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For a 'new new regional geography': plastic regions and morethan-relational regionality

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This paper firstly delimits a 'new new regional geography' centered on whether regions can be seen as relational and networked or/and territorial and scalar concerns, and beyond this, what relationality and its various topological twists means. Debates have sought ways forward by seeing regions as assembled temporary permanencies and how regions are formed and then endure despite conditions of continual change. The paper engages specifically with Allen's (2012) notion of a 'more than relational geography', which guestions what kind of regional entities are being made and sustained. The paper secondly advances this via notions of 'plastic space' to take forward debates on a more than relational geography of regions, where regions are flexible but not totally arbitrary, constrained by contextual realities forged in and through time as the plasticity of institutional combinations. Malabou's plasticity ontology is deployed to raise important questions on the limits to seeing the regional world through always elastic deformations and the stretching of objects and relations, which can lead to throwntogether topological vagaries.

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... knowing the pattern of instantiation by material events of just a few geometric relations will fall well short of determining the spacetime geometry of a world or of determining the embedding up to a spacetime isometry of those material events. Something more is required. And here it is again natural for relationists to appeal to a notion of geometric possibility (Belot 2011, 137–138, emphasis added)

The body-brain-material assemblage operates an exciting proposition, that through readings of neuroscience and alternative philosophies of nature the relationship between thought and matter is placed in conceptual tension such that thought is matter and matter is thought. (Dewsbury 2011, 151, emphasis original)

Introduction: beyond topological multiplicity

Regions have been central, and I would argue remain hyper-critical to, the foundations of geography, and moreover, the discipline of geography can be traced through the different ways in which 'the region' has been interpreted and conceptualized (compare Agnew 2018; Entrikin 2008; Holmén 1995; Laurier and Philo 2003; MacLeod and Jones 2001; Merriman et al. 2012; Paasi 2022). Geographers have talked about traditional regional geography, the new regional geography, and the new regionalism, with the reoccurring problematic being, as Santos (2021, 57–60; also Thrift 1983) puts it, how to capture 'form and content', i.e. situated social action within the constantly evolving 'inseparability' of space and time. This historical schema is revisited, unpacked, and extended below. The current 'new new regional geography' debate, categorized and explored in this paper as an addition to this schema, has centered on whether regions can be seen as relational and networked or/and territorial and scalar concerns, and beyond this, what relational 'regionality' (Painter 2008; Stewart 2013) and its various 'topological twists' (Allen 2011, 2012; Jones 2014) means for human geography. On the one hand, regions comprise relational spaces, fluid and dynamic, not bounded, but forged as nodes or entanglements of social, economic, political, and cultural relations caught in interactions and flow. On the other hand, these regions are never independent but signify a relative spatiality – a bounded but relationally connected and porous array of spaces and places, located as juxtapositions topologically and topographically (see Paasi, Harrison, and Jones 2018; Paasi 2022; Riding and Jones 2017).

Debates and exchanges over the past two decades have accordingly sought ways forward by seeing regions as 'temporary permanencies' (see Whitehead 1929; also Harvey 1996) and 'reasonable materialisms' (Bhandar and Golden-Hillier 2015), i.e. how and where regional 'relations are formed and then endure despite conditions of continual change' (Martin and Secor 2013, 11) and the 'distinctive ways such things are connected' (Dainton 2001, 138) in the making of regional geographies. This has been expressed in different ways within social sciences literatures through: notions of 'assemblages' - that body of work concerned with how sociospatial relations are relationally constituted through forms of 'contact or exchange' (Anderson et al. 2012) and how 'shifting configurations of relations' actually produce observable changes in physical place (Woods et al. 2021), also prompting exchanges on critical or 'new materialisms' (Cole and Frost 2010) and their 'vibrant matter' (Bennett 2010); suggestions of 'fire space' - how regions are shaped by abrupt and discontinuous movements and what observers call 'oscillations of presence and absence' (Law and Mol 2001; Serres and Latour 2005); ideas of 'cultural topology' to capture the links between relations in networks and nodes of engagement and interaction (Shields 2013); a territory-place-scale-network (TPSN) schema for examining the spatiotemporal fixing of multidimensional sociospatial relations in cities and regions and the various horizons of action therein (Jessop et al. 2008; Jones and Jessop 2010; Jessop 2018) and related to this, work on imagined and material constellations of 'new localities' (Jones and Woods 2013).

Allen (2012, 190) has sought to influentially consolidate these terrains and has summarized a challenge of developing a 'more than relational geography' where the goal is one of '[m]oving beyond relations to consider the nature and kind of entities that make and are made through relationships'. In this sense, Allen questions what kind of regional entities are being made and sustained through our sociospatial interrelations. This paper firstly delimits a 'new new regional geography' to situate this and secondly advances this via notions of 'plastic space' to take forward debates on the *more than relational geography of regions*. Drawing on the work of Malabou (2008) plastic space, derived from notions of brain plasticity and other plastic materialities such as clay, is deployed to capture where regions exist in spacetime phases and where the space of the possible is constrained by what is occupying regions – flexible but not totally arbitrary, the main possibilities are already there, constrained by contextual realities forged in and through time as 'the plasticity of institutional combinations' (Dodgshon 1998, 127). This, in turn, raises important questions on the limits to seeing the regional world through always elastic deformations, twistings, and the stretching of objects and relations, which can lead to what Rosen (2006, 13) calls thrown-together 'topological vagaries' (cf. Massey 2005; Serres 2017; Axelsson 2022).

The paper accordingly presents plastic regions as 'always provisional' (Cochrane 2018, 85), 'in a state of constant flux' (Sadler 2020, 1036), multifaced and constrained geographical accomplishments, forged through points of contacts between economic, political, and social activity and their relationships institutionalized over time. With a focus more on inertial and developmental



constraints, expressed as the 'the pull of plasticity' (Unger 1987, 212), than the contemporary 'push' preoccupation with multiplicities of fluidities and flow, the notion of 'being plastic' means that sociospatial relations should be seen as 'malleable' (Gratton 2014; Bhandar and Golden-Hillier 2015); they 'shape and mould' and/or 'give and receive' our regional futures (Boever 2016). The remaining discussion unpacks this using the four chronological intellectual phases of conceptualizing regions in geography 'to go back' to go 'forward', as Thrift (1994) has previously neatly put it.

Traditional regional geography: pigeon-holes for observations

An era of traditional regional geography existed during the long nineteenth century. Here, the region was treated absolute: as an independent backdrop for, first, conducting geographical inquiry and, second, developing thereafter a world of different regional geographical types. Books such as Britain and the British Seas by Mackinder (1902) made assumptions about the interconnected nature of the human and the physical. This regional geography was an 'ethnographical geography' of successive phases and component elements, with (in this case) the physical environment as 'thus analysed'. The work of Herbertson (1905) developed 'climatic regions' from this, and Fleure offered 'human zones' conditioned, rather than entirely governed, by physical circumstances in Human Geography in Western Europe (1919).

The backlash to this came from the likes of Hartshorne, whose *The Nature of Geography* (1939), contra Herbertson and Fleure, claimed that none of their regional geographies 'alone' covered a significant number of features to offer an 'adequate' background to regional study, or to provide a tentative system for organizing all our regional knowledge of the world. A regional geography of 'elements' (meso-worlds of human-physical interactions) was proposed to produce an elaborate regional geography of 'areal differentiation' - the division of the earth surface by observations that different areas of the world are somehow self-contained and where, extending the work of Vidal de la Blache (1926), co-variation conditioned relationships between people and land created a distinctive geography or genre de vie. The purpose of this regional geography was to understand what these differences are and how they are causally related, with the physical world as 'foundational' (Agnew 2018). Books such as One World Divided (1964) by James summarized the long results of this thinking through offering different 'areal differentiations' or acts of 'chorology' (see also James 1929). Interesting work was undertaken on advancing these propositions through notions of 'sequent occupance' (Whittseley 1929), whereby the regional landscape is described as a layered combination of those cultural agents 'sequentially' occupying that region over time from the past the present.

Regional science, driven by the desire to study connected variables as part of modernist social sciences mixed with theories of physics (such as gravity models), logically followed from this. Isard's Methods of Regional Analysis (1960) suggested that any general theory of the region, whether this be in relation to locational analysis of industry or population, must be supplemented by techniques of regional analysis, namely operational techniques that yielded estimates for both the 'proper' understanding of social problems and appropriate intervening through policy formulation. Isard's work sought to make and model the internal connections between things that flowed through and were seen to actively make regions, albeit in a discrete and bounded way, isolated though from external drivers behind the capitalist space economy.

This concern with the structural and strategic forces acting in and on regions could be felt by those critiquing regional science and offering, through regional studies largely influenced by Marxism, alternatives based around the dynamics and contradictions of capitalism. Books by Massey such as The Anatomy of Job Loss (Massey and Meegan 1982) and the (1984) classic Spatial Divisions of Labour presented regions as the medium and outcome of economic and political struggles around the geography of production and class struggle. 'Rounds of investment', phases of capital accumulation dealt out like 'playing cards', as Gregory (1989) put it, acted as 'waves' on a beach (see Sadler 2020), constantly making and remaking regions in geography as a distinctive economic

geography of layered localities. This dealing metaphor 'underlines not only the multiplicity of (local) roles and the (fluid) hierarchies of social relations and production functions in which these are enveloped, but the fact also that different sets of rules are associated with the various games that have been (and might be) played' (Peck 2013, 104). Regional economic difference, then, was identified 'not in the service of separation and sequestration, but in the plural forms of relational connectivity' (Peck 2013: 105, emphasis added).

The new regional geography: meeting places for transformations

This emphasis on capital versus the regions, combined with the emphasis on place as a 'historically contingent' and increasingly relational process (Pred 1984), meant that the mid- to late 1980s was ripe for thinking about a new regional geography. Whereas traditional regional geography talked about fixed and bounded territorial and process entities, new regional geography wanted to study regions as produced and transformed through various forms of relational and situational agency. Gilbert's classic (1988) summary of this position drew attention to regions as varying local responses to capitalist processes; regions as the focus of cultural identification (or senses of place); and regions as the medium for social interaction or meeting places for human agency and social structures. The studies of 'localities' in the United Kingdom offered an economic and social window into this, although they often generated more empirical heat than conceptual light (see Jones and Woods 2013) resulting in gaps between theory and practice (Murphy 1991).

Authors such as Thrift (1983, 38, 57) took these concerns deeper and laid down four challenges, derived from what he called a 'reconstructed' or 'reconstituted regional geography', which emerged from a series of 'skirmishes' won by the new regional geography (Thrift 1990). These were: (a) the contested production of meaning within regions; (b) the changing forms of the 'spaces of regions', most especially their transformation into simulations of other spaces; (c) the relations between people and nature and the deconstruction of landscape; and (d) the problem of 'writing' regions, most especially the chronic problems of description at the nexus between the analytic and the narrative forms. Thrift (1991, 1993, 1994) subsequently explicitly placed the subject at the heart of the new regional geography, by calling for a more serious consideration of: (a) the constitution of self and identity; (b) autobiography and memory; (c) the multifarious emotional repertoires available to actors; (d) the forms of knowledge made available through discourse and the shaping of these knowledges; and (e) the importance of context in the becoming of identity, memory (re)construction, and regional emotions or structures of feeling.

Paasi has taken forward this approach and formulated over many years a unique framework for understanding regions and region-building endeavours (see Paasi 2022). Paasi (1986, 110) sought to transcend the dualism between Marxism and humanism by seeing regions 'not as static frameworks for social relations but as concrete, dynamic manifestations of the development of a society'. Areal extent, though, is a misnomer, as regions are to be analysed reflexively within the context of their very cultural, political, and academic conception (Paasi 1991, 1996, 2010). Notions of institutionalization come into play here, which is not a shorthand for the study of institutions; instead, attention is paid to geohistorical sociospatial processes during which territorial units emerge as part of the spatial structure of a society and become established and clearly identified in different spheres of social action and social consciousness. Regions are at once lines on the map and also geographical reference points in popular and political culture (MacLeod and Jones 2001). This is operationalized through a realist methodology of abstraction: abstract to concrete and simple to complex in the identification of phenomena that gets a handle on the 'composition' and 'consistency' of regionmaking, expressed by others as instances of 'regionality' (Stewart 2013; see also Painter 2008).

Paasi has deconstructed the regionalization process by abstracting four stages, which, rather than implying a linear sequence, of course, are to be understood as mutually constituting, reciprocal, and recursive processes of structuration only distinguishable from each other analytically for the purposes of grounded research - hence why they are abstractions. The first of these concerns the

assumption of territorial awareness and shape, where a territory assumes some bounded configuration in individual and collective consciousness and becomes identified as a distinct unit in the spatial structure of society. At the heart of this stage one can point to a series of struggles relating to cognitive mapping and the hegemony of one geographical imagination over others; the politics of scale, difference, identity, and subjectivity; and the stretching and bounding of power relations (Jones and MacLeod 2004; MacLeod and Jones 2001). This leads to the second stage, the formation of the conceptual and symbolic shape of regions, which is neither pure nor uncontested but is instead subject to continuous negotiation, translation, and a hybridity of cultural expression. That said, power-holding elites will endeavour to press that such negotiations and translation manifest in a hegemonic territorial grid of meaning whereby only a selection of invented traditions, histories, and remembrances are established and creatively implicated in the constitution of a territory's social relations. Paasi's work, particularly in Territories, Boundaries and Consciousness, stresses the importance of power-laden symbols such as cartographies, flags, memorabilia, histories, and so on. Attention is also drawn to the very naming of a region, which helps to connect its image and place consciousness both of insiders and of outsiders (Paasi 1996, 2013).

These processes are constituted in particular 'structures of expectation', themselves critical in facilitating the third stage, the emergence of institutions, where Paasi seeks to capture the identity-framing vehicles of education, law, local politics, and organizations rooted in civil society (local media, working clubs, and arts and literature organizations), as well as informal conventions such as economic ties or proximity and social mores. The entrenchment of these processes into the spatial matrix of society can also foster symbolic shape (see Paasi 2022). For example, as more cityregional scale organizations are instituted into an activity such as economic development, the very consciousness of some place-based agendas may be intensified (MacLeod and Jones 2001) - all of which helps in providing an effective means of reproducing the material and mental existence of territories in question.

Paasi's key research objective has been to uncover the more localized or bottom-up articulations involved in the reproduction of sociospatial consciousness and regional shaping of society and more recently how all this has been shaped by the state (see Paasi 2013; Paasi and Zimmerbauer 2016). The final stage in this latter process thus concerns the establishment of a region in the spatial structure and popular consciousness, where it assumes the form of an institutionalized 'territorial unit' and as an identifiable constituent in the regional division of society. In practical terms, the region is ready to be mobilized for such purposes as place marketing or as a weapon in an ideological struggle over resources and power. Further, if provided with administrative status, it comes to assume the material expression of the end to which state power is applied (Paasi 1991). State power, in turn, can lead to the 'deinstitutionalization of a region', in effect a reverse process of institutionalization, with the question of whether regions disappear and are erased from all consciousness, or due to their 'stickiness' and the fact that they are embedded in many actants (human and nonhuman), such regions will never become fully deinstitutionalized; they may reappear (Zimmerbauer, Riukulehto, and Suutari 2017). Linked to this, Dodgshon's Society in Space and Time, critiquing Pred (1984) and Paasi by association, raised the question of such notions of contingency compressing 'the past, reducing it to something that is immediately antecedent rather than something whose depth has many layers and many exposures. To put this another way, we cannot have a notion of contingency that tries to be too historical, or deep-rooted, without weakening the notion of contingency itself (Dodgshon 1998, 164, emphasis added).

The new regionalism: untraded meso-Level interdependencies

Globalization discourses and the politically charged nature of economic development, especially in Europe, overtook these debates, and in the early 1990s geographers and other social scientists were talking about the new regionalism. This regional geography saw regions, not nations per se, as the crucibles for both economic success and democratic legitimacy. A rescaling of economic and social

life was being witnessed and Keating's The New Regionalism in Western Europe (1998) and Rescaling the European State (2013) summarized these trends and speculated variously on their wider applicability. For Storper (1997), a new era of reflexive capitalism was being witnessed, where regions provide the ideal 'action-frameworks' for holding down the global economy. Economic success is, in turn, related to 'untraded interdependencies' - region-specific assets that emerge from particular place-based cultures and traditions. Firms, the state, and social forces pull together to manage uncertainty and regions - defined in terms of economic agglomeration complexes - are the scale at which all this can occur. Scott and Storper (2003) subsequently argued that integrated regional systems of governance and regulation needed to support such developments around the globe.

For Keating (1998, 2013), a hollowing-out of the nation-state was also taking place, based around three key trends: a loss of power upward through Europeanization; loss of power downward through territorial identity, politics of assertion, and devolution; and a loss of power outward through globalization and market forces that challenge bounded local economies. Keating primarily focuses on two of these: the upward and downward movement. Discussing these briefly in turn, the upward movement is predicated on a Europe of the Regions thesis, whereby NUTS (Nomenclature of Territorial Units for Statistics) level territorial units become the conduits for the delivery of economic competitiveness and social cohesion in and through regions. European Social Fund and European Regional Development Fund initiatives support this. The downward movement is framed around those similar trends highlighted by Jones and MacLeod (2004), namely 'spaces of regionalism', with regions now being host to politics of identity and cultural expression. The evidence for this, in Loughlin's (2001) book, is the waves of territorial discontent across Europe over the last 30 years and the regionalism and federalism of political projects since the post-1989 restructuring of Eastern Europe. Added to this, Keating points to the increasingly important issues of the rise of subnational citizenship and the reemergence of languages, cultures, and traditions. Six different ideal-types of regionalism are witnessed, which collectively are leading to the 'rise of the meso' (Keating 2013) across the world:

- conservative regionalism resisting progressive modernization and arguing for tradition;
- bourgeois regionalism pushing for regionalism from economically advanced territories;
- progressive regionalism often left-leaning political movements arguing for democracy and cultural ownership;
- social democratic regionalism linked to the above but concerned with expanding regional/local government with a national framework;
- populist regionalism often right-wing political coalitions arguing for transfer of money from rich to poorer regions;
- nationalist separatist regionalism separatist and independence movements often backed by military force.

This new regionalism, though, was subjected to a series of critiques by those suggesting that tradition's regionalism was being 'read off' through a new economic geography of globalization and regional development and a new functionalist political geography of territorial politics and public policy communities. Critics such as MacLeod (2001) sought to draw attention to three shortcomings of this literature: (a) a 'soft institutionalism' (where institutions are seen as the explanation for economic success, as opposed to looking at the historical geography of institutions); (b) 'thin political economy' (the absence of any analysis of the state and the political economy of territory, scale, and region-making); and (c) 'distorted policy' (the inability of some scholars to examine path dependency, the problems of policy transfer and policy borrowing, and how case studies are used to develop both academic and political knowledge). MacLeod's solution to these problems is to bring the state back into the regionalism picture and to consider the state's role in region-making. This is done by way of engaging with Jessop's (1990, 2008, 2016) strategic-relational approach,



which argues that the state should not be seen as a monolithic ensemble, but as a strategic terrain continually being remade in and through social and spatial relations. The state, in turn, has no power of its own, other than the social forces acting through the state apparatus. Also drawing on Paasi's research, MacLeod's (2001) regulation approach applies this framework to regions, suggesting that regions are not essentialized spatial entities; they are instead the result of an unevenly sedimented intersectional geography of entwined economic and society-wide forces. An activated politics of regionalism follows from this.

'New new regional geography': territorial/relational and beyond

We are currently witnessing a phase called the 'new new regional geography' (Jones 2015, 2017). One provocative aspect of this involves a group of scholars advocating a 'thinking space-relationally' approach, which envisages a world without regions per se, where rhizomatic flows and networks dominate and help to promote a new politics of place based on 'proquinity' (the state of being close to someone or something, achieved through the 'folding and 'assembling' of existence, and made possible by globalization and technological empowerment). Seven significant points follow from this position (see Amin 2004; Amin, Massey, and Thrift 2003; Amin and Thrift 2013; Massey 2005):

- (1) Regions have no automatic promise of territorial integrity since they are made through the spatiality of flow, juxtaposition, porosity, and relational connectivity.
- (2) Regions cannot be communities per se if they lend themselves to territorially defined or spatially constrained political arrangements and choices.
- (3) Relationalism then questions the assumption that there is a defined 'manageable' region-based geographical territory.
- (4) Regionalist language of nested scales and territorial boundaries is deemed to omit much of the topology of economic circulation and network folding characteristic of contemporary capitalism.
- (5) There is no agreement on what is meant by the term 'region scales of analysis' or how they should be operationalized.
- (6) Only relational thinking provides alternative avenues for conceptualizing the regionalist tensions of forms of devolution.
- (7) Any attempt made by either academics or policymakers to 'fix' spatial identities through policy initiatives will be characterized by oversimplification and an inability to capture relational regional dynamisms.

This approach has, in turn, produced a backlash, with scholars seeking to bring regions, territories, and geographical scales back onto the agenda. Their argument is not to completely drop regions, but to think about regionalism differently. MacLeod and Jones (2007) concede that globalization and state restructuring have each rendered all cities and regions more open and permeable to 'external' influences. This, however, must balance an acknowledgment of how many prosaic moments of realpolitik - as in a central government classifying a region as a 'problem' or local activists campaigning for devolved government and cultural rights - often distinguish a territorially articulated space of dependence through which to conduct their politics of engagement. They draw on research from the southwest of England, where the introduction of devolution created the space of region-building projects, such as development agencies, assemblies, and constitutional conventions, which in turn sparked territorial regionalism reactions from grassroots regional movements. The latter waged their struggles precisely around explicitly territorial political projects, but these regionalist movements also exhibited a network-topological perspective, as they were made up of actors and political struggles taking place through a myriad of actor networks of people, objects, information, ideas, and technologies of varying spatial reach (Jones 2004; Jones and MacLeod 2004).

Part of the problem, then, is the way the regionalism debate here is posed, as if the networked worlds of those advocating relational space stand in direct opposition to territories, and, vice versa, those advocating a network position will also find that these are not without regional geography anchors (see Cochrane 2018; Jones 2009; Murphy 2012, 2022). This situation has been neatly summarized by Morgan (2007) and extended by Goodwin (2013), both suggesting that to overcome the debilitating binary division between 'territorial and relational' regionalism we need to recognize that political space is both bounded and porous. Regionalism is bounded because politicians are held to account through the territorially defined ballot box, and hence we can never dismiss territorial politics *per se*. Regionalism is also porous because people have multiple spatial and geographical identities and they are becoming increasing mobile, stretched out, and creating networked communities which transcend territorial boundaries (see Paasi, Harrison, and Jones 2018; Murphy 2022; Paasi 2022).

Harrison's (2013, 2014) interventions are important for thinking about a reconciled and 'consolidated' regional geography within this territorial/relational world. Rather than get caught in skirmish debates on privileging one kind of relational regionalism against another kind of territorial regionalism, Harrison's intervention seeks to make visible the politics of transformation (in the northwest of England, a case study) by uncovering the role and strategies of individual and collective agents, organizations and institutions in orchestrating and steering regional economic development. This argues that the unanswered question is not *which* reading of regionalism is dominant, emerging, or residual in geographical moment, but that there is an urgent need to understand how and *why* different readings are dominant, emerging, or residual. For Harrison, the answer to this and other questions is to be found at the interface between emergent spatial strategies and the historical geographies of inherited regional configurations (see also Jessop 2018).

Harrison (2013) deploys interviews with policymakers, practitioners, and regional activists to understand this. Interesting in this respect is the use of maps on economic development and spatial planning, which point to different ways of region-making and the politics of regionalism. Harrison makes visible the politics of transformation in this region by revealing several key moments. First, around 2006 the coherence of the northwest appeared to be anchored around a relational network understanding of region, based on harnessing external (global and extraregional) connections. From 2008, this changed as such networks appeared unable to escape the existing territorial mosaic of politico-administrative units and the regulatory supervision of the state. Finally, a 2010 map suggests both a relational and a territorial understanding of the region and regionalism, with an understanding of how the different dimensions can come together to secure the coherence of the region in that moment.

In Whatmore's (2002) framing terms, Harrison's insightful take on region-shaping is not settled but one of geohistory continually in the making, and where, citing Bergson (1983, 498) there is a need to acknowledge 'the continuous progress of past which gnaws into the future and which swells as it advances'. Whatmore adds that territory and its governance are in fact practice 'plastic achievements' - an important notion, which draws 'attention on the tangle of socio-material agents and frictional alignments in which it is suspended and to recognize that they harbour other possibilities' (Whatmore 2002, 87, emphasis added). In a similar light, notions of 'a broad range of possibilities' also feature in the work of Strambach (2010), who notes a 'path plasticity' application of evolutionary economic geography to draw out place-specific characteristics of institutions and technology development (see also Zysman 1994). In both cases, geohistorical entanglements create an institutionalized push/pull of plasticity, which gives and receives a 'plastic coding of experience' (Goldgaber 2012, 153), where historical combinations of sociospatial relations have inertial constraints and spatiality is experienced as phases of possibility. As part of advancing the 'new new regional geography' project and specifically developing a more than relational 'revitalized geography of regions' (MacLeod and Jones 2001), the next section draws on the work of Malabou to further consider such notions of 'plastic space' and what Dewsbury (2011) calls 'plastic habits' in the shaping of regional possibilities.



Plasticity and plastic space as 'more than relational' regions

Catherine Malabou's (2008) book What Should We Do with Our Brain? defines plasticity as a material object's simultaneous and contradictory capacity for both change and persistence, and as the way in which these sculpt its form through time. Malabou argues that it represents a concept that is rooted within 'a long philosophical past', yet one that may be refined by paying attention to the lessons of contemporary neuroscience, within which it currently represents 'the unifying concept'. Malabou's writing thus re-examines such writers as Hegel (Malabou 1996, 2005), Freud (Malabou 2007) and Merleau-Ponty (Malabou 2015) on this subject, appraising their work in reference to contemporary studies on our changing cortical structure, neural networks, and their impact on human psychology (see Leffler 2018). In reconciling these disciplines, Malabou (2008) demonstrates the way in which the study of the dynamics that animate the brain, combined with a rereading of plasticity within classical philosophical writing, might provide a prism of analysis for contexts outside of both the neurosciences and philosophy. As such, plasticity is an ontology that can be deployed to examine contemporary regions through time as both a dynamic and/or inertial enduring 'physical artefact' (Harvey 1996, 417); critically for how the past is complexly retained within its present form, and for how this process both shapes and is shaped by how we think about the relational 'bundle of resources constituting possibilities as well as barriers ... for creative social change' (Harvey 1996: 417). In this sense, the 'malleable real' (Gratton 2014, 184) relationality implied by plasticity is dialectical, opening up 'all sorts of possibilities that might otherwise appear foreclosed' (Harvey 1996, 12), but such senses of possibility are also deeply embedded spatially and temporally (see also Sheppard 2008).

At its core, Malabou's conception of plasticity is in fact undemanding; it represents a material object's capacity to both change and to remain the same, and how the constant balancing of these contradictory tendencies sculpts its form through time. On the one hand, Malabou argues that plasticity directly contradicts rigidity; at any given moment, the object in question may be transformed, and its form is therefore never fixed. On the other hand, whilst the plastic object may exhibit a certain 'malleability' this does not represent a flexibility without limits; since it may just as easily retain its current form as change it, the extent to which it may be modified is restricted, so that limitless transformation is not possible (Bhandar and Golden-Hillier 2015). Indeed, the plastic object's refusal to either remain permanently the same or to entirely transform means that is consequently defined in the tension between these two contradictory forces and the opposition that they pose to one another, rendering resistance a third key dynamic within plasticity. By changing when persistence is sought, and persisting when change is sought, the plastic represents a factor of disobedience to all constituted form, always ensuring that its object exists somewhere between determinism and liberty whilst never being restricted exclusively to either of them (Malabou 2008). Thus, as Malabou (1996) writes, 'the adjective plastic', while certainly in opposition to 'rigid', 'fixed' and 'ossified', is not to be confused with a 'polymorphous' sense of relational topology; instead, it represents a tension born of the resistance that constancy and creation mutually pose to one another (Malabou 2008).

A plastic entity is, therefore, defined as much by its openness to transformation as it is by its tendency to retain its current form, and, in its continual refusal to submit to either one or the other in isolation, it is necessarily defined in the tension between the two. Malabou, then, offers a significant challenge to topological thinking within approaches to relational space. According to Williams, '[f]or all its mutability, plasticity preserves itself and stands steadfast as a resistance to the 'nihilism' of ceaseless flexibility ... ' (Williams 2013, 20). In a similar manner to notions of 'phase space' moderate relationalism (Jones 2009, 2014), Malabou thus promotes a 'controlled metamorphosis': plasticity does not license multitudinous open-ended possibilities, it works within the existing parameters of material possibility, but unlike topology, deformations reshape the whole and original shapes cannot be returned to. As Malabou puts it, 'plasticity designates a much more effective transformative ability. This involves, not an infinite modifiability ... but a possibility of displacing or transforming the mark or the imprint, of changing determinations in some way' (Malabou 2008, 16).

If the plastic object is one that exhibits the simultaneous capacity for persistence, change and the resistance that these pose to one another, plasticity denotes the particular way in which these contradictory dynamics shape its form over time. Malabou (2008) in What Should We Do with Our Brain? further describes the brain as 'a self-sculpted structure'; as it progresses through time, it will retain a current shape or integrate changes into depending upon the particular context in which this occurs and the particular forces in play when it does so. Plasticity thus describes this sculptural process at work within the form of the plastic object, and this has two significant implications for how we understand it. Firstly, Malabou argues that it is never 'fully formed' but instead represents 'a work' in progress. If an entity is plastic, then it is always subject to transformation, and this entails that it can never be understood as complete, for its elaboration is always ongoing. Secondly, if both change and fixity both shape the plastic object at different moments and in different ways throughout its unfolding, then this means that the object's form necessarily represents a material record of this evolution.

Consequently, the 'sculpting that forms our identity' necessarily also inscribes within the form of the brain a 'recognizable, identifiable history' (Malabou 2011, 3), according to which the different events that modify it leave their mark in a way that will persist beyond subsequent transformation to render the brain itself 'a plastic map of its own history' (Hope 2014, 337). Plasticity thus denotes not solely the plastic object's capacity for both fixity and modifiability but also the evolutionary path produced within the object through time; one that importantly ensures that the plastic object always remains an ongoing work and that ensures that the narrative of its evolution is inscribed within its own (cf. Axelsson 2022).

Whilst Malabou's primary object of analysis may be the brain and the way in which its dynamics shape the identity of the individual, the central argument is that plasticity offers a critical metaphor that might be drawn upon in a variety of disciplinary contexts. According to Gratton (2014, 184) '[p]lasticity is not just neuronal, but a 'motor scheme' or epistemological frame to understand contemporary existence'. Indeed, Malabou argues for what she describes as 'another plasticity', which, in contradistinction to the three forms that she observes in biology, represents 'a fourth type of plasticity [...] never envisaged as such by neuroscientists' whose implications are simultaneously of a 'philosophical, scientific and political' nature (Malabou 2011, 36). This is rooted in the understanding that, if our brains are plastic, then so too must be the world that we have created for ourselves, constituted as they are by our plastic brains. Malabou argues that, if plasticity has produced us as individual subjects, then the same is true of those individuals with whom we are brought into contact. By implication, therefore, not only are others as equally plastic as ourselves, but the relationships that we forge with them must be likewise. As a result, Malabou writes, 'neuronal functioning and social functioning determine one another [...] to the point that it no longer seems possible to distinguish between them' and this argument suggests that the diverse networks of human relations that constitute our material, social and cultural environments might also be read as plastic (Malabou 2011: 36). Consequently, as Silverman concludes, 'the myriad of inter-connections [...] within us becomes increasingly indistinguishable from the interconnected world/society/polis/culture outside of us and in which we live' (Silverman 2010, 99), the plasticity that produces us as individuals the same as that of the world we inhabit.

Drawing upon her call for 'a metapsychology' (Malabou 2008), what Malabou proposes might be described as a metaplasticity, one whose usefulness extends far beyond the purview of either neuroscience or philosophy, and thus might extend to the study of regions. Key here is how we see the relationship between regions and materiality. Hope (2014, 331–332) perceives Malabou's work to represent 'first and foremost a conceptual working through of form', and asserts that, since form requires 'some sort of material' in which its dynamics may manifest themselves, extrapolating plasticity beyond the bounds of neuroscience should also inform how we understand the nature of matter in general. It is noteworthy that, alongside the brain that serves as her primary object of study,

Malabou explores examples of plasticity in the human body as a whole (referring to the work of the plastic surgeon), as well as in clay (Malabou 1996, 8), in marble (Malabou 2008, 6), and in plastic explosives (Malabou 2012, 44), all of which serve as metaphors that refine her concept. It is apparent, therefore, that Malabou (2008, 6) does not consider plasticity to solely reflect the nature of the brain but asserts instead that it represents the general 'quality of a matter' that is simultaneously 'fluid but also resisting'. Indeed, Malabou goes further, arguing that any 'reasonable materialism must accept the existence of a mediation', so that plasticity is not understood as confined to the brain, but instead represents 'a rhetoric, metaphor, or figure' that may be observed in materiality at large (Hope 2014, 344). Malabou thus contends that within the material world as a whole, what we observe is a continual tension between transformation and fixity as forces that sculpt the form of objects through time, so that, when we approach this world, we must consider it to be mediated by plasticity.

It is arguably in human geography, and in the context of regions being made up of, and shaped by, provisional relational elements, that the potential of plasticity as a means of reapproaching relationality can be most extensively and productively deployed (cf. Leffler 2018; Gratton 2014). Particularly Malabou's (2008) writing shows an awareness of the spatial implications of her own theory; she notes, for instance, the way in which plasticity has been manipulated as a concept to encourage a rootlessness on the part of the modern worker and argues that this ignores the interaction between the brain and the environment that necessarily takes place in the sculpting of the brain. What is revealed an appreciation of how the brain's plasticity impacts upon the individual's experience of space, and vice versa, yet Malabou does not fully extend this to comprehend a plasticity of space and spatiality itself. Van Dyke (2013) thus proposes that the same dynamics that may be observed in the brain may also be observed in regional landscape. If our brain demonstrates both 'an openness to various influences' and a capacity for 'resistance', then the landscape similarly proves to be 'defined, yet malleable' (Van Dyke 2013: 407); its existing form is continually altered by diverse actants and events, yet is also capable of limiting what alteration is possible. As Van Dyke concludes, therefore, 'a landscape, conceived 'plastically', is pliant [...] but it can also be resilient and resistant to change' (Van Dyke 2013: 401); like the brain, its present form is consequently sculpted over time by the many moments in which these dynamics are negotiated, rendering it a composition of 'densely layered overlapping forms that accumulate and interact with one another over time' (Van Dyke 2013: 401). Drawing on Malabou's broader understanding of plasticity as a new means of conceiving of materiality, Van Dyke (2013) proposes that it may equally serve as a means of 'reconceptualizing the ontology [...] of landscape'. These thoughts can be transposed and extended to notions of regionality. Akin to the plastic brain in its simultaneous faculty for both change and fixity, and in the way that these continually shape its form over time, plasticity may be understood as the dynamic at work in the making and shaping of regions.

Temporality is critical here (cf. accounts of, Bergson 1911; Jeffs 2012; Ricoeur 1985; Olivier 2004), noted a being a 'depth' silence in relational space debates and key for understanding the dynamics of inertia (see Jones 2010). Malabou (1996, 2) notes that time has been understood as a linear phenomenon composed of 'a sequence of 'nows"; it represents a series of successive moments, in which the past is 'a present time which is just past', or a 'now' that has already happened, and the future is 'a present which is to come', a 'now' that is destined to occur. Each moment represents a fixed point within a narrative that is already set in stone, so that what we perceive as the present is solely the particular point at which we witness the story as it unfolds. By contrast, Malabou (2007) argues that the processes that we observe at work within the plastic object suggest a different understanding; Malabou identifies a form of 'material time', in which 'past, present, and future are merely referred to [...] matter', and in which the plasticity of the object is productive of its own temporality. If plasticity represents the negotiation between the relative fixity of an entity's already constituted form and the possibility of change to which it is subjected, or 'the contradictory tension between particular determinacy as it is held and preserved, and the dissolution of everything determinate', then the 'now' represents precisely the moment of simultaneous

'preservation and dissolution' that occurs when these dynamics collide (Malabou 1996, 12). It is the temporal point at which the stability of 'subjectivity' meets with the 'accidental' as the potential for transformation, the point at which the established narrative of the plastic object, or time as 'progression, evolution', meets a sudden and potentially disruptive moment of change, or time as 'the bump, the accident', and must strike a balance between the two. Such a reworking, therefore, subverts a linear and fixed narrative of past, present and future, proposing instead one whose unfolding is always contingent upon the particular forms and forces in play at any particular moment. This goes some way to address the concerns of Dodgshon (1998, 165) noted above on Pred's notion of contingency, offering an alternative way of conceptualizing 'sedimentation' and the reactivation of layers within 'present circumstances' by highlighting the historically produced physical, social, political, economic, and ideological rigidities of an evolving regional milieu.

Malabou (1996, 13) in particular argues that the dependence of the outcome upon the various forces in play means we must 'understand the future otherwise than in the ordinary immediate sense of a moment of time"; always the result of the plastic process within the present, the form of the future is never inevitable, for it will depend upon how this process plays out. Defined as it is by 'the interplay [...] of teleological necessity and surprise', the future produced by the 'now' is one that cannot be confidently predicted without also acknowledging the possibility of digression from the anticipated trajectory. Malabou (Malabou 1996: 13) defines this reinterpretation of the future in which we seek 'to see (what is) coming', yet also 'wait, while, as is prudent, observing how events are developing'. The future may be predicted, therefore, but is not simply a fixed point along a continuum that will be attained regardless of what takes place in the present. Instead, the future is a moment in time that will only be produced once the plastic object's evolution has been resolved, i.e. where there is 'an opening-out of the meaning of time' (Malabou 1996: 13) that results in 'a time of plasticity' (Bhandar and Golden-Hillier 2015, 5). Through the dynamics that structure the plastic object, we can, therefore, claim that the present is not a point in a predetermined sequence of spaces and times stretching inexorably from past to future, but is instead the point at which the already defined object encounters the possibility of change, and thus is indeterminate. What Malabou (1996, 13) proposes, therefore, is 'the very plasticity of temporality itself' the story traditionally presented to the viewing public asserted 'a grand narrative of progress', progressing from 'a past, which it preserved' towards 'a future into which it projected the past it contained' (Martinon 2006, 158).

Advanced relationality: time for a conclusion

Plastic space, then, serves to complicate the plastic object's narrative of time and space, rendering it, not rigid and determined, but instead always contingent upon the context within which it unfolds, and thus always evolving and becoming. Malabou (2008) has explored how this opens up the future, ensuring that it cannot be antecedently pinned down, yet it follows that plasticity must hold similarly significant implications for the past, for the retrospective narrative of the object as much as for the prospective. Malabou consequently asserts that the plastic is productive of the object's historicity in a way that plays an equally important role in complicating its temporal nature. It is on this basis that plasticity might be used to re-examine the relationship between materiality and its past and present to uncover the multiplicity and entanglement of different regional moments in time. Moreover, understanding the relationality of regions means recognizing their complex temporal nature, and their simultaneously heterogeneous and continually evolving past. Regions cannot be abstracted from time, for they are undeniably 'the product of definable historical situations' (Van Dyke 2013, 406); if a material space exists in a particular form, it is irrefutable that this has to have been constituted at some point in time, and that this time must have some bearing upon our present experience of it.

We often know a city-region when we see one, for instance, despite varying forms, shapes, and sizes (see Beel, Jones, and Jones 2021). But we know much less about what goes on inside and,

crucially, its configurations and the various 'mediated demands' that make, remake, and unmake regions (Allen and Cochrane 2014). As Allen (2012, 192) notes, 'the tangle of relations and things that comprise an assemblage' becomes critical for enquiry and for tackling the more than relational. More-than-relational plastic regions, then, are not about adding relational things together in a mindful topological descriptive exercise. Rather, plastic regions demand careful conceptualization of the entities being assembled, mobilized, and connected, and specifying their interrelationships for creating regions as temporary permanencies. Plasticity provides a framework for seeing regions not as discrete entities but as multi-dimensional, contingent, and relationally implicated and entwined plastic surfaces. Plasticity then emphasizes not just relations, but how these combine, by looking at intersecting processes, practices, contextual realities (e.g. boundedness, inertia, power, and cultural constraints), and where regions achieve consistency and shape, but also fall apart through 'explosive rearticulations' (Malabou 2010, 2012). The 'highest form of the geographer's art' (Hart 1982) never rests, and Pykett's (2018, 164) notion of a developing a 'critical neuro-geography', where interdisciplinary engagements are fostered between neuroscience, cognitive science, the social science and human geography therein, is worth pursuing at pace to advance the 'new new regional geography' arguments outlined in this paper.

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