Endogenous Colonial Borders: Precolonial States and Geography in the Partition of Africa*

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Abstract

We revise the conventional wisdom that Africa's international borders were drawn arbitrarily. Europeans knew very little about most of Africa in the mid-1880s, but their self-interested goals of amassing territory prompted intensive examination of on-the-ground conditions as they formed borders. Europeans negotiated with African rulers to secure treaties and to learn about historical state frontiers, which enabled Africans to influence the border-formation process. Major water bodies, which shaped precolonial civilizations and trade, also served as focal points. We find support for these new theoretical implications using two original datasets. Quantitatively, we analyze border-location correlates using grid cells and an original spatial dataset on precolonial states. Qualitatively, we compiled information from treaties and diplomatic histories to code causal process observations for every bilateral border. Historical political frontiers directly affected 62% of all bilateral borders. Water bodies, often major ones, comprised the primary border feature much more frequently than straight lines.

Keywords: Africa, borders, colonialism, geography, precolonial states

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INTRODUCTION

The modern political map of Africa reflects the European partition of the continent in the late nineteenth century. Small coastal settlements suddenly mushroomed into large colonies that, at least on paper, stretched nearly the entire continent. After independence, African state leaders largely retained the colonial-era international borders. Consequently, "the boundaries were, in many ways, the most consequential part of the colonial state" (Herbst 2000, 94). A large literature examines the consequences of external border formation in Africa for outcomes such as civil conflict (Englebert, Tarango and Carter 2002; Michalopoulos and Papaioannou 2016), international territorial disputes (Touval 1972; Goemans and Schultz 2017), economic development (Alesina, Easterly and Matuszeski 2011; Michalopoulos and Papaioannou 2013), and political identities (Posner 2004; Robinson 2016). Numerous other studies analyze specific bilateral borders and premise their research design on the as-if randomness of border location (McCauley and Posner 2015). Across this literature, the well-established conventional wisdom is that external influence yielded arbitrarily located boundaries in Africa:

Claim 1. Process of forming borders. European actors knew very little about conditions on the ground when they determined Africa's borders. The Berlin Conference of 1884–85 was a pivotal event for border formation; at the Conference and afterwards, Europeans dictated the process from their capital cities without African input.

Claim 2. Arbitrarily located borders. This process resulted in arbitrarily located borders, a majority of which were straight lines, that neglected local features. Ethnic groups and historical states were partitioned via an as-if random process, in the sense that local features do not systematically correlate with the location of borders.[1]

We revise the conventional wisdom by demonstrating that the location of borders in Africa cannot generally be characterized as arbitrary. Instead, border formation in Africa was a dynamic process that was typically influenced by realities on the ground, in particular, historical political

[1] Appendix A.1.1 provides citations for these claims.

frontiers and major geographical features. Despite intense interest in African border formation and its consequences, the literature exhibits a crucial gap: the absence of systematic evidence about how colonial borders were actually formed. This historical process is important to study in its own right because it yielded the modern-day countries in Africa and, thus, its contemporary political map. Moreover, scholarly interest in studying the consequences of African borders underscores the need to understand the origins of these borders—which we show reflected a deliberate, rather than haphazard, process.

African borders were formed later-than-realized, as we document with new data. As late as 1887, European claims were largely limited to the coast, and few borders had taken their final form. This reflected the relative insignificance of the 1884–85 Berlin Conference for border formation. The Conference addressed the Congo region only, and the boundaries it created for the Congo Free State were later revised. Among all bilateral borders, the median years of initial and final border formation were 1891 and 1908, respectively. Although rough spheres of influence were largely resolved by the late 1890s, interimperial borders continued to be revised during the interwar period, and intraimperial borders even later.

We provide an alternative theory to understand African border formation. Our new facts about late border formation matter because, in the interim, Europeans learned about and adjusted to realities on the ground. Their self-interested motives to defend and extend territorial claims required local knowledge. Precolonial states and water bodies were pivotal in this process. These features attracted European strategic interest and provided focal points, or "frontier zones," for determining specific borders.[2] To minimize intra-European conflict amid intense deliberations, European powers agreed on the principle of suzerainty: a power that signed a recognized treaty with an African ruler gained *all* the territory within their domain. This encouraged using historical frontiers as guides for borders, rather than partitioning precolonial states. Although Europeans directed the broader project of creating new states, the need to gather information enabled African agency to

[2]For research on focal points and borders in international relations, see Simmons (2005); Goemans (2006); Carter and Goemans (2011).

influence the location of borders, as African rulers had greater knowledge of their claimed domains. In some cases, Africans participated directly in negotiations that determined colonial borders. Europeans were also intensely interested in major water bodies and their derivatives to facilitate trade. Multiple powers routinely competed for influence over particular rivers and lakes, which were focal for settling borders. The most frequently emphasized attribute of African borders, straight lines, was expedient only in areas that lacked discernible local features, often low-population-density areas such as deserts. In sum, we expect that borders should align with the boundaries of precolonial states but not partition them, and that water bodies should be used to form borders.

We find empirical support for these implications using two original datasets. Quantitatively, we conduct a statistical analysis using square grid cells. We show that border segments are more likely in cells with rivers, lakes, and the frontiers of precolonial states; but less likely in cells contained entirely within precolonial states. The findings for precolonial states incorporate an originally compiled spatial dataset based on detailed maps of African regions from Ajayi and Crowder (1985) and numerous additional historical maps for individual states.[3] Our new data improve upon the commonly used map of ethnic groups from Murdock (1959). We agree with the descriptive claim in existing work that many ethnic groups were partitioned across international borders (Asiwaju 1985; Miles 2014), which Michalopoulos and Papaioannou (2016) confirmed using the Murdock data. However, we contend that the Murdock data cannot be used to adequately assess whether precolonial states affected country borders or, more generally, whether border formation was haphazard (see Appendix A.3).

Our second original dataset is based on case studies of all 107 bilateral borders in Africa. In addition to providing general historical background on each border, we code three specific variables: primary and secondary physical features of the border, years of major border revisions, and whether a historical political frontier (usually a precolonial African state, but sometimes other frontiers such as white settlements) directly affected the border. We refer to the latter variable as *causal process observations* (Collier 2011) because our subjective assessment of "direct effect"

[3] Appendix B provides details.

concerns the process of border formation. Our coding decisions are based on over 100 pages of notes.[4]

Historical political frontiers directly affected 62% of all bilateral borders, 66 of 107; and precolonial African states directly affected 47 different bilateral borders. This finding contrasts with existing discussions, which dismiss any notable role for historical political frontiers in shaping African borders.[5] Coding a *direct effect* requires us to find evidence that Europeans deliberately set a border in an area known to correspond with a particular historical frontier. We code this variable using rich historical information on Europeans' interactions with Africans to learn about historical frontiers and their usage of this information in interimperial negotiations and intraimperial administrative decisions. We also find that water bodies, often major ones, much more frequently comprised the primary element of a bilateral border than straight lines, 63% versus 37%. This contrasts with commonly stated claims that overemphasize the prevalence of straight-line borders; for example, Alesina, Easterly and Matuszeski (2011, 246) assert that "[e]ighty percent of African borders follow latitudinal and longitudinal lines."[6] We demonstrate that such borders are mostly confined to desert areas of lesser strategic importance.

Our findings reject both strong and weak versions of claims that Africa's borders are, generally, arbitrarily located. The strong version of this claim is that local features are systematically uncorrelated with the location of African borders. The weak version is that the only features systematically related to borders are orthogonal to human experiences on the ground. Our findings about precolonial states unambiguously reject both. The results for major water bodies clearly reject the strong version, and we contend they also reject the weak version. In contrast to astronomical lines, water bodies shaped human experiences by shaping the core and reach of both precolonial civilizations and trade networks.

The idea that Africa's international borders are largely arbitrary is as foundational as it is mis-

[4] See Appendix C.
[5] See the references in Appendix A.1.1.
[6] See also Appendix A.1.1.

guided. Overturning this conventional wisdom provides new insights into the origins of contemporary African countries and the resultant political map, which has subsequently influenced domestic and international political institutions. We conclude with implications for using African borders in regression-discontinuity designs and for studying legacies of precolonial states. We also highlight other ways in which externally imposed state formation produced harmful outcomes.

Historical Background: It Didn't Happen at Berlin

The conventional wisdom is that Europeans knew very little about conditions on the ground when they determined Africa's borders. Many characterize the Berlin Congo Conference of 1884–85 as a pivotal event in a process of border formation that was directed entirely from European capitals without African input. Countering this view, we demonstrate that Africa's borders were formed later than realized. We provide novel quantitative evidence that supports a long-standing contention by many historians that the Berlin Conference was largely irrelevant for border formation; simply, "It didn't happen at Berlin" (Katzenellenbogen 1996). By the late 1880s, Europeans had yet to draw any borders, even preliminary, for most of Africa, particularly in the interior. Most borders were not initially created until the 1890s, and a majority underwent major revisions in the twentieth century. In the years and decades following the Berlin Conference, Europeans raced to gather intelligence about conditions on the ground. Our theoretical framework, presented in the next section, explains how improved knowledge impacted border formation.

For centuries, Europeans had participated in the African slave trade and some forms of legitimate commerce. As late as the 1870s, European-colonized areas in Africa were mostly limited to coastal trading posts, usually located in natural harbors (Ricart-Huguet 2022). Trading companies, missionaries, and colonial agents on the ground often petitioned the metropole for resources to expand inward. However, they were constantly rebuffed by metropolitan officials who did not want to assume the costs of managing larger territories of uncertain value (Crowder 1968).

This status quo changed suddenly in the early 1880s. For varied reasons across different regions

of Africa, the major powers began to fear their exclusion from, as King Leopold II of Belgium phrased it, "a slice of this magnificent African cake." In the Congo region, exaggerated reports of untapped potential abounded in Europe in the 1870s and 1880s (Wesseling 1996, 73). These accounts prompted competition among France, Portugal, and King Leopold to control the mouth of the Congo River. Reacting to the prospect that spiraling territorial claims could trigger conflict, the powers agreed to Germany's proposal to hold a conference in Berlin in 1884.

The Berlin Congo Conference exemplified European greed and shamelessness, but minimally impacted borders. Wesseling (1996, 126) contends, "Africa was not only not divided at Berlin, but the subject was not even on the agenda; indeed, the partition of Africa was explicitly rejected by the conference." Although many historians support this view, the proclaimed importance of the Berlin Conference for borders has proven to be a "stubborn myth" among non-specialists (Nugent 2019, 18).[7]

The scope of the Berlin Conference was limited. The Conference largely failed to establish rules for claiming territory, one of its supposed purposes.[8] Regarding borders, it created frontiers for the Congo Free State (modern-day Democratic Republic of the Congo) only—most of which were later revised. Specifically, the Conference (a) granted international recognition to the International Association of the Congo (IAC), the nominal governing body for the Free State; (b) defined the Geographical Congo Basin (Congo watershed), which roughly circumscribed the Free State's eventual frontiers (see Figure 1);[9] and (c) outside the official Conference proceedings, France, Portugal, and the IAC concluded a series of bilateral agreements that delimited territorial possessions from the mouth of the Congo River to Stanley Pool, or modern-day Pool Malebo (Crowe 1942). Collectively, these actions in essence created the Congo Free State and its initial borders, although the Congo Free State was not formally created until several months after the Conference ended.

[7] Our Appendix A.1.1 provides some documentation of this "stubborn myth." For additional historical research that rejects the "myth," see Crowe (1942, 152); Crowder (1968, 55, 62–63); Katzenellenbogen (1996, 31); Boilley (2019, 4).

[8] Appendix A.1.2 provides details.

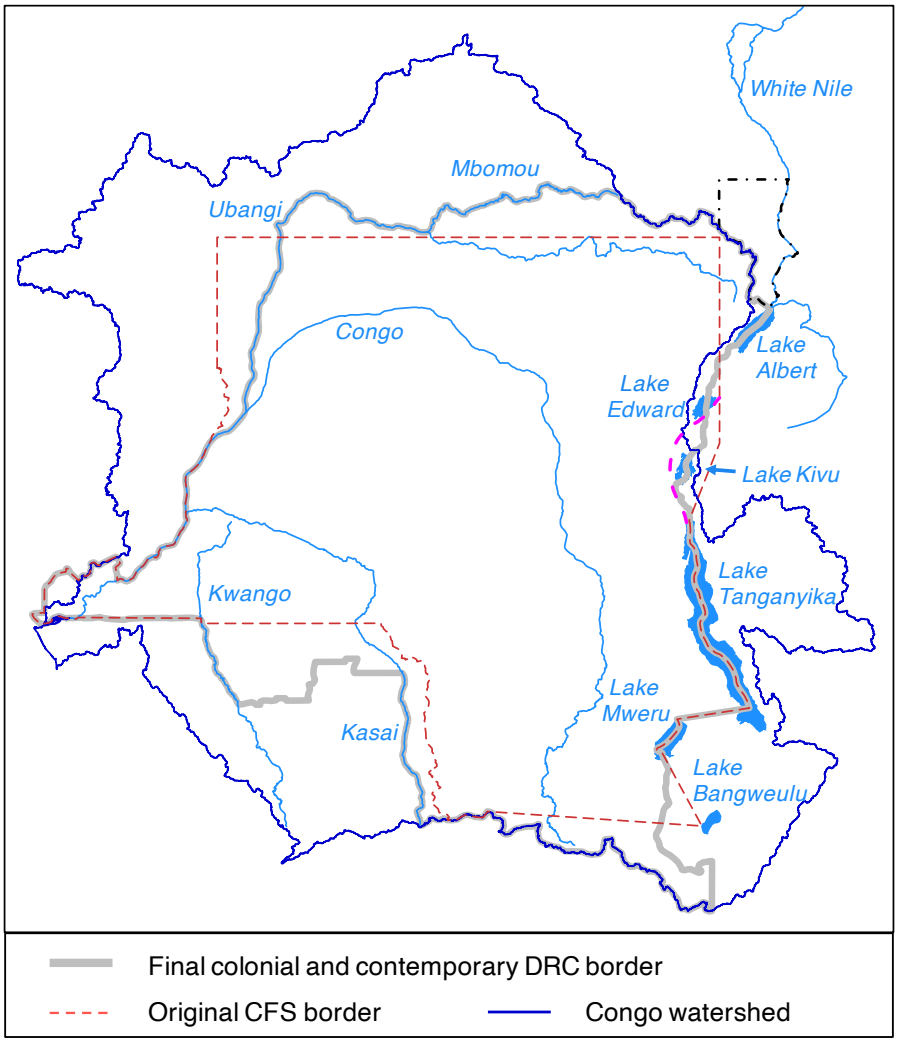
[9] The Conference also defined the Conventional Congo Basin (Conventional Free Trade Zone), which minimally affected borders.

Remarkably, even the Congo Free State largely supports our broader claim that Africa's borders routinely incorporated relevant features on the ground. The decisions at the Conference and shortly afterwards sketched a rough outline of the colony, but these borders were revised substantially in the following years and decades, as we illustrate in Figure 1. The original borders were, other than the Congo-river portions, primarily straight lines. Later, in the west and north, straight-line borders were revised to follow the Ubangi and Mbomou rivers.[10] In the east, the frontier north of Lake Tanganyika was shifted to Lake Kivu and the Ruzizi river, which corresponded with the western limits of the traditional Rwandan and Burundian states.[11] In the south, border revisions reflected the frontiers of the historical Lunda and Kazembe states.[12] Thus, local features mattered even in the supposedly paradigmatic case of arbitrary borders.

Beyond this single case, we provide novel evidence that most of Africa's borders were not initially formed until after the 1884–85 Berlin Conference and that most did not take their final form until over two decades later. For all 107 bilateral borders in the final colonial map (circa 1960), we code the date of initial border formation and years of major revisions. A major revision constitutes transferring territory across colonies (either large tracts like entire provinces or smaller tracts like districts), adding a new segment to a border, or qualitatively changing the features of a border (e.g., replacing a straight line with a river).[13] We use this information in two ways. First, using bilateral borders as the unit of analysis in Figure 2, we track over time the cumulative fraction of the 107 borders that had been initially formed (red line) and that had undergone their final major revision (black). The median years for each are shown in dashed lines. Second, we digitized maps from the *Cambridge History of Africa* (Sanderson 1985) of formal European claims in Africa at different dates: 1887, 1895, and 1902. This enables us to compare earlier colonial borders to the final colonial borders circa 1960 as well as to assess how much territory Europeans had claimed at different points in time. In Figure 3, claimed territory is in gray. Using the detailed information we

[10] See Appendix C.4.2 and C.4.3.
[11] See Appendix C.5.9.
[12] See Appendix C.4.4 and C.4.6.
[13] In most cases, borders were delimited more precisely after our last major date, but we do not count these as major revisions.

Figure 1: Evolving Borders of the Congo Free State



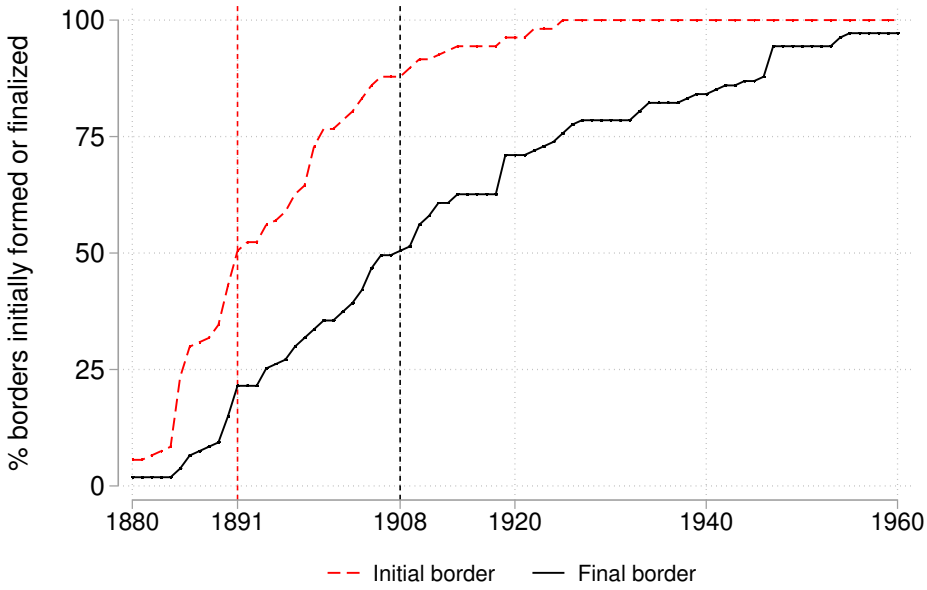
Notes: For the arc near Lake Kivu (pink), see Appendix C.5.9. For the Lado Enclave along the Nile (black), see Appendix C.6.3.

compiled for each border, we color segments of the boundaries shown in these maps either in black (indicating correspondence with a final colonial border) or red (not yet formed or later underwent major revisions).[14]

As of 1887, the colonial map was highly preliminary (Figure 3A). A majority of coastal territory had been claimed (56% of territory within 300km of the coast), but not the interior (22% of territory

[14]See details in Appendix A.1.3.

Figure 2: Border Formation Over Time in Africa

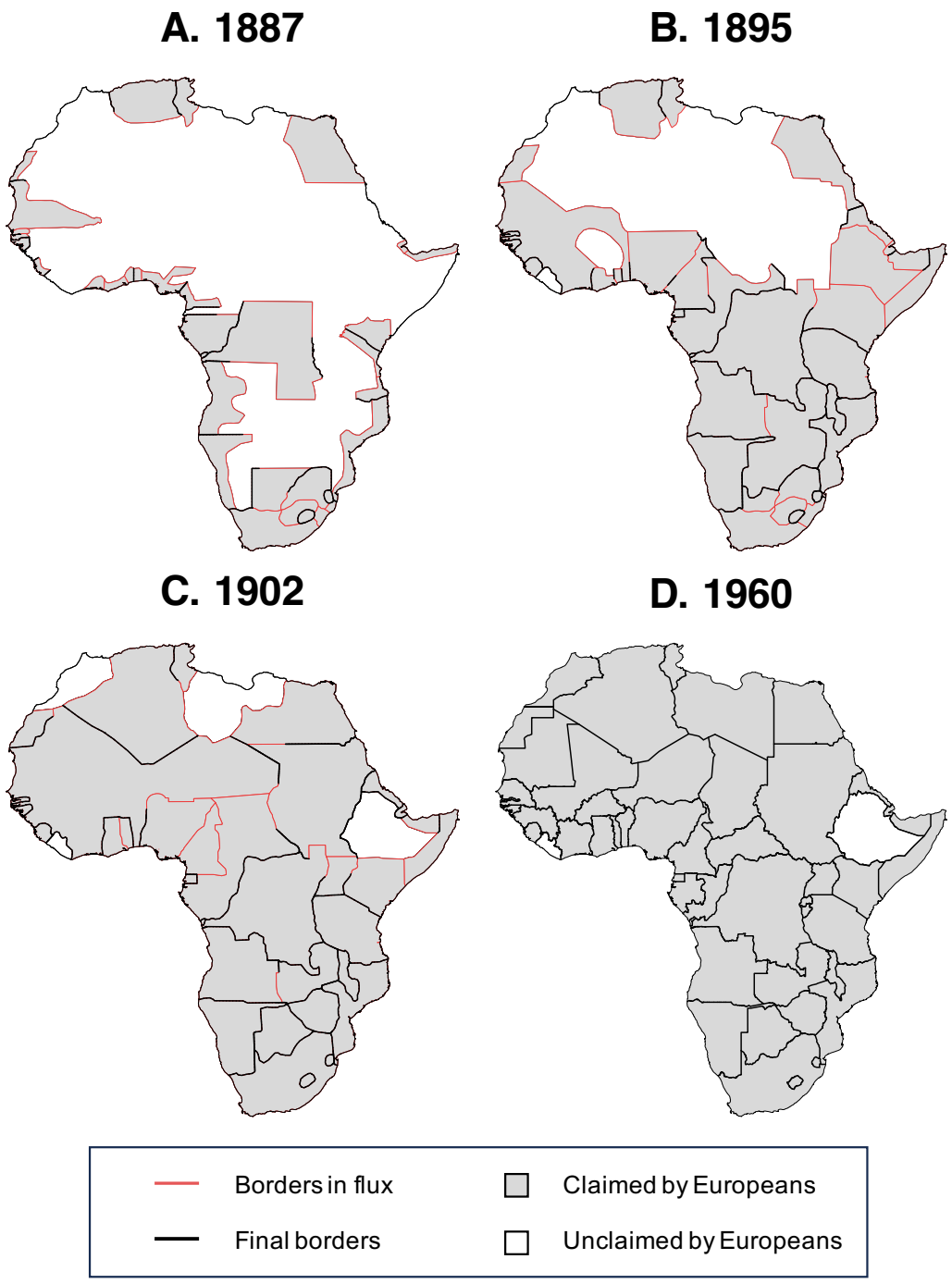


farther inland, and only 14% when excluding the Congo Free State). The border formation process had clearly taken shape at the *macro* level, that is, which European powers competed for territory in each broad region. Early trading posts influenced where borders would start at the coast (see Appendix Figure A.2). However, borders were almost entirely undetermined at the *meso* level, which concerns the main features that roughly round out spheres of influence; let alone the *micro* level, the exact location and features of borders.[15] Overall, 31% of bilateral borders had been initially formed by 1887, but only 7% were in their final form (see Figure 2). One quarter of the initial borders were in southern Africa, where British and Boer settlers had intensively interacted with (and fought) Africans for a half century.[16] Taking the total length of African borders in 1960, only 18% was finalized by 1887.

Border-formation events accelerated shortly afterwards (Figure 3B). Between 1889 and 1894, the major powers completed numerous bilateral treaties, such as the Anglo–French Agreement of 1889 (West Africa), the Anglo–German Agreement of 1890 (whole continent), and the Anglo–

[15] We thank an anonymous referee for suggesting the macro/meso/micro distinction.
[16] See Appendices C.7.2, C.7.3, and C.7.4.

Figure 3: The Evolution of the European Political Map of Africa



Portuguese Treaty of 1891 (southern Africa). These and other agreements allocated territory across most of the continental interior (meso level), excepting the Sahara, and formed at least preliminary bilateral borders throughout parts of the interior (micro level). At this point, Europeans claimed

83% of Africa's coastal territory and 58% of the interior. Yet many borders were still in flux; when we examine border length, only 43% of all borders in 1960 were in place as of 1895. Among bilateral borders, 55% were initially formed and 25% were finalized.

By 1902, Europeans had claimed almost the entire continent (90% of interior territory), which finalized most macro- and meso-level components of border formation (Figure 3C).[17] Thus, the political map in broad strokes resembled its postcolonial form. However, nearly two decades after the Berlin Conference, the micro-level process of forming specific borders was still ongoing. Measured by border length, 39% of bilateral borders in 1960 had not been finalized by 1902. Among bilateral borders, 70% were initially formed and only 36% were finalized. In the twentieth century, twenty-one large territorial transfers occurred.[18] This included Anglo-French divisions of formerly German territory after World War I, various transfers to reward Italy's participation on the Allied side in the war, several major transfers between Uganda and neighboring states, and territorial shuffling within the French empire. Other borders were revised in various ways in the twentieth century, including changing straight lines to local features (14 cases), adding new segments (13), or clarifying local features for previously ambiguous borders (19).[19]

THEORY: THE PROCESS OF AFRICAN BORDER FORMATION

"It happened at Berlin" is not a compelling model of African border formation, nor is the broader idea that Europeans determined African borders from European capitals with minimal local knowledge. Yet other common contentions are correct. European statesmen had self-interested motives to claim territory while avoiding intra-European conflict in order to reduce the costs of imperial expansion (Herbst 2000, ch. 3; Christensen and Laitin 2019, ch. 8). We present a new theory of African border formation to explain why these premises created incentives to draw borders *conscientiously*, rather than haphazardly. Our theoretical implications differ from the conventional

[17] The exceptions were Morocco and Libya (late colonies) and Ethiopia and Liberia (not colonized).

[18] See Appendix Table A.2. The median size of these territorial transfers was 84,000 sq.km., which exceeds the size of modern-day Sierra Leone.

[19] See Appendix Figure A.1 and Table A.1.

characterization that Africa's borders, for the most part, are arbitrarily designed (often straight lines), neglect local features, and indiscriminately partition historical states.

The Berlin Conference settled few borders and created only vague rules for "effective occupation" (see Appendix A.1.2). A self-enforcing scheme for claiming territory and settling borders would need to enable European states to gain large tracts of territory that they deemed valuable while also minimizing the possibility of conflict. This created a classic coordination problem: within the set of divisions that all sides prefer to war, numerous conceivable borders were possible. Building upon previous research on IR border formation (Simmons 2005; Goemans 2006; Carter and Goemans 2011), we argue that state diplomats frequently used focal points to draw borders and settle territorial disputes. Two local features appear countless times in historical accounts to serve as focal points, or focal frontier zones: historical political frontiers (mostly precolonial states) and major water bodies. To promote their territorial claims, Europeans gathered substantial intelligence about conditions on the ground through interactions with African rulers, which often facilitated African agency in negotiations.

Precolonial States and Historical Political Frontiers

Precolonial states served as important meso-level objects of contention—important features that roughly round out spheres of influence.[20] For centuries, Europeans had engaged in treaty-making with African rulers using documents that explicitly affirmed the sovereignty of the rulers with whom they contracted. This practice continued through the late nineteenth century; the main difference was that African rulers renounced sovereignty over external affairs in newer treaties. Because Europeans agreed that African rulers were legally sovereign, as opposed to treating their territory as unoccupied *territorium nullius*, Europeans considered bilateral treaties as necessary to provide legal justification for acquiring African territory (Alexandrowicz 1973).

Consequently, treaties with local rulers were the agreed-upon currency to fill in the ambiguous rules of "effective occupation" laid out in Berlin, despite rarely corresponding with actual administrative

[20]Later we discuss influential historical political frontiers that were not precolonial African states.

occupation (Wesseling 1996, 127–28; Carpenter 2012, 116). These de facto rules prompted a rush in the 1880s to gain treaties with Africans in areas of strategic interest. Data from the British empire illustrates the frenetic pace of treaty signings. British agents engaged in some treaty-making with African rulers between 1808 and 1883, averaging 0.9 treaties per year. This activity spiked in the next decade, with an average of 59 treaties per year between 1884 and 1893.[21]

Precolonial states served as ideal meso-level features for determining the approximate limits of a European power's territorial claims. Securing treaties with rulers of sizable historical states yielded claims over large swaths of territory via the principle of suzerainty. A British official explicated this principle in a dispute with France in 1896 over what became the Benin-Nigeria border: "We could not abandon the principle of suzerainty. This principle was recognized in all international negotiations and we held that, in treating with a suzerain, the rights conferred [...] extended to the whole of the territory under his dominion" (quoted in Anene 1970, 220; see also Nugent 2019, 20). By contrast, where one ruler was found to be subordinate to another, a treaty with the subordinate ruler could be challenged for lacking territorial rights (Alexandrowicz 1973, 141).

Capitalizing on the principle of suzerainty required self-interested European powers to gather intelligence about the frontiers of historical states and vassalage relations. Europeans were ignorant about on-the-ground realities in most parts of Africa upon convening the Berlin Conference. However, learning about local conditions thereafter enabled European powers to maximize their territorial claims—which were based, in part, on treaties with African rulers.

Gathering intelligence, in turn, necessitated continual interactions with local rulers and other Africans, such as translators. This facilitated African agency, a claim for which we provide extensive evidence later in the article and throughout the case studies in Appendix C (see also the overview in Appendix C.1.2). Local rulers strategically sought to preserve their territory. Likewise,

[21]Figures computed by authors by tallying treaties listed in Hertslet (1909). Although comprehensive information for other empires has yet to be compiled, Hertslet provides some information on French treaties (see pp. 634–41); and M'Bokolo (2011, 363) reports that French agents signed 118 treaties between 1819 and 1880, and at least 126 more thereafter. Other European powers also used treaties to make territorial claims (see Appendix C).

to maximize their domains, Europeans favored claims by rulers with whom they signed treaties and contested those by others. This competitive process provided Europeans with detailed information about the domains of African rulers. Whereas competing European powers contested territorial claims based on fanciful descriptions of reality, they usually accepted territorial claims with unambiguous empirical backing—which depended upon continual interaction with African rulers. And because few Europeans learned African languages, African translators were important in the process of information gathering and treaty-signing.

This process should yield two consequences. First, borders should not cut through areas governed by precolonial states. This would violate the principle of suzerainty, assuming one power had an unambiguous claim over the historical state and Europeans agreed upon its historical frontiers. As for intraimperial borders, more effective administration could be achieved by preserving a historical polity within a single colony.[22] Second, borders should often lie at the frontiers of historical states because a power's claim ended there. Historical frontiers were rarely precise enough to create specific focal points, but nonetheless created useful "frontier zones." Thus, we expect that Europeans took precolonial states into account not because of benevolent intentions, but instead because this meso-level feature provided a convenient bargaining chip to extend territorial claims while minimizing the risk of intra-European conflict.

By contrast, we anticipate that colonial borders might divide peoples in areas without major states, consistent with the existing literature. There, a European power would be hard-pressed to argue that treaties among loosely affiliated rulers constituted a basis for gaining control over an extended area (McGregor 2009, 57; Miles 2014, 22–29). For example, although all the major Yoruba states were preserved within Nigeria on the basis of British treaties, the broader Yoruba cultural area was politically fractured, which enabled France to make credible claims in Western Yorubaland (Asiwaju 1976, 9). Consequently, although many ethnic groups in Africa were partitioned amid the Scramble (Asiwaju 1985; Miles 2014), we anticipate that this process was not arbitrary or as-if

[22] Although this is well known for the British, in Appendix C we provide widespread evidence of similar practices among the French, Germans, and Belgians.

random. Historical states were systematically different than areas lacking political unity.

Major Water Bodies

Access to major water bodies was another goal of European statesmen. Rivers could facilitate transportation and trade between the coast and the interior. Later, as Europeans became aware of inland lakes, they similarly sought access to facilitate trade. Major water bodies affected border formation at all three levels. At the macro level, major rivers that emptied into the ocean could entice European powers to compete over that general region, as we have already seen for the Congo. Water bodies could also comprise general areas of strategic interest (meso-level) and/or be used as a specific feature of a border (micro-level). Unlike precolonial states, multiple powers could access the same water body if their common border shared this feature. And each power knew that others needed access to transportation hubs to make their colonies economically viable. Therefore, given the general desire to avoid intra-European conflict, we would usually expect them to yield to demands for access to the water bodies. Achieving this outcome was even simpler for intraimperial borders, as the same power controlled both sides. Although our strongest expectations are for longer rivers and larger lakes, less important rivers could serve similar purposes.[23]

As with precolonial states, claims to water bodies were more effective when accompanied by knowledge of conditions on the ground. For example, the original border that separated the Congo Free State and German East Africa was a meridian line. In the mid-1890s, Germany realized that parts of the precolonial state of Rwanda were located west of this meridian. It sought to revise the border to Lake Kivu (of which Europeans first became aware in 1894) and the Ruzizi river, which Germans had learned were the historical limits of the kingdom. "In the long run the German case proved the most forceful—natural and ethnic frontiers, so far as possible, should not be violated . . . The Germans and British claimed to uphold natural frontiers, but if they appear as champions on the side of Africans, it is at least in part because it was to their advantage to press the Congo State for natural boundaries" (Louis 1963, 93–94).

[23]Other geographic features could serve as focal points because they were salient on maps, such as watersheds and mountains (Goemans and Schultz 2017, 43).

Straight-Line Desert Borders

Some parts of Africa lacked clear focal points or frontiers, in particular deserts and other areas of low population density. Europeans should more frequently draw (and retain) artificial borders, often based on parallels and meridians, that disregard conditions on the ground in areas without focal features. However, the stakes of border placement were lower because the territory was rarely perceived as valuable. Therefore, although the exact placement of a straight-line border is typically arbitrary, the decision to draw a straight-line border should be conscious and strategic—and, consequently, relegated to areas with low population density.

Quantitative Analysis of Border Location

We test our main theoretical implications with multiple forms of evidence. Quantitatively, using square grid cells, we assess whether precolonial states and geographic features predict African borders.

Variables

Precolonial states. We compiled new spatial data on precolonial states (PCS). Ajayi and Crowder's (1985) atlas provides the most extensive and detailed maps of which we are aware containing the territorial location of precolonial polities on the eve of European colonization. The atlas contains seven detailed regional maps for the nineteenth century, each of which is produced by a leading scholar on a particular region of Africa.

We do not classify every polygon in Ajayi and Crowder (1985) as a PCS. As discussed in Appendix B.1, we consulted additional sources to assess which candidate cases meet Fortes and Evans-Pritchard's (1940, 5) criteria for *Group A* societies, meaning they have "centralized authority, administrative machinery, and judicial institutions—in short, a government." This distinguishes cases in which a polity had a ruler whose political authority extended over a broader area corresponding with the territory in Ajayi and Crowder's (1985) maps. This contrasts with small-scale chieftaincies (e.g., highly geographically circumscribed); the numerous types of decentralized en-

tities that pervaded precolonial Africa such as village councils, age-grade societies, and kinship groups (Vansina 1990); and non-independent polities. We consulted three sources that provide a continent-wide list of states in the nineteenth century: Stewart (2006), Paine (2019), and Butcher and Griffiths (2020).[24] Some cases are unambiguous because all three sources identify the polity as a state. For cases with disagreement among the three, we consulted additional sources. Finally, we restrict the sample to states that originated before 1850 to reduce concerns about colonial penetration influencing PCS boundaries.

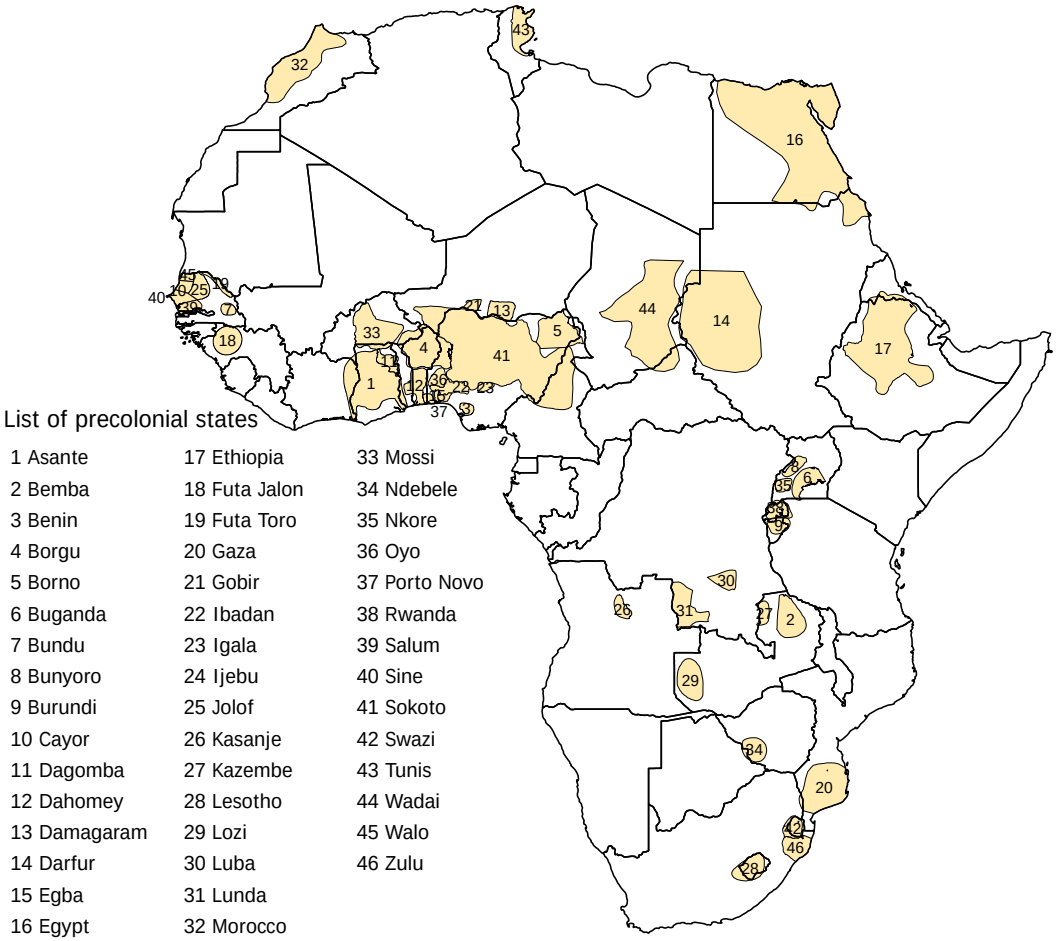
For all forty-six polities we classified as a PCS, we consulted Ajayi and Crowder's (1985) atlas and at least one historical monograph with a map and qualitative description of historical boundaries. We usually digitized a polygon from Ajayi and Crowder (1985), but sometimes used a more precise alternative map. The maps and polygons capture African states on the eve of colonization, usually from around 1885. However, in cases of earlier colonial penetration (e.g., Senegal, South Africa), we use polygons from the mid-nineteenth century.

Figure 4 depicts every PCS in our dataset and Appendix B.2 provides extensive supporting evidence for each polygon. African states generally had meaningful territorial limits, at least in the sense of discernible frontier zones, although measurement error is inevitable because of often-shifting territorial control throughout the nineteenth century and the general imprecision of frontier areas. Consequently, we perform a robustness check in which we thicken the frontier by creating a 0.25º buffer on each side of a PCS border (thus 0.5º in total).

Water bodies, watersheds, and deserts. We examine specifications with all rivers and with rivers disaggregated into major (top ten longest in Africa) and minor (all other rivers); and the same for lakes. We also assess major watersheds as derivatives of water bodies. Finally, we examine desert areas. Appendix A.2.1 provides the sources for each variable.

[24]These sources also confirm the comprehensiveness of Ajayi and Crowder's (1985) maps. See Müller-Crepon (2020) for another use of Stewart (2006) to indicate precolonial states across the continent.

Figure 4: Map of Precolonial States and Boundaries



Notes: The map visualizes our dataset of African precolonial states and their boundaries, with 1960 boundaries superimposed.

International borders. We use international borders around the time of independence (1960) and exclude post-independence border changes.[25] Colonizers regularly readjusted the borders (see Figure A.1). We capture the end result of this protracted process. Furthermore, for many research questions, the final colonial map is most relevant for studying postcolonial legacies.

[25]We include Eritrea and Somaliland (British) as separate from Ethiopia and Somalia, respectively, given their distinct colonial status and territorial uncertainty as of 1960.

Unit of Analysis: Grid Cells

The unit of analysis is grid cells. Each cell is 0.5×0.5 decimal degrees (approximately 55 km at the equator), following standard practice (Tollefsen, Strand and Buhaug 2012; Kitamura and Lagerlöf 2020). This procedure yields slightly over 10,000 grid cells across the continent (excluding islands). To score the variables for each grid cell, we combine the spatial data described above with the grid cells. Most are indicator variables, for example, whether a cell includes a river segment. Grid cells enable us to be agnostic about the appropriate comparison group for precolonial states, as peoples living in decentralized communities usually lacked clear territorial limits.[26] Along with the exercise of thickening PCS borders, grid cells also make our results robust to some degree of measurement error in PCS borders.

We partition the grid cells by whether each (a) contains the edge of a PCS polygon (PCS FRONTIER $= 1$), (b) lies entirely within a PCS polygon (PCS INTERIOR $= 1$), or (c) does not contain any part of a PCS polygon (PCS FRONTIER $=$ PCS INTERIOR $= 0$). Figure 5 uses the Nigeria–Niger border to visualize how we code grid cells.

Regression Results

For the grid-cell analysis, we specify our hypotheses as follows:

1. PCS frontier cells should more frequently have country borders than other cells (either PCS interior or non-PCS cells).

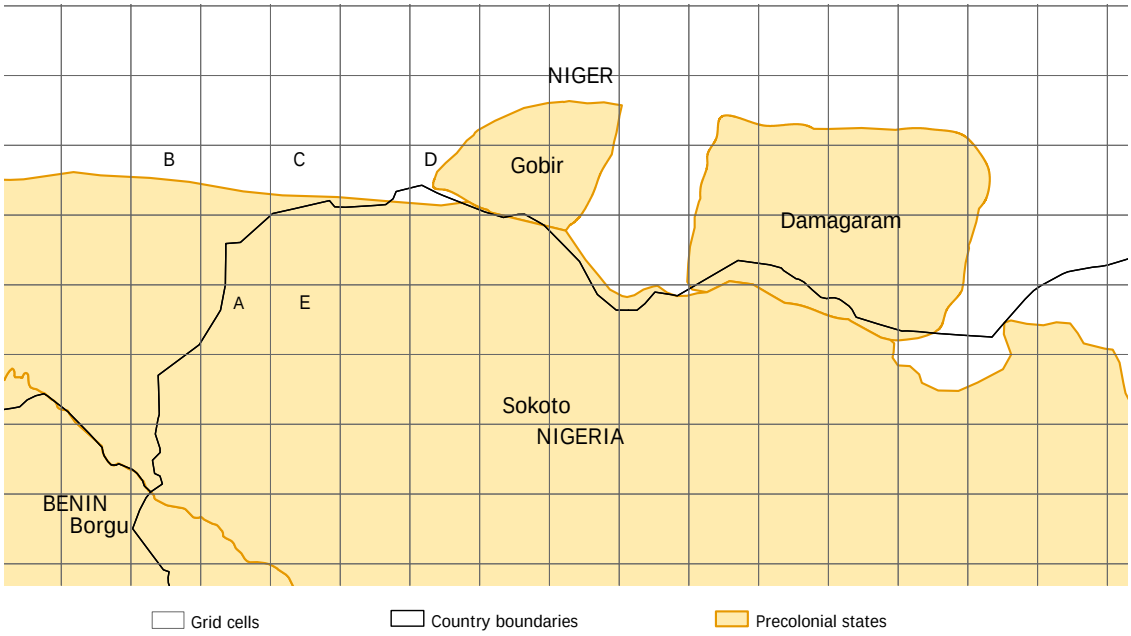
2. PCS interior cells should less frequently have country borders than other cells (either PCS frontier or non-PCS cells).

3. Cells with either rivers or lakes should more frequently have country borders than other cells.

To assess these hypotheses, we estimate the following OLS models:

[26] In Appendix A.3, we run additional results that examine the partition of Murdock ethnic groups (as in Michalopoulos and Papaioannou 2016), and discuss limitations of this approach.

Figure 5: Niger–Nigeria Border with Overlaid 0.5°x0.5° Grid Cells



Notes: The map shows parts of the Niger–Nigeria border (and small segments of their respective borders with Benin) in black (dependent variable), precolonial states in orange (explanatory variable), and grid lines in gray (unit of analysis). The letters provide examples of cells with different values of the variables; Cell A: DV $= 1$; Cell B: PCS FRONTIER $= 1$; Cells C and D: DV $= 1$ and PCS FRONTIER $= 1$; Cells A and E: PCS INTERIOR $= 1$.

$$\text{Border}_i = \beta_0 + \beta_1 \text{Geog}_i + \epsilon_i \tag{1}$$

$$\text{Border}_i = \beta_0 + \beta_1 \text{PCS}_i + \text{Geog}_i^T \beta_2 + \text{X}_i^T \beta_3 + \eta_j + \epsilon_i. \tag{2}$$

In every regression, the dependent variable indicates whether a cell i contains part of a country border. We use Conley standard errors (Conley 1999; Hsiang 2010) to account for spatial dependence. We use a distance cutoff of 300 km (approximately six grid cells at the equator) in our main results, although the findings are robust to altering the cutoff.[27] The beginning of Appendix A.2 summarizes every robustness check in the appendix.

In our main specifications, we use bivariate models to assess each geographic feature. We pur-

[27]We discuss the advantages of Conley standard errors and present various robustness checks in Appendix A.2.4.

posely do not control for post-treatment variables such as the existence of a precolonial state. However, we show in Appendix Tables A.4 and A.5 that the results in Figure 6 are robust to their inclusion and to including multiple geographic variables in the same model.

We estimate multivariate models for each PCS indicator, PCS FRONTIER and PCS INTERIOR.[28] To guard against potential omitted variable basis, we include a vector of the aforementioned geographic factors as covariates. We also add a vector of variables (X_i) to control for other factors that might have affected colonizers' propensity to draw borders in the area. One is an originally coded variable for areas located between precolonial trading posts or natural harbors that were claimed by different powers, extended up to 300km in the interior (see Appendix Figure A.2). Such areas are more likely to contain a colonial border (confirmed in Appendix Table A.5), given the need to separate competing European claims. Other covariates account for various other confounding concerns, such as geography (latitude, longitude, distance to the coast), climate (suitability for European settlement, TseTse fly suitability), historical natural resources, and various measures of historical ethnic geography (size of the ethnic group in cell, ethnic group border in cell,[29] ecological diversity of the ethnic group in cell, population density in 1850, historical slave exports, agricultural intensity).[30] We also include region fixed effects (η_j) to account for unobservables common to units in the same region.[31]

We summarize the regression estimates with a coefficient plot in Figure 6. The top part validates our third hypothesis: Across different measures of rivers and lakes, areas with major water bodies are more likely to have a nearby country border. The coefficient estimates are particularly large in magnitude for the longest rivers and largest lakes. The presence of a top 10 river in a cell increases

[28] Appendix Figure A.5 shows that our results are not sensitive to including two PCS variables in the same models while leaving the third as the reference category.

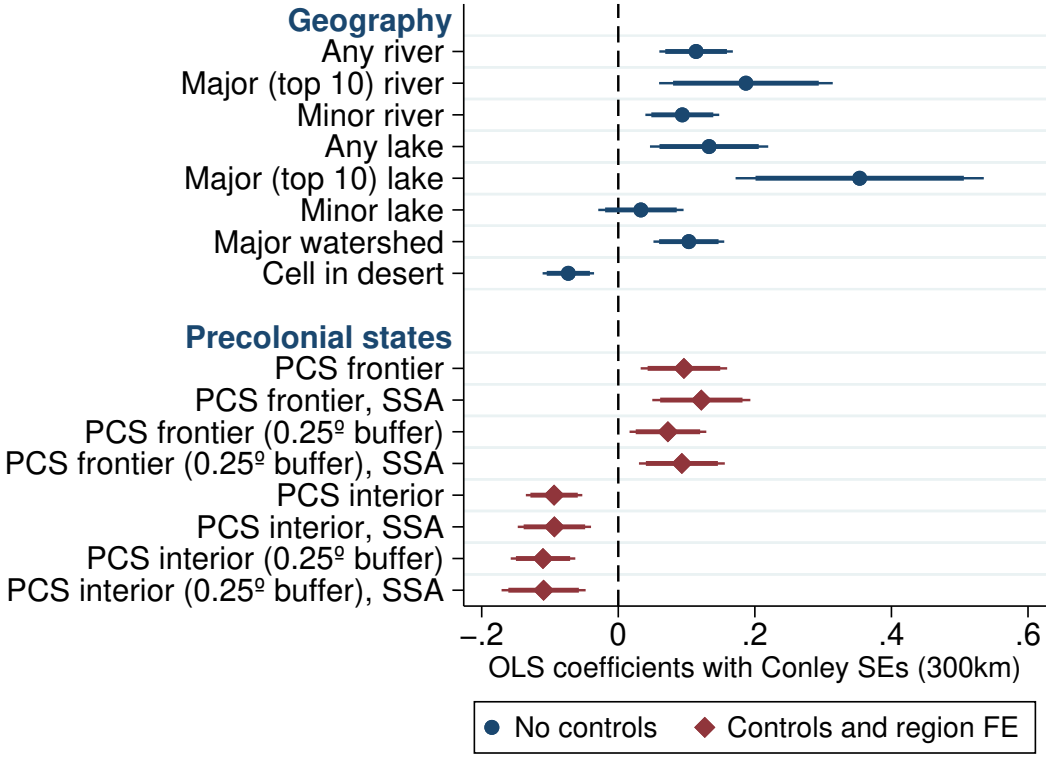
[29] We perform a separate robustness check in Appendix Figure A.6 in which we distinguish cells that (a) lack a PCS, but (b) have a border for a Murdock ethnic group. We demonstrate that these cells do not correlate with country borders, thus suggesting that the Murdock borders for decentralized ethnic groups were not focal in border formation.

[30] Some of these covariates are significantly associated with the formation of precolonial states, that is, with PCS FRONTIER or PCS INTERIOR (see Appendix Table A.3).

[31] Appendix Figure A.3 shows that the results are qualitatively similar without covariates. Appendix Figure A.4 demonstrates that our results are robust to using PCS FE instead of region FE.

the predicted probability that a border will exist in that cell from 14.2% to 31.3%, a 121% increase. For top 10 lakes, the probability increases from 14.4% to 50.0%, a 244% increase. Desert areas are less likely to have a country border, which reflects the typically large size of colonies in thinly populated areas (Green 2012).

Figure 6: Correlates of African Borders



Notes: The figure summarizes coefficient estimates and confidence intervals at the 95% and 90% levels for the main explanatory variables. The appendix presents accompanying regression tables (A.4 and A.5). $n = 10,341$ for the full sample and $n = 7,135$ for the SSA sub-sample. Controlling for agricultural intensity in the bottom panel causes observations to drop to $9,913$ in the full sample and $6,816$ for SSA. The geography models do not contain any covariates. Most are bivariate, although major/minor rivers and major/minor lakes are each included in the same specification. Every model in the lower part controls for geography (variables in the top part) plus the aforementioned covariates.

The bottom part of Figure 6 supports our first and second hypotheses: PCS frontier cells are more likely to contain country borders, whereas PCS interior cells are less likely to contain country borders. Holding other variables at their means, a PCS frontier in the cell raises the predicted probability of a country border from 14.2% to 23.8%, a 68% increase. For PCS interior cells, the

predicted probability decreases from 16.0% to 6.6%, a 59% decline.

Figure 6 also presents various robustness checks for the PCS variables. We restrict the sample to Sub-Saharan Africa (SSA, cells south of 18°N) and create a 0.25° buffer on each side of PCS borders. The findings are qualitatively unchanged and the coefficients increase in magnitude for the SSA sub-sample, which excludes large Saharan areas of lower European interest. In addition to controlling for multiple covariates, we formally assess the sensitivity of our findings to unobserved covariates by estimating Oster bounds, which show our results are very robust to potential omitted variables (Appendix A.2.5).

Qualitative Evidence for Bilateral Borders

The regression evidence demonstrates that precolonial states and water bodies are systematically correlated with border location. In this section, we analyze qualitative evidence for all 107 bilateral borders in Africa, achieving two goals. First, our theory contains several implications about mechanisms that cannot be tested with correlational evidence alone. For the *process* of border formation, we expect that (a) precolonial states and water bodies were of intense strategic interest as meso-level objects,[32] (b) Europeans actively collected information about conditions on the ground, and (c) African agency affected the process. Second, our theoretical expectations are incompatible with existing assertions that the overwhelming majority of Africa's borders consist of straight lines. Consequently, we present new evidence about the *physical features* of African borders. Combined with the data on major border revisions, described earlier, these originally coded data for each bilateral border substantially revise our understanding of Africa's borders.

We compiled extensive qualitative evidence to support our claims, only a fraction of which we can present in the main text. In Appendix C.1.1, we provide more detailed coding rules. In Appendix C.1.2, we briefly summarize all 29 precolonial states coded as directly affecting at least one bilateral border. The remainder of Appendix C provides over 100 pages of notes to justify our

[32]The "null" hypothesis here is that PCS and water bodies were epiphenomenal technical markers used to delimit borders determined by other factors.

coding decisions. The beginning of the section for each geographical region provides an overview of the main macro- and meso-level factors that influenced borders, while also highlighting the clearest examples in which African agency affected border formation.

Precolonial States and Historical Political Frontiers

The present consensus is that existing political realities played little to no role in the partition of Africa. By contrast, we find that a historical political frontier directly affected 66 of 107 bilateral borders (62%). Of these 66 cases, 47 involved at least one PCS from our quantitative dataset. The remaining cases were based on historical political frontiers created by white settlements and states, in particular in southern Africa; non-European states such as Ottoman territories in the north and the resettlement colony of Liberia; and several decentralized groups, often nomadic groups whose grazing areas were used to determine intraimperial borders in areas of low population density (see Appendix Table C.2).

These findings are based on *causal process observations* that assess, for each bilateral border, whether a historical political frontier directly affected the border's location. Coding a *direct effect* requires us to find evidence that Europeans deliberately set a border in an area known to correspond with a particular historical political frontier. We make this assessment by consulting treaties and internal colonial documents (drawing mainly from Hertslet 1909 and Brownlie 1979) and over 100 diplomatic histories and other historical accounts. These provide rich information about Europeans' interactions with Africans to learn about historical frontiers, and how they used this information in interimperial negotiations and intraimperial administrative decisions.

Europeans sometimes used the frontiers of precolonial states to draw borders, without disputing those frontiers. These were usually predicated upon a treaty between European agents and a local ruler, as with the Bayol treaty that France secured with Futa Jalon in 1881.[33] France's subsequent border agreement with Portugal stated, "Art. II.—His Majesty the King of Portugal and Algarves recognizes the French Protectorate over the territories of Fouta-Djallon …" (quoted in Hertslet

[33] See Appendix C.3.6.

1909, 674). Consequently, the Bayol treaty became a foundation for France's claims despite minimal effective presence in Futa Jalon (Carpenter 2012, 117), which it did not defeat militarily until 1896.

In many other cases, Europeans engaged in lengthy disputes about the limits of historical states; one European power used African-signed treaties to make expansive territorial claims, which another power challenged. For example, Britain and France contested the limits of the Sokoto Caliphate when determining what became the border between Nigeria and Niger, yielding several major revisions (Figure 7A). Amid northward expansion from the Niger Delta, British agents from the Royal Niger Company gained a treaty with the Caliph of Sokoto in 1885 (Hertslet 1909, 122–23). France accepted British suzerainty over Sokoto in an 1890 treaty, which stated that Britain would gain all the territory "that fairly belongs to the Kingdom of Sokoto" (quoted in Hertslet 1909, 739). Reflecting limited knowledge, the powers drew a straight-line border, connecting points on the Niger River and Lake Chad.

As the powers collected more intelligence about local conditions, France sought to revise the line southward to gain territory north of Sokoto's historical frontiers—a contention with historical grounding. Throughout the nineteenth century, flag bearers from the Caliphate conquered traditional Hausa states and established Fulani-ruled emirates, prompting some Hausa dynasties to flee. For example, Sokoto flag bearers conquered Katsina, which became the capital of the Katsina emirate, and the Hausa ruling family relocated north to Maradi (see our map) and preserved its independence through persistent warfare. Other states, such as Damagaram centered at Zinder (also in our figure), formed later in the nineteenth century and were independent of Sokoto.

Britain and France established the broad contours of the present-day Nigeria–Niger border in 1904, following an earlier revision in 1898 that reflected their continued ignorance about the area. France sought to gain a route through inhabited territories that would connect its various possessions, as opposed to the desert territory conceded in earlier agreements. This created an incentive for France to leverage new intelligence it had collected about the area and to bargain for control over

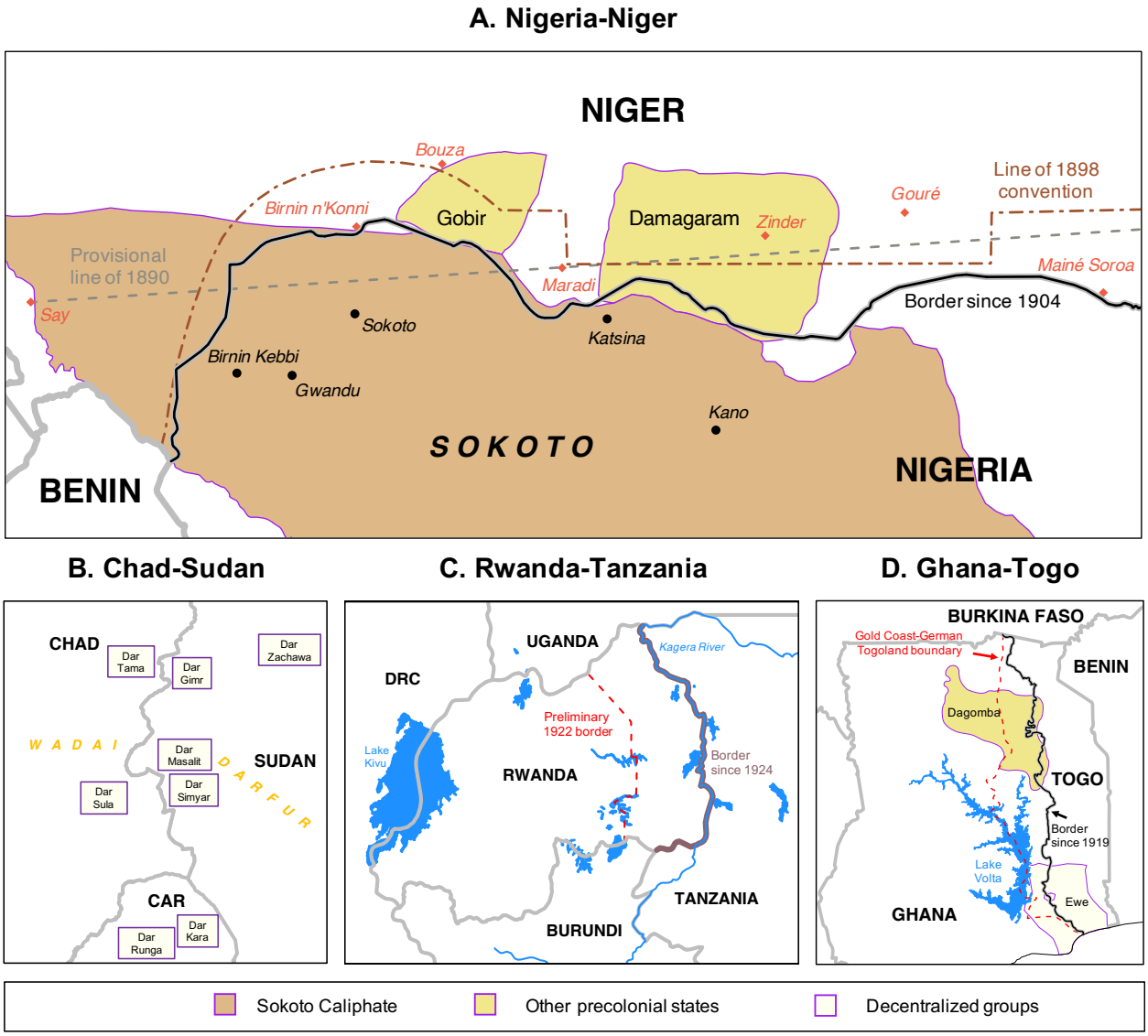
polities that lay beyond Sokoto's sphere. Consequently, the new border replaced arbitrary lines with a delimitation based precisely on the location of different towns and the roads used to connect them. The 1904 treaty stated the need for a line that incorporated "recognized and well-established frontiers," with specific stipulations that "the tribes belonging to the territories of Tessaoua-Maradi and Zinder shall, as far as possible, be left to France" (quoted in Hertslet 1909, 819); and one component of the border description was "a direct line to a point 15 kilometres south of Maradi . . . " (p. 818).[34]

African actors were more directly involved in other cases. In what became the Chad–Sudan border, Britain and France disputed the limits of the historical states of Darfur and Wadai, after explicitly specifying these historical states as features of their interimperial boundary in 1899. The final settlement was delayed because the Sultan of Darfur retained his army and fought the French to enforce expansive claims about the limits to his frontier. The powers did not settle the border until 1919, after Britain deposed the sultan, which resulted in the powers dividing various disputed petty sultanates across their spheres (Figure 7B).[35]

African agency sometimes prompted revisions of earlier partitions. Other powers seized upon Germany's defeat in World War I to partition its colonies, which created opportunities for African lobbying. German East Africa was divided into two Mandate territories: Belgian Ruanda-Urundi and British Tanganyika. The division originally proposed in 1922 severed a region, Gisaka, that had historically belonged to Rwanda, to facilitate Britain's Cape-to-Cairo railroad. In response, "an alliance between Musinga [the Rwandan ruler], the Belgians and the Catholic Church (especially Cardinal Classe) defended the re-annexation of Gisaka to Rwanda" (Mathys 2014, 155). They "emphasize[d] the social, political, and economic harm caused by the imposition of this arbitrary division and they urge[d] the eastward extension of the boundary to the 'natural frontier' of the Kagera River" (McEwen 1971, 154–55). When the League of Nations' Permanent Mandates Commission reviewed the claims, they highlighted that the agreement separated "one of the richest

[34] See Appendix C.3.11 for more details.
[35] See Appendix C.6.15.

Figure 7: Examples of Borders Shaped by Precolonial States



Notes: Polygons for precolonial states from authors' digitization (sources listed in Appendix B.2). Appendix A.2.1 lists the sources for rivers, lakes, and final colonial borders. A: Provisional colonial borders from authors' digitization of Brownlie (1979, 446). B: Decentralized groups from authors' digitization of Theobald (1965, 53). C: Provisional 1922 border from authors' digitization of McEwen (1971, 152). D: Provisional colonial border from authors' digitization of Brownlie (1979, 250), and Ewe shapefile from Murdock.

and most civilised tracts of the Kingdom of Ruanda" and decried the "'deplorable moral effect' that the present arrangement had on the local population and their strong protests" (McEwen 1971, 154–55). British and Belgian officials responded by altering the boundary to follow the Kagera

River (Figure 7C).[36] In Dagomba, a petition by its traditional ruler stimulated Britain to include its historical frontiers within the newly acquired British Togoland, which joined Ghana at independence. This reversed the earlier division of Dagomba between British and German territories (Figure 7D).[37] The powers also discussed revising the segment of the border that partitioned the Ewe cultural area, but decided against doing so because the decentralized Ewe lacked discernible political frontiers.

Ethiopia is the starkest example in which African agency affected borders, which also involved revising an earlier partition. This was the sole case in which an African precolonial state retained its independence for (almost) the entire colonial period. Ethiopia was originally allocated to the Italian sphere of influence, and Europeans ignored the expansive territorial claims Emperor Menelik II made in 1891. However, Ethiopia militarily defeated Italy in 1896. Consequently, Italy, Britain, and France acknowledged Ethiopia's independence, and Menelik gained substantial amounts of disputed territory in a series of bilateral treaties.[38] Nor was Ethiopia the only case in which Europeans directly negotiated with an African ruler over colonial borders, which also occurred in Buganda,[39] Lesotho,[40] and Swaziland.[41]

PHYSICAL FEATURES OF BORDERS: WATER BODIES AND STRAIGHT LINES

Summary of all borders. We coded the physical features of every bilateral border. The broad categories are water bodies, other local features, and straight lines; and each is disaggregated into different types.[42] For each bilateral border, we identify one or two features that are primary by

[36] See Appendix C.5.14.

[37] See Appendix C.3.4. Borno provides another example. Assistance from the traditional ruler (Shehu) during WWI encouraged Britain to include Borno's historical frontiers within the newly acquired Northern Cameroons, which joined Nigeria at independence; see Appendix C.4.7.

[38] See Appendix C.6.8 and the other Ethiopian border entries.

[39] See Appendices C.5.7 and C.5.11.

[40] See Appendix C.7.2.

[41] See Appendices C.7.3 and C.7.11.

[42] Historical political frontiers are a distinct category from physical features per se. For example, a river could comprise the frontier of a historical state and also be used as a colonial border. In this case, the precolonial state directly affected the border (as determined using the standards described above) and the river is the physical element.

constituting the plurality (and usually the majority) of the length of the border. Secondary features comprise smaller segments. Table 1 summarizes the frequency of each feature.

Table 1: Features of African Bilateral Borders

Category	*Feature*	*Primary feature*	*Any feature*
Water bodies	Any river	49%	79%
	Major river	10%	17%
	Any lake	7%	22%
	Major lake	7%	19%
	Any watershed	8%	21%
	Major watershed	6%	9%
	Other water bodies	2%	11%
	Total: any water body	**63%**	**92%**
	Total: major water body	**23%**	**37%**
Other local features	Topography	5%	39%
	Towns/villages	3%	24%
	Infrastructure	1%	18%
	Total	**8%**	**54%**
Straight lines	Parallels/meridians	18%	34%
	Non-astronomical	20%	46%
	Total	**37%**	**66%**

Notes: In addition to rivers proper, "Any river" also includes streams and oueds (although these derivatives of rivers are rarely used in borders). "Other water bodies" include wells, oases, and water holes. "Topography" is mainly mountains, but also hills, valleys, plateaus, passes, rock formations, and dunes. "Infrastructure" is mainly roads, but also caravan routes and forts. We count short segments of straight-line borders that connect local features, which biases in favor of counting straight lines as secondary features. The sum of primary features for the main categories exceeds 100% because some borders are coded as having two co-primary features (e.g., a river and a straight line).

In 63% of Africa's bilateral borders, water bodies (rivers and lakes) or their watersheds comprise the primary feature. Few borders (8%) lack water bodies entirely as a feature. Major water bodies are an important component of these percentages because they are the primary feature of 23% of all borders and are used in some form in 37% of all borders. Although numerous borders comprised primarily of water bodies were also directly affected by a precolonial state (31 cases), even more were not (36 cases). This summarizes what can be gleaned from studying individual cases: water bodies sometimes formed the limits of historical states and became colonial borders for that reason, but sometimes were used on their own.

Straight lines are the primary feature of 37% of bilateral borders, with a total of 18% for lati-

tude/longitude lines and 20% for non-astronomical straight lines. These percentages, although not trivial, are appreciably smaller than commonly cited statistics, which overstate the degree to which straight lines were used in African borders. Barbour (1961, 305) asserts that 44% of African borders are parallel/meridian lines, 30% are mathematical (i.e., non-astronomical) lines, and 26% are relief features.[43] Barbour bases his calculations solely on information from Hertslet (1909), thereby ignoring the many major border revisions that happened subsequently (see Figure 2 and Appendix Figure A.1); and explicitly qualifies his calculations as "very approximate." Our summary statistics, based on rigorous definitions and extensive supporting information, more accurately account for the features of Africa's bilateral borders.[44]

Straight lines not only comprise the primary feature of a lower fraction of bilateral borders than commonly claimed, but the location of straight-line borders is highly correlated with desert areas. Desert territories have low population density, fewer local features to use in the borders, and were of lesser strategic interest to Europeans. Among the twenty-seven borders located largely within deserts, straight lines are the primary feature of 78%, compared to 24% for the eighty non-desert borders. The corresponding figures are 41% and 10% for borders comprised specifically of parallel/meridian lines.[45]

Non-astronomical straight-line borders, unlike parallels/meridians, are usually specified in relation to local features. Outside desert areas, every bilateral border for which the primary feature is non-astronomical straight lines incorporated at least one local feature. These include minor rivers, towns, and roads as secondary elements. Thus, many straight-line segments of borders cannot be treated as entirely arbitrary in their precise location. Even some straight-line Saharan borders hide conscientious design. Boilley (2019, 7–8) argues that "the [French] colonial logic [in the Sahel] was to preserve the old limits in order to manage the conquered territories more easily [...] Lines

[43]For references to Barbour's estimates, see Appendix A.1.1.

[44]Our units of analysis differ; we analyze bilateral borders whereas Barbour (1961) analyzes the total length of border lines. We would expect the large Saharan states to inflate his calculations for straight-line borders, but nonetheless, he appears to substantially overestimate their prevalence.

[45]See Appendix Table C.3.

replaced zones, but these zones were effectively old borders." For example, Mali's borders with each of Algeria and Niger are mostly straight, but these lines were deliberately placed to encompass distinct Tuareg subgroups within a single colony.[46]

Interpreting water-body borders. Our findings for water bodies clearly defy a strong version of the arbitrary borders thesis. If Europeans systematically incorporated local features, then the borders are not as-if random. However, our expectation also defies a weaker version of the arbitrary borders thesis. Major water bodies were important macro- and meso-level objects of strategic interest, as opposed to purely micro-level markers; and borders following rivers or lakes are, typically, not orthogonal to human experiences on the ground.[47]

Europeans competed for access to water bodies across the continent. Competition over the Congo River spurred the Berlin Conference, as discussed earlier. France and Britain alternated possessions at the mouth of the Senegal and Gambia rivers, respectively.[48] The British South Africa Company deliberately split its possessions (which became Southern Rhodesia/Zimbabwe and Northern Rhodesia/Zambia) along the Zambezi;[49] and farther west, Germany's desire to access the Zambezi resulted in the geographically absurd Caprivi Strip.[50]

Rivers sometimes affected macro- and meso-level claims even when they did not, ultimately, become a micro-level border feature. Among the major rivers, the two least important for borders are the Nile (only its watershed is a primary feature of any border) and the Niger (used only for the short intraimperial Benin–Niger border). Yet these "null" cases in fact reflected a systematic process—British interests in controlling both rivers were strong enough to risk war with France to uphold its exclusive claims. In the 1890s, Britain granted leases along the Nile river to the Congo Free State and supported Italy's early claims to Ethiopia, mainly to create buffers against French

[46] Appendices C.2.4, C.2.6, and C.3.24 provide details.
[47] Water-body borders also affect outcomes. Goemans and Schultz (2017) demonstrate that postcolonial leaders are significantly less likely to dispute such border segments.
[48] See Appendix C.3.10.
[49] See Appendix C.7.7.
[50] See Appendix C.7.17.

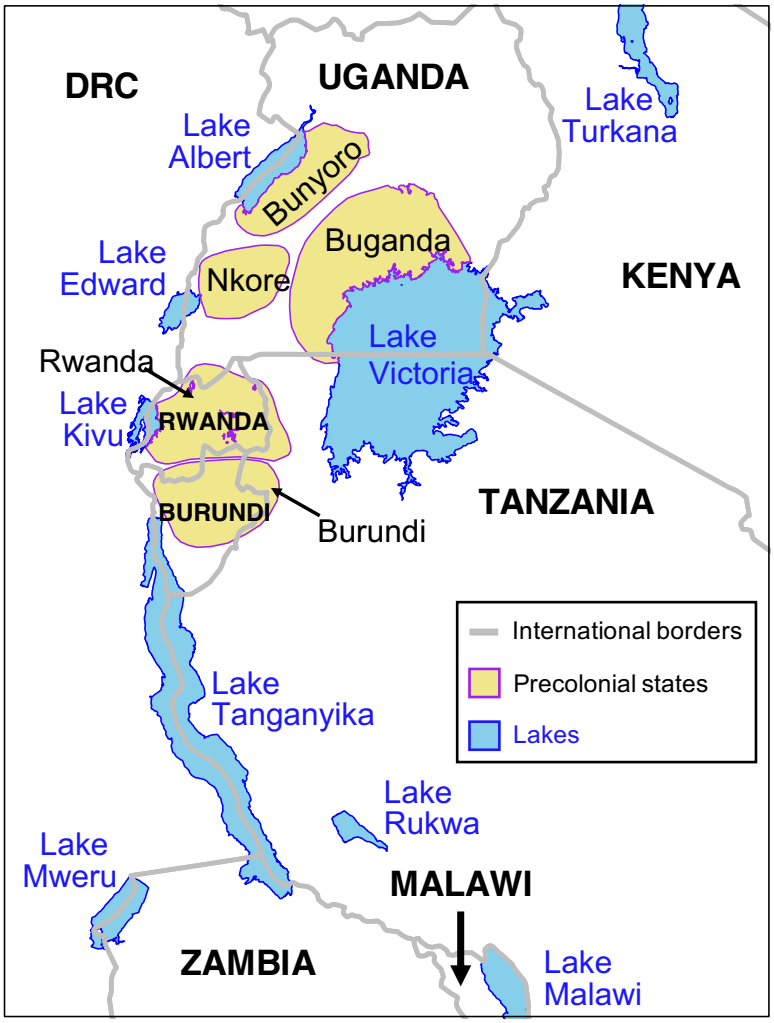
encroachment on the Nile.[51] This competition ended with British and French military units meeting at Fashoda in 1898.[52] Earlier, in the 1880s and 1890s, France challenged Britain's supremacy on the Niger, which almost resulted in war when France occupied Bussa in 1898.[53]

Later, as Europeans gained awareness of inland lakes, they similarly sought access to facilitate trade. For example, Cecil Rhodes, moving northward from southern Africa, strove "to gain access to Lake Tanganyika, the great waterway to the north" (Roberts 1976, 157).[54] Britain also sought access to Lake Tanganyika from the north by extending their domains south of Uganda.[55] In 1894, they secured a treaty with King Leopold that contained a provision for Britain to gain a thin strip of territory between the Congo Free State and German East Africa connected to the lake, which would facilitate an "all-red route" from Cape to (eventually) Cairo. However, German opposition convinced Britain to withdraw this provision of the treaty. Later that decade, Germany began pressuring the Congo Free State to shift their mutual border eastward to incorporate Lake Kivu, the traditional limit of the Rwandan state.[56] As another example, Britain issued an ultimatum to Portugal in 1890 to cease military operations in areas including the Shire Highlands and Lake Malawi, where British missionaries had established posts.[57]

Nor is choosing borders that follow rivers or lakes orthogonal to Africans' experiences on the ground (Reid 2012, 2–3). In the Great Lakes region (see Figure 8), economic transformation through farming and agriculture in the region's fertile forests began centuries ago because of favorable altitudes, adequate rainfall, and water bodies (Curtin et al. 1995, 107, 132). Lake Victoria was "crisscrossed by a network of trade ties" (370), and the most important nod in the network was arguably the Kingdom of Buganda. Reid (2002, 227) discusses "the enormous significance of Buganda's lakeside location," including the invention of sophisticated canoes in the nineteenth

[51] See Appendices C.6.3 and C.6.11.
[52] See Appendix C.6.15.
[53] See Appendix C.3.8.
[54] See Appendix C.5.2.
[55] See Appendix C.6.3.
[56] See Appendix C.5.9.
[57] See Appendix C.7.12.

Figure 8: Borders in the Great Lakes Region



Notes: Polygons for precolonial states from authors' digitization (sources listed in Appendix B.2). Appendix A.2.1 lists the sources for lakes and international borders.

century to foster trade and, with it, economic and political development. As Figure 8 shows, every major historical state in the region clustered around a Great Lake. The consequent colonial borders (albeit after numerous revisions) reflected the geography and the political economy of the region. In some cases, water-body borders also incorporated the frontiers of precolonial states, whereas elsewhere (Lakes Tanganyika, Malawi, and Mweru) they were used independently of precolonial states. Rivers and lakes also shaped the precolonial development of peoples with decentralized institutions, including where they settled and the trade patterns among them. Population settlements in western Equatorial Africa, for example, corresponded neatly with rivers and vegetation zones in

the precolonial period (Curtin et al. 1995, 217).

The ways in which water bodies affect human and political development in the long run are complex and variegated. In the Great Lakes region, water-body borders typically united historical states, whereas elsewhere they sometimes divided groups with cultural similarities.[58] But in either case, important water bodies are not orthogonal to social realities on the ground. In East Africa, creating new, large colonial states was undoubtedly artificial relative to precolonial precedents. However, the borders themselves are anything but arbitrary.

CONCLUSION

According to conventional wisdom, European statesmen drew African borders in ignorance of local conditions, exemplified by the Berlin Conference of 1884–85. This resulted in arbitrarily-located borders. We overturn this convention. Most African borders were not in fact settled for decades after the Berlin Conference, during which time Europeans gathered extensive information about conditions on the ground. We provide an alternative theory to explain why precolonial states and water bodies were focal for determining borders. Quantitatively, we use original spatial data on precolonial states and estimate regressions using grid cells to demonstrate that these local features correlate with border location. Qualitatively, historical political frontiers directly affected 62% of bilateral borders. In many cases, Europeans learned about and intensively debated the limits of precolonial states, among themselves and also with African rulers, which facilitated an underappreciated role for African agency. Europeans also frequently revised initial borders to reflect local realities. Water bodies, often major ones, comprised the primary border feature much more frequently than straight lines, which are mostly confined to desert areas.

The idea that Africa's international borders are unusually arbitrary is foundational. As Boilley (2019, 5) puts it, "The cliché of Berlin has endured, in spite of efforts of historians to destroy it."

[58] Future research can test the conjecture that shallow, narrow, and navigable rivers (e.g., Nile) should unite peoples; and deep, wide, and hard-to-navigate rivers should divide peoples (e.g., Boyoma Falls along the Congo).

Our article provides a coherent alternative theory of border formation in Africa with strong empirical backing that should help destroy that cliché. We contribute to a new understanding of how modern-day countries were created in Africa. The resultant political map has subsequently influenced domestic and international political institutions. Here we discuss three broader implications of our findings.

First, we raise important questions about the growing research agenda that exploits as-if randomness in African borders for regression discontinuities and related research designs (McCauley and Posner 2015 review this literature). We heed Kocher and Monteiro's (2016, 952) call that "qualitative historical knowledge is essential for validating natural experiments." Dunning (2012) discusses the relevance of what policymakers know when choosing a certain policy; greater knowledge makes claims of as-if randomness less credible. Although we do not question the findings of any particular study, we caution against generally characterizing Africa's borders as arbitrary. Over half of all African bilateral borders experienced a major revision in the twentieth century, when European knowledge of the continent was far greater than during the 1884–85 Berlin Conference. For cases in which a particular feature (e.g., river) was chosen over another without much justification, a claim of conditional randomness may be justified. But making such an assessment requires consulting the history and features of the borders. We do so for every bilateral border in Appendix C, which we hope will advance this important research agenda.

Second, many scholars examine how precolonial states affected the directness of colonial rule (Gerring et al. 2011; Letsa and Wilfahrt 2020; Müller-Crepon 2020). Colonialism is a key intervening period in related studies of the long-term consequences of precolonial states for outcomes such as economic development (Michalopoulos and Papaioannou 2013; Dasgupta and Johnson-Kanu 2021), civil war (Wig 2016; Paine 2019), and democracy (Baldwin 2016; Neupert-Wentz, Kromrey and Bayer 2022). By showing that colonial borders largely preserved, rather than dismembered, precolonial states, we can better account for their persistence in shaping colonial governance (indirect rule) and postcolonial outcomes. Furthermore, our new georeferenced dataset of African

precolonial states should be a useful resource for scholars.

Third, our findings force us to rethink what exactly is exceptional about African states and borders. The specific features of African borders are not distinct in a cross-regional perspective. Historical political frontiers were a key determinant of borders in Europe (Goemans 2006; Abramson and Carter 2016) and elsewhere (Carter and Goemans 2011). Rivers routinely determined borders between European countries (Kitamura and Lagerlöf 2020) and U.S. states. Low population densities are the common denominator between straight-line borders in the Sahara and many states/provinces in the western parts of the United States, Canada, and Australia.

Instead, the paramount role of external influence distinguishes African states and borders. We suggest that the overwhelming focus in the literature on *borders* misunderstands why the broader process of externally imposed *state formation* was harmful. We revisit the distinction between *dismemberment*, partitioning groups across international boundaries; and *suffocation*, forcing disparate groups that lack a shared history into the same country (Englebert, Tarango and Carter 2002; see also Christensen and Laitin 2019, Ch. 9).

African colonial borders are less aligned with ethnic geography than borders elsewhere (Müller-Crepon, Schvitz and Cederman forthcoming), and they frequently dismembered ethnic and cultural groups across international boundaries (Asiwaju 1985; Miles 2014). Such borders, even when they incorporated local features, clearly created deleterious human consequences. Our contribution with regard to dismemberment is to demonstrate that which groups were partitioned followed a systematic process, contrary to existing assertions. Areas with precolonial states were rarely dismembered because incorporating their territorial limits created an agreed-upon method for self-interested Europeans to allocate territory. Furthermore, frequent migration and intermingling among peoples of different ethnicities, cultures, and languages ensured that *any* regional system that enshrined fixed territorial borders would divide groups with fractured polities or decentralized institutions.

Suffocation, another inevitable consequence of colonial state formation, receives too little attention relative to dismemberment. Precolonial states were too small in number and size to form the

basis of most colonial states across the continent. European administrators focused on creating economies of scale and sometimes used wealthier parts of their territories to subsidize poorer and sparsely populated areas (Gardner 2012; Green 2012). These goals induced Europeans to merge disparate peoples who lacked a shared political history into artificially large states, relative to historical precedents. Since independence, leaders have faced impediments to broadcasting power throughout their national territory (Herbst 2000), and the difficulty of incorporating precolonial state institutions into larger states has often yielded civil war (Paine 2019).

The conventional wisdom on Africa's "bad borders" suggests the following counterfactual: Taking as given the general contours of the European colonial occupation and externally created states, certain negative outcomes would have been less likely if Europeans had been more conscientious when determining the location of borders. Our evidence suggests strongly that this counterfactual is wrong. Imposing *any* set of fixed borders would have suffocated precolonial states within larger colonial states (at least without creating hundreds of states) and dismembered decentralized groups. Although colonial *states* in Africa were largely artificial with respect to historical antecedents and geographic considerations, the *borders* between these states were not. Africa's borders reflect a negotiated and systematic process that scholars and popular accounts have largely overlooked and misunderstood.

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Appendix for "Endogenous Colonial Borders: Precolonial States and Geography in the Partition of Africa"

We organize the supplementary material into four distinct sections.

- Appendix A is the main appendix (24 pages).
  - Appendix A.1: Supporting information to establish the conventional wisdom about border formation in Africa and summarize our data on major border revisions.
  - Appendix A.2: Supporting information for the grid-cell regressions.
  - Appendix A.3: Supporting information for the ethnic-group regressions.
- Appendix B is the first supplemental appendix (20 pages). It provides extensive coding notes for our polygons of precolonial states.
- Appendix C is the second supplemental appendix (138 pages). It presents a case study for all 107 bilateral borders in Africa. It also provides details on our coding standards and lists every bilateral border that we code as directly affected by a historical political frontier.
- Appendix D is the third supplemental appendix (7 pages). It presents additional regression tables that accompany the coefficient plots in Appendix A.

A Main Appendix

A.1 Supporting Information for Historical Background Section

A.1.1 Conventional Wisdom on Arbitrary African Borders

- Encyclopedia of Africa (Appiah and Gates 2010): "Rivalry between Great Britain and France led Bismarck to intervene, and in late 1884 he called a meeting of European powers in Berlin. In the subsequent meetings, Great Britain, France, Germany, Portugal, and King Leopold II negotiated their claims to African territory, which were then formalized and mapped."

- Michalopoulos and Papaioannou (2016, 1803) consider the "Scramble for Africa as a 'quasi-natural' experiment." "During the 'Scramble for Africa,' that starts with the Berlin Conference of 1884–1885 and is completed by the turn of the twentieth century, Europeans partitioned Africa into spheres of influence, protectorates, and colonies. The borders were designed in European capitals at a time when Europeans had barely settled in Africa and had limited knowledge of local conditions. Despite their arbitrariness, boundaries outlived the colonial era" (p. 1802). On the basis of their statistical analysis of ethnic groups, they conclude, "[w]ith the exceptions of the land mass of the historical ethnic homeland and the presence of lakes, there are no significant differences between split and non-split homelands along a comprehensive set of covariates ... These results offer support to a long-standing assertion within the African historiography regarding the largely arbitrary nature of African borders, at least with respect to ethnic partitioning" (p. 1803).

- Christensen and Laitin (2019): "The infamous Berlin Conference of 1884–85 set administrative boundaries in Africa and granted vast territories to the leading European powers ... Berlin set the colonial boundaries and determined, in large stretches, the borders of contemporary African states" (p. 167–68, 174). They also cite Michalopoulos and Papaioannou's evidence as establishing "the arbitrariness—statisticians would say as-if randomness—with which borders were drawn in Berlin ..." (p. 173).

- Herbst (1989) and Herbst (2000, Ch. 3): "[t]he overwhelming importance of imperial military and geopolitical interests in the scramble for Africa meant that the Europeans necessarily ignored factors that are generally considered relevant to the partitioning of land." He also supports the view that "[t]he arbitrary division of the continent by the European powers [exhibited] little or no respect for preexisting social and political groupings, or even, sometimes, for 'natural' geographical features" (Herbst 1989, 675).

- Scholars commonly cite an estimate by Barbour (1961, 305) that 44% of African borders are parallel/meridian lines, 30% are mathematical (i.e., non-astronomical) lines, and 26% are geographical features (Herbst 2000, 75; Englebert 2002, 88; Abraham 2007). Similarly, Alesina, Easterly and Matuszeski (2011, 246, 251) assert, "[e]ighty percent of African borders follow latitudinal and longitudinal lines ... Africa is the region most notorious for arbitrary borders"; and Yakemtchouk (1971) claims, "Some eight-tenths of African borders are unrelated to traditional and ethnic boundaries" (p. 70).

- Englebert (2002, 84–88): "With borders inherited from the colonial scramble for Africa ... they usually lack geographical congruence with the institutions of the precolonial era." In

the Democratic Republic of the Congo, he mentions that "several precolonial kingdoms and states . . . [were] partitioned with neighboring colonies . . . These are not exceptional cases . . . Colonial partition seemed to be the norm rather than the exception. In many cases, the existence of an integrated precolonial system did not prevent partition by colonials."

- Abraham (2007): "A 'tea and macaroon' approach to boundary delimitation during the process of colonisation—culminating in the Berlin Conference of 1884-1885—rendered [territorial disputes] inevitable" (p. 62).
- Examples from popular press: "In 1885 European leaders met at the infamous Berlin Conference to divide Africa and arbitrarily draw up borders that exist to this day."[1] "The Partition of Africa began in earnest with the Berlin Conference of 1884-1885, and was the cause of most of Africa's borders today."[2] "The Berlin Conference spanned almost four months of deliberations, from 15 November 1884 to 26 February 1885. By the end of the Conference the European powers had neatly divided Africa up amongst themselves, drawing the boundaries of Africa much as we know them today."[3] "At the Berlin Conference, the European colonial powers scrambled to gain control over the interior of the continent. The conference lasted until February 26, 1885 — a three-month period where colonial powers haggled over geometric boundaries in the interior of the continent, disregarding the cultural and linguistic boundaries already established by the indigenous African population."[4]

A.1.2 Did the Berlin Conference Matter in Other Ways?

Our evidence on the timing of border formation rules out conventional claims (see Appendix A.1.1) that the Berlin Conference played an important role in determining specific borders. But the Berlin Conference may have affected later borders by affecting macro-level claims or by determining rules for claiming territory. Neither appears well supported, which further raises the need for a new model of African border formation.

The Berlin Conference undoubtedly influenced some macro-level claims. For example, to bolster their positions at the Conference, Britain accelerated its process of gaining treaties along the Niger river and Germany claimed territories in various parts of the continent in 1884 (Craven 2015, 40–41). However, many macro-level claims in place as of the mid-1880s cannot be attributed to Berlin, such as Britain's in southern Africa and France's in Algeria. More important, micro-level borders are not mere derivatives of macro-level claims, and most later borders did not exhibit an obvious path dependence with earlier ones.[5] Europeans followed a rough notion of a hinterland doctrine: a power with claims to a part of the coast had a right to its hinterland.[6] However, this

[1] Fischer 2015.
[2] Faal 2009.
[3] South African History Online 2019.
[4] Rosenberg 2019.
[5] An exception was West Africa, where many later borders extended initially short rays that emanated from the coast. However, even in these cases, most initial borders were later revised to replace straight lines with water bodies and roads.
[6] In intra-French partitions, "[t]he French postulate that the inland regions of Sudan have different outlets depending on their proximity to the coast. Each of the four French colonies bordering the Atlantic is therefore assigned the hinterland for which it is the logical outlet" (Sandouno 2015, 20–21).

principle was too imprecise to determine even rough spheres of influence at the meso level, let alone specific borders at the micro level (Wesseling 1996, 127). For example, in the late 1880s in East Africa, Britain and Germany agreed not to annex territory located in the "rear" of the other's coastal territory (Hertslet 1909, 888–89), but the vagueness of the idea "left considerable room for misunderstanding in the future" and was explicitly rejected by statesmen such as Prime Minister Lord Salisbury (Louis 1963, 9–10). The ensuing Anglo–German Agreement of 1890 yielded, among other concessions, British control over Uganda. This agreement reflected Germany's desire to gain the small island of Heligoland in the North Sea, as opposed to an inevitable extension of its coastal possessions (some of which, such as Witu, it relinquished). As another example, in disputes in 1898 along what became the Benin–Nigeria border, French diplomats argued that "[t]he hinterland theory was useless, for the coast was curved and every hinterland point must lie in several hinterlands" (Flint 1960, 287). This argument was convenient for their bargaining posture, as a hinterland-doctrine interpretation of territorial control would cost them Bussa, located at the terminus of the navigable part of the Niger.

In its concluding General Act, the Conference decreed rules of effective occupation for claiming territory (Hertslet 1909, 484–85). Such rules, even if successful, would not predict micro-level border features. Nonetheless, the formal rules appear to have simply acknowledged that Europeans were claiming territory without discernibly altering this behavior. The standards for effective occupation were vague, a product of British resistance to this principle, and applied only to coastal settlements—many of which were already occupied (Crowe 1942, 190–91; Wesseling 1996, 124–30). In practice, as we highlight, "effective occupation" came to mean treaties with local rulers. This created scope for African participation, despite their lack of representation at Berlin.

Despite minimal impact on specific borders, the Berlin Conference may have influenced the eventual annexation of African territory. Whereas treaties with local rulers created protectorates (i.e., they granted Europeans control over external but not internal affairs), Europeans later ignored these limitations and imposed local governance institutions. Alexandrowicz (1973, 148) interprets the stipulations of the Berlin Conference as an agreement among the powers to permit such rights of annexation (see also Craven 2015, 42–49).

A.1.3 Major Revisions to Colonial Borders

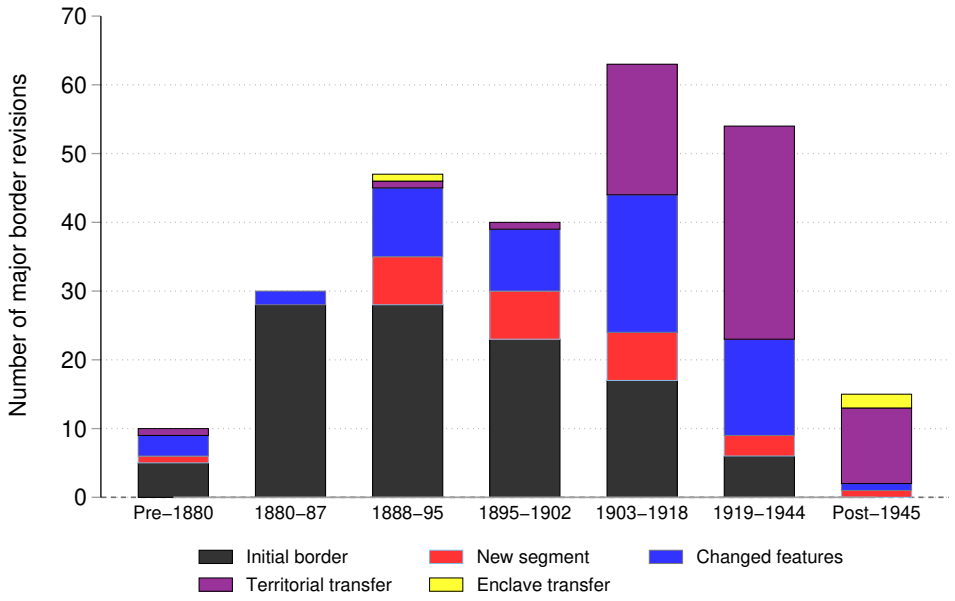
In the article, we presented two figures based on our original data that, for all 107 bilateral borders, codes the initial year of border formation and all subsequent years with a major revision (including the type of revision). We describe these data in the article.[7] The following tables and figures supplement Figure 2. In Figure A.1, we plot the frequency of different types of revisions over time. In Table A.1, we provide more details on the subcategories for types of major revisions. In Table A.2, we list every large territorial transfer since 1900. Unlike the preceding figure and

[7]We do not code a major revision if a colony was temporarily merged with others but the bilateral borders were unchanged (e.g., the federation of Southern Rhodesia, Northern Rhodesia, and Nyasaland in the Central African Federation from 1953–63), or if a merger occurred entirely within the boundaries of the final colony (e.g., amalgamation of Northern and Southern Nigeria in 1914). We code major revisions for the relevant bilateral borders when Upper Volta was merged (1932) and re-created (1947) because its territory was divided among three other French colonies, which altered a series of bilateral borders.

table, the last table is organized by distinct instances of territorial transfers rather than by bilateral borders, and some of the large territorial transfers affected multiple bilateral borders.

To produce Figure 3 we digitized colonial maps of 1887, 1895, and 1902 from Sanderson (1985). We combined these maps with our detailed notes on each bilateral border to code which border segments in each year corresponded with the final colonial borders. This process allows us to correct inevitable inaccuracies in historical maps. We then calculated two sets of figures for each map to quantify how colonial claims and borders evolved over time. First, we computed (using polygons of claimed territories) the percentage of all African territory claimed by Europeans, disaggregated by coastal and interior (300 km from the coast). Second, we computed (using polylines of borders) the total length of borders in their final form as a percentage of the total length of borders in 1960.

Figure A.1: Major Border Revisions Over Time



Notes: The unit of analysis for the underlying data is bilateral border-year. The dependent variable equals 1 in any year in which the specified type of major border revision occurred, and 0 otherwise. For each time period (x-axis), the bar segments represent the total number of revisions of each type that occurred, and the sum of these segments is the total number of major border revisions (y-axis).

Table A.1: Types of Major Border Revisions

Type	Total	20th century
Territorial transfer*		
Large	47	45
Small	17	17
Enclave	3	2
Changed features		
Switch lines to local features	22	14
Clarify local features	28	19
Change local features	5	2
Change location of straight line	4	3
New segment	26	13

Notes: The unit of analysis for the underlying data is bilateral border-year. The dependent variable equals 1 in any year in which the specified type of major border revision occurred, and 0 otherwise. Each cell sums up the number of 1's for the specified category and time period.

* This is the number of *bilateral borders* that experienced a major revision due to a territorial transfer, not the number of *unique territorial transfers*; a single transfer can affect multiple bilateral borders. The 45 bilateral borders affected by a large territorial transfer since 1900 (listed in the present table) correspond with the 21 distinct instances in which a large territory was transferred in the twentieth century (listed in Table A.2).

Table A.2: Large Territorial Transfers Since 1900

Gaining state	Losing state	Year	Territory	Approx. sq.km.
Kenya	Uganda	1902	Eastern Province	84,000
Zambia	Angola	1905	Lozi territory	88,000
Ethiopia	Kenya	1907	Menelik's claims	225,000
Sudan	DRC	1910	Lado Enclave	39,000
Cameroon	AEF	1911	Neukamerun	295,000
Western Sahara	Morocco	1912	Cape Juby	33,000
Uganda	Sudan	1914	Part of Lado Enclave*	47,000
Ghana	Togo	1919	British Togoland	34,000
Nigeria	Cameroon	1919	British Cameroons	53,000
AEF	Cameroon	1919	Neukamerun	295,000
Rwanda	Tanzania	1924	Gisaka district	7,000
Somalia	Kenya	1925	Jubaland	110,000
Kenya	Uganda	1926	Rudolf Province	37,000
Chad	Niger	1931	Tibesti mountains	134,000
AOF**	Burkina Faso	1932	Upper Volta	274,000
Libya	Sudan	1934	Sarra Triangle	72,000
Somalia	Ethiopia	1936	Ogaden	327,000
Burkina Faso	AOF**	1947	Upper Volta	274,000
Ethiopia	Somalia	1954	Ogaden	327,000
Morocco	Western Sahara	1958	Cape Juby	33,000
Cameroon	Nigeria	1961	Southern Cameroons	43,000

* Other parts of northern Uganda were transferred to Sudan (see Sudan–Uganda).

** Upper Volta was split among three AOF colonies in 1932 (Niger, Soudan/Mali, and Cote d'Ivoire) and reconstituted in 1947 (see Burkina Faso–Ivory Coast and Burkina Faso–Mali).

A.1.4 Comparison to Goemans and Schultz Data

Our coding exercise for the years of border formation is similar to that in Goemans and Schultz (2017), although the two datasets provide somewhat different findings. In their article, they examine "the age of each border segment by determining the year in which the line inherited upon independence was created. Since borders were often created over a period of years and successively defined in greater detail, we do not use a precise age; instead, we employ a broad distinction between old and new borders, using 1919 as a dividing line between borders that were created during the Scramble for Africa or the World War I settlement, and those that were not created until later." However, they graciously shared their replication data, which in fact contains more detailed information on the year in which a border was formed and the last year in which a substantial revision occurred. Their primary source for coding this variable is Brownlie (1979), which is also one of our primary sources.

The main difference in findings is that we tend to code earlier dates than Goemans and Schultz. Their median year for an initial border is 1899, compared to our median year of 1891. Of the 101 bilateral borders,[8] we code the same initial year for 40 borders, an earlier year for 57, and a later year for 4. Many of the differences are small, but some are not; in 31, the difference is more than a decade (in all but one, ours is earlier). Exhibiting similar discrepancies, their median year for a final border is 1912, compared to our median year of 1908. We code the same final year for 39 borders, an earlier year for 43, and a later year for 19. Of these, the discrepancy is more than a decade for 33 (23 earlier, 10 later).

Various factors account for these discrepancies. First, for initial borders, we require only that Europeans agreed upon an outline for a border, even if imprecise. We always count the first inter-European treaty as constituting an initial border, whereas Goemans and Schultz do not. Second, we appear to have a higher threshold for what constitutes a major revision. They count some cases in which the revisions were fairly minor, such as clarifying technical details related to alignment or altering minor features (e.g., which country controls certain islands located within a river that constitutes the border). Third, we consulted a wider range of sources. For intra-French borders in particular, we consulted additional (mainly French language) sources because Brownlie lacks detailed information for many of these borders. These additional sources provide evidence of earlier agreements to establish certain borders and present more precise information about subsequent revisions.

Although the third difference is a clear advantage of our coding effort, neither choice for the first two differences is unambiguously better. Nonetheless, given our overarching claim that Africa's borders tended to be formed later than scholars and commentators commonly proclaim, a coding procedure that biases toward earlier dates creates a harder test for our argument. Another advantage of our coding procedure is that we code all instances of major revisions and their type, accompanied by extensive coding notes that enable researchers to scrutinize and verify all our coding decisions.

[8] Following Brownlie, they do not distinguish Eritrea from Ethiopia nor British Somaliland from Somalia, yielding six fewer bilateral borders than in our dataset.

A.2 Supporting Information for Grid-Cell Regressions

Section A.2.1 presents data sources for the variables we analyze. Section A.2.2 presents the corresponding regression tables for Figure 6 and related robustness checks. Section A.2.3 changes the reference category in the PCS regressions by including both PCS variables (both PCS border cells and PCS interior cells) in the same model. Section A.2.4 discusses issues related to spatial dependence, assesses robustness checks for Conley SEs, and performs an alternative procedure for calculating SEs using the wild bootstrap. Section A.2.5 computes Oster bounds to assess the sensitivity of our estimates to unobservables using information from observables.

Table of Contents

A.2.1 Data Sources for Variables

1. **Top 10 River**: Equals 1 for grid cells with any of the 10 longest rivers in Africa; 0 otherwise. The top 10 rivers in our data are the Nile, Congo, Niger, Zambezi, Ubangi, Kasai, Orange, Limpopo, Senegal, and Blue Nile; although note that different sources offer somewhat different lists because there is no standard procedure for which tributaries count. *Source: "Rivers and lake centerlines" shapefile from Natural Earth (2023).*

2. **Any River**: Equals 1 for grid cells with a river; 0 otherwise. *Source: "Rivers and lake centerlines" shapefile from Natural Earth (2023).*

3. **Minor River**: Equals 1 for grid cells with a river but not a top 10 river; 0 otherwise. *Source: "Rivers and lake centerlines" shapefile from Natural Earth (2023).*

4. **Major Watershed**: Equals 1 for grid cells that contain a major watershed divide; 0 otherwise.[9] The major watersheds in our data are Chad (Lake), Congo, Etosha, Gambia, Kunene, Limpopo, Niger, Nile, Okavango, Orange, Rift Valley, Ruvuma, Senegal, Shebelli - Juba, Volta, and Zambezi. *Source: Constructed by authors using FAO maps of Hydrological basins in Africa from Food and Agricultural Organization of the United Nations (2022), which we cross-referenced with maps from Vivid Maps (2001).*

5. **Top 10 Lake**: Equals 1 for grid cells with any of the 10 largest lakes in Africa; 0 otherwise. Top 10 lakes: Lake Victoria, Tanganyika, Malawi, Chad, Turkana, Albert, Mweru, Tana, Kivu, and Edward. *Source: "Rivers and lake centerlines" shapefile from Natural Earth (2023).*

6. **Any Lake**: Equals 1 for grid cells with a lake; 0 otherwise. *Source: "Rivers and lake centerlines" shapefile from Natural Earth (2023).*

7. **Minor Lake**: Equals 1 for grid cells with a lake but not a top 10 lake; 0 otherwise. *Source: "Rivers and lake centerlines" shapefile from Natural Earth (2023).*

8. **Cell in Desert**: Equals 1 for grid cells that contain any non-vegetated or sparsely vegetated area. *Source: UNESCO Vegetation Map of Africa by White (1983).*

9. **Area of Ethnic Group**: Measured for Murdock ethnic homelands; equals the logged surface area (in 1000s of km^2) of the ethnic homeland located within a grid cell. If multiple groups are located within a cell, we compute the average weighted by the land area of each group in that cell. *Source: Michalopoulos and Papaioannou (2016). Original Source: Global Mapping International, Colorado Springs, Colorado, USA.*

10. **Distance to the Coast**: The shortest geodesic distance of the centroid of each grid cell from the coast, measured in 1000s of km. Calculated by authors in ArcGIS.

11. **Suitability for European Settlement**: Equals 1 for grid cells that contain any amount of an area that was suitable for large-scale European agricultural settlements; 0 otherwise. Suitable areas contain either temperate climate (northern and southern tips of continent), or each of

[9] Watersheds are land ridges that separate water flowing into different rivers. They are sometimes called watershed boundaries or drainage divides.

high rainfall, high elevation, and low tsetse fly prevalence (various parts of the interior of the continent). *Source: Paine (2019).*

12. **Agricultural Intensity**: Measured for Murdock ethnic homelands. Index for the intensity of agriculture practiced by members of the ethnic group; 1: "complete absence of agriculture"; 2: "casual agriculture"; 3: "extensive or shifting cultivation"; 4: "horticulture"; 5: "intensive agriculture on permanent fields"; 6: "intensive cultivation where it is largely dependent upon irrigation." For each grid cell, we use the value for the ethnic group containing the cell. If multiple groups are located within a cell, we compute the average weighted by the land area of each group in that cell. *Source: Murdock (1967); variable* `v28`.

13. **Population Density in 1850**: Population density in 1850 within each grid cell, measured in 1000s/km^2. *Source: Utrecht University (2022).*

14. **Ecological Diversity**: Measured for Murdock ethnic homelands; ecological diversity index ranging between 0 and 1. For each grid cell, we use the value for the ethnic group containing the cell. If multiple groups are located within a cell, we compute the average weighted by the land area of each group in that cell. To fill in missing data points, we compute the index for major lakes not included in Fenske, following his method using White's vegetation data. *Sources: Fenske (2014); White (1983).*

15. **TseTse Suitability Index (TSI)**: The standardized Z-score of the potential steady-state TseTse population, which takes into account temperature and humidity requirements for TseTse viability. The underlying spatial data are a collection of points. We compute the average TSI for the points in each grid cell. Some coastal cells do not contain any points, and we take the value of the nearest point for those cells. *Source: Alsan (2015).*

16. **Contested Coastal Areas**: Equals 1 for grid cells containing any part of a contested coastal area; 0 otherwise. To identify contested coastal areas, we (1) coded colonial claims over natural harbors and precolonial trading posts as of 1887, (2) identified "competing ports," located wherever two neighboring harbors/posts were claimed by different powers, and (3) created rectangular polygons by extending inland at 90°(until reaching 300km from the coast) the line connecting each pair of competing ports. Figure A.2 depicts this variable. *Source: Natural harbors and precolonial trading posts from Ricart-Huguet (2022), which we extended to the entire continent.*

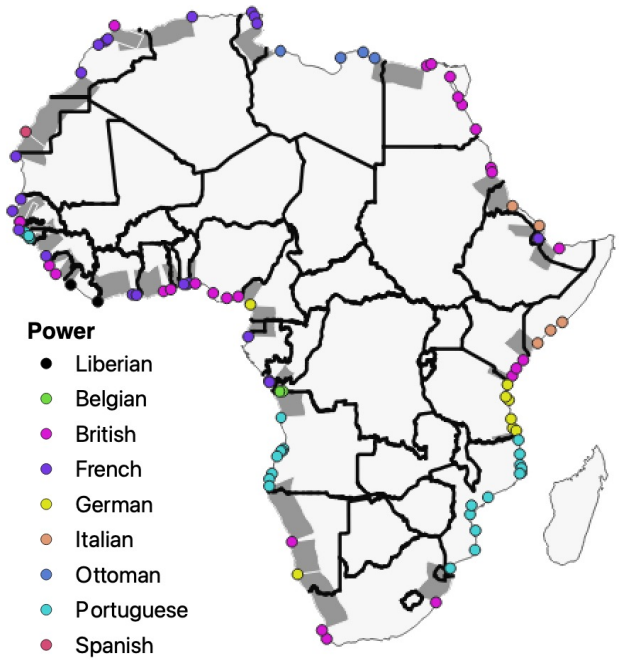
17. **Slave Exports**: Measured for Murdock ethnic homelands; the logged number of slave exports scaled by land area of the ethnic group (log(1+ exports/km^2)). For each grid cell, we use the value for the ethnic group containing the cell. If multiple groups are located within a cell, we compute the average weighted by the land area of each group in that cell. *Source: Nunn (2008).*

18. **Historical Natural Resources**: Equals 1 for grid cells that contain a historical natural resource site; 0 otherwise. *Source: Ricart-Huguet (2022), which we extend to the whole continent.*

19. **Regions**: We constructed five regions based on latitudes and longitudes. North: cells north of 18° N, roughly all areas including and north of the Sahara desert (excludes Sahel); South: cells south of 15° S, roughly all areas south of Lake Malawi; West: cells between 18° N

and 14.5° S and west of 14° E, roughly all areas west of Lake Chad and south of North Africa; East: cells between 18° N and 15° S and east of 14° E, roughly all areas east of Lake Tanganyika that are neither North Africa nor Southern Africa; Central: all remaining cells.

Figure A.2: Contested Coastal Areas (Trading Posts and Natural Harbors)



Note: The colored dots represent precolonial trading posts and natural harbors, and the black lines represent country borders. The gray polygons are the contested coastal areas, as described above. Appendix Table A.5 shows that cells in contested coastal areas are more likely to contain colonial borders.

A.2.2 Regression Tables for Figure 6 and Robustness Checks

Table A.3: Correlates of Precolonial States

	DV: PCS FRONTIER				DV: PCS INTERIOR			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Major (top 10) river	0.04*	0.06**	0.03+	0.05**	0.04*	-0.02	0.02	-0.02
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)
Minor river	0.02**	0.03**	0.03**	0.04**	-0.01	-0.02**	0.00	-0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Major watershed	0.03**	0.03**	0.02*	0.02+	0.04**	0.01	0.04**	0.02*
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Major (top 10) lake	0.12**	0.13**	0.17**	0.18**	-0.07**	-0.07**	0.01	0.02
	(0.03)	(0.03)	(0.04)	(0.04)	(0.02)	(0.02)	(0.02)	(0.02)
Minor lake	0.15**	0.13**	0.13**	0.12**	-0.05**	-0.07**	-0.05**	-0.04**
	(0.02)	(0.02)	(0.02)	(0.03)	(0.01)	(0.01)	(0.01)	(0.01)
Cell in desert	-0.07**	-0.05**	-0.06**	-0.05**	-0.03**	-0.03**	-0.01	-0.05**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Latitude			0.00**	0.00**			0.01**	0.01**
			(0.00)	(0.00)			(0.00)	(0.00)
Longitude			0.00**	0.01**			0.01**	0.01**
			(0.00)	(0.00)			(0.00)	(0.00)
Contested coastal areas			0.06**	0.08**			-0.00	-0.01
			(0.01)	(0.01)			(0.01)	(0.01)
Area of ethnic group			-0.03**	-0.03**			-0.03**	-0.04**
			(0.00)	(0.00)			(0.00)	(0.00)
Distance to the coast			0.01	0.02+			0.01	0.02*
			(0.01)	(0.01)			(0.01)	(0.01)
Historical natural resources			0.01	0.02			0.03+	0.02
			(0.02)	(0.02)			(0.02)	(0.02)
Slave exports			0.00+	0.01**			0.01**	0.01**
			(0.00)	(0.00)			(0.00)	(0.00)
Suitability for			0.01	-0.01			-0.04**	-0.07**
European settlement			(0.01)	(0.01)			(0.01)	(0.01)
Agricultural intensity			-0.00	0.01*			-0.01*	-0.01*
			(0.00)	(0.00)			(0.00)	(0.00)
Population density in 1850			1.36**	1.90*			0.57	0.47
			(0.41)	(0.74)			(0.40)	(0.46)
Ecological diversity			0.02	0.02			0.03+	0.05**
			(0.02)	(0.02)			(0.01)	(0.02)
Tsetse suitability index			-0.02**	-0.03**			-0.03**	-0.05**
			(0.00)	(0.01)			(0.00)	(0.01)
Constant	0.10**	0.10**	0.11**	0.04	0.10**	0.11**	0.10**	0.04+
	(0.00)	(0.00)	(0.02)	(0.03)	(0.00)	(0.00)	(0.02)	(0.02)
Grid cells	10341	7228	9913	6816	10341	7228	9913	6816
Adjusted R^2	0.03	0.02	0.10	0.08	0.01	0.00	0.13	0.14
Sample	Full	SSA	Full	SSA	Full	SSA	Full	SSA
Region FE			✓	✓			✓	✓

Notes: The table reports regression results for correlates of precolonial state formation in Africa. The dependent variables are PCS FRONTIER (Columns 1–4) and PCS INTERIOR (Columns 5–8). "Full" models include all grid cells; Sub-Saharan ("SSA") models are limited to grid cells south of the 18°N parallel. All models are estimated using OLS with robust standard errors in parentheses; we report less conservative standard error estimates than in our main tables to avoid Type II errors, given the goal of identifying correlates of PCS borders that might also affect colonial border formation. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$

Table A.4: Regression Table for Figure 6: Geography (Top Panel)

	DV: COUNTRY BORDER IN CELL							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Any river	0.11**							
	(0.03)							
Major (top 10) river		0.19**					0.18**	0.19**
		(0.06)					(0.06)	(0.06)
Minor river		0.09**					0.08**	0.07**
		(0.03)					(0.03)	(0.03)
Any lake			0.13**					
			(0.04)					
Major (top 10) lake				0.35**			0.34**	0.33**
				(0.09)			(0.09)	(0.09)
Minor lake				0.03			0.01	0.01
				(0.03)			(0.03)	(0.03)
Major watershed					0.10**		0.10**	0.10**
					(0.03)		(0.03)	(0.02)
Cell in desert						-0.07**	-0.04+	-0.03
						(0.02)	(0.02)	(0.02)
Distance to the coast								0.00
								(0.02)
Suitability for European settlement								0.05+
								(0.03)
Tsetse suitability index								0.04**
								(0.01)
Constant	0.13**	0.13**	0.14**	0.14**	0.13**	0.18**	0.12**	0.13**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.04)
Grid cells	10341	10341	10341	10341	10341	10341	10341	10341
Adjusted R^2	0.02	0.02	0.01	0.01	0.01	0.01	0.04	0.06
Lat & Lon								✓

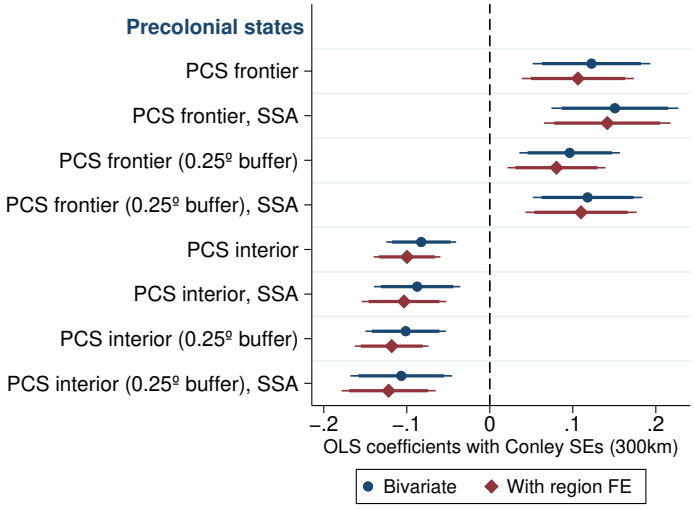
Notes: This regression table accompanies the top panel of Figure 6. All models are estimated using OLS with Conley standard errors in parentheses (distance cutoff = 300 km). $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$

Table A.5: Regression Table for Figure 6: Precolonial States (Bottom Panel)

	DV: COUNTRY BORDER IN CELL							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
PCS frontier	0.10**				0.12**			
	(0.03)				(0.04)			
PCS frontier (0.25° buffer)		0.07*				0.09**		
		(0.03)				(0.03)		
PCS interior			-0.09**				-0.09**	
			(0.02)				(0.03)	
PCS interior (0.25° buffer)				-0.11**				-0.11**
				(0.02)				(0.03)
Major (top 10) river	0.20**	0.20**	0.20**	0.20**	0.22**	0.22**	0.22**	0.22**
	(0.06)	(0.06)	(0.06)	(0.06)	(0.07)	(0.07)	(0.07)	(0.07)
Minor river	0.07*	0.07*	0.07**	0.07**	0.07**	0.07**	0.08**	0.08**
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Major (top 10) lake	0.29**	0.28**	0.30**	0.30**	0.29**	0.28**	0.31**	0.31**
	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)
Minor lake	0.00	0.01	0.01	0.01	-0.00	0.00	0.01	0.01
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Major watershed	0.09**	0.09**	0.10**	0.10**	0.10**	0.10**	0.10**	0.10**
	(0.03)	(0.03)	(0.02)	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)
Cell in desert	-0.02	-0.02	-0.03	-0.03	-0.04	-0.04	-0.05+	-0.05+
	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)
Contested coastal areas	0.09**	0.09**	0.09**	0.09**	0.08*	0.08*	0.08**	0.08**
	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)
Ethnic group border in cell	0.01	0.01	0.01	0.02+	0.01	0.01	0.01	0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Area of ethnic group	-0.01	-0.01	-0.01	-0.01	-0.01	-0.00	-0.01	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Distance to the coast	0.03	0.03	0.03	0.03	0.01	0.01	0.02	0.02
	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)
Historical natural resources	-0.05*	-0.06*	-0.05*	-0.05*	-0.06+	-0.06*	-0.05+	-0.06+
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Slave exports	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
	(0.00)	(0.00)	(0.01)	(0.01)	(0.00)	(0.00)	(0.01)	(0.01)
Suitability for European settlement	0.05	0.05	0.04	0.04	0.05+	0.06+	0.05	0.05
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Agricultural intensity	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Population density in 1850	-0.84*	-0.81*	-0.66*	-0.66*	-1.26*	-1.23+	-0.98	-0.99
	(0.34)	(0.34)	(0.31)	(0.31)	(0.63)	(0.65)	(0.65)	(0.65)
Ecological diversity	-0.07	-0.07	-0.06	-0.07	-0.10*	-0.10*	-0.10+	-0.10+
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Tsetse suitability index	0.04**	0.04**	0.04**	0.04**	0.04**	0.04**	0.03**	0.03**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Constant	0.14*	0.13*	0.15*	0.15*	0.18*	0.18*	0.19**	0.19**
	(0.06)	(0.06)	(0.06)	(0.06)	(0.07)	(0.07)	(0.07)	(0.07)
Grid cells	9913	9913	9913	9913	6816	6816	6816	6816
Adjusted R^2	0.07	0.07	0.07	0.07	0.09	0.08	0.08	0.08
Sample	Full	Full	Full	Full	SSA	SSA	SSA	SSA
Region FE	✓	✓	✓	✓	✓	✓	✓	✓
Lat & Lon	✓	✓	✓	✓	✓	✓	✓	✓

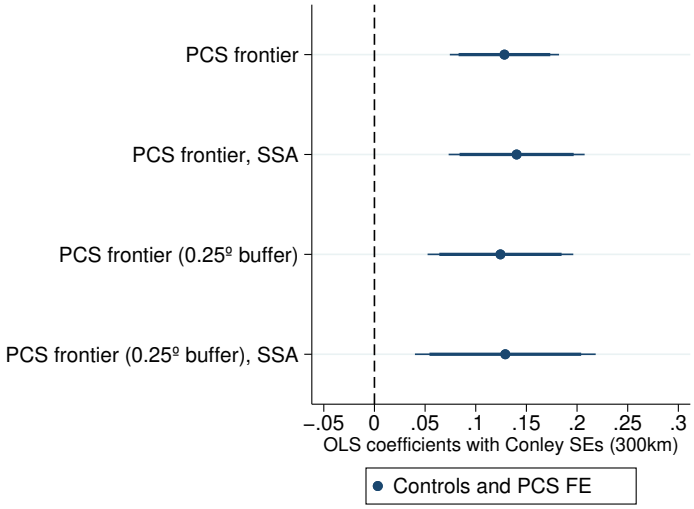
Notes: This regression table accompanies the bottom panel of Figure 6. All models are estimated using OLS with Conley standard errors in parentheses (distance cutoff = 300 km). "Full" models include all grid cells; Sub-Saharan ("SSA") models are limited to grid cells south of the 18°N parallel. This table contains fewer observations than Table A.4 because Agricultural intensity contains missing values. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$

Figure A.3: Precolonial States and African Borders without Controls



Notes: This figure presents a series of coefficient plots similar to those in the bottom part of Figure 6, but without the battery of control variables. See Table D.1 for the corresponding regression table.

Figure A.4: Correlates of African Borders with PCS FE



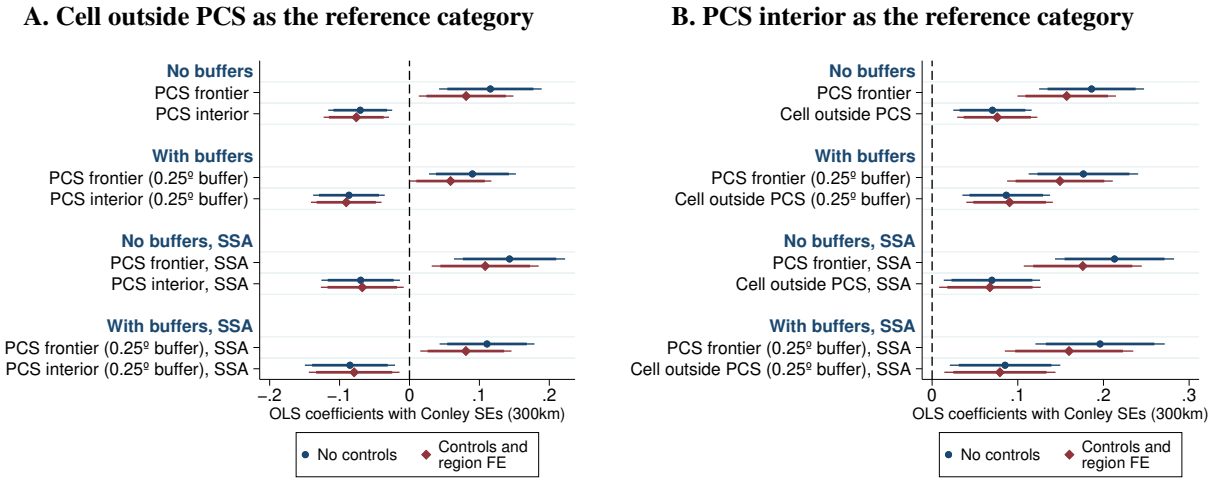
Notes: This figure presents coefficients from models that add fixed effects for PCS to the specification. Using PCS FE causes cells outside PCS to drop and essentially compares cells with PCS borders to cells inside PCS while stratifying on the PCS, which guards against any source of omitted variable bias common to each PCS. Table D.2 provides the accompanying regression table.

A.2.3 Changing the PCS reference category

Our theoretical expectations are that PCS frontier cells should more frequently contain a colonial border compared to any other cells, and that PCS interior cells should less frequently contain a colonial border compared to any other cells. In the article, we discuss specifications that include one PCS indicator at a time, therefore leaving as the reference category cells with either the other PCS category or without a PCS.

In Figure A.5, we present results with more homogeneous basis categories. In Panel A, the model includes both PCS FRONTIER and PCS INTERIOR as regressors, which leaves CELL OUTSIDE PCS as the reference category. In Panel B, the model includes both PCS FRONTIER and CELL OUTSIDE PCS as regressors, which leaves PCS INTERIOR as the reference category.[10] This robustness check demonstrates that the significance of the PCS coefficients in Figure 6 is not driven by a particular way of specifying the reference category. Panel A demonstrates that PCS frontier cells are significantly more likely to contain a colonial border, and PCS interior cells significantly less likely, compared to non-PCS cells. Panel B demonstrates that both PCS frontier and non-PCS cells are significantly more likely to contain a colonial border, compared to PCS interior cells.

Figure A.5: Correlates of African Borders with both PCS Variables



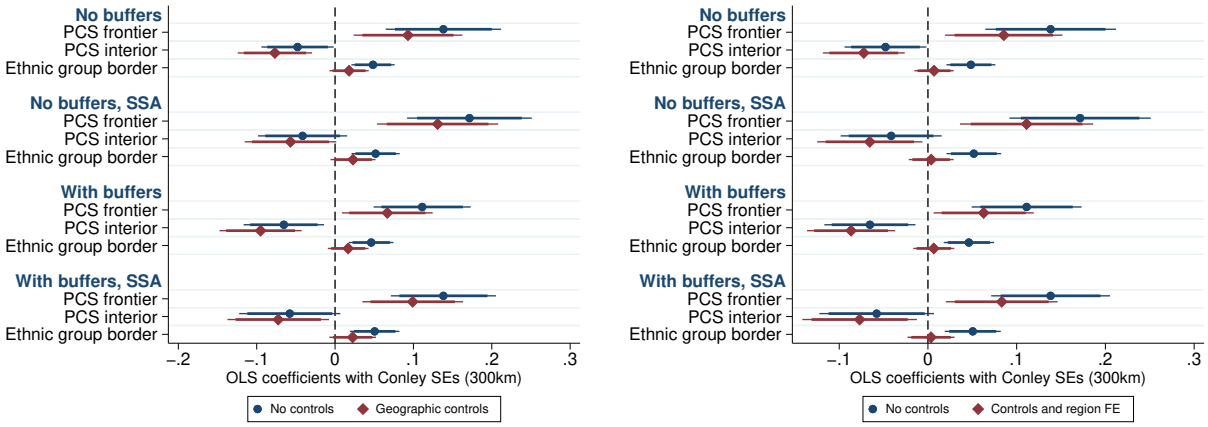
Notes: This figure presents a series of coefficient plots similar to Figure 6, but each model contains two PCS regressors. This yields a reference category of CELL OUTSIDE PCS in Panel A and PCS INTERIOR in Panel B. Tables D.3 and D.4 provide the accompanying regression tables.

We directly incorporate ethnic homeland boundaries in another set of robustness checks. We distinguish cells outside PCS into (a) those that contain the boundaries of a Murdock ethnic homeland (ETHNIC GROUP BORDER $=1$), and (b) those that do not (PCS FRONTIER $=$ PCS INTERIOR $=$ ETHNIC GROUP BORDER $=0$). The models in Figure A.6 control for all of PCS FRONTIER, PCS INTERIOR, and ETHNIC GROUP BORDER, which leaves as the reference category cells that contain neither a PCS nor a Murdock ethnic boundary. The left panel reports models with either (a) no controls or (b) geographical covariates only. The right panel reports models with either (a) no controls

[10] A third panel with PCS FRONTIER as the reference category would yield identical information as in these two plots.

or (b) the full set of covariates and region FE. Cells with ETHNIC GROUP BORDER $= 1$ are positively associated with international borders in the bivariate specifications, but this correlation is not robust to adding either geographic or all covariates. This suggests that the frontiers of decentralized groups did not systematically affect colonial borders, although we caution that this specification is difficult to interpret because of the incongruity between our polygons and Murdock's.

Figure A.6: Correlates of African Borders with PCS Variables and Ethnic Borders



Notes: This figure presents a series of coefficient plots similar to Figure 6, but with three indicator variables: PCS FRONTIER, PCS INTERIOR, and ETHNIC GROUP BORDER. This leaves as the reference category cells that contain neither any portion of a PCS nor a Murdock ethnic boundary. Table D.5 provides the accompanying regression table.

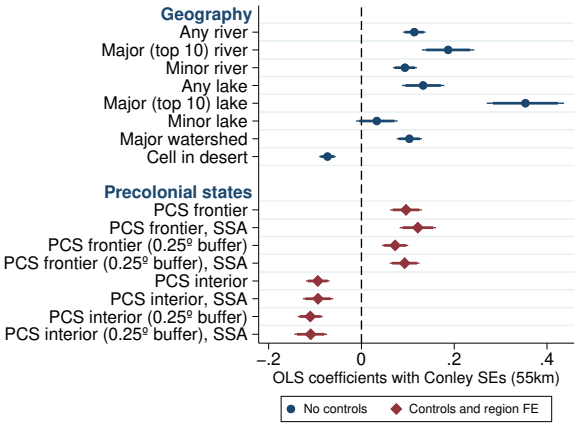
A.2.4 Spatial Dependence and Conley Standard Errors

Spatially proximate units may be highly correlated in their unobservables; but, as the distance increases, the correlation gradually dissipates. In our analysis, any cell proximate to a cell containing a country border is itself highly likely to contain a country border. Conley standard errors, which we use in all specifications, account for such spatial dependence. This method adjusts the variance-covariance matrix by incorporating information about the spatial distance between observations. To compute the variance-covariance matrix, the method uses a uniform kernel function to weight pairs of observations such that the weight equals 1 if two observations are within a specified distance threshold, and 0 otherwise. The kernel function thus distinguishes between observations that are near and those that are far. The choice of the cutoff distance affects the standard error estimates; in Figure A.7, we verify that our results are robust to various distance thresholds.

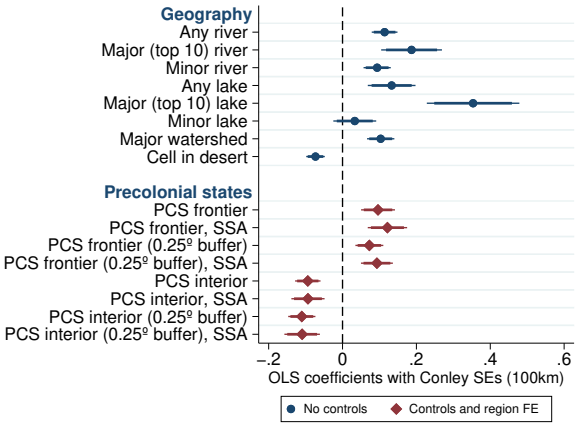
One assumption inherent to calculating Conley SEs that cannot, formally, be relaxed is uniform spatial dependence. That is, the covariance measure depends on distance but not direction. This assumption might be violated because our outcome and main explanatory variables are lines. For example, if a country border is horizontal in a cell, then the cells north and south of it are less likely to contain a border than cells west and east of it. We address this possibility in two ways.

Figure A.7: Correlates of African Borders with Various Distance Cutoffs

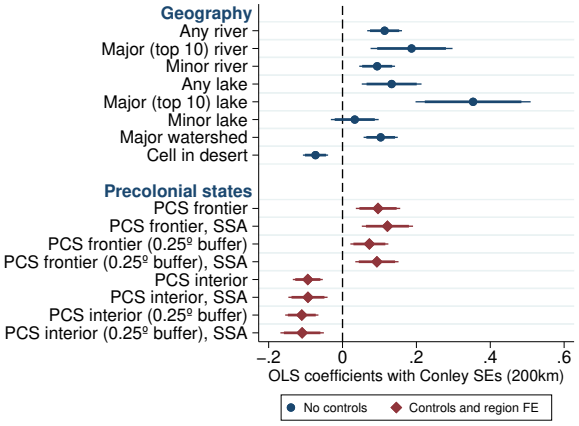
A. Distance Cutoff = 55km



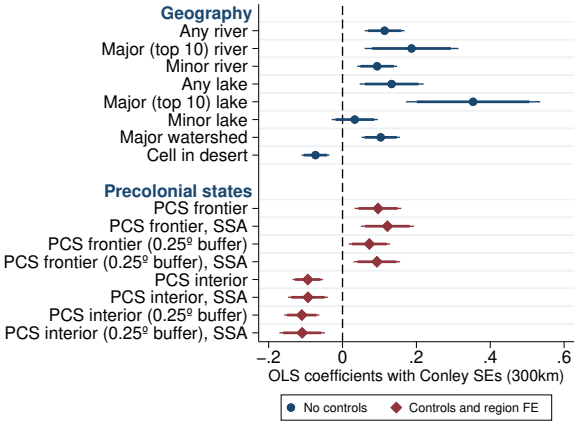
B. Distance Cutoff = 100km



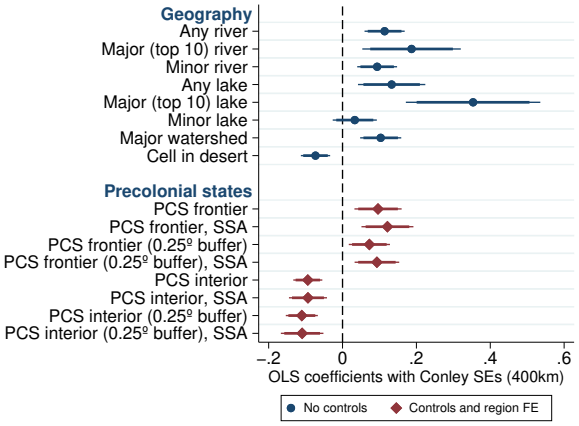
C. Distance Cutoff = 200km



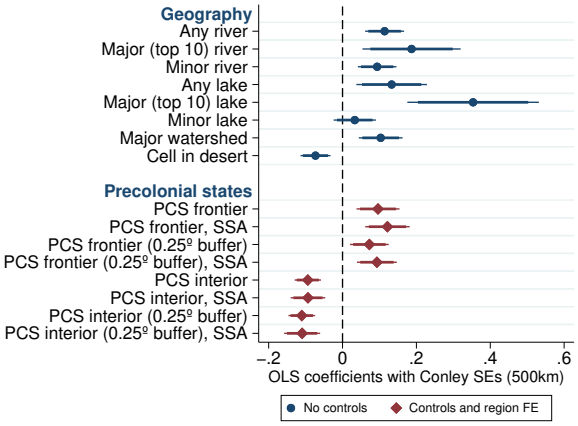
D. Distance Cutoff = 300km



E. Distance Cutoff = 400km



F. Distance Cutoff = 500km

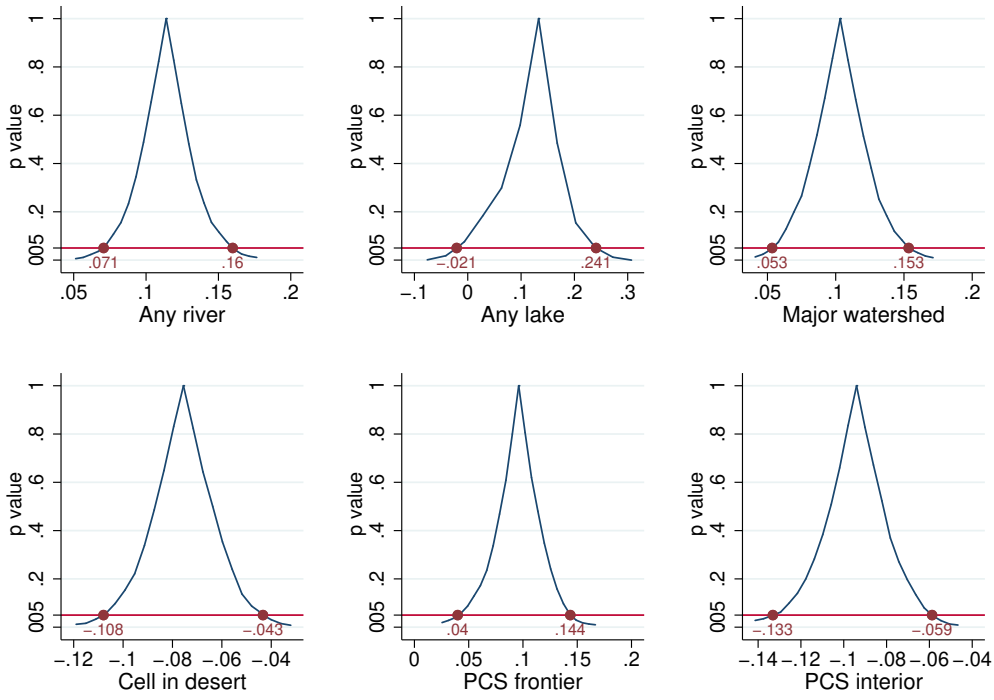


Notes: This figure presents a series of coefficient plots similar to Figure 6, but with varying distance cutoffs for the Conley standard errors. The coefficient estimates are unchanged from Tables A.4 and A.5.

First, if violations of uniform spatial dependence within a given radius have a significant impact, then standard error estimates should vary drastically upon varying the radius. However, as shown in Appendix Figure A.7, this is not the case. Our results are qualitatively unchanged for any distance cutoff ranging from 55km, capturing a single neighboring cell, up to 500km, which corresponds with large tracts of territory.

Second, as an alternative to Conley standard errors, we perform a robustness check in which we cluster our observations by artificially constructed rectangular regions, as neighboring cells may be related in many ways. Technically, the off-diagonals in the variance-covariance matrix are unlikely to be 0 for spatially proximate grid cells. We are conservative and create large clusters of roughly 10ºx10º (roughly 550 km at the equator). We compute standard errors using the wild bootstrap, a method designed "for regression models with heteroskedasticity of unknown form" with a small number of large clusters (Roodman et al. 2019, 1), which applies to our case. This allows us to relax the uniform spatial dependence assumption and account for flexible forms of spatial correlations among neighboring cells.

Figure A.8: Confidence Curves Using Wild Cluster Bootstrapped Standard Errors



Notes: This figure presents wild cluster bootstrapped standard errors at the 95% level for geographical and PCS variables of theoretical interest. The coefficient estimates are unchanged from Tables A.4 and A.5.

Figure A.8 presents the 95% confidence set for each of the main explanatory variables in Figure 6.[11] For example, our main model in Table A.5 estimates a coefficient of 0.10 for PCS FRONTIER. Figure A.8 shows that the 95% confidence set for PCS FRONTIER encompasses a range of 0.07

[11]The confidence set consists of the range of coefficient estimates for which the bootstrapped p-value for the test of the null is equal to or greater than 0.05.

to 0.16, and hence all values have the same sign. For five of the six variables, the coefficient estimates contained within the 95% confidence set have the same sign; this is true also for ANY RIVER, WATERSHED, CELL IN DESERT, and PCS INTERIOR. Only for ANY LAKE does the edge of the confidence contain negative values (for a positively estimated coefficient). Overall, our main results are robust to alternative ways of modeling spatial dependence.

A.2.5 Oster Bounds

We assess the likelihood that unobserved confounding variables account for the effect of precolonial states. Oster's (2019) test computes the share of variation that unobservables would need to explain, relative to the observables included in the model, in order to reduce the coefficient of interest to zero. This share is denoted by δ. For instance, $\delta = 2$ indicates that unobservables would need to be twice as important as observables for the coefficient to be zero (Oster 2019, 195).

The implementation of the Oster (2019) test requires specifying a value of R^2_{max}, which denotes the R^2 from a hypothetical regression that included both observed and unobserved controls. For example, $R^2_{max} = 1.5R^2$ means that including unobservables would increase the observed R^2 by 50%.

To bias against our results, and because our setting is observational, we use very large values of R^2_{max}: 1.5, 2, and 3 (Oster 2019 uses 1.3 in her article). That is, we assume that our R^2 could be up to three times as large due to unobserved confounders even though all models in Table A.6, just as in Figure 6, already include a battery of controls and region fixed effects.

Table A.6 shows that our main explanatory variables in Figure 6 (PCS frontier and PCS interior) are very robust to unobservables. We observe that $\delta > 1$ even when $R^2_{max} = 3R^2$.

We also calculate the bounds on the effect of each variable (β) on the likelihood of having a country border in that cell assuming $\delta = 1$ (that is, assuming that unobservables explain as much variation as observables). The range excludes 0 for all values of R^2_{max}. The two results convey the same idea: unobservables would need to be more than three times as important as observables for the effect of our main explanatory variables to become zero.

Table A.6: Assessing Possible Bias from Unobservables

PCS frontier	$R^2_{max} = 1.5R^2$ $= 0.11$	$R^2_{max} = 2R^2$ $= 0.15$	$R^2_{max} = 3R^2$ $= 0.23$
δ (unobservables/observables)	4.15	2.22	1.15
Bounds on β (for $\delta = 1$)	(0.10, 0.08)	(0.10, 0.06)	(0.10, 0.02)

PCS interior	$R^2_{max} = 1.5R^2$ $= 0.11$	$R^2_{max} = 2R^2$ $= 0.15$	$R^2_{max} = 3R^2$ $= 0.23$
δ (unobservables/observables)	49.31	26.16	13.49
Bounds on β (for $\delta = 1$)	(-0.09, -0.10)	(-0.09, -0.11)	(-0.09, -0.13)

Notes: The bounds are (β, β'), where β is the effect estimated from the main regression model and β' is the effect with $\delta = 1$ and the value of R^2_{max} specified in the column.

A.3 Supporting Information for Ethnic Partition Regressions

We conducted supplementary regressions using ethnic groups as the unit of analysis. We also discuss the important shortcomings of using the Murdock data for assessing the relationship between precolonial states and ethnic partition.

A.3.1 Data and Results

Data and models. We largely follow Michalopoulos and Papaioannou's (2016) setup for assessing the correlates of ethnic partition. They identify partitioned groups using Murdock's Ethnolinguistic Map (1959), digitized by Nunn (2008), which describes and geolocates ethnic groups in Africa at the time of European colonization. The sample consists of 825 ethnic homelands, after dropping uninhabited areas and small islands. Given inevitable error in the Murdock-drawn ethnic homeland boundaries, Michalopoulos and Papaioannou code as partitioned any group for which at least 10% of its territory falls into more than one country. We additionally coded, for each partitioned group, whether the border segment that split the group was primarily squiggly or a straight line (following the conceptual distinction in Alesina, Easterly and Matuszeski 2011).

Our measure of precolonial states is PCS MURDOCK. This variable equals 1 for any ethnic group that scores three levels of authority beyond the village or higher on Murdock's jurisdictional hierarchy variable, which he refers to as "states." Given our theoretical expectation that only the homelands of large and centralized groups created focal zones for Europeans to draw borders, a binary variable for precolonial states is easier to interpret than the original ordinal measure commonly used in the literature. However, we verified in unreported regressions that the results are qualitatively similar when using the same ordinal measure as Michalopoulos and Papaioannou (2016).

For geography, we measure whether each ethnic homeland contains ANY RIVER (the same measure used in Michalopoulos and Papaioannou 2016);[12] and, following the scheme used in our main analysis, we disaggregate rivers into TOP 10 RIVER and MINOR RIVER. Similarly, we measure whether an ethnic homeland contains ANY LAKE, TOP 10 LAKE, and MINOR LAKE; or MAJOR WATERSHED. Finally, we include the percentage of desert area for each ethnic homeland, SHARE OF DESERT.

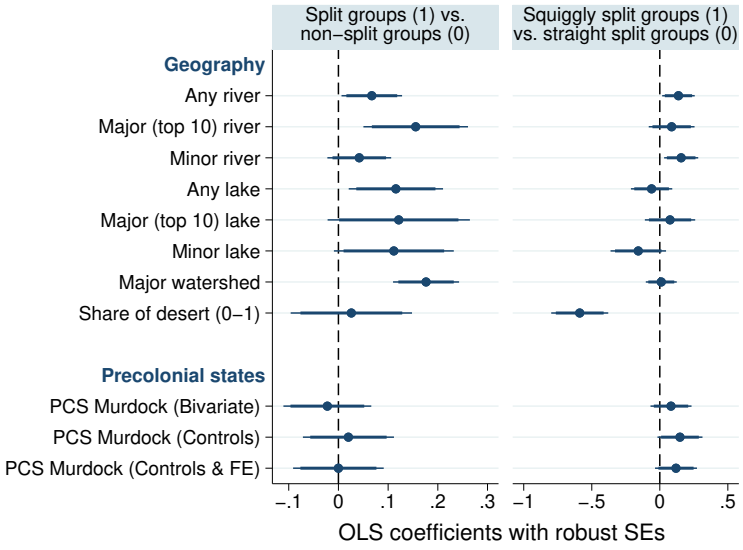
We use the same set of covariates as for our main grid-cell regressions. In Appendix A.2.1, we provide descriptions for how we measure the variables for each grid cell, and we perform the same procedure for every ethnic group. In some cases, the variable is already measured at the level of ethnic homelands, in which case we use that value verbatim.

In Figure A.9, we present coefficient plots for a series of models estimated using OLS, which examine geographical and precolonial-state correlates of ethnic group partition.[13] The left panel compares ethnic groups split across international borders with non-split groups. The right panel compares groups split by a squiggly border with those partitioned by a straight line. Across the entire sample, 229 of the 825 ethnic groups (28%) are partitioned across multiple countries. In 78% of the 229 split groups, a majority of the border is squiggly.

[12] Note that we use the same spatial data for water bodies as in Michalopoulos and Papaioannou (2016).

[13] The estimating equations are similar to Equations 1 and 2 presented in the article.

Figure A.9: Correlates of Ethnic Partition



Notes: This figure summarizes a series of OLS estimates with explanatory variables in rows and the dependent variables in columns. It presents point estimates and both 95% and 90% confidence intervals calculated with robust standard errors. Left panel: 229 split groups and 596 non-split groups. Right panel: 178 squiggly-split groups and 51 straight-split groups. The top panel shows estimates for geographic variables. The disaggregated rivers and lakes regressions include controls for both major/minor. Other models in the top panel are bivariate. The bottom panel presents three estimates for precolonial states: bivariate, the same set of control variables from the grid cell analysis, and those plus region FE. PCS MURDOCK, which is coded from Murdock's jurisdictional hierarchy variable, has 69 missing values, causing 69 observations to drop in the left panel and 9 observations to drop in the right panel. Tables D.6 and D.7 provide accompanying regression tables.

Results for geography. The top panel of Figure A.9 presents estimates for geographic variables. Most specifications are binary, although we include (a) major and minor rivers in the same model, and (b) major and minor lakes in the same model. Visible geographic focal points—rivers, lakes, and major watersheds—covary with an elevated likelihood of ethnic group partition, consistent with our theoretical expectations. Ethnic homelands containing a river or a lake are more likely to be partitioned: 31% of groups with any river in their territory were partitioned compared to 24% among groups lacking this feature, and the figures are similar for lakes (38% vs. 26%). The effect of river on partition is primarily driven by major rivers as opposed to minor ones: 40% of groups with a top 10 river were partitioned compared to 28% among groups with only minor rivers in their territory. Major watersheds affect the likelihood of partition: 39% of groups with a major watershed in their territory were partitioned compared to 22% among groups without a major watershed. Rivers also affect the *type* of partition. The presence of any river increases the likelihood of a squiggly split (80% versus 66% otherwise). Lakes, on the other hand, do not affect the type of split. Unlike inherently squiggly river borders, some international borders involving lakes follow the squiggly median line between shores (e.g., Lake Tanganyika) whereas others cut across the lakes with straight lines (e.g., Lake Victoria), leading to a null aggregate effect. Overall, the statistical results suggest that water bodies influenced border formation.

As expected, an ethnic group's percentage of desert area does not affect the likelihood of partition.

However, a larger desert area increases the likelihood of ethnic partition via a straight-line border. This supports our expectation that Europeans drew more haphazard borders where population density and strategic interests were low.

Results for precolonial states. The bottom panel of Figure A.9 shows results for PCS MURDOCK. We first present the bivariate result. Since PCS MURDOCK is endogenous, next we control for the same set of geographic and other covariates used in the grid cell analysis. Finally, we control for region fixed effects to compare groups within similar regions of Africa.

In our main analysis with grid cells, we demonstrate that precolonial states are less likely to be partitioned. We do not replicate this finding with Murdock ethnic groups. The coefficients for PCS MURDOCK on the left panel are close to 0 and insignificant. Furthermore, the raw magnitudes are small: 27% of groups with PCS MURDOCK=1 were partitioned compared to 29% with PCS MURDOCK=0. The coefficients on the right panel are positive but statistically insignificant, failing to confirm that PCS MURDOCK affects the type of split.

A.3.2 Shortcomings of the Murdock Data

The Murdock data are too noisy to provide a valid assessment of the relationship between precolonial states and partition. This helps to account for why the correlation is strong when using our original data but null correlations when using Murdock. We critique the Murdock jurisdictional hierarchy variable on two grounds: (1) Murdock's jurisdictional hierarchy variable exhibits substantial *measurement error*, and (2) ethnic groups exhibit a *conceptual mismatch* with the spatial reach of historical states.

Table A.7: Partitioned Ethnic Groups with Precolonial States: Murdock

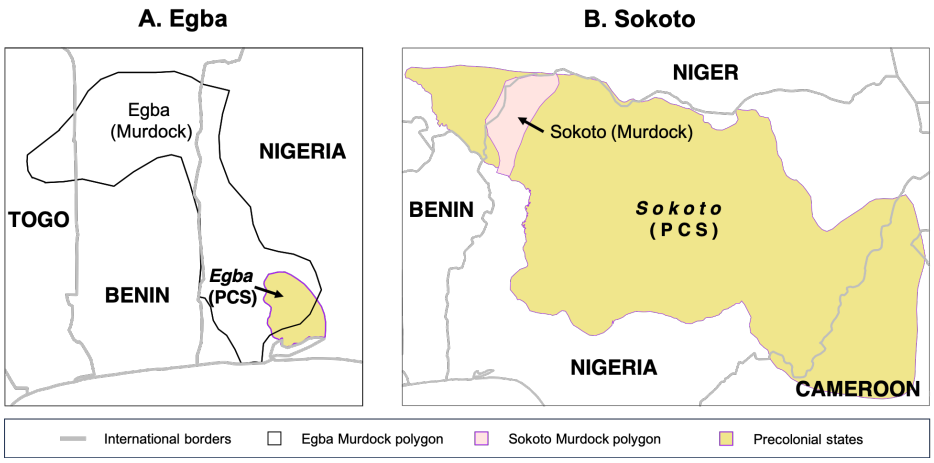
Murdock group	Country	Our assessment		Murdock group	Country	Our assessment
Delim	Western Sahara	Not a state		Regeibat	Mauritania	Not a state
Esa	Somalia	Not a state		Ronga	Mozambique	Not a state
Fon	Benin	Not partitioned (Dahomey)		Ruanda	Rwanda	Not partitioned
Gil	Morocco	Not a state		Rundi	Burundi	Not partitioned
Hamama	Tunisia	Not a state		Runga	Chad	Not a state
Hiechware	Botswana	Not a state		Songhai	Mali	Not a state
Imragen	Western Sahara	Not a state		Sotho	South Africa	Agree
Ishaak	Somalia	Not a state		Subia	Namibia	Not a state
Jerid	Tunisia	Not a state		Swazi	Swaziland	Agree
Kgatla	South Africa	Not a state		Tabwa	DRC	Not a state
Mandara	Nigeria	Not a state		Tama	Sudan	Not a state
Manga	Niger	Not a state		Tienga	Nigeria	Not a state
Masalit	Sudan	Not a state		Tlokwa	South Africa	Not a state
Mashi	Zambia	Not a state		Tripolitanians	Libya	Not a state
Mpezeni	Zambia	Not a state		Tunisians	Tunisia	Not partitioned
Popp	Benin	Not a state		Wakura	Nigeria	Not a state

Notes: This table lists every ethnic group for which (a) Murdock codes a jurisdictional hierarchy score of 3 or above, and (b) Michalopoulos and Papaioannou (2016) code the group as partitioned. We report the primary country to which the group belonged using the information from Michalopoulos and Papaioannou (2016).

Measurement error. The null relationship shown above between Murdock states and ethnic partition *almost entirely reflects measurement error in the data*. To show this, in Table A.7, we sample every "positive-positive" case from the regressions presented above, that is, every case with PCS MURDOCK=1 and the ethnic group is partitioned according to the criterion in Michalopoulos and Papaioannou (2016). For only two of the 32 cases do we agree that (a) members of the ethnic group created centralized political institutions and (b) the core area of the historical state was partitioned across international borders. To make this assessment, we compared the Murdock groups with high jurisdictional hierarchy scores to the PCS list used for our main analysis, concluding that 26 of these ethnic groups did not belong to historical states. Among the few remaining groups that met our PCS criteria, we assessed that only two of the six corresponding states were partitioned in the sense that core areas of the state were divided across colonial borders (Appendix B provides details on the frontiers of every PCS in our data set).

Conceptual mismatch. Ethnic group is not a valid unit of analysis for measuring precolonial African states. Typically, even where states existed, the ethnic homeland was geographically larger (and thus subject to partition even if the core state(s) were not); and some states comprised territory settled by multiple ethnic groups. We illustrate these points with two examples. Panel A of Figure A.10 presents the Murdock polygon for Egba in white and ours in yellow. As we discuss in Appendix B, we incorporate the historical state governed by the Alake of Egba; as we note, if anything, our polygon is too big. But, assuming Murdock's assessment of the Egba homeland is correct, by measuring the location of ethnic groups rather than states, using his polygon yields a false positive when assessing whether the historical state was partitioned. This case highlights two additional problems with the Murdock. First, Murdock codes Egba as two levels of political hierarchy above the village level, that is, a paramount chieftaincy rather than a state. However, historical sources argue that Egba was the most powerful state to emerge in Yorubaland following the collapse of the Oyo Empire early in the nineteenth century (see Appendix B). Second, Murdock's Egba polygon is undoubtedly too large even given the goal of measuring ethnic groups (see the map in Forde 1951).

Figure A.10: Comparing Murdock Polygons



Panel B examines the Sokoto Caliphate. Our polygon is much bigger and corresponds with the

extent of the historical state. This is an odd entry in Murdock. The Sokoto Caliphate was governed by ethnic Fulani, and many of the new emirates in the north displaced historical Hausa states. Sokoto was a state, not an ethnic group, and thus should not appear in his data set at all. Furthermore, his Sokoto polygon corresponds roughly with the Sokoto emirate only, not the entire empire. Finally, and strangely, Murdock incorrectly codes Sokoto as exhibiting only one level of hierarchy above the village level. In sum, in both this and the Egba case, even if we correct the jurisdictional hierarchy score, the Murdock polygon is too inaccurate to use for empirical analysis.

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B Digitizing Precolonial States

B.1 Constructing a PCS List

We use the seven regional maps of continental Africa in Ajayi and Crowder (1985) to create a list of candidate precolonial states (PCS). To determine which candidates to code as PCS, we began by consulting three continent-wide lists of precolonial African states: Stewart (2006), Paine (2019), and Butcher and Griffiths (2020).

- We counted as PCS any polity listed as a state in all three sources: Asante, Benin, Borno, Buganda, Bunyoro, Burundi, Cayor, Dahomey, Darfur, Ethiopia, Futa Jalon, Jolof, Kazembe, Lesotho, Luba, Lunda, Nkore, Rwanda, Sokoto, Wadai, Walo, and Zulu.
- We did not count as PCS any polity that none of the three sources identify as a state.
- For other polities identified in the Ajayi and Crowder maps, at least one but not all three sources listed it as a state. We consulted additional sources to assess which to count as PCS. Paine (2019) provides a detailed case-by-case appendix that helps to adjudicate some disputed cases. Based on his notes, we code the following as PCS: Bemba, Bundu, Kasanje, Lozi, Ndebele, Porto Novo, Salum, and Sine.
- Paine's (2019) notes demonstrate that the following groups had decentralized polities, and thus we do not count them as PCS: Ovimbundu, Tio, and Zande.
- We count Egypt, Morocco, and Tunis as PCS. These were unambiguously states, and they are omitted in one source, Paine (2019), because he includes only Sub-Saharan Africa.
- We do not count as PCS any state that originated after 1850. Some later states emerged as reactions to early European colonization and their "precolonial" boundaries were affected by military engagements with Europeans, e.g., Mahdist state, Samori, and Tukulor (Crowder 1971). Other later states were essentially personalist fiefdoms with "porous and intrinsically unstable" institutions and constantly shifting borders, such as Msiri, Tippu Tip, and Mirambo (Reid 2012, 116–18).

For the remaining cases, we provide brief notes to justify our coding choice (all of which we code as PCS except Adamawa, Calabar, Other Christian Ethiopian states, and Unyanyembe):

- Adamawa: This was not an independent state. Instead, it was founded as an emirate within the Sokoto Caliphate in 1806 (Hogben and Kirk-Greene 1966, 428–46; Stewart 2006, 7).
- Borgu: There were several main states of the Bariba people, including Bussa, Nikki, and Kaiama. Whether these states were unified or autonomous is uncertain (Crowder 1973, 19–43). In the 1890s, the British and French each sent expeditions in an attempt to claim as much territory as possible (see Appendix C.3.8). Overall, it is clear that these polities were states in the sense of having ruling dynasties and control beyond the village level.
- Calabar: The polygon from Ajayi and Crowder is Old Calabar, centered at Duke Town (modern-day Calabar), in contrast to New Calabar. The latter is the entry in Stewart (2006), the only source that mentions this polity, and hence no sources list the Ajayi and Crowder

polygon of Calabar as a state. For background on precolonial polities in the Niger Delta, see Dike (1956); Jones (1963); Anene (1966).

- Dagomba: The ruling dynasty dated back to the fourteenth century, although the state became tributary to the Asante between the 1740s and 1874. We code this as a PCS because the ruling dynasty survived through 1874 and afterwards (Stewart 2006, 68). Manoukian (1952) and Owusu-Ansah (2014, 88) provide details on political institutions.

- Damagaram: "Powerful precolonial state centered around Zinder and encompassing the current southeastern corner of Niger ... Damagaram eventually controlled eighteen chieftainships and emerged as the dominant power north of Kano ... It remained independent of Fulani control during the Fulani jihad and even lent assistance to other Hausa elements driven out of their lands, helping found Maradi" (Decalo 1997, 108–9). Although nominally a vassal state of Borno, Damagaram was de facto independent. Following a civil war in Borno over a disputed leadership succession in the mid-nineteenth century, "the tendency on the part of vassal Zinder to assert its independence and even to dominate the outlying principalities of Munio, Gummel and Machena gathered momentum ... Zinder and the north-western vassal state practically ceased to have any political relations with Kukawa" (Anene 1970, 259–60). Lefèbvre (2015, 96) discusses the entry fees that caravanners paid in return for freedom of movement. See also Hiribarren (2017).

- Futa Toro: Ruling dynasties in this area date back to at least the end of the fifteenth century. A jihad defeated the Denianke dynasty in 1776 and established an Imamate that lasted until France's military conquest in the 1860s. Suret-Canale and Barry (1971) provide details on pre-jihad political institutions; and the appendix for Wilfahrt (2018) provides additional sources.

- Gaza: Military leader Soshangane consolidated a ruling dynasty in the 1830s. The territorial reach of the state shifted over time, as Soshangane's grandson Ngungunhane "succeeded to the throne [in 1884], moving the capital southward to Manjacaze in what is now Gaza province, closer to Portuguese centers of power" (Darch 2018, 171).

- Gobir: Historical Hausa state. Extensive fighting with Sokoto in the early nineteenth century caused it to move its capital several times, although its king list persisted (Stewart 2006, 112; Cahoon n.d.). Sometime between 1835 and 1860, "Gobir's independence was reasserted at Tibiri" (Decalo 1997, 153), which corresponds with the polygon in Ajayi and Crowder (1985). A dissent faction seceded in 1860 that was "eventually conquered by the legitimate forces of Gobir in Tibiri" in the early twentieth century (Decalo 1997, 153).

- Igala. Located in the Niger-Benue confluence, the *Ata* (divine king) sat atop a hierarchy of officials. Armstrong (1955, 86-8) provides details on Igala institutions.

- Mossi. There were four main Mossi kingdoms (Zahan 1967), including Ouagadougou, the entry in Butcher and Griffiths (2020).

- Other Christian Ethiopian states: A&C's maps for Northeast Africa list various pre-1890s states. For reasons described below in the Ethiopia entry, we include only Ethiopia in our data set.

- Swazi: The Swazi people were organized under a single state in 1770, also known as the Dlamini kingdom. Kuper (1963) provides details on their political institutions.
- Unyanyembe: Not coded as PCS. Discussions of Unyanyembe in existing research focus mainly on Mirambo, the warlord who created a brief empire in modern-day Tanzania (we do not code his polity as a state given our criterion of including only states formed before 1850). Oliver and Atmore (2005, 90–96) and Stewart (2006, 160) provide details.
- Yoruba states (Egba, Ibadan, Ijebu, Oyo): See the description in the Yoruba entry below. All four are coded as PCS.

B.2 Coding Notes on PCS Polygons

We digitized numerous historical maps, which enabled us to georeference a set of African precolonial states in ArcGIS. Most polygons are based on the maps from Ajayi and Crowder (A&C; 1985), and for each we consulted at least one verification map. In some cases, we deemed that the A&C map missed important details, and digitized the verification map instead. To the extent possible, we use maps that capture African states on the eve of colonization, that is, roughly between the 1850s and the 1880s, depending on the region.

To maximize accuracy when georeferencing precolonial states, we used shapefiles of geographic features, such as rivers, lakes, coastlines, towns, and cities. For most maps, we used about ten control points for digitization, although the exact number depended on how easily the digitized image mapped onto the shapefiles. We used the World Geodetic System from 1984 (WGS 1984), which is standard in GIS.

In a few cases, two neighboring polygons (A and B) partially overlap if we use one map for polygon A and another map for polygon B. We split the overlapping territory equally in cases of overlap, unless there was clear evidence that one map is more precise than the other.

Asante (and Dagomba)

Overview. We use the polygon for Asante from the A&C map "West Africa c. 1850," and that for Dagomba from the A&C map "West Africa c. 1884." We verified the validity of the Asante polygon using the map from Wilks (1975, 45); it corresponds with what he labels as the "Greater Asante" region. We verified the validity of the Dagomba polygon using the map from Manoukian (1952).

Details. We chose the earlier date for the Asante polygon because colonial interference in the southern part of what became the Gold Coast Colony contributed to imperial breakup (Nugent 2019, 113). Farther north, and without support from Britain, Dagomba reclaimed its independence in 1874, following a spell as an Asante tributary state dating back to the eighteenth century (Manoukian 1952, 15). Hence, we use the polygon with the later date for Dagomba, which reflected its boundaries on the eve of imperial partition. For these reasons, there is overlap between the A&C polygons that we chose for each. We altered the Asante polygon to exclude the territory corresponding with independent Dagomba (post-1874).

Wilks (1975) provides extensive details on the structure of the Asante empire and its boundaries. He provides a detailed history on attempts by European explorers and administrators in the nineteenth century to record the extent of Asante influence, including areas that paid tribute. "Despite the changing status of various provinces, it is possible nevertheless to determine with reasonable accuracy the extent of Greater Asante at certain fixed points in time. Thus both Bowdich and Dupuis showed a high measure of agreement about its composition in the second decade of the nineteenth century, though neither was able to distinguish methodically between inner and outer provinces ... While the boundary between inner and outer provinces cannot be determined with great accuracy, sufficient evidence is extent to show that, like that of the metropolitan region, it was an administratively maintained one" (53–54).

Regarding the boundaries of Dagomba, "The Dagomba state occupies all the Dagomba Administrative District except a small area in the south-east occupied by the Nanumba state" (Manoukian 1952, 3). The location and shape of Dagomba in the accompanying map is nearly identical to that in A&C, except A&C appear to include also the small amount of territory that belonged to Nanumba. The Dagomba State Council represented title holders from thirteen different chiefdoms (who each controlled various villages) within the kingdom. Manoukian (1952) indicates no ambiguity about which chiefdoms belonged to the Dagomba state.

Benin

Overview. We use the polygon for Benin from the A&C map "West Africa c. 1884." We verified the validity of the polygon using the map in Bradbury (1967).

Details. The A&C polygon corresponds closely with the core territory of the Kingdom of Benin depicted in Bradbury (1967, 4), including the specific detail that the western boundary corresponded with the Ose River. Bradbury describes the decline in Benin's territory and influence during the nineteenth century. Indeed, the A&C polygon for Benin in their map "West Africa c. 1850" is larger than the one in 1884. Bradbury (1957, 18) provides additional details: "For the purposes of this Survey the Benin kingdom is regarded as being coterminous with the present-day Benin Division, the unit over which the authority of the Oba (king) was recognized after the restoration of 1914. The Edo of this area represent the solid core of the old Benin empire and, apart from minor revolts, they have given allegiance to the Oba over a period probably not less than 450 years—and possibly for very much longer."

Borgu

Overview. We use the polygon for Borgu from the A&C map "West Africa c. 1884." We verified the validity of the polygon using the map in Crowder (1973).

Details. Crowder (1973) discusses the misunderstood relationship among the different Borgu/Bariba states. Prior to setting foot in the area, Europeans had heard almost as much about the state of Bussa as about Benin, and thus were shocked when they traveled to its capital to find a very small village (p. 19). Instead, Nikki was the largest and most important of the five major Borgu states. The core of Nikki ended up in the French colony of Dahomey, although some of its dependencies were partitioned into Nigeria. Overall, Dahomey gained roughly 300,000 Borgu inhabitants compared

to only 40,000 in Nigeria, which gained the other four states: Bussa, Illo, Wawa, and Kaiama (p. 23). The myth of Bussa supremacy arose because it was the first of these states and held the most important relics (p. 29). Overall, "[t]his confusion as to who was sovereign in Borgu seems to have arisen from a failure to distinguish between the actual political power of the individual Borgu states, which fluctuated during the nineteenth century, and the reverence in which they held Bussa as the original Kisra foundation" (p. 30). Nor was Nikki paramount among the states: "the position of the monarchs of Bussa and Nikki was not a strong one. With little authority over their dependent rulers, and always subject to challenge by rival claimants, their control over their 'states' was in no way comparable to that of the emirs of the Sokoto caliphate. In the case of Bussa, both Wawa and Illo, which paid him tribute, were in practice usually autonomous" (p. 34). The distinct Borgu states labeled in the A&C map are identical to those in the Crowder (1973) map. The maps with disaggregated Borgu polities provide an extra validity check because we jointly encompass all the Borgu states as a single polygon. Crowder's (1973) map is accompanied by detailed notes about boundaries and the relationships among the states, which he attributes to Mallam Musa Baba Idris.

Borno (and Damagaram)

Overview. Our polygon for Borno comes from Figure 4 in Hiribarren (2017, 44), which depicts "Borno ca. 1850–1893." We use the area that he labels as "Borno Proper." For Damagaram, we use the polygon from the A&C map "West Africa c. 1884." We verified its validity using the aforementioned map from Hiribarren (2017). In Appendix B.1, we explain why we code Damagaram as an independent state despite nominally owing vassalage to Borno.

Details. In A&C, Borno appears in the Central Sudan map, and is mentioned in the West Africa maps. Because of fluctuating boundaries throughout the nineteenth century, the A&C map for the "19th century" (unlike most of their maps, they do not specify a year) does not reflect the political realities at the end of the century. Indeed, the A&C West Africa map contradicts the A&C Central Sudan map, as the former depicts Damagaram as independent whereas the latter depicts it within Borno. The A&C Central Sudan map is also problematic for depicting Borno's eastern boundary far east of Lake Chad, which yields our preference for the map from Hiribarren.

We use Hiribarren's polygon for "Borno proper" because Borno lost effective control of most of its tributary states, which comprised its outer provinces, during the nineteenth century. The outer provinces in Hiribarren's map include Zinder, Machina, Muniyo, Bedde, Kerri-Kerri, Margi, Kotoko, and Logone; below, when these names arise, we mark them with an asterisk as a guide for readers. Hiribarren's map also labels Sokoto, Adamawa, Mandara, Bagirmi, Kanem, and Manga as distinct neighboring states.

In the early nineteenth century, Borno controlled various vassal states even after military defeats against Sokoto. "The vassal states to the west and north of Bornu included Bedde*, Munio*, Manga, Gummel, Damagarin (Zinder)* and Kanem ... To the east of the Chad lay the states of Bagirmi and Wadai, which acknowledged a vague sort of subservience to Bornu" (Anene 1970, 258). However, Borno lost effective control of most of this territory during the nineteenth century: "Bornu never recovered Hadeija and Katagum from the Fulani[1] ... Bornu virtually lost Wadai. In

[1]See the Sokoto entry for details.

Bagirmi the curious situation developed in which Bagirmi paid tribute to both Bornu and Wadai. Shortly after the assertion of independence by Wadai, Kanem was also wrested from Bornu by the Tuareg ... The civil war which involved Umar and his brother on the one hand, and Umar and the surviving member of the Sef dynasty on the other, did not help to arrest the shrinking of the frontiers of Bornu. Under Umar the tendency on the part of vassal Zinder* to assert its independence and even to dominate the outlying principalities of Munio*, Gummel and Machena* gathered momentum ... Kanem fell under the suzerainty of Wadai. Zinder* and the north-western vassal state practically ceased to have any political relations with [the capital of] Kukawa" (Anene 1970, 259-60).

During the nineteenth century, in a correspondence over boundaries sent by the Shehu of Borno to the Sultan of Sokoto, the Shehu labeled Bedde* as a buffer region between the two states: "Between our kingdoms are the pagan Bedde tribes, on whom it is permissible to levy contribution: let us respect this limit: what lies to the east of their country shall be ours: what lies to the west shall be yours" (quoted in Hiribarren 2017, 20). In 1900, the Shehu of Borno signed a boundary agreement with the Sultan of Bagirmi. The English translation of this treaty states that the rulers "fixed the river Shari, the well-known river, as a common boundary between their territories" (Hiribarren 2017, 66). The Shari River corresponds exactly to the edge of what A&C's Central Sudan map labels as a contested area between Borno and Bagirmi, with the area to the west of the river corresponding with territory that unambiguously belonged to Borno, and to the east was the contested area. The contested area, in turn, corresponds with the provinces that Hiribarren labels as Kotoko* and Logone* (each of which lie between the Logone and Shari rivers).

In sum, this evidence establishes the Borno lacked control over almost every outer province in Hiribarren's (2017) map, which justifies our choice to include only Borno proper in our polygon for Borno. Similar maps of Borno as that shown in Hiribarren appear in Crowder (1966, 79) and Hogben and Kirk-Greene (1966). By contrast, maps for earlier periods show a larger territorial extent of Borno, such as that in 1800 from Lovejoy (2016, 70).

Buganda

Overview. We use the polygon for Buganda from the A&C map "East Africa 1885." We verified the validity of the polygon using the maps in Fallers (1960) and Beattie (1971).

Details. The A&C polygon for 1885 is larger than the one for Buganda in the A&C map "East Africa 1800," which reflects Buganda's expansion during the nineteenth century. "Buganda was perhaps the largest and most powerful of [the interlacustrine] kingdom-states at the time of the arrival of Europeans, extending from its centre at the ruler's court on the northern shores of Lake Victoria to the east to extract tribute from southern Busoga, across the lakes to control at least partially the Sesse Islanders, to the north to the borders of powerful Bunyoro, and to the south through Buddu" (Fallers 1960, 13). The eastern frontier depicted in the maps from Fallers (1960) and Beattie (1971) was the Victoria Nile River, adjacent to Busoga. This connects into Lake Kyoga to form part of the northern border. The remainder of the northern border (when including the Lost Counties) is the Kafu River, which connects to Lake Albert. Bunyoro is to the north of this boundary. The map in Fallers (1960) includes the "Lost Counties" that Buganda gained from Bunyoro in the 1890s, whereas the map in Beattie (1971) does not. The A&C map does not include

the Lost Counties. However, it does include Busoga, which neither of these two maps include as part of Buganda proper. Specifically, the A&C map extends east of the Victoria Nile River to encompass this tributary area to Buganda.

Bundu and Futa Toro

Overview. We use the polygons for Bundu and Futa Toro from the A&C map "West Africa c.1850." We verified the validity of these polygons using the map from Suret-Canale and Barry (1971, 410).

Details. The eastern boundary of the Futa Toro polygon is not obvious from the A&C 1850 map, and all of Futa Toro is eclipsed by early French colonization in the 1884 map. Our verification map clarifies that the A&C polygon for Futa Toro has its eastern boundary at Bakel, a town that coincides with the split in the Senegal River. We thus use the lower portion of the river (eastward of the split) and the trade route shown in the map as the western boundary of the polygon. As Suret-Canale and Barry (1971) describes, "The Futa-Toro or Senegalese Futa extends along all the central valley of Senegal from Bakel up the river and down as far as the delta. It is a sort of oasis between the semi-desert region of Mauritania to the north and the Ferlo to the south, an area, which is deprived of water throughout the dry season" (p. 409). Additionally, "Bundu grew at the expense of its neighbors, the Malinke of Bambuk, who were driven back onto the right bank of the Faleme or else forced to migrate to Gambia" (pp. 431–32).

Bunyoro

Overview. We use the polygon for Nyoro from the A&C map "East Africa 1885." We verified the validity of the polygon using the map in Taylor (1962).

Details. Describing Bunyoro in the 1950s after it had been subsumed into Uganda, Beattie (1971, 9) writes: "The kingdom was bounded on the west by Lake Albert, beyond which lies the Congo; on the north and east by the Victoria Nile [north of which are] the Acholi and Lango districts, and until 1964 [when the Lost Counties were returned to Bunyoro] its southern boundary was the Kafu-Nkusi river system, which separated Bunyoro from the neighbouring Buganda kingdom." The A&C polygon corresponds perfectly with the river and lake boundaries. The border with Buganda is less precise and indicates a buffer region (there is an arrow from Buganda pointing to Nyoro, indicating Buganda expansion).

The Bunyoro kingdom shrunk over time, which the differences between A&C's 1800 and 1885 maps indicate. "Banyoro believe, and so far as the evidence goes they are certainly correct, that in former times their kingdom was very much larger than it was in its last years. Even as late as Speke's visit in 1862 it was a great deal more extensive than neighbouring countries. But in historical times its territory was much reduced by the incursions of their traditional enemies the Baganda, latterly aided by the British, and there is reason to believe that this diminution had been going on for some generations earlier. Even after the recovery from Buganda in 1964 of the two 'Lost Counties' of Buyaga and Bugangaizi, Bunyoro was only a small residue of the former Kitara empire" (Beattie 1971, 27–28).

Central Africa

Overview. We use the polygons for the following states from the map in Vansina (1966, 167), "The Peoples of Kasai and Katanga Around 1890": Bemba, Kazembe, Luba. For Lunda, we modify a polygon from the map in Vansina (1966, 167), "States in Katanga and Eastern Rhodesia Around 1800." For the nearby kingdom of Kasanje, we use the A&C map "Central Africa 1800–1880," which yields a polygon nearly identical to that in the Vansina (1966, 167) map, "Western Central Africa Around 1850." We also verified the validity of these polygons using maps from Whiteley (1951) and the *Encyclopaedia Britannica* entry for "Luba-Lunda states."

Details. Vansina's (1966) maps in this region are considerably more detailed and assessed closer to the eve of the partition of Central Africa, compared to the A&C map "Central Africa 1800–1880." Thus we use the Vansina maps for all the polygons except Kasanje, as the A&C and Vansina polygons are nearly equivalent. Vansina provides extensive details on all these cases, which confirms that the states were indeed located along the rivers and lakes shown in his maps.

The most complicated case is Lunda, which had essentially disintegrated in the 1880s just prior to European penetration of the area. Indeed, the Vansina map that depicts the other states in 1890 labels the general location of Lunda without depicting boundaries, reflecting its recent territorial collapse. We use as our starting point the territorial outline of Lunda shown in Vansina's 1800 map, and modify it based on his description of events in the 1880s. In effect, we use his polygon from 1800 while excluding all territory located west of the Kasai River, based on the following description from Vansina (1966, 223–24): "[1874] was the first time that the Cokwe had intervened in a succession crisis in Lunda land . . . The Cokwe took the Kete by surprise and captured a rich booty in slaves. But they had also crossed the Kasai into the nucleus of the Lunda kingdom. . . . It was during Mbumba's reign that the great Cokwe expansion west of the Kasai began. . . . In 1880 Musefu was killed during one of these campaigns and the field was open for the Cokwe, who were also strengthened by their alliance with Mukaza. They destroyed all the Lunda chieftainships east of the Kwilu and west of the Kasai — Mai and Mwata Kumbana included—between 1885 and 1887."

Dahomey

Overview. We use the polygon for Dahomey from the A&C map "West Africa c. 1884." We verified the validity of this polygon using the map in Lombard (1967, 71).

Details. Lombard (1967, 70) details the boundaries of the Dahomey kingdom: "On the eve of European penetration the Dahomey kingdom stretched from the important coastal ports of Whydah and Cotonou to the eighth parallel, excluding Savé and Savalou. Savalou formed a small allied kingdom. East to west, it extended from Ketu, on the present Nigerian border, to the district around Atakpame in modern Togo. Towns like Allada (the capital of the former kingdom of Ardra), Zagnanado, Parahoue (or Aplahoué), and Dassa-Zoumé came under the suzerainty of the Dahomean kings. Even the Porto Novo kingdom was at one time threatened by Dahomean forces at the time of the treaty agreeing to a French protectorate. The Dahomey kingdom thus stretched almost two hundred miles from north to south, and one hundred miles from east to west. Its population has been estimated roughly at two hundred thousand." Based on the map from Lombard (1967, 71),

Atakpame appears to correspond with the part of the Dahomey polygon that juts westward into modern-day Togo. "Atakpame appears to have existed for much of the nineteenth century in a sort of neutral zone between Asante and Dahomey, though this did not protect it from attack by the one when the influence of the other over it disturbed the balance of power" (Wilks 1975, 57–58).

Darfur and Wadai

Overview. We use the polygons for Wadai and Dar Foor from the Africa Map of 1890 from the *Americanized Encyclopaedia Britannica Vol. 1* (1892).[2] We verified the validity of this map using the maps and qualitative description of boundaries from Theobald (1965).

Details. The boundaries between our polygons for Darfur and Wadai correspond closely with the limits of the tributary areas shown in A&C inset map "Wadai and Darfur in 1850." However, we cannot directly use that map because it does not provide the entire outline of each state. The larger A&C map "The Central Sudan in the 19th Century" also contains polygons for Wadai and Darfur. However, this map is insufficiently detailed about the boundary region between the two and it depicts the boundary of Wadai as much farther west than is described in historical sources (as well as in A&C's own inset map).

Theobald (1965, 1) describes the uncertain and fluctuating western frontier of Darfur that abutted Wadai. Historically, that frontier "extend[ed] from about latitude 10°N. to 16°N., and from longitude 22°E. to 27° 30'E., forming a rectangle some 450 miles long and 350 miles broad and its widest limits, and enclosing an area of nearly 140,000 square miles . . . its distinct natural frontiers; for to the north, the Libyan desert stretches for a thousand miles to the Mediterranean; to the east, a broad belt of sand-hills provides a barrier against Kordofan; and to the south, the tsetse fly limits the movements of animals beyond the Bahr El Arab. Only to the west is there a continuation of the same geographical conditions; and thus it is *only in that direction that the frontiers of Darfur have substantially varied*, and have been decided by political events, rather than by factors of soil, vegetation and climate" [our emphasis].

Later, Theobald describes "the debatable border lands of Dars Tama and Gimr in the north, Dar Masalit in the centre, and Dar Sila in the south . . . 'the old frontier between Darfur and Wadai' [did not] mean anything . . . [because] there was not, and never had been, any stable, clearly defined, and generally recognized frontier between Darfur and Wadai" (64, 69). Theobald (1965, 53) presents a map of Darfur in 1904 that shows the western frontier with Wadai and shows the petty sultanates on the frontier.

Egypt

Overview. We use the polygon for Egypt from the A&C continent-wide map "European Colonies and African States on the Eve of the 1884–1885 Berlin Conference," with one alteration. Their polygon does not distinguish between Egypt proper and Egyptian Sudan, which yields a polygon that stretches far south of the traditional Ottoman province. To fix this, we incorporated the map from Milner (1894). He depicts the northern frontier of the Mahdist state in Sudan, which we use

[2] Available online through The University of Texas at Austin 2023.

as the southern border for Egypt. We verified the validity of our polygon using the maps in Holt and Daly (2014) and here.

Details. Muhammed Ali, nominally a governor within the Ottoman Empire, created the modern Egyptian state. His territorial conquests spread far into the Sudan region. The emergence and rapid expansion of the Mahdist state in Sudan in the 1880s conquered much of this territory, including victory at the Battle of Khartoum of 1885 and then expansion northward. Our various maps of both the pre-Mahdist and Mahdist periods depict similar southern frontiers for Egypt, with Wadi Halfa lying just north of Egyptian Sudan or the Mahdist state in all. The natural geographic boundaries of the Mediterranean Sea, Sinai peninsula, and Red Sea form the northern and eastern boundaries, and the western boundary is in the Saharan desert.

Ethiopia

Overview. We use the polygon for Ethiopia from A&C's map "North East Africa 1890–1896." We verified the validity of our polygon using the map and accompanying description in Zewde (2001, 17).

Details. Modern Ethiopia emerged from a cluster of Christian Ethiopian states, which had themselves arisen from the fragmentation of the old Ethiopian Empire. Thus we code a single pre-colonial state in this region, rather than distinct Christian states (e.g., Shawa despite appearing on A&C's maps and receiving mention in Stewart 2006). Shawa had a separate ruling dynasty until it was incorporated into the Ethiopian Empire in 1856 (despite retaining its own local negus, or king). In 1889, the king of Shoa became the Emperor of Ethiopia (Stewart 2006, 201–2). For our polygon, we include the solid purple and pink areas from A&C's map, which indicate Menelik's Empire in 1890, and do not include the additional areas of conquest in the 1890s. The accompanying text in their atlas details the specific events that yielded new pieces of territory.

Futa Jalon

Overview. We use the polygon for Futa Jalon from Carpenter (2012, 75). This is closely related to the polygons presented in A&C for Futa Jalon. However, in the A&C West Africa maps, the northern frontier of Futa Jalon is combined with the Senegalese state of Wuli. We additionally verified the validity of our polygon using the map in Person (1974, 264–65).

Details. Carpenter (2012, 67–68, 73) describes the boundaries of Futa Jalon: "The periphery of Futa Jallon in the late nineteenth century consisted of a number of small, politically and culturally independent polities, federations, and communities. Some had long been frontier communities, even before the emergence of the Futa federation, and had historically resisted impositions by larger states. Some had been pushed to the periphery during the Fulbe consolidation of power in Futa Jallon in the eighteenth and early nineteenth centuries. Others, while perhaps once part of one of the larger federations, nevertheless maintained substantial independence, an autonomy that became more pronounced after the weakening of Kaabu and Futa Jallon. In the nineteenth century these communities came to define the territorial limits of Futa Jallon. When the centers of power shifted after 1850 with the collapse of Kaabu and the decline of Futa Jallon, this frontier became territory contested by the likes of Alfa Yaya and Musa Molo—individuals in control of

peripheral territory and looking to extend their control by pushing into the frontier. The small communities on the frontier, using the resources available to them, resisted the regular incursions from these individuals and, in the case of Coniagui and Sangalan, remained independent during this dynamic period in the history of southern Senegambia . . . At the periphery of northern and northwestern Futa Jallon lay a corridor of small and independent communities. From northeast to southwest these communities included Sangalan, Bassari, Badiar, Coniagui, Bedik, Pachessi, Landouman, and Nalou. The corridor formed a crescent running northeast to southwest crossing the upper Faleme, upper Gambia, upper Kuluntu, upper Geba, upper Corubal, upper Cacine and upper Nuñez rivers."

Gaza

Overview. We use the polygon for Gaza from the A&C map "Southern Africa 1798–1848." We verified the validity of the polygon using the maps from Julien (1977, 181), Bonner (1983, 100), and Shillington (1987, 40). In the discussion of the Mozambique–Zimbabwe border in Appendix C, we provide more discussion of Gaza's territorial reach.

Igala

Overview. We use the polygon for Igala from the A&C map "West Africa c.1850." We verified the validity of the polygon using the map from Armstrong (1955).

Details. The historical Igala state corresponds with the Igala Division of British Nigeria, the boundaries of which Armstrong (1955, 77) describes. See also Armstrong (1955, 81) and Imoagene (1990, 20–21, 39–41). The A&C polygon for Igala in 1850 is nearly identical in shape to the polygon in the 1884 map, although a small portion of the Igala polygon is cut off in the latter map because of British encroachment on the Niger River.

Lesotho

Overview. We use the polygon for Lesotho from the A&C map "Southern Africa 1798–1848." We verified the validity of the polygon using the map from Sheddick (1953).

Details. The A&C polygon extends farther west than the modern-day country of Lesotho, which is consistent with descriptions of the partition of the Sotho: "The Southern Sotho are located in a compact territory centred about the Colony of Basutoland. To the west of Basutoland lies what the Basuto know as the 'Conquered Territory,' that is, the eastern Orange Free State. Basuto are distributed over this latter region, most of them being tenants on European farms" (Sheddick 1953, 9). The accompanying map shows the dispersion of Sotho west of the boundaries of the country of Lesotho. Historically, the Southern Sotho lived "almost entirely within the limits of the upper reaches of the Orange River basin, together with a part of the high veld near the River Caledon" (Brownlie 1979, 1109).

Lozi

Overview. We use the polygon for Lozi from the A&C map "Central Africa 1800–1880." We verified the validity of the polygon using the map from Turner (1952).

Details. The boundaries of the Lozi kingdom, especially in the west, were uncertain. The A&C polygon appears largely accurate, if somewhat too small (arrows point outward from the territory shaded by the polygon, which indicates expansion during the century). Treaties with Britain "retained for the Lozi the land lying west of the Zambezi which the Portuguese had claimed, but in fact the Lozi rule had extended farther to the west than the international boundary laid down by the King of Italy. The Lozi also withdrew from the present Caprivi Strip to the north bank of the middle Zambezi in the face of German colonisation and they had already abandoned their holdings toward Wankie before Ndebele threats ... The Barotse Province of today is considerably smaller than the area of the old kingdom. The Ila, Tonga, Toka, and Lyeba countries were taken over by Government, as well as the Kaonde district of Kasempa. In 1941 a Commission decision excised from Barotse Province the northernmost district of Balovale, after the local peoples had asserted their independence. The grounds of the decision were not made public" (Turner 1952, 13-14).

Our Lozi polygon is rounder than most others (see Figure 4 in the article), which properly reflects uncertainty about its historical frontiers. Ultimately, "[t]he extent of the area which may legitimately be considered the kingdom of Barotseland is not easily ascertained ... The problem is unusually difficult because the Lozi did not send princes or senior councilors to govern outlying provinces. Because the Lozi were not threatened by powerful tribes until about the middle of the nineteenth century, and because trade with the Valley was advantageous to many smaller tribes outside it, such direct rule was not considered necessary. ... Outside the Valley, therefore, as for example among the Subiya of Sesheke and the Nkoya of Mankoya, Lozi influence was exerted through *mandumeleti*, Lozi indunas representing the King of Barotseland. ... Like company officials in the 1890s, Lozi informants make extravagant claims as to the extent of the area to which representative indunas were despatched" (Caplan 1970, 7–8). Yet despite this uncertainty, Caplan nonetheless concludes that "the evidence is persuasive" that the indunas were indeed located in some areas that were not included in Northern Rhodesia.

Morocco

Overview. We use the polygon for Morocco from the A&C map "North Africa c. 1870–1890 A.D." We verified the validity of the polygon using the map from Ganiage (1985, 194).

Details. For our polygon, we include only the Bled el-Makhzen region (which is solid-colored on the A&C map), and not the Bled el-Siba (which is dashed-colored). As the accompanying text from A&C states: "As late as the end of the nineteenth century [the Morocco Sultan's] spiritual primacy was recognised as far away as Timbuktu and parts of Libya, but the actual area that he controlled was very much smaller. The territories were generally divided into two parts: the Bled el-Makhzen, where the Sultan could collect taxes and appoint officials; and the Bled el-Siba (literally the Land of Wild Beasts), where his influence was almost purely religious. These areas varied according to the power of the Sultan, but generally the plains of the Atlantic seaboard were

Bled el-Makhzen, and the mountains of the Atlas and the Rif were Bled el-Siba." The polygon for Morocco is the same in the three earlier periods depicted in A&C's maps (both Bled el-Makhzen and Bled el-Siba), indicating that this territorial arrangement was stable.

Mossi

Overview. We use the polygon for Mossi from the A&C map "West Africa c.1884." We verified the validity of the polygon using the map from Zahan (1967).

Details. The A&C polygon corresponds closely with the detailed map of Mossi kingdoms in Zahan (1967, 153). Both list the four major kingdoms: Ouagadougou, Tenkodogo, Fada-n-Gourma, and Yatenga. Zahan depicts internal boundaries that correspond roughly with the divisions among Mossi kingdoms in the A&C map. This is an extra validity check because our polygon jointly encompasses all four Mossi kingdoms. Zahan briefly describes the origins of each kingdom and then states: "Within five generations, according to these traditions, the Mossi kingdoms and principalities attained the form they possess today, and since that distant epoch interconnexions have been maintained among them and are still recognized in terms of kinship" (154).

Ndebele

Overview. We use the polygon for Ndebele from the A&C map "Southern Africa 1798–1848." We verified the validity of the polygon using the map from Hughes and van Velsen (1955).

Details. The Ndebele (Matabele) kingdom, formed in the 1820s and 1830s, was originally located north of the Vaal River in the Transvaal region of modern-day South Africa. Pressure from Boer settlers led to northern migration and relocation of the kingdom onto the Zimbabwe plateau (Shillington 1987, 48–51). The Hughes and van Velsen (1955) map lacks precise boundaries for Ndebele. However, the rough area depicted for Ndebele corresponds with the A&C polygon, and the town of Bulawayo is in the center of each. "Before their conquest by the B.S.A. Company the Ndebele used to occupy an area extending roughly from Lat. 19° 00' S to 20° 30' S and from Long. 27° 30' E to 29° 30' E. On the north and north-west the largely waterless country of sandveld forest, the so-called Gusu country, formed an effective if indeterminate frontier to the zone of permanent Ndebele settlement. On the south, there was little permanent settlement beyond the Matopos and Malungwane ranges, while on the east their country ended at the hills of Mashonaland, the so-called Amaswina mountains. On the west Ndebele rule extended farther than serious Ndebele settlement, as there were numerous chiefs who had been left in control of their own people but who admitted the overlordship of the Ndebele king. In those days Ndebele rule extended well into what is now the Bechuanaland Protectorate" (Hughes and van Velsen 1955, 43). The boundaries of the A&C polygon are similar, extending from Lat. 19° 6' S to 21° 5' S and Long. 27° 3' E to 29° 2' E. Brownlie (1979, 1299) claims that the Limpopo river "formed the northern limit of Boer settlement and the southern marches of the Matabele Kingdom" in the mid-nineteenth century.

Nkore

Overview. We use the polygon for Nkore from the A&C map "East Africa 1885." We verified the validity of the polygon using the maps from Karugire (1971).

Details. Karugire (1971, 33) describes the boundaries: "Ankole [the colonial district] is a larger geographical area than Nkore, with which this study is concerned. It includes areas that were formerly independent of Nkore. The principal districts that were incorporated in the traditional kingdom of Nkore by the British at the beginning of this century were Buzimba, Budweju, Bunyaruguru, Igara, and the other parts of the former kingdom of Mpororo represented by the modern counties of Kajara, most of Rwampara, and most of Sheema." Generally, the location, shape, and size of the A&C polygon is accurate. However, based on Karugire's description and the accompanying maps in his book, the A&C polygon appears somewhat too large. The A&C polygon stretches to Lake Edward. By contrast, the only part of Karugire's map that abuts Lake Edward is Bunyaruguru, which is one of the areas that he describes as not traditionally part of Nkore.

Porto Novo

Overview. We use the polygon for Porto Novo from the A&C map "West Africa c.1850." We verified the validity of the polygon using the maps from Mills (1970, 11, 36).

Details. The kingdom of Porto Novo does not appear in A&C's 1884 map for West Africa because it had already been colonized by France. The polygon for Porto Novo in 1850 is not clearly distinguished from that for Dahomey. However, by comparing the 1850 and 1884 maps, we can discern that the trade route depicted in the 1850 map (which itself follows the Oueme River up to the north point of the Porto Novo kingdom) forms the eastern boundary of Dahomey. Hence, we created the polygon for Porto Novo by using the area east of the Oueme River.

Rwanda and Burundi

Overview. We use the polygons for Rwanda and Rundi from the A&C map "East Africa 1885." We verified the validity of the polygons using the map from d'Hertefelt and Scherer (1962).

Details. The borders of the modern-day countries of Rwanda and Burundi closely resemble their precolonial frontiers. Although territorial expansion occurred during the nineteenth century (the polygons in the A&C maps for 1885 are larger than in 1800), these gains were concentrated earlier in the nineteenth century. Historians of Central Africa carefully document the limits of the borders of these two precolonial states in the late nineteenth century (except the eastern border of Burundi), and demonstrate that their frontiers had largely stabilized by the late nineteenth century.

In Rwanda, "the centralization of power was greatly intensified over the last third of the nineteenth century, and especially from c. 1876, during the personal reign of Kigeri Rwabugiri [1853–1895]. Rwabugiri is renowned in Rwanda as the great warrior-king of the late nineteenth century" (Newbury 2001, 306). According to Vansina (2000, 78), by the time of his death, "the kingdom had extended its sphere of action to the right bank of Lake Kivu, to Nkore, and to Bushuubi." How-

ever, Newbury (2001, 309) concluded,[3] "though this military power intensified court administrative structures in such regions as Kinyaga, Bugoyi, and Gisaka, these constant campaigns were notably unsuccessful in annexing new territory; the lasting legacy of these incessant campaigns was more in tightening court control within Rwanda than in expansion per se." The last precolonial king attempted to extend Rwanda's border north of Lake Bunyoni into what is now Uganda. However, rebellions pushed the northern border southward to a point "close to its present position shortly before European contact . . . Rwanda's modern borders are broadly representative of the precolonial kingdom at the end of the 19th century" (Giblin 2021, 257).

The Kingdom of Burundi expanded between 1800 and 1850, at which point it resembled its boundaries on the eve of colonization. King Ntare Rugamba (c. 1796-1850) "set the geographical contours to modern Burundi by extending royal power in many directions. He conquered parts of Bugesera to the north and Bugufi in the northeast; he incorporated Buyogoma in the east, and occupied the Rusizi Valley to the northwest" (Newbury 2001, 284). Other areas such as Kinyaga (southwestern Rwanda) were only conquered briefly. Indeed, Burundi's northern border was often the site of conflict with Rwanda since at least the 1700s. According to Vansina (2000, 72), "Rwanda carried out border raids in [Burundi], and the latter does the same in Rwanda. The two countries had roughly the same military strength, and the skirmishes didn't last more than a day or two. This has been the situation in Rwanda and Burundi since around 1750." The Akanyaru River, which currently separates much of Rwanda and Burundi, has acted as a de facto border since at least the 1700s during the reigns of Rujugira of Rwanda and Mutaaga of Burundi: "After the death of Mutaaga, the border was fixed on the Akanyaru river, where it has always remained" (Vansina 2000, 19, 73). Lake Tanganyika comprised Burundi's natural western border, but its eastern frontier was less well defined (Newbury 2001, 280, 283).

Sokoto (and Gobir)

Overview. We use the polygon for Sokoto from Smaldone (1977, Map 3). We use the polygon for Gobir from the A&C map "West Africa c. 1884." The A&C polygon for Sokoto from the map "Sokoto Caliphate and Borno in the 19th Century" is reasonably accurate. However, our assessment is that the map from Smaldone (1977) better captures specific details of the boundaries.

Details. Regarding the northwestern boundary, in the early nineteenth century, the Sokoto Caliphate spread across what is now Northern Nigeria in a series of military conquests, the northernmost of which defeated traditional Hausa states. In three Hausa states, following military defeat, the ruling dynasty fled and formed a new state: Katsina founded Maradi, Gobir formed a new state centered at Sabon Birni, and Kebbi formed a new state centered at Argungu. The Caliphate founded Sokoto within the traditional Gobir state and Gwandu within the traditional Kebbi state. The resistant Hausa states fought continually with Sokoto and maintained their independence. We code Gobir as a distinct precolonial state, and its A&C polygon is located in the area described by historical accounts of these breakaway Hausa states.

Elsewhere in the northwest, the Caliph maintained friendly relations with the Tuareg in Air, but did not control them militarily; and British administrator Frederick Lugard claimed incorrectly that Sokoto's influence extended as far west as Timbuktu. Anene (1970) stresses the lack of political

[3] Newbury was Vansina's doctoral advisee.

allegiances by the many long-distance traders in the region. He asserts, "[i]t is probably that it was the Fulani control of the trade centres of the Niger bend that partly contributed to the wrong assumption that the Sokoto-Gwandu empire was extensive in that direction" (p. 264). Extensive slave raiding within the frontier areas between major states further undermined any hard political loyalties in these areas. Anene (1970, 256) concludes: "On the basis of the evidence provided by Dr Barth, it is reasonable to suggest that the frontiers of the Sokoto-Gwandu empire to the north and to the west did not lie far from the Fulani strongholds of Katsina, Wurno, and Gwandu. . . . the situation seen by Barth remained more or less unchanged from 1855 to the end of the century." These are indeed in the southwest corner of our polygon.[4]

In the east, Sokoto military victories gained territory from Borno. Although they were unable to conquer Borno permanently, they did seize two of Borno's western provinces and transform them into emirates at Hadejia and Katagum. These towns are in the northeastern corner of our polygon. Hiribarren (2017) provides more details on this boundary.

Swazi

Overview. We use the polygon for Swazi from the A&C map "Southern Africa 1798–1848." We verified the validity of the polygon using the map from Kuper (1952).

Details. The polygon extends farther west than the modern-day country of Eswatini. This is consistent with descriptions of the partition of the Swazi: "only approximately three-fifths of all Swazi live in the High Commission Territory of Swaziland and approximately two-fifths live [west of that] in the adjoining Union of South Africa" (Kuper 1952, 7). Various European border commissions, discussed in Appendices C.7.3 and C.7.11, scrutinized the historical limits of the state. For example, commissioners decided that "the 'raids' of 1860 did not amount to a conquest and that Swazi settlement was too recent for them to have a meaningful claim" (Bonner 1983, 188).

Tunis

Overview. We use the polygon for Tunis from the A&C map "North Africa 1848–1870 A.D." The polygon is the same in the two A&C maps covering earlier periods, and Tunisia was colonized by France during the time period of the next map (1870–90). We verified the validity of this polygon using the map from Meyer's Handatlas (2022).

Wolof states

Overview. We use polygons for the following states from the A&C map "West Africa c.1850": Cayor, Jolof, Salum, Sine, Walo. We verified the validity of the polygons using the map from Gamble (1967, 18).

Details. Gamble (1967, 11-21) describes the territorial extent of the Wolof people and the history of the different states in the region. His map clarifies that an unlabeled polygon in the A&C map is Baol and that this should be combined into the polygon for Sine. Each of the states has largely the same shape as in A&C's 1884 map for West Africa, but early French colonization in the area

[4] Adeleye (1971) and Smaldone (1977) provide more details on this boundary.

obscures the limits of some of the polygons. See also the coding appendix for Senegal's precolonial kingdoms in Wilfahrt (2018).

Yoruba states

Overview. The Yoruba states in our data set are Egba, Ibadan, Ijebu, and Oyo. There are several sources of inaccuracies in the A&C maps, and we instead primarily use the maps in Smith (1988) to create polygons for each. All these states changed their location and size during the nineteenth century, and Ibadan continued to experience changes up through when it signed treaties with Britain in 1893 to end decades of warfare. We measure Ibadan at its greatest territorial extent in the 1870s because a colonizer plausibly could have argued that gaining a treaty with Ibadan conferred all this territory (given the close temporal proximity between its territorial peak and the onset of colonization). We also note that creating a larger polygon biases in favor of the state being partitioned by colonial borders. Oyo was stable in its territory from the mid-1860s onward, and Egba and Ijebu from several decades earlier.

Details. Yorubaland experienced major changes in its state system throughout the nineteenth century, for which we provide some historical background. At the turn of the century, the major state was the Oyo empire. This state was centered at Oyo Ile and ruled by its traditional leader, the Alafin. At its height in the eighteenth century, Oyo controlled all the traditional kingdoms in northern and western Yorubaland. Moving from west to east, its territory included the Yoruba kingdoms of Dassa, Sabe, Ketu, Egbado, and Egba. Other traditional Yoruba kingdoms lay either to the south (Lagos, Ijebu) or east (Ife, Ijesa, Ondo, Igbomina, Ekiti, Owo) of these frontiers and were not contained within the empire, although Oyo influenced these states as well. Oyo "established relationships with most other Yoruba kingdoms, and its influence considerably curtailed the frequency and severity of the conflicts among them" (Akintoye 1971, xvi). The Oyo empire also stretched beyond contemporary Yorubaland to include Abomey (the capital of the Dahomey kingdom) in the west and Ilorin in the north (which was later incorporated into the Sokoto Caliphate); in fact, the capital of Oyo Ile was north of Ilorin and lay just south of the intersection of the Niger and Moshi rivers, which constituted the northern frontier of the Oyo empire. See Atanda (1973, 1–14) for a detailed description of these boundaries as well as a map and Smith (1988, Chs. 2–6) for a description of each of the aforementioned traditional Yoruba kingdoms and for concurrent maps (Maps 1 and 2 in the Preface).

The set of major Yoruba states and their boundaries fluctuated throughout the nineteenth century as a result of persistent warfare. These wars occurred in three main phases: (1) The collapse of the Oyo empire (c. 1820 to c. 1837), (2) Struggles among successor states (c. 1837 to 1878), and (3) Anti-Ibadan wars (1878 to 1893). See Ajayi and Smith (1964, 11–12) for this periodization and Smith (1988, Chs. 10–12) for more details on the wars; these are the sources for the following unless otherwise noted.

(1) The Oyo empire suffered major setbacks starting in the 1780s and collapsed completely in the 1820s (the absence of direct observants and written sources makes it difficult to precisely date each of the following events). Key events during these decades included Oyo losing wars with neighboring states Borgu and Nupe; Egba and Ilorin declaring independence; and civil wars involving Ife, Owo, and Ijebu. During the 1820s, Fulani armies from Sokoto conquered Ilorin and

later the Oyo capital of Oyo Ile. The Fulani threat caused a mass Yoruba migration to the forested area south of the savanna, where Fulani cavalry were their strongest. Some important consequences of this migration were the founding of Ibadan (c. 1829), Abeokuta (c. 1830), and New Oyo (c. 1837); and the enlargement of the older town of Ijaye. New Oyo, located 80 miles south of Oyo Ile, was the capital of the refounded Oyo kingdom, still under control of the Alafin. The new Oyo kingdom was formally divided into two provinces, apart from the capital. Ijaye constituted the western flank and Ibadan the eastern flank, which positioned it close to Ilorin; see Map 3 in Smith (1988). Ibadan defeated Ilorin in c. 1838 in a battle over Ogbomoso, located in their borderlands, which permanently checked the southward expansion of the Sokoto Caliphate. Abeokuta was the new capital of the Egba and was located southwest of their former settlements.

(2) After the fall of the Oyo empire, the main successor states in Yorubaland engaged in nearly constant warfare until colonial intervention in the 1890s. The two main sets of conflicts until the 1870s were (a) wars involving Ibadan, and (b) wars between Egba and Dahomey. In the 1850s, Ibadan expanded eastward to incorporate several historical kingdoms that the Old Oyo empire never governed: Ife, Ijesa, Igbomina, and Ekiti. However, because Ibadan's northern and western frontiers were less expansive than those of the Old Oyo empire, the new Ibadan empire did not contain any other traditional Yoruba kingdoms. The pivotal event to establish the supremacy of Ibadan in Yorubaland was its victory in the Ijaye war of 1860–65, when it defeated a coalition among Ijaye, Egba, and Ijebu. Ibadan conquered the town of Ijaye and absorbed much of the southern territory of its rival province (located west of Ibadan) into its own domain. For our Ibadan polygon, we use the Ibadan 1874 map in Akintoye (1971, 67); note that Map 4 in Smith (1988) is similar but less detailed. Oyo gained the remainder of the former Ijaye province following the Ijaye war: "Oyo [was] strengthened by the addition of former Ijaye territory in the upper Ogun (except for Ibarapa, which Ibadan had kept)" (Smith 1988, 132). None of our sources contain a map depicting Oyo after this war, which provided its shape upon British colonization, so we constructed one as follows. Smith's (1988) Map 3 is "The New States, c. 1836–62" and depicts the limits of the New Oyo capital as well as the Ijaye and Ibadan provinces. Our polygon for Oyo contains all the area of this figure that does not intersect with our Ibadan polygon.

The Egba fought two major sets of wars following its founding of Abeokuta in the 1830s. One was against Ibadan, which primarily were fought (successfully) to defend its territory. The other was the long series of wars that Egba fought with Dahomey. These two former vassals of the Oyo empire fought to control the Egbado territory between them. These wars were consequential for our purposes because they determined the western frontier of Egba. Anene (1970, 154) proclaims that "[t]here is abundant evidence to show that the effective western frontier of the Egba state was the Ogun River," upon which Abeokuta is situated. Anene describes the annual raids by Dahomey that reached as far east as the Ogun River and that "neither Ketu [a Yoruba state] nor any of the Yoruba towns west of the Ogun were effectively protected from Dahomey" (155). The most intense assaults by Dahomey on Abeokuta occurred between 1851 and 1864 (Anene 1970, 166; Mills 1970, Fig. 11 on pg. 33). Several maps, such as that in Ajayi and Crowder and Fig. 12 in Mills (1970, 35), extend the Egba territory farther west to encompass Egbado towns such as Ilaro and Ijanna that Egba raided periodically (see Fig. 11 in Mills 1970 and Anene 1970, 153). However, Anene's detailed analysis demonstrates that Egba did not permanently control these areas. To construct an accurate polygon for Egba, we use the Ogun river as the western and northwestern boundary plus its boundaries with Ijaye (northeast), Ibadan (east), and Ijebu (south)

depicted in Smith's (1988) Map 3.

(3) After reaching the height of its territorial expansion in the 1870s, Ibadan faced revolts from within and attacks from neighboring states. Thus, about a decade after the Ijaye war "confirmed the position of Ibadan as the leading power in Yorubaland," the tides turned and "Ibadan's predominance . . . was rejected and its short-lived empire broken up" (Smith 1988, 132, 141). In the Sixteen Years' War (1877–93; alternatively, the Kiriji War or the Ekiti–Parapo War), a coalition of other Yoruba states (primarily Egba and Ijebu) allied with Ilorin and fought against Ibadan. During the war, several vassal states revolted against Ibadan rule. This included the major Ekiti towns, sixteen of whom formed the Ekiti Parapo coalition, and Ife. In a treaty signed in 1886, Ibadan recognized the independence of the members of the Ekiti Parapo while also formalizing Ibadan's separation from Oyo. Fighting continued in the north over the frontier with Ilorin, in particular over the town of Offa. These wars meant that by the end of the 1880s, "Ibadan's attempt to assume the mantle of Oyo had now decisively failed" (Smith 1988, 146). The war ended in 1893 amid intervention by the British, and thus this constituted the state of affairs on the eve of the colonization of Yorubaland. The events during the Sixteen Years' War suggest that an alternative reasonable way to construct the Ibadan polygon would be to exclude the areas of Ekiti Parapo and Ife, and it should also be noted that Ibadan's northern frontier with Ilorin was contested.

This narrative makes clear that Oyo, Ibadan, and Egba were the major states in Yorubaland in the nineteenth century. Smith (1988, 128) refers to the latter two and Ijaye as the "triumverate of new states" that emerged after the Old Oyo empire collapsed, although Ijaye was subsequently conquered by Ibadan in 1862. Oyo, Ibadan, and Egba (plus Ijebu) are the four states identified on the Ajayi and Crowder maps that are also listed as a state in at least one of the three verification data sets we consulted to code PCS. Regarding Ijebu, Smith (1988) notes that "the last quarter-century of independent Yorubaland witnessed profound changes of many kinds . . . [t]here was resurgence of vitality in some of the ancient kingdoms, especially Ijebu" (141). Earlier he describes the traditional governance institutions of Ijebu (pp. 61–67), also noting that "[t]he Ijebu kingdom was a large one, probably next in size to [the Old Oyo empire]." With regard to boundaries, "At its greatest extent [Ijebu] stretched south-westward to the confines of Lagos and eastward across the River Shasha to the Oni; on the west it bordered the country of the Egba, on the north the Oyo, on the north-east the Ife, and on the east the Ondo" (63). We use the same procedure as for Egba to construct a polygon for Ijebu: we use the Oni river as the eastern boundary plus its boundaries with Ibadan (north), Egba (northwest), and the Lagos and Lekki lagoons (south and southwest) depicted in Smith's (1988) Map 3.

The Ajayi and Crowder polygons are problematic in several ways, which is why we use the alternatives described above. Their analog to the Ibadan polygon we use is their map of Ibadan contained in "West Africa c. 1884." This map shows the uncertain frontiers with the territory claimed by Ekiti Parapo. Furthermore, their map for Oyo in 1884 is partially incorrect; it depicts in the east a frontier north of Ibadan and south of Ilorin. However, as described above, Ibadan lay directly adjacent to Ilorin (which is also captured in Ajayi and Crowder's inset for the Ibadan empire, which is too imprecise to digitize). The A&C Egba and Ijebu polygons have generally high face validity but are somewhat imprecise, which is why we prefer the polygons described above.

Zulu

Overview. We use the polygon for Zulu from the A&C map "Southern Africa 1798–1848." We verified the validity of the polygon using the map in Thompson (1996, 82).

Details. "By the mid-1820s, Shaka's Zulu had established control over most territory from the Pongola River in the north to beyond the Tugela River in the south and from the mountain escarpment to the sea" (Thompson 1996, 83). One confusing aspect of the A&C map is that they label the rivers incorrectly. What they label as the Tugela River is in fact the Pongola River. Correcting this mistake clarifies that their Zulu polygon is correctly located.

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C Case Studies for Bilateral Borders

Table of Contents

Overview

North Africa

West Africa

Interimperial borders

Intra-French borders

Equatorial Africa and Congo

East Africa

Interimperial borders

Intra-British borders

Intra-German borders

Northeast Africa and the Nile

Southern Africa

Intra-British borders

Interimperial borders (east coast)

Interimperial borders (west coast)

C.1 Overview

In the following pages, we present case studies for each of the 107 bilateral borders in Africa. These case studies provide narratives to understand the macro- and meso-level elements of border formation, in addition to micro-level features of the border. This extensive appendix serves two purposes. First, as mentioned in the main text, the historical case studies allow us to code causal process observations for each bilateral border. Second, the following pages provide a useful guide for researchers interested in a particular border or who seek to ascertain whether a border enables a plausible natural experiment for their outcome of interest.[5]

We use the information from these case studies to code three original variables for each bilateral border:

1. The year of initial border formation and all years with subsequent major revisions.
2. The primary and secondary physical features.
3. Causal process observations that assess whether a historical political frontier affected the border.

We discussed the first variable in the "Historical Background: It Didn't Happen at Berlin" section of the article, which we used to produce Figures 2 and 3; see also Appendix A.1.3 for supplemental tables and figures. In Appendix C.1.1, we provide detailed coding rules for the last two variables. In Appendix C.1.2, we list every case for which we code a direct effect of historical political frontiers (both PCS and non-PCS). This also provides a concise overview of key episodes of African agency. Table C.1 summarizes the main variables, disaggregated by region.

Table C.1: African bilateral borders: region-by-region

Region	**# borders**	**HPF (direct effect)**		**Water body*** **(primary feature)**		**Straight line (primary feature)**		**Border formation (median year)**	
		Any	*PCS*	*Any*	*Major*	*Any*	*Lat/long*	*First*	*Final*
Northeast	17	76%	59%	35%	18%	59%	24%	1897	1914
North	14	64%	36%	14%	0%	79%	36%	1905	1916
West	27	63%	48%	74%	7%	22%	15%	1895	1911
Equatorial	17	24%	24%	82%	29%	18%	12%	1886	1919
East	14	64%	57%	86%	50%	14%	0%	1890	1910
Southern	18	72%	39%	72%	44%	44%	22%	1890	1891
Total**	**107**	**61%**	**44%**	**63%**	**23%**	**37%**	**18%**	**1891**	**1908**

*Includes watersheds as derivatives of water bodies.

**The sum of water bodies and straight lines as primary features exceeds 100% because some borders are coded as having both as co-primary features.

[5] We thank Dan Posner for this suggestion.

C.1.1 Sources and Coding Rules

Our main general sources are Hertslet (1909) and Brownlie (1979). The first, published by the British War Office, contains text for every inter-European treaty and every intra-British arrangement, through its date of publication. Brownlie (1979) also contains passages from many of these treaties; the value-added of this encyclopedia is to provide information on (a) events occurring after 1909, (b) the legal origins of each bilateral border, including French intraimperial borders (although we consulted numerous additional French-language sources), and (c) the actual alignment and delimitation of borders (for which we also consulted Google Maps whenever the border has not changed since 1960, as is true for most cases). Wesseling (1996) provides a detailed history of the period and McEwen (1971) provides detailed information on bilateral borders in East Africa. We consulted over 100 additional sources, cited throughout the following narratives, that provide more detailed histories of specific borders, colonies, empires, regions, and historical states.

One variable codes the physical features that comprise each border. The most common features are rivers, lakes, watersheds,[6] mountains, and straight lines (both parallels/meridians and non-astronomical). For each bilateral border, we identify one or two features that are primary in the sense of constituting the plurality (and usually the majority) of the length of the border. In some cases, this is obvious. For example, the Zambia–Zimbabwe border consists entirely of the Zambezi River. In Namibia–South Africa, there are two primary features, but these are also unambiguous: a longitude meridian comprises the entire north-to-south border, and the Orange River comprises the entire east-to-west border, and both segments of the border are roughly equal in length. Other cases lack an obvious primary feature(s). These cases require us to make a more subjective assessment based on the length of the different features, the frequency with which the legal documents mention different features, and historical context (usually putting more weight on features that were discussed earlier by European statesmen as more important). Secondary features are ones that comprise smaller segments of the border. Table 1 in the article summarizes the frequency with which each feature appears across the cases, and also presents every category.

Another variable codes whether a historical political frontier (HPF) directly or indirectly affected each border. The article describes the standards for coding a *direct effect*: we must find evidence that Europeans deliberately set a border in an area known to correspond with a particular historical political frontier. In some cases, the only evidence we uncovered about a historical political frontier was a treaty that mentioned various decentralized groups, often referred to as "tribes." Lacking additional documentary evidence, we did not code such cases as directly affecting the border; instead, we labeled the groups as coinciding with a distinct local feature such as villages or wells. In other cases, such as the PCS Bemba in northern Zambia near the border with Tanzania, we have historical information on Europeans' interaction with the group that confirms Europeans knew its location. However, absent additional evidence that Europeans *deliberately* positioned the border to reflect the borders of the state (mentions either in treaties or diplomatic communications), we do not code a direct effect. Given claims in the existing literature that historical political frontiers were largely irrelevant for African border formation, we believe that using a fairly high standard for coding a direct effect yields more credible evidence.

[6] Watersheds are land ridges that separate water flowing into different rivers. They are sometimes called watershed boundaries or drainage divides.

We code a separate standard for *indirect effect*, which encompasses two types of cases. First, a HPF affected an early border but not the final border (e.g., Zanzibar for borders in East Africa). Second, when the border created was derivative to considerations about a historical political frontier. For example, a reassessment of the traditional domain of PCS Lozi led to a revision of the Angola–Zambia border (direct effect), which in turn affected several neighboring borders (indirect effect). In North Africa, France deliberately positioned the border between Algeria and French West Africa to better position themselves to incorporate Moroccan territory (indirect effect).

The set of bilateral borders we analyze consists only of the "final" set of states, as the map existed in 1960. Thus, it lies outside the scope of our analysis to explain why certain colonies were merged or split throughout the colonial period. However, we highlight in various cases how African agency (focusing on leaders of historical states) played a role in keeping their state distinct from a neighboring (often larger) colony, as opposed to the affecting the specific location of a border: Buganda, Ethiopia, Mossi, Sotho/Swazi/Tswana, and Rwanda/Burundi. However, in all cases, the historical political frontier directly affected the borders by our main standards, and thus these additional observations about African agency do not affecting our coding.

C.1.2 Summarizing Effects of Historical Political Frontiers

The following lists every PCS coded as directly affecting at least one bilateral border. Table C.2 lists every other case in which a historical political frontier (non-PCS) affected at least one bilateral border.

- **Asante:** Britain fought wars with the Asante empire throughout the nineteenth century. The British Gold Coast was explicitly divided from French territories to incorporate the Asante within British territory. See Ghana–Ivory Coast.
- **Borgu:** France challenged Britain's suzerainty over Borgu territory. The "Race for Nikki" in 1894 and consequent interactions with African rulers made clear that Borgu consisted of distinct states. In 1898, following a near-war, they settled by dividing Bussa (Britain) and Nikki (France). See Benin–Nigeria.
- **Borno:** Following the collapse of its traditional ruling dynasty in the 1890s, Borno was originally divided between British Nigeria and German Cameroon. During WWI, the restored Shehu of Borno aided the British war effort. Afterwards, Britain set the borders of Northern Cameroons (governed as part of Northern Nigeria) to incorporate Borno, which officially joined Nigeria at independence. See Cameroon–Nigeria.
- **Buganda:** Britain's treaty with the ruler of Buganda was the foundational document in Britain's establishment of the Uganda Protectorate and its initial borders. Treaties with the rulers of **Bunyoro** and **Nkore** rounded out British claims in Western Uganda. The distinctiveness of Buganda from coastal areas and lobbying by PCS elites were cited by British officials as crucial considerations for not merging Uganda into Kenya. See Tanzania–Uganda and Kenya–Uganda.
- **Dagomba:** Dagomba was originally divided between Gold Coast and Togoland. After WWI and lobbying by its traditional ruler against the partition, Britain set the borders of British

Togoland (governed as part of the Gold Coast) to incorporate Dagomba, which officially joined Ghana at independence. See Ghana–Togo.

- **Dahomey and Egba:** France contested Britain's control over Yorubaland; after the collapse of the Oyo Empire, no African ruler controlled the entire region. The European powers settled in 1889; Britain gained Egba (the westernmost major Yoruba state) and France gained Dahomey. See Benin–Nigeria.
- **Darfur and Wadai:** Britain and France contested the Darfur/Wadai boundary. The Sultan of Darfur pressed for expansive territorial limits and used his army (which Britain had not disbanded) to fight France over contested claims. In 1919, the powers settled by dividing the disputed petty sultanates. See Chad–Sudan.
- **Egypt:** Britain's conquest of the nominally Ottoman province of Egypt was key to its claims over the Nile Valley, the driving macro-level factor that influenced borders throughout this part of Africa. Britain explicitly aimed to recreate the frontiers of Egypt and Egyptian-controlled Sudan when determining the borders for both colonies. See Egypt–Sudan.
- **Ethiopia:** Ethiopia expanded its empire throughout the 1890s and militarily defeated Italy's attempt at colonization in 1896. Ethiopia gained recognition of its expanded frontiers from multiple European powers, reversing their earlier dismissals of the emperor's territorial claims. See all the Ethiopia entries, especially Eritrea–Ethiopia.
- **Futa Jalon:** France's 1881 treaty with Futa Jalon secured its control over western Guinea from competing British and Portuguese claims; see Guinea–Guinea-Bissau. After France militarily defeated the state, its frontiers became internal administrative borders; see Guinea–Mali.
- **Gaza:** The ruler of Gaza signed a treaty with the British South Africa Company to obtain guns. London rejected this treaty to pacify Portuguese claims, which were used to split Mozambique from Southern Rhodesia. See Mozambique–Zimbabwe.
- **Lozi:** The Lozi king sought a British alliance to protect against attacks by the Ndebele. Portugal agreed that Lozi lay within the British domain, but the two powers disagreed about its territorial limits. International arbitration over this question yielded a major border revision in 1905. See Angola–Zambia.
- **Lunda and Kazembe:** The Congo Free State (CFS) thwarted other European powers to establish military control over the collapsing Lunda state, and Britain gained a treaty with Kazembe. A major border revision in 1894 divided CFS from the British sphere along the frontiers between these states. See Congo (Bel.)–Zambia.
- **Morocco:** Following the Agadir crisis with Germany in 1911, the core areas of the PCS Morocco were incorporated into the French sphere. However, successive postcolonial Sultans of Morocco have argued for expansive historical territorial limits that spanned into Spanish (Western) Sahara. See Morocco–Western Sahara.
- **Mossi:** France's military occupation of Ouagadougou and other Mossi states thwarted competing British and German claims; see Burkina Faso–Ghana. The distinctiveness of the

Mossi and their strategic alliance with France helps explain why the French created the Mossi-dominated colony of Upper Volta; see Burkina Faso–Mali.

- **Ndebele:** British control over the feared Ndebele state provided the territorial platform for northern expansion into present-day Zimbabwe. Settling the contested frontier between the Ndebele and the Bamangwato (a Tswana group who sent a deputation to London in 1895 to lobby against a proposed transfer from crown rule to the British South Africa Company) formed the basis of the Botswana–Zimbabwe border.
- **Porto Novo:** France's treaty with the coastal state of Porto Novo was explicitly used to separate its territory from British Lagos. See Benin–Nigeria.
- **Rwanda and Burundi:** The original borders for the Congo Free State incorporated part of Rwanda. Germany established military control in Ruanda-Urundi and challenged the original border, yielding a major revision in 1910; see Congo (Bel.)–Rwanda. After WWI, German East Africa was separated into a Belgian mandate (Ruanda-Urundi) and a British mandate (Tanganyika). The original border would have partitioned Rwanda to facilitate a British railroad, but lobbying (including by the Rwandan ruler) yielded a revision; see Rwanda–Tanzania. In the 1960s, lobbying by elites from each country at the United Nations yielded separate independence for Rwanda and Burundi; see Burundi–Rwanda.
- **Sokoto:** France accepted British suzerainty over the Sokoto Caliphate, but contested the limits of the Caliphate. This contention had a historical basis, Africans had fought continual wars against the expanding Caliphate. After several provisional borders, the powers settled in 1904, with France gaining control over smaller polities north of Sokoto's domains (including Damagaram, Gobir). See Niger–Nigeria.
- **Sotho:** The Sotho state allied with the British against Boer incursions. The Sotho ruler participated in various boundary agreements between the 1840s and 1860s that established the contemporary frontiers, which resulted in the Sotho losing large parts of their traditional homeland. Later, lobbying by Sotho leaders (deputations to London, petitions) influenced the decision to not incorporate Lesotho into the Union of South Africa. See Lesotho–South Africa.
- **Swazi:** The Swazi state allied with whites to guard against the Zulu and to prevent wars that could have dismantled the kingdom. The Swazi ruler participated in various boundary agreements, although they lost large parts of their traditional homeland. Later, lobbying by Swazi leaders (deputations to London, petitions) influenced the decision to not incorporate Swaziland into the Union of South Africa. See South Africa–Swaziland and Mozambique–Swaziland.
- **Tunis:** France's conquest of the nominally Ottoman province of Tunis established its paramountcy in North Africa, and France explicitly used Tunisia's historical frontiers to set colonial borders. See Algeria–Tunisia.
- **Zulu:** Britain fought wars with the Zulu throughout the nineteenth century. At the end of the century, it annexed Zulu territory to block Boer republics from gaining access to the sea, and this territory also divided the British and Portuguese spheres. See Mozambique–South Africa.

Table C.2: Effects of Historical Political Frontiers on Borders: Non-PCS

Other states		
Case	*Region*	*Borders*
Zanzibar	East Africa	Kenya–Tanzania*, Mozambique–Tanzania*
Msiri Yeke	Equatorial Africa	Congo (Bel.)–Zambia
Ottoman Tripolitania	North Africa	Chad–Libya, Egypt–Libya, Libya–Niger, Libya–Tunisia
Egyptian Sudan (and Mahdist)	Northeast Africa	Eritrea–Sudan, Ethiopia–Sudan
Tswana	Southern Africa	Botswana–South Africa, Botswana–Zimbabwe
Bagirmi	West Africa	Cameroon–Chad
Liberia	West Africa	Ivory Coast–Liberia, Guinea–Liberia*
Toucouleur Empire	West Africa	Guinea–Mali
Trarza, Brakna, Tagant	West Africa	Mauritania–Senegal
Wassoulou Empire	West Africa	Guinea–Ivory Coast, Guinea–Mali
White settlements		
Case	*Region*	*Borders*
British Kenyans	East Africa	Kenya–Uganda*
Cape Colony	Southern Africa	Namibia–South Africa
Matabeleland	Southern Africa	Mozambique–Zimbabwe
Orange Free State	Southern Africa	Lesotho–South Africa
Portuguese Zumbo	Southern Africa	Mozambique–Zambia
Shire Highlands	Southern Africa	Malawi–Mozambique, Malawi–Zambia
South African Republic	Southern Africa	Botswana–South Africa, Mozambique–South Africa, Mozambique–Swaziland, South Africa–Swaziland, South Africa–Zimbabwe
Decentralized and nomadic groups		
Case	*Region*	*Borders*
Tuareg	North Africa	Algeria–Mali, Algeria–Niger, Mali–Niger
Turkana	E/NE Africa	Kenya–Uganda, Kenya–Sudan, Sudan–Uganda
Ababda/Beja	Northeast Africa	Egypt–Sudan
Galla	Northeast Africa	Ethiopia–Kenya
Somali	Northeast Africa	Ethiopia–Somalia*,Kenya–Somalia, Ethiopia–Somaliland (British)*
Agotime	West Africa	Ghana–Togo*
Bariba, Gurma	West Africa	Benin–Burkina Faso
Dialonké	West Africa	Guinea–Senegal

Notes: This table lists every bilateral border for which we code either a direct or indirect effect of a historical political frontier that is not a PCS.

*Indicates indirect effect on border. All others are direct.

Table C.3: Desert Areas and Straight-Line Borders

Border	Parallel/meridian	Other straight line
North Africa		
Algeria–Morocco		
Algeria–Tunisia		
Algeria–Mali		✓
Algeria–Mauritania		✓
Algeria–Niger		✓
Libya–Tunisia		
Algeria–Libya		✓
Chad–Libya		✓
Libya–Niger		✓
Libya–Sudan	✓	
Egypt–Libya	✓	
Mauritania–Western Sahara	✓	
Algeria–Western Sahara	✓	
Morocco–Western Sahara	✓	
West Africa		
Mali–Niger	✓	
Mali–Mauritania		✓
Chad–Niger		✓
Northeast Africa		
Djibouti–Somaliland (British)		✓
Somalia–Somaliland (British)	✓	
Eritrea–Ethiopia		
Djibouti–Ethiopia		✓
Djibouti–Eritrea		
Ethiopia–Kenya		
Egypt–Sudan	✓	
Chad–Sudan	✓	
Southern Africa		
Namibia–South Africa	✓	
Angola–Zambia	✓	

Notes: This table lists every border that is primarily located in a desert. Check marks indicate that the specified type of straight line is a primary feature of the border. In sum, straight lines are the primary feature of 78% borders located in the desert (shown here), compared to 24% for the eighty non-desert borders.

C.2 North Africa

C.2.1 Regional Overview

Geographical proximity to southern Europe and declining Ottoman control over the region were the macro-level factors that shaped European involvement in North Africa. France became the dominant European power in coastal North Africa and the Sahara, although Spain and Italy were also present in the region.

Historical political frontiers were a key meso-level feature that affected spheres of influence in the coastal regions: Morocco, Tunis, Ottoman Tripoli (classified as "other state"), and French settlers in Northern Algeria. Farther south, the Sahara Desert was the most important meso-level feature. Every border in North Africa is located primarily in the desert, and the predominant feature of these borders is straight lines. Yet even in the desert, the micro-level border lines are less arbitrary than commonly assumed. The location of straight-line borders was often affected by the presence of streams (wadis, *oueds*), wells, and caravan routes. These local features mattered greatly for Africans on the ground. French administrators took into account the homelands of nomadic groups, notably the Tuareg, to determine the location of intraimperial borders. In general, "the [French] colonial logic was to preserve the old limits in order to manage the conquered territories more easily [...] Lines replaced zones, but these zones were effectively old borders."[1] In fact, "[t]his colonial appropriation of borders was so strong that it ended up making the military and colonial administrators, as well as the societies concerned themselves, forget that their origin was most often local, regional and negotiated with the populations and the political authorities."[2]

The following entries are mostly ordered chronologically by the initial year of border formation, although all entries for Western Sahara appear at the end.

Back to TOC

C.2.2 Algeria–Morocco

Overview. Originally formed in 1845 as an interimperial border between French Algeria and PCS Morocco; in 1912, Morocco became a French colony. Major revisions occurred in 1901 and 1912 (new segments). A historical political frontier (PCS: Morocco) directly affected the border. The primary feature is towns/villages. Secondary features are minor rivers, topography (hills, mountains, valleys, plateaus, passes), and straight lines (parallels/meridians).

Details. France established a colonial presence in Algeria in 1830 when they militarily occupied Algiers.[3] Over time, major white settlements became established across the entire longitudinal expanse of modern-day Algeria, concentrated mostly within 100 kilometers of the coast.[4] France also expanded southward into the Sahara throughout the nineteenth and twentieth centuries.[5] France

[1] Boilley 2019, 4.
[2] Lefèbvre 2015.
[3] Wesseling 1996, 12–13.
[4] See the map in Ajayi and Crowder 1985, "64 The European population in the colonial period."
[5] See the map in Ajayi and Crowder 1985, "44 North Africa in the nineteenth century" and here.

formally annexed the Saharan area of Algeria in 1902, and subsequently administered the area as the Territoires du Sud Algerién, or Southern Territories.[6]

Historically, the Moroccan state was divided into two regions, Bled el-Makhzen and Bled el-Siba. The former was the area of core territorial control, whereas the Sultan's authority in the latter (located farther inland and partially in the Sahara Desert) was purely nominal and religious.[7] Consequently, Morocco's historical boundary with the Ottoman vilayet (province) of Algiers was "conceptual and approximate rather than linear and exact. When they existed at all, jurisdiction and political power was, in the desert region, over persons and tribes and not over territory conceived of as such."[8]

The northernmost segment of the border (from the coast to Teniet-el-Sassi, a pass) was initially formed in 1845 in a treaty between France and Morocco. "The line is based upon the principle that the borders between Morocco and Turkey should remain as the frontier between Algeria and Morocco,"[9] which highlights the importance of historical political frontiers. The articles of the Treaty trace a path along various bodies of water, mountains/hills, passes, towns/villages, and "tribes" (which we consider as part of towns/villages), as outlined in the protocol's preamble. A protocol in 1901 confirmed the earlier treaty and extended the border southward to Figuig, hence completing the northmost part of the border that runs roughly vertically.

A French invasion led to Morocco becoming a protectorate in 1912. In the previous year, Germany had challenged French supremacy in Morocco in the Agadir crisis, which was resolved by Germany recognizing French influence in Morocco and France compensating Germany with territory from Equatorial Africa.[10] A series of proposals by a French administrator in 1912 yielded the roughly diagonal segment and the meridian line in the southernmost part (8°40'E longitude), the Varnier Line. The border also follows physical landmarks such as minor rivers (including a sizable segment using the Oued Draa), valleys, and plateaus.[11] These borders contracted Moroccan territory relative to precolonial precedents, but exclusively in the desert areas where historical territorial control was ill-defined.[12] The Draa River in particular was understood by French officials to be "the limit of the domain of the Saharan Nomad—a limit to Morocco's territorial extent in reverse."[13]

In 1938, Colonel Trinquet proposed an alternative line, south of Figuig, to replace the 1912 Varnier Line. The goal was to achieve military advantages stemming from better alignment with the "natural limits" of Morocco. Although the French government rejected the Trinquet Line, it formed the basis of Morocco's territorial claims against Algeria after independence. During colonial rule, the southeastern part of the Varnier Line changed several times and different official maps contradicted each other, which reflected the incomplete boundary definition in this region. The reason, according to the 1845 Treaty, is that "the lack of water which rendered the desert uninhabitable

[6] Brownlie 1979, 89.

[7] Ajayi and Crowder 1985, "44 North Africa in the nineteenth century."

[8] Brownlie 1979, 55; see also Trout 1969, 17.

[9] Brownlie 1979, 58.

[10] See Cameroon–Gabon.

[11] These features were detailed in a post-independence agreement between Algeria and Morocco in 1972, as the border had previously lacked precision (Brownlie 1979, 57–59).

[12] Trout 1969, 15.

[13] Trout 1969, 165.

also made its delimitation superfluous."[14] Morocco cited the vagueness and inconsistency of the colonial borders to assert that no boundary existed south of Teniet-Sassi, and Morocco claimed a track of territory east of the Varnier Line after the discovery of large deposits of oil and minerals in the region. This triggered the 1963 Sand War between Algeria and Morocco, which eventually yielded a political settlement on the current border. We do not code these episodes as major border revisions, though, because the 1938 Trinquet Line was rejected and the Sand War occurred after independence and did not result in territorial changes.

We choose towns/villages as the primary feature given their importance in the northernmost part of the border, which was formed first and is the most densely populated part of the border. The other features mentioned above are secondary. Non-astronomical straight lines comprise various short segments, and the southwestern most segment is a meridian line.

Back to TOC

C.2.3 Algeria–Tunisia

Overview. Originally formed in 1883 as a French intraimperial border between Algeria and recently conquered PCS Tunisia. The primary feature is other water bodies (wells). Secondary features are topography (mountains, passes), and straight lines (non-astronomical).

Details. France occupied Algiers in 1830 and, throughout the nineteenth century, expanded across the territory that encompasses the border with Tunisia.[15] Until France occupied Tunis in 1881, Tunis was an eyalet (province) of the Ottoman Empire, although in practice it was an autonomous beylik (kingdom).

French Algeria lacked a concrete boundary with the Beylik of Tunis prior to France's colonization of Tunisia. An 1871 Firman (decree) from the Ottoman Sultan to the Bey of Tunis confirmed that Tunis "will retain its boundaries, such as they exist *ab antiquo* . . ."[16] However, the document did not describe the borders. Shortly after occupying Tunis in 1881, a Circular issued from the French government to its diplomatic agents stated, "As there are no natural borders between Tunisia and Algeria, the delimitation has remained undecided and has never been done regularly."[17]

The originally formed part of the border stretches from the coast to as far south as Bir Romane (a drinking well), which constitutes roughly two-thirds of the contemporary border. Between 1883 and 1902, French delimitation, mapping, and administrative practice established this boundary.[18] We code the first year as the initial foundation and the last year as a major revision to indicate its evolution in the interim. The features are wells, passes, and mountains; with wells as the primary feature and the others as secondary features. This border also assigned four "tribes" (Oulad Sidi Abid el Hamadi, Gherib, Nememcha, Troud) to either side of the border while preserving traditional usage rights, mostly of wells (hence we code these groups as part of the wells feature

[14] Reyner 1963, 317.

[15] See Algeria–Morocco and the map in Ajayi and Crowder 1985, "56 Conquest and resistance in the Maghrib."

[16] Quoted in Hertslet 1909, 1184.

[17] Quoted in Hertslet 1909, 1184 in French, and translated to English by the authors.

[18] Brownlie 1979, 92.

of the border).[19]

South of Bir Romane, the boundary consists entirely of desert territory. The establishment of the Libya–Tunisia border created a tripoint with Algeria, north of which France established a series of straight-line sectors (non-astronomical) to connect northward to Bir Romane. Hence we code straight lines (non-astronomical) as a secondary feature. These were created by French administrative decisions in 1911 and 1923,[20] each of which we code as a major revision.

Back to TOC

C.2.4 Algeria–Mali

Overview. Originally formed in 1905 as a French intraimperial border between Algeria and French West Africa. A major revision occurred in 1909 (changed features: clarify local features). Historical political frontiers directly (decentralized group: Tuareg) and indirectly (PCS: Morocco) affected the border. The primary feature is a straight line (non-astronomical). Secondary features are minor rivers (oueds), topography (mountains), other water bodies (wells), and infrastructure (routes).

Details. France occupied Algiers in 1830. It expanded southward over the following decades and annexed the Southern Territories in the Sahara in 1902.[21] French eastward expansion from Senegal began in the 1860s, which resulted in the creation of the French West Africa federation (of which French Sudan, or Mali, was a constituent unit) in 1895.[22] France formed a border between the Southern Territories and French West Africa in the 1905 Convention between Algeria and French West Africa.[23] The western section of the border (roughly two-thirds of the total border) is a straight line (non-astronomical). We code this as the primary feature. In the east, the Niamey Convention of 1909 describes various physical characteristics such as minor rivers (oueds), mountains, and wells.[24] We code these as secondary features.

A nomadic group, the Tuareg, directly affected the southern third of the border. This part of the border deliberately separates two Tuareg groups, the Kel Ahaggar and the Kel Adagh. Tuareg peoples in the Sahara were not united on the eve of colonialism, but instead competed and sometimes fought each other.[25] Each Tuareg group (e.g., Kel Adagh, Kel Ahaggar) had its own leader and considered itself independent from other Tuareg groups. The 1905 Convention details the border using rivers/oueds and existing routes and explicitly states that the limits "can incur further modifications as the countryside becomes better known."[26] A major revision occurred with the Niamey Convention of 1909, which clarified that Algeria would keep the nomadic zones of the groups Kel Ajjer and Kel Ahaggar and French West Africa would keep the nomadic zones of Kel Adagh. Further modifications after 1909 improved the distribution of wells between the groups.

[19] Brownlie 1979, 93. For additional details on the role of wells in determining the border, see Blais 2011.
[20] Brownlie 1979, 91.
[21] See Algeria–Morocco.
[22] See Mali–Senegal.
[23] Boilley 2019, 6.
[24] Brownlie 1979, 47.
[25] Boilley 2019, 4.
[26] Boilley 2019, 6.

Consequently, "the historical logic of existing separations between Kel Ahaggar and Kel Adagh was respected and clarified by a detailed field study of the nomadic routes and the territorial claims of each group."[27]

The northern straight-line segment of the border is not randomly located, despite not incorporating any local features. Instead, it reflects two strategic military considerations by French officials: (1) administration and (2) the historical state of Morocco.[28] First, in the early twentieth century, the French deemed that the Sahara and West Africa were, collectively, too large to be governed as one region, especially because the French lacked any presence on the ground in the Sahara. This administrative consideration explains why *some* line had to be drawn between France's Sahelian and North African domains. Second, France sought to "gain Moroccan acquiescence to French control over all of the Sahara,"[29] and eventually to submit PCS Morocco to French rule. Some French colonialists, such as Minister of the Interior Eugène Etienne, sought to draw a border that would maximize French territorial claims. Consequently, if the present border were extended at the same northwestern angle to the Atlantic, it would end exactly at Cap Draa. This is the endpoint of the Oued Draa (river) that delimits part of the Algeria–Morocco border. To maximize French encroachment into Morocco's southern frontier, Etienne wanted the limits of French West Africa to lie as far north as possible.[30] Hence we code PCS Morocco as indirectly affecting the present border.

Back to TOC

C.2.5 Algeria–Mauritania

Overview. Originally formed in 1905 as a French intraimperial border between Algeria and French West Africa. The primary feature is a straight line (non-astronomical).

Details. See Algeria–Mali for the rationale behind the location of the straight-line border that extends from the Algeria–Mauritania–Morocco tripoint to the Algeria–Mali border. Like Mali, Mauritania became part of French West Africa.[31] The Mauritania component of the border (located entirely in the Sahara Desert) consists of the same straight line that forms the westernmost part of the Algeria–Mali border. Unlike the Algeria–Mali border, we did not uncover evidence of any geographic or other local features that explain the location of this straight-line border, although we discuss the geopolitical and military conquest rationales in Algeria–Mali.

[27] Boilley 2019, 7. For additional detail on the role of wells and different Tuareg groups in determining the border, see Lefèbvre 2015, 249–51.

[28] Trout 1969, 181–93.

[29] Trout 1969, 189.

[30] In 1903, Etienne wrote: "The political unity of the French Sahara could obviously only be obtained if the fact that it was French territory were to be recognized by the European powers and by Morocco [...] The logical connotation of that creation [military conquest] was naturally to be the acceptance of this situation by the Cherifien [Moroccan] Government, and its acquiescence was obvious in the course of the accords recently concluded between the French Republic and Morocco, since our agents have been rather fortunate to obtain from the Sultan a permanent recognition to our rights to the Sahara, henceforth French territory" (quoted in Trout 1969, 189).

[31] Mauritania was originally distinguished as a separate colony in 1904 and formally joined the French West Africa federation in 1920; see Mauritania–Senegal.

Back to TOC

C.2.6 Algeria–Niger

Overview. Originally formed in 1905 as a French intraimperial border between Algeria and French West Africa. A historical political frontier (decentralized group: Tuareg) directly affected the border. The primary feature is a straight line (non-astronomical). A secondary feature is other water bodies (wells).

Details. This was originally a border between Algeria and French West Africa.[32] The Niger component of the border (located entirely in the Sahara Desert) consists of three distinct straight-line (non-astronomical) segments delimited in the same 1905 and 1909 conventions as the Algeria–Mali border. The nomadic Tuareg group directly affected the border, which was deliberately drawn such that the territory of the Amenokal (paramount Tuareg chief) of the Kel Ahaggar would be located north of the border in Algeria, whereas the territory of the Sultan of Agadez would remain south of the border in Niger.[33] This division preserved a taxation system for merchants on which travelers had reported for centuries.[34] Notably, the border changes angles when it runs in between wells at In-Guezzam (Algeria) and Assamakka (Niger).[35] We lack direct documentary evidence, but we presume that this aspect of the border sought to enable people on both sides of the border to access water. Hence, we code wells as a secondary feature.

Back to TOC

C.2.7 Libya–Tunisia

Overview. Originally formed in 1910 as an interimperial border between Ottoman Tripolitania and French Tunisia; in 1912, Italy colonized the Ottoman territory. Historical political frontiers (PCS: Tunis; other state: Ottoman Tripolitania) directly affected the border. The primary feature is topography (hills, valleys). Secondary features are other water bodies (wells) and minor rivers.

Details. The entire area encompassed by this border was controlled by the Ottoman Empire until 1881, when France conquered Tunis. Ottoman Tunis was a distinct polity, but lacked definitive borders. An 1871 Firman (decree) from the Ottoman Sultan to the Bey of Tunis confirmed that Tunis "will retain its boundaries, such as they exist *ab antiquo* . . . ,"[36] but did not describe the borders. In 1910, France and the Ottoman Empire concluded a convention regarding the border.[37]

[32] See Algeria–Mali for the background on this division, Algeria–Morocco for the creation of Algeria, and Mali–Niger for the creation of Niger.

[33] See Algeria–Mali for more details on the Tuareg.

[34] These reports date back to Ibn Battuta in the fourteenth century, and continued through those of the pilgrim El Hadj Ahmed el Fellati, who spoke of "frontier" and "customs" in what would become the colonial border in 1882 (Boilley 2019, 8). For additional detail on the role of wells and different Tuareg groups in determining the border, see Lefèbvre 2015, 249–51.

[35] See the map in Brownlie 1979, 84.

[36] Quoted in Hertslet 1909, 1184.

[37] Brownlie 1979, 141. Martel 1965 provides extensive documentation of the negotiations between France and the Ottomans over the border.

We code the historical frontiers of both (formerly Ottoman) Tunis and Ottoman Tripolitania as directly affecting the border. The Ottoman Empire retained control over Tripolitania, to the east, until 1912, when Italian conquest occurred, and the border did not subsequently change.

The Convention of 1910 lists numerous hills (e.g., Touil Ali Ben Amar) and valleys that formed parts of the border,[38] and hence we code topography as the primary feature. It also lists various wells (e.g., Bir Zar and Mechiguig) and minor rivers, which we code as secondary features.

Back to TOC

C.2.8 Algeria–Libya

Overview. Originally formed in 1910 as an interimperial border between French Algeria and Ottoman Tripolitania; in 1912, Italy colonized the Ottoman territory. Major revisions occurred in 1919 and 1955 (new segments). The primary feature is straight lines (non-astronomical). Secondary features are towns/villages, minor rivers, other water bodies (oases), infrastructure (road), and topography (rock formations).

Details. France occupied Algiers in 1830 and expanded southward over the following decades, including the formal annexation of the Southern Territories in the Sahara in 1902.[39] The Ottoman Empire controlled Tripolitania until 1912, when it became an Italian colony. The entire border is located in the Sahara Desert, and consists of three distinct segments formed at different times.

- In 1910, France and the Ottoman Empire concluded a convention that primarily affected the Libya–Tunisia border. This also formed the very short (approximately 20mi) northernmost segment of the present border, which remained unchanged following Italy's conquest of Tripolitania in 1911–12. This segment starts at Fort Saint in the north (the southernmost city in Tunisia, currently named Borj El Khadra), and runs southwest to Ghadāmis (a Libyan oasis village).
- The middle segment between Ghadāmis and Ghat (a Libyan oasis village) is based on agreements between France and Libya in the Treaty of Friendship of 1955 and the 1956 Exchange of Letters. In the latter agreement, this segment is outlined using sixteen defined points from A to P that reference villages, infrastructure such as a landing strip and tracks, thalwegs, and rock formations.
- The southernmost segment lies between Ghat and the Niger tripoint, and was established in very general terms in the 1919 Exchange of Notes between France and Italy. Although the concession was minor, France extended the western border of Libya to honor its treaty obligation for Italy to gain "equitable" compensation for new territorial gains, a condition of their entering World War I on the part of the Allies.[40] The Notes discuss the rivers, mountains, and villages through which the border runs. Its alignment is based on territory that was historically important for trans-Saharan trade: the Ghat and Tumno passes, and multiple other oases and villages.

[38] See also the map in Brownlie 1979, 142.
[39] See Algeria–Morocco.
[40] McKeon Jr 1991, 151.

Overall, the border consists primarily of short straight-line segments.[41] Secondary features are mentioned above: towns/villages, minor rivers, oases, and topography (rock formations).

Back to TOC

C.2.9 Chad–Libya

Overview. Originally formed in 1898–99 by an Anglo–French treaty that created a unilateral northern boundary for France's sphere of influence; Italy conquered modern-day Libya in 1912. Major revisions occurred in 1919 (new segment) and 1934 (large territorial transfer: Sarra Triangle from Sudan to Libya). A historical political frontier (other state: Ottoman Tripolitania) directly affected the border. The primary feature is straight lines (non-astronomical).

Details. The present border consists of two straight-line segments that meet at the point formed by Tropic of Cancer and 16°E longitude. The eastern line was formed first. In a convention in 1898 and a supplementary declaration in 1899, Britain and France agreed to divisions between their spheres of influence across West Africa and the Central Sudan.[42] This agreement created a unilateral northeastern boundary for the French sphere of influence that consisted of a straight line starting at the point formed by Tropic of Cancer and 16°E longitude, and moving southeast until intersecting Sudan.[43] This line reflected a previously stated desire, in an 1890 Anglo-French Exchange of Notes, that a border agreement reached at that time "does not affect any rights which His Imperial Majesty the Sultan may have in the regions which lie on the southern frontier of his Tripolitanian dominions."[44] The Ottomans publicly denounced both the 1890 and 1898–99 Anglo-French agreements, of which they were not a signatory, by claiming that the agreements transgressed on their territory (although no state directly occupied or governed this territory). Between 1906 and 1911, the Ottomans militarily occupied modern-day northern Chad. However, Italy's military defeat of the Ottomans in Tripoli in 1912 rendered these territorial claims moot.[45] In a 1919 exchange of notes with France, Italy implicitly accepted the border established in 1898–99.[46]

The western border line was "the conventional, i.e. the actual administrative or political, boundary forming the southern limit of the Turkish vilayets of Tripoli and Barca."[47] The exact date at which the final line was adopted is unclear. The first date that Brownlie mentions is 1919, when he states that the alignment received "implicit recognition" in a Franco-Italian exchange of notes. We code this as the year of formation for this portion of the border. For the aforementioned reasons, both segments of the border reflected (at least approximately) the historical political frontiers of the Ottoman empire, which we code as directly affecting the present border.

[41] See Google Maps.
[42] See Chad–Sudan for the precipitating events.
[43] See Hertslet 1909, 796–97 for the text and Shaw 1935, 50–51 for ambiguities in the exact location of this line.
[44] Quoted in Hertslet 1909, 740.
[45] McKeon Jr 1991, 194–51.
[46] Brownlie 1979, 121.
[47] Brownlie 1979, 121.

In 1934, Britain transferred the Sarra Triangle to Italy.[48] Adding this territory to southern Libya resulted in a large segment of what had been the Chad–Sudan border instead becoming the Chad–Libya border. This new segment greatly lengthened the easternmost of the two lines that already comprised the border.

In 1935, France and Italy agreed to transfer a portion of Chad (now known as the Aouzou Strip) to Libya. However, shortly after agreeing to the 1935 Treaty of Rome, Italy renounced the deal and the transfer never took place.[49] In 1970s and 1980s, Chad and Libya fought a war over the Aouzou Strip.

Back to TOC

C.2.10 Libya–Niger

Overview. Originally formed in 1919 as an interimperial border between Italian colonies (later unified into Libya) and French West Africa. A historical political frontier (other state: Ottoman Tripolitania) directly affected the border. The primary feature is straight lines (non-astronomical). Secondary features are topography (mountains, valleys) and minor rivers.

Details. The process of forming this border was very similar to that for Chad–Libya, except that the 1898–99 Anglo-Franco agreements did not affect any portions of the present border.[50] As with the western portion of the Chad–Libya border, "[t]he boundary derives from the original southern limits of the vilayet of Tripoli," which was formalized in the 1919 Franco-Italian Exchange of Notes.[51] The border consists entirely of straight-line segments. A non-ratified 1938 Agreement between France and Italy mentions mountains, valleys, and minor rivers, among other physical features; all of which we code as secondary features.

Back to TOC

C.2.11 Libya–Sudan

Overview. Originally formed in 1925 as an interimperial border between Italian colonies (later unified into Libya) and Anglo-Egyptian Sudan. A major revision occurred in 1934 (large territorial transfer: Sarra Triangle from Sudan to Libya). The primary feature is straight lines (parallels/meridians).

Details. Britain gained effective occupation of Sudan in 1898,[52] and Italy conquered Tripolitania in 1912.[53] Britain and Italy originally set a border between their possessions in 1925,[54] which

[48] See Libya–Sudan.
[49] McKeon Jr 1991, 152–53.
[50] Brownlie 1979, 127 explicitly critiques the claim found elsewhere that the 1898–99 Anglo-Franco agreements influenced the present border.
[51] Brownlie 1979, 127.
[52] See Chad–Sudan.
[53] See Libya–Tunisia.
[54] See Egypt–Libya.

created the present border. Britain and Italy disputed who should control the Sarra Triangle.[55] This was an unoccupied desert piece of land north of Chad and south of the 22°N latitude.[56] Britain ceded this territory to Italy in a 1934 Agreement, which resulted in the border consisting entirely of parallels/meridians: 24°E longitude, 25°E longitude, and 22°N latitude.

Back to TOC

C.2.12 Egypt–Libya

Overview. Originally formed in 1925 as an interimperial border between British Egypt and Italian colonies (later unified into Libya). Historical political frontiers (PCS: Egypt; other state: Ottoman Tripolitania) directly affected the border. The primary feature is a straight line (parallels/meridians). A secondary feature is topography (mountains).

Details. Egypt and Libya (Tripoli) were provinces of the Ottoman empire prior to colonization by Britain and Italy, respectively. A Firman (royal decree) from 1841 addressed by the Ottoman Sultan to the Pasha (governor) of Egypt articulated the border with Tripoli. The accompanying map showed the western boundary of Egypt as "extending southeastward and in an irregular line from Khalīj al Kanā'is on the Mediterranean to a point immediately east of the 29th meridian and slightly north of the latitude of Aswan."[57] This division in the desert was replicated by the Agreement of 1925 between Egypt (Britain) and Italy, although their border was located farther west (which reflects the general uncertainty of territorial claims in the desert, even when PCS are involved).[58] The vast majority of the border is the 25°E meridian, until reaching the northernmost part, which is determined by various mountains.

Back to TOC

C.2.13 Mauritania–Western Sahara

Overview. Originally formed in 1900 as an interimperial border between French West Africa and Spanish colonies (later unified into Spanish Sahara). A historical political frontier (PCS: Morocco) indirectly affected the border. A major revision occurred in 1904 (new segment). The primary feature is straight lines (parallels/meridians). Secondary features are topography (mountains) and straight lines (non-astronomical).

Details. Starting in the 1860s, France expanded eastward and northward from its coastal settlements in Senegal, which yielded a presence in modern-day Mauritania by the end of the nineteenth century.[59] In 1885, Spain declared a protectorate along a coastal strip between Cape Blanco (Ras Nouadhibou) and Cape Bojador farther north;[60] the former was the northern limit of France's

[55] Ali Taha 1977; Brownlie 1979, 133–35. For background on why Britain and France ceded territory to Italy after World War II, see Algeria–Libya and Kenya–Somalia.

[56] East of Libya, this parallel forms the Egypt–Sudan border.

[57] Brownlie 1979, 104.

[58] Despite its concreteness, we do not code 1841 as the formation of the border because it did not involve any European actors.

[59] See Mauritania–Senegal.

[60] Hertslet 1909, 1163–64.

sphere of influence recognized at the 1815 Congress of Vienna.[61] This later formed the coastal frontiers of the crown colony of Rio de Oro, which itself later became part of Spanish Sahara.[62] In 1900, France and Spain determined the southern and eastern limits of Rio de Oro,[63] which yielded most of the contemporary Mauritania–Western Sahara border. A convention in 1904 placed a strip north of Rio de Oro (between 26°N and 27°40'N) within the Spanish sphere.[64] Known as Sequiet el Hamra, this territory became the northern part of Spanish Sahara. The border was not subsequently changed,[65] but the 1904 agreement was not finalized until 1912, after France conquered Morocco and signed a new agreement with Spain.[66] As part of the 1912 Convention, Sequiet el Hamra was formally separated from French Morocco, which made it "outside the limits of the Moroccan Empire."[67] We code an indirect effect for PCS Morocco because this decision ensured that the present border would not be subsequently revised.

The present border lies entirely within the Sahara Desert and consists mostly of parallel/meridian lines. The location of these lines is not entirely arbitrary. For example, the northernmost segment is the 8°40'W longitude meridian, and the border shifts to the 26°N latitude parallel where these two intersect; and Cape Bojador lies on the same latitude,[68] although the border is far from the coast. A smaller segment in the south consists of non-astronomical straight lines that link successive summits of various mountains, including Galb Azefal, El Gaicha, Lazib, and Galb Musa.[69]

Back to TOC

C.2.14 Algeria–Western Sahara

Overview. Originally formed in 1904 as an interimperial border between French Algeria and Spanish colonies (later unified into Spanish Sahara). The primary feature is a straight line (parallels/meridians).

Details. The present border is the same as the northernmost part of the Mauritania–Western Sahara border, the 8°40'W longitude meridian. It lies entirely within the Sahara Desert.

Back to TOC

C.2.15 Morocco–Western Sahara

Overview. Originally formed in 1904 via a Franco–Spanish agreement to determine a northern limit for Spain's colonies (later unified into Spanish Sahara); in 1912, France and Spain partitioned Morocco. A historical political frontier (PCS: Morocco) directly affected the border. Major revisions occurred in 1912 (large territorial transfer: Cape Juby to Spain), 1958 (large territorial

[61] Warner 1990, 12.
[62] And, from 1946 to 1958, Spanish West Africa.
[63] Hertslet 1909, 1165–67.
[64] Brownlie 1979, 437.
[65] See the map in Deasy 1942, 305.
[66] See Morocco–Western Sahara.
[67] Trout 1969, 202.
[68] Trout 1969, chapter V: D.
[69] Brownlie 1979, 441.

transfer: Cape Juby to Morocco), and 1969 (enclave transfer: Ifni to Morocco). The primary feature is a straight line (parallels/meridians).

Details. In 1885, Spain claimed coastal territory, and concluded agreements with France in 1900 and 1904 to determine borders.[70] The border established in 1904, which lies entirely in the Sahara Desert, consists solely of the 27°40'N latitude parallel and represents the northern boundary of Sequiet el Hamra, which later became part of Spanish Sahara. The final border follows the same latitude parallel. However, the 1904 border coincides with the final border only because, in 1958, Morocco pressured Spain to return the Cape Juby strip it had gained earlier in 1912. Furthermore, Spain possessed the enclave territory of Ifni, which it returned to Morocco 1969.[71]

After conquering Morocco in 1912,[72] France signed a convention with Spain.[73] France gained most of the areas corresponding with the historical state, but ceded to Spain three pieces of territory from Morocco, which constituted the Spanish Morocco Protectorate. The first two territorial concessions were: (1) a territorial strip along the Mediterranean coast that included Melilla and Ceuta (but excluded Tangier, which became an international zone), and (2) an enclave for Ifni. These formalized earlier Spanish claims, which the Sultan of Morocco had acknowledged in nineteenth-century treaties. During the fifteenth and sixteenth centuries, Spain gained the Canary Islands, Melilla, and Ceuta. In 1860, Spain gained control of the enclave of Ifni, located farther south.[74]

The third concession in 1912 from France to Spain was a strip known as Cape Juby, located between the 27°40'N latitude (the northern boundary of Spanish Sahara) and the Draa River.[75] Adding Cape Juby to the Spanish sphere constituted a large territorial transfer and shifted the French–Spanish boundary northward from the latitude parallel to the Draa River.

For decades, Spain's Morocco Protectorate was a legally distinct entity from the crown colony of Spanish Sahara to the south, but in 1946 Spain combined Spanish Sahara, Cape Juby, and Ifni into a single administrative unit, Spanish West Africa. Following the Ifni War of 1957–58, Spain ceded Cape Juby to Morocco, which had become independent from France in 1956. This recreated the 27°40'N latitude parallel as the boundary between Spanish possessions and the now-independent Morocco. In 1969, under UN pressure, Spain ceded Ifni to Morocco, which constituted an enclave transfer.[76] Ceuta and Melilla remain autonomous cities of Spain to the present day. In addition to disputes over the aforementioned territories, Morocco continues to lay claim over all of Spanish Sahara (now Western Sahara) on the basis that it had historically controlled these territories and that Spain illegally occupied them.[77]

Back to TOC

[70] See Mauritania–Western Sahara.
[71] For maps of the following territories, see here and here.
[72] See Algeria–Morocco.
[73] The 1912 agreement publicly formalized a secret treaty that France and Spain had concluded in 1904 to partition Moroccan territory following conquest.
[74] Hertslet 1909, 1162; Marks 1976, 3–4).
[75] Official Documents 1913.
[76] Marks 1976, 6–8.
[77] Brownlie 1979, 156–58.

C.3 West Africa

C.3.1 Regional Overview

From Senegal to Nigeria, Europeans had extensively traded with coastal West Africans for centuries, most notoriously in slaves. Precolonial states such as Asante, Dahomey, and polities in Yorubaland intimately shaped both slaving and legitimate commerce. Four European powers (Britain, France, Portugal, Germany)[1] and Americo-Liberians competed to secure preferential trading arrangements. Macro-level competition resulted in these actors controlling various, often alternating, natural harbors and historical trading posts (see Figure A.2 in Appendix A). Consequently, colonial and postcolonial West African states (in particular those on the coast) tend to be smaller and narrower than elsewhere.

Political and economic geography along the coast shaped only the broad contours of West African colonies. Precolonial states and rivers were meso-level objects of interest that shaped micro-level border formation. Throughout the region, Europeans signed treaties with local rulers to establish their claims on the coast and farther inland. For example, Britain and France competed to control the Niger River. British agents from the Royal Niger Company secured treaties throughout modern-day Nigeria. These actions led to disputes with France about the limits of the Sokoto Caliphate and Borgu states, which determined Nigeria's borders with Niger and Benin, respectively. Elsewhere, states such as Futa Jalon, Samori's empire, and Ouagadougou (Mossi) determined the limits of French claims, as its troops expanded eastward from their long-standing stronghold at the mouth of the Senegal River. France often followed its military victories by incorporating historical political frontiers as guides for intraimperial borders, which reduced administrative costs.

The following presents all the interimperial borders first, followed by intra-French borders; each of which is ordered chronologically by the initial year of border formation.

Back to TOC

C.3.2 Guinea–Sierra Leone

Overview. Originally formed in 1882 as an interimperial border between a French colonial division (later reconfigured as the colony of Guinea) and British Sierra Leone. Major revisions occurred in 1889 (new segment), 1896 (changed features: switch lines to local features), and 1912 (small territorial transfer). A historical political frontier (PCS: Futa Jalon) directly affected the border. The primary feature is minor rivers. Secondary features are minor watersheds, towns/villages, infrastructure, and straight lines (parallels/meridians and non-astronomical).

Details. British settlements in Sierra Leone date back to 1787, when Freetown was established as a Black resettlement colony; and Sierra Leone became a Crown Colony in 1808. Expansion into the interior occurred in the 1880s, culminating in the declaration of a Protectorate in 1896.[2] French traders established outposts along the coast of modern-day Guinea starting in the 1820s. This became the Rivières du Sud division in 1882, and Guinea became its own colony in 1891.[3]

[1] Other European states, such as the Netherlands and Denmark, relinquished their claims earlier in the nineteenth century.

[2] Hertslet 1909, 23–58; Wight 1946*a*, 41–43.

[3] See Guinea–Mali.

The present border was initially established in 1882 in a convention that addressed "the Settlement of Territorial Limits to the North of Sierra Leone," which mentions the Mellicourie and Scarcies rivers.[4] A major revision occurred in 1889, when an Anglo-French agreement concerning territories throughout West Africa set the 10°N latitude parallel as the northern limit of Sierra Leone east of the point where the aforementioned rivers were used for the border.[5] An 1895 agreement concerned "the Boundary between the British and French Possessions to the North and East of Sierra Leone."[6] The maps accompanying this agreement and an 1896 procès-verbal that provided a more detailed description demonstrate close correspondence with the contemporary border.[7]

The final major revision occurred in 1912. "The borders between Guinea and Sierra Leone were demarcated in two sections, the first from the Basse-Côte to the source of the Niger (Faranah), between 1895–1896, and the second from Faranah to the border with Liberia, between 1911–1912."[8] In 1911, just prior to delimiting the eastern segment of the border, the French gained the present-day Gueckédou Prefecture, which moved the border over more than fifty kilometers south. This small territorial transfer took place in the presence of British agents, French agents, and local African rulers.[9]

We code minor rivers, which comprise a sizable portion of the contemporary border, as the primary feature. The original border was based exclusively on two rivers that reach the coast (the area of greater strategic interest) and the 1895–96 documents mention additional rivers and watersheds (in particular south of the Digipali village). These agreements also reference many villages to align the border (specifically in which sphere each village lies) as well as sixty roads and paths (infrastructure) that the border intersects. Finally, the 10°N latitude parallel comprises a segment of the northern border, and short non-astronomical straight-line segments are used as well. We justify coding PCS Futa Jalon as directly affecting the border in Guinea–Guinea-Bissau.

Back to TOC

C.3.3 Liberia–Sierra Leone

Overview. Originally formed in 1885 as an interimperial border between Liberia and British Sierra Leone. Major revisions occurred in 1903 (new segment), 1908 (small territorial transfer), and 1911 (changed features: switch lines to local features). A historical political frontier (other state: Liberia) directly affected the border. The primary feature is minor rivers. Secondary features are topography (mountains), towns/villages, infrastructure (roads), and straight lines (parallels/meridians).

Details. British settlements in Sierra Leone date back to 1787, when Freetown was established as a Black resettlement colony; and Sierra Leone became a Crown Colony in 1808. Expansion into the interior occurred in the 1880s, culminating in the declaration of a Protectorate in 1896.[10]

[4] Hertslet 1909, 723.
[5] Hertslet 1909, 730.
[6] Quoted in Hertslet 1909, 757.
[7] See Hertslet 1909, 764, 778; Sandouno 2015, 79-90.
[8] Sandouno 2015, 81.
[9] Sandouno 2015, 86–90.
[10] Hertslet 1909, 23–58; Wight 1946*a*, 41–43.

Liberia was initially established in 1822 as a resettlement colony for formerly enslaved Africans in the United States.[11] Liberia proclaimed itself an independent state in 1847, which gained recognition from the United States, Britain, and other European powers. A map produced in 1839 by the American Colonization Society depicted a strip along the coast that largely aligns with the contemporary coastal reach of Liberia.[12] This included the separate Republic of Maryland, which was integrated into Liberia in 1857. However, poor relations with indigenous Africans living inland prevented Americo-Liberians from expanding beyond the coast.[13]

The majority of the present border was formed in 1885, consisting of minor rivers (Mannah/Mano, Maia, Magowi) that extend from the Atlantic to the 10°36'18"W longitude meridian. An agreement in 1903 made this meridian line part of the border, most of which was replaced by rivers in a subsequent agreement in 1911. In 1908, Britain annexed an area of roughly 50 sq. km. west of Mano River in exchange for a similarly sized piece of land east of the river (on its left bank), which went to Liberia.[14] The treaties also mention mountains, villages, and roads.

We code a historical political frontier (Liberia) as directly affecting the border because the original coastal reach of Liberia determined where it would intersect with Sierra Leone.

Back to TOC

C.3.4 Ghana–Togo

Overview. Originally formed in 1886 as an interimperial border between the British Gold Coast (Ghana) and German Togoland (Togo). Major revisions occurred in 1899 and 1904 (new segments) and 1919 (large territorial transfer: British Togoland to Ghana). Historical political frontiers directly (PCS: Dagomba) and indirectly (decentralized groups: Agotime, others) affected the border. The primary feature is minor rivers. Secondary features are topography (mountains, hills) and straight lines (parallels/meridians).

Details. British influence along the Gold Coast dated back to the slave trade in the seventeenth century, and direct crown rule began in 1821. In 1850, the Dutch ceded its forts and interests in the lower Volta to Britain. In the ensuing decades, British administrators sought to deter Asante invasions into the area. One administrator claimed that the decentralized groups of "the Akwamu, Krepe, Anlo and Agotime had considered themselves to be part of a British protectorate since the transfer of Danish interests," although the British government rejected these claims because, prior to the 1880s, it sought to minimize its territorial responsibilities.[15] In July 1884, Germany declared protectorates over the coastal areas of present-day Togo,[16] which unleashed a scramble to secure treaties with local rulers in the frontier zone between the British and German spheres. Britain reversed its earlier stance on limited territorial claims and proclaimed influence over numerous groups, which Germany countered. "At the centre of these rivalries was Agotime, which was

[11] Hertslet 1909, 1130–33.
[12] See here.
[13] Sandouno 2015, 94.
[14] Sandouno 2015, 93.
[15] Nugent 2019, 135.
[16] See Cameroon–Nigeria.

considered as the most important polity next to Peki."[17]

In 1886, Britain and Germany concluded their first bilateral border treaty, which was augmented in 1887 to incorporate the aforementioned decentralized groups into the boundary. A joint recommendation of the British and German boundary commissioners stated that the boundary line was to be extended to "include within the German Protectorate the territories of Towe, Kowe, and Agotime, and to leave within the British Protectorate the countries of Aquamoo and Crepee (or Peki)"; this agreement also specified the Volta and Daka rivers as parts of the border.[18] British and German officials continued to contest each others' claims, in particular over Agotime; Britain claimed that Germany had secured an invalid treaty signed by an ambiguous "king" of this decentralized group. They settled these claims in the general Anglo–German 1890 agreement that determined their mutual boundaries across the continent, with Germany gaining most of contested areas between Ghana and Togo. Nugent concludes, "the majority of a historical frontier passed to one colonial claimant, in this case the Germans."[19] Thus, we code an effect of Agotime and other decentralized groups, although the effect is indirect because of post-WWI revisions that moved the border farther east (see below).

Yet even in 1890, the border was still confined relatively close to the coast; the sketch map referred to in Article IV of the treaty reaches only about one-quarter as far north as the later borders.[20] The southernmost portion of the border (reaching as far north as 6°20'N) consists of short stretches of meridian lines and the Aka river,[21] and farther north the treaty refers to various rivers, including the Volta. The description of the original border ended at the confluence of the Volta and Daka rivers.[22] The border was extended farther north in 1899. Conventions in 1899 and 1901 specified that the Daka river would be used as the border up to 9°N latitude.[23] An Exchange of Notes in 1904 extended the border as far north as its contemporary extent,[24] hence finalizing the Anglo–German version of the border.

Britain and France occupied German colonies during World War I. In 1919, as part of the war settlement, Britain and France partitioned Togo, with British Togoland comprising the western part that neighbors Ghana. At independence, British Togoland voted to join Ghana, and therefore the border between British Togoland and French Togoland (modern-day Togo) became the Ghana–Togo border. Almost the entire border was shifted eastward, with the exception of the originally formed part located south of 6°20'N.[25] According to the 1919 agreement, the revised boundary consisted primarily of minor rivers, with watersheds and hills comprising secondary features. The boundary surveyors were explicitly instructed, where the treaty was ambiguous, to "lay down the frontier in accordance with natural features (rivers, hills, or watersheds)."[26]

[17] Nugent 2019, 136.
[18] Hertslet 1909, 890–91.
[19] Nugent 2019, 139.
[20] Hertslet 1909, 903–4.
[21] This is the only portion of the Anglo–German border that survived the extensive revisions in 1919, described below.
[22] The spelling in the treaty is "Dakka."
[23] Hertslet 1909, 920, 927–930.
[24] Hertslet 1909, 935–37.
[25] Brownlie 1979, 252, and see the map on p. 250.
[26] Brownlie 1979, 254–56.

Another consequence of the 1919 border revision was to restore the PCS Dagomba within a single colonial administration. "In the northern part of [German] Togoland there were several native states that were split by the Anglo-German boundary. Among these, the Dagomba kingdom was the largest. Its ruler or 'Na' had his capital at Yendi, in German territory. After the British invasion, he signed a treaty acknowledging their sovereignty, and asking that his former state be reunited. Mamprussi and a small part of Gonja had likewise been separated by the former frontier. With this situation in view, it was decided at the Paris Peace Conference that Togoland should be divided in such a way as to reunite these tribes . . . for the same reason, the British were allowed, by Section 9 of the mandate, to administer the area as an integral part of the Gold Coast Dependency."[27] Consequently, we code a direct effect of PCS Dagomba on the border. By contrast, the revised border continued to divide decentralized Ewe groups in the south. "Some sympathy was expressed for the plight of the Ewe peoples to the south, but since they had never constituted a single political unit it was felt that their case was less pressing."[28]

Back to TOC

C.3.5 Guinea-Bissau–Senegal

Overview. Originally formed in 1886 as an interimperial border between Portuguese Guinea (Guinea-Bissau) and French Senegal. The co-primary features are minor rivers and straight lines (parallels/meridians). A secondary feature is straight lines (non-astronomical).

Details. French presence and interests along the Senegal River date back to the seventeenth century, and during the nineteenth century French traders expanded their influence farther south to the Casamance River.[29] Portuguese presence in the region dated back to the fifteenth century. However, Portuguese influence had become limited by the 1840s as the predominant economic activity switched from slave trading to exporting peanuts.[30] French traders were dominant even in the areas farther south that had long been nominally controlled by Portugal.[31]

France and Portugal delimited their frontiers in a treaty in 1886.[32] Portugal's cession of Casamance to France confirmed the status quo in the region.[33] In return, France took a permissive stance on Portugal's territorial ambitions in Central Africa.[34] The border consists of two main parts. In the west, from the Atlantic to roughly the point where the Casamance ceases to be a notable river,[35] the treaty specifies that the border is to be equidistant between the Casamance River (in the French sphere) and the Cacheu River (in the Portuguese sphere). The border itself consists

[27] Bourret 1949, 96–97.
[28] Nugent 1996, 43.
[29] See Gambia–Senegal.
[30] Brooks 1975.
[31] Bowman 1987, 98–99.
[32] Hertslet 1909, 674.
[33] Woocher 2000, 344.
[34] Clarence-Smith 1985, 83; and see Article IV of the treaty in Hertslet 1909, 675. Britain formally protested Article IV of the 1886 Franco–Portuguese treaty and eventually colonized most of the disputed area in Central Africa; see Malawi–Mozambique.
[35] See Google Maps. The treaty refers to this point as the 12°50'E longitude meridian, providing an example of how even astronomical lines can be chosen to correspond with natural geographic features.

of short straight-line (non-astronomical) segments that trace the midpoint between the two rivers. Farther east, the border is a latitude parallel (12°40'N latitude). We code minor rivers and parallels/meridians as co-primary features because each of the two segments is roughly equal in length. Non-astronomical straight lines are a secondary feature.

Back to TOC

C.3.6 Guinea–Guinea-Bissau

Overview. Originally formed in 1886 as an interimperial border between a French colonial division (later reconfigured as the colony of Guinea) and Portuguese Guinea (Guinea-Bissau). A historical political frontier (PCS: Futa Jalon) directly affected the border. The primary feature is minor rivers. A secondary feature is straight lines (non-astronomical).

Details. France and Portugal delimited their frontiers in the Guinea region in a treaty in 1886.[36] At the time, Senegal and Guinea were not separate territorial entities.[37] A distinctive aspect of what became the Guinea portion of the French-Portuguese border was the importance of a precolonial state. Futa Jalon was incorporated into Guinea (French) and was located close to the borders with Guinea-Bissau (Portuguese) and Sierra Leone (British). Britain relinquished its earlier claims over Futa Jalon to France, and the 1886 Franco–Portuguese treaty explicitly mentioned the boundaries of Futa Jalon as part of the colonial border.

To provide more details on the importance of PCS Futa Jalon, British agents (from Freetown) and French agents (from Rivières du Sud, or the coastal sections of modern-day Guinea) vied for control over Futa Jalon by signing various treaties with the ruler, the *Almamy*. Ultimately, Britain relinquished its claims to France: "British action stimulated the French to action and Dr. Bayol, Governor of the Rivières du Sud, obtained treaties which he insisted now excluded any claims Britain might have had, since he had obtained the signature of Ibrahima Suri, as well as that of the alternate Almamy.[38] Whatever the rights and wrongs of Bayol's claims, the treaties were accepted in Paris and the Futa Jallon became acknowledged as being under French influence."[39]

"The Bayol treaty, even though it did not accurately describe the relationship between Futa Jallon and France, nevertheless became a foundation for French claims vis-à-vis the Portuguese when the two European powers negotiated their African claims in the Portuguese-French convention of May 12, 1886."[40] Article II of the treaty exclusively concerned Futa Jalon: "Art. II.—His Majesty the King of Portugal and Algarves recognizes the French Protectorate over the territories of Fouta-Djallon, such as it was established by the Treaties concluded in 1881 between the Government of the French Republic and the Almamys of Fouta-Djallon."[41] Britain also explicitly recognized France's control over Futa Jalon in treaties in 1889 and 1895.[42]

[36] See Guinea-Bissau–Senegal.
[37] See Guinea–Senegal.
[38] The position of Almamy rotated between two families every two years.
[39] Crowder 1968, 94.
[40] Carpenter 2012, 117.
[41] Quoted in Hertslet 1909, 674.
[42] Hertslet 1909, 733, 762–63.

The border chosen by France and Portugal did in fact correspond with the outer region of Futa Jalon:

> "Indeed, the 13°39'46.05"W demarcation outlined as the eastern border of Portuguese territory coincided precisely with the limits suggested by Bayol and Noirot during the mission. Though Bayol's initial reports do not cite a specific astronomical demarcation, he does suggest as territorial limits areas that correspond to the astronomical limits given in the treaty. Noirot, in an 1885 description of Futa Jallon wrote that although the almamys claimed their rule extended to the coast, those peripheral communities paid tribute to Futa Jallon only as a means of securing peace. He gave as a western limit of Futa Jallon the longitude of 13°39'46.05"W, the limit given the following year in the Portuguese–French convention. *Here, the eastern boundaries of Portuguese Guinea, while seemingly arbitrary in their specificity, were informed by the perceived limits of Futa sovereignty in the 1880s*" [our emphasis].[43]

The 1886 treaty relies primarily on rivers such as Senta, Binasse, Oualé Oualé, Corubal, and Niamanka to align the border. As with the Senegal section of the border, it often specifies that the border should lie equidistant between rivers in the French and Portuguese spheres, and consequently straight lines (non-astronomical) to trace these midpoints are secondary features of the border.

Back to TOC

C.3.7 Benin–Togo

Overview. Originally formed in 1887 as an interimperial border between what became French Dahomey (Benin) and German Togoland (Togo). A major revision occurred in 1897 (new segment). The primary feature is straight lines (parallels/meridians). Secondary features are minor rivers, towns/villages, topography (mountains, hills), and straight lines (non-astronomical).

Details. French interests in modern-day Benin date back to the slave trade in the seventeenth century, with Ouidah, Porto-Novo, and Cotonou serving as major trading posts.[44] These posts languished in importance following prohibitions on the slave trade, although France reopened its post at Ouidah in 1843,[45] and gained a protectorate over Porto Novo in 1863.[46] In July 1884, Germany unexpectedly declared a protectorate spanning certain coastal towns in Togo.[47] In 1885, these two powers signed a protocol that respected each others' control over certain port towns, but stated that a border was to be drawn in the future.

The border was initially formed in a procès-verbal in 1887, which decreed that the border would be a straight line stemming from the coast until hitting 9°N latitude, roughly 60% of the distance between the coast and the northern limits of the contemporary border. A Franco-German Convention in 1897 created a border that closely resembles the contemporary one.[48] A Franco-German decla-

[43] Carpenter 2012, 118–19.
[44] Ricart-Huguet 2022, Appendix F.
[45] Crowder 1968, 31.
[46] Anene 1970, 168.
[47] Hertslet 1909, 693.
[48] See Hertslet 1909, 661–62 and the accompanying map.

ration in 1912, from which we code the features, yielded the contemporary alignment,[49] although we do not code this as a major revision. The straight-line border originally decreed in 1887 is still largely in place, albeit replaced by the Mono River for roughly the first 50mi from the coast. Thus we code straight lines (parallels/meridians) as the primary feature and minor rivers as a secondary feature. Other parts of the border follow other minor rivers, towns/villages, and mountains/hills; and some parts are non-astronomical straight lines. We code these as secondary features.

Back to TOC

C.3.8 Benin–Nigeria

Overview. Originally formed in 1889 as an interimperial border between what became French Dahomey (Benin) and British colonies (later unified into Nigeria). Major revisions occurred in 1896 (changed features: switch lines to local features), 1898 (new segment), and 1906 (changed features: switch lines to local features). Historical political frontiers (PCS: Borgu, Dahomey, Egba, Porto Novo) directly affected the border. The primary feature is infrastructure (roads). Secondary features are towns/villages, minor rivers, straight lines (meridian and non-astronomical), and a major river (Niger).

Details: Early British control of the Niger. French interests in Benin date back to the slave trade in the seventeenth century, with Ouidah, Porto-Novo, and Cotonou serving as major trading posts.[50] These posts languished in importance following prohibitions on the slave trade, although France reopened its post at Ouidah in 1843,[51] and gained a protectorate over Porto Novo in 1863.[52] British interests in Nigeria originated at (a) Lagos, which it annexed in 1861 as a crown colony, and (b) the Niger Delta, where its merchants engaged in the palm oil trade.[53]

The Niger River was a target of intense imperial interest, with Britain ultimately gaining control over the entire Niger Delta and a vast area stemming from the Niger-Benue confluence. France began to push eastward from Senegal in the 1860s,[54] and by the 1880s had begun new military campaigns that aimed to reach the Niger.[55] Meanwhile, Britain laid the foundations for two distinct colonies in modern-day Nigeria. First, by the end of 1884, George Goldie of the National African Company had established a monopoly of trade on the Niger by buying out French firms. In 1886, the company gained a royal charter to govern territory, and was renamed the Royal Niger Company. Second, the British government established a protectorate from the northernmost part of the Niger Delta down to Calabar, which became the Oil Rivers Protectorate. The British consul for the Bights of Benin and Biafra secured treaties with local rulers in the Niger Delta, and the Royal Niger Company along the Niger and Benue. These treaties were crucial to support Britain's claims at the Berlin Conference to possess the entire lower course of the Niger, which convinced the other powers to exclude this area from discussion at the Conference.[56] "The treaties were not

[49] Brownlie 1979, 191.
[50] Ricart-Huguet 2022, Appendix F.
[51] Crowder 1968, 31.
[52] Anene 1970, 168.
[53] Flint 1960, 9–33; Anene 1966, 26–60.
[54] See Mali–Senegal.
[55] Crowe 1942, 122–24.
[56] Crowe 1942, 126; Flint 1960, 34–87; Wesseling 1996, 115.

made haphazardly but according to a definite plan, the object of which was to control the bank of the Niger and Benue as far as they were navigable, so as to exclude all competitors from the rivers."[57]

Consequently, Britain gained control over broad swaths of the Niger, which meant that Nigeria's frontier with French territory would be located far west of the Niger Delta and Niger-Benue confluence. Competition over Yorubaland in the south and over the navigable parts of the Niger in the north ultimately determined the location of the border. The former episode occurred in the 1880s and yielded the initial formation of a border in 1889. The latter episode occurred in the mid-1890s and yielded a new agreement in 1898 that determined the border farther north. These two main parts of the border were revised in 1895–96 and 1906, respectively, to replace the preliminary straight lines with local features.

Details: Settling the southern part of the border. Britain established treaty relations in different parts of Yorubaland dating back to the 1860s, and amid the scramble in the 1880s sought to secure control against French encroachment.[58] Britain originally argued for expansive limits to Yorubaland. They based their arguments on claims by the Alafin of Oyo that he was the "Head of Yorubaland, the four corners of which are and have been from time immemorial known as Egba, Ketu, Jebu, and Oyo, embracing within its area that inhabited by all Yoruba speaking peoples."[59] However, French officials proclaimed (correctly) that these claims were inconsistent with reality. Earlier in the nineteenth century, Oyo was indeed the pre-eminent state in Yorubaland, but its collapse enabled other Yoruba states, such as PCS Egba, to gain independence, as we discuss in depth in Appendix B when justifying the polygons we use for the Yoruba states.

By contrast, Britain did not contest France's control over PCS Dahomey, located west of Yorubaland. British officials characterized Dahomey as a barbaric slave-raiding state, and did not interfere with France's ambitions there despite having established earlier treaty relations with the *Ahosu* (ruler) of Dahomey. Thus, "[t]he desideratum, from the British point of view, was to separate Dahomey from Yorubaland. The French were agreeable."[60] Instead, France's main competition came from other European powers. Portugal signed a treaty with Glele, the *Ahosu* of Dahomey, in the 1880s. However, "the treaty was abandoned, after an unsuccessful Portuguese mission to Glele in 1887 to confirm it. . . . As de Beekmann, French representative in Porto Novo, wrote to the Governor of Senegal in March 18[8]9, 'if France does not make a treaty with the king of Dahomey, the Germans will be installed there in very little time.'"[61]

Britain and France clarified their claims in an arrangement in 1889. This arrangement formed an initial, meridian-line border as far north as 9°N (which, on the contemporary map, corresponds with where the southern border juts sharply eastward). The primary basis of the alignment was to separate Porto Novo for the French sphere and Lagos for the British.[62] The treaty specifically mentioned that PCS Egba laid within the British sphere of influence: "French traders shall be guaranteed full liberty of trade with such districts as shall not be included in the French sphere

[57] Flint 1960, 88.
[58] Crowder 1968, 99; Anene 1970, 176–89; Asiwaju 1976, 39–45.
[59] Anene 1970, 186.
[60] Anene 1970, 184.
[61] Crowder 1968, 100.
[62] Hertslet 1909, 732.

of influence, and especially as regards the *Egbas*" [our emphasis]. Therefore, although Britain ultimately ceded control over some ethnic Yoruba to France, they succeeded in gaining control of Egba, which was "the most effective Yoruba state in the boundary zone . . . The international boundary therefore in no way affected the western frontier of Egbaland."[63] Moreover, Egba was the westernmost of the major Yoruba states, which also included Oyo, Ijebu, and Ibadan. Thus, the 1889 agreement also ensured that these states (as well as the PCS Benin, located even farther to the east) were located entirely within Nigeria.

Rather than partition any major states, the Benin–Nigeria border instead coincided with the buffer zone between the states of Dahomey and Egba. Frequent warfare between these rival states had depopulated the region, in particular territory occupied by Egbado groups. Among the tribal areas partitioned by the border, only the Ketu kingdom was a distinct political entity. However, by the time of the partition, warfare between Dahomey and Egba had already essentially destroyed the kingdom,[64] which we do not code as a PCS in our dataset. Overall, the individuals residing within the Yoruba language group were partitioned across colonial borders, but no major states in the region were partitioned. "By placing a line of demarcation through this area the colonial powers were to a large extent replacing a frontier zone with a specific boundary line . . . the colonial boundary-makers cannot be accused of disregarding existing political conditions."[65]

A major revision to the southern part of the border occurred in 1895–96 when British and French agents delimited the border. They departed from the original meridian line to instead align the border based on the location of existing roads, villages, and minor rivers. On the basis of this agreement and the one in 1906 that finalized the northern part of the border (see below), it appears that roads were ultimately the primary feature of the border, and we code villages and minor rivers as secondary features. The general method of the surveyors was to "cross the boundary meridian or approach it as often as possible by the use of any paths adjoining it; to visit all inhabited villages and to fix their position in relation to the boundary meridian, and determine thereby to which of the two Colonies they belong . . . These maps clearly show the 'route' travelled over. The Commission was fortunate enough to follow up roads so closely adjoining the frontier meridian as to be able to substitute them, in many instances and for a considerable distance, in its stead for the settlement of the boundary." The report also mentioned the use of the Okpara River where it did not deviate too far from the original meridian. Throughout, the report mentions a large number of specific villages, road, and rivers.[66] However, the original longitude meridian remains the border for short segments, which we code as a secondary feature.

Details: Settling the northern part of the border. Britain and France concluded their first agreement concerning territory north of Yorubaland in 1890. That agreement decreed a sphere of influence for France in its Sahelian territories as far southwest as Say along the Niger,[67] although we do not count this as a revision for the present border because Say is in modern-day Niger.[68] Despite implying British control over areas south of this line, France later challenged this interpre-

[63] Anene 1970, 186.
[64] Crowder 1968, 100; Mills 1970; Asiwaju 1976, 29.
[65] Mills 1970, 35, 43.
[66] Hertslet 1909, 780–84.
[67] See Niger–Nigeria.
[68] See Figure 7 in the article and the map of early borders in Flint 1960, 183.

tation of the 1890 treaty. The eventual location of the northern part of the present border reflected competition over the navigable part of the Niger, whose terminus coincided with the location of PCS Borgu. One of the constituent states, Bussa, was located astride the eponymous rapids, the farthest-north point at which the Niger is navigable. The Royal Niger Company "was not really interested in Borgu for itself, but only in preventing French access to the navigable Niger."[69] The Company and British government initially assumed that Borgu was a unified political unit under the paramountcy of the ruler of Bussa. They based this claim on (self-admitted) uncertain intelligence from Royal Niger Company agents, who signed a vague treaty with the ruler of Bussa in 1885.[70]

In 1894, France challenged this claim on two grounds, although without providing its own evidence. First, Borgu might not have been a unified state. Second, if any Borgu ruler was paramount, it was the ruler of Nikki (another Borgu ruler) rather than that of Bussa. The dispute between Britain and France over the territorial status of Borgu induced a "race for Nikki" in 1894 to secure new treaties. Ironically, the immediate result of this race was not to settle the border, but instead to gain new information about Bussa, which prolonged the negotiations. British and French officials each gained compelling evidence that the rulers of Bussa, Nikki, and other Borgu states were de facto independent of each other, and none paid tribute to the others. Because this reality was inconvenient for British claims to all of Borgu, its officials continued through 1896 to speak of the unity of Borgu. This case also prompted an explicit defense of the principle of suzerainty, which we quote in the article: "We could not abandon the principle of suzerainty. This principle was recognized in all international negotiations and we held that, in treating with a suzerain, the rights conferred . . . extended to the whole of the territory under his dominion."[71]

Tensions escalated in 1898 when France sent troops to Bussa to challenge Britain's treaty rights on the proclaimed grounds that British did not effectively occupy the area.[72] Britain responded by organizing its own military force (the West African Frontier Force, commanded by Frederick Lugard) to occupy territory it claimed by virtue of its treaty with Bussa and the 1890 Anglo–French agreement. Aggressive actions by both sides risked war; "the Bussa affair was a kind of rehearsal for Fashoda,"[73] the better-known episode of near-war between Britain and France, which occurred later in 1898.

The confluence of these contentious interactions across the continent yielded a general Anglo–French settlement in 1898–99,[74] the main consequence of which for the present border was that Britain retained Bussa and control over the entire navigable Niger. Notes exchanged between British and French officials related to the Anglo–French Convention of 1898 confirmed that the treaty was to "leav[e] Nikki and the surrounding district within the French sphere" and to "leav[e] within the British sphere all territory belonging to the Province of Boussa and the district of Gomba."[75] This is a case in which our spatial dataset shows a PCS being partitioned; but, al-

[69] Flint 1960, 219.
[70] Hertslet 1909, 128.
[71] Quoted in Anene 1970, 220.
[72] Flint 1960, 264–94; Dusgate 1985, 96–102.
[73] Flint 1960, 265.
[74] See Chad–Sudan.
[75] Quoted in Anene 1970, 226. See Hertslet 1909, 786–87 for the full text.

though it is uncertain, substantial evidence suggests that Borgu consisted of various independent political entities, which constituted the basis of the European partition.[76] The British view was that Nikki was "economically worthless"; they did not care about the unity of Borguland in its own right, and were satisfied to achieve their main goal of excluding France from the navigable Niger.[77]

The Convention of 1898 specified the entire border north of the original northern limit, the 9°N parallel. Broadly, this formed the final border.[78] However, the border was still preliminary, consisting largely of straight line segments.[79] These were replaced with local features in a subsequent agreement in 1906 that created the final alignment.[80] As with the earlier agreement to align the southern part of the border (see above), it extensively referenced villages, roads, and minor rivers. The northern portion of the border also contains various straight-line (non-astronomical) segments,[81] another secondary feature. The Niger River forms the tripoint with Niger because France later decided to use the Niger to separate its colonies,[82] which we also code as a secondary feature of the present border.

Back to TOC

C.3.9 Ghana–Ivory Coast

Overview. Originally formed in 1889 as an interimperial border between the British Gold Coast (Ghana) and what became French Cote d'Ivoire. Major border revisions occurred in 1893 (changed features: switch lines to local features) and 1898 (new segment). A historical political frontier (PCS: Asante) directly affected the border. The primary feature is minor rivers. Secondary features are infrastructure (roads) and towns/villages.

Details. British influence along the Gold Coast dated back to the slave trade in the seventeenth century. Direct crown rule began in 1821 in response to the inability of the privately owned African Company to guard the Gold Coast forts from PCS Asante, located to the north.[83] Britain fought three wars with the Asante prior to the Scramble for Africa (in the 1820s, 1860s, and 1870s). Although weakened by the 1870s, the Asante state remained intact and militarily strong (relative to its African neighbors) throughout the period. In inter-European negotiations, other powers recognized the Asante territory as lying within the British sphere of influence. An 1867 Convention with the Netherlands yielded an exchange of territory in the Gold Coast, which decreed: "a line drawn true north from the centre of the mouth of the Sweet River as far as the boundary of the present Ashantee kingdom . . ."[84] Following British occupation in 1896 and a failed uprising in 1900, Britain annexed Asante in 1901 as a crown colony.

[76] Crowder 1973, 19–43.
[77] Flint 1960, 293.
[78] Brownlie 1979, 165.
[79] See the map in Hertslet 1909, 790.
[80] See Hertslet 1909, 849–61 for the text and p. 860 for the map.
[81] See Google Maps.
[82] See Benin–Niger.
[83] Wight 1946*b*, 15–17; Crowder 1968, 29–30.
[84] Quoted in Hertslet 1909, 978. In 1871, the Netherlands relinquished its possessions in the Gold Coast to Britain (Hertslet 1909, 979–80).

French presence along the Ivory Coast began in 1843, when it established trading posts in Assini and Grand Bassam. French interest in the area increased after the Berlin Conference, which yielded a "remarkable journey of treaty-making to secure the hinterland of the Ivory Coast for France."[85] Cote d'Ivoire was distinguished as its own colony in 1893.

The present border was initially formed in an 1889 agreement that determined Anglo–French borders across West Africa. The agreement mentioned the border spanning as far north as 9°N, although it lacked detail. Other than lagoons and rivers in the southern-most part of the border, the treaty stated: "the frontier line shall be fixed in accordance with the various Treaties which have respectively been concluded by the two Governments with the natives." The treaty did, though, specifically mention Asante as within Britain's sphere of influence: "The French Government shall undertake to allow England full liberty of political action to the east of the frontier line, particularly as regards the Kingdom of the Ashantees . . . "[86]

In 1891 and 1893, British and French surveyors worked to demarcate a border.[87] We code the latter date as a major revision to change the border features, given the lack of specificity in the original agreement specifying a vague "frontier line." The 1893 agreement primarily mentions various rivers, although numerous roads and villages are listed as well. The northernmost part of the border is the Volta River.[88] In 1898, Britain and France extended the border further north, continuing to use the Volta River; part of this later became the Burkina Faso–Ghana border. This was the final major revision of the border, although the precise alignment depends on a 1903 Agreement and a 1905 Memorandum between France and the United Kingdom. In addition to delimiting the border, the 1905 Memorandum allowed "natives who may not be satisfied with the assignment of their village" to one or the other side of the border to "emigrate to the other side of the frontier."[89]

Back to TOC

C.3.10 Gambia–Senegal

Overview. Originally formed in 1889 as an interimperial border between British Gambia and French Senegal. The primary feature is a minor river. Secondary features are straight lines (parallels/meridians) and towns/villages.

Details. This case underscores Europeans' strategic interests in controlling important rivers. British slaving interests at the mouth of the Gambia River dated back to the seventeenth century.[90] French interests in Senegal also date back to the seventeenth century, with a base at Saint-Louis at the mouth of the Senegal River. After some territorial shuffling amid broader wars, in the 1783 Treaty of Versailles, the two powers agreed to France's sphere of influence over the Senegal River and

[85] Crowder 1968, 31, 95–96.
[86] Quoted in Hertslet 1909, 730.
[87] Hertslet 1909, 743–44, 754–56.
[88] The Volta River is undoubtedly important, but not among the top 10 longest rivers, and therefore it is not classified as a major river in our coding scheme.
[89] Brownlie 1979, 246; see also Cogneau, Mespl and Spielvogel 2015.
[90] Wight 1946*b*, 15. The Gambia River is undoubtedly important, but not among the top 10 longest rivers, and therefore it is not classified as a major river in our coding scheme.

Britain's sphere of influence over the Gambia River.[91] In 1816, Britain gained a concession from a local ruler on St. Mary's Island that formed the basis for the Colony area of the Gambia. Throughout the nineteenth century, Britain secured protectorate treaties with other minor rulers located farther down the Gambia River.[92] Between the 1840s and 1880s, French traders expanded their commercial presence farther south into Casamance, whereas Britain lost other territorial footholds in the Guinea area, in particular Bolama Island.[93] Thus, the British Gambia became encircled by French territorial claims. In the 1860s and 1870s, Britain and France discussed the possibility of trading the Gambian enclave for territory elsewhere, but this never materialized because of opposition by British Parliament and trading companies.[94]

An Anglo-French agreement in 1889 created the contemporary border.[95] Although the border is not itself the Gambia River, we code it as the primary feature because the entire border traces the Gambia River; the border is, by design, no farther than roughly 15 miles from the river at any point. Documents used to delineate the border reference parallel/meridian lines and towns, which we code as secondary features.

Back to TOC

C.3.11 Niger–Nigeria

Overview. Originally formed in 1890 as an interimperial border between French Sudan (Mali) and British colonies (later unified into Nigeria); the military territory of Niger was split from Haut-Sénégal et Niger (the successor to French Sudan) in 1912. Major revisions occurred in 1898 (changed features: change location of straight line) and 1904 (changed features: switch lines to local features). Historical political frontiers (PCS: Sokoto Caliphate, Damagaram, Gobir, Borno) directly affected the border.[96] The primary feature is towns/villages. Secondary features are minor rivers, infrastructure, straight lines (non-astronomical), a major river (Niger), and a major lake (Chad).

Details. British interests in Nigeria emanated from the coast, in particular Lagos and the Niger Delta region.[97] Britain gained influence farther north because of expansion by George Goldie's Royal Niger Company. The Company established treaty relations with numerous rulers, including with emirs in the vast Sokoto Caliphate. During the years in which the present border was formed and revised, France had no military or administrative presence in what later became the colony of Niger.[98] The northern frontiers of the Sokoto Caliphate were the main determinant of the present border. European treaties distinguished Sokoto as the northern limits of Britain's sphere of influence. However, Britain and France contested the boundaries of Sokoto, and revised the colonial border several times. Eventually, they divided their territories such that Britain controlled

[91] Hertslet 1909, 713.
[92] Richmond 1993, 176–77.
[93] Bowman 1987.
[94] Hertslet 1909, 751; Catala 1948; Gray 1966, 431–43; Nugent 2019, 109–10.
[95] See Hertslet 1909, 729 for the relevant text and the map on pp. 730–31.
[96] For justification for Borno, see Cameroon–Nigeria.
[97] See Benin–Nigeria.
[98] See Mali–Niger.

all the towns previously within the Sokoto Caliphate, and France gained all the towns farther north (including Zinder, capital of Damagaram).

Prior to European takeover, various African polities contested the northern frontier of the Sokoto Caliphate.[99] The Sokoto Caliphate was a product of a Fulani jihad that spawned numerous Muslim-controlled emirates, which in the north replaced older Hausa states. Many areas accepted the new order of Fulani rule by acknowledging the suzerainty of Sokoto and paying an annual tribute of goods and slaves. All the core emirates within the Sokoto Caliphate became part of Nigeria, including Sokoto, Kano, Daura, Zaria, Bauchi, Gwandu, Nupe, Yauri, and Ilorin. However, the empire failed to conquer remnants of certain older Hausa states (Gobir, Maradi, Kebbi, Konni), with whom it frequently warred, many of which were long-standing Hausa dynasties that fled from their historical capital cities upon conquest by flag bearers of the Caliphate.[100] This caused the frontiers of the empire to fluctuate. Nor did the Sokoto Caliphate control the Tuareg in Adar, or the Borno empire or its associated vassal states, including Damagaram (Zinder). We discuss these considerations in more depth when justifying our Sokoto polygon in Appendix B.

The Royal Niger Company gained a treaty with the Sultan of Sokoto in 1885, which formed the basis for a British sphere of influence.[101] Although France accepted Britain's claim over Sokoto, they contested the northern reach of the Caliphate. The subsequent negotiations, after several border revisions, yielded control for France over many of the aforementioned frontier states that had successfully resisted conquest by the Sokoto Caliphate.

In 1890, Britain and France concluded their first treaty pertaining to the border. The border for the most part followed a straight line between Say on the Niger river (west) and Barruwa on Lake Chad (east). But the treaty also explicitly mentioned Sokoto: "The Government of Her Britannic Majesty recognizes the sphere of influence of France to the south of her Mediterranean Possessions, up to a line from Saye on the Niger, to Barruwa on Lake Tchad, drawn in such manner as to comprise in the sphere of action of the [Royal] Niger Company all that fairly belongs to the Kingdom of Sokoto; the line to be determined by the Commissioners to be appointed."[102]

Anglo–French competition over Borgu and access to the navigable Niger (see Benin–Nigeria) prompted a revision in 1898 to the Say–Barruwa line.[103] Sokoto was relatively marginal in these discussions; although France had collected intelligence since 1890 about political realities in the area, its geographical knowledge was limited.[104] Consequently, it consented to a new border that left almost all the inhabited areas near the northern frontier of the Caliphate within the British sphere, including Maradi and Birnin Konni. This, in a limited sense, fulfilled France's objective of gaining territory to connect its stations in Niamey and Zinder,[105] but the route was impractable because it contained hundreds of miles of uninterrupted desert terrain. Thus, France wanted access to inhabited areas farther south, which created an incentive to press for a new border that incorporated

[99] Anene 1970, 233–67.

[100] Gobir is a PCS in our data set.

[101] Hertslet 1909, 122–23.

[102] Quoted in Hertslet 1909, 739. We depict the evolution of Nigeria's borders in Panel A of Figure 7 in the article.

[103] See Hertslet 1909, 787–88, 790 for the treaty.

[104] For the following, see Thom 1975, 23–33 and Anene 1970, 277–80.

[105] Niamey is located along the Niger River, and later became the capital of French Niger.

local political realities. In 1904, Britain consented to a new border.

The new treaty and subsequent delimitation indeed reflected local political realities. Zinder/Damagaram and the smaller neighboring polity of Maradi were mentioned in Article VI of the 1904 British-French Convention regarding West and Central Africa: "In order to avoid the inconvenience to either party which might result from the adoption of a line deviating from recognized and well-established frontiers, it is agreed that in those portions of the projected line where the frontier is not determined by the trade routes, regard shall be had to the present political divisions of territories so that the tribes belonging to the territories of Tessaoua-Maradi and Zinder shall, as far as possible, be left to France."[106] Furthermore, when delimiting the border, the Franco-British mission sometimes modified the original instructions to prevent partitioning important features. For example, "in 1907, when the Franco-British delimitation mission Tilho-Oshea passed through the village of Kaoura, the chief asked that the border be moved so that the village well would remain on the French side. The British and the French accepted this modification of a few kilometers of the initial route."[107] The delimitation was formally approved in 1910.

The primary feature of the final border is towns. Reflecting the aforementioned negotiations, the Convention of 1904 sketches the border based on the location of Sokoto (the town), Dosso, Matankari, Konni (Birni-N'Kouni), and Maradi; as well as the routes between them. The eastern-most part of the border is the Komadugu Waubé river, which we code as a secondary feature. Short straight-line segments are also used to connect towns, which we code as a secondary feature. The tripoint with Benin is the Niger River and the tripoint with Cameroon is Lake Chad. We code both major water bodies as secondary features, and discuss the strategic objectives concerning each in Benin–Nigeria and Cameroon–Nigeria, respectively.

Back to TOC

C.3.12 Ivory Coast–Liberia

Overview. Originally formed in 1892 as an interimperial border between what became French Cote d'Ivoire and Liberia. A major revision occurred in 1903 (changed features: switch lines to local features). A historical political frontier (other state: Liberia) directly affected the border. The primary feature is minor rivers. Secondary features are topography (mountains) and towns/villages.

Details. The resettlement colony of Liberia was largely confined to the coast in its early decades.[108] Its penetration into the hinterland was "indecisive" and until the 1880s it faced no competition for territory from European powers. This changed with French expansion into the interior parts of modern-day Ivory Coast and Guinea.[109] A treaty in 1892 between France and Liberia yielded a rough outline of the contemporary border with both Ivory Coast and Guinea, which were not yet separated within the French empire. This border consisted of the Cavally River and various straight-line segments.[110] A procès-verbal in 1903 written to delineate the border instead relies

[106] Quoted in Hertslet 1909, 819.
[107] Lefèbvre 2015, 16.
[108] See Liberia–Sierra Leone.
[109] Brownlie 1979, 359; and see Guinea–Ivory Coast.
[110] Hertslet 1909, 1133–36; Sandouno 2015, 95.

largely on rivers throughout the entire border,[111] which we code as a major revision. "The purpose of these treaties was to delimit the French possessions in Côte d'Ivoire and the Liberian territories, to secure for Liberia the Grand Seisters basin, and for France the Férédougou-Ba basin. France recognized the Republic of Liberia's rights to the coastline east of Cavally, and the Republic of Liberia recognized France's rights to certain parts of Côte d'Ivoire to the east of the Cavally river."[112] Ultimately, "[a]lmost the entire boundary consists of the Liberian bank of various rivers,"[113] although mountains and towns/villages are occasionally referenced as well. For the Guinea part of the border, there are several short straight-line (non-astronomical) segments.

We code a historical political frontier (Liberia) as directly affecting the border with the Ivory Coast because the original coastal reach of Liberia determined where it would intersect with Ivory Coast. We code only an indirect effect for the border with Guinea. The Guinea portion of the border is entirely inland, where Liberia lacked any semblance of historical frontiers, but Liberia's historical political frontier nonetheless indirectly affected the border because Americo-Liberian agents negotiated the border with France.

Back to TOC

C.3.13 Guinea–Liberia

Overview. Originally formed in 1892 as an interimperial border between French Guinea and Liberia. A major border revision occurred in 1903 (changed features: switch lines to local features). A historical political frontier (other state: Liberia) indirectly affected the border. The primary feature is minor rivers. Secondary features are topography (mountains), towns/villages, and straight lines (non-astronomical).

Details. See Ivory Coast–Liberia.

Back to TOC

C.3.14 Burkina Faso–Togo

Overview. Originally formed in 1897 as an interimperial border between French Sudan (Mali) and German Togoland (Togo); Upper Volta (Burkina Faso) was split from Haut-Sénégal et Niger (a successor to French Sudan) in 1919. A major border revision occurred in 1912 (changed features: change location of straight lines). A historical political frontier (PCS: Mossi) directly affected the border. The primary feature is straight lines (non-astronomical). Secondary features are straight lines (parallels/meridians), minor rivers, and towns/villages.

Details. The present border reflected the intersection of French military expansion into Burkina Faso,[114] and the northward expansion from the coast of Germany's Togoland protectorate.[115] The original Franco–German boundary agreement in 1887 determined only the southern portions of

[111] Hertslet 1909, 1136–40.
[112] Sandouno 2015, 93, 96.
[113] Brownlie 1979, 360.
[114] See Burkina Faso–Ghana.
[115] See Ghana–Togo.

their respective spheres of influence,[116] and did not reach as far north as contemporary Burkina Faso. A subsequent agreement in 1897 yielded an initial border that consisted entirely of the 11°N latitude parallel.[117] This was replaced with the contemporary border in 1912,[118] which we code as a major revision. Most of the border is non-astronomical straight lines, which we code as the primary feature. A smaller segment in the east is the original parallel line, which we code as a secondary feature. An even smaller segment follows the Sansargou river, which we also code as a secondary feature. The Declaration of 1912 also references various towns along the border, which we code as another secondary feature.[119] See Burkina Faso–Ghana for how PCS Mossi affected borders with colonies of neighboring empires.

Back to TOC

C.3.15 Burkina Faso–Ghana

Overview. Originally formed in 1897 as an interimperial border between French Sudan (Mali) and the British Gold Coast (Ghana); Upper Volta (Burkina Faso) was split from Haut-Sénégal et Niger (a successor to French Sudan) in 1919. A historical political frontier (PCS: Mossi) directly affected the border. The co-primary features are a minor river and straight lines (parallels/meridians). Secondary features are minor rivers, towns/villages, and infrastructure.

Details. British interests in Ghana originated in the coastal areas and expanded northward in the 1890s.[120] French interests in Burkina Faso reflected their northward expansion from the coast in the Ivory Coast and their desire to link their colonies farther west and in Dahomey.[121] A key element in this expansion was gaining control over the PCS Mossi states. Britain, Germany, and France each tried to establish relations with the *Moro Naba* of Ouagadougou. Although a British agent gained a treaty in 1894, France forcibly occupied Mossi territory in 1896 to gain what they considered to be the "biggest prize" in the region.[122]

In 1898, Britain and France concluded a border agreement that extended the border between Ghana and Ivory Coast north of the original northern boundary, the 9°N parallel. This created the contemporary Burkina Faso–Ghana border. This border agreement reflected the recent French conquest of the Mossi states by placing the border at the southern frontier of their territory,[123] and hence we code this historical political frontier as directly affecting the border. The vertical part of the border between the Gold Coast and French territories extends an earlier border from 1893 that follows the Volta River (which affected the Ghana–Ivory Coast border).[124] The horizontal part of the border follows the 11°N latitude parallel, villages, roads, and minor rivers. Subsequent exchanges

[116] See Benin–Togo.
[117] See Hertslet 1909, 661–62 and the accompanying map.
[118] Brownlie 1979, 479.
[119] Brownlie 1979, 193–99.
[120] See Ghana–Ivory Coast.
[121] Crowder 1968, 95–98.
[122] Crowder 1968, 96–97.
[123] See Figure 4 in the article.
[124] The Volta River narrowly misses our standard for "major river," as it is somewhat shorter than the tenth-longest river in Africa, and thus is classified as a minor river.

of notes and agreements in 1904, 1905, and 1906 outlined a more detailed border,[125] but we do not code major revisions in these years because none qualitatively changed the location nor features of the border. We code minor rivers and parallels/meridians as co-primary features because these are, respectively, the main elements of the vertical and horizontal border segments. The other aforementioned features are secondary.

Back to TOC

C.3.16 Mali–Senegal

Overview. Originally formed in 1880 as an intraimperial border when France split Upper Senegal (Mali) from Senegal. A major revision occurred in 1895 (changed features: changed local features). The primary feature is minor rivers. A secondary feature is minor watersheds.

Details. French presence in Senegal dated back to the seventeenth century, with a primary base at Saint-Louis at the mouth of the Senegal River. Eastward expansion along the Senegal River began with the appointment of Louis Faidherbe as governor in 1854. "Under pressure from Saint Louis merchants, Faidherbe went further and established military posts in the middle and upper Senegal River at crucial choke-points: that is, at Podor and Matam in Futa Toro and Bakel and Medina in the upper reaches of the river . . . The explicit intention was to ensure the dominance of French merchants in the Senegal River valley . . . rather than to acquire colonial territory."[126] By 1880, the French military had expanded roughly as far east as Kayes, located along the Senegal River just east of the modern-day Mali–Senegal border.[127] In 1880, France issued a decree that separated the territory east of where the Falémé River intersects the Senegal River as the new colony of Upper Senegal (present-day Mali), with Kayes as the initial capital.[128] The border initially consisted entirely of the Falémé. An arrêté in 1895 constituted a major revision by changing a part of the border to other minor rivers and drainage divides.[129]

Back to TOC

C.3.17 Guinea–Mali

Overview. Originally established in 1895 as a French intraimperial border between Guinea and French Sudan (Mali). A major revision occurred in 1899 (changed features: clarify local features). Historical political frontiers (PCS: Futa Jalon; other states: Toucouleur Empire, Wassoulou Empire) directly affected the border. The primary feature is minor rivers. Secondary features are topography (mountains) and towns/villages.

Details. France separated Upper Senegal (later renamed Mali) from Senegal in 1880.[130] France originally controlled only the coastal parts of modern-day Guinea and governed those from Senegal

[125] Hertslet 1909, 822–27, 832–42, 847–48.
[126] Nugent 2019, 115.
[127] See the map in Ajayi and Crowder 1985, "57 - West Africa: European Conquest 1880–1906."
[128] Office of the Geographer 1975*b*, 2.
[129] Office of the Geographer 1975*b*, 2–3. Between 1902 and 1904, Mali was again merged with Senegal as the colony of Senegambia and Niger. We do not code these years as major revisions because the bilateral border was unchanged during this brief merger period.
[130] See Mali–Senegal.

until 1882, when it established the Rivières du Sud division. In 1891, Guinea became a colony. Although France had secured a treaty with the PCS Futa Jalon in 1881,[131] the state resisted French conquest. France militarily subjugated Futa Jalon at the Battle of Porédaka in 1896, which ended with a new protectorate treaty. This occurred several years after French officials had embarked on a more decisive policy of imperial expansion in which France conquered territory from both the Toucouleur Empire and Samori Toure's Wassoulou Empire, resulting in their final defeats in 1893 and 1898, respectively.[132] Collectively, these victories enabled the French to continue their military campaign northward from coastal Guinea and eastward from Senegal and French Sudan (Mali).[133]

The present border "is based first of all on a logic of conquest using a west-east axis of progression and creating a front line, advancing regularly towards the upper Niger. This axis constituted the first definition of the Sudanese territory and its southern limit, giving it its general orientation."[134] The eastern half of the border was a frontier for Samori's state (Wassoulou Empire): "At the end of the military campaign of 1887–1888, the various treaties signed with Ahmadou and Samori, the creation of military posts as far as Siguiri on the Niger, in Guinea today, and then of districts (*cercles*), produced an outline of the contemporary frontier which was then a front with the Samori states. The line of posts [and forts] created up to that point constitutes the backbone" of the present boundary.[135]

The border between Guinea and French Sudan gained a more precise definition from decrees in 1895 and 1899,[136] which we code as the formation of the border and a major revision to clarify features, respectively. "The boundary was initially based on the territories of the districts [*cercles*], then by adopting delimitation decrees, linked to the conflicts of authority that were multiplying at different levels, following Guinea's effective takeover of Fouta-Djalon in 1896. [...] The decree of January 12 1899 established the 'definitive' [quotes in the original] delimitation of French Guinea from French Senegal and Sudan."[137]

Farther west, Futa Jalon directly affected the border. In 1897, one year after the military conquest, French general Joseph Gallieni sent a subordinate to confirm the new treaties with Futa Jalon. The goal was to "place as much as possible in our [territorial] sphere the States situated between the Bouré [east] and our possessions of the Southern Rivers [west]." Futa Jalon lies in between those two regions, and thus this process resulted in the PCS lying entirely within French Guinea: "The constitution of [Guinea's] northern frontier is carried out by the control on the Fouta-Djalon . . . [French] officers consider that Fouta-Djalon is the 'missing link' in the colony under construction [Guinea] and has all the assets to become its center."[138]

Regarding alignment, the border combines rivers and streams with overland segments. The border

[131] See Guinea–Guinea-Bissau.

[132] Kanya-Forstner 1969, 151–53; Beringue 2019, 96. These states are not coded as PCS in our data set because they formed after 1850.

[133] Kanya-Forstner 1969, Chs. 3–6; Suret-Canale 1971, 87–88.

[134] Beringue 2019, 95.

[135] Beringue 2019, 132.

[136] The 1899 decree applied across French West Africa; see Guinea–Ivory Coast.

[137] Beringue 2019, 173.

[138] Beringue 2019, 155–56.

follows the Balinko, Bafing, and Sankarani rivers, among others.[139] No international agreements delineate this border, although a 1911 Decree references (but does not describe) the border. The documents mention various towns/villages and specific decentralized ethnic groups (which we include as part of towns/villages).[140]

Back to TOC

C.3.18 Guinea–Senegal

Overview. Originally formed in 1898 as a French intraimperial border between Guinea and Senegal. Major revisions occurred in 1915 and 1933 (changed features: clarify local features). Historical political frontiers (PCS: Futa Jalon; decentralized groups: Dialonké) directly affected the border. The primary feature is minor rivers. Secondary features are topography (mountains), towns/villages, and straight lines (parallels/meridians).

Details. French military expansion from Saint-Louis in Senegal began in the 1850s. In 1881, France secured the Bayol treaty with Futa Jalon, which established their claims over the PCS vis-à-vis Britain and Portugal.[141] Military operations penetrated the interior areas of Guinea in the 1880s and 1890s, which became its own colony in 1891.[142] France militarily defeated Futa Jalon in 1896 and created preliminary boundaries throughout French West Africa shortly afterwards.[143] In 1898, "in anticipation of the need to finally and clearly define the federal borders, the lieutenant governor of Guinea tasked Ernest Noirot, then administrator of Futa Jallon, to study the question of the federal boundaries and submit a proposed solution. In his report, Noirot suggested that Guinea should adopt as its frontier with Senegal and Soudan [Mali] the frontiers of Futa Jallon as they existed in 1881."[144] Later that year, a French ministerial dispatch created the present border. However, this "outline was theoretical because it had to be completed by reconnaissance operations on the ground."[145]

After further ratification of the original border in 1904, decrees in 1915 and 1933 clarified local features. These revisions reflected French officials' understanding of local ethnic groups and regions. For example, the Minister of Colonies informed the Governor in 1898 that the proposed border would place four *pays* (regions or areas that share cultural similarities) within Guinea: Badiari, N'Dama, Labé, and Coniagui.[146] French governors espoused a desire to avoid separating ethnic groups; this not only would improve administrative efficiency, but also could enable claiming more territory for their own colony. One decentralized group that directly affected the border was the Dialonké. When the Governor of Guinea successfully moved the Guinea–Senegal border further north, against the wishes of the Governor of Senegal, he used local ethnic geography to justify his territorial claims: "given the political organization of the Dialonkés, who are made up of family groups and form a very homogeneous whole that it is important to maintain, the [stream]

[139] Beringue 2019, 173.
[140] Beringue 2019, Ch. 3.
[141] See Guinea–Guinea-Bissau.
[142] See Mali–Senegal and Guinea–Mali.
[143] See Guinea–Ivory Coast.
[144] Carpenter 2012, 126–27. See also Sandouno 2015, 131–32.
[145] Sandouno 2015, 131–32.
[146] Brownlie 1979, 316.

Bitari-Ko cannot be used as a border between the two colonies, as this river divides the cultivated territories belonging to the Dialonkés ... the provisions advocated as early as 1910 were adopted, partly in favour of Guinea; the boundary line moved up north of the Bitari Ko to follow the line of making of Mount Galendi and integrating five villages into Guinea."[147]

Farther west, our sources do not provide details on French correspondences. These portions of the border, which split Dialonké villages, are perhaps specified arbitrarily. The 1915 Decree partitioned groups such as the "Bassaris [and] Peulhs et Jalonkés," as their villages fell on both sides of the border.[148] The 1915 Decree was also imprecise and contained factual errors, such as naming a mountain range that is in fact only a hill ("Mount Galendi"). A later study rectified parts of the border, yielding a decree in 1933 that used "unquestionable natural limits," mostly rivers and hills, in lieu of "a line of demarcation that was previously purely theoretical."[149]

Regarding alignment, starting at the tripoint with Guinea-Bissau, the short, westernmost part of the border follows a parallel line. This part of the border extends the line that France had previously established with Portugal to separate their spheres of influence. Farther east, for the majority of the border, various rivers and mountains were used to delineate the border segment by segment. Villages were explicitly allocated to either side of the border, following the reports of the relevant district heads (*commandants de cercles*) of Haute-Gambie in Senegal and of Koumbia in Guinea.[150]

Back to TOC

C.3.19 Guinea–Ivory Coast

Overview. Originally formed in 1899 as a French intraimperial border between Guinea and Cote d'Ivoire. A historical political frontier (other state: Wassoulou Empire) indirectly affected the border. The primary feature is minor rivers. Secondary features are minor watersheds and topography (mountains).

Details. France had a long-standing presence in the coastal areas of modern-day Guinea and Ivory Coast, but until the 1890s, did not penetrate the interior of these territories nor distinguish them as their own colonies.[151] This is at least in part because of the Samori Toure's Wassoulou Empire, which comprised parts of today's borderlands between Guinea and Cote d'Ivoire: "The French were not even close to the Cavally region [Cote d'Ivoire]. It wasn't until 1893 that a post was created at Tabu, while the lower Cavally was only covered by [...] in 1897. The lack of knowledge of this region up to that time may be linked to the fact that it was under the control of Samori Touré. It was only after his capture in 1898 that the French settled there.[152]

The French West Africa federation was created in 1895 to encompass Senegal, Côte d'Ivoire,

[147] Beringue 2019, 233–34. The tripoint (Guinea-Senegal-Mali) "was not affected by subsequent modifications of the French Guinea-Senegal dyad."
[148] Sandouno 2015, 137–39.
[149] Sandouno 2015, 142.
[150] Brownlie 1979, 318; Sandouno 2015, 134–35.
[151] See Guinea–Mali and Ghana–Ivory Coast.
[152] Sandouno 2015, 99.

French Guinea, French Sudan (Mali), and Dahomey (Benin).[153] Broadly, the goal of the federation was to share revenues while also allowing for distinct administrations over an area more than seven times the size of metropolitan France. A decree in 1899 determined initial borders among the five colonies, although some had already formed provisional borders.[154] This decree, however, did not describe limits, nor did a later arrêté in 1911. Instead, "the alignment depends on French administrative practice" and on French colonial maps,[155] which were also updated in decrees in 1902, 1904, and 1919 to take into account changes from military conquest.[156] However, because we lack a concrete date at which the present border was finalized, we do not code any subsequent major revisions after 1899 to be conservative in our coding.[157]

Large segments of the present border follow various minor rivers (including the Gbanhala and the Feredougouba) and watersheds and rivers; the southernmost segment passes through the Nimba mountain range. This border region, which is just north of Liberia, was attributed to Liberia at the Berlin Conference. However, the French conquered it in the 1890s by moving northwest (to present-day Guinea and Mali) to southeast (to present-day Ivory Coast) as they defeated Almami Samori Toure, who previously controlled some of this region.[158] Samori's empire indirectly affected the border by determining the location of France's military conquests.

Back to TOC

C.3.20 Ivory Coast–Mali

Overview. Originally formed in 1899 as a French intraimperial border between Cote d'Ivoire and French Sudan (Mali). Major revisions occurred in 1902, 1911, and 1919 (changed features: clarify local features) and in 1932 and 1947 (large territorial transfer: part of Upper Volta to Cote d'Ivoire and French Sudan, and then returned). A historical political frontier (PCS: Mossi) indirectly affected the border. The primary feature is minor rivers.

Details. See Guinea–Ivory Coast for the 1899 decree that founded initial borders throughout French West Africa, of which Cote d'Ivoire and French Sudan (Mali) were initial members. The border was revised in 1902 to reallocate towns on one side or other of the border and decrees between 1911 and 1919 further modify the initial sketch to clarify features.[159] Colonial maps demonstrate that the border was aligned with various rivers, including the Gbolonzo, Digou, Sorobaga, Kankélaba, Dougo, and Bogoé. These comprise about three-fourths of the total length of the border.[160]

[153] At the time, Mauritania was part of Senegal and Niger and Upper Volta (Burkina Faso) were part of French Sudan.

[154] See the preceding intra-French entries.

[155] Brownlie 1979, 301–2.

[156] See here.

[157] In a dissertation on Guinea's borders, Sandouno 2015, 120 writes, "As far as the border [of Guinea] with Côte d'Ivoire is concerned, we were confronted with difficulties due to the lack of sources, both at ANOM [Archives Nationales d'Outre-Mer] and ANG [Archives nationales de Guinée]. We are therefore unable to address the question of delimitation in this work."

[158] Cogneau, Mespl and Spielvogel 2015, 47; Person 1972, 25; Kanya-Forstner 1969, 251–55 inter alia.

[159] Brownlie 1979, 373; Nassa 2006, 4–5.

[160] Office of the Geographer 1979, 3-4.

Major revisions also occurred in 1932 and 1947, during which time Upper Volta was disbanded and its territory was distributed among neighboring AOF colonies, including its southern districts to Cote d'Ivoire and its northern districts to French Sudan. We code an indirect effect for PCS Mossi, given their importance for these revisions.[161] During this period, the present border was greatly lengthened.

Back to TOC

C.3.21 Benin–Burkina Faso

Overview. Originally formed in 1899 as a French intraimperial border between Dahomey (Benin) and French Sudan (Mali); Upper Volta was split from Haut-Sénégal et Niger (a successor to French Sudan) in 1919. A major revision occurred in 1911 (small territorial transfer). A historical political frontier (decentralized groups: Bariba, Gurma) directly affected the border. The primary feature is minor rivers. Secondary features are topography (mountains), a minor watershed, and towns/villages.

Details. The colony of Dahomey was established by an 1893 decree and its boundaries with neighboring territories by an 1899 decree, which formed initial borders throughout French West Africa.[162] Dahomey became a constituent unit of French West Africa with internal district boundaries extending north to the *cercle* of Moyen Niger. Although the original French possessions were confined to the coast, the French "moved progressively northwards towards the Niger loop to link up with their other colonies in West and Central Africa."[163]

Dahomey's original border with Haut-Sénégal et Niger was located farther north than the final Benin–Burkina Faso border. In 1911, the *cercles* of Fada N'Gourma and Say were transferred from Dahomey to Haut-Sénégal et Niger; we count these as a major revision of the present border because both *cercles* belonged to Upper Volta when it was originally constituted as a colony in 1919.[164] Ethnic groups were a factor considered by the French Minister of the Colonies, Jean-Baptiste Morel, when redrawing this border, in particular to remedy the partitioning of the Bariba. In the *rapport* to the President of France in 1913, the Minister notes the advantages of creating intraimperial borders that correspond to the local ethnic geography. The Minister noted that a 1909 decree incorporated Baribas into Dahomey that had "no ethnic link with the populations of Fada-N'Gourma [Gurma people in Upper Volta]." Modifying the border "would ensure, over the populations of the same race, the unity of action that is necessary and, also, would provide a natural limit in this region to both interested colonies."[165] Upper Volta's territorial status fluctuated

[161] See Burkina Faso–Ivory Coast.

[162] See Guinea–Ivory Coast.

[163] République du Bénin 2003, 54.

[164] Say was transferred from Upper Volta to Niger in 1926; see Burkina Faso–Niger.

[165] Brownlie 1979, 206. The Minister of the Colonies stated: "My attention has been drawn a number of times to the disadvantages of the incorporation into our Colony of Dahomey of the cercles of Fada N'Gourma and Say. Ethnic considerations of genuine importance, as well as administrative requirements, make it necessary, on the contrary, that these cercles be incorporated in our Colony of Haut-Sénégal et Niger, which had moreover already possessed them in part prior to the Decree of 17 October 1899" (République du Niger 2011, 10).

through the colonial era,[166] but this did not affect its border with French Dahomey, and thus do not code any major revisions.

Regarding alignment, the border primarily follows the Pendjari River from the west, then a drainage divide running alongside the Atacora Mountains (Chaîne de l'Atacora), and then the Mékrou River where the border meets the tripoint with Niger. In addition to these features, decrees outlining the border also mention towns.

Back to TOC

C.3.22 Burkina Faso–Ivory Coast

Overview. Originally formed in 1899 as a French intraimperial border between French Sudan (Mali) and Cote d'Ivoire; Upper Volta was split from Haut-Sénégal et Niger (a successor to French Sudan) in 1919. Major revisions occurred in 1932 and 1947 (major territorial transfers: part of Upper Volta to Ivory Coast and then returned). A historical political frontier (PCS: Mossi) directly affected the border. The primary feature is minor rivers.

Details. See Ivory Coast–Mali for the original 1899 decree that determined initial borders among the colonies of French West Africa. In 1919, Upper Volta (Burkina Faso) was split from Haut-Sénégal et Niger to become a distinct colony.[167] At this point, part of what had been a border between Cote d'Ivoire and Haut-Sénégal et Niger instead became a border between Cote d'Ivoire and Upper Volta. Major revisions occurred in 1932 and 1947, during which time Upper Volta was disbanded and its territory was distributed among neighboring AOF colonies, including its southern districts to Cote d'Ivoire. During this period, Cote d'Ivoire's border with French Sudan was greatly lengthened, and it also gained a temporary border with Niger. The reason for dissolving Upper Volta, which occurred during the Great Depression, was economic. French perceived Upper Volta as a useful labor reserve for cocoa production in the Ivory Coast: "The attachment of the Mossi districts (*cercles*) to the Ivory Coast would allow the government of this colony to take, without any other intermediary and in the best interest of the general public [that is, France] all suitable measures to attract towards the south of this colony the Mossi workforce."[168]

Upper Volta was reconstituted as a separate colony shortly after World War II, in part because of pressure by the *Moro Naba*, the traditional ruler of Ouagadougou (the main PCS Mossi state). After World War II, France instituted elections across all its colonies and the most prominent inter-territorial political party was the Rassemblement Démocratique Africain (RDA). "When asked by Houphouet-Boigny [of the RDA], who later became the Ivory Coast's long-time president, to collaborate in the naming of an Ivory Coast candidate for election to the Constituent Assembly in 1945, the *Moro Naba* [Mossi king] chose a loyal servitor who proceeded to campaign exclusively on the issue of reconstituting a separate Mossi state. The large vote that he rolled up—only slightly smaller than Houphouet's—was clear evidence of the Mossi people's wish to be separated administratively from the Ivory Coast . . . the Moro Naba had a one-track mind, and when French President Auriol visited French West Africa in 1947 he took advantage of this occasion to press successfully the Mossi claim for separate territorial status. There is little doubt but that it was the desire

[166] See Burkina Faso–Mali and Burkina Faso–Ivory Coast.
[167] See Burkina Faso–Mali.
[168] République de Burkina Faso 1985, 28; Cogneau, Mespl and Spielvogel 2015, 50.

to curtail R.D.A. expansion that moved France to accede, and on September 4, 1947, the Upper Volta once again became a territory in its own right."[169] Crowder and Cruise O'Brien elaborate upon how the Mossi leader's desire for a separate Upper Volta state aligned with French colonial interests: "The French had already made inroads into the R.D.A.'s power based in the Ivory Coast by detaching the enormous and populous hinterland of Upper Volta which was once again made into a separate colony. Though ostensibly this move was said to reflect the wishes of the Mossi people, it in fact suited the French Government's purpose of weakening the R.D.A. as well as their plan to extend the Abidjan railway from non-Mossi Bobo Dioulasso to Mossi Ouagadougou. The Mogho Naba promised electoral support and labour to France in return for the re-creation of Upper Volta."[170]

About two-thirds of the border follows rivers: Leraba, Komoe/Comoe, and Keleworo, and "[n]o evidence of demarcation otherwise has come to light."[171] The border depends entirely on French administrative practice, and no international agreement defines the contemporary border.[172]

Back to TOC

C.3.23 Benin–Niger

Overview. Originally formed in 1899 as a French intraimperial border between Dahomey (Benin) and French Sudan (Mali); the military territory of Niger was split from Haut-Sénégal et Niger (a successor to French Sudan) in 1912. Major revisions occurred in 1932 (large territorial transfer: part of Upper Volta to Niger), 1934 and 1938 (changed features: clarify local features), and 1947 (large territorial transfer: Niger territory back to Upper Volta). A historical political frontier (PCS: Mossi) indirectly affected the border. The primary feature is a major river (Niger). A secondary feature is a minor river.

Details. See Guinea–Ivory Coast for the 1899 decree that founded initial borders throughout French West Africa, of which Dahomey and French Sudan were initial members. The alignment of what became the final border was completed through French decrees from December 1934 and October 1938 and is based solely on the Mékrou river for the western half and Niger river for the eastern half. In general, rivers served as natural stopping points during France's conquest of West Africa.[173] For example, "[i]n accordance with French methods of progressive conquest, troops from the Sudan [Mali] settled on the [left] banks of the [Niger] river to pacify the right bank."[174] However, in this case, the precise division of the rivers and islands remain undetermined as "the relevant French instruments [legal documents] are not sufficiently precise."[175]

[169]Thompson and Adloff 1958, 174–75; see also République de Burkina Faso 1985, 28.
[170]Crowder and Cruise O'Brien 1974, 676.
[171]Brownlie 1979, 377.
[172]Brownlie 1979, 375.
[173]Kanya-Forstner 1969.
[174]Republique du Niger 2003, 40.
[175]Brownlie 1979, 161. This imprecision was a source of contention after independence, leading Benin and Niger to appeal to the International Court of Justice (ICJ) to determine (i) to which country the various islands along the Niger belong and (ii) whether the thalweg or the median lines should be used to trace the border along the two rivers. Neither country was able to submit colonial-era proof, itself evidence that intraimperial borders received less scrutiny than interimperial ones: "neither of the Parties has succeeded

Major revisions also occurred in 1932 and 1947, during which time Upper Volta was disbanded and its territory was distributed among neighboring AOF colonies, including its eastern districts to Niger. We code an indirect effect for PCS Mossi, given their importance for these revisions.[176] During this period, the present border was pushed farther west.

Back to TOC

C.3.24 Mali–Niger

Overview. Originally formed in 1909 as a French inter-district border within Haut-Sénégal et Niger (Mali); the military territory of Niger was split in 1912. Major revisions occurred in 1927 (changed features: clarify local features), 1932 (large territorial transfer: parts of Upper Volta transferred to French Sudan and Niger), 1939 (changed features: clarify local features), and 1947 (large territorial transfer: territory returned to Upper Volta). Historical political frontiers directly (decentralized group: Tuareg) and indirectly (PCS: Mossi) affected the border. The co-primary features are straight lines (parallels/meridians) and topography (mountains, hills, valleys). Secondary features are minor rivers (oueds), towns/villages, and straight lines (non-astronomical).

Details. Niger was among the last areas of the French African empire to be conquered and administered. Until 1912, Niger was part of the Haut-Sénégal et Niger colony (of which modern-day Mali was the governing component).[177] The initial border, however, was formed prior to splitting off Niger as a distinct territory. "Although apparently not ratified, a convention signed at Niamey by the Commanders of Gao and Niamey on August 26, 1909, delimited a line between their respective districts, which later served as the basis for the French Sudan–Niger boundary."[178] The subsequent relevant conventions for border changes are the Labbézenga Convention of 1927 and the Niamey Convention (Niamey-Gao agreement) of 1939, which clarified local features by improving delimitation.[179]

Major revisions also occurred in 1932 and 1947, during which time Upper Volta was disbanded and its territory was distributed among neighboring AOF colonies, including its northern districts to French Sudan and its eastern districts to Niger. We code an indirect effect for PCS Mossi, given their importance for these revisions.[180] During this period, the present border extended farther south than in its final form.

The northern segment of the border, emanating from the tripoint with Algeria, is a meridian line that traverses largely uninhabited areas in the Sahara Desert. The southern half of the border curves

in providing evidence of title on the basis of [those] acts during the colonial period" (International Court of Justice 2005).

[176] See Burkina Faso–Ivory Coast.

[177] Niger was administered as the Third Military Territory until 1922, when it became its own colony. The first two French military territories covered parts of French Sudan (Mali) and Upper Volta (Burkina Faso), respectively.

[178] Office of the Geographer 1975*a*, 2.

[179] After independence, Mali and Niger delimited their border more precisely in 1962. Nonetheless, the exact alignment of the border remains uncertain because of differences in markings on French maps versus postcolonial maps.

[180] See Burkina Faso–Ivory Coast.

southwest and then west to, deliberately, separate the two main Iwlliminden (or Awlliminden) groups, one of the seven main clan confederations of the Tuareg: Kel Ataram ("people of the west") in Mali, and Kel Denneg ("people of the east) in Niger.[181] As French documents demonstrate, the *cercles* of Gao and Madaoua were delimited specifically to preserve each nomadic group within a single colony.[182] Hence, we code these historical political frontiers as directly affecting the border. Topographical features (mountains, hills) are the dominant feature used to delimit the border in the south, which justifies our coding as a co-primary feature; and villages and ponds are referenced as well.[183]

Back to TOC

C.3.25 Burkina Faso–Niger

Overview. Originally formed in 1912 as an intraimperial border when France split Niger from Haut-Sénégal et Niger (Mali); Upper Volta (Burkina Faso) was itself split from Haut-Sénégal et Niger in 1919. Major revisions occurred in 1926 (small territorial transfer) and 1932 and 1947 (large territorial transfer: part of Upper Volta to Niger and then returned). A historical political frontier (PCS: Mossi) directly affected the border. The primary feature is towns/villages. Secondary features are minor rivers, topography (mountains), and infrastructure (routes).

Details. France split Niger from Haut-Sénégal et Niger (of which Mali was the main component) in 1912.[184] The initial border from 1912 to 1919 between Niger and the southern part of Haut-Sénégal et Niger was the Niger River, a boundary that was unchanged upon France splitting Upper Volta from Haut-Sénégal et Niger in 1919.[185] A major revision took place in 1926 when a decree "transfer[ed] parts of the *cercles* of Dori and Say from Upper Volta to Niger," which shifted the border west.[186] Arrêtés written in 1926 and 1927 reveal detailed knowledge of the territory and mention existing villages (Afassi, Kouro), rivers (Sirba, Mékrou) and hills (Darouskoy, Baléganguia).

Additional major revisions occurred in 1932 and 1947, during which time Upper Volta was disbanded and its territory was distributed among neighboring AOF colonies, including its eastern districts to Niger. We code a direct effect for PCS Mossi, given their importance for these revisions.[187] During this period, Niger's border with French Sudan (Mali) was longer than its final form, and Niger temporarily gained a border with Cote d'Ivoire. The present border was never carefully delimited despite changing numerous times, presumably because of Upper Volta's uncertain territorial status.[188]

[181] Boilley 2019.
[182] Lefèbvre 2015, 247.
[183] Brownlie 1979, 419.
[184] See Mali–Niger.
[185] See Burkina Faso–Mali; Brownlie 1979, 471.
[186] The territorial transfer took place in 1927; the canton of Gourmantché-Botou remained in Upper Volta (Office of the Geographer 1974*a*, 2). The 1926 decree provides no explanation for the transfer.
[187] See Burkina Faso–Ivory Coast.
[188] During the colonial period, poor delimitation led to "incessant palavers concerning [border] limits between farmers of Yagha [in Burkina Faso] and of Diagourou [mostly in Niger]" and to restrictions in the usual routes of nomadic populations (République du Niger 2011, 27, 30). "In light of the findings on trade

Back to TOC

C.3.26 Mauritania–Senegal

Overview. Originally formed in 1904 as an intraimperial border when France split Mauritania from Senegal. A major revision occurred in 1933 (changed features: changed local features). Historical political frontiers (PCS: Walo; other states: Trarza, Brakna, Tagant) directly affected the border. The primary feature is a major river (Senegal). A secondary feature is minor rivers.

Details. France had a presence in Senegal at Saint-Louis (at the mouth of the Senegal River) dating back to the seventeenth century. After territorial possessions fluctuated amid wars with Britain, "the Congress of Vienna in 1815 recognized French sovereignty over the coast of West Africa from Cap Blanc south to Senegal."[189] France began northward expansion in the 1850s in reaction to encroachment by Moor emirates located north of the Senegal River. To secure trade in gum arabic, France first conquered PCS Walo located south of the river, and then launched a military expedition to defeat the emirates of Trarza and Brakna located farther north. "To consolidate their 'sovereignty' over the river the French had to defeat the Trarza . . . The French-Trarza war ended Trarza power in Waalo and *established the Senegal River as the colonial border between desert and savanna societies*. The Trarza defeat led to the annexation of Waalo in 1855 . . . "[190] Furthermore, "[t]he treaties ending the war extended a French protectorate over Trarza and Brakna . . . and recognized French sovereignty over the northern bank of the Senegal River."[191] Following decades of inaction, in 1901, the French government adopted a plan of "peaceful penetration" to establish authority north of the river, although administrators in Senegal resisted this move because the river formed the frontier for the nomadic peoples living farther north. They saw "no value in the wastelands north of the Senegal River . . . Nevertheless, by 1904 Coppolani had peacefully subdued Trarza, Brakna, and Tagant and had established French military posts across the central region of southern Mauritania."[192] In 1904, France formally proclaimed a protectorate over the Trarza and Brakna people,[193] which tentatively formed the present border and indicated that these semi-nomadic groups (and their inextricable connection with the Senegal River) were indeed considered the natural frontier for Senegal. Thus, the intersection of competing historical political frontiers (PCS Walo south of the Senegal; the semi-nomadic groups north of the Senegal, not PCS in our data set) directly affected the border.

The border was delimited by the French Presidential Decree of 1933; only then did colonial authorities specify that the right bank of the Senegal river was to be the boundary and that the tripoint

flows, . . . the administrative divisions of the former Colony should be distributed among the neighbouring Colonies of Niger, French Sudan and Côte d'Ivoire" (Republic of Niger 2011, 32). After independence, Burkina Faso and Niger resolved an amicable dispute over sections of the border at the International Court of Justice in 2013.

[189] Warner 1990, 12. Cap Blanc (Ras Nouadhibou) forms the northern boundary of Mauritania with Western Sahara; see Mauritania–Western Sahara.

[190] Searing 2003, 191; our emphasis. Several years later, France defeated other states located south of the Senegal as well, such as PCS Cayor (Kanya-Forstner 1969, 33).

[191] Warner 1990, 13.

[192] Warner 1990, 14–15.

[193] Office of the Geographer 1967, 3.

with Mali is at the confluence of the Senegal and the Falémé rivers and not the confluence of the Senegal and the Karakoro stream, as was decreed originally in 1905.[194] As the border approaches Saint Louis, it follows the streams ("marigots" in the 1933 Decree) of Kassack and Karakoro.

Back to TOC

C.3.27 Mali–Mauritania

Overview. Originally formed in 1913 as a French intraimperial border between Haut-Sénégal et Niger (Mali) and Mauritania. A major revision occurred in 1944 (small territorial transfer). The primary feature is straight lines (non-astronomical). Secondary features are other water bodies (wells), a major river (Senegal), and towns/villages.

Details. France distinguished each of French Sudan (Mali) and Mauritania as distinct territories from Senegal in 1880 and 1904, respectively.[195] By 1912, France had defeated armed resistance in Adrar and southern Mauritania, which ensured "the ascendancy of the French-supported marabouts over the warrior clans within Maure society."[196] A decree the next year formed a border between Mauritania and Haut-Sénégal et Niger.[197] A major revision occurred in 1944 when the north-south straight line separating the two colonies was realigned and the northern part of the *cercle* of Nioro was transferred to Mauritania.[198] In the inhabited areas farther south, the border follows the Karakoro River and wells and villages (e.g., Nioro, Boulouli, Aguerakten); and the very short westernmost segment follows the Senegal River (an extension of the Mauritania–Senegal border). In the desert region farther north, the border is demarcated by long non-astronomical straight lines. These are clearly the dominant feature of the border, which we code as primary, and the other features are secondary.

Back to TOC

C.3.28 Burkina Faso–Mali

Overview. Originally formed in 1919 as an intraimperial border when France split Upper Volta (Burkina Faso) from Haut-Sénégal et Niger (Mali). Major revisions occurred in 1932 and 1947 (large territorial transfers: part of Upper Volta to French Sudan and then returned). A historical political frontier (PCS: Mossi) directly affected the border. The primary feature is minor rivers. Secondary features are topography (mountains) and a minor watershed.

Details. In 1919, France split Upper Volta (Burkina Faso) from Haut-Sénégal et Niger (Mali; called French Sudan for much of the colonial period). France's initial treaties with Mossi rulers in 1895 and 1896 laid the foundation for a distinct state of Upper Volta.[199] Unlike most other pre-colonial states incorporated into the French empire, France gained control over the Mossi territory

[194] Office of the Geographer 1967, 5.
[195] See Mali–Senegal and Mauritania–Senegal.
[196] Warner 1990, 14.
[197] Brownlie 1979, 409.
[198] Brownlie 1979, 406, 409–13. Slight modifications occurred after independence in the Treaty of Kayes in 1963.
[199] See Burkina Faso–Ghana.

without facing armed resistance.[200] France preserved the indigenous Mossi political structure to facilitate indirect rule, including leaving intact the *Moro Naba*, the ruler of the main Mossi state (Ouagadougou).[201] A revolt in Niger in 1916 led France to rethink its administrative structure and prompted "greater reliance on traditional institutions,"[202] at least within areas that cooperated with French rule. The Minister of the Colonies, Henri Simon, explicitly considered the importance of creating a separate colony at the center of the colonized Mossi states in his 1919 report to the French President: "The presence of a governor at the center of Mossi will ensure [...] the regularity of a control which, because of the distance, has not always been exercised satisfactorily."[203]

Major revisions also occurred in 1932 and 1947, during which time Upper Volta was disbanded and its territory was distributed among neighboring AOF colonies, including its northern districts to French Sudan.[204] During this period, French Sudan's borders with each of Cote d'Ivoire and Niger were longer than their final form.

The border alignment, in principle, depends on French administrative practice and no international agreement describes the boundary. Although there are no clear determinants for some parts of the border, west of the tripoint with Niger roughly follows the Beli river, and other "[p]arts of the frontier consist of segments on watercourses."[205] These include semidry watercourses and various rivers: Groumbo, Sourou, Ngorolaka, and Banifing. These watercourses undergo large seasonal variations, making the precise alignment of the border unclear. Finally, the border contours Mount Tenakourou, the highest point in Burkina Faso.[206]

Back to TOC

[200] Thompson and Adloff 1958, 173.
[201] Skinner 1958, 125.
[202] Touval 1966, 12.
[203] République de Burkina Faso 1985, 27.
[204] See Burkina Faso–Ivory Coast.
[205] Brownlie 1979, 430.
[206] Brownlie 1979, 427–30.

C.4 Equatorial Africa and Congo

C.4.1 Regional Overview

At the macro level, European competition to control the Congo and its basin resulted in the Berlin Congo Conference of 1884–85, following exaggerated claims of potential wealth by famous explorers such as Henry Morton Stanley and Pierre Savorgnan de Brazza. The Congo Free State gained immense territory in Equatorial and Central Africa as a result of complicated jockeying among the major powers and their respective desires for a neutral buffer state. In total, six European powers (Britain, France, King Leopold/Belgium, Germany, Portugal, and Spain) occupied territory in Equatorial Africa and the Congo region, spanning from Cameroon in the northwest to the southeastern frontiers of the Congo Free State.

The Congo and its watershed affected borders not only at the macro level, but also at the meso level (circumscribing the frontiers of the Congo Free State) and micro level (specific segments of the Congo Free State's borders). Other major rivers, such as the Ubangi and Kasai, also mattered at the meso and micro levels. Precolonial states were less important than elsewhere because much of the region lacked states in the 1800s, although various PCS along the Cameroon–Nigeria border and on the southern frontiers of the Congo Free State were important meso-level objects of contention. Early treaties secured by the French explorer Brazza with leaders of small-scale polities were also used to settle territorial claims with German Kamerun.

The following entries are mostly ordered chronologically by the initial year of border formation; the exceptions are to avoid breaking up consecutive entries involving French Equatorial African colonies.

Back to TOC

C.4.2 Congo (Fr.)–Congo (Bel.)

Overview. Originally formed in 1885 as an interimperial border between the French Congo and the Congo Free State. A major revision occurred in 1887 (changed features: switch lines to local features). The primary feature is major rivers (Congo, Ubangi). Secondary features are minor rivers and topography (mountains).

Details. The area within the Congo River basin (the Congo) became of intense interest in Europe in the 1870s when sensationalized accounts from European explorers amplified prospects for trade and colonization.[1] The immediate prelude to forming the Congo Free State involved a frenzy of treaty-signings with African rulers. "Between 1875 and 1882, Pierre Savorgnan de Brazza, a French naval officer, in a series of expeditions from Gabon explored much of present-day Congo (Brazzaville) and made treaties with local chiefs. A French law of November 30, 1882, ratified the treaties and provided for a government in the French Congo."[2] In 1880, Brazza secured a treaty with a local ruler, Makoko of the Téké, which enabled the French to establish Brazzaville on the northern bank of the Congo near the Stanley Pool (now, Pool Malebo). Henry Morton Stanley, hired as an agent by King Leopold, also gained treaties with rulers along the Congo River. This

[1] Wesseling 1996, Ch. 2.

[2] Office of the Geographer 1971*b*, 2.

enabled him to establish Leopoldville,[3] situated across from Brazzaville on the southern bank of the Congo.[4]

The initial frontiers between the Congo Free State and French territory were determined by a bilateral treaty between the two in February 1885 (during the Berlin Conference) and the unilateral Circular of August 1885 that formally established the Congo Free State, which contained statements of boundaries that reflected prior bilateral agreements.[5] Moving eastward from the Atlantic, the original border consisted of various minor rivers until they intersect the Congo River. At this point, the Congo became the border until roughly where it intersected the 17°E longitude meridian, at which point the meridian became the border.

A major revision occurred in 1887 when a protocol introduced the Ubangi River as a feature of the border, starting from the point where it intersects the Congo River. This replaced all of the original meridian line.[6]

We code the Congo River as the primary feature, which reflects its foundational role in the initial border as well as its length (500 miles of 1,010 miles total). The Ubangi (290 miles) reinforces the coding of major rivers as the primary feature. We code minor rivers as secondary features because of the westernmost part of the border. We also code mountains as a secondary feature because these were also used to delimit westernmost part of the border, which was vague in the 1885 agreements.[7]

Back to TOC

C.4.3 Central African Republic–Congo (Bel.)

Overview. Originally formed in 1885 as an interimperial border between the French Congo and the Congo Free State; Ubangi-Shari (Central African Republic) was split from the French Congo in 1903. Major revisions occurred in 1887 and 1894 (changed features: switch lines to local features). The primary feature is a major river (Ubangi). Secondary features are a minor river and a major watershed (Nile-Congo).

Details. The initial frontiers between the Congo Free State and French territory were determined by a bilateral treaty between the two in February 1885 (during the Berlin Conference) and the unilateral Circular of August 1885 that formally established the Congo Free State, which contained statements of boundaries that reflected prior bilateral agreements.[8] These initial agreements more thoroughly fleshed out the Congo (Fr.)–Congo (Bel.) border than the present one, for which the only relevant component was two parallel/meridian lines (17°E longitude and 4°N latitude).

A protocol in 1887 introduced the Ubangi River as a feature of the border, starting from the point

[3]Modern-day Kinshasa.

[4]These claims conflicted with Portugal's long-standing claims to the entire mouth of the Congo River, discussed in Angola–Congo (Bel.).

[5]Hertslet 1909, 552–53, 564–65; see also the maps on pp. 604–5, Wesseling 1996, 116, Sanderson 1985*a*, 140 (1887 map), and our digitizations (Figures 1 and 3 in the article).

[6]Hertslet 1909, 568.

[7]Brownlie 1979, 659–61.

[8]See Congo (Fr.)–Congo (Bel.) for background.

where it intersects the Congo River. At roughly the 4°N latitude parallel (near the site of the modern-day capital Bangui), the Ubangi shifts from primarily vertical in its orientation to primarily horizontal. The treaty specified that the Ubangi would constitute the border anywhere the river lay north of the 4°N latitude parallel, as "[i]n no case shall the northern Boundary of the Congo State descend below the 4th parallel of north latitude, which is the limit already assigned to it by Article V of the Convention of 5th February, 1885."[9] The Ubangi lies north of the meridian between roughly modern-day Bangui and the point at which it intersects the Mbomou River farther east. In 1894, a new boundary agreement specified the Mbomou as the boundary to the east of that intersection.[10] The consequence of these two major revisions was to replace the entire original straight-line segments with rivers.

The Ubangi and Mbomou rivers are the only two features of the border. We code the major river (Ubangi) as the primary feature even though it is shorter in length, which reflects its earlier incorporation as a key feature of the border. We also code the Nile-Congo watershed as a secondary feature because this formed the tripoint with Sudan (now South Sudan), which is explicitly mentioned in the 1894 agreement.

Back to TOC

C.4.4 Angola–Congo (Bel.)

Overview. Originally formed in 1885 as an interimperial border between Portuguese Angola and the Congo Free State. A major revision occurred in 1891 (changed features: switch lines to local features). Historical political frontiers (PCS: Lunda) directly affected the border. The primary feature is major rivers (Congo, Kasai). Secondary features are a major watershed (Congo), minor rivers, and straight lines (parallels/meridians and non-astronomical).

Details: Original borders of the Congo Free State. Portuguese colonial presence in modern-day Angola dated back to the sixteenth century. Early claims yielded ambiguous jurisdiction over the mouth of the Congo River, which led to disputes in the 1880s. Earlier, an Anglo–Portuguese Treaty of 1817 formally recognized a Portuguese sphere of influence upon the Atlantic coast that stretched from 18°S latitude to 8°S latitude,[11] which lies south of the mouth of the Congo River. However, Section 2 of the 1817 treaty explicitly denoted Portugal's sphere of influence over two specific towns north of the Congo mouth, Cabinda and Molembo, both located in the modern-day Cabinda enclave. Despite these early territorial claims, as of the 1880s, Portugal's presence in Africa was "extremely limited. There were even calls for a complete withdrawal from the interior, where attempts to extend Portuguese power had come to little. . . . In Angola Portuguese activities were confined to just a few towns, Ambriz and Luanda in the north . . . " The boundaries were "vague" and the situation was even "less clear" in the north than in the south.[12] Ambriz and Luanda are each located south of the Congo mouth; nonetheless, Portugal claimed the entire Congo mouth. Portugal signed a bilateral treaty with Britain in 1884 that recognized its claims over an area that

[9] Quoted in Hertslet 1909, 568–69. This provides an example of how even astronomical lines can be chosen to correspond with natural geographic features.

[10] Hertslet 1909, 569–70.

[11] Hertslet 1909, 985.

[12] Wesseling 1996, 100.

spanned the entire Congo mouth. However, the other European powers rejected this agreement, and King Leopold and the emergent International Association of the Congo in particular contested these claims.

Preliminary frontiers between the Congo Free State and Portuguese territory were determined by a bilateral treaty in February 1885 (during the Berlin Conference) and the unilateral Circular of August 1885 that formally established the Congo Free State, which contained statements of boundaries that reflected prior bilateral agreements.[13] Facing an ultimatum from Germany, France, and Britain, Portugal consented to relinquishing the northern bank of the Congo mouth to the Congo Free State. In return, Portugal retained control over the southern bank and over the small enclave of Cabinda located north of the northern bank.[14] Cabinda was of "little value in itself," but Portugal "attached importance, for traditional reasons, as it figured in the Portuguese constitution as an appendage of the Crown."[15] The border for the Cabinda enclave consists of straight lines (non-astronomical) and minor rivers; these features were qualitatively unchanged in future revisions.

The 1885 documents created initial southern limits for the Congo Free State. To the east, the border consisted of the watershed of the Kasai River; and to the north, it consisted of the 6°S latitude parallel until (moving eastward) reaching the town of Noqui.[16] Between the Atlantic Ocean and Noqui, the Congo River is navigable, but farther east, rapids prevent navigating the Congo River until reaching Kinshasa. Because European powers were interested in major rivers for the navigation and trade, we would expect less contestation over the Congo River between Noqui and Kinshasa. This segment of the river was assigned entirely to the Congo Free State. East of Kinshasa, the Congo River forms the border between the Belgian and French Congo.

Details: Influence of PCS Lunda. Portugal's sphere of influence remained in flux through the 1880s. In 1886–87, Portugal signed treaties with each of Germany and France that assigned it vast territory between its coastal possessions of Angola and Mozambique (fulfilling Portugal's *contra-costa* goal), but Britain formally protested these treaties.[17] However, the maps that accompanied these treaties—despite indicating expansive territory for Portugal—left unassigned a large segment of territory south of the Congo Free State and east of the Kwango River.

This was the location of the PCS Lunda.[18] Portuguese agents secured several treaties with rulers of the Lunda empire later in the 1880s. Meanwhile, agents of Congo Free State explored territory along the right bank of the Kwango River and, in 1890, "unilaterally created the District of Kwango Oriental covering all the territory east of the upper Kwango and thus, virtually, the whole Lunda empire."[19]

[13] Hertslet 1909, 552–53, 591–92; see also the maps on pp. 604–5, Wesseling 1996, 116, Sanderson 1985*a*, 140 (1887 map), and our digitizations (Figures 1 and 3 in the article).

[14] Crowe 1942, 172–74; Wesseling 1996, 123.

[15] Crowe 1942, 168–69. As noted above, the Anglo–Portuguese Treaty of 1817 explicitly mentioned Cabinda as within Portugal's sphere.

[16] The spelling in the treaty is "Nokki."

[17] See Malawi–Mozambique.

[18] See Bustin 1975, 34–37 and the map on Hertslet 1909, 706–7.

[19] Bustin 1975, 38–39; see also pp. 31–40 for more background.

In 1891, Portugal and the Congo Free State signed a bilateral treaty that explicitly sought to delimit possessions "in the region of Lunda."[20] This revision exchanged a large amount of territory and changed the features of the border. The treaty "consecrated the dismemberment of Lunda into two major sections. Portugal secured most of the lands west of the Kasai, including Shinje (Maxinje), Cassassa, Cahungula, and Mataba, but the Free State retained all the area between the Kwango and Kwilu [rivers] as far south as the eighth parallel—including most of the lands of the 'Mwene Putu' Kasongo. The Free State also gained control of all the land east of the Kasai, that is, of the Lunda heartland."[21]

We code Lunda as directly affecting the border because of its centrality in the 1891 treaty and to European interests in the area. However, the dissolution of the Lunda empire by the end of the 1880s disabled any European power from making convincing, broad territorial claims on the basis of treaties with its ruler. Lunda had been subjected to repeated invasions by the Cokwe people since mid century. In 1888, the Cokwe sacked and occupied the capital. "In these years—from 1888 to 1898—only a small fraction of Lunda land, the country of the Ine Cibingu, was not occupied."[22] Regarding European claims, "Much was made in the correspondence between Leopold and his aides of the fact that the 1891 agreement gave the Musuumb to the Free State but, at the time, the capital which earlier reports had described was no more and Mushidi, the new Mwaant Yaav, was living as a virtual refugee on the edges of the Lunda homeland, paying tribute to the Cokwe."[23] Indicative of the fluctuating borders, the Portuguese agent Carvalho signed a protectorate treaty with the Mwaant Yaav Mukaza in 1887, but "[i]f Carvalho had entertained any illusions regarding the extent of Mukaza's authority in the land, they must have been dispelled when, shortly thereafter, Cokwe bands supporting the candidacy of yet another claimant, Mushidi, laid siege to the capital and forced him to flee ingloriously."[24]

Following the 1891 treaty, the Kwango River and Kasai River each became long segments of the precolonial border, along with various latitude lines and minor rivers in between them and the Congo watershed in the far east (until reaching the tripoint with Zambia). Notably, the 8°S parallel, which was originally mentioned in the 1817 Anglo–Portuguese treaty as constituting the northern limits of Portugal's sphere of influence, is the southern-most part of Angola's northern border.

[20] Quoted in Hertslet 1909, 592–93.

[21] Bustin 1975, 40.

[22] Vansina 1966, 225. See the Central Africa entry in Appendix B for more details on Lunda's dissolution.

[23] Bustin 1975, 40.

[24] Bustin 1975, 35. Another PCS, Kasanje, was located near the border but did not affect it (see Vansina 1966, 187–89, 201–3 for the following). Kasanje is located entirely within Angola. Given the importance of Kasanje to trade in the interior, Portugal had long-standing contacts with this state. Kasanje signed a treaty with Portugal in 1857. However, Portugal's attempt in 1862 to militarily subjugate Kasanje failed, which enabled the state to regain its independence. Between the 1870s and 1920, Angola "turned into a colony along the general pattern that was emerging around her in Africa . . . And from 1885 on the real occupation of the areas that theoretically had been claimed began . . . In Kasanje and Mahungo, military operations led to occupation by 1910 and 1911." Although located along the western bank of the Kwango River (which was used for part of the border farther north), Kasanje was south of the 8°S latitude parallel, and therefore lay within Portuguese Angola's traditional sphere of influence. It does not appear that King Leopold or any other power contested this claim, which made it irrelevant for border formation.

We code major rivers as the primary feature because of the long segments following the Congo and Kasai rivers. We code a major watershed (Congo), minor rivers (in particular the Kwango), and straight lines (parallels/meridians and non-astronomical) as secondary features. In the final border, parallels/meridians themselves constitute only short segments. However, long portions of the border closely approximate either the 6°S, 7°S, or 8°S latitude parallels.

Back to TOC

C.4.5 Angola–Congo (Fr.)

Overview. Originally formed in 1886 as an interimperial border between the Cabinda enclave of Portuguese Angola and the French Congo. The primary feature is minor rivers. Secondary features are minor watersheds and straight lines (parallel/meridian and non-astronomical).

Details. Negotiations between Portugal and the Congo Free State created the Cabinda enclave of Angola in 1885,[25] and French interests in Equatorial Africa were intertwined with these claims.[26] The French–Portuguese Convention of 1886 determined the border between French territory and the Cabinda enclave.[27] The treaty discusses various minor rivers (Louisa Loango, Lubinda, Luali, Chiloango); either the river itself, the midpoint between two rivers, or their watershed.[28] Thus we code minor rivers as the primary feature and minor watersheds as a secondary feature. The border also consists of short straight-line (parallel/meridian and non-astronomical) segments.

Back to TOC

C.4.6 Congo (Bel.)–Zambia

Overview. Originally formed in 1885 as a unilateral frontier for the Congo Free State; in the late 1880s, Britain claimed the territory that later became Northern Rhodesia (Zambia).[29] A major revision occurred in 1894 (changed features: changed local features). Historical political frontiers (PCS: Kazembe; other state: Msiri Yeke) directly affected the border. The primary feature is a major watershed (Congo). Secondary features are minor rivers, major lakes (Mweru, Tanganyika), and straight lines (parallels/meridians).

Details. During 1884–85, King Leopold's International Association of the Congo signed a series of bilateral agreements with each of the major powers to establish the existence of and preliminary frontiers for the Congo Free State.[30] In August 1885, a Decree created the Congo Free State and specified these borders. The relevant parts for the present border are:[31]

- "A straight line drawn from Lake Tanganyika to Lake Moero [Mweru] by 8°30' south latitude"
- "The median line of Lake Moero"

[25] See Angola–Congo (Bel.).
[26] See Congo (Fr.)–Congo (Bel.) and Congo (Fr.)–Gabon.
[27] Brownlie 1979, 485.
[28] Hertslet 1909, 675.
[29] See Zambia–Zimbabwe.
[30] See Congo (Fr.)–Congo (Bel.) and Angola–Congo (Bel.).
[31] Quoted in Hertslet 1909, 553.

- "The watercourse which unites Lake Moero with Lake Bangweolo [Bangweulu]"
- "The western shore of Lake Bangweolo"
- "A line drawn from the southern extremity of Lake Bangweolo until it meets the 24th degree of longitude east of Greenwich, and following the watershed between the Congo and the Zambesi" [NB: the tripoint with Angola is located almost exactly at this longitude meridian]

Many of these features were unchanged in the subsequent border revision in 1894, when Britain signed its first bilateral treaty with the Congo Free State to determine borders.[32]

The main element that changed was shifting the segment between Lake Mweru and the Congo watershed westward from Lake Bangweulu to the Luapula River.[33] This change reflected competition over the Katanga region. Unlike the other powers, Britain's initial treaty with the Congo Free State in 1884 did not specify borders.[35] Later, Britain "duly noted" the borders specified in the August 1885 declaration that established the Congo Free State, but did not sign a separate treaty. Civil servants at the British Foreign Office mistakenly agreed to a map that placed Katanga within the Congo, which reflected a change in maps between November 1884 (when the Congo Free State signed a treaty with Germany) and December 1884 (treaty with France).[36]

By the end of the decade, Katanga had become an area of intense strategic interest. Competition brought British and Congo State agents into contact with two African states, Msiri (who had become paramount among the Yeke) and PCS Kazembe, whose common frontier as of the late 1880s was the Luapula River.[37] The Kazembe had lengthy historical roots and "was probably the greatest in size and the strongest kingdom of all the Luba and Lunda states. From 1750 to 1850 it was paramount in southern Katanga." Later, Msiri became "a political power of the first rank. Between 1865 and 1871 he had incorporated all the possessions of Kazembe west of the Luapula in his state ... From 1884 to 1887 Msiri was at the height of his power. His interventions in Kazembe's country had almost made him master of the entire kingdom on the Luapula." However, by the beginning of the 1890s when contact with European agents began, Msiri's state was in decline because of successful revolts.[38]

Europeans sought to establish a relationship with Msiri because of copper deposits located within his territory.[39] As Cecil Rhodes' British South Africa Company expanded Britain's sphere of influence northward into Central Africa,[40] his interests conflicted with the aims of the Congo Free State

[32] See Hertslet 1909, 578 for the text.

[33] It was not in fact the original intention to remove Lake Bangweulu entirely as a feature of the border. The 1894 treaty stipulated that south of Lake Mweru, the border was to follow "the right bank of the River Luapula, where this river issues from Lake Moero. The line shall then be drawn directly to the entrance of the river into the lake, being, however, deflected towards the south of the lake so as to give the Island of Kilwa to Great Britain. It shall then follow the 'thalweg' of the Luapula up to its issue from Lake Bangweolo."[34] The problem was that the Luapula does not flow into Lake Bangweulu (Brownlie 1979, 707–8), and it was thus removed as a feature of the border.

[35] See Hertslet 1909, 573–77.

[36] Wesseling 1996, 122–24.

[37] Only Kazembe is a PCS in our data set because Msiri formed his state after 1850.

[38] Vansina 1966, 174, 230–34.

[39] Roberts 1976, 157–62.

[40] See South Africa–Zimbabwe and Malawi–Zambia.

to "effectively occupy" the territory outlined for it in 1885. Rhodes' agents reached Msiri's capital in 1890, but failed to secure a treaty. In 1891, Leopold's agents reached the capital. After also failing to gain a treaty, they shot and killed him. This exacerbated the general state of revolt against the Yeke and left the Congo Free State in control of the area—hence aligning de facto conditions with their de jure sphere of influence over Katanga. Amid their northward drive that included the failed attempt to gain a treaty with Msiri, Rhodes' agents secured an agreement with Kazembe. This was the only "important chief" (within the vicinity of the northern frontier of modern-day Zambia) with whom the Company secured a treaty,[41] and this PCS was indeed incorporated into Zambia.[42]

We code the Congo watershed as the primary feature of the border and the other aforementioned features as secondary. The watershed segment is the longest and reflected the extensive usage of this feature to determine the original sphere of influence for the Congo Free State. We code Kazembe (PCS) and Msiri (other state) as directly affecting the border because the key change between 1885 and 1894 was to incorporate the Luapula River, their common frontier.[43] Thus, the new border gave Britain all the territory associated with Kazembe.[44]

Back to TOC

C.4.7 Cameroon–Nigeria

Overview. Originally formed in 1885 as an interimperial border between German Kamerun (Cameroon) and British colonies (later unified into Nigeria). Major revisions occurred in 1893 (new segment), 1919 (large territorial transfer: British Cameroon to Nigeria), and 1961 (large territorial transfer: British Southern Cameroons to independent Cameroon). A historical political frontier (PCS: Borno) directly affected the border. The primary feature is minor rivers. Secondary features are topography (mountains), towns/villages, infrastructure (roads), straight lines (non-astronomical), and a major lake (Chad).

Details: Forming and revising the border. Britain developed trading interests in the Niger Delta in the decades prior to the Berlin Conference; and, by the early 1880s, its agents were actively expanding its treaty network.[45] Germany impeded British expansion when, on the basis of a treaty

[41] Roberts 1976, 162.

[42] Another PCS, Luba, was located near the border but did not affect it. The Luba state was located to the northwest of Msiri and Kazembe, which placed it unambiguously within the original sphere of influence drawn for the Congo Free State at Berlin. Consequently, it does not appear that any other powers contested this claim or attempted to secure treaties. Like the Lunda, the Luba had weakened over time, and it became tributary to Msiri by the 1890s. Luba came into contact with Congo Free State agents in the mid-1890s and rebelled until they were defeated in 1905 (Vansina 1966, 242–43).

[43] In addition to the mentions above of the Luapula, see also Map D between pp. 167–68 in Vansina 1966.

[44] Despite incorporating various local features, one product of the border revision was the oddly shaped Congo Pedicle. According to Wikipedia, "The Congo Pedicle is an example of the arbitrary boundaries imposed by European powers on Africa in the wake of the Scramble for Africa, which were set by European interests and usually did not consider pre-existing political or tribal boundaries." Exactly the opposite is true. The border was shifted specifically to incorporate existing state frontiers. Combined with the watershed segment, this created a geographic oddity that did not exist with the original straight lines.

[45] See Benin–Nigeria.

secured with a ruler along the Cameroon estuary, it unexpectedly declared a protectorate over Cameroon in July 1884, albeit with vague territorial claims.[46] To avoid conflict, Britain acceded to Germany's new claims, and in return Germany supported British claims over the Niger River at the Berlin Conference that began later that year.[47] Britain and Germany began to separate their spheres of influence in a series of exchanges between April 29 and June 16, 1885.[48] Amid these exchanges, on June 5, Britain formally declared a protectorate over the Niger Districts.[49] These initial agreements concerned only the areas closest to the coast.[50] Britain and Germany engaged in numerous subsequent exchanges to determine the border,[51] and the final agreement to finalize the Anglo–German border occurred in 1913.[52] The northern extent of the border was initially determined in 1893,[53] which we code as a major revision. To be conservative in our coding, we do not code another major revision during the German period, although the sheer volume of subsequent formal correspondences would suggest that the border continued to evolve in non-trivial ways.

Major revisions occurred following World War I after Britain and France partitioned German colonies between themselves.[54] In 1919, the majority of German Kamerun became French Cameroon, the direct predecessor to modern-day Cameroon. This territory was located in the east and lay adjacent to French Equatorial Africa.[55] British Cameroons was divided into Southern Cameroons and Northern Cameroons, both of which bordered and were administered *de facto* as part of Nigeria.[56] In 1961, plebiscites were held in both parts of the British territory to determine whether they would join Nigeria or Cameroon, both of which had gained independence the year prior. Northern Cameroons voted to join Nigeria, which we do not count as a territorial transfer because it formalized the *de facto* status quo; and Southern Cameroons voted to join Cameroon, which constituted a large territorial transfer because Southern Cameroons shifted back from Nigeria to Cameroon. Thus, the contemporary Cameroon–Nigeria border follows the original Anglo–German alignment as far north as the northern extent of Southern Cameroons, and follows the 1919 alignment north of that.

Various documents describe the borders in great detail, including Agreements in March and April of 1913 for the southern portion, and the 1919 Milner-Simon Declaration and the 1928 Exchange of Notes for the northern portion.[57] The southern section encompasses distinct sectors between the Gamana and Cross Rivers and between the Cross River and the Bight of Biafra. In addition to these rivers, the documents note natural landmarks such as thalwegs and ridges, roads, and the division of villages between Britain and Germany. The northern section begins at Mount Kombon (located

[46] Hertslet 1909, 693.
[47] Crowe 1942, 124–26; Wesseling 1996, 190–91.
[48] Hertslet 1909, 868–74.
[49] Hertslet 1909, 117, 123.
[50] See the 1887 map in Sanderson 1985*a*, and our digitization in Figure 3 of the article.
[51] Hertslet 1909, 880–81, 903, 910–11, 913–15, 930–934, 937–42.
[52] Brownlie 1979, 553.
[53] See the map in Hertslet 1909, 914–15.
[54] Brownlie 1979, 553–55.
[55] France also reclaimed parts of Kamerun (Neukamerun) it had transferred to Germany in 1911, which were reintegrated into French Equatorial African colonies; see Cameroon–Gabon.
[56] See a map here.
[57] Brownlie 1979, 556–68.

along the earlier border between Southern and Northern Cameroons) and stretches as far north as Lake Chad. The documents reference natural landmarks such as rivers, marshes, and waterholes, in addition to multiple villages and roads as reference points. Minor rivers are mentioned throughout the documents, which we code as the primary border feature. The other features are secondary, in addition to straight lines (non-astronomical), which occur in small segments shown in Google Maps.[58]

Details: PCS Borno. The historical political frontier created by PCS Borno directly affected the border. The original Anglo-German border from 1893 partitioned the Borno Emirate between these empires during a period in which this historical state had been conquered and was governed by a foreign (African) warlord, Rabih az-Zubayrin. Following World War I, all the German-controlled portion of Borno was incorporated into British Northern Cameroons, which in part reflected Britain's reaction to agency by the ruler of Borno. Britain governed Northern Cameroons as an extension of various provinces of northern Nigeria, including the German province of Borno as the Dikwa Emirate within Nigeria's Borno province. British and German Borno were formally reunited within the same country in 1961 when residents of Northern Cameroons voted in a plebiscite to gain independence and join Nigeria rather than Cameroon.

Control over Borno reflected extensive negotiations. Britain and France each sought to sign a treaty with the Shehu of Borno in the 1890s, but the traditional ruling dynasty was overthrown by Rabih az-Zubayrin before either reached Borno.[59] Amid the complicated tripartite negotiations among Britain, France, and Germany over the area near Lake Chad, Borno was partitioned between British Nigeria and German Kamerun in a treaty signed between the two powers in 1893.[60] Nonetheless, the powers were aware of Borno's historical limits. Britain and France signed their own border treaty in this area in 1904, which ensured that all Borno territory west of the border with Cameroon would be British. They "readjust[ed] the boundary to the Komadugu Yobe . . . [so] that the whole of Borno would be British . . . this new border was chosen by the British and French because it already was the boundary of Borno."[61] The British subsequently repurposed the parts of the Borno state it controlled to create an eponymous province. "The kingdom of Borno became a 'province' and metropolitan Borno an 'emirate.' Its former vassals were turned into 'divisions' whereas its former fiefs were called 'districts.'[62] Between 1902 and 1914, Britain engaged in four different revisions of the provincial borders to incorporate pieces of territory that previously paid tribute to the historical state of Borno.[63]

During World War I, Britain and France negotiated over how to divide German Kamerun between themselves. "It was agreed that the British should obtain the German province of Borno, 'Deutsch Bornu.' On 24 February 1916 the British Foreign Secretary, Sir Edward Grey, sent a telegram to Francis Bertie, the British ambassador in Paris: 'We would, therefore, accept M. Picot's proposals,

[58] An ICJ judgment in 2002 "generally upheld the colonial boundary documents and provided clarification on their interpretation on several points" (*Cameroon–Nigeria* 2019).

[59] Hiribarren 2017, 46–47.

[60] Hiribarren 2017, 62.

[61] Hiribarren 2017, 78. This also justifies our coding of Borno as directly affecting the Niger–Nigeria border.

[62] Hiribarren 2017, 99.

[63] Hiribarren 2017, 100–1.

asking only that the territory of the Emir of Bornu should not be divided, and should go to us for administrative reasons."[64] Britain succeeded in this aim. "The former region of 'Deutsch Bornu' became part of the British Northern Cameroons which . . . was directly administered by the Northern Region of Nigeria and the province of Borno."[65]

The Shehu of Borno provided assistance to Britain during World War I, which influenced Britain's push to unify the state. The Shehu proclaimed in a letter sent to Frederick Lugard, Governor-General of Nigeria: "I have assisted the Resident with all that has been required, horses, donkeys, bullocks, carriers and corn, and everything that he asked for . . ."[66] Britain partially joined the Borno Division (Nigeria) and the Dikwa Division (Northern Cameroons) by unifying the Shehu title in 1937,[67] although these divisions could not be formally combined because Northern Cameroons was a British Mandate Territory. "The plebiscites of 1959 and 1961 finally restored to Nigeria the effective frontiers of the former kingdom of Bornu."[68]

By contrast, the powers did not rectify another partition for a state with more ambiguous historical frontiers. Britain and Germany had partitioned Adamawa, the easternmost emirate of the Sokoto Caliphate, across the present border. This is the part of the Sokoto Caliphate shown as partitioned in Figure 4 in the figure. Given its distance from the town of Sokoto (located in the northwest of the empire), Adamawa enjoyed a high degree of autonomy in the precolonial period. Britain and Germany realized that their original border severed the capital of the emirate, centered at Yola (located within the British sphere), from the hinterland (located within the German sphere). The powers engaged in diplomatic communications and contemplated transferring all of Adamawa to one side or the other. However, Adamawa's ambiguous limits ultimately prevented either power from making a clear territorial claim on this basis; there was no "coherent political entity known as Adamawa."[69] The scope of control from Yola was ambiguous, and many pagan tribes in the hills maintained their independence.

Back to TOC

C.4.8 Cameroon–Gabon

Overview. Originally formed in 1885 as an interimperial border between German Kamerun (Cameroon) and French Gabon. Major revisions occurred in 1894 (new segment), 1908 (changed features: switch lines to local features), 1911 (large territorial transfer: Neukamerun to Germany), and 1919 (large territorial transfer: Neukamerun to France). The primary feature is minor rivers.

Details. Germany declared a protectorate over Cameroon in 1884 and settled some initial frontiers with Britain between April and June of 1885.[70] The French first established themselves along the coast of Gabon in the 1840s after signing a treaty with the Mpongwè ruler *(oga)* Denis Rapontchombo in 1839. They signed treaties with other local rulers along the coast in the

[64] Hiribarren 2017, 134.
[65] Hiribarren 2017, 137.
[66] Hiribarren 2017, 137.
[67] Hiribarren 2017, 144–46.
[68] Anene 1970, 284.
[69] Anene 1970, 128–29.
[70] See Cameroon–Nigeria.

1840s. Libreville, founded in 1848 by several French and freed African slaves (similar to Freetown in Sierra Leone) became a modest trading post from which French colonial expansion in Equatorial Africa began. By 1862, French authority extended along most of the littoral of Gabon, and the Berlin Conference recognized French claims inland.[71]

The two European powers agreed to a division between France's Congo territories and German Kamerun in December 1885. France's Congo territories, which in 1910 were combined into the French Equatorial Africa federation, included Gabon, Congo, Central African Republic, and Chad; and we jointly discuss their border with Cameroon because these colonies were not distinguished during the earlier Franco–German agreements. The initial frontier between the spheres of influence began at the mouth of the Campo River on the Atlantic and, after a short river segment, followed a latitude parallel as far east as the 15°E longitude meridian.[72] In terms of contemporary countries, this initial division affected the present border as well as Cameroon–Congo (Fr.) and Cameroon–Equatorial Guinea.

Both France and Germany perceived this initial division as provisional, as they continued to compete for influence in the borderlands. Gabonese historian and later ambassador Mangongo-Nzambi (1969) recounts the efforts of French missions to define the borders of Gabon, and in particular to extend the French area of influence vis-à-vis Germany, by signing treaties with local chiefs. For the (French) Crampel Mission of 1888–89, Mangongo-Nzambi states, "From a political point of view, it seems that Crampel was tasked with detecting signs of German influence in northern Gabon; indeed, he writes in his report that of the fourteen treaties signed with the forty-four principal chiefs seen during this trip, '6 treaties are particularly important, as they assert France's rights to the borders of German possessions'."[73]

In 1894, the Committee of French Africa organized a new mission led by François Joseph Clozel, an influential French administrator. The Committee tasked Clozel "to draw as far west and north as possible . . . a new itinerary opposed to German claims."[74] Later that year, a Franco-German Protocol determined a rough outline of Cameroon that stretched as far north as Lake Chad (following an Anglo-German agreement in 1893 with the same northern limit), with the initial border mostly following straight lines. This yielded major revisions for the present border and for Cameroon–Congo (Fr.), as well as an initial border for Cameroon–Central African Republic and Cameroon–Chad.

The Franco–German Convention of 1908 in Berlin replaced many of the straight lines with local features such as rivers,[75] which we code as another major revision. Captain Cottes (France) and Major Foerster (Germany) led a joint mission in 1905–6 to delimit the French Congo-German Cameroon border.[76] The Convention relies on the detailed work of the Cottes-Foerster mission to delineate the border. The mission visited every town along the rivers that were used as borders.

[71] Deschamps 1963, 381; Mangongo-Nzambi 1969; Curtin et al. 1995; Office of the Geographer 1968, 2.
[72] See Hertslet 1909, 653–55 and the accompanying map.
[73] Mangongo-Nzambi 1969, 18.
[74] Boulvert 1983, 11–12.
[75] Brownlie 1979, 532–30.
[76] Cottes 1911.

In the Treaty of Fez in 1911, France ceded parts of French Equatorial Africa to Germany, which increased Kamerun's territory from 465,000 to 760,000 km^2.[77] This was part of the resolution to France's and Germany's contestation over Morocco.[78] The Neukamerun (New Cameroon) territories that France ceded yielded a German outlet to the Atlantic south of Spanish Guinea as well as new territory in the east between the Logone and Chari rivers. However, France conquered this territory during World War I and reintegrated it into French Equatorial Africa in 1919.

The present border consists entirely of the minor rivers Kye/Kje, Campo/Ntem, Kom, and Aina/Ayina, which we code as the primary feature.[79] These rivers replaced the parallel that originally comprised the Gabon portion of the Franco-German division. This is the same parallel that comprises most of the Cameroon–Equatorial Guinea border and part of the Cameroon–Congo (Fr.) border.

Back to TOC

C.4.9 Cameroon–Congo (Fr.)

Overview. Originally formed in 1885 as an interimperial border between German Kamerun (Cameroon) and the French Congo. Major revisions occurred in 1894 (new segment), 1908 (changed features: switch lines to local features), 1911 (large territorial transfer: Neukamerun to Germany), and 1919 (large territorial transfer: Neukamerun to France). The primary feature is minor rivers. Secondary features are a straight line (parallels/meridians) and a minor watershed.

Details. Cameroon–Gabon provides background and major dates. The present border follows, moving west to east, a parallel (2°10'20"N) for 85 miles, a drainage divide for approximately 21 miles, and minor rivers (Ngoko, Kadei) for 219 miles until the border reaches its tripoint with the Central African Republic.[80]

Back to TOC

C.4.10 Cameroon–Central African Republic

Overview. Originally formed in 1894 as an interimperial border between German Kamerun and the French Congo; Ubangi-Shari (Central African Republic) was split from the French Congo in 1903. Major revisions occurred in 1908 (changed features: switch lines to local features), 1911 (large territorial transfer: Neukamerun to Germany), and 1919 (large territorial transfer: Neukamerun to France). The primary feature is minor rivers. Secondary features are topography (valleys), towns/villages, infrastructure (roads), and straight lines (non-astronomical).

Details. Cameroon–Gabon provides background and major dates. The border primarily follows rivers (including the Kadei and Buri/Danje) and streams, in addition to parallels, valleys, roads, and villages.[81] The border also contains various straight-line (non-astronomical) segments.

Back to TOC

[77] DeLancey, DeLancey and Mbuh 2019, 371.
[78] See Algeria–Morocco.
[79] Office of the Geographer 1971*a*, 2, 4. See Loungou 1999 for further detail.
[80] Office of the Geographer 1971*b*, 2 provides further detail on the alignment.
[81] Brownlie 1979, 525, Office of the Geographer 1970*a*, 4.

C.4.11 Cameroon–Chad

Overview. Originally formed in 1894 as an interimperial border between German Kamerun (Cameroon) and French-claimed territory, constituted as the military territory of Chad in 1903. Major revisions occurred in 1908 (changed features: switch lines to local features), 1911 (large territorial transfer: Neukamerun to Germany), and 1919 (large territorial transfer: Neukamerun to France). Historical political frontiers (PCS: Borno; other state: Bagirmi) directly affected the border. The primary feature is minor rivers. Secondary features are a major lake (Chad), towns/villages, and straight lines (non-astronomical).

Details. Cameroon–Gabon provides background and major dates. Most of the border consists of rivers; in descending order of length, the Logone, Shari, and Mayo Vaimba. Because the Logone is the longest feature, we code minor rivers as the primary feature. The northern reach of the border is Lake Chad, which was an object of intense competition among Britain, France, and Germany (see Chad–Nigeria). The towns of Koundé (Central African Republic) and Lamé (Chad) delineate parts of the border.[82] The border also consists of various straight-line (non-astronomical) segments.

Historical political frontiers affected the present border. France gained a treaty with the fledgling state of Bagirmi in 1897 in which it acknowledged the Shari River as its western boundary, which the ruler of Bagirmi affirmed in an agreement with Borno in 1900. "In both treaties, the emphasis was put on the Shari River as the boundary between both polities. Thus at two levels, the Shari was a boundary. In 1894, at a European level, the Shari River was supposedly the common boundary between the French and the German possessions; in 1900, at a local level, Borno and Bagirmi recognised the river as their common boundary. . . . The French intentions became clearer as this agreement could be for them a guarantee that, if they did not obtain Borno, they would at least obtain Bagirmi whose authority was here clearly recognised and defined."[83]

Back to TOC

C.4.12 Cameroon–Equatorial Guinea

Overview. Originally formed in 1885 as an interimperial border between German Kamerun (Cameroon) and French Gabon; in 1900, France ceded to Spain a piece of continental territory that Spain eventually governed as Spanish Guinea (Equatorial Guinea), which yielded a bilateral border with German Kamerun. The primary feature is a straight line (parallels/meridians). A secondary feature is a minor river.

Details. The Franco–German Protocol of 1885 determined borders between their spheres of influence.[84] The protocol decreed a border that would follow the Campo River from the coast until reaching the 10°E longitude meridian, at which point it was to follow the corresponding parallel line until hitting 15°E, which lies west of Equatorial Guinea.

Included within the French sphere were areas of Spanish interest on the coast,[85] dating back to

[82] Brownlie 1979, 535–36; for a detailed alignment, see Office of the Geographer 1970*b*, 2–6.
[83] Hiribarren 2017, 66–67.
[84] See Cameroon–Gabon.
[85] Brownlie 1979, 545.

their occupation of Fernando Po and other islands.[86] In 1900, France ceded to Spain a piece of continental territory that corresponds with present-day Equatorial Guinea.[87] This cession yielded a bilateral border with German Kamerun that followed the borders established in 1885 (hence we do not code a major revision in 1900). The latitude parallel segment is longer than the river segment, and hence we code the former as the primary feature and the latter as a secondary feature.

Back to TOC

C.4.13 Equatorial Guinea–Gabon

Overview. Originally formed in 1900 as an interimperial border between Spanish colonies (later unified into Spanish Guinea; Equatorial Guinea) and French Gabon. The primary feature is straight lines (parallels/meridians). A secondary feature is a minor river.

Details. Spanish colonialism in the Gulf of Guinea began in 1778 with a Portuguese cession of the islands of Fernando Po and Annabon.[88] Spain also had expansive claims to continental territory in Equatorial Africa.[89] However, it never occupied this area—into which France expanded in the late nineteenth century.[90] The Franco–Spanish Convention of 1900 determined the border,[91] which consists primarily of meridian lines (1°N latitude parallel and 11°20'E longitude meridian) and a shorter segment that follows the Río Muni (a minor river).

Back to TOC

C.4.14 Congo (Fr.)–Gabon

Overview. Originally formed in 1903 as an intraimperial border when France first formally divided its four territories in Equatorial Africa. Major revisions occurred in 1912, 1918, 1936, and 1946 (small territorial transfers). The primary feature is minor rivers. Secondary features are minor watersheds and straight lines (parallels/meridians).

Details. France had claims to the coast of Gabon dating back to the 1840s, and established claims in Congo-Brazzaville (French Congo) in the early 1880s.[92] Pierre Brazza became the governor of French territories in the Congo from 1885 to 1897. The core of these territories later became Gabon and Moyen-Congo. Brazza also organized expeditions between 1889 and 1894 that traveled farther north, which yielded a new post along the Ubangi River at Bangui, the eventual capital of Ubangi-Shari (Central African Republic). The French also established the military territory of Chad in 1900 after defeating the warlord Rabih az-Zubayrin. Thus, by the turn of the century, there were three areas of conquest: the French Congo (French Congo and Gabon existed separately for several years in the 1880s, but were combined between 1888 and 1903),[93] the upper regions along the Ubangi, and the incipient military territory of Chad.

[86] See Equatorial Guinea–Gabon.
[87] See Hertslet 1909, 1166 for the text.
[88] Hertslet 1909, 1162.
[89] Hertslet 1909, 1163; Clarence-Smith 1986, 537.
[90] See Congo (Fr.)–Gabon.
[91] See Hertslet 1909, 1166.
[92] See Cameroon–Gabon and Congo (Fr.)–Congo (Bel.).
[93] Office of the Geographer 1968, 2.

A 1903 Decree formally divided French territories in Equatorial Africa into Gabon, Moyen-Congo, Ubangi-Shari, and Chad; and roughly delimited their borders. These territories spanned hundreds of kilometers, in particular from north to south, which prompted the French to create the French Equatorial Africa (AEF) federation in 1910. Administratively similar to French West Africa, AEF was also ruled by a *Gouverneur général* and each colony was ruled by a governor. Also analogously to AOF, the federal structure enabled transfers of resources among colonies while governors retained discretion on colony-specific matters.

Border revisions in 1912, 1918, 1936, and 1946 concerned intraimperial territorial transfers in the southern half of the border area, which comprises the provinces of Haut-Ogooué (eventually became part of Gabon), Niaria (Congo), and Nyanga (Gabon).[94] "The interterritorial boundary changed a great deal during the colonial period but the final change occurred in 1946," when Gabon regained the province of Haut-Ogooué.[95]

The alignment of the border relies on rivers and streams and the Ogooué-Congo watershed for the majority of its length. A 20 kilometer parallel and a few other shorter straight lines connect these features. For example, moving north to south, the first fourth of the border is defined by the Lvindio and Djoua rivers; the watershed between the Ogooué and the Congo river defines the second fourth; and the southern half is comprised in part by a tributary of the Ogooué (Letili) and the Nyanga river.

Back to TOC

C.4.15 Central African Republic–Congo (Fr.)

Overview. Originally formed in 1903 as an intraimperial border when France formally divided its four territories in Equatorial Africa. Major revisions occurred in 1926, 1936, 1937, and 1942 (small territorial transfers). The primary feature is a minor watershed. Secondary features are straight lines (non-astronomical) and minor rivers.

Details. French territories in Equatorial Africa were first organized as colonies and military territories in 1903, although with very rough borders.[96] The present border underwent multiple major revisions after 1903 because districts were shuffled between the two colonies in 1926, 1936, 1937, and 1942. As a result of these changes, the border until 1926 ran northwest to southeast whereas the final border runs southeast to northeast.[97] Approximately three-fourths of the border follows the drainage divide between the Lobaye and Ibenga Rivers.[98] The remainder is a straight line running from the tripoint with Cameroon to the intersection of the watershed and the Makalé River. The easternmost segment follows the Gouga River to its confluence with the Ubangi.

Back to TOC

[94] Brownlie 1979, 642–47; for example, the 1918 arrêté states that territories between Gabon's southern border and Cabinda (Portuguese Angola) are part of Moyen Congo. Although the territory was very well mapped by the 1920s (Meunier 1929), the border nonetheless differed greatly from the one at independence because of subsequent changes.

[95] Brownlie 1979, 641.

[96] See Congo (Fr.)–Gabon.

[97] See here for a map.

[98] Brownlie 1979, 593; Office of the Geographer 1974*b*, 2–3.

C.4.16 Chad–Nigeria

Overview. Originally formed in 1906 as an interimperial border between French Chad and British Nigeria. The primary feature is a major lake (Chad).

Details. After Britain and Germany used Lake Chad to partition their spheres of influence in 1893, France sought access to Lake Chad to join its Equatorial, West, and North African empires; which ended with the killing of the warlord Rabih az-Zubayrin in 1900.[99] The three powers agreed to use the lake as a frontier for their neighboring colonies in a series of agreements concluded between 1906 and 1908.[100] The original border lay entirely within Lake Chad as a straight line that connected the Chad–Niger–Nigeria tripoint (1910) and Cameroon–Chad–Nigeria tripoint (1931), each of which also lay within Lake Chad. The dates in parentheses denote the year in which each of these tripoints was finalized, although we do not code these as major revisions because they constituted minor alterations of the border already agreed upon. However, Lake Chad has contracted by roughly 90% since the 1960s.[101] Therefore, what was originally a border along the lake's centerline is a straight line border on mostly dry ground on a contemporary map.

Back to TOC

C.4.17 Central African Republic–Chad

Overview. Originally formed in 1909 as an intraimperial border among France's territories in Equatorial Africa. Major revisions occurred in 1920, 1935, and 1936 (small territorial transfers), and 1941 (changed features: clarify local features). The primary feature is minor rivers. Secondary features are towns/villages, infrastructure (roads), and straight lines (non-astronomical).

Details. Following victory over the African conqueror Rabih az-Zubayr, France established Chad as a military territory in 1900, and it became a colony in 1920.[102] The territory of Ubangi-Shari (present-day Central African Republic) was established in 1903 and became a colony in 1914. Chad and Ubangi-Shari were two separate territories with unclear borders from 1900 to 1906, the last phase of military conquest. They were merged into a single territory (Ubangi-Shari-Chad) in 1906, and separated again in 1914.[103] In 1910, the French united the colony of Gabon, the colony of French Congo, and the territory of Ubangi-Shari-Chad into the French Equatorial Africa (AEF) federation. The three territories that constituted the initial AEF became four when Ubangi-Shari and Chad were separated in 1914.

An arrêté in 1909 established the first administrative border between the two territories within Ubangi-Shari-Chad. The eastern half of the border, which ranges from the intersection of the Shari and Bahr Aouk rivers to the tripoint with Sudan, was not subsequently revised, presumably because it consists entirely of water bodies: from west to east, the Bahr Aouk and Aoukalé rivers and the Bahr Nzili stream.[104] By contrast, the territorial division of the western half of the border "changed

[99] Crowder 1968, 105–7; Anene 1970, 123–24; Wesseling 1996, 212–18.
[100] Brownlie 1979, 615.
[101] The European Space Agency 2019.
[102] Office of the Geographer 1968, 2–3.
[103] Office of the Geographer 1968, 2–3.
[104] "Bahr" means body of water in Arabic.

substantially from time to time," including in 1920.[105] In 1925, Moyen-Shari was transferred to Ubangi-Shari. In 1936, Moyen-Shari was restored to Chad, and the district of Logone was transferred to Chad as well. Both remain part of Chad today, constituting the southwestern area of the country.

The 1941 and 1946 decrees in the *Official Journal of French Equatorial Africa* do not precisely delineate the western half of the border.[106] As late as 1941, "each administrator was left to specify the accepted limits of the administrative subdivision to the governor concerned," and precise delineations of the western half were still ongoing in 1942.[107] We code 1941 as the final year of major revisions even though the western half of the border does not appear to be settled until later, making our coding conservative.

Regarding alignment, the majority of the present border follows various minor rivers including the Pendé and the Aoukalé rivers, although the secondary documentation detailing segments along river sectors is limited. For part of the western half of the border, the French National Geographic Institute (IGN) suggested the following delimitation: "The course of the Ereke from the Pende to its confluence with the Taibo, the course of that river to its sources, thence a straight line [running] east-west, 2 kilometers long, to the sources of the Bokola (Tor), the course of the latter to the Nana-Barya."[108] The border also incorporates roads, villages, and short straight-line segments.[109]

Back to TOC

C.4.18 Chad–Niger

Overview. Originally formed in 1900 as an intraimperial border to divide France's territories in West Africa and Equatorial Africa; Niger and Chad were split from larger colonies and constituted as separate military territories in 1912 and 1903, respectively. Major revisions occurred in 1913 (new segment), 1931 (large territorial transfer: Tibesti mountains to Chad), and 1939 (changed features: clarify local features). The primary feature is straight lines (non-astronomical). Secondary features are a major lake (Chad), other water bodies (wells), and topography (mountains, dunes).

Details. The border area between Chad and Niger, located mostly in the Sahara Desert, was one of the last regions of Africa to be explored: "Three expeditions were organized with the aim of joining France's possessions in central, west, and north Africa. An expedition marched southward from Algeria, a second moved eastward from the Niger area, and a third traveled northward from the French Congo all meeting on April 21, 1900 at Kousseri (Fort Foureau) [adjancent to N'Djamena] south of Lake Chad. The campaign was successful in linking together France's African possessions and in expanding the French Congo territories northward of Lake Chad."[110]

[105] Brownlie 1979, 589–90.
[106] Brownlie 1979, 589–90.
[107] Office of the Geographer 1968, 3–4.
[108] We confirmed the existence and locations of all these rivers and streams in GeoNames.
[109] Brownlie 1979, 590.
[110] Office of the Geographer 1966, 3. Lefèbvre 2015 provides further historical background on the Niger-Chad region.

The first maps showing the boundary date from around 1900,[111] but addressed only the southern half. The northern half of the border was originally formed in 1913,[112] which constitutes a major revision. A memorandum in 1931 transferred the Tibesti mountains from Niger to Chad and delimited the boundary with some detail, apparently for the first time. The last changes appear to have taken place around 1939, when "a French boundary delimitation commission (often referred to as a demarcation commission) is known to have worked in the area north of Lake Chad."[113] This is presumably why maps up to that point "show[ed] a single straight-line sector from Molo due south to the tripoint [inside Lake Chad],"[114] whereas later maps showed a rugged border. It is unclear what prompted French administrators to make these changes. Overall, this was an unimportant intraimperial border in which "colonial authorities never had the ability or the will to restrict all movement and circulation."[115]

Regarding alignment, the northern half of the border uses straight lines that separate the Tibesti mountains (in Chad since 1931) from the Grand Erg de Bilma (dune sea), a largely uninhabited region. Population density was greater in the bottom third of the border. The southern half of the border incorporates two wells (Siltou and Firkachi) and ends in Lake Chad.

Back to TOC

[111] Office of the Geographer 1966, 3.
[112] Lefèbvre 2015, 278.
[113] Office of the Geographer 1966, 4.
[114] Brownlie 1979, 610.
[115] Lefèbvre 2015, 325.

C.5 East Africa

C.5.1 Regional Overview

Europeans had little interaction with East Africa until the 1880s. The dominant non-European power in the region to this point was the Sultanate of Zanzibar. Britain had established treaty relations with the Sultan in the 1860s, which Germany challenged in the 1880s. Early borders along the coast reflected these macro-level considerations, as the Sultan was granted a long strip of territory along the coast (although later border revisions erased this frontier). Beyond the coast, borders in East Africa reflected macro-level competition over the eastern frontier of the Congo Free State and British efforts to expand northward from their territories in Southern Africa.

Precolonial states and major lakes were the meso-level factors that determined most non-coastal borders. Buganda, located along Lake Victoria, was the territorial core of British Uganda; and Bunyoro and Nkore rounded out British claims vis-à-vis the Congo Free State and Germany. Rwanda and Burundi, clustered along Lakes Kivu and Tanganyika, were administered differently than the rest of German East Africa, and later separated as their own colony under Belgian rule. Other Great Lakes, including Albert, Edward, Malawi, and Tanganyika are each primary features of a border, and Lake Turkana was previously the primary component of the Kenya–Uganda border. Europeans sought access to these lakes to stimulate trade. This is exemplified by Britain's failed attempts to access to Lake Tanganyika from the north via a narrow corridor between the Congo Free State and German East Africa, which would have complemented gains by the British South Africa Company to access Lake Tanganyika from the south.

The following presents all the interimperial borders first, followed by intra-British borders and then by intra-German borders. Within each category, the entries mostly appear chronologically by the initial year of border formation, although some derivative borders appear at the end of the interimperial entries.

Back to TOC

C.5.2 Congo (Bel.)–Tanzania

Overview. Originally formed in 1885 as a unilateral frontier of the Congo Free State; German East Africa (Tanzania) was formed later that decade. The primary feature is a major lake (Tanganyika).

Details. During 1884–85, King Leopold's International Association of the Congo signed a series of bilateral agreements with each of the major powers to establish the existence of preliminary frontiers for the Congo Free State.[1] The Circular of August 1, 1885 officially created the Congo Free State and established its preliminary boundaries, of which one component was "[t]he median line of Lake Tanganyika."[2]

Germany colonized territory in East Africa later in the 1880s.[3] German East Africa constituted

[1] See Angola–Congo (Bel.).

[2] Quoted in Hertslet 1909, 553. Every early map recognized the entire length of Lake Tanganyika as constituting an eastern frontier of the Congo Free State; see the map in Hertslet 1909, 604–5.

[3] See Kenya–Tanzania.

not only modern-day Tanzania, but also Rwanda and Burundi, which we discuss in subsequent entries.[4] The Tanzania portion of German East Africa became a British Mandate after World War I.[5] Tanganyika gained independence in 1961 and the island of Zanzibar gained independence in 1963, and in 1964 they voluntarily merged to create Tanzania.[6] None of these subsequent changes altered the border between modern-day Tanzania and the modern-day Democratic Republic of the Congo. Because of the early foundation of the present border and the lack of subsequent disputes, "[t]he alignment is not the exact object of any particular international agreement." Agreements such as the Belgian–German Convention of 1910 (see Congo (Bel.)–Rwanda) refer to the median line of Lake Tanganyika as the border.[7]

Back to TOC

C.5.3 Kenya–Tanzania

Overview. Originally formed in 1886 as an interimperial border between British-claimed territory (later organized as Kenya) and German East Africa. A major revision occurred in 1890 (enclave transfer). A historical political frontier (other state: Zanzibar) indirectly affected the border. The primary feature of the border is straight lines (non-astronomical). Secondary features are a major lake (Victoria), minor lakes, and topography (mountains).

Details. British interests in East Africa date back to the 1860s when it established influence over the Sultan of Zanzibar, who claimed territory in the interior of East Africa. In 1885, Germany made territorial claims in East Africa on the basis of treaties that the explorer Carl Peters secured with local rulers. These claims included Witu (located along the coast in modern-day Kenya) and Zanzibar, and Peters also moved inward toward areas such as Buganda. The British government, previously reluctant to accept administrative responsibilities in East Africa, responded by seeking to claim more territory for itself.[8] The Anglo–German Agreement of 1886 determined their spheres of influence in East Africa east of Lake Victoria.[9] The border consists of two separate straight lines stretching from the Pacific Coast to Lake Victoria, and a kink that connects the lines incorporates Mount Kilimanjaro into Tanzania.[10] This kink runs through two minor lakes, which are secondary features.

The Anglo-German Agreement of 1890, which determined their neighboring boundaries throughout the continent, reaffirmed the main components of the present border.[11] However, a major revision occurred because Germany renounced its enclave protectorate over Witu, a foundational element of German claims in East Africa.[12]

[4] All subsequent disputes between Germany and the Congo Free State concerned areas north of Lake Tanganyika; see Congo (Bel.)–Rwanda and Burundi–Congo (Bel.).

[5] See Rwanda–Tanzania.

[6] Shivji 2008.

[7] Brownlie 1979, 687.

[8] Wesseling 1996, 135–45.

[9] See Hertslet 1909, 882–87 for the text.

[10] McEwen 1971, 137; Brownlie 1979, 923. Contrary to popular myth, Mount Kilimanjaro was not in fact a birthday present from Queen Victoria to her grandson Kaiser Wilhelm II (Hatchell 1956).

[11] See Tanzania–Uganda.

[12] Wesseling 1996, 145.

The Arab-governed state of Zanzibar indirectly affected the present border. Anglo-German negotiations in East Africa were intertwined with territorial claims by the Sultan of Zanzibar. Ultimately, though, these claims did not affect the present border because the Sultan's territory eventually was incorporated into the European colonies (hence our coding of an indirect effect). In 1886, a joint declaration by Britain, France, and Germany established the limits of the Sultan's possessions in continental East Africa,[13] which Britain and Germany reaffirmed in their bilateral treaty later that year. These agreements granted the Sultan a strip of territory ten miles inland from the coast running roughly from the Tana River in Witu (in the northern coastal part of contemporary Kenya) southward to the Rovuma River (Tanzania's border with Mozambique).[14] Thus, much of the coast for the British possession and all of the coast for the German possession bordered the territory agreed upon for the Sultan. Later in the 1880s, the Imperial British East Africa Company and German East Africa Company each secured agreements with the Sultan to lease his territory. Germany received a permanent cession of the territories in 1890 upon gaining direct administrative control over its colony.[15] By contrast, the British government retained the leasing arrangement throughout the colonial period, even though the Sultan's territory was de facto part of the East Africa Protectorate and, later, Kenya.[16] In sum, the European powers engaged in lengthy and sometimes contentious diplomatic posturing with the Sultan of Zanzibar.[17] In the present case, his sphere of influence ultimately only affected internal administrative frontiers rather than an external border between colonies. Nonetheless, the Sultan was a strategic actor who influenced European considerations about border formation.

Back to TOC

C.5.4 Mozambique–Tanzania

Overview. Originally formed in 1886 as an interimperial border between Portuguese Mozambique and German East Africa. Major revisions occurred in 1894 and 1919 (changed features: changed local features). A historical political frontier (other state: Zanzibar) indirectly affected the border. The primary feature is minor rivers. Secondary features are a major lake (Malawi) and straight lines (parallels/meridians).

Details. Portugal had established colonial outposts on the coast of modern-day Mozambique dating back to the sixteenth century, stretching as far north as Delgado Bay. The Anglo–Portuguese Treaty

[13] Hertslet 1909, 874–76.

[14] See Ajayi and Crowder's 1985 East Africa map.

[15] McEwen 1971, 208, fn. 2.

[16] The British government formally recognized the Sultan's territorial rights upon establishing crown rule in 1895, but the Sultan agreed for his territory to be governed as part of Kenya (see the various treaties presented in Hertslet's section on the East Africa Protectorate, pp. 331–87; and Roberts-Wray 1966, 761–62). In 1920, the East Africa Protectorate became Kenya Colony and the Kenya Protectorate, the latter of which corresponded to the coastal strip leased from the Sultan. Despite nominally affirming his sovereignty over the coast, in practice, the Protectorate was under "the same system of administration as the Colony, and all Colony legislation, in the absence of any provision to the contrary, applies to it" (Hailey 1950*a*, 87; see also Hailey 1950*b*, 5). In 1963, the Sultan agreed to formally relinquish the coastal territory as Kenya gained independence (Roberts-Wray 1966, 762).

[17] See Mozambique–Tanzania.

of 1817 formalized Britain's early recognition of Portugal's sphere of influence in southeastern Africa: "upon the eastern coast of Africa, the territory lying between Cape Delgado and the Bay of Lorenco Marques."[18] Germany's initial territorial claims in East Africa dated back only to 1885, and emanated from farther north.[19] The Anglo–German Agreement of 1886, which formed the Kenya–Tanzania border, stated that the southern limit of Germany's territory was the Rovuma River, which lies just north of Delgado Bay. The Rovuma was confirmed as the primary feature of the present border in the German–Portuguese Agreement of 1886 and in the Anglo–Portuguese Treaty of 1891.[20]

The easternmost part of the border conflicted with alternative territorial arrangements involving the Sultan of Zanzibar and resulted in a major revision in 1894.[21] The exact location of the southern boundary of the Sultan's coastal territory was determined by a joint Anglo-French-German commission in 1886, and was found to "follow the course of the Minengani River from its mouth for a distance of five sea miles, from which point it continued westward along the parallel as far as the right bank of the Ruvuma."[22] This decision created a small strip of land directly south of the Rovuma River,[23] which belonged to both Portugal by their 1886 agreement with Germany; and to the Sultan of Zanzibar by the determination of the joint European commission in 1886. Unlike Germany and Britain, Portugal did not reach an agreement with the Sultan to lease his territories in the interior. Instead, in 1887, Portugal broke off diplomatic relations with the Sultan and forcibly occupied this territory, which prompted a response by Germany in 1894 to seize possession.[24] An agreement in 1894 (although not ratified until 1909) divided the disputed territory into two parts, which we code as a major border revision. Germany gained the northern part, called the Kionga Triangle.[25] This contained the port of Kionga, which "offered better harbour facilities than the main mouth of the Ruvuma, and . . . was also the only really navigable entrance to the river." Portugal gained the southern portion, which included Tungi Bay.[26]

In 1919, following Germany's defeat in World War I, Portugal gained international recognition over the Kionga Triangle.[27] This major revision restored the pre-1894 border. Consequently, the border consists almost entirely of the Rovuma River, except for a short segment with a latitude parallel (the westernmost 32 miles of the 470-mile border) that ends at Lake Malawi. Thus, a minor river is the primary feature, and a major lake and a straight line (parallels/meridians) are each secondary features. A historical political frontier (other state: Zanzibar) indirectly affected the border because the revision in 1894 was affected by territory that was deemed (as of 1886) to belong to the Sultan of Zanzibar. We would have coded a direct effect for Zanzibar had the border not subsequently changed back in 1919; the restoration of the border to consist only of the

[18] Quoted in Hertslet 1909, 985.
[19] See Kenya–Tanzania.
[20] See Hertslet 1909, 704, 1017.
[21] Kenya–Tanzania describes the establishment the Sultan's European-recognized coastal territory.
[22] McEwen 1971, 207.
[23] See the map in McEwen 1971, 208.
[24] The Sultan of Zanzibar did not participate in these events. In 1890, Germany gained a permanent cession of all the Sultan's territories south of the Kenya–Tanzania border (McEwen 1971, 208, fn. 2).
[25] See the map in McEwen 1971, 208 or here.
[26] McEwen 1971, 210.
[27] McEwen 1971, 212–13.

Rovuma River in the east meant that the historical limits of Zanzibar were no longer relevant for the border.

Back to TOC

C.5.5 Tanzania–Zambia

Overview. Originally formed in 1890 as an interimperial border between German East Africa and British-claimed territory that was later organized as Northern Rhodesia (Zambia). The primary feature is a major watershed (Congo). Secondary features are major lakes (Tanganyika, Malawi) and infrastructure (road).

Details. The British South Africa Company (led by Cecil Rhodes) extended northward Britain's sphere of influence in southern Africa.[28] Germany's original interests in East Africa emanated from farther north in Witu and Zanzibar.[29] Cecil Rhodes' interactions with Germany, which formed the Tanzania–Zambia border, were "relatively straightforward. Rhodes' chief concern in this direction was to gain access to Lake Tanganyika, the great waterway to the north. To this end he arranged for Harry Johnston, the British consul in Mozambique, to collect treaties in 1889 from Mambwe, Lungu and Tabwa chiefs between Lakes Malawi and Tanganyika. This was simple enough: the chiefs were glad to accept Johnston's offers of British 'protection' since they were all more or less harassed by Bemba raiders or East African traders."[30]

The Anglo–German Agreement of 1890 delimited their spheres of influence in Africa, and the same clause of the treaty formed the present border and that for Malawi–Tanzania.[31] The border connected the southern tip of Lake Tanganyika with the northern tip of Lake Malawi, closely but not exactly following Stevenson's Road.[32] This road represented an early attempt by the Livingstonia mission located along Lake Malawi to map the area and to facilitate European trade, while also indicating their strategic interest in the major lakes.[33] Consequently, we code infrastructure (road) as a secondary feature of the border. The Tanzania–Zambia sector in particular is guided by the Congo watershed in between Lake Tanganyika in the west and the tripoint with Malawi in the east.[34]

A PCS group located close to the border, the Bemba, did not appear to affect the border despite early contact with Europeans. By the 1870s, various European travelers had visited Bemba country and the first nearby missionary station was established in 1878. The Bemba reversed course in the 1880s by eschewing any contact with Europeans. However, "the region had no special appeal for

[28] See Zambia–Zimbabwe.

[29] See Kenya–Tanzania.

[30] Roberts 1976, 157.

[31] See Hertslet 1909, 900 for the text.

[32] The title of the relevant section of the treaty is: "German Sphere. To the South. Rovuma River to Lakes Nyassa and Tanganyika (Stevenson's Road)." A map of Stevenson's Road accompanied the treaty; see Hertslet 1909, 900–1.

[33] See Roberts 1976, 153–54 and here.

[34] The treaty says specifically that the boundary "approaches most nearly the boundary of the geographical Congo Basin defined in the 1st Article of the Act of Berlin," and thus does not exactly follow the watershed. See also McEwen 1971, 218–20 and Brownlie 1979, 1017.

white prospectors, traders or farmers. From a European point of view, it was politically important only because it lay between the rapidly expanding spheres of influence of the Congo Free State, the Germans in East Africa, and the British in southern Africa."[35] The British South Africa Company established rule over the Bemba territory later in the 1890s, after the present border had been formed.[36]

Back to TOC

C.5.6 Malawi–Tanzania

Overview. Originally formed in 1890 as an interimperial border between German East Africa and a British colony later reconstituted as Nyasaland (Malawi). The primary feature is a major lake (Malawi). Secondary features are minor rivers, a major watershed (Congo), and infrastructure (road).

Details. The process of forming the present border was identical to that for Tanzania–Zambia (for background on the distinction between the two British colonies and on the importance of Lake Malawi, see Malawi–Zambia). The majority of the length of the border consists of Lake Malawi, although there are disputes regarding whether the border is the shoreline of the lake (as established by the Anglo–German Agreement of 1890) or the median line of the lake, which represented the extent of de facto German sovereignty.[37] The remainder of the border consists almost exclusively of two minor rivers, the Songwei and Katendo. The Congo watershed forms the tripoint with Zambia, which we code as a secondary feature. We also code infrastructure (road) as a secondary feature for reasons described in Tanzania–Zambia.

Back to TOC

C.5.7 Tanzania–Uganda

Overview. Originally formed in 1890 as an interimperial border between German East Africa and British-claimed territory that was later organized as Uganda. A major revision occurred in 1910 (changed features: switch lines to local features). A historical political frontier (PCS: Buganda) directly affected the border. The primary feature is a major lake (Victoria). Secondary features are a straight line (parallels/meridians) and a minor river.

Details. Britain and Germany's first agreement concerning East Africa, concluded in 1886, addressed only territory east of Lake Victoria.[38] Consequently, "the position of Uganda under this new arrangement remained uncertain."[39] During the 1870s, British missionaries had established a presence within the PCS Buganda, to which any European mentions of "Uganda" at this time referred.[40] As of 1890, British and German agents were actively competing to secure a treaty with the *kabaka* (ruler) of Buganda.

[35] Roberts 1973, 231.
[36] Marks 1985*b*, 451–53.
[37] Brownlie 1979, 958.
[38] See Kenya–Tanzania.
[39] Ingham 1958, 41. Thus, Brownlie's 1979, 941 claim that the earlier 1886 Anglo–German Agreement placed Uganda within the British sphere of influence is incorrect.
[40] McEwen 1971, 228.

The Anglo–German Agreement of 1890 specified the 1°S parallel as the Anglo–German border between the eastern bank of Lake Victoria and the frontier of the Congo Free State.[41] This spanned the entire length of the present border and that for Rwanda–Uganda. The diplomats deliberately chose this latitude parallel to place "Uganda (&c.)" within the British sphere, which achieved a key goal of the lead British negotiator: "[H. Percy] Anderson was, above all, interested in securing Uganda."[42] Conversely, the acceptance by the German negotiator of a boundary at 1°S revealed that, despite their interest in the area, "the Germans had no serious hopes of acquiring Uganda" because of Britain's insistence that Buganda fell within the hinterland of its coastal possessions in East Africa.[43] Thus, the PCS Buganda directly affected the present border.[44]

A major revision to the border occurred in 1910. Between 1890 and 1910, Britain, Germany, and Leopold/Belgium engaged in two interconnected disputes that concerned most bilateral borders in this area: (1) whether Ruanda-Urundi lay entirely within the German sphere or partly within the Belgian sphere, and (2) how Britain's prior claims to Mount Mfumbiro affected the territorial limits of Uganda, German East Africa, and the Congo Free State. We discuss these two disputes in Congo (Bel.)–Rwanda and Rwanda–Uganda, respectively, which were settled by the Kivu-Mfumbiro Conference of 1910. The consequence of this settlement for the present border was that the westernmost part deviated southward from the 1°S parallel to add additional territory to Uganda.[45] For this segment, the border is the Kagera River. Overall, the Lake Victoria segment is 62% of the length of the contemporary border, the parallel segment is 29%, and the Kagera River segment is 9%.[46] Thus we code a major lake as the primary feature and each of straight lines (parallels/meridians) and minor rivers as secondary features.

A puzzling element of the present border, given our theoretical expectations, is that the *entire* land portion of the border was not shifted to the Kagera River in 1910.[47] Henry Morton Stanley "would have preferred to see the boundary shifted from the parallel to the Kagera which [in *Through the Dark Continent*, published in 1880] he regarded as the natural boundary between Uganda and the kingdoms of Karagwe and Buziba."[48] In various boundary negotiations, British diplomats raised this point but did not forcefully press the issue.[49] The latitude parallel segment of the border created two anomalous pieces of territory that lie between the Kagera River and the meridian. The Kagera Triangle is a small amount of Ugandan territory located just west of Lake Victoria, where the Kagera lies north of the meridian line. The Kagera Salient is a larger amount of Tanzanian territory (approximately 600 square miles) located farther west, where the Kagera lies south of the meridian line.[50] In 1978, President Idi Amin of Uganda claimed to annex the Kagera Salient to

[41] See Hertslet 1909, 900–1 for the text.

[42] Louis 1963*a*, 19.

[43] Louis 1963*a*, 18–19.

[44] Subsequent agreements between Britain and the *kabaka* made Buganda the core territorial element of the Uganda Protectorate (see Kenya–Uganda).

[45] See the map in Uganda Department of Lands and Surveys 1962, 75.

[46] Calculations by authors using Google Maps.

[47] The Kagera runs roughly horizontal for the entire length of the land portion of the Tanzania–Uganda border, ending at Lake Victoria.

[48] McEwen 1971, 278. Brownlie 1979, 1014–15 summarizes evidence for this "natural" frontier.

[49] McEwen 1971, 278–80; Louis 1963*a*, 48, 85–86; Louis 1963*b*.

[50] See McEwen 1971, 266 for a map.

Uganda, although the subsequent war with Tanzania prevented a territorial transfer.

Back to TOC

C.5.8 Rwanda–Uganda

Overview. Originally formed in 1890 as an interimperial border between German East Africa and British-claimed territory that was later organized as Uganda. A major revision occurred in 1910 (changed features: switch lines to local features). Historical political frontiers (PCS: Buganda, Rwanda) directly affected the border. The primary feature is minor rivers. A secondary feature is topography (mountains).

Details. The Rwanda–Uganda border was formed by the same process as the Tanzania–Uganda border, as Rwanda was not a distinct territorial entity until after German East Africa was partitioned following World War I. On the basis of the information provided in the Tanzania–Uganda entry, we code Buganda as directly affecting the present border.

Here we describe the Mount Mfumbiro controversy that shaped the westernmost portion of the division between Uganda and German East Africa, and hence the present border. The Anglo–German treaty of 1890 divided their territories west of the eastern shore of Lake Victoria using the 1°S latitude parallel.[51] However, the 1890 treaty created an element of uncertainty in the Anglo–German border because of a stipulation that placed the ill-defined and largely unexplored territory constituting Mount Mfumbiro into the British sphere of influence. The treaty states: "It is however, understood that, on the west side of the lake, the [German] sphere does not comprise Mount Mfumbiro; if that mountain shall prove to lie to the south of [1°S latitude], the line shall be deflected so as to exclude it, but shall, nevertheless, return so as to terminate at the [frontier of the Congo Free State]."[52] According to Louis, "[t]he mountain was mentioned in the 1890 agreement because [Henry Morton] Stanley supposedly had a treaty which ceded it to the [Imperial] British [East Africa] Company and because [Prime Minister] Salisbury thought it would be 'scarcely permissible' to 'transfer' to Germany anything to which Britain had a claim."[53] Yet despite the idiosyncratic way in which this mountain entered the treaty, it had long-lasting ramifications for settling the boundary between British and German possessions.

The original western terminus of the border between Uganda and German East Africa was the eastern frontier of the Congo Free State, the 30°E longitude meridian, dating back to 1885.[54] This frontier became problematic for British claims when, in 1902, a mixed Anglo–German commission to mark their bilateral border discovered that the mountain range corresponding to Mount Mfumbiro lay west of the 30°E longitude meridian. Consequently, the territory that Germany ceded to Britain was within the boundaries established for the Congo Free State.[55] This complicated the British effort to secure control over the mysterious Mount Mfumbiro, which was believed to be "a most suitable area for European occupation."[56] Supporting our contention that Europeans

[51] See Tanzania–Uganda.
[52] Quoted in Hertslet 1909, 899–900.
[53] Louis 1963*a*, 26.
[54] See Congo (Bel.)–Rwanda.
[55] McEwen 1971, 269–70.
[56] Louis 1963*a*, 52.

perceived major water bodies as important, Britain's strategic interest in Lake Kivu appeared to motivate Britain's interest in Mount Mfumbiro.[57]

In 1910, the Kivu-Mfumbiro Conference involving Belgium (who directly governed the Congo as of 1908), Britain, and Germany settled the disputed borders. "Legal argument, however, proved to be inconclusive and the boundary disputes were settled on the basis of compromise, rather than historical title, nor was the legal identity of Mufumbiro ever determined." Mount Sabinio, in the Mfumbiro region, became the tripoint that separated Uganda, Congo, and German East Africa.[58] This was located south of the 1°S latitude parallel (representing a German concession), west of the 30°E longitude line (representing a Belgian concession),[59] and the British concession was that they did not gain the entire "region to which the term 'Mufumbiro' was assumed to apply."[60] Britain also failed to gain territory connected to Lake Kivu, but accepted the settlement because "British subjects were to have unrestricted access to Lake Kivu."[61]

Amid the negotiations culminating in the 1910 conference, a central goal of German diplomacy was to retain the historical states of Rwanda and Burundi entirely within the German sphere. Although this dispute primarily concerned the Congo Free State,[62] this German interest was reflected in the agreement they signed with Britain at the conclusion of the conference. Article 5 states: "In proposing this line the delegates have been guided by the principle that districts belonging politically to Ruanda shall, if possible, remain part of Ruanda. Therefore it is agreed:—1. Should it appear that the territory marked a, b, c, d, e, or a portion thereof, belongs to Ruanda, then the whole of that territory or the aforesaid portion, as the case may be, shall revert to Germany. In this even the frontier between Uganda and German East Africa shall be so rectified as to give to Great Britain an area exactly equal to that which shall have reverted to Germany . . . "[63] On this basis, we code PCS Rwanda as directly affecting the border. Nonetheless, "[t]he demarcation of 1911 was to leave a segment of traditional Rwanda within the Kigezi District of Uganda."[64]

In 1910, Germany agreed to shift the border south of the 1°S parallel to accommodate the British claim to Mount Mfumbiro. Moving east from the tripoint at Mount Sabinio, the border follows various minor rivers: Chizinga (Kissinga), Kachwamba-Kakitumba, Muvumba (which discharges into the Kagera River), and it intersects the Kagera at the tripoint with Tanzania.[65] Thus, we code minor rivers as the primary feature and mountains as a secondary feature.

Back to TOC

C.5.9 Congo (Bel.)–Rwanda

Overview. Originally formed in 1885 as a unilateral frontier of the Congo Free State; German East Africa was created later that decade. A major revision occurred in 1910 (changed features: switch

[57]Louis 1963*a*, 57, 63–64, 67, 85.
[58]McEwen 1971, 272.
[59]See Congo (Bel.)–Uganda.
[60]Brownlie 1979, 989.
[61]Louis 1963*a*, 91.
[62]See Congo (Bel.)–Rwanda.
[63]Quoted in Brownlie 1979, 992.
[64]Brownlie 1979, 989.
[65]Brownlie 1979, 991.

lines to local features). A historical political frontier (PCS: Rwanda) directly affected the border. The primary feature is a major lake (Kivu). Secondary features are minor rivers and topography (mountains).

Details. A series of international agreements in 1885 established preliminary borders for the Congo Free State; at the time, other European powers lacked clear territorial claims east of the Congo Free State's frontiers. In the Notification in August 1885 that officially established the Congo Free State, the eastern boundary north of Lake Tanganyika was a (non-astronomical) straight line that connected the northern tip of the lake to the intersection of a latitude parallel (1°S) and a longitude meridian (30°E).[66]

Germany and the Congo Free State engaged in a long-running dispute regarding whether the border placed all of Rwanda and Burundi into the German sphere, or partly (mainly Rwanda) into the Congo. Germany had signed a bilateral treaty in 1885 that officially accepted Leopold's territorial claims to 30°E longitude as the Congo's eastern boundary in the area of present-day Rwanda, but this border in fact differed from the original map upon which Germany and Leopold had agreed in 1884. In the first map, a curved arc ran between the northern tip of Lake Tanganyika and what later became the British sphere.[67] The arc (1884) was located farther west of the straight line (1885), and thus included more territory for what later became German East Africa.[68] Yet when Germany accepted the new map in 1885, "German colonialism in east Africa had hardly begun; only the most rapid imperialists could foresee the possibility that one day German East Africa might border the Congo . . . One arbitrary line was as good as another; in any case the boundaries did not directly affect German claims."[69]

In the 1890s and 1900s, Europeans actively explored the area in between the 1884 arc and the 1885 line.[70] They learned that this territory contained part of PCS Rwanda as well as all of Lake Kivu, which was previously unknown to Europeans.[71] The revelation that this territory contained objects of strategic interest initiated what became known as the Kivu controversy. In 1895, Germany officially notified Congolese authorities that they sought to revise the boundary they had accepted in 1885, and used the alternative 1884 boundary as leverage. Congolese troops occupied the area in 1896, but a mutiny by Belgian troops enabled Germany to establish territorial control in 1898. During this period, Germany seized territory as far west as the Ruzizi River and Lake Kivu.[72] This territory corresponded with the historical frontiers of Rwanda and Burundi,[73] and ultimately ended up determining the present border at the 1910 Kivu-Mfumbiro Conference,[74] which constituted a major border revision.

Germany continually pressed its claims for Rwanda and Burundi. Their case, on the basis of the

[66] Later, the latitude parallel comprised the preliminary Rwanda–Uganda border and the longitude meridian comprised the preliminary Congo (Bel.)–Uganda border.
[67] See Figure 1 in the article. See also Tanzania–Uganda.
[68] See Kenya–Tanzania.
[69] Louis 1963*a*, 7.
[70] Louis 1963*a*, Ch. 5.
[71] See the map in the front matter of Louis 1963*a*.
[72] Louis 1963*a*, 44.
[73] Louis 1963*a*, 112. See also our discussion of their precolonial frontiers in Appendix B.
[74] See Rwanda–Uganda.

1884 arc, "was far from strong—it would never win in arbitration—but obviously the Germans could not be expected to yield any part of Ruanda-Urundi. The Ruzizi-Kivu boundary was mandatory."[75] Throughout the ensuing negotiations, Germany and Britain each consistently pressed for "natural" borders against Congo's claim to retain the meridian. This underscores our contention that water bodies, in particular when they could be associated with historical political frontiers, created focal points for border negotiations. "The arguments presented in 1910 were basically the same as those used when the region was opened up in the 1890s. In the long run the German case proved the most forceful—natural and ethnic frontiers, so far as possible, should not be violated ... The imperial powers began with arbitrary boundaries, but they finished with natural frontiers and minute on-the-spot delimitation. ... The Germans and British claimed to uphold natural frontiers, but if they appear as champions on the side of Africans, it is at least in part because it was to their advantage to press the Congo State for natural boundaries. ... There was agreement between Britain and Germany that Ruanda-Urundi should not be divided; but none of the three powers hesitated to divide the smaller ethnic groups."[76]

Ultimately, Lake Kivu is the primary feature of the border, comprising the middle segment. The Ruzizi River, which extends as far north as Lake Kivu, comprises the southern-most segment of the border, and thus minor rivers are a secondary feature. North of Lake Kivu, the border connects four mountains (Hehu and Sabinio) and volcanoes (Karissimbi and Vissoke), with Mount Sabinio forming the tripoint with Uganda.[77]

Back to TOC

C.5.10 Burundi–Congo (Bel.)

Overview. Originally formed in 1885 as a unilateral frontier of the Congo Free State; German East Africa was created later that decade. A major revision occurred in 1910 (changed features: switch lines to local features). Historical political frontiers (PCS: Rwanda, Burundi) directly affected the border. The co-primary features are a major lake (Tanganyika) and a minor river.

Details. The Burundi–Congo (Bel.) border was initially formed and later adjusted by the same processes that yielded the Congo (Bel.)–Tanzania border (the Lake Tanganyika segment of the present border, which dates back to 1885) and the Congo (Bel.)–Rwanda border (the Ruzizi River segment of the present border, which supplanted the 30°E longitude meridian in 1910). These two segments comprise essentially the entirety of the Burundi–Congo (Bel.) border, and we code each as a co-primary feature.

We code PCS Burundi as directly affecting the present border, even though the documentary evidence that Louis presents for European diplomacy during the Kivu controversy mentions Germany's aim to secure control of Rwanda but not Burundi.[78] The likely reason is that the territory encompassed by the discrepancy between the 1884 arc and 1885 line (discussed in the Congo (Bel.)–Rwanda entry) was located at the heart of the Rwanda kingdom but was more peripheral to

[75] Louis 1963*a*, 85.
[76] Louis 1963*a*, 93–94.
[77] Brownlie 1979, 674–75. The Mount Sabinio tripoint was a product of Britain's contestation over the mysterious Mount Mfumbiro; see Rwanda–Uganda.
[78] Louis 1963*a*.

Burundi's traditional territorial limits. Thus, we would expect a lesser footprint in the diplomatic records. Yet there is much supportive evidence that Burundi was central to Germany's negotiating position as well. Historically, "[t]he western frontier of Ruanda-Urundi was marked by Lake Kivu and the Ruzizi river,"[79] which indeed became the border between German East Africa and the Congo Free State in 1910. Germany began to administer Urundi in 1896, following the establishment of a military station in Usumbura, and later established civilian administration. Germany deliberately governed each of Ruanda and Urundi differently than the rest of German East Africa because of their historical states, including the establishment of the Urundi Residency in 1906.[80] Even if Germany primarily staked its PCS-related claims in the Kivu negotiations on the territorial integrity of Rwanda, the Germans had unambiguous interests in Burundi as well and consistently claimed a border that ensured Burundi was not partitioned, either.

Back to TOC

C.5.11 Kenya–Uganda

Overview. Originally formed in 1896 as an intraimperial border when Britain formally distinguished British East Africa (Kenya) from Uganda. Major revisions occurred in 1900 (changed features: clarify local features), 1902 (large territorial transfer: Uganda's original Eastern Province to Kenya), and 1926 (large territorial transfer: Uganda's Rudolf Province to Kenya). Historical political frontiers directly (PCS: Buganda; decentralized group: Turkana) and indirectly (white settlement: British Kenyans) affected the border. The primary feature is a major lake (Victoria). Secondary features are minor rivers, topography (mountains), infrastructure, and straight lines (non-astronomical).

Details. The Anglo–German Agreement of 1890 established Uganda (which, at the time, meant specifically the precolonial state of Buganda) as within Britain's sphere of influence.[81] In 1892, the Imperial British East Africa Company secured a treaty with the *kabaka*.[82] After several years of tumultuous corporate rule, in 1893, the Company relinquished its authority and the British government secured a new agreement with the *kabaka*. In 1894, the British government formally reversed its earlier reluctance to establish administrative control of the area by declaring a protectorate over Uganda.[83] The protectorate comprised "Uganda proper" and was explicitly based upon the 1893 agreement with "Mwanga, King of Uganda."[84]

We code 1896 as the initial formation of the Kenya–Uganda border. In that year, the Foreign Office issued a Notification that created the East Africa Protectorate (the predecessor to modern-day Kenya), which included "all the territories in East Africa, now under the Protectorate of Her Majesty, except the Islands of Zanzibar and Pemba and the Uganda Protectorate."[85] In 1900, Britain signed an agreement with the *kabaka* of Buganda, which delineated precise borders for the

[79] Louis 1963*a*, 112.
[80] See Burundi–Rwanda.
[81] See Tanzania–Uganda.
[82] Hertslet 1909, 392; see pp. 345–50 for the Company's foundational charter.
[83] Ingham 1958, 43–62.
[84] Quoted in Hertslet 1909, 392–96.
[85] Quoted in Hertslet 1909, 383.

"Kingdom of Uganda."[86] We code this as a major revision because of the vagueness of the 1896 Notification. Although the 1900 agreement incorporated territory for the Uganda Protectorate located far east of Buganda's historical boundaries, we code this PCS as directly affecting the border because the traditional ruler directly participated in the negotiations. Britain granted Buganda high levels of internal autonomy and made the Buganda Province a "separate unit" within the Uganda Protectorate.[87]

Another major border revision occurred in 1902. A sizable fraction of Uganda's territory was transferred to Kenya, including its entire Eastern Province and parts of other provinces.[88] Buganda directly affected the border in this case by preventing an even larger territorial transfer. British officials sought to place the entire Uganda Railway under a single administration; moving the border for British East Africa westward placed the terminus of the railroad (which began in Mombasa) within British East Africa. The alternative plan proposed was to transfer all of Uganda to British East Africa by federating the two. This was ultimately deemed infeasible because of Buganda. Even the main proponent of the federation, Ugandan governor Harry Johnston, "recognized that Uganda was still centred upon the kingdom of Buganda while the affairs of the East Africa Protectorate radiated from the Arab coast."[89] By contrast, British officials had established minimal administrative presence in Uganda's Eastern Province, which lacked any centralized political organization and was deemed expendable. British officials exerted minimal effort to collect hut taxes because there "seemed to be no chiefs . . . there was nothing approaching the centralized, quasi-feudal government of the Uganda kingdoms."[90] One result of this transfer was to make Lake Victoria the southern part of the border.

Buganda also proved pivotal for thwarting future proposals to amalgamate Uganda and Kenya. One such proposal in the 1920s was to amalgamate Uganda, Kenya, and Tanganyika into a larger federation. Bagandan officials repeatedly stated their opposition to a federation, and British officials were receptive to these complaints. The core fear by Ugandans was that Kenya would be the senior partner in the arrangement, which would subject Uganda to rule by the influential community of European settlers in Kenya. Amid a commission in 1924 to gather opinions, "The Kabaka and Lukiiko [council] of Buganda addressed a memorandum opposing closer political union lest the special position guaranteed to their kingdom by the 1900 Agreement should be jeopardized." They similarly protested to British officials in 1927 and 1929. The final serious discussion over federation occurred in 1931, during which a Joint Select Committee sat to debate the proposal. "The Committee was particularly impressed by the authority and skill with which the African witnesses, led by Mr Serwano Kulubya, Omuwanika [Treasurer] of Buganda, stated their case . . . [and] convinced their hearers that the British Government in the past had tended to underestimate the abilities of the leaders of African opinion."[91]

The final major revision to the border occurred in 1926 when the remainder of Uganda's Rudolf Province, which had been partially transferred in 1902, was transferred to Kenya. The motivat-

[86] See Hertslet 1909, 397–98 and the accompanying map.
[87] Ingham 1958, 92.
[88] See Brownlie 1979, 940 and Uganda Department of Lands and Surveys 1962, 75 for maps.
[89] Ingham 1957, 44.
[90] Matson 1958, 47.
[91] Ingham 1958, 180–87.

ing factor for this transfer was Britain's inability to establish effective control over the Turkana, a nomadic group who occupied "desirable grazing grounds" and regularly conducted violent raids against neighboring peoples.[92] In 1913, officers from the Northern Garrison stated, "no attempt is to be made at present to introduce administration, nor should the Government be committed to any promises of protection." Administrators in neither Uganda nor British East Africa desired responsibility for governing the Turkana. The key factor for British East Africa gaining the administrative responsibility was "probably that the Turkana raids were forcing the Suk, with their large herds of cattle, south into the Trans Nzoia 'white farming' area," a factor explicitly mentioned in correspondences in 1919 by the Governor of Uganda. For this reason, we code white settlements as indirectly affecting the border.[93] We also code decentralized groups as directly affecting the border because documents produced during the territorial transfers in 1902 and 1926 explicitly stated that entire groups should be placed within a single colony: "The principle on which the demarcation proceeded was primarily that of avoiding tribal division, so that, for example, all the Kavirondo should be within East Africa [Kenya] . . . a tribal boundary, intended to leave the Turkana and Suk within British East Africa (Kenya)."[94]

An Order in Council from 1926 determined the final border alignment.[95] The four main landmarks mentioned are Lake Victoria, the mouth of the Sio River, Mount Elgon, and Mount Zulia. Besides Lake Victoria, these features are markers in between which various features, such as minor rivers, roads (infrastructure), and non-astronomical straight lines, comprise the actual border. Lake Victoria is the dominant feature, which we code as primary despite constituting only a plurality of the border. All other features are secondary.

Back to TOC

C.5.12 Kenya–Sudan

Overview. Originally formed in 1914 as an intraimperial border when Britain transferred territory between Uganda and Sudan; this became a bilateral border between Kenya and Sudan in 1926 when Britain transferred the Rudolf Province of Uganda to Kenya.[96] A major revision occurred in 1938 (changed features: change location of straight lines). A historical political frontier (decentralized group: Turkana) directly affected the border. The primary feature is straight lines (non-astronomical). Secondary features are a major lake (Rudolf/Turkana) and topography (mountains).

Details. Kenya lacked a bilateral border with Sudan until 1926, when Britain transferred the Rudolf Province of Uganda to Kenya.[97] What became the Kenya–Sudan border was originally the easternmost part of the Sudan–Uganda border, and had previously been specified by an Order in Council in 1914. The tripoint with Ethiopia was "the shore of the Sanderson Gulf, Lake Rudolf

[92] Barber 1965, 38–41.

[93] Prior to the territorial transfers in 1902 and 1926, a major lake (Lake Turkana, formerly called Lake Rudolf) comprised a large segment of the Kenya–Uganda border. However, these two transfers placed the lake entirely within Kenya and therefore removed it as a feature of the border. See also Sudan–Uganda.

[94] Brownlie 1979, 942.

[95] Brownlie 1979, 943–45.

[96] This became the Kenya–South Sudan border in 2011.

[97] See Kenya–Uganda.

[Turkana]." For this reason, we code a major lake as a secondary feature of the border, even though the shoreline of Lake Turkana has shrunk over time to the point that Lake Turkana now lies entirely within Kenya. The 1914 border commission admitted the uncertainty about the Lake Turkana feature, stipulating that "if the northern portion of the Lake proves to be navigable, a strip of territory should be reserved to the Soudan affording a port on the Lake."[98] The border originally consisted of two straight-line (non-astronomical) segments, the primary features of the border. The first segment was located farther north and ran due west of Lake Turkana; this segment comprised about 80% of the total length of the border. At Jebel Mogila (a mountain), the border turned southwest, and this straight-line segment terminated at Jebel Harogo (another mountain).[99] Thus, mountains are secondary border features.

Future uncertainty arose about the border because of ambiguities in the 1914 Order, which stated that the northern part of the border would either follow a straight line (which is how it is depicted on historical maps) or "such a line as would leave to Uganda the customary grazing grounds of the Turkhana tribe." This ambiguous decree reflected Britain's inability to establish effective control over the nomadic Turkana,[100] and "create[d] a fluid boundary that depended upon the location of the northern limits of grazing-grounds occupied by a nomadic people."[101]

In the 1930s, administrators in Kenya and Sudan agreed upon a delineation of the customary grazing grounds of the Turkana, which yielded a new border in 1938 that lies entirely north of the original straight line. This new border, which we code as a major revision, was called the "Red Line," and the area between the Red Line and the original border is known as the Ilemi Triangle.[102] However, the new border was never enacted in an official document, thus leaving the majority of the Kenya–Sudan legally undefined and the precise features of the border unclear.[103] Neither boundary has definitive status and each is referred to as either a "provisional administrative boundary" or an "international border" in different maps. An alternative line located even further north than the Red Line, known as the Blue Line, was proposed in 1947, but no international agreement was reached. Kenya maintained *de facto* control over the lightly populated and disputed Ilemi Triange.

We code the features of the border based on those specified in 1914, and also code a direct effect of the Turkana (decentralized group) given the goal of the Red Line to accommodate their grazing area.

Back to TOC

[98] Quoted in Taha 1978, 5.

[99] See the maps in McEwen 1971, 130; Brownlie 1979, 918; Uganda Department of Lands and Surveys 1962, 75.

[100] See Kenya–Uganda.

[101] McEwen 1971, 132.

[102] The lines are shown on this map.

[103] McEwen 1971, 132–34; Brownlie 1979, 917–19. On Google Maps, the border segment that was originally the northern straight line is shown as dashed, indicating its uncertainty.

C.5.13 Burundi–Rwanda

Overview. Originally formed in 1906 as an inter-district border within German East Africa. Historical political frontiers (PCS: Rwanda, Burundi) directly affected the border. The primary feature is minor rivers. A secondary feature is minor lakes.

Details. Germany gained a sphere of influence over the area corresponding with Rwanda and Burundi in the 1890 Anglo–German agreement,[104] although Germany's claim over the entire territory controlled by these historical states was not formalized until Belgium accepted a revised border for the Congo Free State in 1910.[105] Germany first established an administrative presence in these historical states in 1896 with the formation of a military station at Usumbura.[106] From this post, Germany developed relations with the respective *mwamis* (rulers) of each state and established an administration. Germany jointly governed territories as part of the Usumbura district until 1906, after which point they were divided into separate residencies, Urundi in 1906 and Ruanda in 1907. Each *mwami* retained governance powers under the guidance of a German Resident, which contrasted with more direct rule (districts supervised by a Commissioner) elsewhere in German East Africa.[107] "The basic reason why Ruanda-Urundi was able to be administered in a fundamentally different way from the rest of the colony, however, was constant fear that too much interference with traditional Tutsi authority might incite an uprising that would be disastrous for German rule. The Tutsi could not be bullied and intimidated with the same success the Germany had had with Africans in other parts of the colony. And the German administration was flexible enough to recognize that different circumstances demanded different policies." In 1906, the Acting Governor of German East Africa proclaimed that "[t]he present tightly organized political structure of the sultanates offers a favourable opportunity to administer and develop culturally the natives through their traditional rulers with the least expense concerning paid administrators and least recourse to European force."[108]

We code 1906 as the formation of the border, upon the establishment of residencies, which "appear to have been based upon the territorial limits of the two Kingdoms as the German officials found them."[109] However, this "local customary boundary" was not formally described in legislation until the later period of Belgian rule (Brownlie reports an Ordonnance from 1949). Because there is no evidence that the boundary (or the perception thereof) between the two historical states changed over this period, we believe an earlier date that reflects the initial European administrative distinction between the two is more appropriate. This border reflects a direct effect of PCS.

Although the border did not change subsequently, the historical basis of Rwanda and Burundi proved pivotal for each to gain a separate independence (as opposed to incorporation into the Belgian Congo or remaining as a combined Ruanda-Urundi state). The two key episodes were (1) preventing amalgamation into the Belgian Congo after World War I, and (2) partitioning Rwanda and Burundi into separate states upon independence. First, during World War I, Belgium militarily occupied Ruanda-Urundi and surrounding areas. They sought to use this territory as a bargain-

[104] See Tanzania–Uganda.
[105] See Congo (Bel.)–Rwanda and Burundi–Congo (Bel.).
[106] Louis 1963*a*, Chs. 12–14.
[107] Hailey 1950*a*, 212.
[108] Louis 1963*a*, 129.
[109] Brownlie 1979, 739. See Appendix B for details on their historical boundaries.

ing chip, but their proposed territorial transfer fell through.[110] Belgium then sought, but failed, to amalgamate Ruanda-Urundi into their neighboring colony, the Belgian Congo. "The Belgians thought it regrettable that they would not be allowed simply to absorb Ruanda-Urundi into the Congo. Ruanda-Urundi was to become a mandate of the League of Nations. 'This invention is no doubt unfortunate; . . . the ideas of President Wilson had a great influence.'"[111] The precolonial states prevented amalgamation because Wilson's ideas about self-determination clearly applied to the well-defined polities in Rwanda and Burundi.

Second, African agency distinguished Rwanda and Burundi as separate territorial entities upon independence. Ruanda-Urundi became a League of Nations Mandate territory in 1922 and a United Nations Trust territory in 1946. Although legally a single colony, Belgium perpetuated indirect rule policies that ensured the precolonial monarchies remained powerful and distinct from each other. When the first representative institutions were established in 1952, Ruanda and Urundi were distinguished as separate *pays* and each gained their own *conseils superiéurs du pays*. Both Belgium and the United Nations, who oversaw the Trust Territory, aimed to preserve Ruanda-Urundi as a single country when independence became inevitable following the 1959 Leopoldville riots in the Belgian Congo. However, the Hutu-led Rwandan Revolution of 1959 that overthrew the Tutsi monarchy yielded a distinct institutional constellation than in Burundi, which had become a de facto constitutional monarchy.[112] When the UN Trusteeship Commission, whose aim "has always been the political unification of the two territories," met with leaders of Ruanda and Urundi in 1962, it "failed to convince them of the need to agree on unification. It had no other option therefore but to recommend . . . that the Republic of Ruanda and the Kingdom of Urundi should be regarded as two separate countries."[113] Therefore, actions by Africans on the ground and in an international forum contributed to preserving Rwanda and Burundi as distinct countries, which were separated by a boundary that itself reflected prior actions by precolonial African rulers.

Regarding alignment, the border mostly follows minor rivers,[114] which we code as the primary feature. The border starts from the Tanzania tripoint at the intersection of the Mwibu and Karega rivers, extends westward along the Karega, Kanyaru, and Luhwa rivers, and ends at the Congo tripoint at the confluence of the Luhwa and Ruzizi rivers. The border also incorporates several other minor rivers as well as two minor lakes (Cyohoha and Rweru), which we code as secondary features.

Back to TOC

[110] Louis 1963*a*, 232–56; McEwen 1971, 151–53. The Belgians sought to gain land in Portuguese-governed Angola where the Congo River meets the ocean, which would augment the Belgian Congo's narrow outlet to the ocean. They proposed a three-way trade of territory that also included Britain, who would have gained Ruanda-Urundi, and Portugal, who would have gained territory from Britain farther south in Central Africa. After this fell through, Belgium was left with a Mandate over Ruanda-Urundi, a territory they "did not want" and gained "almost by accident" (Louis 1963*a*, 255; McEwen 1971, 153).

[111] Louis 1963*a*, 256.

[112] Lemarchand 1970, 63–89.

[113] Latham-Koenig 1962, 294; see also Weinstein 1974.

[114] Brownlie 1979, 738–41.

C.5.14 Rwanda–Tanzania

Overview. Originally formed in 1922 as an interimperial border between Belgian Ruanda-Urundi and British Tanganyika. A major revision occurred in 1924 (large territorial transfer: Gisaka to Rwanda). A historical political frontier (PCS: Rwanda) directly affected the border. The primary feature is a minor river.

Details. Prior to World War I, Tanganyika (modern-day Tanzania minus Zanzibar), Rwanda, and Burundi were collectively governed as German East Africa. Rwanda and Burundi were each distinguished from the rest of German East Africa with separate residencies,[115] and the German administration informally acknowledged Rwanda's historical eastern frontier of the Kagera River.[116] However, Germany did not establish a formal border between these historical states and the rest of the colony.[117]

In 1922, Ruanda-Urundi officially became a League of Nations Mandate territory under Belgium rule, and Tanganyika became a British Mandate. In that year, the British Mandate for East Africa described a boundary with Belgian possessions "in very general terms."[118] From Rwanda's perspective, the border outlined in 1922 was problematic because it incorporated into British territory the district of Kissaka (alternatively, Gisaka), which the *mwami* of Rwanda claimed traditionally. Britain's sought to use this territory to construct a Cape-to-Cairo railroad. During the 1919 peace settlement, "Milner [British] confirmed the arrangement that Belgium would retain Urundi and Ruanda, with the exception of the eastern part of Ruanda necessary to the Cape to Cairo railway."[119]

In response, in 1922, "an alliance between Musinga [the *mwami*], the Belgians and the Catholic Church (especially Cardinal Classe) defended the re-annexation of Gisaka to Rwanda."[120] They "emphasize[d] the social, political, and economic harm caused by the imposition of this arbitrary division and they urge[d] the eastward extension of the boundary to the 'natural frontier' of the Kagera River." When the League of Nations' Permanent Mandates Commission reviewed the claims, they highlighted that the agreement separated "one of the richest and most civilised tracts of the Kingdom of Ruanda" and decried the "'deplorable moral effect' that the present arrangement had on the local population and their strong protests." In September 1922, the President of the Council wrote letters to British and Belgian officials, who agreed to alter the boundary to follow the Kagera River,[121] and thus PCS Rwanda directly affected the border. The revision was officially enacted in 1924,[122] which we code as a major border revision that entailed a large territorial transfer. The Kagera River is the sole feature of the border.

Back to TOC

[115] See Burundi–Rwanda.
[116] Brownlie 1979, 983.
[117] Neither Brownlie 1979, 744–52 nor McEwen 1971, 151–64 mention a border between Tanzania and either Rwanda or Burundi before 1922.
[118] Brownlie 1979, 745.
[119] Louis 1963*a*, 246.
[120] Mathys 2014, 155.
[121] McEwen 1971, 154–55.
[122] Brownlie 1979, 745–51.

C.5.15 Burundi–Tanzania

Overview. Originally formed in 1922 as an interimperial border between Belgian Ruanda-Urundi and British Tanganyika. A historical political frontier (PCS: Burundi) directly affected the border. The primary feature is minor rivers. Secondary features are topography (mountains) and a major lake (Tanganyika).

Details. In Rwanda–Tanzania, we describe Burundi's history within German East Africa and the separation of the Ruanda-Urundi Belgian Mandate territory following World War I. The Burundi portion of the border between the two new Mandate territories (Belgian Ruanda-Urundi and British Tanganyika) was less contentious than the Rwandan portion. Unlike Rwanda–Tanzania, we do not code a major revision in 1924 because, for the present border, the official protocol confirmed a border formed in 1922 that was not qualitatively altered.

In 1938, a petition by the *mwami* of Burundi prompted a discussion about revising the border. The *mwami* contended that Bufugi, included in Tanganyika, was traditionally part of his territory. However, the Trusteeship Council ruled against the petition because "the evidence showed that any alteration of the *status quo* would be contrary to the express wishes of the overwhelming majority of the peoples of Bufugi."[123] Thus, the border did not change.

The primary feature of the border is various minor rivers: Ndyakalika, Muragarazi, Lugusi, Kahumo, Ruvubu, and Kagera. Secondary features are various mountain summits; the westernmost part of the border is Lake Tanganyika (tripoint with Belgian Congo).

Back to TOC.

[123] McEwen 1971, 159.

C.6 Northeast Africa and the Nile

C.6.1 Regional Overview

Competition over the Nile River was the main macro-level factor that shaped borders in the region construed broadly as North East Africa, stretching from Egypt to the northern limits of the DRC and Uganda and, in the east, to the Horn of Africa. The key meso-level objects of contention were precolonial states (Egypt, its historical dependency of Sudan, the Mahdist state, Ethiopia, Darfur, and Wadai) and the Nile Valley. Ironically, the Nile itself ultimately played a minimal role as a micro-level border feature because Britain monopolized control over the Nile Valley.

In 1882, plans for joint British-French rule over Egypt fell through and Britain gained sole control over Egypt. Subsequently, France's challenges to British suzerainty over the Nile and actions by militarily powerful African states shaped territorial claims. Britain could not occupy Sudan, Egypt's historical dependency located farther down the Nile, because of the rise of the Mahdist state. To create a buffer against French expansion, Britain supported Italian paramountcy over the Horn of Africa (including over Ethiopia) and territorial expansion by the Congo Free State along the Nile. In response, France blocked much of Leopold's dream of controlling the Nile in 1894; and supported the Emperor of Ethiopia, who militarily defeated Italy in 1896. Ethiopia's victory forced Europeans to reconsider their territorial claims throughout the Horn and removed a key barrier against France marching to the Nile. After Britain militarily defeated the Mahdist state in 1898, advancing British and French troops met at Fashoda, a town along the Nile. France backed down, which resulted in the settlement of Anglo-French borders throughout Africa, although military actions by the Sultan of Darfur delayed a final settlement.

Back to TOC

C.6.2 Congo (Bel.)–Sudan

Overview. Originally formed in 1885 as a unilateral frontier of the Congo Free State; Britain claimed Sudan in the 1880s and occupied it from 1898 onward.[1] Major revisions occurred in 1894 (large territorial transfer: Lado Enclave to CFS), 1906 (changed features: clarify local features), 1910 (large territorial transfer: Lado Enclave to Sudan), and 1914 (large territorial transfer: division of Lado enclave between Uganda and Sudan). The primary feature is a major watershed (Nile-Congo).

Details. The original frontiers of the Congo Free State in East Africa were determined in 1885,[2] the year the present border was initially formed. In the area of what became the British territory of Sudan, the frontiers of the Congo Free State consisted entirely of a parallel (4°N) and a meridian (30°E).[3] The entire length of the border changed twice during the colonial period, consisting of the Nile River from 1894–1910 and the Nile-Congo watershed from 1910 onward.

[1] This became the Congo (Bel.)–South Sudan border in 2011.

[2] See Congo (Bel.)–Uganda.

[3] These were formally established in the Declaration of Neutrality in August 1885 that officially created the Congo Free State (Hertslet 1909, 552–53; also see the map between pp. 604–5). The point at which this parallel and this meridian meet lies almost exactly on the Congo-Nile watershed, providing an example of how even astronomical lines can be chosen to correspond with natural geographic features.

The 1894 treaty between Britain and the Congo Free State underscored the strategic importance of the Nile River to the European powers.[4] Leopold recognized Britain's claim to the Nile in return for gaining territorial leases along the Nile. Britain strategically sought to protect its sphere of influence over the Upper Nile, which it was unable to directly occupy because of the Mahdist rebellion in Sudan,[5] and Britain's primary fear was French intervention along the Upper Nile. With the 1894 treaty, Britain sought to create a buffer against French expansion, but without hindering Britain's ability to displace the Belgians when Britain was able to occupy the Nile Valley.[6] In the treaty, the Congo Free State was assigned expansive leases along the Nile running as far north as the 10°N latitude parallel, where the town of Fashoda (the site of the 1898 Anglo–French showdown) is located.[7]

However, France protested the 1894 Anglo–Congo treaty because of its own strategic interests in the Nile. This challenge compelled Leopold to retract much of the leased territory, which was formalized in a treaty with France later in 1894.[8] This new agreement "effectively removed the barrier between France and the upper Nile. On the other hand, the French allowed the Free State to take up that part of the lease which did not interfere with French plans (the left bank of the Nile as far north as Lado). They thus deserted their objection of principle that, since the Egyptian title to these territories was still valid, the British had no right to lease them. Their practical aim was, however, achieved: the main purpose of the Anglo-Congolese treaty had been defeated."[9] The net result of these complicated negotiations in 1894 was that the Congo Free State gained a lease only over what became known the Lado Enclave,[10] shown in Figure 1 in the article. This revision resulted in the Nile comprising the entire length of the present border.

In an 1898 Anglo–Franco agreement, France withdrew from the upper Nile and permitted the official formation of the Anglo–Egyptian Condominium of Sudan.[11] Although this agreement eliminated French claims to the Nile, King Leopold contended that France's withdrawal renewed his rights to the expansive leased territory along the Nile (broadly, the region known as Bahr el Ghazal) from the 1894 Anglo–Congo agreement. This led to a series of diplomatic and military disputes between Britain and the Congo Free State, which were not settled until 1906.[12] Despite

[4]Earlier, the Anglo–German treaty of 1890 recognized British supremacy on the Nile by decreeing that the British sphere of influence reached as far north as "the confines of Egypt" (quoted in Hertslet 1909, 901).

[5]See Egypt–Sudan.

[6]Taylor 1950, 52–59; Wesseling 1996, 225–39.

[7]Article II of the treaty describes the leases. See Hertslet 1909, 578–80 and the accompanying map as well as the maps in Uganda Department of Lands and Surveys 1962, 75, Collins 1968, 41, and McEwen 1971, 237.

[8]Hertslet 1909, 569–71.

[9]Taylor 1950, 68.

[10]This territory was named after the town of Lado, located in Sudan's Equatoria Province; see Egypt–Sudan.

[11]See Chad–Sudan and Egypt–Sudan.

[12]Collins 1968. British officials consistently maintained in public that Leopold had already renounced his rights north of Lado in his agreement with France in 1894, and that a further agreement with Britain was unnecessary (pp. 84–85). But privately, they sometimes admitted that King Leopold had a legitimate claim both on legal grounds and because Britain did not occupy the territory. In 1900, Prime Minister Salisbury lamented that the Agreement of 1894 "was one of the most foolish political acts ever committed" (quoted on p. 86).

Leopold's efforts to claim more territory along the Nile, the agreement in 1906 reaffirmed the status quo by permanently annulling all the leased territory from the 1894 agreement except the Lado Enclave, which was specified to revert to the Sudanese government at the end of Leopold's reign over the Congo.[13] We code a major revision in 1906 because the new agreement resolved uncertain sovereignty over the vast territory associated with Bahr el Ghazal.

Following Leopold's death in 1909, the Lado Enclave reverted to British control. Britain initially transferred the entire Lado Enclave to Sudan in 1910. This major revision resulted in the Nile-Congo watershed comprising the entire border. In 1914, Britain transferred a southern portion of the Lado Enclave to Uganda. This major revision resulted in the easternmost part of the present border becoming the Congo (Bel.)–Uganda border. However, even after this territorial transfer, the Nile-Congo watershed continued to comprise the entire length of the present border.[14]

Back to TOC

C.6.3 Congo (Bel.)–Uganda

Overview. Originally formed in 1885 as a unilateral frontier of the Congo Free State; Britain declared a protectorate over Uganda in 1894. Major revisions occurred in 1894 (changed features: switch lines to local features), 1910 (changed features: switch lines to local features), and 1914 (large territorial transfer: part of Lado Enclave transferred to Uganda). Historical political frontiers directly (PCS: Bunyoro, Nkore) and indirectly (PCS: Buganda) affected the border. The primary feature is a major watershed (Congo-Nile). Secondary features are major lakes (Albert, Edward), minor rivers, and topography (mountains).

Details. The present border was shaped entirely by agreements and transfers discussed in other entries, where we provide most of the background. Throughout the following, it is useful to disaggregate the present border into three segments: Lower (south of Lake Albert), Middle (the latitudinal length of Lake Albert), and Upper (north of Lake Albert). The map in Uganda Department of Lands and Surveys (1962, 75) provides a highly useful visual for all the alterations to the border.

The original border between the Congo Free State and Uganda consisted, nominally, entirely of the 30°E longitude meridian established in 1885 as a unilateral frontier of the Congo Free State.[15] The 1894 Anglo–Congo agreement, discussed in Congo (Bel.)–Sudan, altered the Middle portion

[13] Hertslet 1909, 584–85; McEwen 1971, 259.

[14] "Since 1906 no agreement has elaborated the description and no demarcation has occurred" (Brownlie 1979, 683).

[15] Britain established its sphere of influence in the area of modern-day Uganda via a treaty with Germany in 1890. This treaty specified that the western boundary of the British sphere was the Congo Free State, but "[t]he 30th meridian itself was not identified as the Congo State boundary in the 1890 agreement. This, so far as Britain was concerned, was no doubt intentional since proposals had already been put forward for an adjustment of the boundary between the Congo State and the British sphere of influence" (McEwen 1971, 234–35). One month before the Anglo–German agreement, William MacKinnon of the Imperial British East Africa Company (which governed British East Africa until 1893) had concluded a treaty with the Congo Free State, although the British government did not ratify the treaty (see footnote 20 for more discussion of the failed 1890 treaty).

from the meridian to the Nile-Congo watershed,[16] and the Upper portion from the meridian to the Nile River.[17] The meridian continued to comprise the Lower portion of the border.

The 1894 treaty proposed to alter the present border in one additional way, but this facet of the treaty (Article III) was withdrawn.[18] Britain's only concrete territorial gain vis-à-vis the Congo Free State in the 1894 treaty was that Britain would gain a five-mile-long strip of territory between Lake Edward and Lake Tanganyika.[19] Because Lake Tanganyika was a free trade zone and was located directly north of Northern Rhodesia, this would have created an "all-red route" connecting British territories in the north and south. Germany strongly protested, which compelled Britain to withdraw this provision.[20] This non-enacted provision highlights the strategic importance of the Great Lakes to the powers and their desire to use them for transportation and communication infrastructure.

The Lower, Middle, and Upper portions of the border were all changed in 1910, each for a different reason.

- The Lower portion was shifted from the meridian line to various water bodies located farther west (hence this revision added territory to Uganda). Moving south to north, these are the Ishasha River, Lake Edward (a major lake), and the Semliki River.[21] This reflected Britain's territorial gains related to the controversy over the Mfumbiro mountains, whose origins we discuss in Rwanda–Uganda.[22]
- The Middle portion was shifted east from the Nile-Congo watershed to Lake Albert. This was largely a technical revision that corrected an earlier geographical misconception by Europeans.[23]

[16] Article I of the treaty.

[17] Article II of the treaty.

[18] Hertslet 1909, 584.

[19] Lake Kivu, which is located between Lake Edward and Lake Tanganyika, was unknown to Europeans at the time (Louis 1963*a*, 41).

[20] Earlier, in 1890, the Imperial British East Africa Company had concluded a treaty with the Congo Free State (the MacKinnon treaty, after the Company's president William MacKinnon) that included a similar strip of territory for the Company. British Parliament never ratified this treaty, in part because of German opposition (McEwen 1971, 235, 238).

[21] The Semliki River was used as a prominent border feature in the earlier failed treaty of 1890 (McEwen 1971, 235).

[22] "After three months of tedious diplomatic jousting Britain and Germany had obtained most of what they demanded from Belgium . . . Mount Sabinio in the Mufumbiro range was chosen to mark the new boundary tripoint of Uganda, German East Africa, and the Congo State. The 30th meridian, whose precise location had for so many years remained in doubt, was completely abandoned as a boundary and it no longer held legal or political significance" (McEwen 1971, 244).

[23] As McEwen 1971, 245 describes, "[t]he reason for this alteration is of interest since it illustrates a situation where the prior selection of a natural feature proved to be an unsuitable boundary. Before this part of the frontier was mapped by the Uganda-Congo Commission of 1907-8, it had been thought that the watershed lay sufficiently far from Lake Albert to give Britain some sizeable territory on the north-western shore. In the course of its survey, however, the commission discovered that the watershed ran very close to the shore and that the 'much vaunted British territory on the west of Lake Albert was apparently reduced to a strip not a mile wide of rough, rocky ground falling sheer into the lake.' Since this left 'only a cliff face

- Between 1910 and 1914, the Upper portion was shifted westward from the Nile River to the Nile-Congo watershed. Because of Leopold's death in 1909, the Lado Enclave reverted to British control. This territory was originally transferred entirely to Sudan.[24] Thus, what we refer to as the Upper part of the present border was temporarily eliminated, and instead Lake Albert constituted its northern limit. In 1914, a southern portion of the Lado Enclave was transferred from Sudan to Uganda.[25] Because the western frontier of the Lado Enclave was the Nile-Congo watershed, this transfer resulted in the watershed becoming the Upper portion of the present border. The alterations to the Upper portion in 1910 and 1914 also meant that the Nile River no longer formed any segment of the present border.

We code features of the border alignment based on the preceding description. The Nile-Congo watershed (the Upper portion) is the longest segment, and thus we code it as the primary feature. Two major lakes (Albert as the entire Middle portion, and Edward as part of the Lower portion) are secondary features. Various minor rivers comprise almost the entire remainder of the border (in the Lower portion), and we also code these as secondary features. Additionally, we code mountains as a secondary feature because of the tripoint at Mount Sabinio, which reflected the outcome of lengthy negotiations over Britain's claims to Mount Mfumbiro.

We code several PCS in Uganda (Buganda, Bunyoro, Nkore) as affecting the border. The initial settling of borders with the Congo Free State 1894 (April) occurred nearly simultaneously with the formal announcement of a Protectorate over Buganda (June, although voted upon in Parliament in April).[26] Throughout that same year, Britain expanded its influence among the major states west of Buganda, which were located close to the boundary with the Congo Free State. British actions included military occupation of Buganda and treaties with Nkore and Toro. In 1896, Britain formally added these territories to the protectorate, and their boundaries were determined in a series of agreements in 1900–1.[27] Although we lack direct documentary evidence, we consider it inconceivable that British officials would have acquiesced to borders (in either 1894 or 1910) that did not allow them to retain control over the entire territory controlled by these historical states.[28] Overall, we code Bunyoro and Nkore as directly affecting the border because of their close proximity, whereas Buganda is an indirect effect because British claims over the western states were derivative to its establishment of a protectorate over Buganda.

Back to TOC

C.6.4 Djibouti–Somaliland (British)

Overview. Originally formed in 1888 as an interimperial border between French Somaliland (Djibouti) and British Somaliland. The primary feature is a straight line (non-astronomical). Secondary features are infrastructure (caravan routes) and other water bodies (wells).

to be administered by the British', it was abandoned to Belgium and the line was drawn through the lake instead."

[24] See Congo (Bel.)–Sudan.

[25] See Sudan–Uganda.

[26] See Tanzania–Uganda and Kenya–Uganda.

[27] Hertslet 1909, 397–403; Ingham 1958, 57–66.

[28] See also Congo (Bel.)–Rwanda, where we discuss how Britain supported Germany's similar contention over Rwanda.

Details. Britain and France each sought territory in the Horn of Africa as strategic staging posts for Aden/India and Madagascar/Indo-China, respectively.[29] Each European power signed treaties with various local rulers in the 1880s and created formal protectorates. In 1888, they agreed to a border in an Exchange of Notes, which consists entirely of straight lines (non-astronomical), the primary feature. The Exchange of Notes mentions various caravan routes (infrastructure) and wells, which we code as secondary features.

Back to TOC

C.6.5 Eritrea–Sudan

Overview. Originally formed in 1891 as an interimperial border between Italian Eritrea and Britain, who claimed a sphere of influence over Sudan. A historical political frontier (other state: Egyptian Sudan) directly affected the border. The primary feature is topography (mountains). Secondary features are minor watersheds, minor rivers, straight lines (non-astronomical) and other water bodies (water holes).

Details. Italy gained recognition over territory on the coast of the Horn of Africa in the late 1880s,[30] and Britain gained a sphere of influence over Egypt and Sudan in the 1880s.[31] A protocol in 1891 determined initial borders between the spheres of influence claimed by Britain and Italy. This initial treaty roughly traced what became the final borders; moving westward, the border extended from Ras Kasar on the Red Sea to a point at 17°N, 37°E, and then south to the town of Sebderat. Each of these features mentioned in the 1891 protocol is on or very close to the final border.[32] This boundary closely follows the frontier of Egyptian Sudan prior to the Mahdist conquest in the 1880s,[33] which are precisely the boundaries that Britain sought to claim for Egypt and Sudan.[34] A series of revisions, signed between Italy and the British/Egyptian government, occurred in 1895, 1897, 1898, 1899, 1901, 1903, and 1904.[35] The map in Hertslet shows that although these revisions changed the shape of Eritrea somewhat,[36] they were relatively minor. Therefore, we do not code any subsequent major revisions.

We code the features of the border based on the detailed description provided in 1903.[37] It references numerous mountains and hills, which we code as the primary feature. It also mentions minor watersheds, minor rivers, straight lines (non-astronomical), and other water bodies (water holes), which we code as secondary features.[38]

[29] Sanderson 1985*b*, 651, 669–70; Hertslet 1909, 407–11, 628–33, 726–28; Brownlie 1979, 766–67; Clifford 1936, 289–90.

[30] See Kenya–Somalia.

[31] Although France did not recognize this influence; see Chad–Sudan.

[32] Hertslet 1909, 949.

[33] See here.

[34] See Egypt–Sudan.

[35] See Hertslet 1909, 1108–18.

[36] Hertslet 1909, 1116.

[37] Hertslet 1909, 1117.

[38] A segment of the border follows the Baraka River until its junction with the Dada. Other minor rivers are also mentioned. A significant segment follows the watershed between streams flowing to the Baraka and those flowing into the Gash and Langueb rivers (Brownlie 1979, 860–62).

Back to TOC

C.6.6 Kenya–Somalia

Overview. Originally formed in 1891 as an interimperial border between British-claimed territory (later reconfigured as Kenya) and Italian Somaliland. A major revision occurred in 1925 (large territorial transfer: Jubaland to Italy). Historical political frontiers (decentralized group: Somali) directly affected the border. The primary feature is a straight line (parallels/meridians). Secondary features are straight lines (non-astronomical), a minor river, and other water bodies (wells).

Details. Britain gained recognition over the coastal parts of modern-day Kenya in the 1880s.[39] Starting in 1889, Italy gained European recognition of territory south of Ethiopia along the coast of the Horn of Africa, including over Mogadishu. This occurred in a series of agreements with the British East Africa Company and the Sultan of Zanzibar, as well as an earlier treaty with the Sultan of Mijertein (non-PCS).[40] Britain supported Italian claims in North East Africa in part to safeguard its control over the Nile.[41]

An Anglo-Italian protocol of 1891 determined the border, which consisted entirely of the Juba River.[42] As Britain established civil administration over the following decades, the area immediately west of the Juba River became Kenya's Jubaland Province. The western boundary of the province was established as the 41°E longitude meridian in 1914. This boundary sought to contain all Somalis in British East Africa (Kenya), who were migrating westward, within the Jubaland Province. In 1924, Britain agreed to transfer the Jubaland Province of Kenya to Italy as "equitable compensation" for the massive amounts of territory that Britain had gained from Germany following World War I.[43] This transfer was implemented in 1925. However, immediately before the agreement in 1924, Britain redistricted the northwestern corner of Jubaland to Kenya's Northern Frontier Province.[44] This redistricting decision resulted in some Somalis remaining in Kenya even after the territorial transfer, which contributed to Somalia's irredentist claims after independence. Somalis (a decentralized group) directly affected the border despite getting partitioned, given Britain's earlier decision to create the Jubaland province specifically to encompass Kenya's Somali population. In addition to straight lines (the bulk of the border is a meridian, but there are also non-astronomical lines), the 1924 treaty and the consequent exchange of notes in 1925 mention a minor river (Daua) and wells.[45]

Back to TOC

[39] See Kenya–Tanzania.

[40] Mariam 1964, 196–97; Hertslet 1909, 1088–1103, 1119.

[41] See Eritrea–Ethiopia.

[42] Hertslet 1909, 948; see McEwen 1971, 115–28 for the following.

[43] This was part of the agreement for Italy to enter the war on the side of the Allied Powers; see McKeon Jr 1991, 151.

[44] See here for a map of the transferred territory.

[45] McEwen 1971, 118–19; Brownlie 1979, 889–91.

C.6.7 Somalia–Somaliland (British)

Overview. Originally formed in 1894 as an interimperial border between Italian Somaliland and British Somaliland. The primary feature is straight lines (parallels/meridians). Secondary features are straight lines (non-astronomical) and towns/villages.

Details. Italy and Britain each gained recognition over territory on the coast of the Horn of Africa in the late 1880s.[46] These two powers determined the present border in a treaty in 1894. The treaty references various lines (parallels/meridians and non-astronomical), villages (Gildessa, Darmi, Gig-giga, Milmil), and "tribes" (Girrhi, Bertiri, Rer Ali; we group these along with villages).[47] We code straight lines (parallels/meridians) as the primary feature because the longest segment of the border is the 49°E longitude meridian, and the other features are secondary. Italian Somaliland and British Somaliland came under joint British administration during World War II,[48] but this did not alter their boundary.

Back to TOC

C.6.8 Eritrea–Ethiopia

Overview. Originally formed in 1896 as an interimperial border between Italian Eritrea and Ethiopia. Major revisions occurred in 1900 (changed features: clarify local features) and 1908 (new segment). A historical political frontier (PCS: Ethiopia) directly affected the border. The primary feature is minor rivers. A secondary feature is straight lines (non-astronomical).

Details. Italy gained a foothold in Eritrea in 1869 when a Genovese shipping house purchased the Bay of Assab. The government gained direct control over the territory in 1882, yielding Italy's first colony. In 1885, Italy added Massawa, and in 1890 the colony of Eritrea was created, which joined the two.[49] Italy also sought to incorporate Ethiopia into its empire. It gained a treaty in 1889, the Wuchale (alternatively, Wichale or Uccialli) Treaty. In the Italian-language version, the treaty indicated an Italian protectorate (Ethiopia "consents to" or "must" conduct foreign relations with Italian advice). By contrast, in Amharic translation, it merely established a friendly relationship (Ethiopia "may" conduct foreign relations with Italian advice).[50] European powers accepted the Italian interpretation: the Anglo–German treaty of 1890 mentioned Italian influence in Abyssinia and an Anglo–Italian treaty of 1891 created a preliminary boundary between their spheres of influence.[51] Britain promoted Italian claims over Ethiopia to block France from gaining a foothold on the Nile.[52] British support made Italy "the major European power in the Horn of Africa" as of 1895.[53]

Emperor Menelik II of Ethiopia, however, exercised agency and blocked Italian suzerainty over his territory. This was the sole case in which a precolonial African ruler retained his sovereignty,

[46] See Kenya–Somalia and Djibouti–Somaliland (British).
[47] Hertslet 1909, 951.
[48] See Ethiopia–Somalia.
[49] Wesseling 1996, 241; for the primary documents, see Hertslet 1909, 446–450.
[50] Marcus 1963*a*, 122; Mariam 1964, 197–98.
[51] Hertslet 1909, 948; and see Ethiopia–Kenya.
[52] See also Chad–Sudan.
[53] Marcus 1963*a*, 121; see also Wesseling 1996, 242.

which he achieved by defeating Europeans on the battlefield. Upon learning about the European interpretation of his treaty with Italy, he immediately wrote a letter of complaint to Rome that rejected the European interpretation. In 1891, he issued a circular letter to the European powers that claimed sovereignty over a broad area that included territory Europeans had already allocated to each other (in particular in the Anglo–Italian treaty of 1891). In the circular, Menelik proclaimed, "if Powers at a distance come forward to partition Africa between them I do not intend to be an indifferent spectator." In 1893, Menelik rejected the Wuchale Treaty as a binding document, following Ethiopia's repayment of a loan it had secured from Italy as part of the treaty. Meanwhile, Menelik was engaged in aggressive military expansion within North East Africa. In 1896, Ethiopia's military defeated Italy's at the Battle of Adwa, which enforced Menelik's diplomatic claims and rejected Italian suzerainty over Ethiopia.[54]

After this defeat, Italy renounced the Wuchale Treaty and signed a new treaty that recognized Ethiopia's independence. The treaty decreed that the two states were "unable to agree on the question of the frontiers," although the preliminary border was to be "determined by the course of the Rivers Mareb, Belessa, and Mouna."[55] This boundary reflected the expansion of Ethiopia during the 1890s.[56] A new treaty in 1900 stated, "[t]he line Tomat-Todluc-Mareb-Belesa-Muna, traced on the map annexed, is recognized by the two Contracting Parties as the boundary between Eritrea and Ethiopia."[57] We code this as a major revision because the original border was explicitly described as preliminary. These two treaties made minor rivers the primary feature of the border; they comprised the entire border starting from the Sudan tripoint until Lake Kulul. A Convention in 1908 determined the southeastern part of the border, which consists of straight lines "proceed[ing] in a south-easterly direction, parallel to and at a distance of 60 kilometres from the coast, until it joins the frontier of the French possessions of Somalia."[58] Thus we code straight lines (non-astronomical) as a secondary feature.

Back to TOC

C.6.9 Ethiopia–Somalia

Overview. Originally formed in 1897 as an interimperial border between Ethiopia and Italian Somaliland. Major revisions occurred in 1908 (changed features: clarify local features), 1936 (large territorial transfer: Ogaden to Somalia), and 1954 (large territorial transfer: Ogaden to Ethiopia). Historical political frontiers directly (PCS: Ethiopia) and indirectly (decentralized group: Somali) affected the border. The primary feature is a straight line (non-astronomical). Secondary features are minor rivers.

Details. Italy gained recognition over the coast of modern-day Somalia in the late 1880s.[59] Italy also sought to incorporate Ethiopia into its empire, but relinquished this claim upon military defeat in 1896.[60] This change in the balance of power within the region led to new border agreements

[54] Marcus 1963*a*, 122; Mariam 1964, 197–98; McEwen 1971, 103–5.
[55] Translated by the authors using the text from Hertslet 1909, 458–59.
[56] See the maps of North East Africa in Ajayi and Crowder 1985.
[57] Quoted in Hertslet 1909, 460; and see the map on p. 1116.
[58] Quoted in Hertslet 1909, 1225.
[59] See Somalia–Somaliland (British).
[60] See Eritrea–Ethiopia.

between Ethiopia and each of France, Britain, and Italy. Ethiopia's expansion over the previous decade, including over the Somali-populated territory of Harar,[61] bolstered Menelik's leverage to claim broad areas, some of which conflicted with European claims.

In 1897, Ethiopia agreed to a border involving Italian Somaliland. However, this agreement was not accompanied by public bilateral documents, which created later problems. "This cartographic agreement of 1897 is at the root of the present frontier problem between Ethiopia and Somalia. The map with Menelik's seal is either lost or the Italians are unwilling to produce it. One is, therefore, left with the difficult task of reconstructing this line on the basis of the official declarations and publications of the Italian Government."[62] Ethiopia and Italy concluded a new agreement in 1908, which failed to resolve the ambiguities. The treaty contains "only one specific and definite point—the confluence of the Dawa and the Ghenale. From here on, the boundary has no definite point at all. The 'sources of the Maidaba' and the 'territorial boundaries' of the Rahanwein tribe are unsatisfactory phrases. The sources of streams and territorial boundaries of nomadic tribes are both variable, and the agreement was not accompanied by a map."[63] Subsequently, the provisions of the treaty "proved impossible to apply since the two parties adopted significantly different views of their interpretation."[64] Nonetheless, we code 1908 as a significant revision to clarify local features because of the lack of any prior documentation.

In 1934, conflict related to the ambiguous border provided the pretext for Italy to occupy Ethiopia, which lasted until 1941.[65] The creation of Italian East Africa in 1936 merged Somaliland, Eritrea, and Ethiopia. Italy shifted the internal administrative border for Somaliland farther inland to encompass all of Ogaden, which was previously part of Ethiopia but comprised primarily of ethnic Somali. We code 1936 as a major border revision. From 1944 to 1954, Britain gained administrative responsibilities for a "Greater Somalia" consisting of British Somaliland, the former Italian Somaliland, and the Ethiopian region of Ogaden. British military occupation of Ogaden ended in 1954, at which point the territory was returned to Ethiopia. We code this as another major border revision, which reverted the border back to the ambiguous status quo in 1908. Subsequent negotiations in the late 1950s failed to yield a new border, and hence Somalia gained independence with the border issue unresolved.[66] Because of these border shifts, we code Somali (decentralized group) as indirectly affecting the border; the coding would be direct effect had the subsequent revision not occurred in 1954.

We code that historical political frontiers directly affected the border (PCS: Ethiopia) not only because leaders of the historical state negotiated the treaty with Italy, but also because the treaty reflected Ethiopia's military strength in the areas it claimed. The eastern portion of the border is a straight line (non-astronomical). We code this as the primary feature because it constitutes more than half the border.[67] For the western portion, the 1908 treaty refers to minor rivers (confluence of

[61] See the maps of North East Africa in Ajayi and Crowder 1985.

[62] Mariam 1964, 200.

[63] Mariam 1964, 203–4.

[64] Brownlie 1979, 827.

[65] See Mariam 1964, 206–13 for the following.

[66] To the present day, the international border remains provisional and contested (e.g., Ogaden War of 1977–78).

[67] Our assessment based on the provisional border shown in Google Maps.

the Daua and the Ganale; Uebi Scebeli, or Shebelle) and various decentralized groups (Rahanuin, Baddi-Addi, Digodia, Afgab, Djedjedi),[68] which we classify as towns/villages. Nonetheless, the recognition of Ethiopia's frontiers led a different (decentralized) ethnic group to be partitioned, the Somali.

Back to TOC

C.6.10 Djibouti–Ethiopia

Overview. Originally formed in 1897 as an interimperial border between French Somaliland (Djibouti) and Ethiopia. Historical political frontiers (PCS: Ethiopia) directly affected the border. The primary feature is straight lines (non-astronomical). Secondary features are minor lakes, minor rivers, and topography (mountains).

Details. France gained recognition over the coastal parts of modern-day Djibouti in the 1880s.[69] Whereas Britain promoted Italy's position in the Horn of Africa to safeguard its control over the Nile,[70] France sought to undermine Italy's position so it could itself gain influence in Ethiopia and access to the Nile.[71] Although France did not establish official relations with Ethiopia, it supplied a "massive import of arms" that proved decisive in Ethiopia's victory over Italy at Adwa in 1896.[72] After this defeat, France and Britain each sought to solidify their position vis-à-vis Ethiopia, with France moving first.[73] France and Ethiopia signed a convention in 1897 that secured a favorable division of territory for Ethiopia,[74] hence establishing a direct effect of PCS. In the convention, France accepted limited territory for Djibouti in return for a secret agreement to secure collaboration with France's planned Marchand mission to march on the Upper Nile,[75] and to channel Ethiopian trade toward the Gulf of Tajurah in Djibouti. The Convention of 1897 mentions minor lakes, minor rivers, towns, and mountains/hills as landmarks, all of which we code as secondary features. The short straight-line (non-astronomical) segments that appear on Google Maps comprise the majority of the border, and we code this as the primary feature.

Back to TOC

C.6.11 Ethiopia–Somaliland (British)

Overview. Originally formed in 1897 as an interimperial border between Ethiopia and British Somaliland. Major revisions occurred in 1936 (large territorial transfer: Ogaden to Somalia) and 1954 (large territorial transfer: Ogaden to Ethiopia). Historical political frontiers directly (PCS: Ethiopia) and indirectly (decentralized group: Somali) affected the border. The primary feature is straight lines (non-astronomical). Secondary features are other water bodies (wells), infras-

[68] Brownlie 1979, 835–36.
[69] See Djibouti–Somaliland (British).
[70] See Eritrea–Ethiopia.
[71] Marcus 1963*a*, 123.
[72] Sanderson 1985*b*, 656–61.
[73] Marcus 1963*a*, 127–29; Sanderson 1985*b*, 661.
[74] See Hertslet 1909, 421 for the text.
[75] See Chad–Sudan.

tructure (caravan road), towns/villages, topography (mountains, hills), and straight lines (parallels/meridians).

Details. Britain gained recognition over territory on the coast of the Horn of Africa in the late 1880s.[76] After Ethiopia defeated Italy in 1896, France and Britain each sought to solidify their position vis-à-vis Ethiopia.[77] In 1897, Britain sent an envoy to negotiate with the Ethiopian emperor. Although the two parties were unable to agree upon borders in the south and west,[78] they agreed to an eastern boundary with Britain's Somali Coast Protectorate in 1897.[79] The two powers had conflicting claims even in this area. Menelik's circular of 1891, which the European powers did not acknowledge,[80] proclaimed frontiers for Ethiopia that included a large swath of territory that Britain considered within the provenance of their Somali Coast Protectorate, based on their (now largely irrelevant) 1894 treaty with Italy.[81]

A British agent hired to demarcate the border in the 1930s described the agreed-upon line as "a compromise between the Emperor's claims and that of the Anglo-Italian Protocol of 1894."[82] Thus, African agency compelled Britain to cede large amounts of territory, including the strategically important territory known as the Haud (or Harar) located in the southeast part of present-day Ethiopia. Menelik sought recognition of "Ethiopia's historic frontiers,"[83] which he backed up with military force. As the British agent sent to negotiate with Menelik cabled to Prime Minister Salisbury in 1897, "Unfortunately Menelik's claims are not mere declarations on paper, but our researches and investigations have shown us that King Menelik has been for years actively engaged in rendering his occupation effective with 80,000 men and 200,000 modern rifles, a formidable fact to reckon with."[84]

From 1944 to 1954, Britain gained administrative responsibilities for a "Greater Somalia" consisting of British Somaliland, the former Italian Somaliland, and the Ethiopian region of Ogaden. This yielded two major revisions of the present border (ultimately reverting to the original border) and created an indirect effect for the decentralized Somali.[85]

The 1897 treaty mentions wells, infrastructure (caravan road), towns, mountains/hills, and straight lines (both meridian and non-astronomical).[86] We code straight lines (non-astronomical) as the primary feature because this is the longest feature,[87] and all the other aforementioned features are coded as secondary. Various nomadic groups were partitioned by the border, which was, in the European opinion, "not entirely avoidable with these nomad tribes whose areas overlap in the most confusing manner."[88]

[76] See Djibouti–Somaliland (British).
[77] See Djibouti–Ethiopia.
[78] See Ethiopia–Kenya and Ethiopia–Sudan.
[79] Mariam 1964, 198.
[80] See Eritrea–Ethiopia.
[81] Marcus 1963*a*, 131.
[82] Clifford 1936, 290.
[83] Silberman 1961, 47.
[84] Silberman 1961, 48–49; see also Sanderson 1985*b*, 662.
[85] See Ethiopia–Somalia.
[86] Hertslet 1909, 428.
[87] See Google Maps.
[88] Clifford 1936, 290.

Back to TOC

C.6.12 Djibouti–Eritrea

Overview. Originally formed in 1900 as an interimperial border between French Somaliland (Djibouti) and Italian Eritrea. The primary feature is a minor river. A secondary feature is straight lines (non-astronomical).

Details. France and Italy each established claims along the coast of the Horn of Africa in the 1880s.[89] They settled the borders between their frontiers in Protocols in 1900 and 1901.[90] These mention the Weima (or Oueima) River, which appears to constitute a majority of the border.[91] The remainder of the border is non-astronomical straight lines.

Back to TOC

C.6.13 Ethiopia–Kenya

Overview. Originally formed in 1891 as an interimperial border between Italian-claimed Ethiopia and British-claimed territory (later reconstituted as Kenya); Ethiopia ensured its independence from European powers in 1896. Major revisions occurred in 1907 (large territorial transfer: recognition of Ethiopia's claims) and 1947 (changed features: clarify local features). Historical political frontiers (PCS: Ethiopia; decentralized group: Galla) directly affected the border. The primary feature is topography (mountains). Secondary features are minor rivers, a major lake (Rudolf/Turkana), minor lakes, and straight lines (parallels/meridians).

Details. Britain gained diplomatic recognition over territory corresponding to present-day Kenya in 1886.[92] The border with Ethiopia was originally formed in 1891 in an agreement with Italy, who had been assigned a sphere of influence over Ethiopia. The initial border was the 6°N latitude parallel. This is located considerably farther north of the present-day border, thus encompassing less territory for Ethiopia than it gained eventually.[93]

Ethiopia's defeat of Italy at Adwa in 1896 changed the balance of power in the region.[94] Amid new negotiations with Britain, the Ethiopian emperor referenced a circular letter he had issued in 1891, which was previously ignored in Europe. In this letter, Menelik proclaimed sovereignty over an area whose southern boundary "lay about 200 miles to the south of the line described in the Anglo–Italian protocol."[95] Ultimately, a precolonial state not only participated in settling the border, but took concerted military actions to gain a border that entailed substantially more territory for Ethiopia than in the original European-proposed border. Following Ethiopia's defeat

[89] See Djibouti–Somaliland (British) and Eritrea–Ethiopia.

[90] Hertslet 1909, 663–64; Brownlie 1979, 753–55.

[91] Our assessment using Google Maps.

[92] See Kenya–Tanzania.

[93] See Hertslet 1909, 948 for the text. Farther east, the preliminary border consisted of the Juba River (from the Red Sea until it intersects the 6°N latitude parallel). This part, however, is located entirely in modern-day Somalia because of Britain's transfer of Jubaland to Italy in 1925 (see Kenya–Somalia).

[94] See Eritrea–Ethiopia.

[95] McEwen 1971, 105.

of Italy in 1896,[96] Menelik mobilized his forces to occupy the southern reaches of his claims outlined in the 1891 circular.[97] "Since Britain had only a paper claim to the disputed area, and had never established effective occupation there, it became apparent that the Ethiopian intention was to continue their expansion into territory that had no visible display of sovereignty until they came into contact with the northern British outposts."[98] Between 1899 and 1902, Menelik made various proposals to settle the border, which Britain rejected. In 1902, Britain sent an expedition to survey the disputed region, which was undertaken with Ethiopia's consent. The surveyors were requested to "recommend a line that followed natural features and tribal limits, taking into account Menelik's previous proposals."[99] The two leaders of the expedition subsequently made separate but similar recommendations: "a boundary that followed physical features and separated the Galla from the non-Galla population" and "Ethiopia should receive all the territory of which she was then in occupation." Britain recognized these proposals as "a reasonable compromise between the two competing claims." For this reason, we code Galla (decentralized group) as directly affecting the border.

Following these concessions, a subsequent Anglo–Ethiopian agreement of 1907 mentioned mountain summits and hills, minor rivers, a major lake (Rudolf/Turkana), minor lakes, meridians, and tribal limits.[100] Based on the map provided by McEwen (1971, 104), we assess that mountains are the primary feature because a series of mountain summits and hills is the longest feature. A proposed Anglo–Ethiopian commission to demarcate the border was delayed, which led to continuing conflicting claims over several strategic wells (to secure water supply in the dry season). An exchange of notes in 1947 between Britain and Ethiopia clarified these issues. We code this as a major revision because it concerned areas of stated strategic interest, although most of the final border followed the limits set out in 1907.

Back to TOC

C.6.14 Egypt–Sudan

Overview. Originally formed in 1899 as an intraimperial border between British Egypt and the Anglo-Egyptian Condominium (Sudan). A major revision occurred in 1902 (changed features: change location of straight lines). Historical political frontiers (PCS: Egypt; other states: Egyptian Sudan (and Mahdist); decentralized groups: Ababda/Beja) directly affected the border. The primary feature is a straight line (parallels/meridians). A secondary feature is a major river (Nile).

Details. Modern-day Egypt and Sudan each have long histories of statehood. These often intertwined in ways that not only shaped the contemporary Egypt–Sudan border, but also entangled Britain in both areas. The Ottoman Empire conquered Egypt in 1517, and its southern frontier roughly corresponded with the second cataract of the Nile,[101] which had been an important

[96] Wesseling 1996, 245.

[97] See the North East Africa 1896–1900 map in Ajayi and Crowder 1985 for Ethiopia's expanding frontiers.

[98] McEwen 1971, 105.

[99] McEwen 1971, 106.

[100] See Hertslet 1909, 445 for the text.

[101] Wesseling 1996, 65; and see here for a map.

landmark throughout Egyptian history.[102] Muhammad Ali, who served nominally as the Ottoman viceroy of Egypt beginning in 1805, engaged in aggressive territorial expansion that pushed farther south.[103] In 1820, his army overthrew the Sennar dynasty in modern-day Sudan, which initiated a six-decade-long period of Egyptian rule over Sudan. The Equatoria Province, which was founded in 1870 and reached into modern-day Uganda, marked the southern limits of this expansion.

The foundation of Equatoria marked the beginning of British influence in modern-day Sudan. The first two governors of Equatoria were an English explorer (Samuel Baker) and a former Army officer (Charles Gordon), who allied with the Khedive of Egypt to expand Egyptian influence farther south and to suppress the slave trade. In 1882, Britain invaded Cairo and established a legally ambiguous sphere of influence over Egypt. In 1885, the growing Mahdist movement defeated and killed Charles Gordon (who had become Governor-General of Sudan) and his army at Khartoum. This defeat temporarily ended Egyptian, and therefore British, influence in Sudan. As of 1885, "[t]he frontier of Egypt was drawn where it had been before Mohammed Ali had started Egypt's adventure in the Sudan, that is, near Wadi Halfa, on the second cataract."[104] Conversely, the Mahdist state's sphere of influence lay just south of this point.[105] The Mahdist state governed Sudan until 1898, when the British (who had long vowed to avenge Gordon's death) militarily defeated the Mahdi at Omdurman. After winning the showdown with France at Fashoda later that year,[106] Britain had established unquestioned supremacy over both Egypt and Sudan.[107]

In 1899, the British government secured an agreement with the Government of the Khedive of Egypt (which was itself controlled by Britain) to establish administrative boundaries for Sudan. The boundary consisted almost entirely of a parallel line (22°N) that corresponds almost exactly to the historical limit at the Nile's second cataract. For this reason, we code historical political frontiers (both Egypt and the Mahdist state) as directly affecting the border, and the primary feature as straight lines (parallels/meridians). The agreement refers explicitly to historical political frontiers: "Art. I.–The word 'Soudan' in this Agreement means all the territories south of the 22nd parallel, which—(1) Have never been evacuated by Egyptian troops since the year 1882; or (2) Which having before the late rebellion in the Soudan been administered by the Government of His Highness the Khedive, were temporarily lost to Egypt, and have been reconquered by Her Britannic Majesty's Government and the Egyptian Government . . . "[108]

The border deviates in two ways from the 22°N parallel. First, a small part of Sudan is located north of the parallel along the Nile, known as the Wadi Halfa salient. This feature was created several months after the initial formation of the border in 1899. For this reason, we code the Nile as a secondary feature. Second, in 1902, Britain began to administer the farthest-east area (ending at the Red Sea) north of the parallel as part of Sudan (the Halaib Triangle) and a piece of territory just west of this and south of the parallel as part of Egypt (Bir Tawil). We code this as a major border revision. The goal was to improve administration by placing the grazing grounds of the Beja into

[102] See here.
[103] See Wesseling 1996, 35–65 for general background on the following.
[104] Wesseling 1996, 65.
[105] See the map in Holt and Daly 2014, 183.
[106] See Chad–Sudan.
[107] Wesseling 1996, 252–57.
[108] Quoted in Brownlie 1979, 113.

Sudan and the lands of the Ababda group into Egypt,[109] and therefore we code these decentralized groups as directly affecting the border. Both deviations from the parallel are currently disputed by Egypt and Sudan because it is unclear whether they were intended to constitute permanent boundaries or temporary administrative frontiers.

Back to TOC

C.6.15 Chad–Sudan

Overview. Originally formed in 1899 as an interimperial border between the French Congo and the Anglo-Egyptian Condominium (Sudan); Chad became a distinct colony in 1903. A major revision occurred in 1919 (changed features: clarify local features). Historical political frontiers (PCS: Darfur, Wadai) directly affected the border. The primary feature is a straight line (parallels/meridians). Secondary features are minor rivers, minor lakes, topography (mountains), and towns/villages.

Details. Britain gained sole European control over Egypt in 1882, despite the earlier formation of an Anglo–French commission in 1876 to oversee Egypt's finances.[110] Over the next sixteen years, France persisted in its claims to a share of both the Lower Nile in Egypt and the Upper Nile in Sudan. France organized and deployed several missions in the 1890s to occupy the Upper Nile, when the Mahdist state controlled Sudan. This aim related to France's decades-long process of expanding eastward from Senegal across the Central Sudan;[111] "control of the Upper Nile would complete the spectacular work of French explorers in West and Equatorial Africa and provide the final link in a trans-African empire stretching from the Atlantic to the Indian Ocean."[112] In 1898, a French military unit reached Fashoda, a location targeted because it was "the first station downstream from the many lakes and tributaries that combine to form the While Nile [and therefore] it was the point where the Nile waters could best be controlled."[113] Earlier in 1898, Britain had defeated the Mahdist state in Sudan. Afterwards, its troops marched to confront French troops at Fashoda. This showdown resulted in France relinquishing all claims to the Nile, and the Anglo–French Convention of 1898 and various revisions in 1899 affected numerous bilateral borders throughout the continent.[114]

The last element of Britain and France's post-Fashoda settlement was to determine the limits of France's farthest-east territory, which yielded the present border and the Central African Republic–Sudan border. The treaty outlines three main segments of the Anglo–French boundary. Starting from the south (at the limits of the Congo Free State), (1) the border follows the Nile-Congo watershed until the 11°N parallel;[115] (2) between 11°N and 15°N, the border would "separate, in principle, the Kingdom of Wadai from what constituted in 1882 the Province of Darfur"; and (3)

[109] Brownlie 1979, 112.
[110] See Egypt–Sudan and Wesseling 1996, 35–52.
[111] See the entries for the intra-French borders.
[112] Collins 1968, 37.
[113] Collins 1968, 4.
[114] See Hertslet 1909, 785–97 for the text.
[115] The Nile-Congo watershed affected only the Central African Republic–Sudan border, not the present border; these two French colonies were not distinguished until after this treaty.

north of 15°N, the border consisted of a meridian line.[116] The treaty also acknowledged the need for commissioners to more precisely determine the limits of Darfur and Wadai.[117]

Britain and France did not agree on a final determination of the limits of Darfur and Wadai for two decades. This was partly because the historical frontier between these states was contested and had shifted constantly as they fought each other. Between the core territories controlled by each of Darfur and Wadai lay various petty sultanates of disputed control: "the debatable border lands of Dars Tama and Gimr in the north, Dar Masalit in the centre, and Dar Sila in the south . . . 'the old frontier between Darfur and Wadai' [did not] mean anything . . . there was not, and never had been, any stable, clearly defined, and generally recognized frontier between Darfur and Wadai."[118]

The main reason for the lengthy settlement, though, was agency by Ali Dinar, the Sultan of Darfur. Upon regaining control over Sudan in the late nineteenth century, Britain deemed it too expensive to rule Darfur directly. Instead, they allowed Ali Dinar to govern Darfur under nominal British control, as long as he was friendly to British interests. Over the ensuing decades, the Sultan retained his army and fought France (as well as Mahdist troops and neighboring groups) to enforce his claimed control over petty sultanates in the frontier region. Britain and France settled the border only after Britain deposed the Sultan, with the two powers ultimately splitting the disputed sultanates.

The Sultan of Darfur came into conflict with France in 1909 when French troops moved eastward to conquer the Wadai empire. Ali Dinar claimed the disputed petty sultanates as Darfur's historical tributary states. A series of battles between France and Darfur yielded fluctuating control over the sultanates, ultimately resulting in French victory in 1912. In diplomatic communications with France, British officials repeatedly stressed that they lacked the direct military presence in the area to prevent Ali Dinar from attacking French positions, given his desire to control Dar Tama and Dar Masalit in particular.[119] This, in turn, prompted Britain to seek to settle the border with France.[120] Each side then sought to persuade the other with evidence regarding which sultanates were controlled by either Wadai or Darfur in 1882, in reference to the 1899 Declaration.

Neither power gave in. Although they had agreed in principle to let a neutral party arbitrate the dispute, when World War I broke out, they agreed to revisit the matter after the war. During the war, Britain militarily deposed Ali Dinar after he allied with the Ottomans. Given the pressure the Sultan had placed on Britain to press territorial claims that did not convince France, his removal cleared the way for settlement. At the Peace Conference in Versailles in 1919, during a Supplementary Convention, the British Governor-General of Sudan stated in a private letter to the British High Commissioner in Egypt: "The main point is that we have let the French keep Tama and they are letting us keep Masalit and Gimr."[121] A Convention signed in 1919 confirmed this division:

[116]Hertslet 1909, 796–97.

[117]The stipulation to follow Darfur's frontier as of 1882 specifically sought to exclude any changes that had occurred since the formation of the Mahdist state. Britain attached similar stipulations to Egypt's borders; see Egypt–Sudan.

[118]Theobald 1965, 64, 69. See Panel B of Figure 7 in the article for the location of these petty sultanates, and see the entry for Darfur/Wadai in Appendix B for more details on their contested frontier.

[119]Theobald 1965, 98, 109.

[120]Theobald 1965, 94.

[121]Theobald 1965, 220.

"From this point [the boundary] shall be drawn in such a manner as to separate in principle the countries of Dar Kouti, Dar Sula (Sila), Wadai, and Dar Tama from the countries of the Taaisha and other tribes subject to Darfur and from those of Dar Masalit and Dar Gimr."[122]

An Anglo–French protocol in 1924 provided details on the border, mentioning various minor rivers, minor lakes, mountains, and decentralized groups (which we code as towns/villages); all of which we code as secondary features.

Back to TOC

C.6.16 Central African Republic–Sudan

Overview. Originally formed in 1899 as an interimperial border between the French Congo and the Anglo-Egyptian Condominium (Sudan); Ubangi-Shari (Central African Republic) became a distinct colony in 1903.[123] A major revision occurred in 1919 (changed features: clarify local features). Historical political frontiers (PCS: Darfur and Wadai) directly affected the border. The primary feature is a major watershed (Nile-Congo).

Details. The present border was formed by the same 1899 Anglo–French treaty as the Chad–Sudan border, where we provide more details on all of the following. The southern part of the boundary in this treaty was the Nile-Congo watershed, which comprised the majority of the CAR–Sudan border in the final colonial map. Therefore, we code this as the primary feature. This segment did not undergo subsequent major revisions. Moving north, the next segment described in the 1899 Declaration (and the only other one that affected the present border) was to separate PCS Darfur from PCS Wadai; therefore, PCS directly affected the present border. Determining the limits of these historical states involved a lengthy entanglement with the Sultan of Darfur. This dispute was not finally settled until 1919 (a major revision), with the precise delimitation occurring in 1924 (which we do not code as a major revision). Brownlie does not identify any discernible features in the part of the border north of the watershed.[124] Therefore, we do not code any secondary features.

Along the border with CAR, the separation between Sudan and South Sudan in 2011 occurred roughly at the Nile-Congo watershed. Therefore, the CAR–South Sudan border consists entirely of the watershed and the CAR–Sudan border consists of the southern-most part of the original partition that sought to divide Darfur and Wadai between Britain and France, respectively.

Back to TOC

C.6.17 Sudan–Uganda

Overview. Originally formed in 1902 as a de facto intraimperial border when Britain first defined a division between the Anglo-Egyptian Condominium (Sudan) and Uganda.[125] Major revisions

[122] Brownlie 1979, 626.

[123] The majority of this border (except the northern-most part) became the Central African Republic–South Sudan border in 2011.

[124] Brownlie 1979, 600. The one mountain included on his map, Jebel Manda, lies along the watershed.

[125] This became the South Sudan–Uganda border in 2011.

occurred in 1910 (large territorial transfer: Lado Enclave from DRC to Sudan), 1914 (large territorial transfer: part of Lado Enclave to Uganda, other territories to Sudan), and 1926 (small territorial transfer). Historical political frontiers (decentralized groups: Turkana, others) directly affected the border. The primary feature is straight lines (non-astronomical). Secondary features are topography (mountains) and minor rivers.

Details. Britain established a protectorate in 1894 covering the southern areas of present-day Uganda, and formed most of Uganda's initial borders in the 1890s.[126] Moreover, agreements with Germany in 1890 and the Congo Free State in 1894 established a British sphere of influence over the Upper Nile and what later became Sudan. Competition with France, who sought to establish a foothold on the Nile, spurred British administrators to expand their presence northward in Uganda;[127] they were unable to directly occupy Sudan because of the establishment of the Mahdist state. In 1898, Major Macdonald concluded numerous treaties with local rulers located to the northeast of the upper Nile, but Britain's ongoing conquest of Sudan at this time left unclear the upper extent of Uganda.[128] Britain gained permanent control over Sudan in 1898 following the reconquest of the Mahdist state and an accord by which France agreed to withdraw from the Nile.[129]

An Order in Council in 1902 first articulated the entire extent of the Uganda Protectorate, as earlier documents had mentioned only historical states located in southern Uganda. We code this as the initial formation of the Sudan–Uganda border. The Order specified provinces and districts, but not precise territorial limits.[130] This Order nonetheless suggested preliminary borders because Special Commissioner Harry Johnston supplied the list of provinces and districts. In his view, "as far as the northern boundary was concerned (i.e. the 5°N between the Nile and Lake Rudolf) Macdonald's treaties had given him the authority to annex the territory to Uganda."[131] This source further asserts that the 1902 Order in Council "confirmed" Johnston's assumption of power, despite the reluctance of the Foreign Office to formalize "such a bold assertion" of Uganda's northern frontier.[132] Indicating the strategic importance of Lake Rudolf (now Lake Turkana, a major lake), in 1900, Johnston stated his hope that a remote station established in the north "will be the beginning of an advance of the Administration towards Lake Rudolph."[133]

A major revision occurred in 1910 when the Lado Enclave reverted to British control and was attached to Sudan.[134] The Lado Enclave comprised territory west of the Nile, which therefore comprised a lengthy horizontal frontier for the Sudan–Uganda border until the Nile intersects with the 5°N parallel.

Two major, interrelated territorial exchanges occurred in 1914. The southern portion of the Lado

[126] See Tanzania–Uganda, Rwanda–Uganda, Congo (Bel.)–Uganda, and Kenya–Uganda.
[127] Barber 1965, 27.
[128] Ingham 1958, 74–75, 87; see also the map in Barber 1968, 5.
[129] See Egypt–Sudan and Chad–Sudan.
[130] See the text in Hertslet 1909, 404.
[131] Barber 1965, 28.
[132] See also the map in Uganda Department of Lands and Surveys 1962, 75, which depicts territory as far north as the 5°N parallel as originally belonging to Uganda via the 1902 Order in Council.
[133] Quoted in Barber 1965, 28.
[134] See Congo (Bel.)–Sudan.

Enclave was transferred to Uganda. Simultaneously, all the territory located east of the Nile and north of a newly delineated frontier was transferred to Sudan.[135] The stated goal of the new border was to not partition so-called "tribal" groupings across Sudan and Uganda.[136] For example, all the Bari were explicitly grouped into Sudan and all the Turkana and Lugwari into Uganda. For this reason, we code decentralized groups as directly affecting the border. However, the extent to which the border actually reflected the limits of these "tribal" groupings is unclear for various reasons: (a) relatively limited knowledge about the area (even after a commission surveyed the border), (b) the inherently fuzzy limits of decentralized groups and the intermixture among them, and (c) the nomadic nature of groups such as the Turkana. One particularly problematic aspect of the Order in Council of 1914 that enacted the new border was to state that part of the border should follow "the southern boundary of the Kuku tribe," which was not well-defined. Sudan and Uganda exchanged correspondences between 1929 and 1936. Although no formal agreement was reached, they agreed on an interpretation of the phrase and a *de facto* local working agreement. We do not code this as a major revision given the uncertainty about what, if any, territory changed hands.

The final major revision occurred in 1926, although this involved a much smaller transfer of territory than in 1914. Various decentralized groups directly affected the border in this case as well. In 1924, a Conference involving administrative representatives from Kenya, Sudan, and Uganda "found that the interests of the natives of Teretenia and Madial were predominantly on the Sudan side of the boundary and that their chiefs were willing to come under the Sudan's administration, recommended that the boundary on that point was to be modified in such a way as to transfer to the Sudan the territory occupied by the natives of Teretenia and Madial . . . They both agreed that the recommendation was quite sound from the administrative point of view and would greatly facilitate the control of sleeping sickness."[137]

Regarding alignment, the section located east of the White Nile consists of the territory transferred from Uganda to Sudan in 1914, plus the border created by the additional territorial transfer in 1926. This section consists of a series of straight-line segments that connect various mountains. This comprises the majority of the entire border, which is why we code straight lines (non-astronomical) as the primary feature. West of the Nile, the border consists of the boundary that resulted from transferring part of the Lado Enclave to Uganda. This section of the border consists of various

[135] In the east, the new frontier was located at roughly the same latitude as the northern tip of Lake Turkana. Almost all the territory transferred to Uganda lies south of all the territory transferred to Sudan, although they overlap somewhat to create a short segment of overlap along the Nile. However, in this short segment, the border itself lies almost immediately east of the Nile and entirely within Sudan. Thus, the territorial transfers in 1914 removed the Nile entirely as a feature of the border, which constitutes an exception to the general pattern of using major rivers to delineate borders. Administrators offered a specific reason that they wanted both banks of the Nile to lie within the same colony at all points: "The Sudan Government thought that it was desirable that the boundary between the two countries should be a tribal one and should extend across the Nile in order that both banks be under the same administration. For otherwise natives resenting any form of administration or wanted by the authorities of either country might escape justice by simply crossing the river" (Taha 1978, 3; see also Collins 1962).

[136] McEwen 1971, 261–62; Taha 1978, 3–6; Brownlie 1979, 1003.

[137] Taha 1978, 8; see also McEwen 1971, 263–64. Also in 1926, the transfer of the Rudolf Province from Uganda to Kenya (see Kenya–Uganda) changed the easternmost part of the Sudan–Uganda border to a newly formed Kenya–Sudan border, but did not alter any features of the remaining Sudan–Uganda border.

minor rivers, villages, and straight-line segments.

Back to TOC

C.6.18 Ethiopia–Sudan

Overview. Originally formed in 1902 as an interimperial border between Ethiopia and the Anglo-Egyptian Condominium (Sudan).[138] Historical political frontiers (PCS: Ethiopia; other state: Egyptian Sudan) directly affected the border. The co-primary features are minor rivers and straight lines (non-astronomical). A secondary feature is infrastructure (towns, forts).

Details. Shortly after Ethiopia's defeat of Italy at Adwa in 1896, the emperor signed a series of bilateral treaties with neighboring European powers to form most of Ethiopia's borders.[139] A border settlement with Sudan occurred last because Britain's Nile policy yielded stronger interests in Egypt and Sudan than elsewhere.[140] Menelik claimed broad frontiers for Ethiopia in an 1891 circular, many of which he enforced through military expansion during the 1890s. Britain delayed a settlement until they had a "moral force behind us in stating our claims," which would better enable them to press their "intention of recovering Egypt's lost provinces."[141] British agents referred repeatedly to historical political frontiers in their negotiations: "we have no intention of encroaching on territory which has always belonged to Abyssinia," and instead sought to gain "the whole of the territory between Abyssinia and the Nile which formerly belonged to Egypt."[142] British and Ethiopian agents disagreed over the precise nature of these frontiers, but British agents pushed back against less concrete claims: "ancient history does not count for much in modern negotiations [and] . . . for that matter it was open to doubt whether his [Menelik's] country was the Ethiopia known in ancient history."[143] Ultimately, these negotiations yielded a treaty in 1902.[144] Britain gained all areas previously controlled by Sudan except for Beni Shangul. British agents concluded, "much of what is ceded to Abyssinia . . . was formerly a bone of contention between Egypt and Abyssinia as the frontiers were never properly defined between these two countries."[145] These gains expanded Ethiopia's borders toward the Nile Valley.[146]

The border consists of minor rivers, straight lines (non-astronomical), and infrastructure (towns, forts). Based on a map accompanying the 1902 treaty[147] and Google Maps, we code both minor rivers and straight lines (non-astronomical) as the primary features; both are prominent, but neither is obviously more important than the other. Infrastructure is a secondary feature. Historical political frontiers (PCS: Ethiopia; other state: Egyptian Sudan) directly affected the borders for the reasons discussed above.

Back to TOC

[138] Part of this border became the Ethiopia–South Sudan border in 2011.
[139] See Eritrea–Ethiopia.
[140] See Egypt–Sudan.
[141] Quoted in Marcus 1963*b*, 84, 88.
[142] Quoted in Marcus 1963*b*, 88.
[143] Quoted in Marcus 1963*b*, 89.
[144] Hertslet 1909, 431.
[145] Quoted in Marcus 1963*b*, 89–90; see also Sanderson 1985*b*, 663.
[146] Marcus 1963*b*, 94.
[147] Hertslet 1909, 436–37.

C.7 SOUTHERN AFRICA

C.7.1 Regional Overview

Three European powers shaped the macro dynamics of border formation in southern Africa. Britain was the main power in the region, dating back to its conquest of Cape Town in the early nineteenth century. From this port city, British and Boer settlers expanded in a northeast direction throughout modern-day South Africa. Portugal had long-standing territorial claims along the east and west coasts, including a relatively concrete claim to Delagoa Bay (modern-day Maputo Bay). Germany entered the region later, in 1884, and annexed parts of South West Africa not previously claimed by Cape Colony or Portugal. Early claims were largely confined to the coasts, although white settlers had moved farther inland. In the late 1880s, Britain and Portugal began to compete for interior territory in Central Africa, with Britain ultimately gaining much of the disputed territory. Thus, certain aspects of macro-level claims were not settled until years after the Berlin Conference. Portugal's *contra-costa* goal was to connect Mozambique in the east with Angola in the west, whereas Britain sought to create a north-south route from Cape to Cairo. These two colonizing goals were incompatible with each other, but each was still in play in the late 1880s because the Berlin Conference did not adjudicate territorial claims anywhere outside the Congo region.

Throughout the region, precolonial states, frontiers of white settlement, and major water bodies often determined where a power's claims ended. Therefore, they constituted the main meso-level objects of contention. As white settlers expanded throughout modern-day South Africa, they came into contact with traditional Sotho, Swazi, and Zulu states. The former two states lost territory to Europeans, but African agency in the form of strategic alliances with Britain secured their separation from white-controlled states. The Zulu were militarily defeated, but their homeland rounded out territories claimed by Britain vis-à-vis Portugal. This territory was of strategic interest to Britain to block the Boer republics from gaining access to the sea. When Britain (and its main agent, Cecil Rhodes' British South Africa Company; BSAC) sought to expand farther north, alliances with the Tswana, Ndebele, and Lozi were pivotal for blocking Boer and Portuguese expansion.[1] These rulers were not duped into treaties they did not understand. Instead, given threats posed by other African states and by Boer expansion, they strategically sought to ally with Britain to secure their territory; although the Ndebele were later defeated militarily by BSAC. Opportunities for white settlement shaped not only the frontiers of South Africa, but also expansion into Zimbabwe (via BSAC) and Britain's claim to Malawi (missionaries in the Shire Highlands). Major water bodies often shaped the frontiers of these settlements, including the Orange and Limpopo Rivers in South Africa and Lake Malawi in Malawi. Britain, Portugal, and Germany each sought access to the Zambezi River, which shaped both inter- and intraimperial borders.

The following entries start with intra-British borders, moving northeast to analyze intra-British (and Boer) expansion over time from the Cape (South Africa) to, eventually, Malawi. Next, we present interimperial entries (all of which are between Mozambique and a British colony) on the east coast, mostly moving south to north. Finally, we discuss interimperial borders along the west coast, which are mostly ordered chronologically by the initial year of border formation.

[1] Of these, only the Tswana are not included as a PCS in our data set because they lack a discernible polygon from the A&C maps for us to digitize. BSAC also secured a treaty with the Gaza, but London blocked annexation in support of long-standing Portuguese territorial claims.

Back to TOC

C.7.2 Lesotho–South Africa

Overview. Originally formed in 1843 as a de facto British intraimperial border between PCS Lesotho and the white-controlled states of Cape, Natal, and Orange Free State (South Africa); Lesotho formally became part of the British empire in 1868. Major revisions to the border occurred in 1849 (large territorial transfer: Napier line to Warden line) and 1868 (changed features: clarify local features). Historical political frontiers (PCS: Lesotho; white settlement: Orange Free State) directly affected the border. The co-primary features are minor rivers and minor watersheds. A secondary feature is a major river (Orange).

Details: Background on South Africa.[2] European colonial presence in southern Africa dated back to the establishment of a Dutch settlement at Cape Town in 1652, originated by the Dutch East India Company. The frontiers of white settlement expanded eastward and northward over the next century-and-a-half; and during the Napoleonic Wars, British rule replaced Dutch rule in Cape Town. White frontiers continued to expand throughout the nineteenth century, initially spurred by Boer settlers seeking to move away from British-controlled territory and later by Europeans seeking wealth from diamond and gold mining. These migrations resulted in the creation of numerous additional colonies, with three lasting into the twentieth century: Natal, the South African Republic (Transvaal), and the Orange Free State. In 1910, these three colonies federated with Cape to form the Union of South Africa. The borders of each colony changed frequently throughout the nineteenth century to incorporate various short-lived Boer republics and previously independent African groups.[3]

Details: White migrants encounter the Sotho state.[4] During a major migration wave in the 1830s, known as the Great Trek, Voortrekkers sought to gain territory controlled by the Lesotho kingdom. This state had formed in the 1820s and, thus, lacked long-standing boundaries. This competition spurred British officials to draw preliminary frontiers for the kingdom. The Sotho and the Governor of the Cape Colony first signed a treaty of friendship in 1843, the Napier treaty, which we code as the first year of border formation.

In 1849, the British resident of the future Orange Free State drew a border farther east (the Warden line), which contracted Lesotho's territory. Brief wars between Sotho and the British in 1851 and 1852, followed by Britain formally recognizing the Orange Free State in 1854, left the final boundary unsettled between the Sotho and Boers. An attack by the Orange Free State in the 1860s led the Sotho to request protection from the British against the Boers. Britain annexed the Sotho kingdom in 1868, creating the colony of Basutoland. Sanders identifies six distinct borders between 1849 and 1868 (the other years are 1858, 1861, 1866, and 1867), and notes that the border in 1868 established the boundaries of modern Lesotho.[5] These border changes resulted in the Sotho

[2]The following draws from Shillington 1987.

[3]See the maps in Marks 1985*b*, 384–85 for a summary of the major changes, which we discuss as relevant for South Africa's international borders in the present and the following bilateral border analyses.

[4]The following draws from Shillington 1987, 67–70, 77–78, 103–4.

[5]Sanders 1975, 242.

losing a sizable portion of their pre-Boer western frontier to the Orange Free State.[6] Thus, in this case, a historical state was partitioned even though leaders of the precolonial state were directly involved in setting the border. We code the first year, 1849, as a large territorial transfer because this appeared to be the largest contraction of Lesotho's territory relative to 1843. We code 1868 as another major revision to indicate the changes in the border that happened after 1849.

The border alignment consists of the watershed of the Drakensberg River in the northeastern and southeastern sectors.[7] The western and northern segments for the most part follow the Caledon River. The Orange River also comprises a minor segment of the border in the southwest. Thus, we code minor water bodies (rivers and watersheds) as co-primary features of the border and a major river as a secondary feature.

Details: Preventing amalgamation into South Africa. Despite its borders remaining constant after 1868, Lesotho experienced various changes in its legal status. In 1871, Basutoland was incorporated into the Cape Colony. Following successful Sotho armed resistance in the Gun War of 1880–81, the Cape government handed control back to the British in 1884, which reconstituted Basutoland as a separate colony. Although this episode was the final transfer of sovereignty over Lesotho until its independence in 1966, subsequent episodes of African agency contributed to Basutoland remaining a distinct colony.

Britain originally planned to incorporate the three High Commission territories of Basutoland, Swaziland, and Bechuanaland into the Union of South Africa. British officials repeatedly declared that African opinion would influence any decisions concerning transfers. Over time, the Union deepened its repressive policies toward Africans, including the Native Lands Act of 1913, the Representation of Natives Act of 1936 that removed Africans from the common roll in Cape, and apartheid policies starting in 1948. Africans in the High Commission territories consistently espoused their desire to remain separate, rejecting overtures by the Union to London to incorporate these territories. "[T]here is a sense in which the Africans saved themselves, acting on the principle of the Sotho chief who said 'You must object all the time so that it will be known that you have been objecting', and not keep quiet until transfer took place. Africans saw to it that their hostility – as much to the general native policy of the Union as to the specific issue of transfer – was seen to grow steadily."[8]

Leaders from these colonies visited London at various times as part of deputations that protested against transfer plans under discussion, including the Basuto in 1907 and the Swazi in 1922.[9] Various petitions sent to London (e.g., Ngwato in 1910, Basuto in 1953) reinforced these views.[10] In response to actions such as these, British officials and administrators repeatedly stated how African opposition made it difficult to justify a transfer. For example, in the 1920s, an official proclaimed, "[a]ll existing indications point to strong opposition on the part of the Bechuana tribes and in the face of their opposition (particularly that of Khama[11] ... it would be quite impossible

[6] Brownlie 1979, 1109.
[7] Brownlie 1979, 1110.
[8] Hyam 1972, 181; see also Spence 1971, 496, 499.
[9] Hailey 1963, 31; Hyam 1972, 98.
[10] Hyam 1972, 77–78; Hailey 1963, 101.
[11] Khama III was the *Kgosi* (ruler) of the Ngwato people.

for His Majesty's Government to justify the transfer to the House of Commons."[12] In 1927, a British administrator toured South Africa, and "[h]is visit convinced him that African feeling was 'if anything more opposed than at any recent time to transfer.' Paramount chiefs in Swaziland and Bechuanaland had insisted this was so."[13] In a subsequent tour of South Africa, "[t]he Duke of Devonshire visited South Africa in the middle of 1939 and was thoroughly impressed with the strength and unanimity of the chiefs' views. Tshekedi told him his people would sooner die of thirst than live under the Afrikaners."[14] The planned transfers never occurred, and each of the three High Commission territories gained independence separately in the 1960s.

Back to TOC

C.7.3 South Africa–Swaziland

Overview. Originally formed in 1866 as a de facto British intraimperial border between the Boer-governed South African Republic (South Africa) and PCS Swaziland; Swaziland formally became a European colony in 1894 when it was annexed by the South African Republic. A major revision occurred in 1879 (changed features: clarify local features). Historical political frontiers (PCS: Swazi; white settlement: South African Republic) directly affected the border. The primary feature is straight lines (non-astronomical). Secondary features are minor rivers, minor lakes, and topography (mountains).

Details: Background on Swaziland.[15] Following wars with the Zulu in the 1810s, the Ngwane (Swazi) people migrated to the Usutu valley, where the rulers Sobhuza and Mswati founded the state that existed when Europeans penetrated the area. Over time, the Swazi expanded as far south as the Pongola river. The Zulu regularly raided the area between the Usutu and Pongola, and the Zulu remained the main threat to Swazi independence until the 1880s. The Pongola was the effective northern frontier of Zulu expansion,[16] and the southern frontier of the Swazi state; this mattered for the border deliberations discussed below.

Details: White migrants encounter the Swazi state.[17] Eastward migrations by Boers across present-day South Africa occurred throughout the nineteenth century.[18] They reached the western hinterland of Swazi territory in the 1830s and secured deeds of sale from the Swazi in 1846 and 1855, although these did not affect the ultimate border in any discernible way.

The first demarcation of a border occurred in 1866 when representatives from the South African Republic were sent to set beacons for a boundary. The Swazi objected to the proposed border, but British authorities accepted the beacons as starting points for a subsequent boundary survey they commissioned. In 1875, the Swazi and Boers signed an agreement that confirmed the Republic's dominion over the kingdom, although without affecting the border.

[12] Quoted in Hyam 1972, 87–88.
[13] Hyam 1972, 117.
[14] Hyam 1972, 182.
[15] See Shillington 1987, 38–41, 125–26, especially the map on p. 40; and Bonner 1983, 94.
[16] Thompson 1996, 83.
[17] See Gillis 1999, 30–36 for much of the following background information and quotes.
[18] See Lesotho–South Africa.

In 1879, the Alleyne Boundary Commission recommended what became the final border.[19] The goals of the commission were "to meet Swazi objections to the beacons placed by the Boers and to define a border along the whole of the northern and western territory separating the two. Its task was, in Wolsley's words, to effect 'a final settlement,' guided by principles of 'justice and expediency.' To achieve these ends, however, it was to adhere, as far as possible, to the beacons already placed by the Republic." Various areas were contended, and in all cases, the commission largely sided with the Boers. A particularly egregious decision was to set the southern boundary of Swaziland north of the Pongola River. The Swazi claimed that this had always been their boundary with the Zulu, a view that received substantial corroboration from individuals and officials in Zululand and Natal.[20] The 1881 Convention that settled the First Boer War incorporated the recommendations of the Alleyne Commission. Nonetheless, Bonner (1983, 155–59) infers from internal communications among British officials (which were unknown to the Swazis) that "the Swazi could have obtained a great deal more from the boundary settlement than they ultimately did," but their opportunity "slipped away" because they did not explicitly protest against the arrangement.

The border alignment consists of a series of straight-line segments that connect various features such as minor rivers, minor lakes, and mountains.[21] This includes the Lebombo Mountains, the primary feature of the Mozambique–Swaziland border. Consequently, we code straight lines (non-astronomical) as the primary feature and the others as secondary features.

Details: Preventing amalgamation into South Africa. Subsequent episodes of African agency contributed to keeping Swaziland a distinct colony from South Africa, with a brief interlude from 1894–1903.[22] The Swazi maintained cordial relations with both the Boers and the British, which prevented the destructive wars with Europeans suffered by neighboring peoples such as the Zulu and Pedi; in fact, the Swazi allied with whites in their wars against these African groups in the 1870s and 1880s.[23] The South African Republic desired to annex Swaziland, in part to enable a route to the sea. However, Britain and Natal wanted the Republic to remain landlocked, and during the 1881 Convention to settle the First Boer War, Natal pushed to secure a provision for Swaziland's independence. Britain changed course and allowed the South African Republic to incorporate Swaziland only after annexing Tongaland—which blocked the Boers' path of the sea even with Swaziland in their domain. This arrangement, though, was temporary because Swaziland became a British High Commission territory in 1903, following the Second Boer War. Swaziland retained this status until independence in 1966; as we discuss in Lesotho–South Africa, African agency influenced the ultimate decision to not incorporate the High Commission territories into South Africa.

Back to TOC

[19] See Gillis 1999, 35 for the sketch map drawn by the Alleyne Boundary Commission.

[20] See also "Background on Swaziland" above.

[21] Brownlie 1979, 1313–16.

[22] For the following, see the aforementioned citations as well as Hailey 1963, 10–14.

[23] However, accommodating Europeans also imposed many costs upon the Swazi. Their borders excluded numerous areas within their historical domain and, within these borders, the Swazi were compelled to alienate a large amount of land for European settlers.

C.7.4 Botswana–South Africa

Overview. Originally formed in 1885 as a de facto British intraimperial border between the Bechuanaland Protectorate (Botswana) and two parts of present-day South Africa (the white state of South African Republic and the British Bechuanaland crown colony). A major revision occurred in 1891 (new segment). Historical political frontiers (other state: Tswana; white settlement: South African Republic) directly affected the border. The co-primary features of the border are a major river (Limpopo) and a minor river.

Details. The creation of modern-day Botswana reflected competition between Britain and the independent Boer republics that had broken off from Cape Colony. Britain feared that Boer expansion (possibly in alliance with Germany) would block the possibility of northward British expansion. Consequently, Britain secured treaties with Tswana rulers north of Cape Colony, who themselves strategically sought protection from Boers and neighboring African groups.

The Boer settlers of the South African Republic had, historically, claimed the Limpopo River (major river) as their northwestern frontier.[24] But the Republic sought to move farther southwest, where the Tswana people lived. In 1883, Boers proclaimed the creation of two new republics, Stellaland and Goshen. Each was located west of the South African Republic, and they reached as far north as the Molopo River. A renegotiation of the Republic's western border in 1884 failed to stem Boer penetration deeper into Tswana territory.[25]

Britain feared that Boer expansion could block possibilities for future British expansion to the north, and they particularly feared the Boers allying with Germany. Consequently, Britain responded by securing treaties with Tswana rulers located west of the South African Republic (and north of Cape Colony). The most important was Khama III of the Bamangwato, considered to be the most powerful Tswana ruler, but Britain also gained treaties with Gaseitsiwe of the Ngwaketse and Sechele of the Kwena. The Tswana rulers acted strategically, as they sought safeguards from the Boers and from the Ndebele, located to their east.[26] Khama actively sought British protection, having earlier been rebuffed in 1876.[27]

On the basis of these treaties, Britain proclaimed two new territories in 1885, a protectorate and a crown colony.[28] The Bechuanaland Protectorate, which corresponds with present-day Botswana, was located farther north. It is separated from the crown colony (British Bechuanaland) by the Molopo River and, farther east, from the South African Republic by the Limpopo River.[29] A major border revision occurred in 1891 when the boundaries of British Bechuanaland were extended far-

[24] This boundary was first formally confirmed in the Pretoria Convention of 1881, signed with Britain, which ended the first Boer War.

[25] Shillington 1987, 108–11.

[26] See Botswana–Zimbabwe.

[27] Roberts 1976, 156; Marks 1985*a*, 404–5, 412; Shillington 1987, 110, 126.

[28] Hertslet 1909, 190; Shillington 1987, 108–11.

[29] Britain distinguished the southern crown colony from the northern protectorate because of the relatively large white settlement south of the Molopo. Thus, the plan from the outset was to make the crown colony attractive for annexation by the Cape, who would then bear the costs of administration. By contrast, the northern Tswana land (which became the protectorate) was believed to be mostly desert and was therefore not viable to attract white settlement (Shillington 1987, 110–11).

ther west to include a segment along the Nossob River (north of the Molopo), which incorporated territory controlled by the Griqua people into British Bechuanaland.[30] The borders were unchanged following both the Cape's annexation of British Bechuanaland in 1895 and the federation of Cape and the South African Republic into the Union of South Africa in 1910.[31] Thus, the Molopo River (minor) and Limpopo River (major) became co-primary features of the Botswana–South Africa border. Overall, more than 90% of the length of the border follows rivers.[32]

Back to TOC

C.7.5 South Africa–Zimbabwe

Overview. Originally formed in 1890 as a de facto British intraimperial border between the Boer-governed South African Republic (South Africa) and corporate-governed territory in Southern Rhodesia (Zimbabwe). Historical political frontiers (PCS: Ndebele; white settlement: South African Republic) directly affected the border. The primary feature of the border is a major river (Limpopo).

Details. A scramble for the region known broadly as Zambezia occurred in the late 1880s.[33] Britain sought to expand its northern frontier in southern Africa to keep other powers out of the region (in particular Portugal and Germany) and to keep the independent Boer republics subordinate to the Cape and British rule. Both goals were threatened by new gold discoveries and the possibility of Boers forming interimperial alliances that would provide them with access to the sea. The PCS Ndebele affected these expansion plans because the state was located just north of the Limpopo river, the northern boundary of the South African Republic. Its ruler, Lobengula, faced continual pressure by Europeans to gain concessions over trading, land, and mineral rights. In 1888, the British High Commissioner for Cape Colony secured a treaty with Lobengula that declared the area to be a British sphere of influence—a reaction to a treaty the South African Republic had secured with Lobengula in 1887. Later in 1888, agents representing the diamond magnate Cecil Rhodes secured a dubious treaty with Lobengula that decreed rights over mineral production, known as the Rudd Concession.

In 1889, Cecil Rhodes gained a royal charter for the British South Africa Company (BSAC) to settle north of the Limpopo River. The charter defined the Company's field of operations as "the region of South Africa lying immediately to the north of British Bechuanaland, and to the north and west of the South African Republic [Transvaal], and to the west of the Portuguese Dominions."[34] These instructions made the Limpopo River the bilateral border between the South African Republic and the BSAC domain. A 1894 Order in Council established the Company's administration over Matabeleland, and a 1898 Order in Council established the country's administration over all of Southern Rhodesia.[35] The southern border of Southern Rhodesia was unchanged when the

[30] Hertslet 1909, 191.

[31] In Lesotho–South Africa, we discuss agency by Tswana elites to block proposed transfers to South Africa.

[32] Brownlie 1979, 1096.

[33] For the following, see Marks 1985*b*, 439–42; Roberts 1976, 155–62.

[34] Quoted in Hertslet 1909, 265.

[35] Hertslet 1909, 268.

South African Republic joined the Union of South Africa in 1910.[36] Thus, we code a major river as the primary feature of the border, a direct effect of the historical political frontier of the South African Republic, and a direct effect of PCS Ndebele because of their centrality to the founding of Southern Rhodesia.

Back to TOC

C.7.6 Botswana–Zimbabwe

Overview. Originally formed in 1890 as a British intraimperial border between the Bechuanaland Protectorate (Botswana) and corporate-governed territory in Southern Rhodesia (Zimbabwe). Major revisions to the border occurred in 1895 (changed features: clarify local features) and 1896 (new segment). Historical political frontiers (PCS: Ndebele; other state: Tswana) directly affected the border. The primary feature is minor rivers. Secondary features are minor watersheds, major rivers (Limpopo, Zambezi), and infrastructure (roads).

Details. The territorial status of the Bechuanaland Protectorate was ambiguous in its first decade of existence. We briefly review the legal details of Bechuanaland's territorial status to facilitate a more precise explanation of the role of African rulers in shaping the borders.

The initial Proclamation to establish the Bechuanaland Protectorate in 1885 staked out a delimited piece of territory under British influence, but did not specify how this territory was to be governed.[37] The royal charter that incorporated the British South Africa Company (BSAC) in 1889 defined its field of operations for securing concessions in the name of the British government as "the region of South Africa lying immediately to the north of British Bechuanaland, and to the north and west of the South African Republic, and to the west of the Portuguese Dominions." This encompassed the territory proclaimed under 1885 decree for the Bechuanaland Protectorate, but again without specifying any details of administration. The first acts concerning the administration of the Bechuanaland Protectorate were Orders in Council in 1890 and 1891. These dictated that the Resident Commissioner for Bechuanaland was to administer the territorial area originally specified for the Bechuanaland Protectorate in 1885,[38] plus "such territories north of the 22nd degree as belong to the Chief Khama of the Bamangwato." The Orders also specified that such territory lay west of Matabeleland, where there was a separate Resident Commissioner.[39] These Orders in Council therefore confirmed the division of spheres based on earlier treaties with African rulers: various Tswana rulers (in particular Khama of Bamangwato) for Bechuanaland, and Lobengula of Ndebele/Matabeleland for Southern Rhodesia.[40] According to Brownlie, "the evolution of the boundary was to depend primarily upon the territorial division between the lands of Chief Khama of the Bamangwato (Khama's Country) and the Kingdom of Lo Bengula (Matabeleland)."[41] This yields our coding that each PCS directly affected the border.

[36] Brownlie 1979, 1299–1303.

[37] See Hertslet 1909, 190–92 for this and the following summaries of documentary evidence. Note that the initial proclamation did not create boundaries extending as far north as present-day Zimbabwe.

[38] See Botswana–South Africa and Botswana–Namibia.

[39] The northeastern part of the territory encompassed by these orders was administered by BSAC.

[40] See Botswana–South Africa and South Africa–Zimbabwe.

[41] Brownlie 1979, 1082.

Two major revisions occurred after 1891. First, in 1895, certain disputed lands (between the Macloutsie and Shashi rivers in the south) were allocated to Khama's sphere. Second, in 1896, the previously uncertain northern segment was determined.[42]

Agency by Tswana chiefs was also pivotal for blocking a planned transfer of Bechuanaland from crown rule to BSAC.[43] Pressured by Cecil Rhodes, the British government agreed to a transfer in 1895. The rulers within the Protectorate "vigorously protested," proclaiming that they had consented to the protection of the British Queen specifically, who lacked to right to hand them over to a private company. Leading rulers, including Khama of the Bamangwato, traveled to England to protest directly to the government and staged a series of public meetings in several major British cities. Later that year, Secretary of State for the Colonies Joseph Chamberlain canceled the transfer. This resistance followed an earlier failed attempt by Rhodes to secure a treaty with Sekgoma, the ruler of the Batawana, under false premises to gain a foothold for white settlement in Bechuanaland; Sekgoma successfully protested to the British government to have the treaty rescinded. "The actions of Sekgoma in Ngamiland and Khama, Bathoen and Sebele in London were important displays of successful African diplomacy against the might of colonial South Africa and a major capitalist company. Their success was a great victory for the Tswana for it allowed their country to remain a Protectorate."[44] African agency also contributed to the failure of twentieth-century proposals to incorporate Bechuanaland into either Southern Rhodesia,[45] or South Africa.[46]

The border alignment was determined by Orders in Council in 1891, 1894, and 1898, which refer extensively to various rivers and their watersheds (Shashi, Tati, Ramaquaban). We code these minor rivers as the primary feature and their watersheds as a secondary feature. The later revisions to finalize the northern segment incorporated Hunter's Road, alternatively known as Pandamatenka Road, which we code as infrastructure.[47] The northern terminus of the border is the Zambezi River, which comprises a quadripoint that also includes Namibia and Zambia; and the southern terminus is the Limpopo River, which comprises a tripoint that also includes South Africa. Thus we code these major rivers as secondary features.

Back to TOC

C.7.7 Zambia–Zimbabwe

Overview. Originally formed in 1894 as a unilateral northern boundary for the British corporate-controlled territory of Southern Rhodesia; the territories that comprised Northern Rhodesia were officially constituted as colonies in 1899 and 1900, which made this an intraimperial border. The primary feature of the border is a major river (Zambezi).

Details. In 1889, Cecil Rhodes gained a charter for the British South Africa Company (BSAC) to colonize territory north of the Limpopo River, the northern border of the South African Republic.

[42] Brownlie 1979, 1083.
[43] Hailey 1963, 39–40, 53; Truschel 1974; Shillington 1987, 123–25.
[44] Shillington 1987, 125.
[45] Palley 1966, 214.
[46] See Lesotho–South Africa.
[47] For historical details on the road, see here.

Originally, the northern bounds of BSAC's charter were open-ended.[48] Rhodes came to an agreement with Harry Johnston, the British consul to Mozambique, to secure treaties with African rulers north of the Zambezi River on behalf of BSAC.[49] This river division was not chosen arbitrarily; throughout the colonial period, British administrators routinely stated their belief that European settlement was suitable south of the Zambezi only.[50] For example, in 1899, the High Commissioner of South Africa, Lord Milner, advised the Colonial Office that "the Zambezi was the natural boundary of what would one day be a self-governing British Africa. Beyond the river there was tropical country which would never hold a sufficiently numerous white population to be a self-governing state. The North, he argued, must ultimately become a Black Imperial dependency, like Uganda or Nigeria."[51]

Despite the early informal division, the Zambezi did not become an official border until 1894.[52] In 1891, BSAC's field of operations was formally expanded north of the Zambezi.[53] In 1893, BSAC militarily occupied Matabeleland, which extended its earlier conquest of Mashonaland in 1890.[54] The 1894 Matabeleland Order in Council created a formal administration over the territory that corresponds with modern-day Southern Rhodesia, which explicitly specified the Zambezi River as the northwest boundary. We count this unilateral frontier as the formation of the present border. A further Order in Council in 1898 officially introduced the name "Southern Rhodesia" and imposed additional Imperial controls over BSAC.[55]

The area north of the Zambezi lacked an official British administration until 1899. Upon the extension of BSAC's charter in 1891, Harry Johnston officially became "Her Majesty's Commissioner and Consul General for the Territories under British influence to the North of the Zambezi."[56] In practice, though, enormous distances, limited resources, rudimentary transportation infrastructure, and a paucity of European occupation implied minimal administration north of the Zambezi. BSAC lobbied, but failed, to extend the 1894 Matabeleland Order in Council beyond the Zambezi. Various sources consider this to be a critical juncture.[57] Shortly afterwards, the failed Jameson raid in the South African Republic (sponsored by Rhodes) and the Matabele led the British government to exercise tighter control over BSAC, and "in the years after 1896 British policy no longer

[48] See South Africa–Zimbabwe.

[49] Oliver 1957, 152–55; Roberts 1976, 155–62; Marks 1985*b*, 439–442.

[50] McGregor 2009, 58–59.

[51] Gann 1964, 129.

[52] For the text and summaries of the various legal documents mentioned, see Hertslet 1909, 263–82 and Brownlie 1979, 1305–8.

[53] Hertslet 1909, 266.

[54] See Mozambique–Zambia.

[55] Blake 1978, 114.

[56] Gann 1964, 70.

[57] According to Brownlie 1979, 1307, "The Zambezi alignment attained its significance in the period beginning in 1894 when it became apparent that Northern Zambesia, or Northern Rhodesia as it was soon to be called, would take a political and administrative path distinct from that of Southern Rhodesia." Gann 1964, 77 speculates, "Had the [1894] Order been made applicable beyond the Zambezi, the history of Northern Rhodesia might well have take a very different course; a unified administration would probably have come into existence right from the start, and the Zambezi might not have become that political dividing line which subsequently split two territories."

assumed an extension of the Company's power in Northern Rhodesia."[58] Northern Rhodesia was originally two separate units: in 1899, an Order in Council created an imperial administration for Barotziland-North-Western Rhodesia, and in 1900, an Order in Council did the same for North-Eastern Rhodesia.[59] Thus, these orders in council changed the Zambezi from a unilateral frontier to an intraimperial border, although we do not code this as a major revision because the boundary itself was unchanged.

Between 1953 and 1963, Southern and Northern Rhodesia (along with Nyasaland) were combined into the Central African Federation. The federation ultimately failed amid mass African opposition, which provides another example of the importance of African agency (although not involving a PCS).[60] We do not code either year as a major border revision because none of the borders for the constituent colonies were altered, and each gained independence separately.

The border alignment consists entirely of the Zambezi River except for a sector within Lake Kariba, an artificial lake and reservoir along the Zambezi created in the 1950s; hence we do not code this as a feature of the colonial border. The 1963 Order in Council provided a precise alignment that incorporated the newly created Lake Kariba and various islands located within the Zambezi.[61]

Back to TOC

C.7.8 Malawi–Zambia

Overview. Originally formed in 1891 as a British intraimperial border that divided Crown-controlled areas (later reconstituted as Nyasaland; Malawi) and corporate-controlled areas within the British sphere north of the Zambezi River (later organized as Northern Rhodesia; Zambia). A historical political frontier (white settlement: Shire Highlands) directly affected the border. The co-primary features of the border are a major watershed (Congo) and a minor watershed.

Details. The foundational British settlement in modern-day Malawi was by Scottish missionaries in the 1870s who followed the path of David Livingstone, establishing missions in the Shire highlands and along Lake Nyasa (Malawi). Portugal also sought to gain control of these and other areas located between Angola and Mozambique as part of its *contra-costa* goal, which prompted Britain to issue an ultimatum in 1890 for Portugal to withdraw its military from various specific territories, including the Shire Highlands.[62]

In 1889, Britain declared a protectorate over the Shire Highlands on the basis of treaties concluded with local rulers of the Makololo, Yao, Machinga, and other groups.[63] After the chartering of the British South Africa Company (BSAC), Scottish missionaries protested their potential inclusion into the BSAC sphere.[64] When BSAC's sphere of influence was formally extended north of the

[58] Brownlie 1979, 1306.

[59] Northern Rhodesia was formed by the merger of these two protectorates in 1911, which we do not code as a major border revision.

[60] Cohen 2017.

[61] Brownlie 1979, 1307.

[62] See Malawi–Mozambique.

[63] Hertslet 1909, 289–91.

[64] Gann 1964, 69–70; Roberts 1976, 162; Marks 1985*b*, 442.

Zambezi in April 1891,[65] their instructions explicitly excluded the Shire Highlands and surrounding areas.[66] In May 1891, the protectorate in the Shire Highlands was reconstituted as the British Protectorate of the Nyasaland Districts.[67] The notification decreed specific borders, and hence we code this as the year of border formation, with the historical political frontier of missionaries in the Shire Highlands directly affecting the border.

The border alignment consists of two watersheds: the Congo in the northern segment and the Luangwa in the southern segment. The border documents refer specifically to the Conventional Free Trade Zone (Conventional Congo Basin) and the Geographical Congo Basin (Congo watershed), the former of which corresponds with the Luangwa.[68] These borders were not subsequently revised.[69]

Back to TOC

C.7.9 Botswana–Zambia

Overview. Originally formed in 1890 as a British intraimperial border between the Bechuanaland Protectorate (Botswana) and corporate-governed territory later constituted into Northern Rhodesia (Zimbabwe). The primary feature is a major river (Zambezi).

Details. Botswana and Zambia meet at a single point that forms a quadripoint (also including Namibia and Zimbabwe) along the Zambezi River.[70] This border is entirely a product of the unusual geography of Namibia's Caprivi Strip,[71] and is therefore derivative of other bilateral borders. We base the year of formation on the year of the major Anglo–German treaty.

C.7.10 Mozambique–South Africa

Overview. Originally formed in 1817 as a general delimitation between British and Portuguese (Mozambique) spheres of influence along the coast of the Indian Ocean; subsequent white migration led to the creation of Natal and the South African Republic (South Africa), which bordered Mozambique. Major revisions occurred in 1869 (new segment), 1875 (changed features: clarify local features), and 1891 (changed features: clarify local features). Historical political frontiers (PCS: Zulu; white settlement: South African Republic) directly affected the border. The primary feature of the border is straight lines (non-astronomical). Secondary features are minor rivers and topography (mountains).

The present border contains two noncontiguous northern (vertically oriented) and southern (horizontally oriented) sections, separated by Swaziland's eastern border. Each segment has a distinct

[65] See Zambia–Zimbabwe.

[66] Hertslet 1909, 277–78, 286.

[67] Hertslet 1909, 266–67, 286–87. The territory was officially renamed the British Central Africa Protectorate in 1893, and the Nyasaland Protectorate in 1907.

[68] See Hertslet 1909, 286 for the specification of Malawi's frontiers, which reference the General Act of the Berlin Conference; and see Hertslet 1909, 471 for the relevant text from the General Act.

[69] Brownlie 1979, 1215. In Zambia–Zimbabwe, we discuss how the Central African Federation of 1953–63 did not yield any major border revisions.

[70] Brownlie 1979, 1098–1107.

[71] See Botswana–Namibia.

historical background.

Details: Southern section. Starting in the sixteenth century, Portugal established various small settlements along the coast of modern-day Mozambique. An Anglo–Portuguese Treaty of 1817 formalized Portugal's sphere of influence in this area: "upon the eastern coast of Africa, the territory lying between Cape Delgado and the Bay of Lorenco Marques."[72] The southern boundary at Delagoa Bay (the bay; modern-day Maputo Bay) and Lorenço Marques (the city; modern-day Maputo) is the relevant one for the Mozambique–South Africa border. In the ensuing decades, Britain disputed the exact territory encompassed by the southern boundary. Britain signed treaties with rulers in this area and planted the British flag on nearby islands under the contention that the treaty "did not clearly indicate whether Portuguese territory included all of Delagoa Bay or merely the territory as far as this bay . . . Doubt was expressed in South Africa as to whether the bay of Lorenzo Marques meant all of Delagoa Bay as claimed by the Portuguese or was merely confined to the inner bay where the Portuguese establishment was located."[73]

Following numerous specific disputes over Delagoa Bay, Britain and Portugal agreed to allow an arbiter (French President MacMahon) to rule on the question. In 1875, he ruled in favor of Portugal. We code this as a major revision because it clarified an area of major interest.[74] Following disputes in Central Africa, discussed in the following entries, Britain and Portugal signed a treaty in 1891 to settle their territorial disputes throughout southern Africa. We code this as another major change because it created a definitive border. The treaty stated that "Great Britain engages not to make any objection to the extension of the sphere of influence of Portugal, south of Delagoa Bay, as far as a line following the parallel of the confluence of the River Pongolo with the River Maputo to the sea-coast."[75] Consequently, the westernmost part of the border is the Maputo River and the rest of the border is straight (non-astronomical) lines.

PCS Zulu directly affected the border. Britain had extensive interactions with and strong strategic interests in Zululand, located just south of the southern segment of the border. Throughout the nineteenth century, the Zulu were the militarily strongest African state in southern Africa. After repeated battles with Boers over border disputes beginning in the 1830s,[76] Britain fought a war against the Zulu in 1879 that permanently broke Zulu power. Between 1885 and 1887, Britain and the South African Republic partitioned Zulu territory between themselves. The traditional Zulu homeland was of intense strategic interest to Britain because they were "anxious to separate the Boers from the sea." As with the Tswana located farther west,[77] the British feared an alliance between the Germans and the Boers. This spurred Britain to extend its authority over eastern

[72]Quoted in Hertslet 1909, 985. Britain's goal with this treaty was to circumscribe the territory under which the slave trade was permitted, which was confined to the sphere delimited for Portugal.

[73]Bixler 1934, 427, 430.

[74]Britain feared that Portugal would sell the territory to a Boer republic or to Germany, but Britain respected the MacMahon Award because of its agreement with Portugal that the losing party in the dispute would have the first rights of purchase (Bixler 1934, 436–40).

[75]Quoted in Hertslet 1909, 1018. Later in the decade, new concerns about the possibility of Portugal selling Delagoa Bay arose. This led Britain and Germany to conclude a secret treaty in 1898 that divided up Portugal's African territories if Portugal became financially insolvent, which guaranteed Delagoa Bay for Britain (Warhurst 1962, 144–45). This contingency, however, did not arise.

[76]Shillington 1987, 63–65.

[77]See Botswana–South Africa.

Zululand. Later, in 1895, Britain annexed Tongaland (traditionally part of Zululand) to again block Transvaal's access to the sea, and Tongaland was transferred to Natal in 1897.[78] With this annexation, Britain's territorial possessions in Natal extended (from the south) the British sphere as far north as the boundary agreed upon with Portugal in 1891. An Exchange of Notes later in 1895 between Britain and Portugal confirmed this border.[79] Although Delagoa Bay was the most salient element of this part of the border, Britain's actions demonstrated its intense interests in keeping Zululand within its domain, which meant that PCS Zulu directly affected the border.

Details: Northern section. This part of the border originally distinguished the eastern limits of the South African Republic from Portuguese territory, which is why we code the border as directly affected by a historical political frontier. In 1869, Portugal and the Republic signed a treaty of friendship that "established the Transvaal–Mozambique alignment in terms of general principles."[80] Britain contested this treaty on the grounds that some of the territory mentioned in the treaty was within its claimed sphere of influence.[81] However, Britain later acceded to this border in Conventions signed with the South African Republic in 1881 and 1884,[82] after its fears of the Republic gaining control over Delagoa Bay had subsided. The border was then confirmed in the 1891 Anglo–Portuguese treaty, which we do not consider as a major change to this section of the border because of the prior documentation of a specific border. For the border alignment, rivers and mountain summits serve as end points to (connected) straight lines.[83]

In both the southern and northern segments, non-astronomical straight lines are the primary feature. All the other features mentioned for each are secondary.

Back to TOC

C.7.11 Mozambique–Swaziland

Overview. Originally formed in 1869 as an interimperial border between Portuguese Mozambique and the Boer-governed South African Republic, who claimed PCS Swaziland as within its sphere of influence; Swaziland formally became a European colony in 1894 when it was annexed by the South African Republic. Major revisions occurred in 1888 and 1927 (changed features: clarify local features). Historical political frontiers (PCS: Swazi; white settlement: South African Republic) directly affected the border. The primary feature is topography (mountains). A secondary feature is straight lines (non-astronomical).

Details. Portugal, despite a long-standing presence in Mozambique,[84] lacked sustained contact with PCS Swaziland until the 1880s.[85] The frontier between Portugal's coastal-oriented possessions and Swaziland was determined in part by the fact that "by the time of his death in 1865, Mswati [the Swazi ruler] had made himself into one of the most feared and powerful figures in

[78] Shillington 1987, 99–101, 112–15, 126.
[79] Brownlie 1979, 1243.
[80] Brownlie 1979, 1242.
[81] Bixler 1934, 436; Matsebula 1988, 131.
[82] Brownlie 1979, 1242–43.
[83] Brownlie 1979, 1240.
[84] See Mozambique–South Africa.
[85] See South Africa–Swaziland and Gillis 1999, 38.

this part of south-eastern Africa." He gained this reputation because his army repeatedly and successfully invaded Madolo in the 1850s, an area that Portugal claimed as belonging to its sphere of influence.[86]

The border was initially formed in 1869 via an agreement between Portugal and the South African Republic, without the consultation of the Swazi. This set the border as "a line 'along the summit' of the Lebombo Mountains," which was reiterated in Conventions in 1881 and 1884 signed between Britain and the South African Republic.[87] The 1869 agreement with Portugal also explicitly recognized that Swaziland lay within the sphere of influence of the South African Republic,[88] a claim that Britain disputed.[89] The MacMahon Award of 1875, which gave to Portugal the entire area surrounding Delagoa Bay,[90] confirmed that the inland plains as far west as the Lebombos were Portuguese territory.[91] Although the area between Delagoa Bay and the Lebombos was "humid, fever ridden, and unsuitable for colonization," the Lebombos themselves were of strategic interest, as they were "favored by a mild climate and terrain well suited for cattle grazing or intensive farming." In addition to settlement, the area was also believed to have mineral wealth and there was a desire to build a railway.[92]

In 1887, the Portuguese sent an informal mission to the Swazi ruler to formalize concessions in the area of the Lebombos. The king rejected these advances and proclaimed that "the lands on the Lubombo and as far east as the Maputo river were part of the Swazi kingdom."[93] Later that year, the Swazi king requested the British and South African Republic governments to cooperate in a boundary commission, which convened in 1888. The commission ruled largely against the Swazi. The commission valued documentary over oral evidence of claims, and faced diplomatic pressure from the British government, who sought to ease tensions with Portugal, to placate Portuguese claims. Illustrating the importance of prior treaties, one of Portugal's arguments was that the treaty of 1869 had already recognized the boundary at the Lebombos.[94] "[T]he commission's recommendations were a major setback for Swaziland. The boundary line eventually laid down denied the kingdom's claim to any portion of the Mozambique plains, the eastern face of the Lubombos, or even a substantial sector of the upper ranges. Yet the Swazi case was reasonable and well founded. But perhaps the king was overconfident in asking for a commission. Previous decisions on the western and southern boundaries should have given a warning of the risks entailed in seeking judgments outside the law and custom of the Swazi nation."[95] We code 1888 as a major revision that clarified local features. The 1891 Anglo–Portuguese treaty, which settled numerous bilateral borders, referred to "the frontier of Swaziland" as a determined quantity. The border remained unchanged during Swaziland's brief incorporation into the South African Republic (from

[86]Bonner 1983, 94–96.
[87]Brownlie 1979, 1255; and see the map of the South African Republic accompanying the 1884 Convention in Hertslet 1909, 232–33.
[88]Bonner 1983, 118.
[89]See South Africa–Swaziland.
[90]See Mozambique–South Africa.
[91]Gillis 1999, 38.
[92]Gillis 1999, 38.
[93]Gillis 1999, 39; see also Matsebula 1988, 131–140 for a similar description of the following.
[94]Matsebula 1988, 134.
[95]Gillis 1999, 42; and see p. 41 for a map sketched by the commission.

1895 until it became a High Commission territory in 1903).[96]

The northeast section of the border remained contested and undetermined until 1927, when Britain and Portugal reached a compromise.[97] In the interim, the disputes revolved around specific local rulers and into which colony they would be placed.[98] We code 1927 as a major revision that clarified local features.

The border alignment consists entirely of a series of (non-astronomical) straight-line segments. The guiding principle was to correspond with the summits of mountains within the Lebombo range, as indicated by the diplomatic communications. We code mountains as the primary feature and straight lines as a secondary feature.

Back to TOC

C.7.12 Malawi–Mozambique

Overview. Originally formed in 1891 as an interimperial border between a British colony (later constituted as Nyasaland) and Portuguese Mozambique. A historical political frontier (white settlement: Shire Highlands) directly affected the border. The primary feature of the border is a major lake (Malawi). Secondary features are major watersheds (Lake Malawi and the Zambezi River), minor rivers, and straight lines (non-astronomical).

Details. The Shire Highlands and Lake Malawi had become an area of intense interest for British imperialists by the 1880s because of settlements by Scottish missionaries.[99] This brought British interests into contention with Portuguese claims, who considered broad swaths of Central Africa within their domain of historical influence (part of their *contra-costa* goal), despite lacking effective occupation. Portugal signed bilateral treaties with each of Germany and France in 1886 that contained a clause recognizing Portugal's rights "in the territories which separate the Portuguese possessions of Angola and Mozambique."[100] Portugal accompanied these treaties with a map shading the claimed Portuguese territories.[101] In 1887, the British government officially protested to the Portuguese government: "The immense field so coloured in the Maps comprises the entire region lying between Angola and Mozambique, Matabeleland, and the district of Lake Nyassa, up to the latitude of the Rovuma River. In the districts to which Portugal thus appears to lay a preferential claim, and in which, except near the sea-coast and on portions of the Zambesi River, there is not a sign of Portuguese jurisdiction or authority, there are countries in which there are British Settlements, and others in which Great Britain takes an exceptional interest."[102] In January of 1890, Britain issued an ultimatum to Portugal to cease military operations in Matabeleland, Mashonaland, and the Shire highlands.[103] The British and Portuguese governments agreed to a treaty that delimited their borders in August of 1890, but the Portuguese Cortes did not ratify the treaty, and

[96] Brownlie 1979, 1255.
[97] Gillis 1999, 42–45; and see the map on p. 44.
[98] Matsebula 1988, 136–40.
[99] See Malawi–Zambia.
[100] Quoted in Hertslet 1909, 675, 704.
[101] See the map between pp. 706–7 in Hertslet 1909.
[102] Quoted in Hertslet 1909, 705.
[103] Warhurst 1962, 9–10.

in June of 1891 they ultimately secured a treaty agreement. Both versions of the treaty recognized Britain's control over the Shire highlands.[104] Because Protestant missions spurred Britain's interest in the Shire highlands, we code a direct effect of historical political frontiers for the present border.

The northern part of the eastern section of the border consists of Lake Malawi (a major lake), Lake Chiuta, and Lake Chilwa, with straight-line segments forming the border in between these lakes. Lake Malawi is the longest segment on the border (205 miles of the 975 mile border), and thus we code this as the primary feature. Farther south, the border follows the Ruo and Shire rivers. A short straight-line segment forms the southern-most part of the border and links to the western part of the border, which consists of the Shire–Zambezi and Lake Nyasa–Zambezi drainage divides.[105] Thus we code as secondary features watersheds of major water bodies (Lake Malawi and the Zambezi River), minor rivers, and straight lines (non-astronomical).

Back to TOC

C.7.13 Mozambique–Zimbabwe

Overview. Originally formed in 1891 as an interimperial border between Portuguese Mozambique and the British South Africa Company-governed Southern Rhodesia (Zimbabwe). A major revision occurred in 1897 (changed features: clarify local features). Historical political frontiers (white settlement: Matabeleland; PCS: Gaza) directly affected the border. The primary feature is minor rivers. Secondary features are straight lines (non-astronomical) and topography (mountains).

Details. In 1889, Cecil Rhodes and the British South Africa Company (BSAC) began to expand British presence from southern Africa into Central Africa.[106] BSAC contested its eastern frontier with Mozambique because it sought to expand eastward into Mashonaland and gain access to the sea. Mashonaland was located east of the territory encompassed by BSAC's foundational treaty with Lobengula of the Ndebele,[107] whose territory British imperialists targeted as desirable for settlement.[108] The first Europeans settled in Mashonaland in mid-1890; the "pioneer column" forcibly occupied land northeast of the Ndebele territory and founded Salisbury, or modern-day Harare.[109] A smaller group led by a Company administrator marched farther east to Manicaland, which like Mashonaland proper was believed to be suitable for European settlement. This brought the Company into conflict with Portugal's long-standing claims to Manicaland.[110] Rhodes also contested Portugal's claims to the coastline and made three major attempts to gain access to the coast: provoking an international incident over Beira (a port in Mozambique located north of Delagoa Bay), securing a treaty with Gungunyana (ruler of PCS Gaza), and attempting to purchase Delagoa Bay.[111]

[104] The relevant parts of the treaties are provided in Hertslet 1909, 1006–8, 1016–19.
[105] Brownlie 1979, 1117.
[106] See South Africa–Zimbabwe.
[107] See South Africa–Zimbabwe and Botswana–Zimbabwe.
[108] Warhurst 1962, 7–8.
[109] Marks 1985*b*, 445; Shillington 1987, 122.
[110] Warhurst 1962, 14–15, 18.
[111] These episodes are discussed, respectively, in Chapters 2 through 4 of Warhurst 1962.

The episode involving Gungunyana demonstrates how PCS Gaza affected the border. BSAC actively sought to secure treaty relations with Gungunyana, who claimed control over most of the coastline between the Zambezi River and Delagoa Bay. Although the state lacked a specific port, the mouth of the Limpopo River could have served that purpose.[112] "The dominance of the Shangane[113] over so much of southern Mozambique was to have a profound influence on how the process of partition would unravel. On the one hand, it provided the Portuguese with a central focus on which to concentrate their efforts, while, on the other, the military prowess of the Shangane posed an obstacle which even most Portuguese respected."[114] BSAC secured a treaty in 1890 with Gungunyana, who actively sought British protection because he suspected that Portugal would try to consolidate its control over the interior.[115] Gungunyana was not duped into signing a treaty he did not understand. Instead, he wanted (and achieved) the same deal that Lobengula of the Ndebele had gained with BSAC in 1888: a large number of guns and monetary payment. Although the British government generally supported Rhodes' aggressive actions, Prime Minister Salisbury rejected Rhodes' claim to Gazaland despite frantic BSAC activity to secure control there. A lack of support from London proved decisive for leaving Gazaland within the Portuguese sphere. Beyond Salisbury's fears that contesting Portugal's claim over Gazaland would inhibit the ability to secure a treaty with them, in a speech to Parliament in 1891, Salisbury claimed:

> "We had the plain dictates of international Law. By a Treaty signed on behalf of this country in 1817, which was confirmed in fuller terms by a Treaty signed in 1847, the whole of this littoral from the Zambesi to Delagoa Bay which Gungunhana claims, and which some persons would like to claim through him, was recognized by this country as belonging to the King of Portugal. It has seemed to us that that closes the controversy, that we are bound to recognize the Treaties which this country has made, and that no high philanthropic, progressive or humanitarian considerations would justify us in disregarding that plain rule of right."[116]

Although Rhodes failed to gain access to the coast, BSAC's actions secured vast territory for Southern Rhodesia within Mashonaland (and stretching into Manicaland). This justifies our coding of white settlement as directly influencing the border. In fact, between the failed 1890 treaty and the successful 1891 treaty, more territory in Manicaland was added to the British sphere.[117] The exact claims within the Manica plateau remained contested following the 1891 treaty. Britain and Portugal agreed to arbitration by the King of Italy, which occurred in 1897. Because the revisions concerned a contested area, we code this as a major revision.

The border alignment for the most part follows rivers whenever possible and connects beacons between river segments with short straight lines, although a long straight line links the Limpopo

[112] Axelson 1967, 11.

[113] The Shangane (alternate spelling: Shangaan) were the Nguni subgroup who primarily populated the Gaza empire.

[114] Smith and Clarence 1985, 500.

[115] See Warhurst 1962, Ch. 3 for the following details.

[116] Quoted in Warhurst 1962, 99.

[117] BSAC initially established its presence in modern-day Zimbabwe in September 1890, when its Pioneer Column invaded Matabeleland and founded Fort Salisbury (modern-day Harare). This action occurred after the failed 1890 treaty and prior to the 1891 treaty; see the map between pp. 280–81 in Axelson 1967.

and Sami rivers in the south; and the documents also reference certain mountains.[118]

Back to TOC

C.7.14 Mozambique–Zambia

Overview. Originally formed in 1891 as an interimperial border between Portuguese Mozambique and territory claimed by the British South Africa Company (later constituted as Northern Rhodesia; Zambia). Historical political frontiers (white settlement: Portuguese district of Zumbo) directly affected the border. The primary feature is straight lines (non-astronomical). Secondary features are minor rivers and topography (mountains).

Details. The preceding entries for Anglo–Portuguese borders explain the general contention between these two powers in Central Africa. Although Portuguese settlements had historically been confined to the coast, Portuguese agents had established various forts and trading posts in the interior along the Zambezi River.[119] Moving east to west, the main ones were Sena, Tete, and Zumbo. "Portuguese influence extended up the Zambezi as far as Zumbo, where authority had been reestablished in 1863; this authority was exercised by a non-white *capitão-mor*, who began to repair the long abandoned fort and barracks, which housed twenty-one troops."[120] We consider this to be a historical political frontier given its establishment prior to the Scramble and the loose analogy to frontiers of white settlement.

The Anglo–Portuguese negotiations of 1890 and 1891 fixed Zumbo as the westernmost point of Mozambique along the Zambezi. Because Zumbo lay in between the main areas of British interest to the south (Mashonaland) and north (Shire highlands), this created the large wedge of Portuguese territory jutting into Northern Rhodesia.[121] The negotiations in this area centered around two related issues: whether, east of Zumbo, Mozambique would encompass the Zambezi river from both the north or south or the north only (given Cecil Rhodes' desire for as much access to the Zambezi as possible); and the size of the strips of territory surrounding the Zambezi. Around Zumbo specifically, the powers discussed the *prazos* (territory allocated as land grants) of the District of Zumbo.[122] A major difference between the failed treaty of 1890 and the signed treaty of 1891 was the expansion of Portuguese territory north of the Zambezi in this panhandle,[123] which compensated for their loss of territory in Mashonaland and Manicaland.[124]

The border alignment consists of the Luangwa River moving northward from Zumbo, followed by a long series of straight-line segments that eventually connect to Malawi. Brownlie's description of the border extensively references minor rivers and mountain summits.[125] Thus we code straight lines as the primary feature and rivers and mountains as secondary features.

Back to TOC

[118] Brownlie 1979, 1221–22.
[119] Warhurst 1962, 3.
[120] Axelson 1967, 4.
[121] Warhurst 1962, 71.
[122] Axelson 1967, 241–45; see also the map between pp. 261–62.
[123] Warhurst 1962, 71; see also the map between pp. 280–81 in Axelson 1967.
[124] See Mozambique–Zimbabwe.
[125] Brownlie 1979, 1263–64.

C.7.15 Namibia–South Africa

Overview. Originally formed in 1884 as an interimperial border between German South West Africa (Namibia) and the British Cape Colony (South Africa). Major revisions occurred in 1890 (new segment) and 1994 (enclave transfer). Historical political frontiers (white settlement: Cape Colony) directly affected the border. The co-primary features of the border are a major river (Orange) and straight lines (parallels/meridians).

Details. The British and Cape governments established a tenuous presence in modern-day Namibia in the 1870s and 1880s, although the British resident was removed from the area in 1880. The only lasting legacy of this early influence was the declaration of a sphere of influence over Walvis Bay in 1878 and its annexation by the Cape Colony in 1884.[126] In 1884, Germany declared the creation of a protectorate along the coast in the southern area of modern-day Namibia. The claimed territory extended "from the north bank of the Orange River to the 26° south latitude, 20 geographical miles inland."[127] An official note exchanged with Britain shortly afterward clarified that the claim excluded Walvis Bay. Shortly after, Germany signed treaties of protection with small-scale local rulers in areas referred to as Namaqualand and Damaraland. In Lesotho–South Africa, we discuss the northward migration of Europeans up from Cape Town between the seventeenth and nineteenth centuries. By the 1870s, these settlements reached as far north as the Orange River.[128] We code 1884 as the initial year of the Namibia–South Africa border because Germany's declaration of its protectorate explicitly referenced two areas associated with the Cape: the Orange River and Walvis Bay. Thus, this border was directly affected by a historical political frontier of white settlement from the Cape.

The Anglo–German Agreement of 1890 delimited their spheres of influence throughout Africa. This constituted a major revision by creating an eastern frontier for the German sphere of influence: the 20°E meridian. This is the same meridian, located entirely in desert territory, that forms Namibia's eastern border with Botswana. The Orange River segment of the border was extended to comprise the entire southern frontier of Germany's sphere. Thus we code a major river and straight lines (parallels/meridians) as co-primary features.

Walvis Bay remained an enclave territory of the Cape (and then South Africa) for the entire period of European rule. South Africa returned Walvis Bay to Namibia in 1994 upon the end of apartheid rule in South Africa.

Back to TOC

C.7.16 Angola–Namibia

Overview. Originally formed in 1886 as an interimperial border between Portuguese Angola and German South West Africa (Namibia). A major revision occurred in 1905 (large territorial transfer: extend Lozi territory in Northern Rhodesia). A historical political frontier (PCS: Lozi) indirectly affected the border. The co-primary features are a straight line (parallels/meridians) and minor rivers. A secondary feature is straight lines (non-astronomical).

[126] Marks 1985*a*, 405–8.
[127] Quoted in Hertslet 1909, 691.
[128] Brownlie 1979, 1273; see also the maps in Shillington 1987, 79, 84.

Details. Starting in the sixteenth century, Portugal established various small settlements along the coast of modern-day Angola. As of the nineteenth century, the boundaries of Portugal's claims were "vague . . . In the south the eighteenth parallel was generally taken to be the limit. Not that it mattered greatly, for the land there was desert and the next settlement was the distant Walvis Bay."[129] An Anglo–Portuguese Treaty of 1817 formalized Portugal's sphere of influence in this area: "upon the western coast, all that which is situated from the 8th to the 18th degree of south latitude."[130] This precedent influenced the border agreed upon with Germany in 1886, which throughout lies very close to the 18°S latitude parallel.[131]

The distinctive features of the present border are, moving eastward from the Atlantic: the Kunene River, a parallel line, the Cubango River, and a non-astronomical straight line.[132] Minor rivers and the parallel line each comprise large portions of the border, and therefore we code them as co-primary features. The original border ended in a tripoint at the Zambezi River, although a westward shift in the Angola–Zambia border in 1905 removed this feature from the Angola–Namibia border. We code 1905 as a major revision, which also implies an indirect effect for the PCS group Lozi.[133]

Back to TOC

C.7.17 Botswana–Namibia

Overview. Originally formed in 1885 as an interimperial border between the British Protectorate of Bechuanaland (Botswana) and German South West Africa (Namibia). A major revision occurred in 1890 (new segment). The primary feature of the border is straight lines (parallels/meridians). Secondary features are a major river (Zambezi), minor rivers, and straight lines (non-astronomical).

Details. The original declaration of German South West Africa in 1884 was confined to coastal areas.[134] The original declaration of the Bechuanaland Protectorate in 1885 was bounded to the west by the 20°E longitude meridian and to the north by the 22°S latitude parallel.[135] The latitude parallel is not arbitrary. It coincides with the northernmost extent of the Limpopo River, the northern frontier of the South African Republic (located east of Bechuanaland). However, this parallel is far south of the Bechuanaland's final northern frontier, and cut off the northern claims of Khama's Bamangwato state while omitting other Tswana states,[136] despite Britain founding the Bechuanaland Protectorate on the basis of agreements with these rulers.[137]

The Anglo–German Agreement of 1890, which finalized the present border, extended the frontiers

[129] Wesseling 1996, 100.
[130] Quoted in Hertslet 1909, 985.
[131] The 1886 German–Portuguese treaty also acknowledged broad Portuguese rights to territories in Central Africa north of the German sphere, although Britain later negated these claims; see Malawi–Mozambique.
[132] Hertslet 1909, 703–4; Brownlie 1979, 1025–27.
[133] See Angola–Zambia.
[134] See Namibia–South Africa.
[135] See Botswana–South Africa and Hertslet 1909, 190.
[136] Shillington 1987, 123; and see the map on p. 124.
[137] See Botswana–South Africa and Botswana–Zimbabwe.

of Bechuanaland almost as far north as the Zambezi River, although the actual northern frontier is formed by the Caprivi Strip. The Caprivi Strip panhandle is a geographical oddity that represented a British concession to enable Germany access to the Zambezi River.[138] Because the Zambezi determined the northern limits of Bechuanaland and touches the present border at the quadripoint with Zimbabwe and Zambia, we code this as a secondary feature of the border, along with minor rivers and non-astronomical straight lines.

The western border of Bechuanaland incorporated the 20°E longitude meridian stated in the original declaration of the Bechuanaland Protectorate. Thus, we code 1885 as the formation of the Botswana–Namibia border and 1890 as a major revision. The original 22°S latitude parallel constitutes a small segment of the western border before intersecting the 21°E longitude meridian, the new segment added to the western border in 1890. It does not appear that Europeans perceived any areas in this Kalahari desert region as important. Because this section of the border consists entirely of straight parallel/meridian lines, we code this as the primary feature of the border.

Back to TOC

C.7.18 Namibia–Zambia

Overview. Originally formed in 1890 as an interimperial border between German South West Africa (Namibia) and territory claimed by the British South Africa Company (which it later constituted as Northern Rhodesia; Zambia). A major revision occurred in 1905 (large territorial transfer: extend Lozi territory in Northern Rhodesia). A historical political frontier (PCS: Lozi) indirectly affected the border. The co-primary features of the border are a major river (Zambezi) and a straight line (non-astronomical).

Details. This border was broadly formed by the same process that yielded the Botswana–Namibia border, as the entire Namibia–Zambia border consists of the northeast terminus of the Caprivi Strip. In terms of both historical background and features, there are two distinct segments. The original segment is farther east, which until 1905 constituted the entire length of the border. This segment consists entirely of the Zambezi River and dates to the Anglo–German Agreement of 1890.[139]

The western segment is a straight line stretching from the tripoint with Angola to the Katima Mulilo rapids, where it intersects the Zambezi. This segment was originally formed by an 1886

[138] Incidentally, this concession turned out to be worthless for Germany because the Victoria Falls, located east of the Caprivi Strip, make the river unnavigable. Hertslet 1909, 902 provides the text from the treaty, which outlines the Caprivi Strip: "Germany shall have free access from her Protectorate to the Zambesi by a strip of territory which shall at no point be less than 20 English miles in width."

[139] The agreement specifies that (a) the Chobe River forms the border forms the easternmost part of the German frontier until intersecting the Zambezi; and (b) there was to be a narrow strip of land (later known as the Caprivi Strip) that allowed Germany to access the Zambezi, and it was to be no less than 20 miles in width at any point, but the exact boundaries of the strip were not explicitly specified (see also the map accompanying the treaty in Hertslet 1909, 902–3). Although the agreement does not explicitly state that the Zambezi was to be used as the border, our understanding is that this was implied by the short distance between the Chobe and the Zambezi prior to the point at which they converge. Brownlie 1979, 1289 does not mention any subsequent revisions to this part of the border.

German–Portuguese Declaration.[140] This territory was transferred from Portugal to Britain in 1905 when the King of Italy arbitrated a dispute over the historical limits of Barotseland and awarded to Britain the territory between the Zambezi and the Kwando rivers. Because the PCS group Lozi directly affected the border shift for Angola–Zambia, we code an indirect effect of the Lozi on the Namibia–Zambia border.

For border alignment, because a major river constituted one segment of the border and a straight line the other, we code them as co-primary features of the border.

Back to TOC

C.7.19 Angola–Zambia

Overview. Originally formed in 1891 as an interimperial border between Portuguese Angola and and territory claimed by the British South Africa Company (which it later constituted as Northern Rhodesia; Zambia). A major revision occurred in 1905 (large territorial transfer: extend Lozi territory in Northern Rhodesia). A historical political frontier (PCS: Lozi) directly affected the border. The co-primary features of the border are minor rivers and straight lines (meridians/parallels).

Details. The key element of contention in the present border was control over the Lozi state (alternatively, Barotseland). The Lozi ruler exercised agency by allying with Britain rather than Portugal, but the two powers continued to debate the limits of the Lozi state even after initially forming the border.

Portugal had a long-standing presence on the coast of modern-day Angola,[141] but lacked any settlements farther into the interior. Following decades of intermittent campaigns into Central Africa, in the 1880s, Portuguese agents secured treaties with numerous local rulers and also visited the Lozi state. Broadly, Portugal sought to establish a cross-continental connection (the *contra-costa* goal) between its colonies in Angola and Mozambique, which was severely impeded when British agents secured control over the Lozi state. Lewanika (the Lozi ruler) actively sought an alliance with the British. Similar to his ally Khama, the Bamangwato ruler,[142] Lewanika sought to protect his people against Lobengula, the Ndebele ruler.[143] Lewanika also sought to avoid military confrontation with Europeans: "There is no doubt that the responsibility for taking the original initiative belong entirely to the King himself, who understood before any other Lozi that white power must one day be confronted . . . Lewanika therefore decided that an accommodation with, rather than resistance to, white power could best preserve the integrity of the nation."[144] In 1890, an agent of Cecil Rhodes, Frank Lochner, secured a treaty with Lewanika.[145]

Portugal rejected Britain's initial boundary proposal in 1890. However, a year later, a new Portuguese government consented to a treaty that allocated it even less territory.[146] The division of

[140] See Angola–Namibia.
[141] See Angola–Namibia.
[142] See Botswana–South Africa.
[143] See Botswana–Zimbabwe.
[144] Caplan 1970, 55–56.
[145] Roberts 1976, 158–61.
[146] See Malawi–Mozambique. British control over Lozi territory, along with Cecil Rhodes' claims to Gaza-

Lozi territory was a contentious issue in the negotiations over each of the two treaties. "In the original version Barotseland was divided between Angola and Northern Rhodesia. During the interim, Rhodes protested that the Lochner concession entitled the British South Africa Company to control all of Barotseland. Thus, instead of being divided along the upper Zambezi, all of Barotseland fell into the British sphere."[147]

The 1891 agreement initiated the Angola–Zambia border, but the two powers continued to debate the exact limits of the Lozi kingdom. The relevant part of the 1891 treaty for the present border is:

Central Africa

> **Art. IV.** It is agreed that the western line of division separating the British from the Portuguese sphere of influence in Central Africa shall follow the centre of the channel of the Upper Zambezi, starting from the Katima Rapids up to the point where it reaches the territory of the Barotse Kingdom.
>
> *Barotse Kingdom within British Sphere*
>
> That territory shall remain within the British sphere; its limits to the westward, which will constitute the boundary between the British and Portuguese spheres of influence, being decided by a Joint Anglo-Portuguese Commission, which shall have power, in case of difference of opinion, to appoint an Umpire.[148]

Disagreements between Britain and Portugal about the limits of the Lozi state triggered the last provision, as summarized in an Anglo–Portuguese Declaration of 1903 that sent the case to arbitration:

> **Art. I.** The Arbitrator shall be asked to give a decision, which shall be accepted as final by both Parties, on the question: What are, within the meaning of the above-quoted Article of the Treaty of 1891, the limits of the territory of the Barotse Kingdom?[149]

The King of Italy served as arbiter and decreed that the effective authority of the Barotse ruler extended west of the original border, the Zambezi River. As hallmarks of sovereignty, he collected information about which minor rulers paid tribute to the Lozi king and whether the Lozi king adjudicated their legal disputes. In his ruling, the Italian king concluded, "such powers had beyond doubt already been exercised by the King of Barotse in the Province of Nalolo, to the west of the Zambesi and they had also been exercised over the tribes of the Mabuenyi and the Mamboe, so that their territory formed an integral part of the Barotse Kingdom."[150] These observations influenced his decision to move the southern part of the border westward from the Zambezi River to the

land (see Mozambique–Zimbabwe) and British missionaries' claims to the Shire highlands (see Malawi–Mozambique), ended the *contra-costa* goal. However, the original version of the Anglo–Portuguese treaty created a twenty-mile zone north of the Zambezi that would have established transit and telegraph rights between Angola and Mozambique (Marks 1985*b*, 502–6).

[147] Marks 1985*b*, 502–6.

[148] Quoted in Hertslet 1909, 1019.

[149] Quoted in Hertslet 1909, 1072.

[150] Quoted in Hertslet 1909, 1075.

Kwando River.[151]

The final border alignment consists of four sectors. Moving southward from the tripoint with the Congo Free State, the border consists of various minor rivers, a parallel line, a meridian line (which had been moved westward in 1905), and the Kwando River.[152] We code minor rivers and straight lines as co-primary features. The straight-line sectors are somewhat longer, but the arbitration in 1905 explicitly used rivers to assess the Barotse frontiers. A major river (Zambezi) was used in the 1891 border but not the 1905 border, and thus we do not code it as a feature.

Back to TOC

[151] Brownlie 1979, 1043.

[152] Brownlie 1979, 1071. The latter part now consists of a series of straight lines that follow the Kwando River, a change made in 1964 because of the unreliability of the river's extensive and variable flood zone. Because this change is technical in nature, we do not code it as a major revision.

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D ADDITIONAL REGRESSION TABLES

Table D.1: Regression Table for Figure A.3

Panel A: Bivariate Models								
	DV: COUNTRY BORDER IN CELL							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
PCS frontier	0.12**				0.15**			
	(0.04)				(0.04)			
PCS frontier		0.10**				0.12**		
(0.25º buffer)		(0.03)				(0.03)		
PCS interior			-0.08**				-0.09**	
			(0.02)				(0.03)	
PCS interior				-0.10**				-0.11**
(0.25º buffer)				(0.02)				(0.03)
Constant	0.14**	0.13**	0.16**	0.16**	0.15**	0.15**	0.18**	0.18**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Grid cells	10341	10341	10341	10341	7228	7228	7228	7228
Adjusted R^2	0.01	0.01	0.004	0.005	0.02	0.01	0.005	0.005
Sample	Full	Full	Full	Full	SSA	SSA	SSA	SSA
Panel B: Add Region FE								
	DV: COUNTRY BORDER IN CELL							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
PCS frontier	0.11**				0.14**			
	(0.03)				(0.04)			
PCS frontier		0.08**				0.11**		
(0.25º buffer)		(0.03)				(0.03)		
PCS interior			-0.10**				-0.10**	
			(0.02)				(0.03)	
PCS interior				-0.12**				-0.12**
(0.25º buffer)				(0.02)				(0.03)
Constant	0.14**	0.14**	0.16**	0.16**	0.14**	0.13**	0.16**	0.16**
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Grid cells	10341	10341	10341	10341	7228	7228	7228	7228
Adjusted R^2	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01
Sample	Full	Full	Full	Full	SSA	SSA	SSA	SSA
Region FE	✓	✓	✓	✓	✓	✓	✓	✓

Notes: This regression table accompanies Figure A.3. "Full" models include all grid cells; Sub-Saharan ("SSA") models are limited to grid cells south of the 18°N parallel. All models are estimated using OLS with Conley standard errors in parentheses (distance cutoff = 300 km). $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$

Table D.2: Regression Table for Figure A.4

	DV: COUNTRY BORDER IN CELL			
	(1)	(2)	(3)	(4)
PCS frontier	0.13**		0.14**	
	(0.03)		(0.03)	
PCS frontier (0.25° buffer)		0.12**		0.13**
		(0.04)		(0.05)
Major (top 10) river	0.14+	0.14+	0.15	0.16
	(0.08)	(0.08)	(0.10)	(0.10)
Minor river	0.05	0.05	0.07	0.07
	(0.05)	(0.05)	(0.06)	(0.06)
Major watershed	0.07*	0.07*	0.07*	0.07*
	(0.03)	(0.03)	(0.03)	(0.03)
Major (top 10) lake	0.25**	0.27**	0.27**	0.28**
	(0.06)	(0.07)	(0.06)	(0.07)
Minor lake	0.04	0.05	0.07	0.09+
	(0.04)	(0.04)	(0.05)	(0.05)
Cell in desert	0.01	0.01	-0.05	-0.05
	(0.04)	(0.04)	(0.06)	(0.07)
Contested coastal areas	0.10*	0.10*	0.16*	0.17*
	(0.05)	(0.05)	(0.08)	(0.08)
Ethnic group border in cell	0.02	0.02	0.02	0.03
	(0.02)	(0.02)	(0.03)	(0.03)
Area of ethnic group	-0.02	-0.02	-0.03+	-0.03
	(0.02)	(0.02)	(0.02)	(0.02)
Distance to the coast	0.15	0.14	0.13	0.13
	(0.14)	(0.14)	(0.17)	(0.17)
Historical natural resources	-0.11*	-0.12*	-0.12*	-0.13*
	(0.05)	(0.05)	(0.06)	(0.06)
Slave exports	-0.02*	-0.02+	-0.02+	-0.02
	(0.01)	(0.01)	(0.01)	(0.01)
Suitability for European settlement	0.05	0.06	0.08	0.08
	(0.07)	(0.07)	(0.10)	(0.10)
Agricultural intensity	-0.00	-0.00	0.00	0.01
	(0.01)	(0.01)	(0.02)	(0.02)
Population density in 1850	-0.50+	-0.49+	-1.11**	-1.13**
	(0.27)	(0.27)	(0.24)	(0.23)
Ecological diversity	-0.21*	-0.22*	-0.21+	-0.21+
	(0.10)	(0.10)	(0.12)	(0.12)
Tsetse suitability index	0.03	0.03	0.03	0.03
	(0.03)	(0.03)	(0.03)	(0.03)
Constant	0.18	0.17	0.53	0.53
	(0.37)	(0.36)	(0.45)	(0.44)
Grid cells	1871	1871	1477	1477
Adjusted R^2	0.26	0.26	0.25	0.25
Sample	Full	Full	SSA	SSA
PCS FE	✓	✓	✓	✓
Lat & Lon	✓	✓	✓	✓

Notes: This regression table accompanies Figure A.4. "Full" models include all grid cells; Sub-Saharan ("SSA") models are limited to grid cells south of the 18°N parallel. All models are estimated using OLS with Conley standard errors in parentheses (distance cutoff = 300 km). $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$

Table D.3: Regression Table for Figure A.5, No Controls

	DV: COUNTRY BORDER IN CELL							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
PCS frontier	0.12**		0.14**		0.19**		0.21**	
	(0.04)		(0.04)		(0.03)		(0.04)	
PCS interior	-0.07**		-0.07*					
	(0.02)		(0.03)					
PCS frontier (0.25º buffer)		0.09**		0.11**		0.18**		0.20**
		(0.03)		(0.03)		(0.03)		(0.04)
PCS interior (0.25º buffer)		-0.09**		-0.09**				
		(0.03)		(0.03)				
Cell outside PCS					0.07**		0.07*	
					(0.02)		(0.03)	
Cell outside PCS (0.25º buffer)						0.09**		0.09**
						(0.03)		(0.03)
Constant	0.14**	0.14**	0.16**	0.16**	0.07**	0.05*	0.09**	0.07*
	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)
Grid cells	10341	10341	7228	7228	10341	10341	7228	7228
Adjusted R^2	0.01	0.01	0.02	0.02	0.01	0.01	0.02	0.02
Sample	Full	Full	SSA	SSA	Full	Full	SSA	SSA
reference category: Cell outside PCS	✓	✓	✓	✓				
reference category: PCS interior					✓	✓	✓	✓

Notes: This regression table accompanies Figure A.5. "Full" models include all grid cells; Sub-Saharan ("SSA") models are limited to grid cells south of the 18°N parallel. All models are estimated using OLS with Conley standard errors in parentheses (distance cutoff = 300 km). $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$

Table D.4: Regression Table for Figure A.5, Controls and Region FE

	DV: COUNTRY BORDER IN CELL							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
PCS frontier	0.08*		0.11**		0.16**		0.18**	
	(0.03)		(0.04)		(0.03)		(0.04)	
PCS interior	-0.08**		-0.07*					
	(0.02)		(0.03)					
PCS frontier (0.25º buffer)		0.06*		0.08*		0.15**		0.16**
		(0.03)		(0.03)		(0.03)		(0.04)
PCS interior (0.25º buffer)		-0.09**		-0.08*				
		(0.03)		(0.03)				
Cell outside PCS					0.08**		0.07*	
					(0.02)		(0.03)	
Cell outside PCS (0.25º buffer)						0.09**		0.08*
						(0.03)		(0.03)
Major (top 10) river	0.20**	0.20**	0.22**	0.22**	0.20**	0.20**	0.22**	0.22**
	(0.06)	(0.06)	(0.07)	(0.07)	(0.06)	(0.06)	(0.07)	(0.07)
Minor river	0.07*	0.07*	0.07**	0.07**	0.07*	0.07*	0.07**	0.07**
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Major watershed	0.10**	0.09**	0.10**	0.10**	0.10**	0.09**	0.10**	0.10**
	(0.02)	(0.03)	(0.03)	(0.03)	(0.02)	(0.03)	(0.03)	(0.03)
Major (top 10) lake	0.29**	0.29**	0.29**	0.29**	0.29**	0.29**	0.29**	0.29**
	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)
Minor lake	0.00	0.00	-0.00	-0.00	0.00	0.00	-0.00	-0.00
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Cell in desert	-0.03	-0.02	-0.04+	-0.04	-0.03	-0.02	-0.04+	-0.04
	(0.02)	(0.02)	(0.03)	(0.03)	(0.02)	(0.02)	(0.03)	(0.03)
Contested coastal areas	0.09**	0.09**	0.08*	0.08*	0.09**	0.09**	0.08*	0.08*
	(0.02)	(0.02)	(0.03)	(0.03)	(0.02)	(0.02)	(0.03)	(0.03)
Ethnic group border in cell	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Area of ethnic group	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Distance to the coast	0.03	0.03	0.02	0.01	0.03	0.03	0.02	0.01
	(0.02)	(0.02)	(0.03)	(0.03)	(0.02)	(0.02)	(0.03)	(0.03)
Historical natural resources	-0.05*	-0.06*	-0.06+	-0.06*	-0.05*	-0.06*	-0.06+	-0.06*
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Slave exports	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Suitability for European settlement	0.04	0.05	0.05	0.05	0.04	0.05	0.05	0.05
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Agricultural intensity	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Population density in 1850	-0.78*	-0.75*	-1.20*	-1.17+	-0.78*	-0.75*	-1.20*	-1.17+
	(0.33)	(0.32)	(0.61)	(0.63)	(0.33)	(0.32)	(0.61)	(0.63)
Ecological diversity	-0.07	-0.07	-0.10*	-0.10+	-0.07	-0.07	-0.10*	-0.10+
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Tsetse suitability index	0.04**	0.04**	0.04**	0.04**	0.04**	0.04**	0.04**	0.04**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Constant	0.14*	0.14*	0.19**	0.18**	0.07	0.05	0.12	0.10
	(0.06)	(0.06)	(0.07)	(0.07)	(0.06)	(0.07)	(0.07)	(0.08)
Grid cells	9913	9913	6816	6816	9913	9913	6816	6816
Adjusted R^2	0.08	0.08	0.09	0.09	0.08	0.08	0.09	0.09
Sample	Full	Full	SSA	SSA	Full	Full	SSA	SSA
reference category: Cell outside PCS	✓	✓	✓	✓				
reference category: PCS interior					✓	✓	✓	✓
Region FE	✓	✓	✓	✓	✓	✓	✓	✓
Lat & Lon	✓	✓	✓	✓	✓	✓	✓	✓

Notes: This regression table accompanies Figure A.5. "Full" models include all grid cells; Sub-Saharan ("SSA") models are limited to grid cells south of the 18°N parallel. All models are estimated using OLS with Conley standard errors in parentheses (distance cutoff = 300 km). $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$

Table D.5: Regression Table for Figure A.6

	DV: COUNTRY BORDER IN CELL											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
PCS frontier	0.14**	0.17**			0.09**	0.13**			0.09*	0.11**		
	(0.04)	(0.04)			(0.04)	(0.04)			(0.03)	(0.04)		
PCS interior	-0.05*	-0.04			-0.08**	-0.06+			-0.07**	-0.07*		
	(0.02)	(0.03)			(0.02)	(0.03)			(0.02)	(0.03)		
Ethnic group border	0.05**	0.05**			0.02	0.02			0.01	0.00		
	(0.01)	(0.02)			(0.01)	(0.01)			(0.01)	(0.01)		
PCS frontier (0.25° buffer)			0.11**	0.14**			0.07*	0.10**			0.06*	0.08**
			(0.03)	(0.03)			(0.03)	(0.03)			(0.03)	(0.03)
PCS interior (0.25° buffer)			-0.07*	-0.06+			-0.10**	-0.07*			-0.09**	-0.08*
			(0.03)	(0.03)			(0.03)	(0.03)			(0.03)	(0.03)
Ethnic group border (0.25° buffer)			0.05**	0.05**			0.02	0.02			0.01	0.00
			(0.01)	(0.02)			(0.01)	(0.02)			(0.01)	(0.01)
Major (top 10) river					0.18**	0.20**	0.18**	0.20**	0.20**	0.22**	0.20**	0.22**
					(0.06)	(0.07)	(0.06)	(0.07)	(0.06)	(0.07)	(0.06)	(0.07)
Minor river					0.07**	0.07**	0.07**	0.08**	0.07**	0.07**	0.07**	0.08**
					(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Major watershed					0.10**	0.11**	0.10**	0.11**	0.10**	0.10**	0.09**	0.10**
					(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Major (top 10) lake					0.32**	0.31**	0.32**	0.31**	0.29**	0.29**	0.29**	0.29**
					(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)
Minor lake					-0.01	-0.02	-0.01	-0.02	0.00	-0.00	0.00	-0.00
					(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Cell in desert					-0.03	-0.06*	-0.03	-0.06*	-0.03	-0.04+	-0.02	-0.04
					(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.02)	(0.03)
Contested coastal areas									0.09**	0.08*	0.09**	0.08*
									(0.02)	(0.03)	(0.02)	(0.03)
Area of ethnic group									-0.01	-0.01	-0.01	-0.01
									(0.01)	(0.01)	(0.01)	(0.01)
Distance to the coast									0.03	0.02	0.03	0.02
									(0.02)	(0.03)	(0.02)	(0.03)
Historical natural resources									-0.05*	-0.06+	-0.06*	-0.06*
									(0.03)	(0.03)	(0.03)	(0.03)
Slave exports									-0.00	-0.00	-0.00	-0.00
									(0.00)	(0.00)	(0.00)	(0.00)
Suitability for European settlement									0.04	0.05	0.05	0.05
									(0.03)	(0.03)	(0.03)	(0.03)
Agricultural intensity									-0.00	-0.00	-0.00	-0.00
									(0.01)	(0.01)	(0.01)	(0.01)
Population density in 1850									-0.78*	-1.21*	-0.75*	-1.18+
									(0.33)	(0.61)	(0.32)	(0.63)
Ecological diversity									-0.07	-0.10*	-0.07	-0.10*
									(0.05)	(0.05)	(0.05)	(0.05)
Tsetse suitability index									0.04**	0.04**	0.04**	0.04**
									(0.01)	(0.01)	(0.01)	(0.01)
Constant	0.12**	0.13**	0.12**	0.13**	0.11**	0.11**	0.11**	0.10**	0.15*	0.20**	0.15*	0.19**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.02)	(0.06)	(0.07)	(0.06)	(0.07)
Grid cells	10341	7228	10341	7228	10341	7228	10341	7228	9913	6816	9913	6816
Adjusted R^2	0.02	0.02	0.02	0.02	0.05	0.07	0.05	0.07	0.08	0.09	0.08	0.09
Sample	Full	SSA	Full	SSA	Full	SSA	Full	SSA	Full	SSA	Full	SSA
Region FE									✓	✓	✓	✓
Lat & Lon									✓	✓	✓	✓

Notes: This regression table accompanies Figure A.6. "Full" models include all grid cells; Sub-Saharan ("SSA") models are limited to grid cells south of the 18°N parallel. All models are estimated using OLS with Conley standard errors in parentheses (distance cutoff = 300 km). $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$

Table D.6: Regression Table for Figure A.9 Left Panel

	DV: SPLIT GROUPS (1) vs. NON-SPLIT GROUPS (0)								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Any river	0.07*								
	(0.03)								
Any lake		0.12*							
		(0.05)							
Major watershed			0.18**					0.15**	0.15**
			(0.03)					(0.04)	(0.04)
Share of desert (0-1)				0.03				-0.01	-0.07
				(0.06)				(0.08)	(0.09)
Major (top 10) river					0.16**			0.11+	0.10+
					(0.05)			(0.06)	(0.06)
Minor river					0.04			-0.00	-0.00
					(0.03)			(0.04)	(0.04)
Major (top 10) lake						0.12+		0.18*	0.19*
						(0.07)		(0.08)	(0.08)
Minor lake						0.11+		0.04	0.04
						(0.06)		(0.06)	(0.06)
PCS Murdock							-0.02	0.02	-0.00
							(0.05)	(0.05)	(0.05)
Contested coastal areas								0.23**	0.22**
								(0.05)	(0.05)
Area of ethnic group								0.04*	0.04*
								(0.02)	(0.02)
Distance to the coast								0.00*	0.00+
								(0.00)	(0.00)
Historical natural resources density								-0.21*	-0.22*
								(0.09)	(0.09)
Slave exports								-0.00	0.00
								(0.01)	(0.01)
Suitability for European settlement								0.17	0.19+
								(0.11)	(0.11)
Agricultural intensity								-0.01	-0.00
								(0.01)	(0.02)
Population in 1850								-0.00*	-0.00+
								(0.00)	(0.00)
Ecological diversity								-0.08	-0.07
								(0.08)	(0.08)
Tsetse suitability index								0.06*	0.10**
								(0.02)	(0.03)
Constant	0.24**	0.26**	0.22**	0.27**	0.24**	0.26**	0.30**	0.10	0.02
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.08)	(0.09)
Ethnic groups	825	825	825	825	825	825	756	756	756
Adjusted R^2	0.00	0.01	0.03	-0.00	0.01	0.01	-0.00	0.10	0.12
Region FE									✓
Lat & Lon								✓	✓

Notes: This regression table accompanies the left panel of Figure A.9. All models are estimated using OLS with robust standard errors in parentheses. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$

Table D.7: Regression Table for Figure A.9 Right Panel

	DV: SQUIGGLY SPLIT GROUPS (1) VS. STRAIGHT SPLIT GROUPS (0)								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Any river	0.14*								
	(0.06)								
Any lake		-0.06							
		(0.08)							
Major watershed			0.01					0.05	0.07
			(0.06)					(0.06)	(0.06)
Share of desert (0-1)				-0.59**				-0.44**	-0.50**
				(0.11)				(0.16)	(0.16)
Major (top 10) river					0.09			0.22*	0.22*
					(0.09)			(0.10)	(0.10)
Minor river					0.16*			0.16*	0.17*
					(0.06)			(0.08)	(0.08)
Major (top 10) lake						0.08		-0.00	0.00
						(0.09)		(0.11)	(0.11)
Minor lake						-0.16		-0.18+	-0.12
						(0.10)		(0.11)	(0.11)
PCS Murdock							0.08	0.15+	0.12
							(0.08)	(0.08)	(0.08)
Contested coastal areas								0.20+	0.25*
								(0.11)	(0.10)
Area of ethnic group								-0.06+	-0.09**
								(0.03)	(0.03)
Distance to the coast								0.00**	0.00**
								(0.00)	(0.00)
Historical natural resources density								0.44*	0.65**
								(0.20)	(0.21)
Slave exports								-0.00	-0.00
								(0.01)	(0.01)
Suitability for European settlement								0.14	0.09
								(0.18)	(0.18)
Agricultural intensity								-0.02	-0.03
								(0.03)	(0.03)
Population in 1850								0.00+	0.00*
								(0.00)	(0.00)
Ecological diversity								-0.18	-0.08
								(0.14)	(0.14)
Tsetse suitability index								-0.03	-0.02
								(0.05)	(0.06)
Constant	0.66**	0.76**	0.74**	0.81**	0.66**	0.76**	0.73**	0.60**	0.43*
	(0.05)	(0.03)	(0.04)	(0.03)	(0.05)	(0.03)	(0.03)	(0.17)	(0.17)
Ethnic groups	229	229	229	229	229	229	221	221	221
Adjusted R^2	0.02	-0.00	-0.00	0.12	0.02	0.01	-0.00	0.16	0.22
Region FE									✓
Lat & Lon								✓	✓

Notes: This regression table accompanies the right panel of Figure A.9. All models are estimated using OLS with robust standard errors in parentheses. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$