All Architecture Fluctuates Between the Technical and the Spectacle.
“So that we might say that the earth has a spirit of growth; that its flesh is the soil, its bones the arrangement and connection of the rocks of which the mountains are composed, its cartilage the tufa, and its blood the springs of water.”

- Leonardo da Vinci

<table>
<thead>
<tr>
<th>Table of Contents</th>
<th>...page</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Introduction</td>
<td>7</td>
</tr>
<tr>
<td>- Layers of Understanding</td>
<td>8</td>
</tr>
<tr>
<td>- SNN+</td>
<td>11</td>
</tr>
<tr>
<td>- The “Industrial Park”</td>
<td>14</td>
</tr>
<tr>
<td>- The Colosseum: Urban Sink</td>
<td>17</td>
</tr>
<tr>
<td>- Of Aqueducts and Co. Down</td>
<td>18</td>
</tr>
<tr>
<td>- Statement of Intent</td>
<td>22</td>
</tr>
<tr>
<td>- Thesis Drawings</td>
<td>27</td>
</tr>
<tr>
<td>- Bibliography</td>
<td>43</td>
</tr>
</tbody>
</table>
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opposite: fig 1.1:
Edward Wadsworth
The Port
circa 1915
Tate Collection
187 x 127mm
Woodcut on paper; print
Introduction

Architecture school is about equipping oneself with skills in how to look at the world, not about how to make buildings. Becoming an architect is about learning to interpret your surroundings as an architect would think. So how does an architect think? Or more specifically, how have I learned to think?

Architecture is a mediator between the physical natural world and the technological and spatial requirements of human beings. So as an architect, one needs to be able to look at the world and seek to understand this mediation. It may be evident in the way a place looks because of many different interventions over time, or it may be the way one particular building is orientated in respect of the world around it (i.e. how it relates to the inclusion of sunlight/ventilation/access to a particular view etc.)

So what happens when a place that is not nature (i.e. a place that is not wilderness or a mountain range, a place that has been fashioned by humans) refuses to be understood on architectural (which is to say, spatial) terms? Throughout this text, I will discuss several case studies of places and objects in order to understand this mediation between requirement, and enjoyment of spatial quality.

The studies broadly follow the theme of circulation, under terms of fluids, supply, flow, collection, dispersal, etc. with the hopes of finding a useful lens through which to focus a method of looking or understanding.
Of course, to suggest that a single lens is a simple solution to an understanding of any place is not my intention. The intricacy of a place can only be sought to be understood through a whole range of additive layers.

A layer does not inherently mean a long flat thing to be applied in a series of surfaces. Layering of time, of physical elements, of geological and environmental forces and built structures, layering of societal influences, uses, inhabitations, human decisions and impacts. This dense tapestry and more is what makes a place. It is evidence to study or a tool to shape.

This complexity of understanding implies a texture, a variation, an interest. The spatial characteristics of a place manipulated by river erosion, geological rock formation, the drainage of a lake, the division of land into field patterns, or the acts of placing physical structures all leave behind evidence of their occurrence.

“...The term landscape no longer refers to prospects of pastoral innocence but rather invokes the functioning matrix of connective tissue that organises not only objects and spaces but also the dynamic processes and events that move through them. This landscape is an active surface, structuring the conditions for new relationships and interactions amongst the thing it supports.”

In his essay concerned with a new way of discussing the urban fabric, Wall speaks of this connective tissue as an active surface that ideally is adaptable to uses that have even yet to be determined. This “ground plane of the city” as he calls it is about dealing with flows, left over spaces, infrastructures, not about “the familiar urban typologies of square, park, district and so on...”

With this idea of connecting of dysfunctional or disparate spatial conditions within cities, one can think of many analogies for adhering surfaces to one another... glueing, latching, stitching, overlapping many layers and so on.

Of course much of this is cleaning up the mess human activity has already made of a place. Without intervention, the surface of the earth would return very quickly and efficiently to a matrix of connective tissue. However, to declare yourself an architect, I believe you must buy into the idea that people are conscious, creating, producing, acting beings.

The following description of Edinburgh is intended as a brief study to explore legibility of place through a range of additive layers, and how these layers bear evidence quite clearly in the physical experience of the city.

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You can stand on North Bridge in Edinburgh looking westwards and trace clear fragments of the evolution of the city.

The crag and tail formation to your left is the result of a glacier moving over the resistant volcanic rock layer within a more easily eroded rock landscape. It is of a prehistoric time. On one hand, this time scale is completely incomprehensible and incomparable to any human movement, yet its physical reality lends a legibility to human settlement pattern.

The one-sided descent from Castle Rock became occupied with the herringbone pattern of the medieval Old Town that stretches and descends eastwards from the Edinburgh Castle to Holyrood Palace, a difference in altitude of some 100 metres.

The glacial tide pushed eastwards against the resisting face of Castle Rock, where, once past the hard brow of the volcanic plug, it could erode and descend along what later became “The Royal Mile.” The geographical formation of this piece of land was a highly desirable place to locate a fortified castle, and this is when, as humans, we can begin to look at Edinburgh (Dún Éideann- Fort of Éideann), through a social lens.

To your right lies the gridded and leafier Edinburgh New Town.

During the 18th century Edinburgh flourished as a centre of Enlightenment thinking and in 1766 the rigid rationality of the plan for New Town, designed by James Craig, was constructed as a clean break from the squalor and eccentricities of the Old Town, with Nor Loch buffering in between. Ironically the pollution from New Town led to the drainage of the lake, the valley of which is now home to Princes Street Gardens, a park which stitches Old and New Town back together.

The sloping North Bridge spans this small valley. Instead of water flowing underneath this bridge, the pitched sheds of Waverley train station gesture a rhythmic texture of waves: a substitution for the drained lake. The former basin of water now holds public parkland, people and trees. The tracks of the railroad emerge from a subterranean tunnel at the West End, pass through and underneath the artificially constructed “Mound” (another span of the valley, this time a more of a causeway than a bridge) passing alongside, yet quite distinctly separate from, the public parklands, but clearly perceptible as an additive layer within the constraints of the space.

fig 1.2
Study of Edinburgh as layered and compiled surfaces. North Bridge is the bridge to the right of the image. Waverley Bridge is the centre span, and The Mound crosses the middle of the former lake.
SNN +
climate register
SNN+

Shannon Harbour: a ruin of modernity. In many ways isolated at times even desolate, yet walking along the smooth arc of the harbour road on a warm sunny day, it evokes a comfortable isolation. Its proximity to Shannon International Airport and its own unfulfilled visions call to mind the sleepy calm evidence of a place that retired before it ever got to work.

The calluses of a working landscape are, for the most part, absent. The harbour, a bold formal movement of human work, over time, settled down quietly into the estuary. Apart from its opening statement, it hasn’t had anything to say in 80 years. For over 80 years, the River Shannon has done all the talking.

daily sermons of the tidal movement advance and recede, gathers sand and deposits the estuary into the harbour, as if tucking the wall into bed, settling it in...

The stoic harbour wall stands still as the whispering rushes creep and engulf it. It lies dormant against the incessant embrace of the estuary. Abandoned by the human activity that produced it, it has no power to assert itself; it is a wall, not a harbour: a line, not a space. Yet it maintains strength of presence of its own by its solidly physical nature.

It is settled into the ground. It recedes, but it will not disappear. Even after thousands of years, covered over completely by earth, it has contributed a conditioning layer to the landscape. It is constant and immoveable, standing against and shaping the fluctuating landscape around it. It remains steady as the ground silts up around it.

SNN+ was a short primer project based at the defunct harbour at Shannon International Airport. We were asked to provide for a facility of cold-storage, while also expressing the “climate register” of the place.

fig 3.1 (previous page): Shannon Harbour north orientated. The upper left portion of the circle is the intervention of the permeable bridge.

fig 3.2. The scale of the structure lends itself to the bridge as an inhabitable infrastructure.

fig 3.3 The precast structure of the bridge forms its own foundations.

fig 3.2.

fig 3.3
Another very short primer project was based in Hamburg, as part of the HafenCity development of the former harbour area. For me, it was as an idea about thinking of that place, not a composition of canals, bridges, roads and rivers but a continuous surface shaped by these conditions, with layers of ground, with channels cut into it, bridges placed over it, tunnels burrowed through it.

The proposal was the social inhabitation of an existing piece of obsolete infrastructure, namely the conversion of a silting canal into a sunken park.

The obsolete canal that cranks through the centre of HafenCity is also a retired piece of infrastructure. However, this time instead of encouraging dormancy, I wished to encourage a more active retirement within the centre of the proposed city. By damming and draining the canal to create a sunken park, it acknowledges and registers the industrial past of the city, as well as highlighting the manipulation of the ground that was a direct result of this.

The Sunken Park is a layer of evidence as well as providing a recreational and public function to a city of newness and private speculation.
The Industrial Estate
“Humanity, which is to say social practice, creates works and produces things.”

Parkmore is what is called “an industrial park” situated on the east side of Galway city that mainly supports the function of the manufacturing of medical devices. Its form is a typical representative of industrial or commercial business parks that are situated all over the country. If one is to attempt to look at this place of production in terms of how it relates to the world, or even its own technical process, one will find few answers.

This function would be site-less if it could. It is not an industry that is dependent on local natural resources or conditions.

The purpose of the facility is to house the process of manufacturing stents, (for a description of what a stent is, see the following page). This is in essence a process of a linear nature, with slip streams and branches that split and rejoin the principal flow of production. However, internally, the linear process is split in segments, with many of the same production segments placed together in variously sized rooms.

This compartmentalisation of the process is partly to do with the necessity to tightly control certain areas of the manufacturing environment (to the exclusion of particles, fibres, hairs etc.). This leads to the problem of people being undesirable necessities in their own working environment. It is essentially an engineered environment of exclusion.

Over 2,000 individuals work in this facility, welding, cleaning, boxing, fixing, researching, typing, inspecting, weighing, cooking, walking... it is the location for thousands of activities: activities carried out by people. The process, (for the moment) is dependent on these people.

The legibility of this diversity of activity is completely lost inside and out. Of course, one will never be able to make immediately transparent the intricacies of such a technical process, nor would one probably want to. It is perfectly reasonable for some things to remain a mystery to the casual observer, in fact, there is often enjoyment to be had at this sense of mystery. Here, however, one feels cheated even out of the mystery and simply left with a sense of banality.

The separation of the technical and the role of factory as a place that people are to interact with is a gap that has to addressed. The factory is about taking flows and producing with them but the process/technical has completely taken over. There is no other spatial quality.

3 Henri Lefebvre, The Production of Space (Oxford: Blackwell, 2005), 71
Lefebvre makes the distinction between creation and production on p70: “A work has something irreplaceable and unique about it, a product can be reproduced exactly, and is in fact the result of repetitive acts and gestures. Nature creates and does not produce.”
A (coronary) stent is a stainless-steel medical device that is inserted into the body when a coronary artery, which supplies oxygenated blood to the heart muscle, becomes constricted.

Blockages in the supply to the cardiac muscle (coronary obstructions) are more commonly known as heart attacks. The device itself is a very small tubular mesh-like object formed from a series of segments welded together with the aid of microscopes. Insertion is via the femoral artery. When the stent is at the desired location (marked by a guide wire) the saline balloon upon which it has been crimped (squashed) is inflated and pushes open again the walls of the artery, releasing the constriction of flow. The insertion catheter and guide wire are then removed while the stent remains in the body.

**Fig. 4.1:** an “open” stent  
**Fig. 4.2:** a “crimped” stent

Depending on the size of the stent, there are only one or two welds attaching each segment to the next to ensure flexibility. Each segment is less than 1mm wide.

**Fig. 4.3:** The coronary arteries are the vessels branching over the surface of the heart.
The Colosseum: An Urban Sink

Considering that I have never visited the Colosseum, when asked to study it as an architectural precedent, I was, in a way, unburdened by the surely impressive physical experience of the place, and I was freer to look at it as an urban object.

Even from this “removed” viewpoint, it is a fascinating subject of study on many layers. An amphitheatre with the capacity to hold 45,000-55,000 spectators, measuring 188m x 156m and 48.5m high: the main structure was completed in just five years between 75 and 80 AD.4

On an urban level, the Colosseum as a space with the ability to collect and gather 50,000 people, and then disperse them again, one thinks of the metaphor of an urban sink: the main supply roads and streets as channels and drains for the masses of people that attended these huge events.

Unlike Greek theatres, which used natural topography as support for their structure, Roman amphitheatres were free-standing objects, reliant only on the support it manufactured for itself. In terms of construction, the remarkably efficient construction allowed tradesmen to work under the cover of the completed stone structure below, while concrete was still to be poured at the upper levels. This self supporting structure was not only a form to elevate people in order to view spectacle but also to accommodate the infrastructure that all stadia up to the present day require: circulation, ticketing, cleaners, guards, the entire hotbed of activity that supports the main event.

It is interesting that after the collapse of the Roman Empire, and the subsequent loss of knowledge of the original use, this support structure facilitated many other activities during the following ages. As Hopkins and Beard note in their research:

“Since the end of antiquity, there have been just four main interest groups claiming the Colosseum for themselves: robbers and re-users; Christians; antiquarians and archaeologists; and surprising as it may seem- botanists.” 5

These re-users include Pope Sixtus V, who, in the sixteenth century “planned to convert the whole building into a wool factory, with shops.”6 By the early Renaissance the Colosseum had become essentially a quarry for robbers, while squatters had erected stalls, shacks, haylofts homes and in the 1700s, and the northern corridor was home to a manure dump. 7 Perhaps had the plan for the factory been realised, more of the original structure would have been saved.

Built on the site of the lake of Nero’s Golden Palace. The ground on which it was built was very compacted and so the foundations of the enormous structure are remarkably stable and have barely moved in almost 2,000 years.

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5 Keith Hopkins and Mary Beard, *The Colosseum* (Cambridge, Massachusetts: Harvard University Press, 2005), 159
6 Hopkins and Beard, *The Colosseum*, 2
7 Hopkins and Beard, *The Colosseum*, 162-163
Of Aqueducts and Co. Down

The Silent Valley reservoir was a project constructed in the 1920s to upgrade the water supply of Belfast city (approximately 65km to the north). It involved the damming of the Kilkeel and Annalong rivers and the flooding of a valley in the Mourne Mountain range. I focused my study on the beautifully sculptural overspill sink in the south-eastern corner of the reservoir. The dual nature of the object fascinated me. When water levels are low, the sink stands out as an object in the water within the valley; when water levels are high, the sink becomes a part of the continuous surface of the water.

“It was impossible for anyone with a historical turn of mind to live alongside the Pont du Gard and not study it. But there is a proviso. The towering arches might command attention, but it was a different story for all the miles of conduit leading to them, weaving in and out the valleys, contouring around the hillsides, and all safely buried from sight under a metre or so of earth. There were no great attractions here, so attention was lavished on the chief monuments and the aqueduct as a whole was neglected.”


Hodge’s disappointment at the under-appreciation of aqueducts as an infrastructural and highly sophisticated method or system of carrying water over great distances lies in the fact that the “Pont du Gards” as it were, are merely supports of the conduit to span a valley. However, this is the moment when the system becomes spatial.

The series of arches of the viaduct introduces a spatial quality to the “functioning machine” of the aqueduct system. The bridge is the moment when the “machine” exposes itself due to the topography and the necessity to span a valley while maintaining the required gravity flow system of water supply. A rhythm, an identifiable scale is introduced in the vastly linear nature of a highly technical system.
fig 6.2: The former Kilkeel River running North-South from the Mourne mountain range to the sea.
“Most Roman aqueducts did not draw from a reservoir. They draw it from a spring that fed water into a system as fast as it is used at the other end. Like an electric grid, the system worked on the principle of constant throughput, with no provision anywhere for storage.”

This principle of a constant throughput is of interest to me in my investigations of supply and collection. “In a word, the aqueducts have generally been studied rather as archaeological monuments than functioning machines.” (stress mine)

Highly technological yet they were a luxury constructed by rich cities to supply bathhouses. As they were based on this principle of constant throughput, and therefore couldn’t be turned off, as it were, the whole city benefited from the supply of water.

These “functioning machines” were also icons of civic pride. Likened to modern day large airports of 19th century railway stations, “You were in the big leagues if you have them,” they were therefore symbols of immense civic pride in a place with elaborately decorated terminals in the city. This idea of payback for the city is fascinating. Although the primary reason for the construction of aqueducts was to supply large bathhouses, the value of a constant supply of fresh water is shared by the entire city.

9 Hodge, *Roman Aqueducts*, 1
Fig 6.3: Study of water treatment process at Terryland, Galway. 1:1000
Site Description
Galway City (population 73,000) is situated on the west coast of Ireland on the Atlantic ocean, sheltered by the relative protection of Galway Bay. The city is located on the River Corrib, a 6km stretch of water that flows from Lough Corrib (the second largest lake in Ireland) to the Atlantic Ocean. In 1848, the Eglinton Canal (no longer operational) was constructed as part of the Drainage and Navigation Scheme of Lough Carra, Lough Mask and Lough Corrib as well as a timber version of the Salmon Weir. The current concrete and steel gates structure was constructed in the 1950s. Since the move in the 1800’s to make the lough navigable by cutting the Eglinton Canal, significant formal moves of that scale have not been seen in the city. A very important recent move was the construction of a causeway to Mutton Island to facilitate the opening of a waste water treatment plant there in 2004.

The city’s dependance on its water infrastructure became very apparent to all citizens when, in 2007, a cryptosporidium outbreak in the water supply led to a boil-water contamination notice for 6 months. The importance of this technical infrastructure then only becomes called into consciousness when something goes wrong.
In order to synthesise these parallel investigations of flows/water/circulation and the highly functional programme of manufacturing, I have selected for my site the wedge of land between the River Corrib and the Terryland River, just beyond the extends of the city core (although the city limits actually extend through rural agricultural all the way to the lake).

The brief is essentially a landscape for producing clean water. A landscape of inclusion rather than exclusion. The provision of a foundation for many activities. ie. a place to swim, a place to make stents, a place to filter water, a place for research.. A generosity and durability of form that could foster a dynamic surface. Something that oscillates between pragmatism and pleasure. A way of looking at a place and making legible the system of rainwater collecting in the lake, being treated, used at the site or dispersed throughout the city, gathered again (storm water and waste water), treated, and expelled into the ocean.

Bringing to the surface, quite literally, the physical parts of that process: the screening, the sedimentation, filtering, and offering those moments of revelation or exposure, just as Pont du Gard does for the aqueduct system.

The potential in layering the ground to trap and filter the water as well as to enclose spaces and create buildings. It is an effort to seek a durability of form for manufacturing, one that isn’t simply a sheathing of the process that occurs within. The factory is in one way about taking flows (of people/goods. etc) and producing with them, but as we see in places like Parkmore, the process has completely taken over any kind of spatial quality.

fig 7.1: The River Corrib runs from the lower tip of Lough Corrib for 6km until it reaches the sea. It runs directly through the centre of the city, branching into the Gaol River and the West River along the way. The semi-circular loop visible is the Eglinton Canal.
**fig 7.2**: View from the east bank of the River Corrib, towards the University. Galway city is visible to the left.
Thesis Drawings

A selection of images and drawings describing the architectural project and aspirations
fig 8.1

Early conceptual image. The aim was to describing a functioning, productive landscape situated at the bend in the river Corrib just before it flows through the city centre.
fig 8.2 and 8.3

More studies in programming form into the landscape and site layout. These two are more about extending and manipulating the river edge to subvert the distinction between land and water.
The long linear idea for the site layout was about setting up linear parameters which allow a flow (of people/manufacturing/roofing/water) to pass between them.

The intent also is that the site is also a bridge that allows pedestrians to cross the divisive Quincentary Road bridge from the residential suburbs to the University and city centre.
fig 8.5:

The low walls that run the length of the site are pedestrian footpaths/cyclepaths.

The function of water treatment is to be present at the surface and continually through the site as seen in the sunken piece of ground in centre of the image.
Bibliography


