

Space-and-place modelling-and-making: a dialogue between design and geography

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Abstract

Geography and design have much in common. Both draw from or reflect science, social science, humanities, and employ sophisticated technology to achieve their aims. However, aside from a mutual interest in urbanism, there appears to have been little collaboration between the two. And yet some aspire for design to learn from geography. In this paper we explore how the characteristics associated with geography and design may function together in a space-and-place modelling-and-making dialectic.

Keywords

Geography; Design; Space; Modelling; Urbanism

Introduction

In this paper we speculate about what design and geography can learn from each other. Written from the perspective of design researchers having recently collaborated with geography researchers, we reflect on some key aspects of design and geography to establish commonalities and complementary characteristics between the two. Space-and-place modelling-and-making characterises the focus of our inquiry, and indicates a possible framework for future collaboration. Drawing from the geography and design literature, we highlight some key issues for interdisciplinary inquiry between two subjects that defy easy definition. This supports our interest in what Carmona et al. (2010: 52–55) recognise as “sustainable urbanism,” which derives from geography, urban studies, sociology and the political sciences, allied to urban design and architecture, and evidences the substantial and exceptional contribution of geography to urban design intervention. Yet, there appears to be little acknowledgement of geography in design research, or design in the geography literature.

The urban context has been of increasing interest to geographers from the perspective of space and place since the mid-twentieth century (Herbert and Thomas 1990: 2). However, because of the relatively recent emergence of design studies, the relationship between geography and ‘place making’ may not have been fully explored in ways that relate to design process and acknowledge how places are conceived, planned, organized and built. An exception may be the importance of geography in relation to the development of language, culture, sight and sound as a source for contemporary design activities (Friedman 1998). Urban geography and urban design are linked through geography’s concern for human-created as well as natural environments. But, urban design is often construed as a discipline closely associated with ‘urban geography, engineering, environmental psychology, climatology and the management sciences’ (Lang 2005: 393). Consequently, definitions tend to lack the human dimension, as suggested by the following:

... urban design should be taken to mean the relationship between different buildings; the relationship between buildings and the streets, squares, parks and waterways and other spaces which make up the public domain; the nature and quality of the public domain itself; the relationship of one part of a village, town or city with other parts; and the patterns of movement and activity which are thereby established: in short, the complex relationships between all the elements of built and unbuilt space. (CABE 2001: 18, citing Planning Policy Guidance Note 1)

With this in mind, space-and-place modelling-and-making defines the neglected potential for a more productive working relationship between geography and design, with particular emphasis on human geography and a wider consideration of design that includes smaller everyday objects in social, cultural and economic contexts. These two subjects – the first established and other emerging – as academic disciplines do not seem to have been explicitly linked. Yet design is entrenched in geography, most obviously in the key methods of cartography and graphicacy which respectively deal with “the development, production, dissemination and study of maps in a wide variety of forms” and the “skills of reading and constructing graphic modes of communication, such as maps, diagrams and pictures”(Perkins 2003: 344–368). Cartography and graphicacy involve modelling and making to depict space and place, but design penetrates all aspects of geographic thought and action.

In what follows we focus on a space-and-place modelling-and-making dialectic by exploring the notion of space as a central concern for geographers and modelling as a defining aspect of design language. This reveals where geographers are designers and vice-versa. Furthermore, we consider the disciplinary similarities in how both draw from different academic traditions, suggesting that the plurality of both may point to a shared understanding already emerging through disciplines such as visual culture and visual methodologies (Rose 2012).

Relational space in Geography

Space, of which there are many conceptions, is considered the “fundamental stuff of geography” (Thrift 2009). For present-day human geographers space is an ongoing creation, or “relational,” rather than pre-existing, or “absolute,” suggesting the very essence of what geography studies is aligned to what design does: conceive, plan and make products (Buchanan 2001: 3-23). Thrift (2009: 86) argues that mundane products such as houses, cars, mobiles, knives and forks, offices, bicycles, computers, clothes and dryers, cinemas, trains, televisions, and garden paths constitute empirical constructions of space. This expands an attention to space and spatiality traditionally given by architecture (Soja 2010: 13–14) to a wider set of objects. Clearly, product design generates space that human geographers study. Thus, design and geography seemingly have a shared interest in the physical and social spheres that constitute real space. Consequently, design is suitably appropriated for use by disciplines not usually associated with the physical making of artefacts, be they books, bicycles or buildings. One of the more recent is the way sociologists espouse design referring to “social practices and processes that shape spatial forms, relationships and outcomes in intentional as well as in less intended ways” (Tonkiss 2013: 5). This acknowledges Kevin Lynch’s interpretation of design in the late 1950s, and benefits from the later expansive interpretation of a science of design by Herbert Simon (1996). In the context of urban sociology, design is said to assimilate social, spatial and material forms, formally and informally.

One of the main contributors to the meaning and significance of space is Michel Foucault. For example, in *The Order of Things*, he discusses the linkage between space and power

revealed through the Valazquez painting *Las Meninas*. However, he raises the notion of space being neglected in an interview with Jean-Pierre Barou and Michelle Perrot, published as *The Eye of Power* (1977). Foucault's most explicit considerations on space were made in a 1967 lecture – *Des Espaces Autres*, where he outlined features of his space theory:

Our epoch will perhaps above all be the epoch of space. We are in the epoch of simultaneity: we are in the epoch of juxtaposition, the epoch of the near and far, of the side-by-side, of the dispersed. We are at a moment, I believe, when our experience of the world is less that of a long life developing through time than that of a network that connects points and intersects with its own skin.”
(Foucault and Miskowiec 1986: 22)

Foucault insisted that the conditions of space as we live it have not yet been adequately explored. These consist of “real” (heterotopias) and “unreal” (utopias) spaces: heterotopias “exist and ... are formed in the very founding of society,” whereas utopias are the inversion of this and “perfect” (1986: 24).

“Spatiality,” or “spatialities,” is a central idea for human geographers. Whereas human-nature relations are concerned with “how we live on and with our planet,” society-spatial relations reflect “human life’s constitution through space: home, settlement, territory, notions of here and there, interpretation of distance and diaspora” (Cloke et al. 2005: xi). Reaffirming Foucault’s view, Soja (2010: 3) argues that the “critical spatial perspective” has been overlooked by comparison to the “interrelated historical and social aspects of our lives.” In his notion of a “socio-spatial dialectic,” he argues that “the spatiality of whatever subject you are looking at is viewed as shaping social relations and societal development just as much as social processes configure and give meaning to the human geographies or spatialities in which we live.” The dimension of this lived spatiality may consist of “ideal” space, “the extreme formal abstraction of logico-mathematical space” and “real” space, “the practico-sensory realm of social space” (Lefebvre 1991: 14–15) (Lefebvre, 1991: 14–15) spanning a unified physical, mental and social space. As a representation of these three, Lefebvre speaks of a collective “defined form” (1991: 22). This form may be the product of design for *space-and-place* through *modeling-and-making*. Even though some (for example, Lefebvre 1991) interpret space as a mental and physical manifestation, material form indicates how we interpret the *place* aspect of space-and-place (which may be interpreted by some as interchangeable terms).

Soja – a geographer and urban theorist – discusses space in relation to justice and the city, under the guise “spatial (in)justice” (2010). Building on his work, Tonkiss cites design as implicit in the “inequality, informality and insecurity” of “spatial relations, physical divisions and social striations” in modern cities (2013: 20). It stands to reason, then, that understanding design as a modelling activity is crucial to making cities just, as well as aesthetically pleasing and functioning. It is speculated in this paper that modelling-and-making provide some of the tools to satisfy the aspiration for spatial justice, and we focus on developing an integrated understanding of design and geography as natural partners in this quest.

It seems the time is right for interdisciplinary collaboration between design and geography, beyond those interested in urban environments. For example, in a keynote speech at the recent International Association of Societies of Design Research, Chris McMahan asked the question “What can design learn from geography and urban planning?” This question has been central to our work in recent years through proactive engagement with interdisciplinary explorative research and collaboration with human geographers.

In this paper we explore and depict a basic relationship between design and geography and propose where this might be further focused. The intention is to establish a framework for common understanding and shared endeavour following recent collaboration between design academics and geography academics in the United Kingdom and Brazil. The collaboration has developed since 2009 with human geographers Dr Ed Brown and Dr John Cloke. Since then, informal cooperation and funded exploratory research under the guise of sustainable urbanism provided the opportunity to explore themes leading to concrete outputs. The most recent collaboration, reported at IASDR 2013, explored "... novel approaches to cross-disciplinary interaction and collaboration" through activities that "... stimulate long-term culture change with respect to cross-disciplinary working within the University" (Harland and Loschiavo dos Santos 2013). With regard to the longer-term, this paper sets out some disciplinary considerations upon which an epistemological and methodological foundation for further collaboration may be developed. It is exploratory and preliminary, pre-empting the ambition to understand what design and geography can learn from each other, for affective and effective strategies that support an aspiration for spatial justice.

The interdisciplinary nature of Geography

So far we have spoken of geography from a social science perspective. But if considering the potential relationship between geography and design in totality, it is necessary to consider some basic definitions. Geography "describes the earth's surface" (Moore 1968: 87) but the term is far from fixed; it means "different things to different people in different times and places" (Johnston et al. 2000: 304). It has been called "unclassifiable, 'displaced', straddling the gulf between the natural and the social sciences" (Gordon 1980: 173) as an expansive and ever-expanding subject that studies people, landscapes, economics, and ecology contributing a focus on "the character of places" and the "interaction of people and environments" (Waugh 1995: 6). Simply defined, it divides between physical and human geography (Hefferman 2009: 5) but more complex is its divergence into three traditions: physical science, social science and humanities (Clifford et al. 2009: xiv), each contributing to the subject's development. Although humanities is said to be the lesser important, it acknowledges an appreciation directed at the "arts". This means geography has a tripartite alignment consisting of: the physical sciences tradition and the associated scientific methods and philosophical frameworks; a social science tradition of economics, political science and sociology, Marxism, feminism, postmodernism and post-structuralism; and the humanistic, cultural and historical study of human creativity, knowledge, beliefs, ideas, imagination and experience in the humanities tradition (Harland 2011: 161). Geography spans all three. See Figure 1.

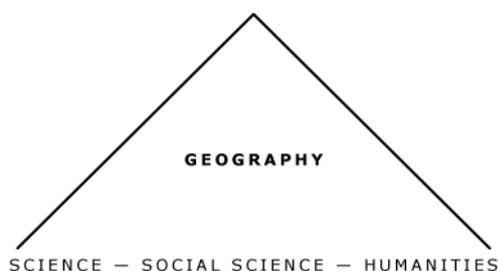


Figure 1: Three traditions in Geography.

This depiction is consistent with a generalized continuum of knowledge domains at which either end reside the *hard* [science] or *soft* [humanities] disciplines, and position other paradigms [social science] somewhere in between (Donald 1986: 270). The next question is where does design sit along this continuum?

Friedman (1997: 54) argues '[d]esign sciences are technical or social sciences that focus on how to do things to accomplish goals,' distinguished from an 'arts-and-craft' approach. This view of design as a science situates design closer to the hard than soft end of the continuum. But if considered holistically (i.e. not excluding arts-and-crafts) it clearly traverses the same three traditions as geography, assuming humanities encompasses arts based subjects. As an activity, designing is often associated with intention, invention, planning and making, as suggested by Buchanan (2001) when he states "design is the human power of conceiving, planning, and making products that serve human beings in the accomplishment of their individual and collective purposes." It was understood until quite recently as the professional activity associated with drawing and envisioning form by architects, engineers, and other design professionals for clients and manufacturers. But now design is interpreted more widely, as "the activities of economic planners, legislators, managers, publicists, applied researchers, protestors, politicians and pressure groups who are in the business of getting products, markets, urban areas, public services, opinions, laws, and the like, to change in form and in content" (Jones 2009 [1992]: 78). No longer is it assumed design requires the ability to draw or envision form: it is increasingly an activity expressed using different communication competencies.

Design, language and culture

Design has also been discussed outside of this continuum, as a third culture compared to science and humanities. This positions design not in higher education but in general education, against the two dominant cultures of science and humanities (arts) (Archer 1976; Cross 2006). It is from Archer (1976: 12) that we derive a basic understanding of communication in design as modelling, compared to notation in science and language in humanities. Archer depicts the three in a trilateral relationship between humanities, science and design, with sub-topics in between. In this, social science is consistently located on the continuum between humanities and science, though closer to science than humanities. See Figure 2.

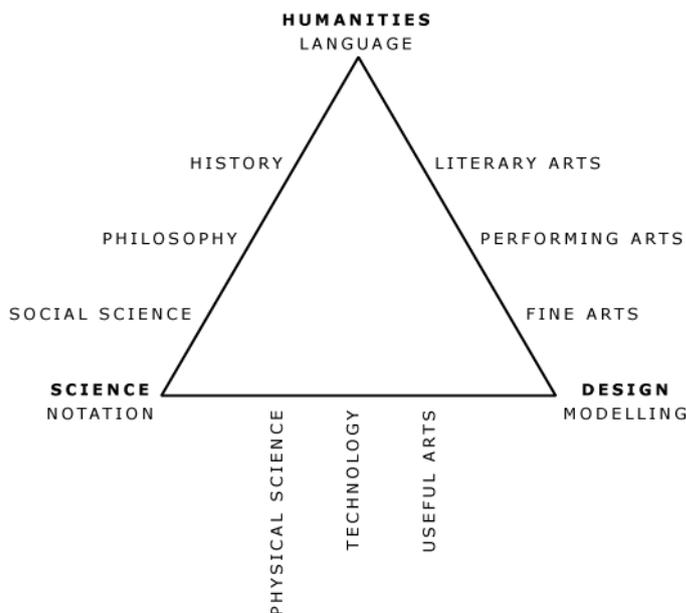


Figure 2: Proposed relationship between Humanities, Science and Design, 1976. Diagram by Archer 1976, redrawn by Harland 2011.

In contrast to Archer's interpretation, and to further complicate the matter, Breen (2005: 97) argues that design is an "in-between" realm appearing to bridge the sciences and the arts. See Figure 2. This proposes design as containing equal measures of knowledge and expression through research, practice, creativity and experience. Breen's depiction also suggests design has its own values differing from those associated with the sciences and the arts.

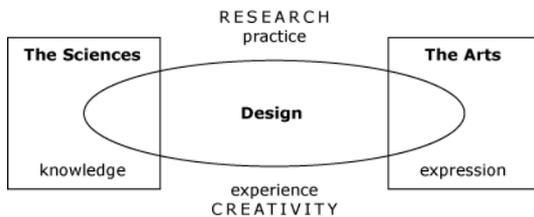


Figure 3: The in-between realm of design. Diagram by Breen 2005, redrawn by Harland 2011.

This "in-between realm" of design, in contrast to the sciences and humanities, is said to consist of different phenomenon, methods and values.

The phenomenon of study in each culture is

- in the sciences: the natural world
- in the humanities: human experience
- in design: the artificial world

The appropriate methods in each culture are

- in the sciences: controlled experiment
- in the humanities: analogy, metaphor, evaluation
- in design: modelling, pattern-formation, synthesis

The values of each culture are

- in the sciences: objectivity, rationality, neutrality, and a concern for "truth"
- in the humanities: subjectivity, imagination, commitment, and a concern for "justice"
- in design: practicality, ingenuity, empathy, and a concern for "appropriateness"

(Cross 2006: 2)

Breen's abridged interpretation of design suggests that it incorporates phenomenon, methods and values from the sciences and the humanities, but these are perhaps not at the core of design, more the periphery. They may be appropriated and synthesised to help form the artificial artefacts that mediate the relationships between humans and the world, but modelling, pattern formation, practicality, ingenuity, and empathy appear to be at the core. Design's relationship to other "cultures" is defined in different ways, either as a distinct culture, or as an in-between realm.

With a concern for appropriateness, Buchanan (1992) sees it as an integrative activity that combines the most useful knowledge from the arts and sciences through what he calls the liberal art of "design thinking." This seems to focus more on two of Buchanan's three components of design mentioned earlier: conceiving and planning, and positions the making dimension as less important. Yet, when Cross (2011) discusses design thinking he draws from the established domains of automotive design, product design, engineering design, and architecture, with additional reference to computer software, interaction design, furniture, textiles, and graphic design: all predominantly form giving activities in

the service of making. He provides a portrayal of design thinking peppered with examples of modelling, the “vocabulary, syntax and media for recording, devising, assessing and expressing design ideas in a given area” (Archer 1976: 13). These are abilities that designers from an arts-and-crafts tradition develop through their training with emphasis on aesthetic appreciation, and it is this priority that infiltrates a view of design in other disciplines. For example, in land-use planning Punter and Carmona (1996: 2) suggest design is often portrayed as cursory, shallow and for visual appearance, yet they argue for design as applicable to social, economic and ecological contexts relating to human behavior, as well as the aesthetic effect.

It should be clear by now that design is both a ‘highly entrepreneurial profession’ and ‘maturing academic discipline’ (Julier 2008: 1) acknowledged for its shift from a ‘skills-based profession’ to something based more on ‘theory and scientific method’ (Friedman 1997). Design is part of everyday life as well as highly specialized fields such as ‘cybernetics, engineering and the built environment’ (Crouch and Pearce 2012: 1). In this sense Cross (2011: 3) suggests “everyone can – and does –design.” Like geography, design is diverse and complex with no single unified definition. It too now spans science, social science and humanities, see Figure 4, and so called “design thinking” might drift towards and across each of these broad categories. However, it seems that one of its defining characteristics is its medium of expression through modelling, and when geographers communicate their findings in visual form, they then most resemble what designers also do. In this sense, they are modellers-and-makers.

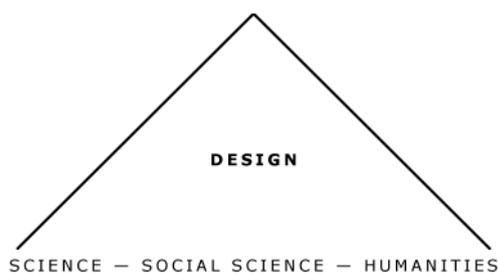


Figure 4: Three traditions in Design.

Disciplinary similarity and difference

In academia, geography is an established discipline compared to design but is said to have produced “few concepts of its own, instead picking up notions from here, there and everywhere” (Foucault 1980: 176). Both span a broad spectrum of interdisciplinary expertise making classification difficult, and neither figuring in knowledge classification discourse.

Classifying knowledge may span as few as six categories to as many as sixty (Harland 2011: 153–158). According to Donald (1986), disciplines are grouped in four ways depending on their philosophical conceptualisation. These are paraphrased as follows:

- promote communication (language, literature and fine arts);
- concerned with measuring and calculating (mathematics and science);
- contribute to the exercise of critical judgement (the social science);

- rationalist (mathematics to determine knowledge from within);
- empiricist (experience and observation for the development of knowledge);
- pragmatist (active transformations of the environment and the active generation of ideas to solve problems);

- theoretical;
- practical;

- specific facts and concepts;
- ways and means of dealing with specific knowledge;
- general principles.

(Donald 1986: 268)

Within this range, four levels of analysis are proposed that fit with the “most prominent dimension” for distinguishing different subject matter as “hard” and “soft” disciplines:

1. the terms or concepts used to describe phenomena;
2. the logical structure of a discipline;
3. [the measure of] truth or validity;
4. the set of methods or procedures used in a discipline.

(Donald, 1986: 269)

Hard and soft respectively determines the degree to which a discipline evidences “a paradigm or theoretical structure” compared to “content and method” being “idiosyncratic.” The extremes here align physical science and engineering with the former and arts subjects such as history and language with the latter.

Disciplinary difference grouping seemingly depends on the context. For example, research and scholarship at the British Academy bands Humanities and Social Science closer than indicated by Archer. The British Academy clusters history, literature & languages, psychology, economics, law, medieval studies, archaeology, classics, geography, linguistics, sociology, African & oriental studies, theology & religious studies, philosophy & ethics, history of art & music, anthropology, international relations, and political studies (*Past Present and Future: The Public Value of the Humanities & Social Sciences*, 2010). Archer and Cross both saw arts as humanities, consistent with the way research is funded in the UK by the Arts and Humanities Research Council. From this we deduce that the British Academy seemingly favours Literary Arts than Fine Arts, both reflected by Archer. Notably, design does not feature in the British Academy’s listing, but is linked to Art by the Quality Assurance Agency in the UK, through their undergraduate subject benchmark statements for Art and Design (QAA, 2008).

Discussion

The intention of this paper has been to consider the mutual benefit of a closer and more expansive working relationship between geography and design. The relative position of these subjects in higher education suggests a complementary relationship, and in the way Chris McMahon Chris McMahon asks what can design learn from geography, the same might be said in reverse. Space, and how people interact with place, is a focus for geography but this is modelled and made through design. Given that both span science, social science and humanities, the potential synergy is clearly being explored in new ways that link spatial form, relationships and outputs as design. See Figure 5.

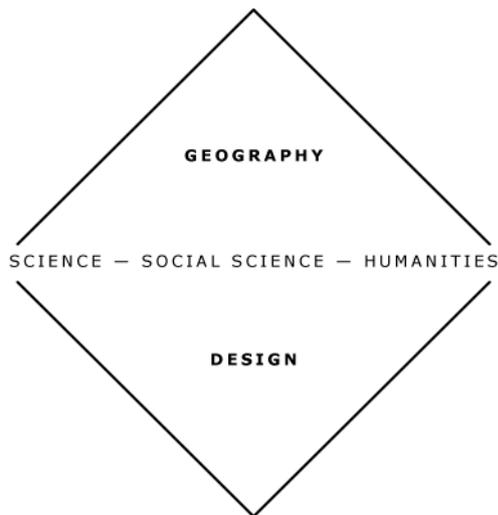


Figure 5: Geography and design span science, social science and humanities.

Urban planning's relationship to design is recognised through urban design, whereas geography and design do not appear directly linked. This presents opportunity for research because the scope of design encompasses more than urban concerns (although these are probably the largest and most significant). Space and place provide the link between geography and urban, but design as a discipline no longer reliant on drawing adds significantly to this relationship. Design's initiative is to create change in man-made things and the urban environment is the largest human creation. The recent emergence of the megacity is testimony to this, giving rise to the important twenty first century question: "how do we create a sustainable urban world?" (Leite 2013: 197). These megacities now form the nucleus of "megaregions" such as the "SãoRio" region (São Paulo and Rio de Janeiro). (In the case of Brazil, "The crisis of contemporary Brazilian urbanism reflects the weakness of the system of large-scale 'strategic masterplans'"(Leite 2013: 207). São Paulo has grown with problematic urban planning and design, and this has been the case with its industry, raising important questions about the validity of industrial design and the "design of industry," but this is not the concern here.)

Foucault (1986) believed the obsession of nineteenth century to be history, and the twentieth century to be space, bearing a natural affinity with geography. The twenty first century seems set to be the epoch of design, the largest and most complex design object being the city. This leads to the suggestion that "Cities are 'the' agenda for the 21st Century and the challenges are: sustainable development, socio-territorial inclusion and intelligent management" (Leite 2013: 198). Within this design in all of its guises is central.

Conclusion

With a combined concern for space-and-place modelling-and-making, geography and design are well placed to link the past, present and future. In this paper we have focused attention on human geography's existing relationship to design. Social science has also been recognized as a useful conduit to link geography and design, and humanities offers potential to explore design and art. Humanities and the city are also directly linked historically. Cicero created the word *humanitas* to talk about the people from Rome that reached its identity through the Letters and Greek Philosophy, becoming *humanus*. The civic *humanismus* is connected to the ability of acting in the city in defence of its own interests.

Design and geography have permeable boundaries between the academic traditions that contribute to both subjects. Geography has established concepts and methods that give it

disciplinary credibility. In particular, the social-spatial concerns of human geography contrast and complement the modelling making concerns of design, which has a strong tradition associated with conceiving, planning and making.

Together, and in the light of sustainable urbanism, social justice, democracy and citizenship, geography and design most obviously offer pragmatic ways to transform environments, generate ideas and solve problems. Coupled with communication, experience, and observation, the two areas may combine in the spirit of inquiry to address deep questions about urban life. For some, this may veer more towards a concern for "truth", for others a concern for "justice," but perhaps above all must be a concern for "appropriateness" as no urban environments are the same. Human geography claims to be concerned with "writing the earth" (human-nature relations) and "writing the world" (society-space relations) (Cloke et al. 2005: xi). But knowing "how things are brought about" and "how to do it" are what Archer (1976: 9) attributes to design. From the perspective of humanism, geo-graphic-design represents a synthesis of socio-spatial relations with knowledge about how place-making happens. This can be expressed as space-and-place modelling-and-making.

As sustainable development in urban regions, such as São Paulo, look to satisfy concerns about democracy, social justice and resilience, the transition from absolute to relational understanding of space by human geographers is promising for design. Creative capacity has been fundamental in design since man first started to walk in two legs, suggesting a potent partnership could and should emerge. This provides much potential for future research at local, regional, national and international scales.

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