

A Splintered Heartland: Russia, Europe, and the Geopolitics of Networked Energy Infrastructure

By: Corey Johnson & Matthew Derrick

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Abstract:

Much has been made about a revival of Mackinderian geopolitics in Eurasia, largely centred on struggles over access to energy resources and rooted in a territorial understanding of space. This paper proposes that the conceptual political cartography of Eurasia is indeed largely being rewritten, but conventional understandings of space, territory, and resources are insufficient in providing insight into a changing geopolitics. We interrogate the geographical logics of Russia's role as energy provider to Europe by focusing specifically on the provision of gas to Europe via Nord Stream, a new underwater pipeline that is scheduled to go online by late 2011. Drawing on debates in human geography on relational/topological views of space, and on the “splintering urbanism” thesis, the paper describes a rapidly evolving networked space that effectively “splinters” the territorial integrity of the region and thereby complicates notions of Eurasian geopolitics that emphasise proximity, territorial hegemony, and state-centric international relations.

Keywords: geopolitics | energy infrastructure | Russia | Europe | energy networks | underwater pipelines | Nord Stream

Article:

INTRODUCTION

In the twenty years since the end of the Cold War, the geopolitical landscape of Eurasia has undergone profound changes. In broad terms, perhaps the most momentous shift has been from the hardened binary of East and West – the post–World War II building of spheres of influence that largely rendered middle ground literally and figuratively impossible – into what might best be described as the contemporary geopolitics and geoeconomics of privileged partnerships and networked ties. At the core of this paper is a concern for how energy figures into this new geopolitical landscape and what a changing energy picture means for how this landscape is conceptualised by geographers and non-geographers alike. Our primary goal is to draw attention to the shortcomings of imagination in how these relationships – nascent and still evolving as they

are – are conceived, and then propose how this understanding might be enriched by incorporating recent explorations in human geography of networks and topological understandings of spatial connectivity.

Energy, in particular natural gas, plays a central role in shaping this contemporary landscape, and there is no shortage of analyses on the role of energy in Europe and wider Eurasia. ¹ Unlike oil, which is traded on a global market and is most often transported by ship, rail, and highway, natural gas is still typically a commodity traded within the context of bilateral contracts and via dedicated infrastructure (i.e., pipelines). ² Though often taken for granted, pipelines make possible what the German-American philosopher of technology Albert Borgmann defines as “the good life.” ³ They do so as part of the “background of technology,” out of sight and mind for most consumers, even though it is this very network that ensures that when Europeans turn up a thermostat or open radiator valves, their interior spaces become comfortably warm.

Consequently, and in spite of their relative invisibility, the importance of pipelines continues to grow as natural gas consumption increases and, more importantly, domestic fuel sources, such as the gas fields of the North Atlantic, approach the point of being uneconomical to service.

Proposed pipeline projects in Europe, such as Nord Stream, Nabucco, South Stream, and Amber, no longer simply represent the anonymous technological conduits that bring warmth to living rooms in Budapest, Berlin, and Brussels, but rather have taken on political identities of their own. These projects symbolise not only literal warmth, but also figurative well-being or, alternatively, coolness in particular international relations.

This paper brings these two topics – pipelines and geopolitics – into dialogue within the larger context of debates in human geography over topological understandings of space. Geopolitics has for the most part been omitted from these discussions, ⁴ which, given its historical focus on how territory and territorial frameworks influence politics, is not entirely surprising. ⁵ But networked energy infrastructures challenge the ways in which space and territory in post–Cold War Eurasia must be understood. The images of Eurasia ⁶ that have emerged in recent years, particularly in popular renderings of the geopolitics of energy, as a geostrategic chessboard, need to be problematised. Based on our reading of pipeline networks, we propose how a more geographically sensitive (and accurate) theoretical rendering of Eurasian space might be achieved. We follow preliminary suggestions made by others ⁷ in arguing that the geographical significance of the vast gas infrastructure resembles something akin to what Graham and Marvin describe in their “splintering urbanism” thesis, but at a different scale. ⁸ Their thesis proposes that the “modern infrastructural ideal” has given way to an unbundling of infrastructure and bypassing of non-valuable, less powerful users in order to ensure supply to valuable, powerful users, particularly in urban spaces. This paper is concerned with “splintering” of territorial space at a larger spatial scale, but there are nevertheless parallels with the developments examined by Graham and Marvin, along with others. Such a splintering, examined below, has implications for places throughout Eurasia, but particularly for those places that are bypassed by networked infrastructure such as pipelines. Like telecommunications networks, gas pipelines are

simultaneously embedded in the territories through which they pass – subject to what might be termed political geographic frictions that can interrupt the provision of the service or commodity to its intended consumers – but they can also be nearly disembedded from their territorial contexts. It is this latter element that has been neglected in prior engagements with pipelines. In sum, events on the ground have surpassed the explanatory value of traditional geopolitical approaches, which nevertheless have enjoyed growing cachet in certain circles.

In the case of the provision of natural gas to valued consumers in Western Europe, it is the intermediary places that are of most concern here. Where popular geopolitical interpretations are most correct is in positing that the provision of gas from source to end-user cannot be removed from political geography; sovereign states such as Poland, Ukraine, Belarus, etc., have interests, and these interests do not necessarily align with economic considerations that cause companies to build infrastructure projects such as Nord Stream. In short, a pipeline is much more than just a pipe.

We therefore also build on recent work seeking an intervention by geographers on the topic of geopolitics and energy networks⁹ and on a still-emerging field of research in human geography on the ways in which networked infrastructures are deterritorialised – disembedded from the territories through which they pass – but then also reconstituted or “reterritorialised” in different ways.¹⁰ This stands in contrast to more conventional readings of the geopolitics of energy, described briefly below. Relational thinking with regard to networks has become somewhat of a mantra across subdisciplines in human geography,¹¹ and insofar as it has challenged the methodological and ontological privileging of the nation-state¹² and the uncritical use of Mackinderian geopolitics,¹³ this development should be welcomed by political geographers. Using the specific example of the Nord Stream pipeline, scheduled to go online in late 2011, we question what these energy arrangements, agreements, and infrastructures tell us about the realignment of spatial relations in contemporary Eurasia.

MACKINDER ASCENDANT

At the core of any analysis of Eurasian geopolitics must be the question of the relationship between Europe and Russia. One particularly visible way in which this relationship has been conceived in the last decade is in a revival in “geopolitical” thinking related to the world's largest landmass, and energy and pipelines lie at the centre of these interpretations. A range of scholars, politicians, and journalists alike have latched on to energy and its transport as being central elements of a rebirth of geopolitics across Eurasia.

The influence of Mackinderian geopolitical thinking during the early twentieth century can hardly be overstated,¹⁴ and it is enjoying a renaissance of sorts since the early 1990s in Europe and North America,¹⁵ and simultaneously in Russia.¹⁶ As has been well documented in recent years in centenary commemorations of his 1904 speech,¹⁷ Sir Halford Mackinder offered a highly pessimistic view (for Great Britain) of how technological change (railroads) and a shifting

balance of industrial power in Eurasia would fundamentally reshape Eurasian space in a strategic-geographic sense. 18 In the United States, the revalorisation of the Mackinderian legacy is most evident in a piece by Robert Kaplan in *Foreign Policy*. 19 “The Revenge of Geography,” as it is titled, surveys the intellectual roots of geopolitical thinking as it emerged in the late nineteenth and early twentieth centuries and implores modern geopoliticians to “think like Victorians.”

Kaplan's metageographical intervention is just one particularly visible example of this type of literature, and it should be noted that a number of human geographers have challenged the misuse of Mackinder and “geopolitics” more broadly. 20 A thorough survey of the less critical brand of this literature is not possible here, but four basic characteristics are evident.

First, struggles over “spheres of influence” are underway in Eastern Europe and Central Asia. 21 Eurasia, broadly conceived, is the “world's axial supercontinent,” a “volatile” region that is a “decisive geopolitical chessboard.” 22

Second, much like the imperial struggles of prior eras, the current one is “zero sum,” predicated on a “closed-space thinking” where the benefits to one part of the map necessarily come at the expense of another. 23

Third, this geopolitical struggle is largely centred on energy and the means of transporting energy. Such interpretations often collapse Mackinder's focus on the Heartland and transportation with the nineteenth-century Great Game between Russia and Great Britain in Central Asia. 24 In particular, natural gas is the prize of the game, akin to the twenty-first-century version of oil's centrality to the twentieth. 25 Daniel Freifeld argues in a piece provocatively entitled “The Great Pipeline Opera”:

Unlike oil, which can be put onto tankers and shipped anywhere, gas is generally moved in pipelines that traverse, and are thus tethered to, geography. Because a pipeline cannot be rerouted, producers and consumers sign long-term agreements that bind one to the politics of the other, as well as to the transit states in between. In this way, today's gas war is a zero-sum conflict similar to the scramble for resources that divided Eurasia in the 19th century. 26

Fourth, as part of this narrative it is often argued out that Russia possesses renewed self-confidence and has regained its “taste for empire.” 27 Some go so far as to argue that a “revisionist” Russia 28 is reverting to its czarist expansionist ways, through its proxy company Gazprom, by signing pipeline deals and entering relationships in foreign gas markets, such as in Gazprom's purchase of Serbia's gas monopoly. 29 In the “war of gas pipelines,” Russia wishes to be best positioned to be the main provider of gas not only to Europe, but also eventually to China as well. 30 Its leadership, according to this train of thought, harbours megalomaniacal desires to monopolise the provision of energy in its spheres of influence 31 and serve as the “gatekeeper of Europe-bound energy resources.” 32

The use of the geopolitical vocabulary in the media, by government officials, and by various other parties – as in invoking a modern “Great Game” or the insightfulness of Mackinder, who was so instrumental in shaping the geopolitical lens through which Eurasia has been understood during much of the last century – tends to elide the fact that such frameworks are firmly rooted in a territorial understanding of Eurasia. Yet to what extent is a network of pipes, in many ways the defining physical feature linking Eurasian space, territorial?

Most important to this paper, this resurrection of a particular way of viewing geography focuses on the traditional concerns of classical geopolitics that emphasise territorial proximity and neglect other types of connectivity. As Gerry Kearns argues, these theoretical-conceptual lenses place too much emphasis on “the significance of contiguity.”³³ Leaving aside for a moment the highly informative poststructural critiques of classical geopolitics that have emerged from geography in the last two decades,³⁴ it is important to note that such narratives continue to shape how elites and wider populaces understand the geopolitics of the region. In new EU member states of Central and Eastern Europe, as well as former Soviet states of Belarus, Ukraine, and Moldova, there is real concern about becoming yet again a “cordon sanitaire,”³⁵ or buffer zone, separating – and isolated by – the major continental powers Germany and Russia.³⁶

CASE STUDY: THE NORD STREAM PIPELINE

As illustrated above, Eurasia is still widely conceived in the popular imagination as a territorial space, a contiguous series of discrete power containers subject to the inexorable forces of geopolitics such as territorial proximity, resource access, and spheres of influence. The case we examine poses a fundamentally different set of issues from these traditional concerns. In the case of Nord Stream, a topological relationship effectively renders the intermediate territory a nonentity, making the nodes on either end of the connecting line disproportionately more important than the territory through which it passes.

The Nord Stream project will directly link Russia and Germany via a pair of 1,220-kilometre-long pipelines resting on the bed of the Baltic Sea for most of their route. Starting in Vyborg, Russia, the pipelines will traverse the exclusive maritime economic zones of Russia, Finland, Sweden, Denmark, and Germany before reaching their terminus at Lubmin, near Greifswald in Mecklenburg-Vorpommern, Germany (see Figure 1), thereby avoiding waters controlled by the former Soviet Baltic states and Poland.³⁷ Construction of the first pipeline, which will transfer 27.5 billion cubic metres (bcm) of natural gas per annum, received final approval in early 2010 and is expected to be in operation in 2011–2012.³⁸ The second pipeline, on which construction is slated to begin in 2012, will match that capacity, combining to deliver 55 bcm of natural gas each year to Western Europe, or about one third of the region's current imports.³⁹

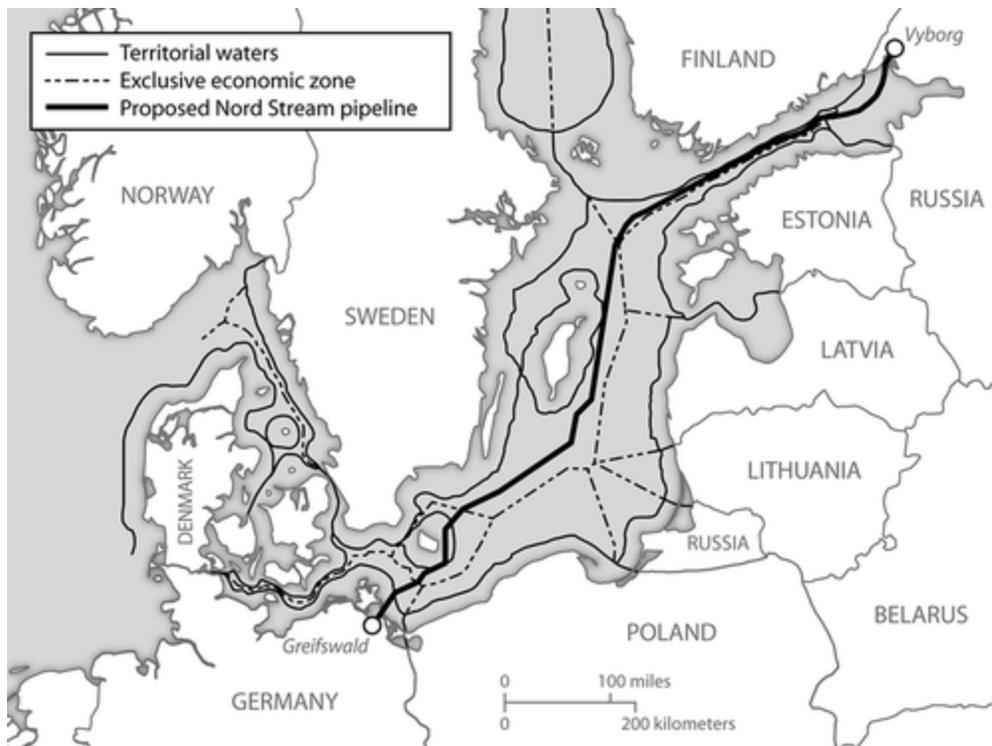


FIGURE 1 Map of the Nord Stream Pipeline.

Media reports and other analyses have painted Nord Stream as an instrument of the Kremlin's foreign policy, 40 focusing on the lead role played by Gazprom, the state-controlled energy behemoth that monopolises Russia's natural gas exports and its natural gas infrastructure. Yet one should be careful not to exaggerate European dependence on Russian gas, and we are generally not sympathetic to the shriller tones in the media claiming a Russian stranglehold over Europe. 41 The overall share of Russian gas imports to EU countries has actually decreased as suppliers from North Africa and the Middle East have diversified imports somewhat. 42 Moreover, several external developments stand to keep Russian gas from being a strategic weapon that could be yielded against European countries in the near term. One is a current glut of gas globally, especially in light of the "shale gas revolution" in North America, which has dried up potential markets for liquefied natural gas (LNG) there. Another is that increasing liberalisation of gas markets across Europe will mean that there will be heightened competition for access to European markets, including a more vibrant LNG market. 43 Although predicting the future of gas consumption is highly speculative, such forecasting seems to assume too much, namely that market liberalisation will in fact occur; that Asian economic growth will not divert much of the global gas that otherwise might go to Europe; and that investments in expensive LNG facilities will occur in some of the places that currently have none (i.e., Germany, continental Europe's largest consumer of natural gas). The fact remains that there is still high market segmentation – gas is still a largely nationalised system of consumption and distribution

across the EU – and it seems unlikely that this situation will change any time soon. Given the unlikelihood that distribution systems will change dramatically in the near term, it seems probable that pipeline infrastructure, and their accompanying long-term contracts and “locked-in” interdependencies will persist during the next few decades. 44

Returning to the case at hand, as with other natural gas infrastructure projects, 45 Nord Stream, with an estimated price tag of \$10 billion, 46 requires enormous up-front capital investments and technological transfers that can only be gained through partnership. A joint venture, with Gazprom maintaining a controlling 51 percent share, Nord Stream is also owned by the German energy companies BASF/Wintershall and E.ON Ruhrgas (20 percent each) and the Dutch company Gasunie (9 percent). Both the German and Russian governments, while having taken no direct financial stake, have invested political capital in the project; for Germany, convincing its European Union partners of the benevolence of the project was the main goal. 47

The public relations team behind the Nord Stream consortium touts its pipeline as a guarantor of energy security, claiming it as “necessary” to meet future demand for natural gas in the European Union. 48 Indeed, according to European Commission projections, demand for natural gas among its member states will increase by a quarter by 2030, while domestic production capacities will fall by up to 40 percent, forcing the EU to find an additional 195 bcm of natural gas per year. 49 Deliveries of Russian gas across the Baltic Sea would cover more than a quarter of this gap. However, although Russia sits atop the world's largest proven natural gas reserves, many have questioned its ability to fill Nord Stream pipelines. 50 Nearly 90 percent of Russia's current natural gas production is drawn from its legacy fields in northern West Siberia, most notably from three “super-giant” fields – Medvezh'ye, Urengoy, and Yamburg – which, like North Atlantic fields, are in “irreversible decline.” 51 Gazprom says it will meet its Nord Stream commitments with natural gas pulled initially from the Yuzhno-Russkoye field in the Yamal-Nenets region of West Siberia 52 and over time from the Shtokman field in the Barents Sea, but to date the Shtokman project remains undeveloped and even under-researched. 53

For Russia and Gazprom, as well as Western European investors, Nord Stream's provision of energy security is not simply a case of meeting current and forecasted customer demand, but more so a question of reducing the potential for network frictions in transit states. In approximately ten off-the-record interviews conducted in Berlin and Moscow with government officials and private actors with intimate knowledge of this project in the summer of 2009, there was unanimous confirmation of the chief rationale of this project being avoiding insecure intermediate locations. 54 When the Soviet Union collapsed, its former union republics assumed control of the energy infrastructure that had been built up on their territories in previous decades. Natural gas transit pipelines run across Ukraine, Belarus, and Moldova. Ukraine in particular, through which 80 percent of Russia's gas exports flow, holds a key position. 55 With pipelines crossing their sovereign spaces, transit states are not only able to leverage fees for allowing natural gas to pass through their territories en route to markets downstream, but also are empowered to parlay their relative location into significant political capital. Currently, export

capacity in these primary transit states is running at 80 percent; by 2015, with Nord Stream in operation, that figure is expected to drop to 70 percent, 56 reducing Russia's "transit dependence" 57 and allowing it greater flexibility within its energy network to divert natural gas deliveries to higher paying customers downstream. The effective "cannibalisation" of Gazprom's existing pipeline network, 58 at least in the short term, offers further evidence that this pipeline is being built for strategic reasons; market considerations are, curiously for a supposedly market-driven company, secondary.

The relationship with Germany is attractive. Unlike in new EU members in Eastern and Central Europe, where it already dominates the market, Gazprom has a lot of room to grow its shares in the larger Western European markets (see Figure 2). Germany is a logical (and secure) break-in-bulk point for redistribution of gas throughout Western Europe since German partners control thousands of kilometres of gas pipelines. Although Gazprom and Nord Stream AG have portrayed the project as being purely about rational market considerations, international relations has also played a role in mediating the project. In Germany and Russia, the project has been framed as a natural outgrowth of the "special relationship" between the two countries. 59 While Germany sees itself as a sort of cultural interlocutor between Russia and Europe, 60 Russia views Nord Stream as a natural outgrowth of its long-standing historical ties with Germany.

Figure 2 is omitted from this formatted document.

Neighbours of these two large powers view the situation differently. Nord Stream will make Germany the main distributor of Russian gas within Europe, which makes the project unloved in Baltic states and Poland. 61 Some have raised the prospect of "energy blackmail" being used as a political tool. 62 In an open letter to US President Barack Obama, twenty-two prominent Central and Eastern European political figures, including Vaclav Havel and Lech Walesa, registered their concerns about Germany and, above all, Russia's "creeping intimidation and influence-peddling in [their] region that could over time lead to a de facto neutralization of the region." 63 These concerns are not without some merit: witness gas disruptions in Ukraine (1993, 1994, 2006, and perhaps most dramatically in 2009) and Belarus (2010), as well as supply disruptions by Russia to the Baltic countries when those states were seeking their independence in the early 1990s. 64

With the bulk of Gazprom deliveries still flowing through their territories, primary transit states (Ukraine, Belarus, and Moldova) will retain a significant, if diminished, degree of power vis-à-vis Russia. For EU's newest members, however, Nord Stream is a harbinger of potentially direr implications. Located on the spurs of Soviet-era pipelines, the former Warsaw Pact countries have had little incentive or opportunity to diversify and remain highly dependent on Russian natural gas imports (for example, Bulgaria, Lithuania, and Slovakia all receive 100 percent of their natural gas from Gazprom). It is among these states that demand for natural gas has more or less remained flat over the past two decades, with consumption among the EU's newest members climbing just 3 percent between 1992 and 2008 (see Figure 3); for the three primary transit states in that same period, consumption dropped by more than 30 percent. At the same time, demand in

Western Europe grew by 60 percent. Highly dependent on Russian deliveries but sluggish in consumption trends, the EU's most easterly contingents are rightfully concerned that Nord Stream signifies their relative declining importance for Gazprom. In the long term, however, it is the Russian gas supplier's stated intention to diversify its markets more broadly, particularly by connecting with the growing markets in Asia (i.e., China), that gives cause for pause in the gas-consuming places with relatively low purchasing power. 65

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TOWARD A NEW CONCEPTUAL CARTOGRAPHY OF EURASIA

Returning briefly to Mackinder's thesis, it is worth noting that the development of empire in the Heartland by the Soviet Union was contingent not only upon military control and political influence, but also on economic development by means of infrastructures that integrated peripheral areas into the core. 66 Even while being dominated and subjugated, the periphery (here speaking of Soviet-dominated Eurasia) accrued certain material gains from modernisation, though infrastructure largely was used to enable resources and wealth to be transferred to the core for redistribution throughout the empire. In other words, not only the beginning and endpoint of a railroad – to draw quite intentionally on one of Mackinder's examples – witnessed material impacts from its existence, but also the path along which the railroad passed were part of the overall system of territorial integration. Clearly, Nord Stream does not fit in the same category. Nord Stream does not render the places in between entirely irrelevant, since questions over the existence of such a pipeline on the seabed involve the political mediation of intermediary states. Nevertheless, the new routing is purposefully of a different geographical character than that of its predecessors, which were firmly tied to the sovereign territories of intermediary states.

Our initial question, however, remains: how do we move toward integrating the territorial and networked aspects of energy infrastructure? A comprehensive answer to this question is not possible within the confines of this paper. As a starting point, though, it is clear that energy infrastructure, much like telecommunications, “structure[s], frame[s], and connect[s] space,” 67 and it does this at multiple spatial scales. One promising avenue of inquiry in enriching our theoretical understanding of gas pipelines can be found in scaling up some of the more theoretically robust examinations of infrastructure at the urban scale, such as “splintering urbanism,” while more thoroughly considering the sociospatial aspects of energy infrastructure alongside the physical.

The basic argument of the “splintering urbanism” thesis is that non-valuable, less powerful users are effectively bypassed by new infrastructural networks in order to ensure supply to valuable, powerful users. As a result of this development, “premium networked spaces” are emerging in cities throughout much of the world, 68 and the builders of these networked spaces pursue the goal of “seamlessly interconnecting highly valued local spaces and global networks to support

new vectors of flow and interaction between highly valued spaces and users.” 69 While infrastructure networks were once seen as “the very connective tissue” of the nation, serving as “the focus of the power, legitimacy and territorial definition of the modern nation-state,” 70 energy infrastructure is now increasingly transnational. Indeed, the case study outlined above represents but a relatively small segment in a vast Eurasian pipeline network that increasingly transcends sovereign spaces and state borders (see Figure 4).



FIGURE 4 Map of Eurasia's natural gas pipeline network.

Work on splintering urbanism builds on other conceptualisations of networked space that have emerged in the last twenty years or so, such as Manuel Castells's work on rising inequality of the information age (the emergence of “black holes” and a so-called “Fourth World” of places outside the scope of informational capitalism). 71 The crucial thread we want to draw out from splintering urbanism is the notion that connectivity is coming to rival distance as an important spatial variable. Rather than absolute space, or topography, dictating relationships (as in a Mackinderian interpretation of resource distribution and power struggles), increasingly relational or relative space dictates who profits (and who loses out) from particular infrastructure projects. 72 By way of analogy, the presence of a major trunk cable forming part of the internet backbone passing directly under your house does not necessarily ensure that you have a fast connection; one's access to that network is mediated at a number of points and on several levels. 73 In making this connection, we acknowledge the scalar leap we are making. Graham et al. explicitly focus on the historical legacies of infrastructure as a “public good” in cities and document the ways in which this idea has been challenged in recent times. 74 In addition, their focus is explicitly on the segmentation of urban infrastructure networks as a byproduct of broader processes of neoliberalisation. While the reintroduction of the free market in post-Soviet and other Eastern Bloc spaces clearly has also influenced the development of pipeline infrastructures there, it is not our wish to develop our argument under the context of neoliberalism. Rather, we

posit that the Nord Stream case is indicative of wider developments since the latter decades of the twentieth century in gas pipeline infrastructure in Europe from blocs of territorial integration to a more fragmented networked geography (see Figure 5).

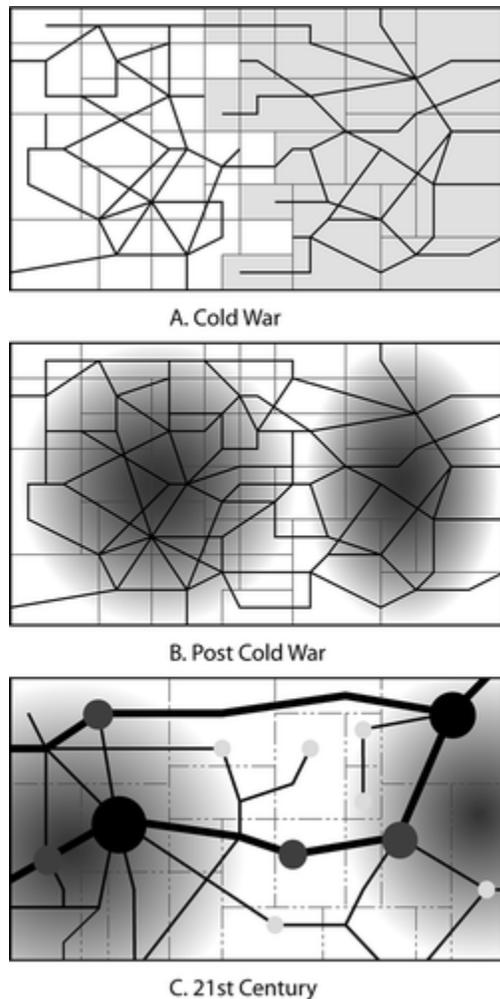


FIGURE 5 Conceptual cartography of Eurasia's natural gas infrastructure.

During the Cold War, infrastructural projects often corresponded to the geopolitical division separating Europe into Warsaw Pact communist countries in the East, and free market democracies in the West. This is evident in the first panel of Figure 5, though it must be pointed out that the Soviet Union began selling gas to West Germany in the early 1970s as part of Willy Brandt's Ostpolitik.⁷⁵ Thus, certain key aspects of the infrastructure crossed the Iron Curtain. In the immediate aftermath of 1989, which corresponded with a period of increasing integration of the European Community, there was growing interpenetration of infrastructure across the former Iron Curtain, as indicated in the second panel of our conceptual cartography. The last panel represents recent developments and, by all accounts, how pipeline infrastructures will develop in the future. In spite of recent EU energy initiatives designed to integrate new member states in Central Europe into a more integrated EU gas network (by, for example, envisioning bi-

directional flows to guard against supply disruptions), this is still very much in the developmental stage. For the time being, nodes of redistribution will be linked by projects such as Nord Stream, and areas of market growth will receive priority over rural areas and areas with less purchasing power.

The parallels between what is happening at the urban scale and Eurasian pipeline developments go beyond the segmentation of infrastructure as such, and extend to how such segmentation can impact the places bypassed by these networks. An increasingly disjointed infrastructure is accompanied by more frequent occurrences of what Graham in recent work has called “disruptive politics,” or the ability of individual actors to control the movement of energy, as well as water and food, throughout the world. ⁷⁶ Thus, the “linearity” of these networks raises security questions that go well beyond traditional forms of interstate conflict and open them up to asymmetrical forms of disruption. Increasingly, Graham argues, geopolitical power is less about the projection of military prowess and more about access and control of resources and infrastructure. Russia, it seems, is well aware of this power dynamic, and recent supply interruptions to Ukraine and Belarus could be interpreted as a form of disruptive politics. As the supply situation changes, and as political dynamics change, the future could easily hold more disruptive politics in store. ⁷⁷

The Nord Stream project can be perhaps best theorised as a polymorphic thing, constituted by social and economic relationships as well as the physical existence of steel pipe passing from Vyborg to Lubmin along the floor of the Gulf of Finland and the Baltic Sea – two nodes connected by a deterritorialised line. Each of these elements is organised at multiple geographical scales. Pipelines create a material network, rooted in some sense in a territorial context, but that is nevertheless the product of strategies of individuals, states, and businesses acting as part of a deterritorialised politics. Along the lines of Martin Jones, we would argue that flows and fixed aspects of space coexist and are mutually constitutive, not diametrically opposed. ⁷⁸ Pipelines contribute to a “geography of accumulation,” one that arises out of interactions between actors who themselves are rooted in a particular historical-geographical context. Like other networked technologies, they link “fast” geographies while creating new, or further entrenching, slow geographies, i.e., those places not connected to the network. ⁷⁹ In fact, this “unevenness” in the territorial development of telecommunications is, as Rutherford et al. argue, crucial in understanding the development of these markets as a whole. ⁸⁰ The geopolitics of pipelines as an infrastructure is more akin to “rhizomatic form of interspatial interconnectivity.” ⁸¹

CONCLUSION

In the first, and now second, decades of the twenty-first century, the geopolitical narratives summarised earlier in this piece have continued to influence how political actors, journalists, bloggers, and even some academics view the geography of Eurasia. The “fetishisation of territory” endemic to these narratives often means that the messiness of spatial interconnectivity

in Eurasia is glossed over in favour of reflexive references to heartlands, pivot areas, and spheres of influence. At the same time, “network-centrism” is not an adequate corrective. Flows and fixed aspects of space coexist and are mutually constitutive; they are not diametrically opposed. We propose that Nord Stream, along with other existing and proposed pipeline projects, constitutes an underappreciated form of spatial interconnectivity, and study of these projects can serve to enrich how geographers and others conceptualise Eurasian space, as well as energy relationships more broadly. Territory and network considered in tandem, we argue, provide a much more powerful, and more accurate, description of geographical reality.

A pipeline – even one built under the sea – is hardly immune to territorial frictions. Thus, the challenge is to conceptualise Nord Stream in both of its roles: as an a-territorial network and as materially tied to the places it serves and through which it passes. As an entry into engaging this challenge, we propose a new conceptual cartography of Eurasia – a rapidly evolving, and effectively “splintered” networked infrastructure. Widely held notions of geopolitics that emphasise proximity, territorial hegemony, and state-centric international relations must be complicated. Many questions remain that have not been addressed in this short piece. Our focus on one pipeline leaves open questions of what changing market dynamics – including the fact that natural gas is increasingly becoming integrated into a global market, where regional supply issues can have almost immediate impacts on prices around the world – means for the geography of this network. Future questions for us also include what this new cartography might mean for a politics of European integration⁸² and notions of “territorial cohesion,” particularly in those areas lying outside the privileged core.

In the meantime, we would suggest that retrograde renderings of pipeline and energy politics in Eurasia are too easy. Yet the early appeal and enduring impact of geopoliticians such as Sir Halford Mackinder were rooted in a marriage between geostrategic world views and geoeconomic calculation, and certainly there is much more room for critical analysis of the pipeline geopolitics in Eurasia and elsewhere.⁸³ By bringing the networked infrastructure of pipelines together with geopolitics, this paper confronts the territorial logics of contemporary understandings of Russia's role as energy provider by interrogating the provision of gas to Europe via a new pipeline.

Notes

Source: BP Statistical Review of World Energy 2009.

Source: BP Statistical Review of World Energy 2009.

1. Michael Bradshaw points out that “the fabric of our economy” is shaped largely by energy, particularly the “reliable access to relatively cheap energy”; M. J. Bradshaw, ‘Global Energy Dilemmas: A Geographical Perspective’, *Geographical Journal* 176/4 (2010) pp. 275–290. See also S. O’Lear, ‘Resources and Conflict in the Caspian Sea’, *Geopolitics* 9/1 (2004) pp. 161–186;

- R. Ericson, 'Eurasian Natural Gas Pipelines: The Political Economy of Network Interdependence', *Eurasian Geography and Economics* 50/1 (2009) pp. 28–57.
2. A. Goldthau, 'Rhetoric Versus Reality: Russian Threats to European Energy Supply', *Energy Policy* 36/2 (2008) pp. 686–692.
3. P. P. Verbeek, *What Things Do: Philosophical Reflections on Technology, Agency, and Design* (University Park, PA: Pennsylvania State University Press 2005).
4. There are exceptions to this, e.g., M. J. Bradshaw, 'The Geopolitics of Global Energy Security', *Geography Compass* 3/5 (2009) pp. 1920–1937; M. Labban, 'The Struggle for the Heartland: Hybrid Geopolitics in the Transcaspian', *Geopolitics* 14/1 (2009) pp. 1–25.
5. "Geopolitics" – a term coined by the conservative Swedish nationalist Rudolf Kjellén – was a field of study rooted in the same scientific-determinist ways of thinking that eventually culminated in the Nazis' territorial grabs and murderous racial ideologies, and that continued to shape foreign policies during the Cold War. See J. A. Agnew, *Geopolitics: Re-Visioning World Politics* (London: Routledge 2003).
6. Eurasia is a landmass stretching from the Atlantic to the Pacific, but for the purposes of this paper we will focus on Russia and its Western neighbours plus the rest of the European Union.
7. See particularly S. Bouzarovski, 'East-Central Europe's Changing Energy Landscapes: A Place for Geography', *Area* 41/4 (2009) pp. 452–463.
8. S. Graham and S. Marvin, *Splintering Urbanism: Networked Infrastructures, Technological Mobilities and the Urban Condition* (London: Routledge 2001).
9. Ericson (note 1); Bouzarovski (note 7).
10. Graham and Marvin (note 8); S. Graham, *Disrupted Cities: When Infrastructure Fails* (New York: Routledge 2010). As a reviewer pointed out, we are using the term "network" in the spirit of these scholars and others, and not necessarily in the more technocratic usage of the term in civil engineering and history of technology studies in which networks consist of a formal set of characteristics: nodes, arcs, sources, sinks, directional and bi-directional flows, etc. See also T. Matisziw, A. Murray, and T. Grubestic, 'Exploring the Vulnerability of Network Infrastructure to Disruption', *The Annals of Regional Science* 43/2 (2007) pp. 307–321.
11. P. Dicken, P. F. Kelly, K. Olds, and H. W.-C. Yeung, 'Chains and Networks, Territories and Scales: Towards a Relational Framework for Analysing the Global Economy', *Global Networks* 1/2 (2001) pp. 89–112; T. H. Grubestic and A. T. Murray, 'Vital Nodes, Interconnected Infrastructures, and the Geographies of Network Survivability', *Annals of the Association of American Geographers* 96/1 (2006) pp. 64–83.

12. J. A. Agnew, 'The Territorial Trap: The Geographical Assumptions of International Relations Theory', *Review of International Political Economy* 1/1 (1994) pp. 53–80.
13. For a critical reading of Mackinder in support of imperialism, see G. Kearns, 'Geography, Geopolitics and Empire', *Transactions of the Institute of British Geographers* 35/2 (2010) pp. 187–203.
14. P. M. O'Sullivan, 'Antidomino', *Political Geography Quarterly* 1 (1982) pp. 57–64.
15. M. Edwards, 'The New Great Game and the New Great Gamers: Disciples of Kipling and Mackinder', *Central Asian Survey* 22/1 (2003) pp. 83–102.
16. M. Bassin and K. E. Aksenov, 'Mackinder and the Heartland Theory in Post-Soviet Geopolitical Discourse', *Geopolitics* 11/1 (2006) pp. 99–118; N. Morozova, 'Geopolitics, Eurasianism and Russian Foreign Policy Under Putin', *Geopolitics* 14/4 (2009) pp. 667–686.
17. K. Dodds and J. D. Sidaway, 'Halford Mackinder and the 'Geographical Pivot of History': A Centennial Retrospective', *The Geographical Journal* 170/4 (2004) pp. 292–297.
18. P. Venier, 'The Geographical Pivot of History and Early Twentieth Century Geopolitical Culture', *Geographical Journal* 170 (2004) pp. 330–336; S. O'Hara and M. Heffernan, 'From Geo-Strategy to Geo-Economics: The 'Heartland' and British Imperialism Before and After MacKinder', *Geopolitics* 11/1 (2006) pp. 54–73.
19. R. D. Kaplan, 'The Revenge of Geography', *Foreign Policy* 172 (May/June 2009).
20. See, e.g., A. B. Murphy and J. O'Loughlin, 'New Horizons for Regional Geography', *Eurasian Geography and Economics* 50/3 (2009) pp. 241–251.
21. C. Clover, I. Gorst, and D. Dombey, 'Privileged Position', *Financial Times*, 3 April 2009; B. Bischof, 'Zentralasien: Das 'Grosse Spiel', das es gar nicht gibt', *Die Presse*, 17 March 2009.
22. Z. Brzezinski, 'A Geostrategy for Eurasia', *Foreign Affairs* 76/5 (1997) pp. 50–64.
23. G. Kearns, 'Naturalising Empire: Echoes of Mackinder for the Next American Century?', *Geopolitics* 11/1 (2006) pp. 74–98.
24. As in describing a "new Great Game" or "Great Energy Game"; S. Tessier-Stall, 'Russia and the New Great Game', 2008, available at <http://www.policyinnovations.org/ideas/briefings/data/000033/>, accessed 16 Jan 2010; or powers "scrambl(ing) for energy"; J. M. Smith, 'The Great Game, Round Three', *The Journal of International Security Affairs* 17 (2009). See also Edwards (note 15). Along these lines, there is a "tense struggle" or "war" involving energy and its markets; D. Freifeld, 'The Great Pipeline Opera', *Foreign Policy* 174 (Sep./Oct. 2009) pp. 120–127; J. Rubner, 'Das grosse Spiel ums Gas', *Sueddeutsche Zeitung* (13 July 2009).

25. M. T. Klare, 'The Geopolitics of Natural Gas – Abundant & Cleaner Burning than Oil & Coal, Gas Fuels New Power Plays', *Nation* 282/3 (2006) pp. 18+.
26. Freifeld (note 24).
27. Clover et al. (note 21).
28. R. D. Asmus, 'Russia's 'Sphere' in Europe', *Washington Post*, 26 Dec. 2009.
29. Tessier-Stall (note 24).
30. R. Galpin, Energy Fuels New 'Great Game' in Europe, *BBC News Online*, 9 June 2009, available at <<http://news.bbc.co.uk/2/hi/europe/8090104.stm>>.
31. Smith (note 24).
32. Tessier-Stall (note 24).
33. Kearns, 'Naturalising Empire' (note 23).
34. S. Dalby, 'Critical Geopolitics: Discourse, Difference, and Dissent', *Environment & Planning D: Society & Space* 9/3 (1991) pp. 261–283; G. Ó Tuathail, *Critical Geopolitics: The Politics of Writing Global Space* (Minneapolis: University of Minnesota Press 1996).
35. Kearns, 'Naturalising Empire' (note 23).
36. Bassin and Aksenov (note 16).
37. The Nord Stream project has been a topic in this journal: Bouzarovski and Konieczny looked at the pipeline from Poland's perspective; S. Bouzarovski and M. Konieczny, 'Landscapes of Paradox: Public Discourses and Policies in Poland's Relationship With the Nord Stream Pipeline', *Geopolitics* 15/1 (2010) pp. 1–21. Nevertheless, these authors also point out that the Nord Stream remains understudied within academic literature. In particular, the failure of imagination in linking pipelines to splintering of space more broadly is quite surprising. See also Bouzarovski (note 7).
38. Nord Stream, 'Ten Answers About the Pipeline Through the Baltic Sea', 2009, available at <<http://www.nord-stream.com/en/>>, accessed 23 Feb. 2010.
39. Based on calculations of data available at the US Energy Information Administration, available at <<http://www.eia.gov/>>.
40. R. Kupchinsky, *Russian LNG – The Future Geopolitical Battleground*, Jamestown Foundation Report, 2009, available at <[http://www.jamestown.org/single/?no_cache=1&tx_ttnews\[tt_news\]=35189](http://www.jamestown.org/single/?no_cache=1&tx_ttnews[tt_news]=35189)>; C. Bryant, 'The Struggle over Russia's 'Energy Weapon' Beneath the Baltic', *Financial Times*, 26 Oct. 2009.

41. Some of the loudest voices in this regard have come from the US. Former National Security Advisor Zbigniew Brzezinski went so far as to tell the New York Times that the pipelines represent “a grand Russian initiative to ‘separate Central Europe from Western Europe insofar as dependence on Russian energy is concerned,’” in A. E. Kramer, ‘Russia Gas Pipeline Heightens East Europe's Fears’, New York Times, 13 Oct. 2009, while a US ambassador to Sweden described the Nord Stream as a “special arrangement between Germany and Russia,” and advocated EU vigilance in counteracting “Russia's energy weapon,” in Bryant (note 40).

42. P. Noël, A Market Between Us: Reducing the Political Cost of Europe's Dependence on Russian Gas, Electricity Policy Research Group Report EPRG Working Paper 916, 2009,, available at <<http://www.eprg.group.cam.ac.uk/wp-content/uploads/2009/06/binder13.pdf>>.

43. Ibid.

44. Ericson (note 1).

45. Ibid.

46. A. Medetsky, ‘Gazprom Wins Final Clearance’, Moscow Times, 15 Feb. 2010.

47. Much has been made in several media sources about prominent actors in the Nord Stream project, such as Gerhard Schröder, the former chancellor, who segued almost directly from the highest elected office in Germany to the board of Nord Stream AG. Matthias Warnig, the managing director of Nord Stream, has been the focus of attention for his extensive past in the East German domestic intelligence agency, the Stasi, where he allegedly worked with then-KGB agent Vladimir Putin in Dresden, e.g., in R. Kupchinsky, ‘Nord Stream, Matthias Warnig (codename “Arthur”) and the Gazprom Lobby’, Eurasian Daily Monitor 6/114 (2009).

48. Nord Stream (note 38).

49. EUDG (European Union Directorate-General for Energy and Transport), ‘European Energy and Transport Trends to 2030’, 2007, available at <http://ec.europa.eu/dgs/energy_transport/figures/trends_2030_update_2007/index_en.htm>. This is subject to considerable debate in the natural gas community. In particular, the global recession and the so-called “shale gas revolution” in the North America have impacted demand for natural gas in Europe. See Noël (note 42).

50. A. Aslund, ‘Gazprom's New Weakness Offers Opportunity’, Moscow Times, 27 May 2009; A. Heinrich, ‘Under the Kremlin's Thumb: Does Increased State Control in the Russian Gas Sector Endanger European Energy Security?’, Europe-Asia Studies 60/9 (2008) pp. 1539–1574.

51. M. J. Sagers, ‘Developments in Russian Gas Production since 1998: Russia's Evolving Gas Supply Strategy’, Eurasian Geography and Economics 48/6 (2007) pp. 651–698.

52. ‘Nord Stream: A Glimmer of Hope in EU-Russia Dark’, New Europe 835 (26 May 2009).

53. G. Chazan, 'Shtokman Production Delayed Two Years', Wall Street Journal, 19 Nov. 2009.
54. It is exceedingly difficult to find topically knowledgeable individuals willing to talk openly about Gazprom in Russia. What was somewhat more surprising was the reticence encountered in Germany. Nevertheless, given the timing of the final push for Nord Stream, the account offered by Kupchinsky, Russian LNG (note 40), about the impetus for the project seems likely. He reported that formerly the 2005 "Orange Revolution" in Ukraine and the then more likely scenario that Ukraine could become a NATO member prompted the former head of Gazprom, Viktor Chernomyrdin to push for a new pipeline under the Baltic. Up to that point, the project had languished, though its initial impetus came much earlier, in 1997, when the Finnish hydrocarbon company NesteOy proposed a joint venture with Gazprom to build a pipeline passing under the Baltic. See also R. Götz, 'Die Ostseegasipeline', in SWP-Aktuell (Berlin: Stiftung Wissenschaft und Politik 2005).
55. J. Stern, The Russian-Ukrainian Gas Crisis of January 2006, Comment from the Oxford Institute for Energy Studies Report, 2006, available at <www.oxfordenergy.org/pdfs/comment_0106.pdf>.
56. L. Solanko and P. Sutela, 'Too Much or Too Little Russian Gas to Europe?', Eurasian Geography and Economics 50/1 (2009) pp. 58–74.
57. M. Reymond, 'European Key Issues Concerning Natural Gas: Dependence and Vulnerability', Energy Policy 35/8 (2007) pp. 4169–4176.
58. S. Lochner and D. Bothe, From Russia with Gas: An Analysis of the Nord Stream Pipeline's Impact on the European Gas Transmission System with the Tiger-Model, Institute of Energy Economics Report 07.02, 2007, available at <<http://www.ewi.uni-koeln.de/fileadmin/user/WPs/ewiwp0702.pdf>>.
59. A. Rahr, 'Germany and Russia: A Special Relationship', Washington Quarterly, 30 Feb. 2007, pp. 137–145; R. Götz, 'Germany and Russia – Strategic Partners?', Geopolitical Affairs IV (2007) pp. 216–230.
60. A. B. Murphy and C. M. Johnson, 'German Geopolitics in Transition', Eurasian Geography and Economics 45/1 (2004) pp. 1–17.
61. Rahr (note 59).
62. Kramer (note 41).
63. V. Adamkus, M. Butora, E. Constantinescu, P. Demes, L. Dobrovsky, M. Eorsi, I. Gyarmati et al., 'An Open Letter to the Obama Administration from Central and Eastern Europe', Gazeta Wyborcza, 15 July 2009.

64. K. C. Smith, *Russian Energy Policy and its Challenge to Western Policy Makers*, CSIS Report, 2007, available at <<http://csis.org/files/media/csis/congress/ts070625smith.pdf>>.
65. T. Mitrova and H. Pleines, *Gazprom's Foreign Energy Policy*, Center for Security Studies (CSS), ETH Zurich, Forschungsstelle Osteuropa (FSOE) Report 41, 2008, available at <<http://www.res.ethz.ch/analysis/rad/details.cfm?lng=en&id=55592>>.
66. D. J. M. Hooson, 'A New Soviet Heartland?', *The Geographical Journal* 128/1 (1962) pp. 19–29; M. Bradshaw and J. Prendergrast, 'The Russian Heartland Revisited: An Assessment of Russia's Transformation', *Eurasian Geography and Economics* 46/2 (2005) pp. 83–122.
67. M. Jones, 'Phase Space: Geography, Relational Thinking, and Beyond', *Progress in Human Geography* 33/4 (2009) pp. 487–506.
68. Graham and Marvin (note 8).
69. *Ibid.*, p. 100.
70. *Ibid.*, p. 74. Their approach has been applied in a variety of mainly urban contexts, such as S. Jaglin, 'Differentiating Networked Services in Cape Town: Echoes of Splintering Urbanism?', *Geoforum* 39/6 (2008) pp. 1897–1906; M. Kooy and K. Bakker, 'Splintered Networks: The Colonial and Contemporary Waters of Jakarta', *Geoforum* 39/6 (2008) pp. 1843–1858; F. MacKillop and J.-A. Boudreau, 'Water and Power Networks and Urban Fragmentation in Los Angeles: Rethinking Assumed Mechanisms', *Geoforum* 39/6 (2008) pp. 1833–1842; M.-H. Zérah, 'Splintering Urbanism in Mumbai: Contrasting Trends in a Multilayered Society', *Geoforum* 39/6 (2008) pp. 1922–1932.
71. M. Castells, *The Rise of Network Society* (Oxford: Blackwell 1996); M. Castells, *End of Millennium* (Oxford: Blackwell 1998).
72. M. Jones, 'Limits to "Thinking Space Relationally"', *International Journal of Law in Context* 6/3 (2010) pp. 243–255.
73. See, e.g., B. Latour, 'On Actor-Network Theory: A Few Clarifications Plus More than a Few Complications', 1997, available at <<http://www.cours.fse.ulaval.ca/edc-65804/latour-clarifications.pdf>>.
74. Graham and Marvin (note 8). Coutard is critical of the approach and generalisability of the splintering urbanism thesis; see O. Coutard, 'Placing Splintering Urbanism: Introduction', *Geoforum* 39/6 (2008) pp. 1815–1820.
75. F. Stern, 'Germany in Semi-Guallist Europe', *Foreign Affairs* 58/4 (Spring 1980) pp. 880–881.
76. Graham (note 10).

77. For additional explorations of the themes of networked infrastructure, the vulnerabilities exposed by networks, and the economic consequences of networks, see Grubestic and Murray (note 11); J. Harrison, 'Networks of Connectivity, Territorial Fragmentation, Uneven Development: The New Politics of City-Regionalism', *Political Geography* 29/1 (2010) pp. 17–27; J. Rutherford, A. Gillespie, and R. Richardson, 'The Territoriality of Pan-European Telecommunications Backbone Networks', *Journal of Urban Technology* 11/3 (2004) pp. 1–34.
78. Jones, 'Phase Space' (note 67).
79. A. Paasi, 'Is the World More Complex than Our Theories of It? TPSN and the Perpetual Challenge', *Environment and Planning D: Society and Space* 26/3 (2008) pp. 405–410; P. Knox, 'World Cities and the Organization of Global Space', in R. J. Johnston, P. J. Taylor, and M. Watts (eds.), *Geographies of Global Change: Remapping the World* (Oxford: Blackwell 2002) pp. 328–339.
80. Rutherford et al. (note 77).
81. B. Jessop, N. Brenner, and M. Jones, 'Theorizing Sociospatial Relations', *Environment and Planning D: Society and Space* 26/3 (2008) pp. 389–401; see also G. Deleuze and F. Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia* (Minneapolis: University of Minnesota Press 1987).
82. N. Smith, 'Remaking Scale: Competition and Cooperation in Prenational and Postnational Europe', in H. Eskelinen and F. Snickars (eds.), *Competitive European Peripheries* (Berlin/New York: Springer 1995).
83. O'Hara and Heffernan (note 18).