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Artificial states? On the enduring geographical myth of natural borders.

Abstract

Alberto Alesina, William Easterly and Janina Matuszeski's paper *Artificial States*, published as a National Bureau of Economic Research Working Paper in June 2006, suggests a theory linking the nature of country borders to the economic success of countries (Alesina et al. 2006). This paper critically examines this suggestion that natural boundaries and ethnic homogeneity are desirable for economic reasons. It takes issue with the understanding of artificial and natural boundaries that they develop, arguing that this ignores two centuries of critical and quantitative geographical scholarship that has mapped, documented and critiqued the obsession of a link between topography and the appropriate shape of states and boundaries. It explores how their argument is linked to a defence of ethnically homogeneous states. The focus is on their teleological and paradoxically ahistorical vision that naturalises politics by appealing to spatial myths of homogeneity and geometric destiny, grounded in a reactionary understanding of space as container. In so doing, I am mindful of the strong links between such proposals and calls for post-conflict partition, and the corresponding discourses of ethnic and cultural homogenisation on which they rely. Instead of thinking of boundaries as geometric objects, squiggly or not, I consider boundaries through the simultaneous processes of reification, naturalization, and fetishisation.

Key words: Artificial states, boundaries, ethnic homogeneity, failed states, nationalism, natural boundaries, territorial trap.

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“A glare as of klieg lights is playing upon international boundaries, and the attention of peoples is being focused upon boundary problems. Many of the problems are very complicated and not generally understood and are therefore easily misrepresented by slogans and catchwords which may have little bearing on the fundamental issues involved” (Boggs, 1940 : 193)

In autumn 2006, a short column appeared in *The Atlantic* headed: “Squiggly fences make good neighbors” (The Atlantic, 2006). It referred not to Robert Frost’s famous poem about walls, apple trees and pines but to recent research by three Harvard and NYU economists: a new study had confirmed the supposedly widely-held theory that a nation-state’s likelihood of achieving prosperous stability was correlated with two variables: “whether its borders partition ethnic groups (leading to cross-border strife), and whether its borders follow straight lines or ‘squiggly’ ones (straight borders are ‘more likely to be artificial’). The study finds that when other variables are controlled for, artificially drawn borders are associated with lower per capita GDP, greater political instability, and poorer quality of life overall” (The Atlantic, 2006: October).

Assumptions about natural political borders have been made over the centuries, disappearing and reappearing again in different guises, based on the assumption that political scenarios are inscribed in the material physicality of the world by God, Providence, Fate or Nature. The twist in this case is that the myth appears in plain clothes, neither veiled nor situated within historical debate: artificial boundaries are simply proved to be bad and – which is slightly novel – less appropriate and advantageous economically.

In order to examine this suggestion that natural boundaries and ethnic homogeneity are desirable for economic reasons, this paper starts by summarising *Artificial States* by Alesina, Easterly and Matuszeski (Alesina et al. 2006). This builds on previous work by Alesina of much the same flavour that appeared in the *Journal of Economic Growth* and *The Quarterly Journal of Economics*. I explore what understanding of artificial and natural boundaries they develop, and how this is linked to a defence of ethnically homogeneous states. The links between such proposals and calls for post-conflict partition are dangerous, linked to corresponding discourses of ethnic and cultural homogenisation, and need identifying as such, (re)appearing in the corridors of the National Bureau of Economic Research, the largest private economic research centre in the United States. The paper then focuses on their teleological and paradoxically ahistorical vision that naturalises politics by appealing to spatial myths of homogeneity and geometric destiny, grounded in a reactionary understanding of space. The argument might appear obvious to a geographical audience, but as the paper discussed had a substantial impact, and was much quoted by academics, the media and political blogs, a discussion and critique are justified. Although this question is approached from a critical perspective, identifying problematic political assumptions in their argument, other scholars working directly within the quantitative spatial science paradigm have reached similar nuances in other case studies regarding the role of ethnicity, physical geography and economics as factors of conflict. Working on an equally global scale, albeit using a different methodology, O’Loughlin and Raleigh have argued that “the dominant political and economic perspectives are flawed by their narrow vision of what constitutes the role of geographic factors in war” (O’Loughlin and Raleigh 2007: 4; see also Bakke et al. 2008), noting that

reducing conflict to the usual variables of creed (belief and ethnicity) and greed (income generating resources) is problematic. The complexity of human spatial processes precludes simple extrapolations.

A critique of economics *per se* is beyond the scope of this paper, but suffice to say that analogies and methodologies drawn from other sciences – in this case a caricatured reading of physical and human geography – do not always travel well. There has been particularly scant dialogue between political geography and economics. Knowledge travels as badly between disciplines as between different linguistic traditions (Fall 2007; Debarbieux 1999). The reliance of Alesina and his colleagues on physical features and topography as a basis for politics is particularly problematic, and this is discussed in detail. Newman has written how geographers, and not only political geographers, have “commonly bemoaned the failure of other social scientists, notably economists, sociologists and political scientists, to recognize the importance of the spatial dimension in their studies of society. Not only physical space as an outcome of the decision-making process, but the dynamics of space as an independent factor influencing the decision making process. As such, space and politics are interdependent factors” (Newman 1999: 906).

Instead of a focus on boundaries as lines, this paper suggests an approach sympathetic to Agnew’s suggestion that boundaries are not just practical phenomena that can be taken as given. Instead, “they are complex human creations that are perpetually open to question” (Agnew 2008: 175). Rather than letting boundaries trap us into thinking about and acting in the world only in territorial and geometric terms, a fresh perspective should consider how they are continuously reified, naturalized and fetishised.

QUANTIFYING THE NATURE OF STATE BORDERS?

Alberto Alesina, William Easterly and Janina Matuszeski’s paper ‘Artificial States’, published as a National Bureau of Economic Research Working Paper in June 2006, suggests a theory linking “the nature of country borders to the economic success of countries” (Alesina et al. 2006: 3). Widely diffused and quoted by the general informed media and by political blogs, it seemed to capture the spirit of the age, at a time when partition and ethnic divisions continue to be widely promoted as a solution to peace-building and conflict resolution. The first sentence of their paper sets the tone: “Artificial states are those in which political borders do not coincide with a division of nationalities desired by people on the ground” (Alesina et al. 2006: 2). These, the reader is told, occur when states combine people of different ethnicities (p.2), religions (p.2), languages (p.2) or skin colour (p.12), rather than following the “natural division of peoples” (p. 3), or the “appropriate” (p.3) one. These scenarios stem from “former colonizers or post-war agreements amongst winners” (Alesina et al. 2006: 2). The consequences, they argue, are “failed states, conflict and economic misery” (Alesina et al. 2006: 3). This leads to their main argument: “the basic idea is to compare the borders of a country to a geometric figure. If a country looks like a perfect square with borders drawn with straight lines, the chances are these borders were drawn artificially. On the contrary, borders which are coastlines or squiggly lines (perhaps meant to capture geographic features and/or ethnicities) are less likely to be artificial. Squiggly geographic lines (like mountains) are likely to separate

ethnic groups, for obvious reasons of communication and migration” (Alesina et al. 2006: 8).

Their methodology rests on the correlation between two measures of artificiality:

- the extent to which international political borders split ethnic groups into different countries, and
- the measure of geometric linearity of these borders.

The correlation of these factors “never before used in econometric analysis of comparative development” (p.3) indicates, the authors argue, that a state is likely to be artificial, i.e. to be included among those states that have “straight borders and / or have a large fraction of their population (...) represented by a group split with a neighboring country” (p.3). These measures, the authors argue, “are fairly robust to controlling for climate, colonial past and the other traditional measures of ethnolinguistic fractionalization” (Alesina et al. 2006: 4). They argue that while their study is amazingly innovative, squiggleness doesn’t quite explain everything about international politics... It doesn’t quite tell us why and where wars happen: “we do not find evidence of correlation between the number and intensity for wars fought by one country with our measures of artificial borders” (Alesina et al. 2006: 4).

“A physics that never was”: remembering quantitative traditions within geography

Computational ability to deal with large amounts of data may have evolved, allowing more complex calculations with large amounts of data, but the principle of reducing complex shapes to single indices is not new. Quantitative traditions have existed since the 1970s within geography, as well as within neighbouring political science and international relations. As geography underwent its quantitative revolution, political geography, long dormant within the discipline, re-emerged partly within this new paradigm. Richard Muir’s 1975 textbook *Modern Political Geography* (Muir 1975, republished 1981), for instance, lists a variety of attempts to assign values to the shape of states, following the contemporary trend of quantification within what was then seen as New Geography. These involved showing how the shape of a nation deviated from a circle, the most compact geometrical shape. Calculating a centre of gravity was the first step, followed by summing “the percentage of each radial distance with respect to the sum of all radials, and subtract each percentage from the percentage each radial would be expected to have based on a circle” (Muir 1981: 53). While this didn’t work for bulbous or fragmented states (such as archipelagos), it did allow for comparison between shapes. Yet in the various examples listed, and despite being cautiously optimistic about the potential of quantification, Muir used indices to only describe the shape of nations, not to infer politics. Instead he noted that “unless research is carried out in the form of painstaking small-area studies there are distinct dangers that oversimplification and crude environmental determinism will result” (Muir 1981: 56), a warning that remains pertinent. At around the same time, Friedman argued that economic efficiency led nations to pay reasonable prices for the right to increase territory – through war or other means. Thus “the size and shape of nations will be such as to maximise their joint potential net revenue and will approach from below the size which would maximise their potential gross revenue” (Friedman 1977: 60), building on the strong assumptions that the causes of size and shape are economic. Friedman suggested that nations shaped themselves to include entire linguistic groups within their borders, for instance, as a way of maximising tax

revenue (see O'Loughlin and Raleigh 2008 for a review of recent quantitative research disputing this argument). He also tested his theory to measure the difference in changes in the size of nations from changes in their actual shapes, by comparing various European scenarios since Roman times (Friedman 1977). Anderson (2003), a geographer, relatively recently compiled a geopolitical atlas that included indices of potential boundary accessibility, potential boundary instability and potential security concerns. Political scientists have also explored why states change size over time, testing variables to explain the doubling in average size of states between 1816 and 1876, followed by their average contraction during the 20th century (Lake & O'Mahony 2004).

It must be remembered that Alesina, Easterly and Matuszeski's argument, like Friedman's 30 years before them, is predominantly an economic one: artificial states, they claim, underperform economically. They simply "do not perform well" (Alesina et al. 2006: 8). They note, for example, that "moving from the 75th most squiggly border to the 25th most squiggly border is associated with a 37% increase in GDP per capita" (Alesina et al. 2006: 15). Couched in scientific terms and supported by complicated fractal calculations and indices, their argument is depoliticized, presenting itself as rational and objective. They centre their argument on entities such as states and political boundaries presented as inevitable political objects. States that do not follow the 'natural divisions of people' are referred to as 'monstrosities' (p.2), defined by boundaries that are variously referred to as 'unnatural' (p.2), 'artificial' (p.2), 'wrong' (p.3), 'undesirable' (p.3), and 'inappropriate' (p.3); in contrast to 'natural' (p.2) and 'organic' (p.21) ones. There is no suggestion that the criteria of ethnicity, religion or language might not always be spatially congruent, since geographical entities and divisions are depoliticized, nor that these categories might be problematic. They equate 'ethnicity' with 'nationality' (p.5). They imply that these are both natural and given. They use an index of ethnolinguistic fractionalization taken from previous work (Alesina et al. 2003), "that in addition to linguistic differences includes differences based on other characteristic such as skin color" (Alesina et al. 2006: 12) (see Goodchild & Mark 1987 for an additional critical discussion of scale and fractal indices).

When it is transformed into political solutions, simplistic thinking has tragic consequences. The promotion of partition as a solution to conflict, for example, seduces many by its apparent rationality and order. The position of the authors as economists is particularly interesting in this respect. Toulmin (2003) has argued that economics, more than any other social science, has managed to position itself strategically as uniquely true. He suggests that by relying on abstract and universal mathematical systems, economists are most confident of the rigour of their methods and the superior validity of their results: "the formality of their theoretical arguments gives them an air of logicity; the generality of their concepts makes them appear universal" (Toulmin 2003: 55). Yet, he argues, this appeal to a particular type of rationality strongly inspired by implausible analogies with physics rests on a conception of theory that even physicists have trouble espousing. In other words, while economists position themselves as uniquely rational, identifying universal laws as they imagine physicists to do, physicists have moved on from Newtonian dynamics towards chaos, radical unpredictability and non-linear mathematics. Thus, Toulmin argues, "the human sciences, not least theoretical Economics, based their programs not on a realistic account of the actual methods of Physics, but on their vision of a

Physics that Never Was” (Toulmin 2003: 48).

It is worth taking a look at how the divide between geography and political science has been presented, as it mirrors much of the difference between contemporary political geography and the kind of economics found in the paper discussed here. Lapid, a political scientist, wrote almost ten years ago that the debate has often been “a record of missed opportunities and mismanaged prior encounters [that] cautions against overly optimistic expectations regarding the anticipated payoffs of this long-overdue scholarly re-engagement” (Lapid 1999: 895). Several authors have further mentioned that this “is not a divide that is caused by hostility or distain for the practices and beliefs of the geographic profession by other social scientists but one that has resulted from a narrow and anachronistic view of the discipline of geography” (O’Loughlin 2000: 126; see also Murphy 1999; Newman 1999). One explanation is that, like economics, the dominant modes of explanation within political science and particularly International Relations “have been avowedly positivist, in the sense that they are law seeking, whether reliant on formal models, quantitative analysis, or even qualitative but nonetheless positivist studies of particular cases” (Murphy 1999: 888; see also Elazar 1999; Gleditsch 2006 for an example), receiving their primary inspiration from the natural sciences. When geographical literature is read, it is to reduce its contribution to studies of distance, definition of boundaries, changing meanings of space, or visualization and cartography (O’Loughlin 2000). Put simply, from the perspective of geographers: “political geographers read, absorb and use the theories, methods and perspectives of political scientists but the process doesn’t seem to work in reverse (with some notable exceptions)” (O’Loughlin 2000: 126). Rather than reflecting a true crossing of the disciplinary boundaries by geographers (if only!), Newman suggests that “this form of citation asymmetry seems to indicate an attempt by a self-perceived academic periphery (geography) to gain a foothold in the (equally self-perceived) center (political science/international relations) of academic power” (Newman 1995: 905), in other words a power asymmetry between disciplines.

NATURALIZING POLITICS

I mentioned earlier that artificial boundaries are variously referred to by Alesina et al. (2006) as unnatural (p.2), artificial (p.2), wrong (p.3), undesirable (p.3), and inappropriate (p.3), in contrast to natural (p.2) and organic (p.21) ones. This idea of natural boundaries, of politics being inscribed within natural features, is hardly new. That is what makes Alesina et al.’s contribution worrying in terms of the (non)circulation of knowledge and scholarship. While few scholars would support the view that states are natural divisions of humanity, this primordialist and essentialist perspective has – as Penrose (2002) has argued – become deeply embedded in common sense understandings of the world. Rankin and Schofield suggested that the idea of natural boundaries emerged in the Middle Ages and remained influential in the 18th and 19th centuries: “to their advocates, natural boundaries were seen as the only real borders, because they were written and drawn in nature – and sometimes assumed to be legitimised by divine providence, and under the premise of natural law acquiring a perpetual and indelible character” (Rankin & Schofield 2004: 7). This discursive figure has been a fundamental building block in the institutionalisation of the state as a territorial construct, serving as a mythical and foundational reference. In Fourny’s view (2005), the idea of natural boundaries has created an inevitable link between a

conception of the nation and its spatial inscription, doubly powerful for being rooted in the realms of both reason and feeling. The following paragraphs explore this idea further and argue that the idea of natural boundaries remains deeply ingrained and apt to resurface in unsuspected places. The main purpose is to illustrate briefly the wealth and historicity of the debate around natural boundaries and artificial states.

There have been many excellent histories critiquing the idea of natural boundaries in various national contexts and at various times. These include contributions by authors as varied as Friedrich Ratzel (1897), Jacques Ancel (1938), Jan Broek (1941), Norman Pounds (1951, 1954), Ladis Kristof (1959), Julian Minghi (1963), Roger Brunet (1967), Victor Prescott (1978), Claude Raffestin (1980, 1991), Stéphane Bodénès (1990), Michel Foucher (1991), Jean-Paul Hubert (1993), Jean-Christophe Gay (1995), Hélène Velasco-Graciet (1998), Daniel Nordman (1998), Emmanuel Gonon and Frédéric Lasserre (2003), and Marie-Christine Fourny (2005, 2007). These all share a desire to map, document and critique the obsession of revealing links between topography and states or boundaries – that is to say between nature and politics – through scientific and, in particular, geographic expertise. Some key moments in the genealogy of these ideas are mentioned in the following paragraphs.

“Shaky logics and vague mysticisms”: justifying the equation of nature and politics

Adopting a historical approach, Norman Pounds’ account of the idea of natural boundaries charted its links to the growth in nationalism and the geographical basis of the French state and, to a lesser extent, of German states. He presented the early modern period dominated by a historical approach moving on to discuss the various rough theories of *limites naturelles* that appeared in increasingly reckless and aggressive form up to the end of the 18th century, ending with the opposing French and German theories of the state as respectively based around shared history / culture or race (Pounds 1951). He contrasted early claims to the Rhine, Meuse or Vosges as the natural boundary of each, charting how the idea of a politics grounded in natural features changed from the days of the Roman Empire to the 20th century. This simple example says it all: topography and rivers may well form convenient borders, but only if neighbouring countries agree which to use. Pounds traced how medieval *seigneurie* determined fluid overlapping of feudal obligations that interpenetrated German and French feudal hierarchies, replacing the earlier Roman conception of sovereignty (Pounds 1951: 150; see also Agnew 2007). He showed how the idea of *limites naturelles* was intensely debated during the reigns of both Louis XIV and XV, a period of vigorous and enduring territorial expansion in France – for instance in Locke’s *True End of Civil Government* written in 1690 or Montesquieu’s *Esprit des Lois*, from 1748 – yet was not invoked in locating or identifying boundaries precisely. While reference was made at the time to natural law, as an authority higher than history, Pounds suggested that this had no practical importance: “it was too vague, too philosophical, too idealistic, and susceptible of too great a variety of interpretations to carry over into the sphere of diplomacy and politics” (Pounds 1954: 52).

Penrose has argued that these material roles of territory have often been overlooked, as the latent powers of space have been instrumentalised differently in the shift to modernity: from a geographical expression of cultural identity into the most fundamental basis for group and individual identities (Penrose 2002; see also Elden 2007). Focussing on the 18th century writers, she opposes Herder’s primordialist view

of nations as natural phenomena to Rousseau's reflections on nations as products of state formation. Thus Herder stated that: "Seas, mountain-ranges, and rivers are the most natural boundaries not only of lands but of peoples, customs, languages, and empires, and they have been, even in the greatest revolutions in human affairs, the directing lines or limits of world history. If otherwise mountains has arisen, rivers flowed or coasts trended, then how very different would mankind have scattered over this tilting place of nations" (Herder 1784). For Herder, the geographical distribution of the nation therefore defined the boundaries of the state, as the purpose of the state was to protect the nation rooted in the soil. Rousseau, on the contrary, allowed for boundary changes and the migration of people (Pounds 1954), all the while assuming that the qualities of a territory had an influence on what societies could develop there. Rousseau therefore argued that "the men make the State and the territory sustains the men" (Rousseau 1762 in Penrose 2002: 288; see also Rosière 2006). Rousseau, however, and notwithstanding the non-prescriptive nature of natural law, also suggested an ideal size of nations, and their corresponding boundaries: "the lie of the mountains, seas and rivers which serve as frontiers for the various nations who people it (...) seems to have fixed for ever their number and size. We may fairly say that the political order of the continent is, in some sense, the work of nature" (Rousseau quoted in Pounds 1954: 53).

French revolutionary ideas subsequently offered a vision based on nature's designs considered more egalitarian than the former 'unjust' historical and hereditary boundaries. This pre-royalist world-view was found in such Revolutionary slogans as "Freedom knows no boundaries" (Bodénès 1990: 19, *personal translation*). From the middle of the 18th century, Philippe Buache, together with his disciple and nephew Buache de la Neuville, argued precisely that expertise was needed to reveal the concordance between physical geography and politics, in order to bring about peaceful coexistence. In 1752, Buache presented a huge compiled essay in physical geography, accompanied by maps of France and of the world, showing how the Earth is divided into hydrological basins and mountain ranges (Debarbieux 2008). Buache wrote that "this natural division, invariable and that shall last to the end of time, when applied to the division of States, would remove all subjects of contest and would bring about peace to all people for ever" (Buache in Nordman 1998: 111, *personal translation*), showing how physical geography determines the shape of nations. Yet in 1795, William Eden, writing in England during the Napoleonic Wars, published a damning put-down to such French claims to natural boundaries. He argued that "the French answer to these reasonings, that nature has pointed out the Alps, and the course of the Rhine and of the Lower Meuse, as the eastern and northern boundaries of the French Empire: if by nature is meant Providence (...) there is neither religion, nor sense, nor modesty, nor morality in such a pretension; it might with equal propriety be said, that nature has pointed out the Baltic and the borders of Siberia" (Eden 1795: 49). Meanwhile, in Germany, Herder's ideas were being picked up by Fichte, replacing what Pounds called "the shaky logic of the French with a vague mysticism about *Volk*" (Pounds 1954: 57), making natural boundaries those defining linguistic unity.

"Generally recognised and scientifically exact": the institutionalisation of geographical expertise

But despite the ongoing critiques, such ideas did not go away. At the end of the 19th century, reflecting a growing institutionalisation of political geography as an academic discipline in Germany and beyond, Friedrich Ratzel – from one of the first Chairs in geography – reviewed the relative merits of coasts, mountains, deserts and lakes as possible boundary lines. He stopped short of suggesting that all political boundaries should necessarily follow biophysical elements. Instead, he argued that nature provided a series of suggestions that could subsequently be chosen as a basis for defining a political boundary, as there are cases where nature has divided space along lines that can be transformed into boundaries (Ratzel 1897). Similarly, in 1907, Lord Curzon of Kedleston, former Viceroy of India, argued for a broad distinction between “Natural and Artificial Frontiers, both as generally recognised, and as scientifically the most exact” (Curzon 1907), distinguishing boundaries which were dependent on, or independent of, physical features. Despite carefully qualifying his argument historically, he was much attacked on the grounds that all boundaries were artificial, and that the implication of the term ‘natural’ was that such boundaries were intrinsically more appropriate than boundaries not based on the physical landscape (Prescott 1978). Shortly after this in 1911, Ellen Churchill Semple wrote one of the first English-language systematic studies of boundaries in her book *Influences of Geographic Environment* (Semple 1911), largely building upon and espousing Ratzel’s organismic state theory.

Yet, as mentioned earlier, proponents and critiques continued to coexist, and all such dialogues are not traced here. Suffice to say that a few years later Albert Perry Brigham, in his *Principles in the Determination of Boundaries*, published a direct response to existing distinctions “between ‘natural’ boundaries as ‘good’ and ‘artificial’ boundaries as ‘bad’” (Brigham 1919 in Minghi 1963: 408). Instead, he proposed the idea of boundaries of economic equilibrium. Minghi (1963) mentioned these in his excellent review of boundary studies in the 20th century. He suggested that the period between the two World Wars was particularly fertile, with many discussions of good or bad boundaries. He contrasted, for instance, two British opinions on the relative merits of boundaries as barriers or bonds: “[Thomas] Holdich [1916] viewed boundaries as barriers and maintained that the ‘best’ boundaries (i.e. those least likely to be causes of war) must be mountains, lakes or deserts (suggested as analogous to sea frontiers), while lines of longitude and latitude made inherently ‘bad’ boundaries. [Lionel William] Lyde [1915], however, argued that boundaries should act positively, encouraging peaceful international intercourse, and consequently thought that rivers, as regional bonds, would make good boundaries” (Minghi 1963: 408). This debate continued with Hartshorne in 1933, who wrote about “naturally marked boundaries, or boundaries marked in nature” (Hartshorne 1933: 198) (See Donaldson & Williams 2008 for a discussion of key names in the institutionalisation of boundary studies), suggesting very clearly in his typology of boundaries that while state boundaries may follow natural features, the latter did not determine the former. Since then, as mentioned at the outset, there have been many reviews of these ideas by academics, geographers and others. Bourdieu, for example, discussed the performative functions of boundary definition and delimitation, arguing strongly that any classification that claims to be natural can only be the result of arbitrary imposition reflecting pre-existing relations of power (Bourdieu 1980). The point of this partial history of ideas is to suggest that the aspects of Alesina et al.’s study that claim to be innovative have in fact been debated long and hard, for decades, of which they seem singularly unaware. Even suggesting, as they do, that taking this

debate into the field of economics is innovative appears anything but, as the mention of Brigham's discussion of boundaries of economic equilibrium illustrates.

NATURALIZING NATURE

I mentioned earlier that the analogies Alesina and his colleagues develop with physical geography – in their reliance on physical features and topography as a basis for politics – is particularly problematic. The idea of natural boundaries rests on a deterministic view of the influence of topography on political organisation, feeding on the extreme value given to linear configurations, which can be real or apparent obstacles (Foucher 1991). Invocations of topography as grounding for political divisions and political unity draw on the legitimacy and immutability that the concept of nature has come to bestow (Penrose 2002). Agnew recently wrote simply that there is “nothing at all ‘natural’ – physically or socially – to borders. They are literally impositions on the world. This is not to say that borders are somehow simply metaphorical or textual, without materiality; lines on a map rather than a set of objects and practices in space. It is more that borders are never transcendental objects that systematically secure spaces in which identities and interests can go unquestioned” (Agnew 2008: 181). In the next section, I take this mention of materiality further, indicating a fertile future area for innovation within political geography. This is necessary, since the idea that the natural world and the political world are fundamentally divided within different congruent or non-congruent entities continues to be widespread, both within and outside the field of geography. In some fields, natural divisions (such as those between ecosystems, watersheds, biomes or continents) are presented as more real and more concrete than the ‘artificial’ political boundaries of states; in other contexts, on the contrary, political boundaries are presented as concrete and problematic, whereas nature is presented as effectively boundless. I start by examining this idea that nature contains *de facto* divisions, and I discuss the definition of nature this rests upon. Before this, however, a vignette does much to show how prevalent the idea of a natural inscription of politics continues to be.

The myth of the wall

In 2004, the first Chinese taikonaut to orbit the earth returned disappointed. Despite his best efforts, he had not been able to see the Great Wall of China from space with his naked eye. The Chinese authorities were nonplussed: generations of schoolchildren had been taught that this was the only object built by human beings visible from space – or the only one in addition to Dutch polders, as another version of the same tale had it. This voyage had been welcomed to confirm the story. Yet, as Zhou discussed later in *China Daily*, the visibility of the Wall from orbit, from space or from the moon was a typical urban myth, albeit an enduring geographical one, cast in various versions. Nevertheless, the lasting appeal of the myth prompted the European Space Agency, probably sensing a great public relations opportunity, at once to publish an image from its small *Proba* Earth observation satellite showing a remarkably clear image of the Great Wall as it orbited 600 kilometers overhead. A few days later, the embarrassed agency had to retract this assertion: the image turned out to have been a river feeding into the Miyun Reservoir. The agency, no doubt through gritted teeth, thanked the professors from California State University and Fudan University of Shanghai for correcting the error. The Wall, that great human

creation, so overpoweringly real as to be visible from beyond the Earth, had turned out to be no more than a river. A natural, squiggly river. I can only speculate what the agency really thought of those pesky professors spoiling such a good story. Nevertheless, not to be undone, the European Space Agency indicated that although satellite imagery in natural light couldn't show the Wall, radar imagery showing relief could. It quickly published a photo to prove it.

The tale of the Chinese taikonaut is interesting in that it rehearses some of the links between expertise and the bounding of geographical entities: scientific expertise and technology are called upon to validate widespread ideas about nature and politics, then called upon again to invalidate and recast the same tales in new ways. This, again, is nothing new. Philippe Buache (1770, quoted in Fourny-Kober 2005: 4), a contemporary of Rousseau and Herder, produced a division of France in terms of hydrological basins, reflecting how reason was used to construct regional divisions grounded in a particular conception of natural discontinuities, reflecting specific scientific determination. From that point on, revealing the coherence of natural objects and geographical entities was seen as the prerogative of scientific and geographical expertise. In a similar vein, Elden has argued that political economy and the developments of cartography were mutually reinforcing disciplines in the 18th Century, both dependent on advances in geometry and mathematics more generally (Elden 2007). More subtly, Fourny notes how this process constructed not only political entities, but also nature itself: "in other words, scientific reasoning creates geographical objects, and the principle of delimitation leads to the invention of the corresponding nature, making the limits of natural objects into bounding-objects, theoretically established and in whose concrete nature we end up believing" (Fourny 2005, *personal translation*).

Nature is not natural

For much of its history, geographical inquiry took as given the separation between nature and culture, and studied the influence of one on the other in both directions. In many sub-fields and national contexts, it still does. Yet I would argue in agreement with Bakker and Bridge, that despite a rich history of engaging with nature and the environment, the social sciences often failed to interrogate nature itself (Bakker & Bridge 2006). Literature stemming broadly from so-called science studies (Latour 1999; Haraway 1991), however, provided the impetus and theoretical grounding for a reformulation of the divide between nature and politics. In parallel, the emergence of social constructivism within the social sciences in the 1990s also focused attention on the *social* dimensions of nature (Cronon 1995). Nature, according to this line of thinking, was no longer simply natural, since taking it 'in itself', non-social and unchanging, was taken to lead to the perpetuation of power and inequality in the wider world. By successive stages, an agenda emerged exploring the politicised construction of social natures (for reviews see Braun & Castree 1998; Castree & Braun 2001; Castree & MacMillan 2004; Bakker & Bridge 2006; Braun 2005 & 2008). Diverse appeals to relations, actors, materiality and material encounters led geographers to explore and spatialise concepts such as hybridity, exploring the physicality and copresence of the non-human, both animate and non-animate, within conventional human worlds. In this line of thinking, suggesting that nature contains unproblematic material boundaries is impossible and counterproductive: such divisions can only be thought of as constructions, as lines drawn politically, following

particular explicit or implicit projects. This does not mean that nature is only considered to be discourse: on the contrary, recent (re)engagements with the materiality of nature have led to an engagement with it as something that is always already unpredictable, vital, and invariably shot through with multiple, transversal, non-linear relations (Clark 2000).

Thus, without overstressing the point, I would argue that the fundamental basis for calling upon the material reality of the world as a basis for politics, within topography, rivers and coasts and so on, is doubly problematic: not only is it intellectually spurious to claim that rationality and objectivity lie within nature, in other words that natural boundaries are somehow out there ready to be discovered, it is also profoundly questionable to claim there is such a thing as an uncontroversial materiality to nature to begin with. Alesina et al. explicitly categorize physical features as more or less appropriate as a basis for boundary definition. They thus prefer mountains and rivers to marine coastlines (Alesina et al. 2006: 11). Ethnicity, which they take to be a natural category, is even less appropriate (Alesina et al. 2006: 12), something I discuss towards the end of this paper. Interestingly, Donaldson, following backbreaking work in border digitalization, concluded, damningly for Alesina and his colleagues, that one aspect of boundary squiggleness may simply be attributed to the available scale of state mapping. Thus, he notes, developed or richer states have better survey and mapping of their territory at larger scales so the boundaries will look squigglier when they follow natural features (Donaldson 2009). In the next section I explore how the defence of the nation-state as inevitable and natural gets bound together with arguments about squiggly boundaries.

CARTOGRAPHIC AND GEOGRAPHICAL MYTHS

The focus on boundaries and fractal calculations within Alesina et al.'s paper is but one aspect of their thesis. Their main point, as the title indicates, is discussing – and explaining – the underlying cause of what they call artificial states. The reason these fail, they argue and quantify, is because they have inappropriate boundaries. Failed states are ones that are the wrong shape or, since they imply that history is teleological and that states ultimately transform themselves into homogeneous entities, the wrong shape so far. This is one tenet of nationalism, as Penrose has clearly shown: “Instead of abandoning the pursuit of an impossible ideal – namely, the creation of discrete and uniform nations that fit perfectly within the territory of a state – nationalism encourages the view that it is a specific nation-state that is faulty” (Penrose 2002: 285). So the failure and demise of certain nation-states should, they imply, lead to the creation of new ones: the model remains unaltered. They illustrate this with a figure showing the outlines of France and Sudan: the former defined by what they call ‘organic boundaries’, the latter with artificial ones. In both cases, after having removed the coast sections, they arrive at a fractal dimension of the political boundary of France of 1.0429 and Sudan of 1.0245: numbers, they claim, that directly correlate to economic success.

This restating of the permanence and inevitability of States as geometric ideals is taken to extremes when fractal facts simply do not conform to their expected results. What, for example, do they make of Canada and the United States, with ostentatiously straight borders? Their solution is easy, and implies the invocation of another geographical myth that would horrify anyone who takes First Nation and Native

American studies seriously: that of the empty continent. Thus: “their border is a straight line most of the way, are they artificial states? (...) One may notice that this is a case in which borders were drawn before many people actually moved in (...). In the West, their borders were drawn when they were close to deserted” (Alesina et al. 2006: 14).

It is not difficult to see that Alesina et al.’s paper rests on a straightforward teleological conception of history, illustrated by examples showing the inevitable moves towards ethnic homogeneity: “because borders can be changed (...) citizens can rearrange the borders of artificial states. Indeed, this happens; just look at the breakdown of the Soviet Union. In fact it is quite possible that as time goes by many currently straight borders will become squiggly as they are rearranged (...) as a result of some sort of equilibrium of [sic] reflecting how different people want to organize themselves” (Alesina et al. 2006: 4). Using particular examples to ground their initial narrative argument, they generalize, and theorize beyond the particular. As Agnew has noted, such a position implies that state formation and bordering be historic in the sense of unequivocal and definite, since “what is evident has been the need to give borders a deep-seated historical genealogy: if not for the ones around here, for those over there, which “we” are now duplicating” (Agnew 2007: 401). Yet the chosen instances of what they call problematic borders that underpin the entire justification for their subsequent calculations – the core of the paper – are empirically problematic. They not only choose initial bad examples and discard inconvenient ones, but also understand their examples poorly. Thus Iraq, India and Pakistan and Africa (as a whole) are all discarded as problematic because colonizers did not follow ethnic boundaries. There is no discussion, for example, of the role of colonialism or political processes in constructing some of the ethnic identities and categories cited. To take one case, artificial colonial boundaries in Iraq unproblematically “set the stage for instability and the military coups that led to Saddam Hussein” (Alesina et al. 2006: 5).

Thinking about the world: understanding categories and representations of space

In a piece on geographical and spatial objects, Debarbieux (2001) explores how categories and representations of space construct the way we think about and interact with the world. Understanding how categories are determined and revisited is vital to understanding the prevalence of spatial myths such as natural boundaries and artificial states. Jones recently attempted to explore categorisation and boundaries, but his interesting starting point is unfortunately lost through a lack of rigour in defining what he means by category (Jones 2008), which he takes to be equally something spatial (states, regions) and aspatial (culture, economy) (Schaffter et al. 2008). In contrast, Debarbieux’s tracing of the origins of scholarly geography back to the work of the younger of the two Buaches in the 18th century – as mentioned above – discusses how the process of objectification (the making of spatial objects such as mountains, continents, boundaries, regions or states) is largely conditioned by the representations we hold of the world. This, in itself, is not new. His analysis is subtler in demonstrating how geography as a practice often thinks in terms of spatial objects implicitly. This form of naïve realism depends on a double belief: on one hand a reliance on the scientific method to reveal things as they really are, and on the other on an assumption that objects as they appear exist in the absolute (Debarbieux 2001: 12).

If we are really to understand the current prevalence of nation-states as one possible form of political and territorial organisation, then seeing them not as naturalized geographical objects but as “a historically unique form of social and spatial organisation. It is the product of innovative practices of territoriality” (Penrose 2002: 283) is fundamental. Without this, we risk repeating the sort of study that is critiqued here, in which space is assigned an absolute value, and geographical and geometric objects are taken in themselves as self-evident. The critique Newman addresses to the political scientist Elazar is apt here: “space would appear to be, for him, as with most other non-geographers, a given, immovable, construct which does not possess its own internal dynamics of change” (Newman 1999: 906), in other words a mere backdrop (Agnew 1994).

Alesina and his two colleagues express their conception of space – a version of “geography as container” (O’Loughlin & Raleigh 2008: 14) – most clearly in their discussion of ethnicity. Their position on the separation of what they call ethnic groups is clear: apartheid (see also Alesina et al. 2003). They argue unambiguously for separation in order to promote economic growth, largely citing their own much-quoted work and that of their colleagues as evidence, including “a large literature on US localities [that] shows that in more ethnically fragmented communities, public goods provision is less efficient, participation in social activities and trust is lower, and economic success, measured by growth of city size, is inferior” (Alesina et al. 2003: 156). They state that “if Korea had Uganda’s ethnic fractionalization, the income level differential between them would have been reduced by half” (Alesina et al. 2003: 167). In this previous paper, they claimed that their measure improves on a previous study by La Porta et al. (2003) that included distance from the equator as one component of economic success: “ethnic fragmentation is also higher in poorer countries that are closer to the equator” (Alesina et al. 2003: 157). Physical determinism and the fetishisation of geometry is unashamedly invoked throughout their work: in recommending squiggly borders and ethnic partition; in assigning explanatory value to climate (for which they use an index showing whether a country is more or less in the tropical zone, following the percentage of land in the Koppen-Geiger Climate Zone A) and in making latitude an explanatory factor of economic and political success (Alesina et al. 2006: 16; compare with O’Loughlin & Raleigh 2008’s nuanced review of quantitative research on physical geographic factors in conflicts).

CONCLUSIONS: MOVING BEYOND NAÏVE REALISM

A depoliticised naïve realism – the reliance on the scientific method to reveal things as they really are, and the assumption that objects as they appear exist in the absolute – is dangerous. It should be identified as such. Instead of thinking of boundaries as real objects, squiggly or not, I find it much more productive to (re)think boundaries through the triad of reification, naturalization, and fetishisation. This is sympathetic to Agnew’s recent suggestion that “we need to see a border not as that which is either fixed or that as such must be overcome, but as an evolving construction that has both practical merits and demerits that must be constantly reweighed. (...) Borders matter, then, both because they have real effects and because they trap thinking about and acting in the world in territorial terms” (Agnew 2008: 175). Reification, naturalization, and fetishisation of boundaries happen simultaneously, rather than in some sort of magic progression – unlike the usual technical triad of definition,

delimitation, demarcation used by boundary practitioners (see for instance Prescott 1978; Anderson 1996; Foucher 1991; Pratt & Brown 1998 for variations). *Reification* involves taking objectivation seriously in exploring how spatial objects are bounded and constructed, before being elevated to 'real' things (Schaffter et al. 2008). Exploring *naturalization* involves studying the very mechanisms that lead to equating nature and politics, looking for apocryphal natural boundaries as I have done here, based on reified materiality. Lastly, examining how these lines become quasi-sacred objects, venerated as true, means that *fetishisation* should be examined, through understanding how borders, walls, technologies and other performances of power participate in making boundaries material, visible and sacred. Such dynamic (re)engagements with materiality and space as something that is always already unpredictable, vital, and always shot through with multiple, transversal, non-linear relations (Clark 2000) provides an impetus and a theoretical grounding for rethinking boundaries, rather than remaining stuck with unproductive and deterministic conceptions of space.

Geographers need to get beyond the vague feeling of injustice, or puzzlement (O'Loughlin 2000; Antonsich 2009), in not being cited and recognised as contributors of two centuries of scholarship, and engage with those from outside the discipline who think and write about space in such ways. Leaving such claims unchallenged would be to waste a valuable opportunity.

REFERENCES

- Agnew, J. (1994). The territorial trap: the geographical assumptions of International Relations theory. *Review of International Political Economy*, 1, 53-80.
- Agnew, J. (2007). No Borders, No Nations: Making Greece in Macedonia. *Annals of the Association of American Geographers*, 97(2), 398-422.
- Agnew, J. (2008). Borders on the mind: re-framing border thinking. *Ethics & Global Politics*, 1(4), 175-191.
- Alesina, A., Devleeschauwer, A., Easterly, W., Kurlat, S., & Wacziarg, R. (2003). Fractionalization. *Journal of Economic Growth*, 8, 155-194.
- Alesina, A., Easterly, W., & Matuszeski, J. (2006). Artificial states. *NBER Working Papers (12328)*, 1-21.
- Alesina, A., & Spolaore, E. (1997). On the number and size of nations. *The Quarterly Journal of Economics*, 1027-1056.
- Ancel, J. (1938). *Géographie des Frontières*. Paris: Gallimard.
- Anderson, J. (1996). The shifting stage of politics: new medieval and postmodern territorialities? *Environment and Planning D: Society and Space*, 14, 133-153.
- Anon. (2006). Cartography. *The Atlantic* (October).
- Anderson, Ewan W. (2003). *International Boundaries: A Geopolitical Atlas*, Norwich : TSO (The Stationery Office).
- Antonsich, M. (2009) Guest editorial: The 'revenge' of political geographers. *Political Geography*, 28 (4) 211-212.

- Arbaret-Schultz, C., Permay, J.-L., Reitel, B., Selimanovski, C., Sohn, C., & Zander, P. (2004). La frontière: un objet spatial en mutation. *EspacesTemps.net*, Textuel.
- Bakke, K., Cao, X., O'Loughlin, J., & Ward, M. D. (2009). Social distance in Bosnia-Herzegovina and the North Caucasus Region of Russia: inter and intra-ethnic attitudes and identities. *Nations and Nationalisms*, 1-39.
- Bakker, K., & Bridge, G. (2006). Material worlds? Resource geographies and the 'matter of nature'. *Progress in Human Geography*, 30(1), 5-27.
- Barth, F. (1998, first published 1969). *Ethnic Groups and Boundaries: The Social Organization of Cultural Difference*. Prospect Heights: Waveland Press.
- Bodénès, S. (1990). *Théorie Limologique et Identités Frontalières: le Cas Franco-Genevois*. Unpublished PhD thesis, Université de Genève, Genève.
- Boggs, S.W. (1940). *International Boundaries*. New York: Columbia University Press.
- Bourdieu, P. (1980). L'identité et la représentation: éléments pour une réflexion critique sur l'idée de région. *Actes de la Recherche en Sciences Sociales*, 1, 63-72.
- Braun, B. (2005). Writing geographies of hope. *Antipode*, 37(4), 834-841.
- Braun, B. (2008). Environmental issues: inventive life. *Progress in Human Geography*, 32(5), 667-679.
- Braun, B., & Castree, N. (1998). *Remaking Reality: Nature at the Millenium*. New York & London: Routledge.
- Broek, J. (1941) "The problem of 'natural frontiers'", *Frontiers of the Future*, Committee on International Relations, ed. Berkeley: University of California, 3-20.
- Brunet, R. (1967). *Les Phénomènes de Discontinuités en Géographie* (Vol. 7). Paris: Centre National de la Recherche Scientifique.
- Castree, N., & Braun, B. (2001). *Social Nature: Theory, Practice, and Politics*. Malden & Oxford: Blackwells.
- Castree, N., & MacMillan, T. (2004). Old news: representation and academic novelty. *Environment and Planning A*, 36, 469-480.
- Clark, N. (2000). Botanizing on the asphalt? The complex life of cosmopolitan bodies. *Body & Society*, 6 (3-4) 12-33
- Cronon, W. (1995). *Uncommon Ground: Rethinking the Human Place in Nature*. New York & London: Norton & Company.
- Curzon, Lord of Kedleston (1907). *Romanes Lecture on the subject of frontiers*. Retrieved 4.01.01, 2001
- Debarbieux, B. (1999). Le territoire : Histoires en deux langues. A bilingual (hist-)story of territory. In *Discours scientifique et contextes culturels. Géographies françaises à l'épreuve postmoderne* ed., C. Christine, R. Pascal & S. Michaël, pp. 33-46. Bordeaux: Maison des Sciences de l'homme d'Aquitaine.
- Debarbieux, B. (2001). La montagne : un objet géographique ? In *Les montagnes : discours et enjeux géographiques*. ed., Y. Veyret, pp. 11-34 Paris: SEDES.
- Debarbieux, B. (2008). Mountains: Between Pure Reason and Embodied Experience. Philippe Buache and Alexander von Humboldt. In *High places: Cultural Geographies*

- of Mountains and Ice* ed. D. Cosgrove & V. della Dora, pp. 87-104 London & New York: Tauris.
- Donaldson, J. W. (2009). Where rivers and boundaries meet: building the International River Boundaries Database. *Water Policy*, 11 (5) 629–644.
- Donaldson, J.W. & Williams, A.J. (2008). Delimitation and demarcation: analysing the legacy of Stephen B. Jones's Boundary-Making. *Geopolitics* 13(4) 676-700.
- Eden, W. (1795). *Some remarks on the apparent circumstances of the war in the fourth week of October 1795*. London: Walter.
- Elazar, D. J. (1999). Political science, geography, and the spatial dimension of politics. *Political Geography*, 18, 875-886.
- Elden, S. (2007). Governmentality, calculation, territory. *Environment and Planning D: Society and Space*, 25, 562-580.
- European Space Agency. (2004, May 11). Great Wall of China seen from space by ESA Proba Satellite. ESA online press release.
- European Space Agency (2004, May 14). Correction: 'Great Wall of China' image. ESA online press release.
- Fall, J., & Rosière, S. (2008). On the limits of dialogue between Francophone and Anglophone political geography. *Political Geography*, 27(7), 713-716.
- Fall, J. J. (2007). Lost geographers: power games and the circulation of ideas within Francophone political geographies. *Progress in Human Geography*, 31(2), 195-216.
- Foucher, M. (1991). *Fronts et Frontières: un Tour du Monde Géopolitique*. Paris: Fayard.
- Fourny, M.-C. (2005). De la frontière naturelle à la nature comme lien transfrontalier. Du rôle et de la place de l'environnement et du milieu dans les coopérations transfrontalières. In *Tropisme des Frontières, Approche pluridisciplinaire*. ed., C. Bouquet & H. Velasco, pp. 97-117. Paris: L'Harmattan.
- Fourny, M.-C. (2007). Frontières imaginées. In *Frontières, frontière* ed. C. Bouquet & H. Vélasco, pp. 1-10. Paris: L'Harmattan.
- Friedman, D. (1977). A theory of the size and shape of nations. *The Journal of Political Economy*, 85(1), 59-77.
- Gay, J.-C. (1995). *Les Discontinuités Spatiales*. Paris: Economica.
- Gleditsch, N. P., Furlong, K., Hegre, H., Lacina, B., & Owen, T. (2006). Conflicts over shared rivers: resource scarcity or fuzzy boundaries? *Political Geography*, 25, 361-382.
- Goodchild, M.F. and Mark, D.M. (1987). The fractal nature of geographic phenomena. *Annals of the Association of American Geographers*, 77, 265-278.
- Gonon, E., & Lasserre, F. (2003). Une critique de la notion de frontières artificielles à travers le cas de l'Asie centrale. *Cahiers de Géographie du Québec*, 47(132), 433-461.
- Haraway, D. (1991). *Simians, Cyborgs and Women: the reinvention of nature*. London: Free Books.
- Hartshorne, R. (1933). Geographic and Political Boundaries in Upper Silesia. *Annals of the Association of American Geographers*, 23(4), 195-228

- Herder, J. G. v. (1998 (first published 1784)). Materials for the Philosophy of the History of Mankind. In *Modern History Sourcebook*. ed., P. Halsall, Scanned by Jerome S. Arkenberg, Cal. State Fullerton.
- Hubert, J.-P. (1993). *La Discontinuité Critique: Essai sur les Principes a priori de la Géographie Humaine*. Paris: Publications de la Sorbonne.
- Jones, R. (2009). Categories, borders and boundaries. *Progress in Human Geography*, 33(2) 174-189.
- Kolossov, V. (2005). Border Studies: Changing Perspectives and Theoretical Approaches. *Geopolitics*, 10(4) 606 - 632.
- Kristof, L.D. (1959) "The nature of frontiers and boundaries". *Annals of the Association of American Geographers*, 49, 269-282.
- La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. (1999). The quality of government. *Journal of Law, Economics and Organization*, 15(1), 222-279.
- Lake, D. A., & O'Mahony, A. (2004). The incredible shrinking state: explaining change in the territorial size of countries. *The Journal of Conflict Resolution*, 48(5), 699-722.
- Lapid, Y. (1999). Where should we begin? Political geography and international relations. *Political Geography*, 18, 895-900.
- Latour, B. (1999). *Pandora's Hope*. Cambridge: Harvard Press.
- Lim, M., Metzler, R., & Bar-Yam, Y. (2007). Global pattern formation and ethnic/cultural violence. *Science*, 317, 1540-1544.
- Massey, D. (2006). Landscape as a provocation: reflections on moving mountains. *Journal of Material Culture*, 11(1/2), 33-48.
- Minghi, J. V. (1963). Boundary studies in political geography. *Annals of the Association of American Geographers*, 53(3), 407-428.
- Muir, R. (1981). *Modern Political Geography* (Second edition ed.). London & Basingstoke: Macmillan.
- Murphy, A. B. (1999). "Living together separately" Thoughts on the relationship between political science and political geography. *Political Geography*, 18, 887-894.
- Newman, D. (1999). Comments on Daniel Elazar, political geography and political science. *Political Geography*, 18(8), 905-911.
- Nordman, D. (1998). *Frontières de France. De l'espace au territoire XVI-XVII siècle*. Paris: Gallimard.
- O'Loughlin, J. (1986). Spatial Models of International Conflicts: Extending Current Theories of War Behavior. *Annals of the Association of American Geographers*, 76(1), 63 - 80.
- O'Loughlin, J. (2000). Responses: Geography as space and geography as place: The divide between political science and political geography continues. *Geopolitics*, 5(3), 126 - 137.
- O'Loughlin, J., & Raleigh, C. (2007). Spatial analysis of civil war violence. In *Handbook of Political Geography* ed., K. Cox, M. Low & J. Robinson, pp. 493-508. Thousand Oaks: Sage.

- Penrose, J. (2002). Nations, states and homelands: territory and territoriality in nationalist thought. *Nations and Nationalisms*, 8(3), 277-297.
- Pounds, N. J. G. (1951). The origin of the idea of natural frontiers in France. *Annals of the Association of American Geographers*, 41(2), 146-157.
- Pounds, N. J. G. (1954). France and "les limites naturelles" from the Seventeenth to the Twentieth Centuries. *Annals of the Association of American Geographers*, 44(1), 51-62.
- Pratt, M., & Brown, J. A. (1998). Borderlands Under Stress. Paper presented at the 5th International Conference of the International Boundary Research Unit, University of Durham, 15-17th July 1998.
- Prescott, J. R. V. (1978). *Boundaries and Frontiers*. London: Croom Helm.
- Raffestin, C. (1980). *Pour une Géographie du Pouvoir*. Paris: Litec.
- Raffestin, C. (1986). Eléments pour une théorie de la frontière. *Diogenes*, 134, 3-21.
- Raffestin, C. (1991). *Géopolitique et Histoire*. Lausanne: Payot.
- Rankin, K. J., & Schofield, R. (2004). *The troubled historiography of classical boundary terminology: Institute for British-Irish Studies, Geary Institute for the Social Sciences, University College Dublin & Institute of Governance, Centre for International Borders Research, Queen's University Belfast*.
- Ratzel, F. (1897, translated 1988). *Politische Geographie* (P. Rusch, Trans.). Paris: Economica.
- Rosière, S. (2006). *Le nettoyage ethnique: terreur et peuplement*. Paris: Ellipse.
- Schaffter, M., Fall, J. J., & Debarbieux, B. (2010). Unbounded boundary studies and collapsed categories: rethinking spatial objects. *Progress in Human Geography*, (online first).
- Semple, E. C. (1911). *Influences of geographic environment on the basis of Ratzel's system of Anthro-Geography*. New York & London: Henry Holt and Co. & Constable & Co.
- Toulmin, S. (2003). *Return to Reason*. Cambridge: Harvard University Press.
- Van Houtum, H. (2005). The Geopolitics of Borders and Boundaries. *Geopolitics*, 10(4), 672 - 679.
- Velasco-Graciet, H. (1998). *La Frontière, le Territoire et le Lieu*. Unpublished PhD dissertation, Université de Pau et des Pays de l'Adour.
- Zhou, R. (2005). Photographic evidence: Seeing Great Wall from space. *China Daily*, Updated: 2005-04-19 06:51, accessed 20-10-2008.