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The rise of linear borders in world politics

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Abstract

This article argues that the dominance of precise, linear borders as an ideal in the demarcation of territory is an outcome of a relatively recent and ongoing historical process, and that this process has had important effects on international politics since circa 1900. Existing accounts of the origins of territorial sovereignty are in wide disagreement largely because they fail to specify the relationship between territory and borders, often conflating the two concepts. I outline a history of the linearization of borders which is separate from that of territorial sovereignty, having a very different timeline and featuring different actors, and offer an explanation for the dominance of this universalizing system of managing and demarcating space, based on the concept of rationalization. Finally I describe two broad ways in which linearizing borders has affected international politics, by making space divisible in new ways, and underpinning hierarchies by altering the distribution of geographical knowledge resources.

Introduction

If one overarching pattern has shaped the geopolitics of the last century and a half, it has been the global linearization of borders. Unlike in previous eras, it is not considered enough to vaguely indicate an area or a frontier zone of a certain width, or to name certain places or jurisdictions in establishing control over territories. Since the late nineteenth century, it has been assumed that regardless of place or context, territories must have 'linear borders', ideally consisting of precise one-dimensional points on the earth's surface, connected by straight lines. The linear ideal of borders, and the practices of border delimitation and demarcation which make it possible to imagine the ideal as an accomplished fact, have fundamentally affected virtually all territorial politics, from postwar peace settlements to territorial partitions. That a border can in practice be purely linear is a fiction, as borders are always multifaceted, uneven, and ambiguous to some degree, but it is a powerful fiction, and many polities have attempted to linearize borders.

Yet there have been few efforts to explain the historical process which brought the ideal of linear borders to dominate politics. Such concepts as 'modern territoriality' and 'exclusive sovereignty' are important for understanding the modern state, but do not address issues of precisely how territory is defined, how territories are distinguished from each other, and what consequences arise from a linear definition of territory (Sassen, 2006; Spruyt, 1994; Teschke, 2003; Tilly, 1992). These debates have tended to bundle historical changes in the demarcation of borders into a 'Westphalian' package coming to life concurrently along with state formation and sovereignty, going almost unnoticed as an analytically distinct process in itself.

This article argues that the recent global consolidation of linear borders is not a politically neutral expression of territoriality, or simply territoriality taken to its logical conclusion. Instead, linear borders stem from a historically particular rationality and have distinct causes and effects. I proceed in four sections. First, I posit the insufficiency of existing International Relations (IR) approaches to the origins of territorial sovereignty for explaining the advent of linear borders. Second, I elaborate on the theoretical and historical distinction between territory and linear borders. Third, I outline an

explanation for the linearization of borders using the sociological concept of rationalization. Finally, I describe two broad ways in which the linearization of borders has affected twentieth and twenty-first century international politics: by enabling an acceleration and proliferation of territorial partitions, and by empowering certain states best able to manipulate the specific kind of geographical knowledge created through linear borders.

The Trouble with 'Territorial Sovereignty'

In IR, most discussions of the origins of modern geopolitics see 'territorial sovereignty' as the basic structure to be explained in terms of its origins and its spread to the rest of the world. These are broadly divisible into historical materialist explanations of territoriality (Spruyt, 1994; Teschke, 2003; Tilly, 1992), and constructivist or discursive explanations (Bartleson, 1995; Larkins, 2010; Philpott, 2001; Ruggie, 1993; Strandsbjerg, 2010). Differences exist as to the precise terminology, including variants such as 'exclusive sovereignty' or 'modern territoriality', but there seems to be broad agreement on what needs explanation: the geographical compartmentalization of legitimate political authority which is particular to the current historical era.

Yet while explanations of the origins of territorial sovereignty abound, the historical emergence of precise borderlines, as a way of attempting to universally specify this compartmentalization of authority, has received surprisingly little attention. This article, with Robert Sack (1986), understands territoriality as consisting of at least three things: classification by area, social communication of this area, and an assertion of control over the area. While this conception of territoriality is widely used, discussions of territoriality have elaborated far more on the last two aspects than the first. Many discussions of the history of territorial sovereignty refer to 'borders', but empirical examination of treaty texts or diplomatic negotiations over borders is not widespread (except Reus-Smit, 1999). Still rarer is the use in IR of histories of surveying and demarcating borders, and close attention to when and where borders were implemented as lines rather than zones (except Branch, 2014). Territory, it is agreed, is integral to modern conceptions of sovereignty, but variations in the way territory is defined or distinguished from other territories have received little attention. Other kinds of variations in territorial entities have been considered important, such as the sizes of territorial units (Tilly, 1992) and the contiguity of territories under one sovereignty (Teschke, 2003), but variations in kinds of borders remain mostly unremarked upon (except Kadercan, 2017). Moreover, studies of the origins of territorial sovereignty have mostly remained geographically confined to Europe, and few, if any, have tried to understand how and why, or even when attempts were made to linearize borders globally.

According to these literatures, the particular ways in which territories are distinguished from one another, whether in terms of treaty texts or the practices of measuring and marking space, seem to matter little to the overall constitution of international politics. Yet territories have historically possessed many widely varying types of borders, some of which might be too vague to be considered 'borders' today. Without considering borders, then, it is difficult to know precisely what is meant by 'territorial sovereignty'. What kind of borders or boundaries must exist at the edges of a territory for it to be considered an example of 'modern territoriality'? Must there simply be some basically functional or liveable way of knowing which territory one is in, or must all parts of every frontier consist of a series of connected lines, with no ambiguity or area in-between? Such questions have not generally been considered along with the origins of territorial sovereignty. Likewise, the concept of exclusivity is important but often ambiguous when it comes to the shape of territorial

borders, as it can refer either to the holder of authority in a given area, or it can refer to the geography of the area itself. The French monarchy, for example, held a certain 'exclusive authority' over France in the fourteenth century, in that wherever 'France' was, the monarch was supreme (Spruyt, 1994). Yet even within the 1648 Peace of Westphalia, some areas were incorporated into France only in a way which was limited and shared with the Holy Roman Empire (Croxton, 1999: 581). France, at that point, held exclusive sovereignty within its territory, but its territory was not quite mutually exclusive with other territories.

With the role of borders remaining generally implicit or ambiguous, 'territorial sovereignty' is too underspecified to carry the conceptual burden that the historical IR literature has placed on it. Territory, borders, and sovereignty are not the same thing, and while they seem to coincide today, assuming that they evolved simultaneously risks confusion. Consider the wide variety of dates available for the emergence of territorial sovereignty. If there is an orthodox view in IR, it is that the territorial state emerged out of a non-territorial feudal system in the 1648 Peace of Westphalia (Gross, 1948). Some add nuance by noting the emergence of territory in earlier centuries, especially in France, which is asserted to have been 'territorial' in the fourteenth century (Philpott, 2001; Spruyt, 1994). Christian Reus-Smit (1999: 113), however, maintains that the 'geographical extension' of sovereignty was 'ill-defined' until the 1713 Peace of Utrecht. Moreover, Jordan Branch (2014: 130) points out that even Utrecht reproduced older notions of space, with the consolidation of modern territory occurring only around 1815, bringing us to a generous range of four centuries. This is not to mention neo-Weberian approaches which usually consider a territorially demarcated area integral to the very definition of the state, regardless of historical era. Michael Mann (1984: 198), for instance, argues that what distinguishes states from other organizations is that its resources 'stop at defined territorial boundaries'.[1]

At issue here is not, as it may seem, an empirical disagreement, so much as a clash of differing, mostly implicit definitions of territorial sovereignty. These different definitions have to do with historical debates about the legal concept of sovereignty (Gross, 1948), exclusive effective control over some geographic area (Philpott, 2001; Spruyt, 1994), the abandoning of dynastic unions tying together distant territories (Reus-Smit, 1999; Teschke, 2003), or precise linear borders at the edges of territories (Branch, 2014). There are, of course, good reasons for adopting different definitions, based on different goals of different studies. This multiplicity of definitions of 'territorial sovereignty', however, has in this case served to obscure important differences between the topics under discussion by different theorists. Territorial sovereignty is not one thing, but a bundle of different ideas, technologies, and practices (Ruggie, 1993). Clarifying what question we are asking, in this case, is not a matter of hair-splitting, as it affects the answer we receive by a matter of centuries. This article, in response, argues for an understanding of the global linearization of borders as a historical process relatively autonomous from territorial sovereignty, with distinct causes and effects.

Of course, the subject of borders more generally has not gone unexplored. Political scientists, historians, scholars of critical border studies, and others have consistently challenged the assumption that borders are simply lines between states (Amoore, 2006; Parker and Vaughan-Williams, 2009). From various perspectives, it has been convincingly shown how the idea of linear

[1] A loose definition of 'defined territorial boundaries' may be intended here, but, as with the concepts of 'territorial sovereignty' and 'exclusive authority', terminological ambiguity can obscure changes in the meaning of the term as it is applied to different times and places.

borders obscures a far more complex reality of 'borderlands' (Baud and van Schendel, 1997), and the co-implication of 'inside' and 'outside' (Walker, 1993). Territories and borders are not monopolized by sovereign states (Du Plessis, 2017; Shadian, 2010). Borders have fulfilled various different functions in different times and places; the military, economic, and law enforcement aspects of borders may have changing or contradictory dynamics, and controls over people and migration have always been subject to historical variation (Andreas, 2003; Torpey, 2000). This article aims not so much to examine the complex reality obscured by the simple image of the line as to problematize the historical process of coming to take for granted this kind of line. This historical process has received attention largely as it relates to other processes, such as the emergence of territorial sovereignty or nationalism as 'the principle that holds that the national and the political unit should be congruent' (Gellner, 2006). Yet borders are often defined in treaties without any reference to military bases, economic resources, functional differences between borders, or, perhaps most notably, any people or groups of people. It is this process of abstracting borders from what they are intended to divide, and from any intended function they might have, which is the object of analysis here.

Conceiving of the linearization of borders as a relatively autonomous process, however, does not mean it is without implications for fields of study interested in territorial sovereignty, nationalism, borderlands, migration, and other border-related phenomena. The specification of borders as precise lines by no means eliminates the complexity of borderlands, but it does make possible a certain kind of borderland, by creating a position from which authorities and 'experts' can claim a monopoly over the ability to know and manipulate border geographies. The efforts that polities put into negotiating, surveying, mapping, and demarcating linear borders makes it possible to imagine that borders literally are as linear 'on the ground' as they appear on maps. This ability to confuse maps with reality has an important role in sustaining what John Agnew (1994) calls the 'territorial trap'. That politics and social relations take place first and foremost within bounded territorial entities, Agnew argues, is an assumption of much of the social sciences which rules out the study of the historical emergence of territoriality as well as the possibility of future systemic changes. The role of state territoriality or 'state space' as a container of power and social relations is historically particular (Agnew and Corbridge, 1995; Taylor, 1994). The territorial trap provides a set of spatial assumptions at the foundations of both policies and theories which naturalizes states' control over territory and makes non-territorial spaces difficult to imagine (Adamson, 2016; Neep, 2017; Shah, 2012).

The historical process of the linearization of borders is what makes this territorial trap convincing and believable. The very idea of 'juridical sovereignty' (Jackson and Rosberg, 1982) requires a conceptual separation between a clearly defined territory and an area of effective control or positive sovereignty, which is made possible through technological practices of boundary demarcation. Indeed, IR theory's very conception of the international as a finite set of discrete states and their interactions, as opposed to a thick space of mutual co-constitution, depends on the assumption that all non-state forms of political association that may have existed within the frontiers between states have been absorbed into one or another state territory. This article, then, is situated within the broader project of achieving a 'historical-geographical consciousness' in which the spatial structures of international politics are problematized and historicized rather than reified and given assumed fixity (Agnew, 1994: 77). Yet within this broader agenda, it sheds new light on the increasingly linearized character of borders, and the consequences of this shift in international politics.

Linear Borders versus 'Territorial Sovereignty'

Borders are different from territory, both in theory and in history. In theoretical terms, territory can be conceptualized as having frontier zones at the edges, possessing some width or ambiguity, or it can be thought to have more precise boundary lines. International law, for example, defines territory in the latter sense, as having boundaries which are normally 'defined and delimited in all respects' (Schwarzenberger, 1957: 310). On this 'linear' or 'coterminous' conception of territorial borders, it is theoretically impossible for a point on land, besides Antarctica, to be in more or less than one territory at a given moment. There is no place which is on or within the border rather than in one or the other territory. Often these imaginary lines are straight, and even borders that appear to be 'squiggly' on small-scale maps are often officially defined by a series of boundary markers connected by straight lines. Despite the technically infinite complexity that can be achieved by a large number of boundary markers connected in this way, this conception of borders is inevitably limited by the fact that it is always built on lines. Even when a treaty defines a border otherwise, for example, by following a watershed boundary, it is still meant to be linear in the sense that the boundary could, in principle, be 'found' at any point, to any degree of precision required. While this conception was not applied in Europe in the seventeenth century, and while it was first attempted in European colonies (Branch, 2012), it has often been misleadingly called 'Westphalian' territoriality.

The concept of territory, however, is also often used in a much broader sense than that defined by international law. 'Territoriality', used here as an ideal-type, refers to strategies of rule recurring in a wide range of contexts in human experience (Sack, 1986).[2] The key difference between territorial and non-territorial strategies of rule is whether authority is applied to people and things based on *where* they are rather than by *who* or *what* they are. Territoriality is essentially 'rule by geography' rather than universal rule, or rule by networks or personal relationships. While this definition of territoriality is widely used (Philpott, 2001: 17; Spruyt, 1994: 35), it is less often realized that territorial strategies of rule are not irreconcilable with vague frontiers that fade into each other; overlapping territories do not preclude rule by geography. An authority can be meaningfully considered territorial as long as there is some way of conceptualizing a region where the authority applies, and socially communicating its geography. There is no need for a linear border to be drawn on a particular kind of map or demarcated physically with a particular kind of sign.

Linear borders in the pure, geometrical sense implied by international law are distinct from 'natural borders' in the sense of the rivers, mountain chains or other large geographical referents that can be used to describe a frontier. Rivers have width and change their courses, for example. Intergovernmental organizations been founded in response to these unavoidable gaps between the simple ideal of fixed linear borders and complex realities such as riverine topography. An International Boundary Commission (IBC), for example, continually defines and redefines the nearly 9,000-kilometer long Canada-US border as a series of straight lines connecting specified turning points (IBC, 2015a, 2015b). Including where the boundary follows river courses, it is a series of over 8,000 regularly maintained monuments and precisely defined turning points, not rivers themselves, which define every minute twist and turn of the boundary. Despite the intuitive simplicity of river

[2] Likewise, I use 'territory' as an ideal-type referring to a somehow specified area within which a polity locates its authority. This is different, for example, from the *concept* of territory (Elden, 2013). The distinction is important because while the latter must be located within a very particular historical context, polities have specified their authority geographically in a wide range of historical contexts.

boundaries, according to the Commission itself, 'Without the work of the IBC, we simply would not know where the border is' (IBC, 2015a).

Mountain chains have also been used as 'natural borders', yet merely referring to a mountain range has often been deemed insufficiently precise. Despite being a famous example of a 'natural frontier', the Pyrenees mountains between France and Spain are not really as linear as they appear on some maps, and the international border was not linearized in some parts until the late nineteenth century (Sahlins, 1989). The complexity of 'natural boundaries' was famously demonstrated by British colonial geographer Thomas Holdich (1899: 470). Anyone with actual surveying experience, he presumed, would know that the highest chain of a mountain and the watershed boundary are usually two very different things, and boundary agreements failing to specify which would take precedence risked future conflict. Assigned to a border arbitration between Chile and Argentina, Holdich's final report on the case made it into a textbook example of the problem (Boggs, 1940: 91). It is important, of course, to recognize that absolutely unambiguous borders, as sought by Holdich and others, are never concretely attainable but are only worked towards through surveys, cartography, formalized treaty language, engineering, and other practices. It may be more useful, then, to refer to linearization as an uneven and never-completed process rather than to linear borders as an identifiable idea or a practice that was achieved at some point in the past and subsequently spread geographically.

In historical terms, attempts to universally linearize borders are only a very recent episode in the broader history of territoriality. As recently as the late nineteenth century, well after the 1648 Peace of Westphalia, the expectation that borders be linear has been far from globally accepted. Many historical polities were territorial, but without indicating borders with the scientific kind of precision expected today (Thongchai, 1994). As examples of non-linear boundaries, consider the heterogeneity of some of the answers given to an 1875 British inquiry into the boundaries of some Malay principalities:

> "The boundary of our State extends as far as the meeting of the fresh water with the salt water of the river;" or, "If you wash your head before starting, it will not be dry before you reach the place;" or, "The boundary may be determined on the river, as far as the sound of a gunshot may be heard from this particular hill." (Daly, 1882: 398)

At least until the middle of the nineteenth century, non-linear borders, or at least the absence of borderlines agreed by treaty, were more the rule than the exception, in not only Southeast Asia, but in such disparate and wide regions as Africa (Ajala, 1983) and Latin America (Lalonde, 2002). Likewise, parts of the French-Spanish and Portuguese-Spanish borders remained without linear definition, retaining vaguer feudal definitions (Paul and Trillo-Santamaria, 2015; Sahlins, 1989). Even after the technological practices of linear borders became available, they continued to coexist for centuries alongside zonal frontiers. For example, North America saw some of the earliest efforts to linearize borders in the early seventeenth century between English colonies, yet the westernmost portion of the border between the United States and British North America was not specified precisely until 1846 (Miles, 1957). Most Latin American borders were delimited over the course of the nineteenth century (Lalonde, 2002). While the boundary between the Ottoman and Habsburg Empires was linearized in the 1699 Treaty of Carlowitz (Abou-el-Haj, 1969), the Ottoman border with Persia was officially linearized by a commission which concluded in 1914 (Ates, 2013).

The late universalization of linear borders is related to, but not a simple byproduct of European expansionism. For most of the nineteenth century, European empires were reluctant to define any borders at all around their coastal territories in Africa, as part of what has been called 'free trade imperialism' (Hargreaves, 1985). In particular areas, such as the desert between southern Morocco and French Algeria, they resisted against specifying borders into the early twentieth century (Trout, 1969). Western maps of Africa as late as the 1890s routinely display heterogeneous, 'non-Westphalian' patterns of territoriality, depicting coloured territory fading at the edges, dead-ending borders, and half coloured-in bordered areas, combined with more familiar interlocking territories, as in the maps below.

[Figure 1 here]

Figure 1. 'Map of Africa from the Latest Authorities', Samuel Augustus Mitchell, *A New Universal Atlas*, Philadelphia, 1853. Courtesy of the David Rumsey Map Collection (www.davidrumsey.com).

[Figure 2 here]

Figure 2. 'Carte Général de l'Afrique', Adrien-Hubert Brué, *Atlas Universel*, Paris, 1875. Courtesy of the David Rumsey Map Collection (www.davidrumsey.com).

[Figure 3 here]

Figure 3. 'Africa', Keith Johnston, *The Royal Atlas of Modern Geography*, Edinburgh, 1893. Courtesy of the David Rumsey Map Collection (www.davidrumsey.com).

Because the existing literature on territorial sovereignty focuses almost exclusively on the progression of Europe from feudalism towards modernity, it runs the risk of overstating the historical specificity of territoriality. When Morgenthau (1985: 327) refers to the 'new phenomenon of the territorial state' in the sixteenth century, or others note that 'systems of rule in the early Middle Ages…were nonterritorial' (Spruyt, 1994: 35; see also Philpott, 2001: 78), it is implied that territoriality itself was invented in the process of the European transition from the medieval to the modern. This fits in with a long tradition in Eurocentric historiography which focuses on this progression and the sharp temporal break it appears to have created (Chakrabarty, 2008; Lundborg, 2016). Rule, of course, need not always be defined territorially. But much work that has been done on systems of rule outside Western modernity suggest instead that forms of territoriality have been expressed in various times and places (Thongchai, 1994). This includes medieval Europe; simply because personal relations and overlapping jurisdictions characterized medieval rule does not mean it typically referred to no particular geographical area (Ruggie, 1993).

Instead, it is more accurate to say that the global linearization of borders, rather than territoriality, is specific to our era, and relies on a host of technologies and practices which are more historically specific than territoriality. As Thomas Holdich (1899: 466) wrote after demarcating many of the British Empire's borders, 'Truly this period in our history has been well defined as the boundary-making era'. Holdich, like many, confused the historically specific form of precise linear borders with territorial boundaries more generally, but he had good reasons to label his own era as such, at the end of the nineteenth century, rather than the era of 'Westphalia'.

At the same time, it would be a mistake to view the globalization of linear borders as a process completed in the early twentieth century. The Saudi-Yemeni border, for example, remained mostly

undefined until 2000 (Al-Enazy, 2002), and the linearization of maritime borders in the Arctic and South China seas remains contentious. Moreover, borders have so far been specified primarily in only two dimensions. Despite state territory long being formally recognized as three-dimensional, there is no consensus in international law on the nature of boundaries between states and outer space (Cheng, 1997). A 'functionalist' school of thought, contrary to 'spatialists', insists that these boundaries do not have fixed locations but instead depend on the nature of any particular activity, for example, whether a vehicle is jet- or rocket-propelled. As long as states continue to look for ways to make their borders more precise, it is likely that they will continue to find them.

To sum up, the global linearization of borders is a process which, after several centuries, reached a climax in the late nineteenth century, but continues today. Existing theories of the origins of territorial sovereignty, which tend to see territorial sovereignty effectively consolidated by the early nineteenth century or earlier, do not account for this process. In the next section, I turn towards explaining the global linearization of borders.

The Linearization of Borders as Rationalization

So far I have focused on the times and places in which territory and linear borders have existed, and exposed the empirical difficulties with conflating them. However, if the linearization of borders is indeed comprehensible as relatively autonomous from territoriality, two additional things must be shown theoretically: that this process had some cause independent from or broader than territoriality, and that linear borders had some constitutive effect on international politics that cannot be attributed to territoriality alone. The following two sections, then, explore the origins and consequences of linearized borders. I argue in this section that the linearization of borders should be understood as an outcome of larger epistemic processes of rationalization, and in the next section, that this manifestation of rationalization in geopolitics has played a key role in the twentieth century proliferation of partitions, and in establishing 'science' as a powerful resource in geopolitics.

There are some crucial insights from literature on the history of territoriality that are useful for our purposes here. On one hand, what might be called 'epistemic' explanations point to the influence of increasingly atomistic notions of subjectivity in European society, art, and literature (Larkins, 2010; Ruggie, 1993). On the other hand, 'cartographic' explanations stress the technology of map-making as enabling certain forms of territorial governance to be conceived of, before they could be implemented in practice (Branch, 2014; Strandsbjerg, 2010). These explanations of territorial sovereignty rely on an implicit concept of rationalization. Whether it is cartographic practices and technology or conceptions of subjectivity which are under consideration, these studies all allude to a shift or narrowing of what appears 'rational'. Branch (2014: 92), for example, notes that 'Frontier zones filled with enclaves and overlaps were "rationalized," or made linear,' as part of the process of 'territorializing the state actors involved in international politics'. Richard Ashley (1989: 290), similarly, identifies the 'Cartesian practice of spatialization', in which 'resides the very possibility of rational political subjectivity', as a source of modern sovereignty (see also Walker, 1993: 129).

The rationalization of subjectivity and of cartographic practices referred to in such studies are particular aspects of one larger bundle of processes. This process by which forms of knowledge and order perceived as traditional, mystical, arbitrary, or unclear were delegitimized in favour of those which seem rational was termed 'rationalization' and first theorized as such by Max Weber. Weber believed rationalization to be 'the fate of our age' (1988: 30), and while his analysis of bureaucratic

rationality is particularly well-known in IR, he wrote about its effects in a wide variety of domains of life, such as theology, law, and even music theory. Weber wrote little about political geography, despite including a territorial requirement in his definition of the state, which offers no reflection on the nature of a territory's borders (Weber, 1991). Yet the framework of rationalization is helpful for understanding the process of the linearization of borders and its constitutive effects on international politics.

Processes of rationalization can be broken down into three components which are of concern to linear borders. First, concepts were pushed to the highest levels of abstraction and generality, while the particularities of concrete things, people, and places were to be understood only through general categories. These abstractions then became rules used to order practical action, descending back down to the level of the concrete. Finally, these rules were actively spread horizontally to new areas to ensure their conformity.

Privileging the Abstract over the Concrete

The first step in processes of rationalization involves the creation of concepts and abstract systems of thought, in place of direct action (Kalberg, 1980: 1152). Such systems of thought, which Weber calls 'theoretical rationality', were crucial in disavowing all magical and mysterious forces, and comprehensively explaining human suffering and the meaning of existence. In the late sixteenth century, for example, the renaissance humanist interest in ethnographic, geographic, and historical concreteness and particularity gave way to the generalized laws of the scientific revolution (Toulmin, 1992: 32). With the growth of seventeenth-century physics, the concept of 'place' came to be defined only by the general characteristics of all places that could be abstracted from any place in particular, such as size and distance from other places, and were thus subordinated to a more generalized and homogeneous notion of Cartesian space (Casey, 1997). To be clear, the important shift here is not towards fuller knowledge of the conditions of human life, but rather towards the belief that 'if one only wanted to one could find out any time' the answer to any particular question about this natural, disenchanted world (Weber, 1988: 13).

Three particular systems of abstraction laid the groundwork for the development of linear borders. First is the Renaissance adaptation of Ptolemy's system of latitude and longitude. As standardized under the Greenwich Meridian, this powerful system of spatial epistemology relies on only two particular objects: the rotational axis of the earth, and the Royal Observatory at Greenwich. In theory, it allows one to determine one's location 'objectively', or, given a set of any technically possible coordinates, to locate the one spot on the earth's surface which corresponds to it. Any ambiguity or error can be attributed to the instruments used or the interpretation of their output, but not to the system itself. Second, alongside this spatial epistemology came the ontology of bounded, formally equivalent, self-contained geographic entities, as began to be represented in early modern European maps (Biggs, 1999). In the same way that abstract equations define objective laws of motion, even if never precisely observed in practice, the fact that frontiers can only ever tend towards a line is overlooked in the search for geometrical abstractions.

The connection between these two systems is made necessary by a third one, international law. The project of international law has, from its origins, been an application of allegedly universal reason on the global scale (Anghie, 2005). For Francisco de Vitoria, it was a novel solution to the gap between the legal systems of Spain and that of the Indians the Spanish encountered, based not on Christian

divine law but on the universal reasoning ability of humans. Yet some nations were thought to be organized more rationally than others and were therefore more civilized (Patterson, 1997: 35). Refashioning the idea of Christendom into a secular 'European' civilization distinguished European nations from non-European nations primarily on the basis of their rational civilization. It was this international law founded on universal reason which would purportedly entitle European powers to draw definitively fixed borders, not only between each other but in all parts of the world.

Putting Abstractions into Practice

Along with these newly ambitious abstract systems of knowledge came attempts to apply them back to the concrete reality from which they were extrapolated and use them to reshape the world. Through the disenchantment of theoretical bodies of knowledge it became believable that 'one can, in principle, master everything through calculation' (Weber, 1988). The Cartesian idea of the rational mind as an architect planning imaginary structures first, free from the complexity of the world, and only then building them in reality, maintained the priority of the abstract over the real (Mitchell, 2002). Weights and measures were standardized, and forests began to be managed and planted in rational patterns in the late eighteenth century (Scott, 1998). Even frontiers had to be 'rationalized' according to military logic (Branch, 2014: 155).

Historically, divine forces have often appeared to assist in the fixing of boundaries (Stilgoe, 1976). In ancient Rome, for example, the god Terminus presided over property boundaries, which had to be marked, and moving these markers was not only illegal but also sacrilegious. In early modern England, villagers accompanied clergy on an annual walk tracing parish boundaries, saying prayers and chanting psalms. The politics of locating and relocating boundaries often gave a role to divine powers that could never completely be captured by human understanding. But with the removal of mysterious forces from the world by rationalization, it was left to human imagination and design to fix boundaries. The 1494 Treaty of Tordesillas, which was perhaps the first attempt to create a large-scale linear border, was originally guaranteed by the spiritual authority of the papacy (Branch, 2012). Yet as international law developed, it increasingly derived its authority instead from its self-evident rationality, having been elaborated by 'rational' civilizations. Inter-imperial agreements such as that concluded at the Berlin Conference of 1884 reveal empires attempting to set down rules which would rationalize colonial activities and effectively manage their projections of power on the continent. It was the calculability of state interests which had given rise to the idea of a 'balance of power' which guaranteed these boundaries, not religion or mystical powers (Bartelson, 1995: 181).

In addition to what was now believed to be institutionally realistic, technological developments were applied to make linear ideals a reality on the ground. Using the Ptolemaic system of latitude and longitude, by specifying a series of connected coordinate points, called 'turning points', borders can be reduced to little more than a series of numbers, such as the following definition of the Saudi-Jordanian border (US State Department, 1965):

> TP No. 1 Jabal 'Anazah; 32° 14' North and 39° 18' East;
> tripoint with Iraq
> TP No. 2 32° North; 39° East
> TP No. 3 31° 30' North; 37° East
> TP No. 4 30° 30' North; 38° East
> TP No. 5 30° 20' North; 37° 40' East

TP No. 6 30° North; 37° 30' East
TP No. 7 29° 52' North; 36° 45' East
TP No. 8 29° 30' North; 36° 30' East
TP No. 9 29° 11' North; 36° 04' East
TP No. 10 29° 21' 30" North) indicate as approximate position
34° 57' 30" East) of coastal terminal point.

Beginning in the colonial New World, then, European empires began to divide real space with theoretical lines. This gave the impression that space had been rationally planned first, and then simply implemented according to plan. Contrary to appearances, however, the linearization of borders has rarely, if ever, been completed precisely according to any comprehensive plan. Instead, linearization is a continuous process often characterized by an oscillation between the failure of the world to conform to abstract concepts, and the creation of new abstract concepts in order to correct for the previous failure, with first principles never being called into question. As an illustrative example, consider the roughly three hundred years of boundary disputes between the colonies, and later states, of Pennsylvania, Maryland, and Delaware (Bayliff, 1959). The southern boundary of Pennsylvania was originally set at 40° North, but it was later discovered that Philadelphia, the main city of Pennsylvania, was south of this line. Thus an agreement was reached between the three colonies whereby the Pennsylvania-Maryland boundary would be moved south, and Maryland would receive part of Delaware in exchange. But this agreement could not be implemented either, because it required delimiting a radius of twelve miles around New Castle, Delaware, a town with no obvious centre point. A further agreement specified the centre as the cupola of New Castle's Court House, but then when a twelve-mile radius was drawn from there, it did not quite reach the northeast corner of Maryland, and a thin wedge of territory was left outside each of the three colonies. It was not until 1921 that this wedge became part of Delaware.

One solution to this problem, endemic to all attempts to linearize borders, was conceptualized by British colonial official Henry McMahon: separate the task into two parts, one political and one technical, otherwise known as 'delimitation' and 'demarcation' (Rushworth, 1997). This distinction is still used in Border Studies today. Agreement on the general course of the boundary should be agreed on first by diplomatic negotiators, and only then, once a political agreement was reached, geographical technicians should set out to physically mark the boundary however possible. The impossibility of total knowledge of the world would be incorporated into this system of rationalization by establishing a certain amount of freedom to be given to the technicians to demarcate the boundary according to the reality of the world rather than confining them to a geographically ill-informed treaty. Yet this could not solve the problem completely because it never revisited the first principle of the entire system: the essentially linear nature of borders.

Privileging the Universal over the Particular

The first two elements of rationalization entailed the linearization of some borders. Yet linear borders coexisted alongside other methods for centuries. Some borders dead-ended in continental interiors, and most states in Europe still lacked linear borders in the mid-eighteenth century, even when they possessed colonies in the Americas that had them (Branch, 2012). But by the end of the nineteenth century, imperialists were making more and more deliberate efforts to linearize borders as a universal rule rather than one among many possibilities. Weber's concept of 'formal rationality' can help us understand this universalization (Kalberg, 1980: 1158). Under conditions of formal

rationality, which Weber sees as taking shape most clearly in the industrial era, all action in any particular domain has to be oriented according to one objective set of principles. Formal rationality differs from 'theoretical rationality' and 'substantive rationality', in that rules dictate everything, 'without regard to persons', rather than particular worldviews or values. The universalization of linear borders, I argue, is part and parcel of this larger historical shift towards uniformly applied rules.

The transformation of British views of Afghan territoriality over the course of the nineteenth century is particularly indicative of an increasingly uncompromising application of universal rules, disregarding local concepts. Earlier in the century, in describing the 'limits of the kingdom of Caubul', diplomat Mountstuart Elphinstone had drawn on 'the test made use of by the Asiatics themselves', and considered 'the King's sovereignty as extending over all the countries in which the Khootba is read and the money coined in his name' (Bayly, 2016: 78). But by the later part of the century, a British official could state that in fact 'there is no such thing' as an Afghan boundary (Bayly, 2016: 244). Where did these boundaries go? What changed was not the ability of imperial agents to access knowledge, but rather that local knowledge did not correspond to the universal principle of linear boundaries. Consider the Pamir mountains in the far northeast of Afghanistan, described by George Curzon, the future Viceroy of India, as 'so lofty in situation, fast bound in the fetters of frost and ice during eight months of the year, almost destitute of vegetation, swept by hurricanes…the ownership or boundaries of which none are able, and few are anxious, to determine' (Ewans, 2008: 240). Yet despite making boundary-drawing in this region seem an absurdity, Curzon could not entertain the possibility of this boundary remaining 'haphazard' and 'irregular'.

In order for this to happen, the decisive step had to be taken by Enlightenment thinkers to assert that Western ideals were not only superior to other ideals but also had to replace them. Forms of colonialism which explicitly worked within local knowledge were delegitimated, and European technology and scientific expertise was increasingly thought of as a measure of this superiority (Adas, 1989). For many observers, the arbitrariness of a frontier lacking official definition came to signify a backwards civilization. According to Friedrich Ratzel, linear borders emerged when civilized societies neighbouring each other exerted mutual pressure which forced them to adopt a rational use of the land, and eliminate any unused middle ground (Benton, 2010). Uncivilized societies, on the other hand, apparently did not feel such pressure. For Curzon (1907), 'In Asia, the oldest inhabited continent, there has always been a strong instinctive aversion to the acceptance of fixed boundaries…partly from the dislike of precise arrangements that is typical of the oriental mind'.

The adoption of fixed boundaries, in global-historical terms, is often associated with the proliferation of nationalisms and national states, while many empires are thought to have been antithetical to the fixing of boundaries (Anderson, 2006; Maier, 2017: 14-81). Comparing bordering practices and discourses in metropoles and colonies complicates this view, however, firstly because border linearization was first attempted in colonies, not metropoles (Branch, 2012). Moreover, the linearization of borders in most of the world occurred under the auspices of formal or informal empire, whether through inter-imperial border commissions, or through British or American arbitration. The academic field of Border Studies owes its foundation in large part to a group of imperial officials grappling less with the problem of attaching a national identity to a particular territory than with the problem of rendering unfamiliar spaces intelligible and safe for imperial expansion by fixing inter-imperial limits (Curzon, 1907; Holdich, 1899; Rushworth, 1997). Regardless of the context, these officials assumed the rationality of linear borders and argued that precise borders would help 'civilize' spaces which they found difficult to govern.

While Weber was skeptical of rationalization processes, believing them to restrict human freedom and contradict their originally intended purposes, the limitations of rationalization are outside the scope of this article. The important point here is that rather than a politically neutral expression of territory or sovereignty, then, linear borders delimit territory in terms of a historically particular rationality which affected a wide range of social domains and reached a new height in the industrial era.

The Consequences of Spatial Rationalization

International politics in a world made up entirely of theoretically coterminous, interlocking territories with linear borders is different from politics in a world of multiple acknowledged forms of territoriality, or less clearly defined frontiers. There are certain forms of politics that have been characteristic since around 1900 that were impossible without linear borders, even in the relatively well-defined territories of 'Westphalian-era' Europe. I describe two here: firstly, the acceleration of territorial partition particular to the past century or so, and secondly, the specific form of power derived by some states through cartographic technology.

Partition

One remarkable pattern in international politics since the early twentieth century that has been noted in IR is the increasing number and decreasing size of polities, in contrast to the previous decades, which were marked by decreasing numbers and increasing sizes (Griffiths, 2016). At first glance, there is a striking correlation between the time at which linear borders crystallized as a global standard of territorial definition, in the late nineteenth century, and the time at which a process of global partition began. Linearized borders alone did not cause this global partitioning. They did, however, enable and accelerate the process in three ways: by making territory appear more readily divisible, by abstracting spatial considerations from other issues, and by creating a modular process of partition which could technically be transplanted to any place in the world.

First, linearized borders help make space divisible in new ways. A number of IR scholars have investigated the conditions under which actors are unable to partition territory (e.g. Goddard, 2006). But if we expand our analysis outside times and places where linear borders are the assumed way of defining authority, how territory becomes divisible in the first place is equally in need of explanation. Any effort to partition is always limited by the concepts and knowledge possessed by decision-makers. Conceptually, space may be made up not of homogenous, infinitely divisible space, but rather of a finite number of socially constructed regions, provinces, counties, and so on. At some point, divisions and subdivisions of these are likely to reach a small enough subregion that dividing it is no longer meaningful to a sizeable social group, and there is no guarantee that such a strategy would be useful or available to negotiators.

Linear borders mitigate the obstacles to creating radically new boundaries, or at least they can appear to do so from the bird's-eye perspective of authorities. As long as it can be mapped and has area, a territory can be split into smaller areas in a technically infinite number of ways. Linear borders make it possible to imagine that an objective and reliable division can be created, even if it has very little in common with existing arrangements, or cuts across local habits and customs. The

1947 partition of India, for example, divided the provinces of Punjab and Bengal in a way which would not likely have made sense before the linearization of borders, using only very small administrative divisions and cutting across thick spaces of land ownership (Chatterji, 1999). It was typical for individuals to use and hold various kinds of rights over many disparate plots of land, meaning that the partition criminalized the networks and routine transactions which sustained much of the countryside. The earlier Mughal administrative divisions, which were not so linear, had accommodated these transactions (Michael, 2007). When British administrators arrived, they found it difficult to understand the existing divisions, as they found them constantly shifting and filled with enclaves. Over the course of their nearly two centuries of rule in India, they linearized the borders of these divisions, but this did not completely eradicate earlier patterns of land usage. The commissioner for the partition, Cyril Radcliffe, was chosen not despite but because he had had no experience with either India or boundary-drawing, which the government hoped would put him beyond suspicion of partiality. He did, however, have maps and data at his disposal, and by design it was largely on this basis that he made his decision, which would likely have been very different if not for the assumption that a simple linear border could be, and had to be drawn.

Divisibility is only one precondition of territorial partition that linear borders accentuate. Another is what might be called 'territorialization'. Territorialization is the process by which issues are transformed from less clearly territorial issues to more clearly territorial, or in other words how the issue of how to distribute space between actors becomes distinct from other issues. Linearizing borders facilitates this process of territorialization, as a form of rule which is both abstract and concrete. As an inherently abstract system, it helps conceptually separate territory and its contents, and thus provides a clear way of differentiating between territorial and non-territorial strategies of rule. Nearly any political problem, from a particular perspective, can appear to be a problem of defining borders in the right way. The more that borders become conceptually tied to a global geometrical system of reference rather than concrete practices of rule, the easier it is to imagine territorial politics as a distinct and autonomous sphere of politics. It is through the global linearization of borders that the question of division becomes an already identifiable and potentially conflict-engendering possibility.

While they are characterized by abstraction from people and objects, linear borders, when mapped, appear to give territory a physical substance which can be measured precisely. When Thongchai Winichakul (1994) refers to the creation of Siam's 'geo-body', it means not simply territory, but territory with mappable borders, and it is Thongchai's contention that these borders gave the Thai national space a more tangible existence. While Siamese territorial entities had existed previously, it was only through this recent process that a Thai nation itself was territorialized (Thongchai, 1994: 134). Linear borders provide an appearance of precision and measurability to some social facts, such as identity, which would often otherwise seem more ambiguous and imprecise. In a rationalizing world in which virtually all areas of life demand certainty and clarity, identity can prove disconcertingly fluid and vague to be deployed as a basis of political contestation, but linear borders seem otherwise, and can thus be used as a proxy.

Finally, because linear borders are theoretically applicable anywhere, experiences gained from one partition can affect others, and disparate issues can become linked. Like Benedict Anderson's (2006) nationalisms, partition has become a 'modular' phenomenon, capable of being reproduced and appropriated for different purposes in different places. When we take multiple cases of partition into account, then, we have to consider the effect that they have on each other. Partition is, by now, an experience shared by a wide range of peoples, from Korea to Ireland, and the more that different

partitions resemble each other, the greater the possibilities for transnational links to be forged based on these experiences, with issues in different places becoming linked, and imperial officials transferring their experiences from one partition to the next.

In particular, the partitions sponsored by the British Empire in many places, including Ireland, Palestine, and India are connected not only by comparisons that might be drawn in hindsight, but also by direct links. India's close involvement within the UN on arrangements for Palestinian independence had everything to do with its own ongoing partition into Hindu and Muslim areas (Kumaraswamy, 2010). According to one historian, many in Ireland, similarly, have viewed Israel as a 'little Jewish Ulster', taking a term coined by one British colonial governor, and such perceived parallels have engendered 'an emotional connection with Palestine that has inspired Irish activism in the region up to the present day' (Miller, 2010). Several British officials such as Reginald Coupland and Leo Amery were influential in both the Indian and Palestinian partitions (Fraser, 1984). While many individual and comparative studies of partition exist, little work has been done to appreciate the mutual influences between and transnational links created by partitions, many of which have been made possible by the apparent universality of linear borders.

In sum, linearized borders make partition less immediately contingent upon particular socially constructed regions, more likely to appear as a solution to the ambiguities of identity politics, and allow partitions to feed off of each other and proliferate globally.

The Scientific Peace: The Politicization of Geographers

The linearization of borders is inseparable from historically particular, 'scientific' types of knowledge, and it can empower experts of a certain kind and the states that employ them. At peace negotiations, for example, the impact that one group or state has on the ultimate result has to do not just with its military or economic power, but also depends on its power in terms of this particular kind of knowledge. While geometrical, mathematical, and statistical knowledge appear obviously applicable to linear borders, other geographies such as those of lived experience no longer seem necessary. The impact of scientific discourses on international politics has been approached in a number of different ways previously (Mayer et al., 2014). The goal of this section is to set out the role of the linearization of borders within the co-constitution of science and international politics, and to argue that scientific discourses constitute an important source of power by limiting the kinds of knowledge considered valid.

When borders are 'hereabouts', no group is necessarily better positioned than any other to identify them. Without centralized records of linear borders, polities as widely ranging as France and Siam historically depended on local inhabitants to know where exactly boundaries were (Buisseret, 1982; Thongchai, 1994). Linear borders, however, being conceptually limited and geometric, narrow the kind of knowledge that appears useful for this. Knowledge of lived experience or of gods no longer has any obvious bearing. Instead, the knowledge resources that are socially constructed as useful tend to be survey techniques, demographic cartography, and, more recently, computerized Geographic Information Systems (GIS). These techniques provide the geometric 'footholds' necessary to enable mathematics to be used directly in peace agreements, increasing the leverage of states that have access to particular knowledge resources.

In practical terms, when scientific methods are considered a necessary part of a peace agreement, certain people and instruments can prove very valuable in effecting a desired outcome. For example, in the negotiations over the 1995 Dayton agreement on the partition of Bosnia, when both sides of the conflict agreed to a territorial division of 49% to 51% by area, they became dependent on a team of US computer technicians to repeatedly carry out complex geometrical calculations parallel to the negotiations (Holbrooke, 1999: 295). These calculations became so important that negotiations were almost derailed when one party realized some results had been kept secret. Moreover, in terms of legitimation, the involvement of scientific methods can serve to obscure political interests, making an agreement appear to be objective and fair. In contrast to a type of contestation that is perceived as 'political', where outcomes seem to be decided by the powerful, the more a negotiation appears to be conducted according to a 'scientific' logic, where outcomes are decided according to what is objectively true.

The impact of the privileging of specific kinds of geographical knowledge often becomes clear in peace negotiations, such as the Paris Peace Conference of 1919. Bringing the First World War officially to a close, the Paris Conference was centrally concerned with territorial changes in Europe, drawing three thousand miles of new borders (Crampton, 2006; Smith, 2003). With the collapse of the major continental European empires, the victorious Allies sought to balance resurging national aspirations against each other, along with their own interests, in a turbulent, revolutionary context of scattered continuing warfare. The difficulties of drawing linear borders cartographically separating intricately intermixed national groups were well known, but the assumption of linear borders was never seriously questioned, resulting in an advantage to those who could best manipulate them.

Examples abound of this kind of power at work at the Paris Conference. For example, some argue that the conference's favorable views of Yugoslav territorial claims, at the expense of other states of similar size, had much to do with the fact that a Serbian geographer, Jovan Cvijic, who was acclaimed for his 'scientific attitude', was highly trusted and involved in the decision-making process (Crampton, 2006: 743). The United States exercised a similar kind of power through scientific plausibility, using a specially designed body of experts, called 'The Inquiry' (Gelfand, 1963; Smith, 2003). President Woodrow Wilson set up the Inquiry in 1917, only a few months after the American declaration of war, bringing together a large group of mostly academics from various disciplines. It was an unprecedented effort, in type and scale, to compile and process scientific knowledge ahead of negotiations. As it was unmatched by any of the other delegations, the US had the only delegation that was able to assemble a concrete set of proposed borders for the whole of Europe in the early stages of the negotiations.

The Inquiry, and other efforts like it, had an important impact on the outcome of the conference. Without this supply of carefully presented facts and expertise to counter opposing claims and arguments, Wilson's much-ridiculed project of a just and fair settlement could easily have been marginalized by the conference. As a historian of the Inquiry put it,

> It is virtually inconceivable to think of the peace treaties of 1919 assuming the form they did without benefit of the enormous preparatory effort exerted by the Allied governments and the United States…Perhaps there is no better measure than the work of the Inquiry to indicate that the United States by 1917 had reached the status of a great power (Gelfand, 1963: 333).

In practical terms, the expectation that precise borders would be agreed on at the conference created a demand for a particular kind of knowledge, which the US was able to supply. As noted by

Isaiah Bowman, the head of the Inquiry, 'Unfortunately, nations cannot be separated approximately. A boundary has to be here, not hereabouts' (Branch, 2014: 140). Command over socially privileged forms of geographical knowledge were particularly determining in areas of Europe such as the Balkans, where the most powerful states were not highly invested in any particular outcome, as long as agreement on borders could be reached. These time-consuming tasks were usually handed down to territorial commissions—often including Inquiry members—with almost free reign to draw borders. According to one observer, 'most of the articles in the treaties were taken bodily without change from the reports of the commissions' (Smith, 2003: 150).

In terms of legitimation, moreover, the message of Wilsonian self-determination risked perceptions of naïveté at the negotiating table unless it could be backed up with cold, hard 'science'. As Wilson and Bowman both understood well, maps always made political choices in terms of what to include or exclude, but could be very persuasive by taking on an appearance of neutral objectivity. As Bowman put it, 'A map was as good as a brilliant poster, and just being a map made it respectable, authentic. A perverted map was a life-belt to many a foundering argument' (Smith, 2003: 147). Despite inexperience and internal divisions, it was perhaps primarily the Inquiry's use of maps, made possible by linear borders, for which the US drew praise from other delegations.

Throughout the last 150 years, territorial conflict and contestation have played a major role in international politics, and it has mattered greatly that only territory which is specified in linear terms can be claimed legitimately. While there may be many reasons for this, I have argued here in particular that linear borders enable new patterns of territorial partitions and empower states with access to a particular kind of geographical knowledge.

Conclusion

This article has argued that the linearization of borders, as a global phenomenon, is historically recent and constitutive of international politics, in contrast with other accounts of the origins of modern international politics, which take borders as simply an expression of territorial sovereignty. This conflation of borders and territoriality, I argue, has obscured understanding of some of the major patterns in the territorial politics of the last century and a half.

The consolidation of linear borders as the global currency of territory has several implications for IR. First, this article has aimed to close a gap within existing explanations of the origins of modern international politics. While much historical IR literature has been devoted to the origins of modern territoriality rather than borders, this article has pointed to processes of rationalization as a basic framework for explaining the particular kind of border which currently dominates world politics. The explanations that do exist in the literature, moreover, often fall into this framework, whether they stress developments in 'rational' cartographic representations of statehood or 'rational' conceptions of sovereign subjectivity.

Borders thus have a history which is interrelated with but separate from the history of territory; this is important because it opens up new areas of study. Neither sovereignty nor territoriality fully captures the peculiar condition of the modern world whereby every coordinate point on land, besides Antarctica, theoretically corresponds to one and only one state territory. Nor does it account for the particular way in which struggles over maritime regions are currently unfolding over lines such as the meridians of the Arctic and the 'Nine-Dash Line' of the South China Sea. While various

opposing claims to sovereignty in these areas have been made, what remains less often questioned is why they almost invariably take a linear form, rather than referring to particular islands or shipping routes. Whether or not states will make more consistent efforts to draw planar boundaries between themselves and outer space, moreover, is a fundamental question in the law of outer space (Cheng, 1997).

Second, the recent global dominance of linear borders sheds new light on and raises new questions about the future relevance of linear borders as a form of territoriality. On one hand, it suggests that, contrary to some versions of globalization theory, we may currently be seeing the beginning rather than the end of linear borders. The functions, significance, and particular locations of borders have undoubtedly been subject to fluctuation, dispute, and violent contestation, and are likely to continue to be. Practical experience of real border regions may reveal quite starkly the inadequacy of the idea that borders generally tend to be linear. Yet serious efforts to undermine this idea remain limited and marginalized.

On the other hand, the origins of linear borders within a very particular rationality suggest that the longevity of linear borders as such may be subject to the same limitations as this type of rationality. Theories of rationalization remind us that forms of knowledge that appear rational in one time and place will not necessarily always do so. The Enlightenment idea of abstracting worldly phenomena into pure forms, and attempting to universally apply such forms in practice, in other words, may not always serve as a basis for understanding political geography. For example, some states have found their purposes better served by allowing local border guards to pursue their own policies, rather than applying a top-down idea of frontier policing (Gavrilis, 2008). If this were to be extended beyond governing institutions to the fundamental concept of borders themselves, borders could conceivably be de-linearized in particular cases where this made them easier to govern from a local, rather than a centralizing, cartographic perspective. While such an unravelling of linear borders seems far-off from a contemporary standpoint, theories of rationalization may hold the key for understanding when and where it could potentially occur.

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References

Abou-el-Haj RA (1969) The Formal Closure of the Ottoman Frontier in Europe: 1699-1703. *Journal of the American Oriental Society*. 89(3): 467-475.

Adamson F (2016) Spaces of Global Security: Beyond Methodological Nationalism. *Journal of Global Security Studies* 1(1): 19-35.

Adas M (1989) *Machines as the Measure of Men: Science, Technology, and Ideologies of Western Dominance*. Ithaca: Cornell University Press.

Agnew J (1994) The Territorial Trap: The Geographical Assumptions of International Relations Theory. *Review of International Political Economy* 1(1): 53-80.

Agnew J and Corbridge S (1995) *Mastering Space: Hegemony, Territory and International Political Economy*. London: Routledge.

Ajala A (1983) The Nature of African Boundaries. *Africa Spectrum* 18(2): 177-189.

Al-Enazy AH (2002) "The International Boundary Treaty" (Treaty of Jeddah) Concluded between the Kingdom of Saudi Arabia and the Yemeni Republic on June 12, 2000. *The American Journal of International Law* 96(1): 161-173.

Amoore L (2006) Biometric borders: Governing mobilities in the war on terror. *Political Geography* 25(3): 336-351.

Anderson B (2006) *Imagined Communities: Reflections on the Origin and Spread of Nationalism*. London: Verso.

Andreas P (2003) Redrawing the Line: Borders and Security in the Twenty-First Century. *International Security* 28(2): 78-111.

Anghie A (2005) *Imperialism, Sovereignty, and the Making of International Law*. Cambridge: Cambridge University Press.

Ashley R (1989) Living on borderlines: Man, poststructuralism and war. In: *International/Intertextual Relations: Postmodern Readings of World Politics*. Lexington: Lexington Books, pp. 259-321.

Ates S (2013) *The Ottoman-Iranian Borderlands: Making a Boundary, 1843-1914*. Cambridge: Cambridge University Press.

Bartleson J (1995) *A Genealogy of Sovereignty*. Cambridge: Cambridge University Press.

Baud M and van Schendel W (1997) Toward a Comparative History of Borderlands. *Journal of World History* 8(2): 211-242.

Bayliff WH (1959) *The Maryland-Pennsylvania and Maryland-Delaware Boundaries*. Annapolis: Maryland Board of Natural Resources.

Bayly MJ (2016) *Taming the Imperial Imagination: Colonial Knowledge, International Relations, and the Anglo-Afghan Encounter 1808-1878*. Cambridge: Cambridge University Press.

Benton LA (2010) *A Search for Sovereignty: Law and Geography in European Empires, 1400-1900*. Cambridge: Cambridge University Press.

Biggs M (1999) Putting the State on the Map: Cartography, Territory, and European State Formation. *Comparative Studies in Society and History* 41(2): 374-405.

Boggs SW (1940) *International Boundaries: A Study of Boundary Functions and Problems*. New York: Columbia University Press.

Branch J (2012) 'Colonial reflection' and territoriality: The peripheral origins of sovereign statehood. *European Journal of International Relations* 18(2): 277-297.

Branch J (2014) *The Cartographic State : Maps, Territory, and the Origins of Sovereignty*. Cambridge: Cambridge University Press.

Buisseret D (1982) The cartographic definition of France's Eastern boundary in the early seventeenth century. *Imago Mundi* 36(1): 72-80.

Casey ES (1997) *The Fate of Place: A Philosophical History*. Berkeley: University of California Press.

Chakrabarty D (2008) *Provincializing Europe: Postcolonial Thought and Historical Difference*. Oxford: Princeton University Press.

Chatterji J (1999) The fashioning of a frontier: The Radcliffe Line and Bengal's border landscape, 1947-52. *Modern Asian Studies* 33(1): 185-242.

Cheng B (1997) *Studies in International Space Law*. Oxford: Clarendon Press.

Crampton JW (2006) The cartographic calculation of space: race mapping and the Balkans at the Paris Peace Conference of 1919. *Social & Cultural Geography* 7(5): 731-752.

Croxton D (1999) The Peace of Westphalia of 1648 and the Origins of Sovereignty. *The International History Review* 21(3): 569-852.

Curzon GN (1907) *Frontiers*. Oxford: Clarendon Press.

Daly DD (1882) Surveys and Explorations in the Native States of the Malayan Peninsula, 1875-82. *Proceedings of the Royal Geographical Society and Monthly Record of Geography* 4(7): 393-412.

Du Plessis G (2017) When pathogens determine the territory: Toward a concept of non-human borders. *European Journal of International Relations*. June 8.

Elden S (2013) *The Birth of Territory*. Chicago: The University of Chicago Press.

Ewans M (2008) *Britain and Russia in Central Asia, 1880-1907*. London: Routledge.

Fraser TG (1984) *Partition in Ireland, India and Palestine: Theory and Practice*. London: Macmillan.

Gavrilis G (2008) *The Dynamics of Interstate Boundaries*. Cambridge: Cambridge University Press.

Gelfand LE (1963) *The Inquiry: American Preparations for Peace, 1917-1919*. London: Yale University Press.

Gellner E (2006) *Nations and Nationalism*. Oxford: Blackwell.

Goddard SE (2006) Uncommon ground: Indivisible territory and the politics of legitimacy. *International Organization* 60(1): 35-68.

Griffiths RD (2016) *Age of Secession: The International and Domestic Determinants of State Birth*. Cambridge: Cambridge University Press.

Gross L (1948) The Peace of Westphalia, 1648-1948. *The American Journal of International Law* 42(1): 20-41.

Hargreaves JD (1985) The Making of the Boundaries: Focus on West Africa. In: Asiwaju AI (ed.) *Partitioned Africans: Ethnic Relations across Africa's International Boundaries, 1884-1984*. Lagos: University of Lagos Press.

Holbrooke RC (1999) *To End a War*. New York: Modern Library.

Holdich T (1899) The use of practical geography illustrated by recent frontier operations. *The Geographical Journal* 13(5): 465-477.

IBC (2015a) About Us. Available at: http://www.internationalboundarycommission.org/en/about.php (accessed 23 January 2018).

IBC (2015b) The Boundary. Available at: http://www.internationalboundarycommission.org/en/about/the-boundary.php (accessed 23 January 2018).

Jackson RH and Rosberg CG (1982) Why Africa's Weak States Persist: The Empirical and the Juridical in Statehood. *World Politics* 35(1): 1-24.

Kadercan B (2017) Territorial design and grand strategy in the Ottoman Empire. *Territory, Politics, Governance*.

Kalberg S (1980) Max Weber's Types of Rationality: Cornerstones for the Analysis of Rationalization Processes in History. *The American Journal of Sociology* 85(5): 1145-1179.

Kumaraswamy PR (2010) *India's Israel Policy*. New York: Columbia University Press.

Lalonde S (2002) *Determining Boundaries in a Conflicted World: The Role of* Uti Possidetis. Montreal: McGill-Queen's University Press.

Larkins J (2010) *From Hierarchy to Anarchy: Territory and Politics before Westphalia*. New York: Palgrave Macmillan.

Lundborg T (2016) The limits of historical sociology: Temporal borders and the reproduction of the 'modern' political present. *European Journal of International Relations* 22(1): 99-121.

Maier CS (2017) *Once Within Borders: Territories of Power, Wealth, and Belonging since 1500*. Cambridge, Mass.: Harvard University Press.

Mann M (1984) The autonomous power of the state: its origins, mechanisms and results. *European Journal of Sociology* 25(2): 185-213.

Mayer M, Carpes M, and Knoblich R (eds.) (2014) *The Global Politics of Science and Technology – Vol. 1: Concepts from International Relations and Other Disciplines*. London: Springer.

Michael BA (2007) Making territory visible: The revenue surveys of colonial South Asia. *Imago Mundi* 59(1): 78-95.

Miles EA (1957) "Fifty-Four Forty or Fight"—An American Political Legend. *Mississippi Valley Historical Review* 44(2): 291-309.

Miller R (2010) Why the Irish support Palestine. *Foreign Policy*, 23 June. Available at: http://foreignpolicy.com/2010/06/23/why-the-irish-support-palestine-2/ (accessed 22 August 2017).

Mitchell T (2002) *Rule of Experts: Egypt, Techno-Politics, Modernity*. Berkeley: University of California Press.

Morgenthau HJ (1985) *Politics among Nations: The Struggle for Power and Peace*. New York: McGraw-Hill.

Neep D (2017) State-Space Beyond Territory: Wormholes, Gravitational Fields, and Entanglement. *Journal of Historical Sociology* 30(3): 466-495.

Parker N and Vaughan-Williams N (2009) Lines in the sand? Towards an agenda for Critical Border Studies. *Geopolitics* 14(3): 582-587.

Patterson TC (1997) *Inventing Western Civilization*. New York: Monthly Review Press.

Paul V and Trillo-Santamaria J (2015) Discussing the Couto Mixto (Galicia, Spain): Transcending the Territorial Trap Through Borderscapes and Border Poetics Analyses. *Geopolitics* 20(1): 56-78.

Philpott D (2001) *Revolutions in Sovereignty: How Ideas Shaped Modern International Relations*. Princeton: Princeton University Press.

Reus-Smit C (1999) *The Moral Purpose of the State: Culture, Social Identity, and Institutional Rationality in International Relations*. Princeton: Princeton University Press.

Ruggie JG (1993) Territoriality and Beyond: Problematizing Modernity in International Relations. *International Organization* 47(1): 139-174.

Rushworth D (1997) Mapping in support of frontier arbitration. *Boundary and Security Bulletin* 5(1): 61-64.

Sack R (1986) *Human Territoriality: Its Theory and History*. Cambridge: Cambridge University Press.

Sahlins P (1989) *Boundaries: The Making of France and Spain in the Pyrenees*. Berkeley: University of California Press.

Sassen S (2006) *Territory, Authority, Rights: From Medieval to Global Assemblages*. Princeton, NJ: Princeton University Press.

Schwarzenberger G (1957) *International Law*. London: Stevens and Sons Limited.

Scott JC (1998) *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*. New Haven: Yale University Press.

Shadian J (2010) From states to polities: Reconceptualizing sovereignty through Inuit governance. *European Journal of International Relations* 16(3): 485-510.

Shah N (2012) The Territorial Trap of the Territorial Trap: Global Transformation and the Problem of the State's Two Territories. *International Political Sociology* 6(1): 57-76.

Smith N (2003) *American Empire: Roosevelt's Geographer and the Prelude to Globalization*. Berkeley: University of California Press.

Spruyt H (1994) *The Sovereign State and its Competitors*. Princeton, NJ: Princeton University Press.

Stilgoe JR (1976) Jack-o'-lanterns to Surveyors: The Secularization of Landscape Boundaries. *Environmental Review* 1(1): 14-32.

Strandsbjerg J (2010) *Territory, Globalization and International Relations: The Cartographic Reality of Space*. Basingstoke: Palgrave Macmillan.

Taylor PJ (1994) The state as container: territoriality in the modern world-system. *Progress in Human Geography* 18(2): 151-162.

Teschke B (2003) *The Myth of 1648: Class, Geopolitics, and the Making of Modern International Relations*

Thongchai W (1994) *Siam Mapped: A History of the Geo-Body of a Nation*. Honolulu: University of Hawai'i Press.

Tilly C (1992) *Coercion, Capital, and European States, AD 990-1992*. London: Blackwell.

Torpey J (2000) *The Invention of the Passport: Surveillance, Citizenship and the State*. Cambridge: Cambridge University Press.

Toulmin SE (1992) *Cosmopolis: The Hidden Agenda of Modernity*. Chicago: Chicago University Press.

Trout FE (1969) *Morocco's Saharan Frontiers*. Geneva: Droz Publishers.

US Department of State (1965) *International Boundary Study, No. 60: Jordan-Saudi Arabia Boundary*. 30 December. Office of the Geographer, Bureau of Intelligence and Research.

Walker RBJ (1993) *Inside/Outside: International Relations as Political Theory*. Cambridge: Cambridge University Press.

Weber M (1988) Science as a Vocation. In: Lassman P and Velody I (eds.), *Max Weber's 'Science as a Vocation'.* London: Unwin Hyman.

Weber M (1991) Politics as a vocation. In: Gerth HH and Mills CW (eds.), *From Max Weber: Essays in Sociology*. London: Routledge.