ABSTRACT

The basic premise of this paper is that a designer's creation of “meaning” takes place through an engagement with a network of relations, and that landscapes themselves are more than collections of objects and processes, but may be thought of as bundles of relations. Actor network theory (ANT), realized through post-structural analyses (i.e., Foucault) or non-representational theories (i.e., Thrift) provide ways of uncovering the agencies of actors in networks. The (somewhat ambitious) intention of the paper is to consider how ANT can affect landscape architecture, by presenting a variety of dispersive strategies that may evoke new landscape architectural thinking. For landscape architects, understanding dispersion begins with an examination of physical phenomena, of seeds, water, etc., that may evolve into useful metaphors for revealing imagined worlds and ideas. So, for example, the physical dispersion of natural elements may provide powerful metaphors regarding the dispersion of knowledge. Conversely, dispersion may be about a kind of sorting, the way that light disperses through a prism results in the separation of colours, to disperse may be about the separation of elements, things, ideas, processes, etc., followed by their coming together into the constitution of, for example, place.

Three strategies for examining dispersion are developed, by contrasting how elements are separated (disaggregated, disassembled, and deterritorialized) and then come together (aggregated, assembled and territorialized). Landscapes architecture is thus considered as dealing with flux, of anticipating, articulating and coping with shifting states of becoming and falling apart. Each of the dispersion strategies is discussed first as physical phenomena and then presented as metaphors about an aspect of design thinking: aggregation and disaggregation in place making, assemblage and disassemblage in design representation, territorialisation and deterritorialization in discourse networks.

1.1 Keywords

dispersion, assemblage, aggregation, territorialization, derritorialization
2  INTRODUCTION

“The great obsession of the nineteenth century was, as we know, history: with its themes of development and of suspension, of crisis, and cycle, themes of the ever-accumulating past, with its great preponderance of dead men and the menacing glaciation of the world... The present epoch will perhaps be above all 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...”

Michel Foucault

In Michel Foucault’s famous article ‘Of Other Spaces’ Foucault questions our past tendencies towards structuralism with the emphasis on giving order to events in synchronic time. He alternatively emphasizes an approach that makes room for a diachronic understanding of events (Crang, 2005, p.201). Foucault was careful to delineate a difference between internal space that he characterized by the phenomenology described by Bachelard and an external space, a space where “we live inside a set of relations that delineates sites which are irreducible to one another and absolutely not superimposable on one another”. This emphasis on relations has influenced a number of new approaches to critical theory such as actor network theory and post-structural geographies. Perhaps Foucault’s greatest contribution was in helping us understand space and place in terms of bundles or networks of relations, that to understand place means peeling through these bundles, to see the world not simply as a collection of objects understood through over-arching theories, but instead a world filled with the intersecting associations of agency (of things, animals/people, plants, memories, understandings...). Landscape architecture may thus be thought about as uncovering, recovering and evoking the agency of entities, and more specifically about the creation of “meaningful” relationships, where meaning is derived through unique associations of the agencies of entities.

In a sense the world by its very nature is dispersed, not simply into random isolated instances, but into disparate and unique collection of things, things (not limited to physical entities) that assemble into bundles of relationships. In this way landscape architecture may be thought about as the creation of sites which are irreducible to one another, sites that are unique not simply because the parts come together in interesting ways, but because the parts have agency and come together to create associations of agency. For example, landscape architects such as Cullen or Gehl would develop their own languages of the agencies of place where place making may be thought of as the creation of associations of experience. It may be argued that landscape architecture has been about engaging its own forms of actor network theory all along, that the creation of place is about understanding things that have affect, and how to subtly bring things together to engage in the creation of affect. What then does actor network theory provide landscape architecture? The answer may have to do with language, that the “jargon” of actor network theory provides landscape architects new ways to think about the associations and relationships of things.

The example of the italicized word things is a case in point. Actor network theory considers “objects, tools, technologies, texts, formulae, institutions, and humans ... as mutually constituting one another” (Farias, 2010, p.3). Things thus become about how, for example, an object becomes differentiated through association (how for example a plant acts when part of a community, or how a seed disperses as part of an ecosystem). In actor network theory the social is not simply about human interaction, but just as much about the interactions between things when they form associations. It follows that design may be thought of as the creation of various kinds of associations and bringing about interactions between associated elements. Thus landscape architecture may be considered in terms of designing social associations for human and non-human actors, and designing for “other” clients such as plants, animals, ecosystems, geomorphologies..., or that the act of planting design may be about creating associations, of making things (with the agency that comes from association) from things. The art of design comes from the ability to predict the relationships that emerge through the creation of associations, of predicting how things become things.
3 LENSES OF DISPERSION

“... landscape implies more-than-human materiality; a constellation of natural forms that are independent of humans, yet part and parcel of the processes by which human beings make their living and understand their own placing in the world.”

(Lund and Benediktsson, 2010, p.1)

In “Starting a Conversation with Landscape” Lund and Benediktsson use the metaphor of conversation to engage in the concept of landscape. Following from Gadamer they understand that meaning is “entwined in the process in which the conversation takes place” (ibid.). Extending this into actor network theory implies that we are concerned with the “conversations” between things, or perhaps more plainly how things interact, and the outcomes on things that come from such interactions. Designers are concerned with the creation of environments for human and non-human entities circulating with the interactions between things. Meaning in this way is not about an external reading or interpretation of an association, but embedded in the association itself. Meaning is entwined in the process of interaction within an association. Landscapes “mean” not because they communicate outward in some form or another, but because of their inward affect upon themselves (of course humans may or may not be included as part of the association, thus meaning is not simply a human condition).

The notion the we are living in an epoch of the dispersed points to opportunities to engage in situated readings of the world, of understanding the world in terms of how things come together. But what does it mean to be dispersed and more specifically what does dispersion bring to landscape architecture? In what follows dispersion is considered through three lenses (prisms): physical agency the material realities of dispersion and how they can influence design and act as design metaphors; dispersion as a force within a creative process; and dispersion of thought in our current cultural condition and their effects on our built world. Examples are drawn from work conducted in design studio settings.

4 DISPERSION AND PHYSICAL AGENCY

Dispersion in a physical sense is about shifting or displacement of material. Although dispersion is continually going on around us at all times it is often subtle and not readably noticed as such. A vivid sunset is rarely appreciated as an accumulation of particulate matter in the atmosphere. The sand on the beach is normally not associated with the centuries of decomposition of parent material. Dispersion may be thought of as part of an association of human and non-human factors, of agriculture, forestry or other industrial practices combined with materials and their physical properties. Through such an association new agency of the materials are realized, as in the sublime beauty when light is diffracted, or through the subtle feeling of the shifting waves over the sandy beach.

Dispersion, as seen here involves both the coming apart and the reconfiguration of things into new forms of association. Perhaps a more tangible way of thinking about being dispersed is about a (random) scattering or a spreading, of simultaneously sending off in different directions. In ecological terms this would be found in the multi-directional spreading of landscape elements resulting, for example, from dramatic natural events such as windstorms or floods. This is dispersion as a manifestation of a sudden force. Landscape architects are concerned with the mitigation of such processes and as such work to develop an understanding of the assemblage of affects and the agencies of things that make up the flow, i.e., the energy of an event, the looseness of the landscape, the ability for the landscape to trap flowing material, the ability for the landscape to resist the flow, the ability of materials to go with the flow.

Figure 1. Water Flume Studies by Meaghan Hunter, advisor P. R. Perron, (by permission of the author)
Studio work at the University of Manitoba includes studies of flooding examining a range of mapping and modeling techniques that illustrate dispersion characteristics such as: video recording and identifying the materials carried by the flood waters, taking inventory of the destruction, developing predictive models (water flume studies) of the form and extent of material accretion and erosion, simulating water rise and force, and trying to predict impacts on landscape associations (often through event observation). This kind of modeling requires that we give some thought to the agency of the materials under inquiry and we then develop appropriate analogs for predictive experimentation.

Things themselves may intrinsically contain dispersive agency. Take for example the many ways that plants spread their seeds (see for example http://theseedsite.co.uk/dispersal.html). Seeds have evolved to be carried in the wind (such as dandelions) or water (yellow flag, willow, foxglove, water mint), attached and are carried on animals (plants with burs), or in animals (often berries), and projected or broken away from plants through a variety of mechanisms (geranium seeds are catapulted, lupins explode, Oxalis seeds are sprung out). Ultimately plants have evolved such that the dispersed seeds may reach a competitive network of relations including soil, water and sunlight and it may be relatively straightforward to anticipate the behaviour of plant materials in different associations within a garden setting. Landscape architects may design with the agency of seed dispersal in mind, and is so doing would develop models that describe the potential for the landscape to accept or inhibit the distribution of seeds.

Landscape architects often work in systems of complex relationships, like cities, and these designers may have ambitions of developing green networks. In the studio project “Capture and Disperse” (Figure 2) natural gas capture sites located throughout the city of Medicine Hat, Alberta (left), are developed with a variety of textured materials for capturing seeds upon their release (center), seed dispersal towers release the plant material (right) to coincide with periods of gas extraction.

Figure 2. Capture and Disperse studio project by Kristen Struthers, natural gas being captures and dispersal of seeds in response, Medicine Hat Alberta, studio critic P. R. Perron. (by permission of the designer).

Within an urban setting the spatial elements (the building, the boulevard, the front yard, etc.) may also be considered in terms of their specific agency for allowing or preventing dispersion. It should be possible to develop a flow typology (based upon characteristics such as porosity, size, materiality, etc.) related to the flow characteristics of the carriers and barriers. For example, seeds dispersed by the wind may be easily carried across a stream but wind patterns may be limited around a building. A dog might easily carry a bur around a building but would have more trouble crossing the stream. In this way, animals, people, plants, buildings, etc. may all serve as actors influencing the seed dispersion patterns. The dispersive agencies may vary greatly from plant to plant, based upon factors such as range and intensity of the distribution, and designers must begin to know their plants, as gardeners, not in terms of simply what they are or what they look like, but more specifically in terms of what they do and need to do, and the assemblages in which they play a part.
Related to the idea of dispersion are the concepts of aggregation (the grouping of distinct parts into a whole) and disaggregation (breaking up a whole into constituent parts; or empirically working towards finer details based upon observation). Aggregation and disaggregation are also natural processes. Consider for example how phase changes, such as ice formation (figure 3) and flow dynamics on a lake combine to aggregate through freezing and accretion and (dis)aggregates as the ice melts and the force of the shifting ice erodes (solid/liquid differentiation). The whole hydrological cycle may be considered in terms of phase changes and the aggregation and disaggregation of phased material. Flooding in Northern climates is often the result of shifting ice conditions and designers should be aware of the association of materials that aggregate and the resulting agencies, from the shifting occurrences of the ice damming, to the gentle luring song of a lake when the ice is candling).

Figure 3. Floating and Falling, temporal change study, artist Alex Poruchnyk (by permission of the artist.)

Dispersion of water has long been a strategy used by landscape architects. Probably one of the greatest current examples of this kind of dispersion is found in the Mirroir D’eau (figure 4) project by conceived by the landscape architect Michel Corajoud and developed by the fountain expert J. M. Lorca. In this project a thin layer of water is in a constant state of materialization and dematerialization, a shifting blend of appearance and disappearance; a random sequence of events where the water is in flux between gushing streams, gentle mists and … a planar emptiness. It is not simply that the water is scattered and dissipated but so too are the order of the events and the viewer is caught up in both the beauty and the unpredictability of the aqueous performance of the dispersion of experiences.

Figure 4. Mirroir D’eau, photo by Marie Levesque (by permission of the photographer)
With aggregation and disaggregation comes agency; for example when water aggregates into ice new agencies emerge such as the agency to temporarily disrupt regimes of blending and mixing of the water with exterior materials (ice as barrier or filter), the agency that results from solidity (temporary firmness) allowing one to walk on water; and alternatively, the agency that serves as a determinant in fish behaviour (the warm surface layer, the shifting temperatures of the thermocline, or the cold lower layer). For example a deep thermocline may result in reduced fish stocks, in which case it becomes important to consider not only that water disaggregates, but also we have to understand the nature of the disaggregation. Designers need to think about external factors such as the nature of climate change or global warming by considering the changing nature of landscape aggregates and the factors and forces that change the patterns of disaggregation.

The studio project “Assemble and Disperse” (figure 5) brings together not only physical agency of dispersion but also the affects of human practice. In Winnipeg, Manitoba gravel and salt are dispersed throughout the winter on the icy streets. In this design the material is collected into a park like setting, and aggregated into salt and gravel using steam. In the design solution aggregated material is filtered through bio-remediation. Steam provides the basis for a new kind park ambience. Actor network theory is used to develop a park condition that is assembled from urban industrial practices, ecological processes and cultural desires. Material are dispersed first throughout the city as grit, collected, aggregated and then dispersed once again through bio-remediation.

Figure 5. Assemble and Disperse: Infrastructural Hybridity by Trent Workman, truckloads of sand, salt, and debris are assembled and aggregated using steam. Sorted material forms the basis the mounds in a park setting on a post-industrial site.

5 DISPERSION AND THE CREATIVE PROCESS

Design enquiry takes place through a number of approaches using a wide range of tactics that have the potential to be what James Corner succinctly describes as operational eidetics. As instructors of landscape architecture we must be engaged in the exploration of new tactics with a critical concern regarding their efficacies and potentials in design thinking. In this sense to “disperse” may be thought of as a tactic in design, to breakdown something into its component parts as ways of uncovering their design potential. How do we engage dispersion as part of the design process? Whereas aggregation/dis-aggregation, as considered above, is thought of as gathering and scattering of materials, an assemblage and conversely a dis-assemblage is a gathering and scattering of a broader collection of entities such as materials, ideas, human and non-humans, things and behaviors, etc. The landscapes that we create may be thought of as virtual assemblages of objects, ideas, living and non-living beings, relationships (all of which might be thought of as actors with agencies, hence the term actor network theory or ANT) that come together in a body of potential (Paris, 2012). Whereas sociologists may examine virtual
assemblages as ways of mapping the associations that occur in a culture, landscape architects unpack and re-build virtual assemblages.

The opposite to assemblage, what I am calling here dis-assemblage, is the act of decomposing an established order, and in the design process this may be thought of as an approach to creation through dispersion; through tactics of removal, tactics about the creation of absence, and tactics that celebrate and explore the potentials of disappearance. This is often an exploratory process of teasing things apart to see what happens, or of uncovering the parts that constitute the whole. But it is also about placing the emphasis as much on what holds things together as on the things themselves. “Things, quasi-objects, and attachments are the real center of the social world, not the agent, person, member or participant – nor the society or its avatars…. its not the social that accounts for associations but rather associations that explain the social” (Latour, 2007, p.238). It is perhaps here that actor network theory becomes its most unwieldy and possibly its most powerful, for Latour is very interested in what constitutes the “social” (what I am calling assemblage) and he is very careful to point out a need to avoid the objectification of the social. The “social is not a place, a thing, a domain, or a kind of stuff, but a provisional movement of new associations” (Latour, 2007, p 239). Landscape architecture is fundamentally a practice of understanding and reconfiguring the “social”. Dis-assemblage (dispersion of the social) may be thought of as tactics for understanding not only the composition of landscapes (in a very broad sense) but also about understanding what holds a landscape together, and of proposing new (provisional) associations.

Examples of dis-assemblage in a design process include décollage, decalcomania (building up layers of paint then peeling them while still wet), éclaboussure (chemical/water splattering and paint removal), étrecisements (cutting away to create an image), grattage (scrapping), outagrapy (cutting the subject out of an image), soufilage (the blowing on paint to reveal an image), triptography (photo overlays, originally with film cameras) (see for example Shane, 2005). Landscape architects use their own techniques of dis-assemblage acting directly of the land, for example borrowing from gardening (pruning/topiary) and from grading (earth works design). Studio work illustrated below result from explorations of design problems using techniques described above. From left to right: triptography is used to assemble social/spatial narratives presented on the female form celebrating the strength and power of feminist associations; decalcomania embedded into 3D plexiglass print model illustrates dispersion of species in an urban setting; décollage is used to break apart the primary functions of a GIS model of an urban setting; éclaboussure used as a metaphor of a predicted erosion/accretion process in the Mississippi Delta.

![Figure 6. Eidetic mapping studio work Thunder Bay/Prince Edward Island/New Orleans, from left to right triptography (Desiree Bunn), decalcomania (Kelly Wojnarski, Jocelyn Aquino-Javier, Daniel Neves, Shauna MacArthur), décollage (Cameron Bradshaw), éclaboussure (Alison Birkett)](image)

As things disperse they begin to disappear and it may be that disappearance itself is important in landscape architecture. It is not simply that landscapes grow and emerge, but equally there is great beauty and value in disappearance. Philosopher and architect Paul Virilio has been intrigued with concepts of time and space. From his early work of Bunker Archaeology to later works in Lost Dimension and The Aesthetic of Disappearance he has challenged conventional notions of time in our increasingly technological world. Rather than celebrating and recognizing loss (the disappeared), the emphasis is on the process disappearance itself. “[T]he tabula rasa is only a trick whose purpose is to deny particular absences any active value” (Virilio, 1991, p.31). Specifically this is about the agency of disappearance in our making of place and in our everyday lives. Disappearance is a natural process and we should consider how landscape architects celebrate and engage (speed up and slow down) social, cultural and
ecological processes of disappearance. I believe that this is what Weilacher meant when he wrote the following about the work of Peter Latz and Partners (figure 7).

"[Latz] still refuses to present nature exclusively in terms of long-forgotten Arcadian ideals, instead pointing out the value of everyday nature that has much to offer our lives than the cultural sterility that has to satisfy functional criteria all of the time and everywhere... Every openwork of art in Umberto Eco’s sense lives with the risk of the unforeseeable and is understood as a dynamic structure that does not fit in with any rigid ideals, but always signals freedom and the ability to change."

(Weilacher, 2008, p.100-101)

![Figure 7. Duisberg Nord, images by the author](image)

6 DISPERSION OF KNOWLEDGE

As educators we are engaged in a form of dispersion through the dissemination of knowledge, and as such we are beginning to understand that the dispersion of knowledge is directly associated with the currents of communication. Dispersion in not simply an artefact of tactics and technologies, instead it is an indicator of the nature of our interactions. We disperse into networks not on them. As such a landscape architecture creation is directly related to the nature of the discourse in which the design exploration is taking place.

When Foucault’s spoke about living in an epoch of the dispersed he was in a sense speaking about the simultaneity of different discourses, what might be thought of as discourse networks. Landscape architects engage in their own forms of discourse (what DeLanda would call linguistic coding) to find ways to modify a landscape, such as place making, landscape conservation, post-industrial rehabilitation, etc. We are living in an epoch of the dispersed because knowledge itself has become increasingly compartmentalized, or territorialized. Knowledge has become dispersed into so many independent specialized discourse networks that it is almost impossible to know what we are all simultaneously talking about. Designers must look for ways to traverse these discourse networks and experiment with our own forms of “determinitalization”, i.e., we must look for ways to actualize the knowledge of others and decontextualize (or occupy) the knowledge relations. I believe that this is what Ian McHarg was trying to do when he envisioned landscape architecture as embedded in a complex set of interdisciplinary conversations. This may be better understood when we try to define what we mean by ecology.

Esbjörm-Hargens and Zimmerman identify close to 200 distinct discourse networks of ecological thought and environmental studies that they group into 25 overlapping categories from the religious to the linguistic, from complexity theory to somatic investigations. (The categories include scientific, economic, acoustic, medical, aesthetic, behavioral, representational, historical, social, technological, evolutionary, ecological, psychological, agricultural, geographical, complexity, cultural, philosophical, ethical, religious, esoteric, somatic, therapeutic, spiritual, and linguistic). These authors attempt to categorized the perspectives on ecology into four quadrants or terrains; experiences, behaviours, cultures, systems. They believe that these schools of thought are often speaking across purposes because they are interested in fundamentally different kinds of problems. The authors go on to advocate an integral ecological approach
that unifies objective approaches (inter-objective); while drawing upon artistic and psychological approaches (subjective) as well as ethical and religious approaches (intersubjective). "Integral Ecology is the study of the subjective and interobjective environments at all levels of depth and complexity." (Esbjorn-Hargens, S. and Zimmerman, M. E.). Landscape architects simultaneously draw from many of these networks to bring sense to a real world problem. But instead of trying to make sense of the whole, we attempt to bring together (assemble) different ways of thinking about space and place based upon the intersecting conditions of a lived world.

Figure 8. Landscape assemblages: train station in Europe, intersections of drilling platforms and hurricane paths in Mississippi Delta, changing seasons in Manitoba.

It is important to recognize, once again using actor network theory, that when we engage in a particular form of discourse (landscape ecology, or conservation ecology, or bioacoustics, or Deva-gardening, …) that the knowledge becomes part of the assemblage of ones design, that knowledge is in a sense embedded in landscape, that the landscapes that we develop and the discourse networks that we adopt are bundles that together realize provisional movement of new associations. The power and potential of landscape architecture is in finding out how these dispersed areas of knowledge play out in a living world.

7 CONCLUSION
Actor network theory provides landscape architecture new tools for understanding and analysing the social (in terms of the interactions between entities when they form associations). Design may be thought of as the creation of various kinds of associations and bringing about interactions between the associated elements. Landscape architecture may be considered in terms of designing social associations for human and non-human actors.

Dispersion is a filter through which one can begin to interpret landscape associations. Modes of dispersion of elements in the physical world provide insight into the assemblages of human and non-human worlds, and direct designers to new possibilities for design metaphors. A number of dispersive tactics may be developed to study landscapes that emphasize not simply the displacement of materials but also the nature of associations. Finally, landscape architects can realize the potential that emerges through the dispersion of knowledge, that, for example knowledge regarding natural systems is broad and varied, and that knowledge itself becomes embedded into design assemblages.

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8 REFERENCES
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