect is given."[10]

Though more recent scholarship has challenged the "triumphal but erroneous" story that geographers in the European Enlightenment "eliminated imagination, belief, and artistry from their maps," attempts to rationalize the appearance of blank spaces on European maps of Africa have persisted.[11] Charles Bricker's characterization of the development as a loss of "mermaids and monsters and other charming fictions [...] offset by a marked gain in accuracy" is probably too crude for most historians today, yet more refined versions of the story are still being traded in the scholarly literature, including in critical studies mindful of the interplay of cartography and empire.[12] Alfred Hiatt thus claimed that eighteenth-century geographers "began to eschew hypothesis and [...] legend [...] in favour of empty space," while Isabelle Surun insisted that d'Anville relegated from the map not only anything whose existence was uncertain, but also anything whose precise location could not be determined.[13]

Understanding the appearance of blank spaces on European maps of Africa as the expected or natural outcome of improved scientific standards is, in the meanwhile, an understanding as old as the blank spaces themselves. Writing in 1759, Jean-Baptiste Bourguignon d'Anville (1697–1782), the French royal geographer generally styled as the prime mover behind the development, declared that the "destruction" of "false ideas" in geography, even when there was nothing else to place in their stead, was "one of the means that serve to advance our knowledge."[14] The fact that d'Anville's declaration overlaps with

9 Edney and Pedley, "Introduction," xxix–xxx; Haguet, "Specifying Ignorance," 358–59; Stone, *Short History*, 23–24.

10 Raisz, *General Cartography*, 45–46. I have borrowed the example from Edney and Pedley, "Introduction," xxx.

11 Edney and Pedley, "Introduction," xxix. For an early challenge to the narrative, see Stone, *Short History*, ch. 4.

12 Tooley and Bricker, *History of Cartography*, 164.

13 Hiatt, "Blank Spaces," 244–45; Surun, "Blanc de la carte," 123–24.

14 "on est assez persuadé que détruire de fausses opinions, sans même aller plus loin, est un des moyens qui servent au progrès de nos connoissances." Anville, "Dissertation sur les sources," 63. D'Anville had

historical analysis is curious, and begs the question of whether historians have taken their understanding of the events from the historical actors they study.

Many staples of the conventional historiography were, in fact, already in place in the late eighteenth century. In his eulogy for d'Anville, the mathematician-turned-philosopher Nicolas de Caritat, the Marquis of Condorcet (1743–1794), praised d'Anville for suppressing uncertain knowledge, and went on to claim that the "vast, white spaces" on his maps not only pointed readers to "what remained to be known," but also testified to "the exactitude of all that had been filled in."[15] Employing a similar rhetoric, the historian Bon-Joseph Dacier (1742–1833) claimed that the blank spaces on d'Anville's maps not only demonstrated "the limits of positive knowledge," but also bore witness to the "rigorous accuracy" of his work.[16] More specific elements of the historiography have also been traded down from the eighteenth century. One example is the oft-cited quatrain of the Anglo-Irish cleric and writer Jonathan Swift (1667–1745), which—along with references to Conrad's *Heart of Darkness*—has become a staple in the historical literature. As Surun has shown, the English geographer James Rennell (1742–1830) repurposed Swift's lines already in 1794, when he presented them as evidence of the sorry state of maps produced before the reforms of the eighteenth century.[17]

> So Geographers in *Afric*-Maps
> With Savage-Pictures fill their Gaps;
> And o'er unhabitable Downs
> Place Elephants for want of
> Towns.[18]

In what follows, I will argue that the received explanation for the unmapping of Africa's interior does not hold in the face of the empirical evidence. Beginning my examination with a discussion of what European maps of Africa looked like in the preceding period, I will proceed to examine the maps of d'Anville and Guillaume Delisle, the two geographers generally cast as the prime movers of the development. Moving on to a critical discussion of d'Anville and Delisle's legacy, I will conclude that the large-scale suppression of previously mapped

---

previously referred to "false ideas" (*fausses idées*) when advertising his continental map of Africa. Anville, "Lettre de M. d'Anville," 160.

15 "de vastes espaces en blanc marquoient ce qui restoit à connoître, mais ils étoient une prevue de l'exactitude de tout ce qui étoit rempli." Condorcet, "Éloge de M. d'Anville," 71.

16 "dans plusieurs de ses Cartes, sur-tout dans celles d'Afrique, ces grands espaces restés vides, qui attestent en même temps & son exactitude rigoureuse, & les bornes des connoissances positives en Géographie." Dacier, "Éloge de M. d'Anville," 168.

17 Rennell, "Construction of the Map," 215–16; Surun, *Dévoiler l'Afrique?*, 46–48.

18 Swift, *On Poetry*, 12, emphasis in the original. For the place of Swift's quatrain in the history of cartography, see Edney and Pedley, "Introduction," xxx. See also the dedicated blog post by Edney, available at https://www.mappingasprocess.net/blog/2018/12/15/a-misunderstood-quatrain (published 2018–12–15; accessed 2023–11–01).

features on European maps of Africa cannot be satisfactorily understood as the bi-product of improved scientific standards, but that it can be understood as the symbolical reconfiguration of Africa as a part of the New World.

Mapping Africa

To appreciate the radical transformations that occurred in the eighteenth century, it is necessary to know what European maps of Africa looked like in the preceding period. Willem Janszoon Blaeu (1571–1638) was Janssonius's principal rival: he ran the leading map publishing house in Amsterdam at the time. He also served, from 1633, as the official cartographer of the powerful Dutch East India Company.[19] Blaeu's continental map of Africa, *Africæ nova descriptio*, first issued in 1617, was reworked and reissued for more than half a century, including for his *Atlantis appendix* (1630) and the *Atlas maior* (1662–1665), published by his son and successor Joan Blaeu (1596–1673) [**Fig. 3**].[20] Because Blaeu's map of Africa was widely diffused, copied, and plagiarized, I will use it here as an example of period convention.[21]

Following marine expansion in the fifteenth and sixteenth centuries, Europeans had accumulated significant, first-hand experience of the African coastline. With a few exceptions, however, they had little direct experience of the continent's interior, for which mapmakers in early-modern Europe depended on mediated reports. Blaeu's rendition of the course of the Nile, for example, was clearly indebted to the reports of Claudius Ptolemy (c. 100–c. 170), a Greek-Egyptian astronomer and savant, who in the second century CE had asserted that the Nile originated in two lakes—named "Zaire-Zembre" and "Zaflan" on Blaeu's map—which were fed, in turn, by melting snow from the "Moon Mountains" ("Lunæ montes" on Blaeu's map) [**Fig. 4**]. This idea had become widely diffused in Europe following the translation of Ptolemy's work into Latin in the first decade of the fifteenth century.[22] As for the course of the Niger, Blaeu was indebted to the Arab-Andalusian geographer al-Ḥasan ibn Muḥammad al-Wazzān al-Zayyātī or al-Fāsī (1494–1554). Better known in Europe by his Christian name Leo, he had claimed, in concordance with the reports of his compatriot, the geographer Muḥammad al-Idrīsī (1100–1165/1166), that the Niger originated in a lake in central Africa, whence it ran westward until reaching the Atlantic.[23]

---

19 Netten, *Koopman in kennis*; Zandvliet, *Mapping the Dutch World*.

20 Sutton, *Early Modern Dutch Prints*, 184–88; Krogt, *Koeman's Atlantes Neerlandici*.

21 Stone, *Short History*, 17.

22 Ptolemy's claims about the Nile lakes and the Mountains of the Moon are in book IV, ch. 8 of his *Geography*. For the legacy of Ptolemy's claims, see Relaño, *Shaping of Africa*, ch. 11. For the impact of Ptolemy's work on European geography, see Vagnon, "Réception de la *Géographie*"; Gautier-Dalché, *Géographie de Ptolémée*.

23 Rauchenberger, *Johannes Leo der Afrikaner*, ch. 4.

Figure 3. Willem Janszoon Blaeu, *Africæ nova descriptio*, Amsterdam, 1630. Engraved map, printed 42 x 56 cm. Published in idem, *Atlantis appendix*. Image reproduced courtesy of the David Rumsey Map Collection, David Rumsey Map Center, Stanford Libraries (12202006).

Pointing to such influences is not to assume that Blaeu had studied the above-mentioned authors in any detail. Yet it serves to illustrate the nature of early-modern mapmaking and the usefulness of thinking about it as a practice of "assemblage," in the sense proposed by David Turnbull.[24] As an assemblage of data compiled from heterogenous sources, Blaeu's map of Africa depended on a multitude of localized informants. Many of them were unknown to Blaeu, or had been dead for centuries, yet their reports had somehow been mediated to his Amsterdam workshop through time and space. From this perspective, Blaeu's Africa is best understood as a collective achievement, in which the author's role was one of compilation, selection, and editing. Whereas in most cases this reality is not acknowledged on the finished product, in one or two cases Blaeu did credit his sources, as when he claimed, in a note printed directly onto the map, that "[t]he Nubia River originates in the Nubian marshlands and [subsequently] divides, according to Ptolemy."[25] Though Ptolemy's

24 Turnbull, *Masons, Tricksters and Cartographers*.
25 "Nubia fluvius ex Nuba palude ortus et partet ex Ptol."

Figure 4. Detail from Willem Janszoon Blaeu, *Africæ nova descriptio*, Amsterdam, 1630. Engraved map, printed 42 x 56 cm. Published in idem, *Atlantis appendix*. Image reproduced courtesy of the David Rumsey Map Collection, David Rumsey Map Center, Stanford Libraries (12202006). The Moon Mountains (*Lunæ Montes*) are located to the south of the "Zaire-Zembre" and "Zaflan" lakes.

name may have served to reinforce Blaeu's authority, it may also have served as a disclaimer, insofar as Blaeu was unwilling to assume responsibility for the claim.

Unmapping Africa

The conventions according to which Europeans were mapping Africa began to change, around the turn of the eighteenth century. Guillaume Delisle's (1675–1726) first continental map of Africa, issued in 1700, is generally regarded as a milestone in this development. Not only did Delisle reduce the width of the Mediterranean, which impacted the shape of Africa, but he also discarded the Moon Mountains and the Nile lakes, which had at that time become conventional features on maps of the continent.

Delisle was the leading geographer of his generation, certainly in France and probably in all of Europe. A student of the astronomer Jean-Dominique Cassini (1625–1712), the powerful director of the Paris Observatory, Delisle made his name with his maps of the four continents, a collection that included his map of Africa. He was elected a member of the Royal Academy of Sciences (*Académie royale des sciences*) two years later and served, from 1718, as First Geographer to the King (*premier géographe du Roi*), an office then created for the first time. Delisle was firmly embedded in the geographical establishment of the period: his father Claude Delisle (1644–1720) was also a geographer, as was his younger brother Joseph-Nicolas Delisle (1688–1768). Delisle's daughter married Philippe Buache (1700–1773), who went on to succeed him as First Geographer to the King.

Along with d'Anville, Delisle has long been praised for his scientific attitude to mapmaking. "His work," wrote R. V. Tooley in 1968, "is distinguished by its scientific basis, minute care in all departments, constant revision, and personal integrity."[26] In the *Dictionary of Scientific Biography*, George Kish claimed that Delisle "omitted guesswork, fantasy, and unnecessary or ornamental detail; he admitted lack of knowledge of unexplored territories; and he insisted on critical use of source materials and dependence on scientifically accurate measurements. He thus [...] became the first modern scientific cartographer."[27]

There is no question that Delisle's map of Africa differed from earlier maps of the continent [**Fig. 5**]. The Moon Mountains and the Nile lakes have been removed. Rivers, mountains, and other topographical features are scarcer than on most maps produced in the preceding century, which makes the continent look emptier. It would have looked even emptier, had it not been for the prominence granted to political divisions, yet Delisle presented Africa as a

26 Tooley, *Maps of Africa*, 55.
27 Kish, "Delisle, Guillaume," 22.

Figure 5. Guillaume Delisle, *L'Afrique, dresseé sur les observations de Mrs. de l'Academie royale des sciences, et quelques autres; & sur les memoires les plus recens*, Paris, 1700. Engraved map, printed 45 x 58 cm. Image reproduced courtesy of the Bibliothèque nationale de France, département des Cartes et plans (GE-D-655).

mature political territory, comparable in this sense to Europe itself.[28] There are no coherent, blank spaces on his map.

Delisle occasionally flagged his uncertainty directly on the map. One example of this is a large, shaded lake, inland from Zanzibar [**Fig. 6**]. Located in the region of Africa's Great Lakes, it is easy to imagine that the reports of a major lake or lakes were plentiful enough to convince Delisle that something was there. Another example is the outlined river connecting the Niger to the Nile, traced only in the first issue of the map, but surviving in later issues in the form of a written note [**Fig. 7**].[29] The shaded lake and the outlined river exercise a peculiar effect on the reader, as the admittance of uncertainty may have served to reinforce the geographer's authority: if Delisle was honest enough to admit uncertainty in those cases when he was unsure about his sources, then surely the reader could trust him when he did not express such doubts? Trust must also have been a decisive factor as Delisle decided what to

28 Jeremy Black argued that Delisle's division of the continent into kingdoms and empires projected a European political consciousness upon Africa. Black, *Maps and Politics*, 130.

29 In the written note, Delisle explained that there were people who believed that the Niger was a tributary of the Nile: "Quelques uns prétendent que le Niger est un bras du Nil."

Figure 6. Detail from Guillaume Delisle, *L'Afrique, dresseé sur les observations de Mrs. de l'Academie royale des sciences, et quelques autres; & sur les memoires les plus recens*, Paris, 1700. Engraved map, printed 45 x 58 cm. Image reproduced courtesy of the Bibliothèque nationale de France, département des Cartes et plans (GE-D-655). Note the shaded, unnamed lake, inland from Zanzibar (*Zenzibar*), and the outlined stretches of the Zebee river ("Zebée selon quelques uns") as it approaches Mombasa (*Monbace*) and Melindi (*Melinde*) on the coast.

include in his map, and what not to include: while he apparently did not trust Ptolemy for the course of the Nile, he apparently trusted the Arab geographers for the course of the Niger. The Niger and the Senegal rivers remained, in any case, connected in all issues of his map. In accordance with the accounts of al-Idrīsī and al-Wazzān, the river is seen emanating from a lake in central Africa, whence it runs westward until it empties into the Atlantic.

If Delisle had dominated French cartography during the first quarter of the eighteenth century, then d'Anville dominated the two following quarters. Appointed royal geographer and tutor to the king already in 1719, at age 22, he was made a member of the Académie Royale des Inscriptions et Belles-Lettres in 1754, and of the Royal Academy of Sciences in 1773, in which year he was also appointed First Geographer to the King.[30] Having produced a series of maps of Africa—both continental and regional, historical and contemporary—he published his largest, most detailed, and best-known map of the continent in 1749 [**Fig. 8**].[31]

Along with Delisle, d'Anville has long been hailed as an emblematic Enlightenment scholar, or indeed as an embodiment of the "scientific spirit."[32] There is also a long-standing conviction that d'Anville's introduction of blank spaces on the map of Africa contributed to or went hand in hand with the rise of geography as a positive science. In the *Dictionary of Scientific Biography*, Juliette Taton thus wrote that d'Anville "demonstrated great intellectual honesty by leaving unknown territories (the interior of Africa, America, and Asia) blank, contrary to the practice of many cartographers, who used ornaments —the less their knowledge of a territory, the greater the ornamentation."[33] Charles Bricker claimed, for his part, that d'Anville "rejected anything he could not verify," while G. R. Crone wrote that d'Anville "went far beyond Delisle in removing the conventional and largely fictitious topography" from the map of Africa.[34]

One of the most striking differences between the maps of d'Anville and Delisle is how d'Anville's map discarded almost every sign of an indigenous presence. Whereas Delisle had divided Africa into political entities, d'Anville gave fewer names and delineated fewer borders. Only some areas were mapped in detail: the Barbary States, Egypt, and Abyssinia in the north, known to Europeans for reasons of shared history, trade, and travels, and, secondly, areas under European rule or influence: English and French West Africa, Portuguese West and East Africa, the Cape Colony, and off-shore islands including

30 For d'Anville's life and career, see Haguet and Hofmann, *Carrière de géographe*, chapters 1–3.

31 For d'Anville's many maps of Africa, see Furtado, "Evolving Ideas." For d'Anville's 1749 map as "consolidating" the strategies he had developed in preparing his earlier maps of the continent, see Furtado, *Quebra-cabeça africano*, 392.

32 For d'Anville as an embodiment of the "scientific spirit," see Broc, "Géographie des philosophes," 40–41.

33 Taton, "Anville, Jean-Baptiste Bourguignon d'," 176.

34 Tooley and Bricker, *History of Cartography*, 84; Crone, *Maps and Their Makers*, 135; cf. Tooley, *Maps of Africa*, 3.

Figure 7. Detail from Guillaume Delisle, *L'Afrique, dresseé sur les observations de Mrs. de l'Academie royale des sciences, et quelques autres; & sur les memoires les plus recens*, Paris, 1700. Engraved map, printed 45 x 58 cm. Image reproduced courtesy of the Bibliothèque nationale de France, département des Cartes et plans (GE-D-655). Note how the "Niger according to some" (*Niger selon quelques uns*) connects the Nile and the Niger, though the latter appears interrupted further west, near Lake Bornu (*Borno*).

Madagascar. The mapped regions present a striking contrast to the rest of the continent, and notably to the southern interior. In a written note, printed directly onto the map, d'Anville claimed that his demarcation of known as opposed to unknown regions helped demonstrate the shortcomings of present knowledge.[35]

With d'Anville's positivist program in mind, however, the northern interior presents a striking paradox. This region was poorly known to eighteenth-century Europeans, yet d'Anville still filled it with mountains, rivers, lakes, and towns, in some cases with stated reference to Ptolemy, al-Idrīsī, al-Wazzān (Leo), or Abū al-Fidā (1273–1331).[36] Two of these geographic features call for particular attention, as the courses of the Nile and Niger rivers were topics of rather intense dispute at the time. D'Anville was clearly aware of the controversies: printed text entries on his map referred directly to them. He also published on the subject: in an essay, published in 1759, he stressed contemporary ignorance about the sources of the Nile.[37]

Yet despite his professed uncertainty, d'Anville still mapped the sources of the Nile in central Africa [**Fig. 9**]. On his map, the river originates in two small lakes, located at the feet of the Moon Mountains (*Montagnes de la Lune*). It runs north through another lake, after which it is joined from the west by the Blue River (*Bahr-el Azrac*), and from the east by two great rivers coming from Abyssinia. Through the Blue River, the Nile is connected to an extensive central African river system. In a text note, d'Anville explains his reasons for including the unexplored stretches of the Nile, stating that one ought not entirely reject the reports of Ptolemy, al-Idrīsī, and Abū al-Fidā, for as long as there is nothing better to place in their stead.[38]

Following the precedent of Delisle's second continental map of Africa, from 1722, d'Anville had separated the Niger from the Senegal, which meant that the Niger no longer ran west until it emptied into the Atlantic. Yet instead of letting it turn south and empty into the Gulf of Guinea, he directed it east into two lakes in the inner regions of the continent. In an accompanying note, printed onto the map, d'Anville argued that although the land of Sudan (*Nigritie*) was "little known" between the upper parts of the Senegal and Nubia, there were "reasons to believe" that the Niger ran from west to east—a position he referred to the authority of al-Idrīsī, al-Wazzān (Leo), and Ptolemy. He also

35 "Quoique cette Carte ait l'avantage d'un plus grand détail sur toutes les précédentes, le défaut de connoissance s'y fera néanmoins remarquer plus sensiblement, parceque les parties connues y ont été resserrées dans leurs justes bornes."

36 For European ignorance of North Africa's geography prior to military conquest, see Blais, *Mirages de la carte*. For d'Anville's reliance on Arab geographers, see Ducène, "Utilisation des sources."

37 Anville, "Dissertation sur les sources."

38 "Ainsi, dans le cas où nous sommes d'ignorer encore les vraies sources de ce Fleuve [le Nil], on n'est pas en droit de rejetter entièrement ce que non-seulement Ptolémée, mais encore les Géographes Orientaux, el-Edrisi et Abulfèda, rapportent de son origine, jusqu'à ce que d'autres connoisances nous soient acquises." I am not the first scholar to note the paradoxical character of d'Anville's mapping the sources of the Nile. See, e.g., Furtado, *Quebra-cabeça africano*, 392.

Figure 8. Jean-Baptiste Bourguignon d'Anville, *Afrique publiée sous les auspices de Monseigneur le Duc d'Orléans*, Paris, 1749. Engraved map, printed 99 x 99 cm on three sheets. Image reproduced courtesy of the David Rumsey Map Collection, David Rumsey Map Center, Stanford Libraries (2603010).

made reference to etymology: the land of Sudan, he told his readers, took its name from the river. Noting that both the river and the land take the name from the people—*sūdān* being the Arabic plural for black men—the more important point to make is that d'Anville unambiguously claimed he was not sure about the course of the river, and mapped it nevertheless.[39]

The presence of both the Nile and the Niger in the inner regions of the continent merits sincere attention, as they indicate continuity with respect to the earlier tradition. Like many of his contemporaries and predecessors, d'Anville did not travel: he was an armchair geographer, thus at the mercy

39 "La Nigritie depuis la partie supérieure du Senega jusqu'à la frontière de la Nubie, étant peu connue ; on croit néanmoins entrevoir les circonstances principals du local de ce grand pays, en joignant a l'étude du Géographe Arabe el-Edrisi, qui écrivoit dans le douzième siècle, et de Leon d'Afrique, les notions qu'il convient encore de prendre dans Ptolémée, sur quoi même quelques connoissances récentes prêtent aussi quelque secours. Il y à des raisons de présumer, que le Niger, qui donne le nom à cette contrée, coule d'occident en orient, au contraire de l'opinion commune sur ce sujet."

of his informants.[40] If his representation of the drainage patterns in southern Africa were "fraught with errors," as Jeffrey Stone argued, then this was not because d'Anville was a poor surveyor, but because his Portuguese informants had provided him with poor data.[41]

Insofar as d'Anville openly acknowledged the uncertain character of some of the features he mapped, the introduction of blank spaces on European maps of Africa did not mean that whatever remained was beyond doubt. The reappearance of the Moon Mountains and the Nile lakes carries particular significance in this regard, as Delisle had previously removed them from the map. At a time when many geographers had followed suit, d'Anville's mapping of them constitutes a reversal, and is hard to reconcile with the claim that he only mapped what he was certain about. In any case, the twin lakes at the feet of the Moon Mountains soon became an "identification mark" of maps drawn after d'Anville.[42]

Though d'Anville never offered any precise definition of those "false ideas" he sought to "destroy," it is possible to discern a pattern. As Surun has noted, there is a striking overlap on his map between the limits of the known and the limits of what was known first-hand by contemporary Europeans.[43] Beyond the limits of European experience, Africa was made empty—or turned into a landscape of waters and mountains. The names applied to this landscape, derived not from local informants but from foreign scholars, further inscribed the absence of its indigenous populations. Most of the African continent was thus transformed, in Harley's words, into "a dehumanized geometrical space."[44]

40 For d'Anville's working methods, and their impact on his maps, see Haguet, "D'Anville as Armchair Mapmaker."

41 Stone, *Short History*, 28. For d'Anville's reliance on Portuguese sources, see the work of Junia Furtado, in particular *Quebra-cabeça africano*.

42 Stone, *Short History*, 30–31.

43 Surun, "Exploration de l'Afrique," 29–30.

44 Harley, "New England Cartography," 187.

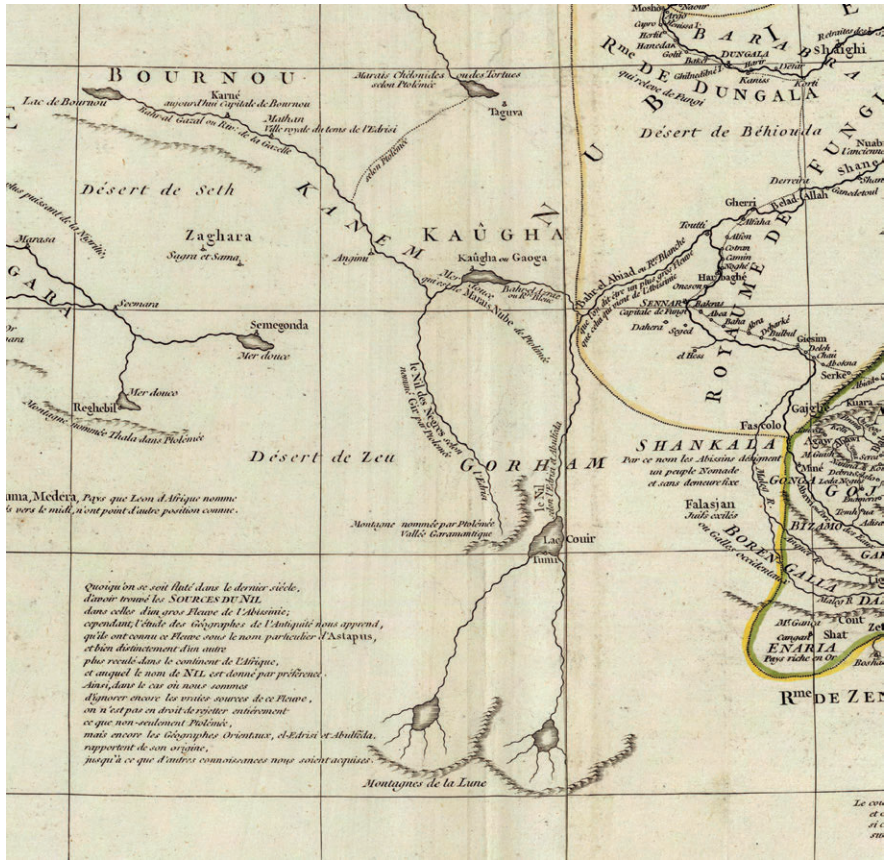

Figure 9. Detail from Jean-Baptiste Bourguignon d'Anville, *Afrique publiée sous les auspices de Monseigneur le Duc d'Orléans*, Paris, 1749. Engraved map, printed 99 x 99 cm on four sheets. Image reproduced courtesy of the David Rumsey Map Collection, David Rumsey Map Center, Stanford Libraries (2603010). Note the commentary about the sources of the Nile, containing references to Ptolemy, al-Idrīsī, and Abū al-Fidā, and placed next to the Moon Mountains (*Montagnes de la Lune*) and the lakes at their feet.

Remapping Africa

The maps produced by Delisle and d'Anville were reprinted, imitated, and plagiarized for decades. Delisle's maps were occasionally copied and printed under authorization—for example, by Jean Cóvens and Corneille Mortier in Amsterdam—while in other cases his work was plagiarized without acknowledgement, as in the case of Pieter van der Aa's *Afrique*, first published in Leiden in 1714. Tooley considered that most eighteenth-century maps of Africa borrowed from Delisle.[45]

45 Tooley, *Maps of Africa*, 55.

D'Anville's maps of Africa were similarly copied, both in France and abroad. One example is the map engraved by Solomon Boulton (or Bolton) in 1772, and included, from 1773 onwards, in Thomas Kitchin's widely distributed *General Atlas* [**Fig. 10**]. It says something of d'Anville's reputation that his name was not only invoked on the title page of the atlas, but on every individual map it contained: the first issue of Boulton's map of Africa is headed "Africa, According to Mr. D'Anville." To use d'Anville's name in this manner was doubtless a way to capitalize on his authority, but in so doing it also served to reinforce his standing.

The map Boulton presented to the British was not, however, a mere translation. The cartouche was different, for a start: it still featured a naked, dark-skinned, young woman, but whereas she had faced the French, she turned her back on the British. Boulton had also added a large number of written notes: strategically placed over unmapped regions and on the margins of the map, they informed the reader about the economic and political realities of the continent: the kingdom of Mujaco, for example, was said to be "always at war with the Micocco." There were additional dangers, including "warlike" peoples and "men-eaters," but also prospects for wealth, as many regions were said to be "rich in gold" or "abounding in gold." Boulton occasionally undermined the information he provided, as when the kingdom of "Climbeba or Mataman" was named only to be dismissed as "imaginary," whereas in other cases he acknowledged the uncertain nature of his knowledge, as when he told his readers that the region around Sofala "with great probability" was the "Antient Land of Ophir"—a biblical reference, and yet another reference to gold. Information of this kind was more extensive on Boulton's map than on d'Anville's, yet Boulton in fact followed the French geographer's precedent: d'Anville's map also included notes about gold and other sources of wealth, as well as ethnological notes such as the one about the Bake-bake, who, in Boulton's translation, were "a dwarfish breed who hunt elephants."

The extensive boxed entries on the edges of the map were, however, a novelty introduced by Boulton. They covered a wide array of subjects: from a warning about the apparently shrewd and defrauding locals of West Africa, to the relative prices of slaves—Angolans were said to be more affordable than Guineans—and a financial breakdown of the Cape Colony. Of considerable length was the section dedicated to the Hottentots, a people who were said to trade cattle and sheep for wine, tobacco, and brandy, and who would "rather starve or eat dry'd skins or shoe soles than hunt for their food." Racist prejudices thus accompanied the most celebrated geographical science as it reached an English-speaking audience.

Boulton reworked his map for later editions of Kitchin's *General Atlas*. Most changes were, however, minor, and in the 1800 issue most things remained as before: the king of Mujaco was still "always at war with the Micocco," and the annual expenses and revenues of the Cape Colony were identical—down to the last florin. Yet in striking contrast to this continuity, a

Figure 10. Solomon Boulton, *Africa, with All Its States, Kingdoms, Republics, Regions, Islands, &ca. Improved and Inlarged from d'Anville's Map*, London, 1787. Engraved map, printed 104 x 122 cm on four sheets. Published in Kitchin, *A General Atlas*. Image reproduced courtesy of the David Rumsey Map Collection, David Rumsey Map Center, Stanford Libraries (0411036).

Figure 11. Detail from John Cary, *A New Map of Africa from the Latest Authorities*, London, 1805. Engraved map, printed 48 x 53 cm. Published in Cary, *New Universal Atlas*. Image reproduced courtesy of the David Rumsey Map Collection, David Rumsey Map Center, Stanford Libraries (1657050). Note the different names given to different sections of the vast, inland mountain range: it is labelled "Mountains of Kong" in West Africa but "Mountains of the Moon" closer to the sources of the Nile.

previously unmapped mountain range of vast proportions had appeared: the Kong Mountains stretched without interruption from the Senegal to the Nile.

It is ironic, perhaps, that the positivist project initiated by the French royal geographers would culminate in such an exceptional feat of the imagination. Yet Delisle and d'Anville's critical assessment of conventional wisdom contributed, in the end, to make European cartography dependent on fewer sources, and so less resilient in the face of poor reports. So it happened that the report of just one celebrated explorer, Mungo Park, committed onto paper by just one reputed geographer, James Rennell, sufficed to engender one of the mightiest mountain ranges in human history. The Kong Mountains remained a feature of European maps for roughly a century: Thomas J. Bassett and Philip W. Porter found them in nine out of ten surveyed maps produced in the period 1798–1890.[46] Cary's map, cited above, is only one example [**Fig. 11**].[47]

How could an imaginary mountain range persist for such a long time? In their attempt to answer the question, Bassett and Porter called attention to the blank spaces surrounding the mountain range. The blank spaces—the graphical representation of uncertainty—assured the reader that what was mapped really was there.[48]

A New New World

If the large-scale suppression of previously mapped data on European maps of Africa did not achieve reliability for what remained on the maps, then what did it achieve? A possible answer can be discerned in Janssonius's map of the Indian Ocean, as cited at the outset of this article. Leaving parts of a map blank to represent unknown or poorly known regions was not, after all, an innovation of the eighteenth century: unmapped, blank spaces had long been a feature in the mapping of New World territories. Applying the same logic to Africa may have been unconventional in the first half of the eighteenth century, but it was not entirely original.

As geographers in the European Enlightenment unmapped Africa's interior in the name of removing uncertain knowledge, they effectively recast it as a new New World. To think about the implications of this transformation for the relationship between Europe and Africa, we can turn again to the colonial maps of New England, as studied by Harley. On the grounds that one should only map what could be verified, British mapmakers disqualified indigenous geographies in favor of blank spaces. Not only did this render the American peoples invisible in their own lands, but it also undermined their rights to those same lands on the basis of the legal doctrines of *terra nullus* and *vacuum*

46 Bassett and Porter, "'From the Best Authorities,'" 374.
47 Ibid., 379.
48 Ibid., 383.

domicilium. If the territory was not yet ruled, it could be claimed. If it was not yet populated, it could be settled.[49] Removing most signs of indigenous presence from their maps of Africa, European geographers similarly contributed to imperial ambitions with the helpful illusion that large tracts of the African continent were unknown, unclaimed, or even uninhabited. As Surun has noted, it did not take long until Europeans began to talk about Africa's unmapped regions as if they really were empty.[50]

To say that Africa's blank spaces played a role in the imperial project is to state the obvious. It does not follow, however, that this was the intention of their makers, or that there was anything inescapable about this development. Suffice to say, perhaps, that there existed a curious overlap between unmapped spaces and imperial ambitions, and that the rather sudden emergence of blank spaces on European maps of Africa cannot be satisfactorily explained as the bi-product of improved scientific standards. If this seems a disappointing conclusion, I should like to remind my readers that the destruction of false ideas is one of the means that serve to advance our knowledge.

About the Author

Petter Hellström is a Research Fellow in the History of Science and Ideas at Uppsala University, and the principal investigator of "Unmapping Africa: Enlightenment Geography and the Making of Blank Spaces."

Acknowledgements

This article began many years ago in the Map Room of the Cambridge University Library. Along the way, there have been more map rooms, and more maps, and a host of knowledgeable, kind, intelligent people who have helped me find my way. Special thanks are due to Catherine Delano-Smith, Matthew Edney, Junia Furtado, Lucile Haguet, Catherine Hoffmann, Mary Pedley, Kapil Raj, Nicky Reeves, and Liba Taub—all of whom helped advance the investigation and/or shape the argument. Charlotta Forss, Gianamar Giovannetti-Singh, Chris Haffenden, Chet Van Duzer, and Djoeke van Netten read and offered valuable advice on the manuscript, as did the editor and anonymous referees.

Funding Statement

Work on this article was funded by the Riksbankens Jubileumsfond for the Advancement of the Humanities and Social Sciences (grant P21-0301).

---

49 Harley, "New England Cartography," 188; Harley, "Power and Legitimation," 146.
50 Surun, "Blanc de la carte," 127–28; *Dévoiler l'Afrique?*, 49–51.

Bibliography

Anville, Jean-Baptiste Bourguignon d'. "Dissertation sur les sources du Nil, pour prouver qu'on ne les a point encore découvertes." *Mémoires de littérature, tirés des registres de l'Académie royale des inscriptions et belles-lettres* 26 (1759): 46–63.

———. "Lettre de M. d'Anville à l'auteur du Mercure, sur la publication d'une nouvelle carte de l'Afrique." *Mercure de France, dédié au Roi*, December 1750, 157–61.

Bassett, Thomas J., and Philip W. Porter. "'From the Best Authorities': The Mountains of Kong in the Cartography of West Africa." *Journal of African History* 32, no. 3 (1991): 367–413.

Black, Jeremy. *Maps and Politics*. London: Reaktion, 1997.

Blaeu, Joan. *Atlas maior, sive cosmographia blaviana, qua solum, salum, coelum, accuratissime, describuntur*. Amsterdam: Blaeu, 1662–1665.

Blaeu, Willem Janszoon. *Atlantis appendix, sive pars altera, contiens tab: geographicas diversarum orbis regionum*. Amsterdam: Blaeu, 1630.

Blais, Hélène. *Mirages de la carte: l'invention de l'Algérie coloniale*. Paris: Fayard, 2014.

Broc, Numa. "La géographie des philosophes: géographes et voyageurs français au XVIIIe siècle." PhD diss., Université Paul Valéry de Montpellier, 1972.

Cary, John. *New Universal Atlas, Containing Distinct Maps of All the Principal States and Kingdoms throughout the World: From the Latest and Best Authorities Extant*. London: Cary, 1808.

Condorcet, Jean-Antoine-Nicolas de Caritat de. "Éloge de M. d'Anville." *Histoire de l'Académie royale des sciences: année MDCCLXXXII*, 69–77. Paris: Imprimerie nationale, 1785.

Conrad, Joseph. "Geography and Some Explorers." *National Geographic Magazine* 45, no. 3 (1924): 241–74.

———. "The Heart of Darkness." *Blackwood's Edinburgh Magazine* 165 (1899): 193–220, 479–502, 634–57.

Crone, Gerald Roe. *Maps and Their Makers: An Introduction to the History of Cartography*. London: Hutchinson's University Library, 1953.

Dacier, Bon-Joseph. "Éloge de M. d'Anville." *Histoire de l'Académie des inscriptions et belles-lettres* 45 (1793): 160–74.

Ducène, Jean-Charles. "L'utilisation des sources orientales par Jean-Baptiste d'Anville." In *Une carrière de géographe au siècle des Lumières: Jean-Baptiste d'Anville*, edited by Lucile Haguet and Catherine Hofmann, 179–202. Oxford: Voltaire Foundation, 2018.

Edney, Matthew H., and Mary Sponberg Pedley. "Introduction." In *The History of Cartography, Vol. 4: Cartography in the European Enlightenment*, edited by Matthew H. Edney and Mary Sponberg Pedley, xxiii–xxxvii. Chicago, IL, and London: University of Chicago Press, 2019.

Furtado, Júnia Ferreira. "Evolving Ideas: J. B. d'Anville's Maps of Southern Africa, 1725–1749." *Imago Mundi* 69, no. 2 (2017): 202–15.

———. *Quebra-cabeça africano: como um embaixador português, um geógrafo francês, um escritor inglês e um pirata imaginário transformaram a cartografia da África e abriram as portas para o imperialismo* Belo Horizonte: Miguilim, 2021.

Gautier-Dalché, Patrick. *La Géographie de Ptolémée en Occident, IVe–XVIe siècle*. Turnhout: Brepols, 2009.

Haguet, Lucile. "J.-B. d'Anville as Armchair Mapmaker: The Impact of Production Contexts on His Work." *Imago Mundi* 63, no. 1 (2011): 88–105.

———. "Specifying Ignorance in Eighteenth-Century Cartography, a Powerful Way to Promote the Geographer's Work: The Example of Jean-Baptiste d'Anville." In *The Dark Side of Knowledge: Histories of Ignorance, 1400 to 1800*, edited by Cornel Zwierlein, 358–381. Leiden and Boston, MA: Brill, 2016.

Haguet, Lucile, and Catherine Hofmann, eds. *Une carrière de géographe au siècle des Lumières: Jean-Baptiste d'Anville*. Oxford: Voltaire Foundation, 2018.

Harley, John Brian. "New England Cartography and the Native Americans." In *The New Nature of Maps: Essays in the History of Cartography*, edited by Paul Laxton, 169–95. Baltimore, MD, and London: Johns Hopkins University Press, 2001.

———. "Power and Legitimation in the English Geographical Atlases of the Eighteenth Century." In *The New Nature of Maps: Essays in the History of Cartography*, edited by Paul Laxton, 109–47. Baltimore, MD, and London: Johns Hopkins University Press, 2001.

———. "Silences and Secrecy: The Hidden Agenda of Cartography in Early Modern Europe." In *The New Nature of Maps. Essays in the History of Cartography*, edited by Paul Laxton, 83–107. Baltimore, MD, and London: Johns Hopkins University Press, 2001.

Hiatt, Alfred. "Blank Spaces on the Earth." *Yale Journal of Criticism* 15, no. 2 (2002): 223–50.

———. *Terra Incognita: Mapping the Antipodes before 1600*. London: British Library, 2008.

Janssonius, Jan. *Atlantis majoris quinta pars: orbem maritimum seu omnium marium totius orbis terrarum navigationibus hodierno tempore frequentatorum descriptionem accuratisimam continens*. Amsterdam: Janssonius, 1650.

Jarosz, Lucy. "Constructing the Dark Continent: Metaphor as Geographic Representation of Africa." *Geografiska Annaler, Series B: Human Geography* 74, no. 2 (1992): 105–15.

Kish, George. "Delisle, Guillaume." In *Dictionary of Scientific Biography*, edited by Charles Coulston Gillispie, 4:22. New York: Charles Scribner's Sons, 1981.

Kitchin, Thomas, ed. *A General Atlas, Describing the Whole Universe: Being a Complete Collection of the Most Approved Maps Extant; Corrected with the Greatest Care, and Augmented from the Latest Discoveries: The Whole Being an Improvement of the Maps of D'Anville and Robert*. London: Sayer, 1790.

Krogt, Peter van der, ed. *Koeman's Atlantes Neerlandici, Vol. 2: The Folio Atlases Published by Willem Jansz. Blaeu and Joan Blaeu*, 2nd ed. 't Goy-Houten: Hes & De Graaf, 2000.

Laboulais-Lesage, Isabelle, ed. *Combler les blancs de la carte: modalités et enjeux de la construction des savoirs géographiques, XVIe–XXe siècle*. Strasbourg: Presses universitaires de Strasbourg, 2004.

Lois, Carla. *Terrae incognitae: modos de pensar y mapear geografías desconocidas*. Buenos Aires: Eudeba, 2018.

Netten, Djoeke van. *Koopman in kennis: de uitgever Willem Jansz Blaeu in de geleerde wereld (1571–1638)*. Zutphen: Walburg Pers, 2014.

———. "The New World Map and the Old." In *Motion in Maps, Maps in Motion: Mapping Stories and Movement through Time*, edited by Zef Segal and Bram Vannieuwenhuyze, 33–55. Amsterdam: Amsterdam University Press, 2020.

Phillips, Richard. *Mapping Men and Empire: A Geography of Adventure*. London: Routledge, 1997.

Raisz, Erwin. *General Cartography*. New York and London: McGraw-Hill, 1938.

Rauchenberger, Dietrich. *Johannes Leo der Afrikaner: seine Beschreibung des Raumes zwischen Nil und Niger nach dem Urtext*. Wiesbaden: Harrassowitz, 1999.

Relaño, Francesc. *The Shaping of Africa: Cosmographic Discourse and Cartographic Science in Late Medieval and Early Modern Europe*. Aldershot: Ashgate, 2002.

Rennell, James. "Construction of the Map of Africa." *Proceedings of the Association for Promoting the Discovery of the Interior Parts of Africa* 1 (1790): 211–36.

Stone, Jeffrey C. *A Short History of the Cartography of Africa*. Lewiston, NY: Edwin Mellen, 1995.

Surun, Isabelle. *Dévoiler l'Afrique?: lieux et pratiques de l'exploration (Afrique occidentale, 1780–1880)*. Paris: Éditions de la Sorbonne, 2018.

———. "Le blanc de la carte, matrice de nouvelles représentations des espaces africains." In *Combler les blancs de la carte: modalités et enjeux de la construction des savoirs géographiques (XVIe–XXe siècle)*, edited by Isabelle Laboulais-Lesage, 117–44. Strasbourg: Presses universitaires de Strasbourg, 2004.

———. "L'exploration de l'Afrique au XIXe siècle: une histoire pré-coloniale au regard des postcolonial studies." *Revue d'histoire du XIXe siècle*, no. 32 (2006): 11–17.

Sutton, Elizabeth A. *Early Modern Dutch Prints of Africa*. Farnham: Ashgate, 2012.

Swift, Jonathan. *On Poetry: A Rapsody*. London: Huggonson, 1733.

Taton, Juliette. "Anville, Jean-Baptiste Bourguignon d'." In *Dictionary of Scientific Biography*, edited by Charles Coulston Gillispie, 1:175–76. New York: Charles Scribner's Sons, 1981.

Tooley, Ronald Vere. *Collectors' Guide to Maps of the African Continent and Southern Africa*. London: Carta, 1969.

———. *Maps of Africa: A Selection of Printed Maps from the Sixteenth to the Nineteenth Centuries*. London: Map Collectors' Circle, 1968.

Tooley, Ronald Vere, and Charles Bricker. *A History of Cartography: 2500 Years of Maps and Mapmakers*. London: Thames and Hudson, 1969.

Turnbull, David. *Masons, Tricksters and Cartographers: Comparative Studies in the Sociology of Scientific and Indigenous Knowledge*. Amsterdam: Harwood Academic, 2000.

Vagnon, Emmanuelle. "La réception de la *Géographie* de Ptolémée en Occident au XVe siècle: un exemple de transfert culturel." *Hypothèses 6*, no. 1 (2003): 201–11.

Zandvliet, Kees. "Mapping the Dutch World Overseas in the Seventeenth Century." In *The History of Cartography, Vol. 3: Cartography in the European Renaissance*, edited by David Woodward, 1433–1462. Chicago, IL, and London: University of Chicago Press, 2007.