

## *THE PLANT MACHINE: BETWEEN ENTROPY AND EVOLUTION*

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### *Introduction*

Industrial landscapes are as much part of our cultural landscape as any highly aesthetic sculpture park, agricultural landscape or suburban agglomeration. Through the achievements of industry, science and technology, contemporary Western societies enjoy higher standards of living than ever before, from a materialistic perspective. It seems therefore ironic that the places where raw materials are transformed into glamorous commodities to enhance our lifestyles, do not enjoy the same public enthusiasm as do the products emerging from them. Industrial sites are often considered unaesthetic or ugly, environmentally destructive and may be associated with social impact and/or hardship. Once abandoned, they fall, like landfill sites, into the category of 'landscapes of the abject.' They represent the 'other,' unglamorous side of the seductive materialism everyone is so accustomed to, the side one would rather not see. Imbued with rich textures and layers of memories, however, these sites speak their own poetry.

Since the Scientific and Industrial Revolutions, influenced by the Cartesian or mechanistic paradigm, humanity has excelled at separating phenomena such as nature and culture; art and science; art and life, nature and humans, or nature and technology. Looking through the lens of the emerging ecological paradigm however, nothing is separate, all is connected. It appears that there are increasing numbers of artists and scientists who subscribe to this paradigm of interconnectedness (Bijvoet 1994, Matilsky 1992).

It is this 'connective' or ecological philosophy that underpins the design for the 'Pioneer Site,' whereby nature, human beings and technology are seen as inseparable entity.

### *Entropy and Evolution*

Everything, manmade or natural, is subject to the forces of nature's dynamic processes, therefore in a constant dialogue between entropy and evolution, decay/death/disorder and birth, an incessant exchange of energy. The leading American art theorist and pioneer land artist Smithson was intensely engaged in this dialogue between entropy and evolution in the 1960s/70s, whereby, drawing from his writings, his focus seemed to be more obviously centered on entropy, phenomenon of the inevitable decay intrinsic to everything. For example, Smithson's *Spiral Jetty* (1970), highly symbolic of entropy, provides at the same time a setting for evolution – salt crystals growing on the rocks and providing niches for algae and other life. Entropy and evolution seem to merge into one metamorphosing process. Contemporary artist Prigann, whose works also explore this dialogue or *insane dance of entropy and evolution* (Weilacher 1996:173), sees the two partners as inextricably linked processes, rather than dualistic pairs (Prigann in Weilacher 1996).

Photo 1 illustrates this dance between entropy and evolution occurring on the 'Pioneer' site, an important element in this design proposal.

*Photo 1 Between Entropy and Evolution – Corroding metal preparing niches for new life*

Smithson's interest and preference to use abandoned, degraded or abject land as the basis of this dialogue expressed in his art, has pioneered new ways of seeing nature and new ways of celebrating (some) consequences of technology, in this case industrial, degraded sites. It is in this sense that these pioneering ideas of Smithson have prepared a fundamental philosophy underlying the design for the 'Pioneer' site in West End.

It must, however, be remembered that Smithson's and other land artists' works largely excluded the human being, as most of their works were constructed in remote areas, expressing also the then emerging 'anti-museum' stance (Weilacher 1996, Werkner 1994). From this social perspective, this design proposal for the 'Pioneer' site differs significantly. The currently still operating concrete production machine is an integral thread within an urban texture, hence the ecological design approach taken for the site includes social ecology. In this sense, the design approach departs from a pure art statement to an expression of ecological and social processes. This idea of re-integrating art and life was born already at the end of the 19<sup>th</sup> century, with the arts and crafts movement and was most succinctly expressed in German artist Joseph Beuys' work during the 20<sup>th</sup> century (Oman 1998).

## *De-Gentrification on-Site*

### *De-Gentrification in Space*

Tangled purposes  
competing  
on irregular fields

Economic rationalism  
is a bodum  
the fine drink in  
the aroma  
at the top  
the scum is pushed to the bottom

Espresso love  
continental lifestyles  
for the middle classes

We all desire the life  
but not all  
can have it.

A quiet empire builds  
  
When placemaking  
leads to private placings  
and vegies and bread  
are converted into franchised  
on the lost kerbsides  
foccacia

When the themed art  
and themed streets

disenfranchise  
the voiceless dweller

When factories become lofts  
and the shops café outlets

When the houses are too cute  
for a single old woman's rental

We find the shifting fields  
Of gentrification.  
(No known antidote,  
like Aids)

The notion of social ecology - a strong research focus in Mongard's practice - infers the interconnected nature-culture continuum, and this proposal is an overt scheme to re-knit the site into its local community and its needs. In the context of West End, a rich cultural precinct with a multicultural and socially layered community, the aim of this proposal is an ecological, socially responsive design. The strategy thus focuses on de-gentrification: an attempt to create a functional programme which will resist gentrification of the site, slow down and balance up the gentrifying influences at force in the neighbourhood. This type of strategy fits into a broader mandate for designers and planners to act as enablers of community self-empowerment (Sandercock 1998). This is a radical paradigm and agenda which accepts that the purpose of planning is the empowerment of those who have been systematically disempowered by structural inequalities of class, race and gender (Friedman, as quoted in Sandercock 1998).

The forces at play within West End are aptly captured in the two poems in this essay: they are the subtle and not so subtle agendas of economic rationalism and globalisation as they impact at the local scale.

The 'Pioneer' site is one of the largest and most significant pieces of West End's industrial river edge. Occupying prime real estate, the space is threatened by the current populist planning trend to convert industrial sites into upper class housing precincts in the manner of the New Farm/Teneriffe neighbourhood.

The presence of industry is one of the strongest leveling agents against gentrification, and there is some argument that the site should perhaps be retained as a concrete plant for this reason alone. On a more general level, providing places of work near places of living – for all types of workers - is an important vision (Healey 1997). This proposal intends to retain and extend work functions for the local community, through a hydroponics ‘farm,’ market and recycling activities. This work relationship taps into an already burgeoning movement in West End for local, organic produce, and the site would provide space for growing and selling vegetables and fruit, much as the old West End Markets and Chinese Market Gardens provided fresh food for the growing city of Brisbane in the early 20<sup>th</sup> century. Existing local food co-operatives could manage the site, thus retain community ownership over the process, the outcomes and profits. A mandate would ensure the employment of local people, particularly youth, and possibly the many fringe dwellers who have made their home in West End, such as the mentally disabled, who wander the neighbourhood. Such design calls for a broadening conception of what is a user in a site: a move away from ‘consumers’ and toward ‘participants’. This requires a new type of space which is differential: ‘a space of radical openness (Oakley 1998).

With this social ethic in mind, the recreational activities are also firmly aimed at the local disenfranchised residents, particularly the ‘teens’ hanging out on Riverside Drive. West End is characterised by many fringe cultural and arts groups, and the event/shed spaces can provide them with a place to be. This proposal offers also the opportunity to bring back functions of the burnt down Rialto Theatre: alternative cinema, theatre and community arts. As an open air venue, this could be a free community activity, funded by Brisbane City Council similar to other free activities at Southbank. From this perspective, the ‘Pioneer’ site would counter/complement the Powerhouse Arts Precinct in New Farm, which has fallen victim to cultural gentrification through corporatisation of programme and space.

### *Transforming the Site - Not a ‘Park’*

*At any rate, the “pastoral,” it seems, is outmoded. The gardens of history are being replaced by sites of time.*

(Smithson, as cited in Shapiro 1995:113)

The fundamental idea is to let the ‘Pioneer’ site transform into a flexible, *robust people’s space [growing into place with time] of process* without being made into a ‘park.’ The term ‘park’ is seen as having too many connotations with the traditional, ideological romanticism and sense of aesthetics, evoking tired associations of a somewhat worn out ‘park syndrome’ of trees, grass, picnics and football. Instead, this culture/nature site is to become a place where multiple layers of activities can occur side by side: from random, spontaneous activities to more structured events. This juxtaposition of *randomness and structure* is carried through in the social realm, the planting design or the ‘green layers,’ as well as in the use of the existing architecture on the site.

## The 'Pioneer' Site - Perceptions and Visions

### Plant Machine

Machinery metallic and gravelly projects itself down a lost lane.	Lines for blading and hanging above lines for walking: tracking the dieing path of local industry.	Plant machine dead shells of industry watering nature: devolution.
Crunching sorting dripping the wall hides the river from the humming village.	Machinery plant  plant machinery	Invisible city dream of sustainability site of testing place to expose the end of millennia: dissolution of the – nature – culture - myth.
We project on your magnificent surfaces images postcards from the Rialto ruin theatre Home to the fringe arts activities below the corporate line.	inverted form. disassembled site: recycled but not renewed  Not a plan for growth but a space for lost functions and dwellers (below the cappuccino line.)	Let water do the bidding fill those structures till they drip and pour and then watch nature transform  Let the plant machine transfigure.
Place of de-gentrification Westendspace Not a six pack sea of yuppy housing	An old machine reconfigured	And in the voids grow things.  Converted gravel pit hydroponics trellises home for the co-ops reminder of Brisbane's first salad bowl.
Hard but open space celebrating the footprints of green dinosaurs.	Gravel space to event space  Sheds for local incubators feeding and recycling the peninsula via a West End market (without the façade.)	Plant Machinery Recycled.
Concrete garden worthy of exploration		

At first glance, the 'Pioneer' site may not immediately evoke poetic associations with this noisy, almost brutal site/sight of a highly technological concrete production machine. A monumental wall, large silos, crisscrossing conveyor belts, gravel, sand and dust. The process of concrete preparation makes itself heard by a distinct soundscape of crunching, rattling, squeaking, intermittent whistling, dropping and dripping, trucks driving in, trucks driving out. The site makes itself felt by clouds of sand blasting one's skin and nostrils, leaving teeth and eyes gritty. This is a dynamic, highly mobile process of sorting and transporting, shifting and sifting, mixing and stirring some of the most basic 'earth ingredients:' water, gravel, sand and lime. Factory of an ancient, humble yet resistant material.

On closer inspection of the site, a strangely poetic force reveals itself. In tandem to the noisy technological activities, natural forces are at work, quietly, incessantly, powerfully. The processes of entropy and elemental activities - rain, wind, shade and sun – carve away at this gigantic installation: sand smoothing and dusting surfaces, sculpting stalagmites and stalactites, metal rusting into richly coloured, brittle 'vol-au-vent' layers, preparing cradles for new life. Simultaneously, evolution is opportunistically triumphant: minute fern spores lodging themselves in moist, protected, mineral rich little nooks. Tender maidenhair and other ferns growing upside down from decaying metal layers on concrete ceilings, thriving, shivering, vibrantly green. A *Ficus benjamina* seed has found a nutrient rich niche at the foot of the water tank and grown into a healthy tree, closely hugging the sculptural 'Guggenheim' piece of architecture.

This ambiguously poetic 'technology/nature' dialogue/interplay of the Pioneer Site - noisy technology in process, slowly decaying, and quiet nature in process, increasingly asserting itself – has been a major catalyst for this design proposal.

### *From Machine Plant to Plant Machine*

The two words machine/plant have been instrumental in this design for the 'Pioneer' site. In a playful approach their syntax has been reversed to emphasise aspects of the new function of the site, once abandoned and transformed into a public space. Currently, the 'Pioneer' site is a *machine plant*, producing inert, hard or 'dead' material from minerals and water. By reversing the order of the two words, this site becomes a *plant machine*. Whilst the process of transporting water and minerals continues within the site, the end products, however, are living organisms: plants – from archaic algae, lichens and mosses growing in randomness, to highly evolved food producing plants in hi-tech hydroponics systems.

It is proposed that the process and design of this *plant machine* occurs at three levels of intervention or human input: minimal, moderate and high intervention, introducing a new approach to planting for public spaces. These interventions have a social implication: it is envisaged that a local culture is developed and supported through the propagating activities and users based on the neighbourhood.

*(Refer to Figures A and B)*

### *Zone 1 - Random Acts of Nature and Culture*

This zone includes the predominantly concrete surfaced area between the huge white water tank and the walled machine along Riverside Drive. In terms of the dynamic and inseparable interactions between nature and technology, this is the richest zone of the site, and deserves to be left almost untouched. Apart from making several areas safe for the public, the only direct intervention in terms of the green layer consists of grassing the currently bare earth areas and planting a few shade trees in selected spots. Indirectly, the current water dripping and its soothing and cooling sound effects is to continue within the walled machine. This may include misting devices to promote plant growth, and to perpetuate the sound and atmosphere of dripping water. Thus, the collaborative processes of entropy/erosion/decay will provide niches for new life, and transform this walled machine into a 'walled garden' or 'living sculpture' over time.

*(Refer to Figure C)*

Existing sand, gravel and other (contaminated?) recycled earth materials are piled against the walls in the north corner of the site, and adjacent to the glass factory, half burying some of the concrete making machinery. These sand and gravel hills are left open to the forces of the natural elements, making them visible over time. Emerging from Steiner's research and practice focus on toxic sites and their remediation through plants - an intense dialogue between entropy and evolution - it is proposed to closely observe and document the successive process of plant re-establishment. In the case of contaminated material present, the decontamination potential of the naturally emerging plants is assessed, thus expanding phytoremediation research, an emerging, innovative strand of environmental science to cleanup toxic sites.

Socially, this zone is seen as a space for 'random acts of youth:' roller blading, skate boarding, hanging out and other random happenings. Some 'organised' activities may include the screening of films made by unknown local talents, onto the interior wall of the machine – these are 'bring your own chair affairs.' *(Refer to Figure D)*

For experiential purposes, some technological intervention occurs within this zone: the conveyor belts are converted into walkways, and public access into the guts of the walled machine enrich the user's experience of the previous concrete preparation processes. To retain full accessibility to this three-dimensional walking network, a lift tower will be constructed near the northern end of

the main wall structure. This tower is one of the few new structural parts to be inserted into the site. (Refer to Figure E)

### *Zone 2 - Tree Colonnade*

Located between the 'zone of random acts of nature and culture' and the current sand and gravel storage area adjacent to Nott Street, this zone is seen as a major, relatively informal access node to the site. In terms of the vegetation or green layers, this area requires moderate intervention and human input until established and self-sustaining. This involves cutting long trenches into the existing concrete, and the planting of macadamia and mango trees. Avenues of mango trees in particular are traditional sights in Queensland, where the fruit can be picked and enjoyed by anyone. This resulting tree colonnade, softened by a central strip of grass, is also seen as a reflection or echoing of the concrete colonnades in Zone 1, adding a calming rhythm into this transitional space to Zone 3. (Refer to Figure F)

The notion of providing an informal, seasonal food supply fits into the mandate to provide both space and sustenance to the fringe dwellers who are currently being moved around in the neighbourhood.

### *Zone 3 - Hydroponic Plant Machine*

Zone 3 is located within the concrete walls along Nott Street and the adjacent glass factory. Completely concreted, it lends itself for a hydroponic food producing plant machine. Installation and management of hydroponic plant systems require intense human input, the opposite to the naturally evolving green layer in Zone 1. In a sense, Zones 1 and 3 exchange their current dynamics: Zone 3, previously the noisiest and busiest area, becomes an area of quietly evolving green layers, whilst Zone 3, previously a quiet sand and gravel storage area, is transformed into a hive of activity.

Industrial roofs partly made of solar panels and an irrigation system (using on site storm water, but not excluding the use of town water when required) provide shade for the plant machine. A trellis with food producing vines protects and separates the hydroponics area from the other activities on site.

The underlying philosophy to install and operate hydroponics is strongly embedded in the overall philosophy of social ecology for this site, as discussed earlier. Producing fresh vegetables and selling them in Zone 4 - the Market Square - provides work for a number of local people.

### *Zone 4 - Market Square and Recycling Warehouses*

West End has recently lost its popular market to residential and commercial developments. The existing large, low set building on in Zone 4 lends itself well for regular market stalls, to sell the fresh vegetables from the 'hydroponic plant machine,' as well as other locally grown fruit and vegetables or crafted goods. In terms of the green layers, this area is left open for the community to plant, to reflect the eclectic social fabric in West End.

The old warehouses are proposed for recycling activities: storage places or recycling stations. Over time, their use may change to other activities, depending on the needs of the West End community.

The scheme empowers the grass roots of the community by letting a co-operative refit and manage the future of the site. This takes both the process and the product of this planning process away from a corporate agenda. Precedents for this approach exist with schemes in Denmark and Holland, and even recently in Adelaide for a proposed ecologically sustainable development in the city (The Ethical Investment Brochure 2001). The scheme could be part

funded by government, as well as ethical investment trusts such as the recent Bendigo Bank/Community Aid Abroad venture.

### *Reflections on the Project*

The participants in this design team basically shared a common interest in public art and spaces, whereby each individual brought in a different focus according to interests, practice and professional background, which enriched the nature of the proposal. However, the question arises as to whether such design collaboration would be more challenging and potentially bring forth even more innovative ideas, if participants would come from less directly related professional directions, and include for example trades people and/or members of the community. Ideally, projects such as this involve the local community - people from all walks of life - in order to gauge the real needs of the different interest groups. At the same time, community collaboration can be used as an educational tool. In this design proposal for example, it could foster a better public understanding of the philosophy underlying the idea to not simply aestheticise the space, but rather let specific areas on the site evolve without much human interference, according to their own laws.

Industrial sites such as the 'Pioneer' site are fascinating and challenging projects, as they embrace many layers of dynamics. In terms of developing a proposal at a conceptual level over three days is seen as a minimum time frame. To understand a site of this complexity within such a rich urban texture, more time is required to do justice to the site, the community and hence the design. Periods of reflection are seen as essential moments in any thoughtful design process.

The concept of transforming industrial sites into public space is relatively new for Brisbane, although the development of the old Powerhouse in New Farm into an affordable, community oriented, fringe art and performance precinct is seen as a start in this direction of recycling abandoned sites in the urban context. The proposal for the 'Pioneer' site is seen as a further evolution from the Powerhouse, in that it is a complementary, yet contrasting type of event space. In terms of the planting strategies proposed in this project, the planting approach departs from the usual, traditional 'park,' which is seen as a challenge and at the same time an educational approach for the community.

### *Conclusion*

This proposal for the 'Pioneer' site is seen as an innovative approach to transform an industrial site into a public space for Brisbane. It offers new ways of experiencing a defunct industrial site i.e. experiencing the actual technology of transport on conveyor belts, by walking through the 'guts' of the machinery. At the same time, this proposal makes visible the *insane dance of entropy and evolution* - decay and new life intrinsically connected - thus offering the public a new way of seeing and experiencing nature, learning about its incessant evolution, resilience and strength. From this interactive technology/nature perspective, the site has the potential to become a highly educational space, potentially raising public awareness about ecological processes and evolution.

From a purely aesthetic perspective, this proposal is also seen as potentially educational, as the traditional concept of art - expressed here particularly in the realm of public planting design - which aestheticises and harmonises everything, is deeply challenged. Here, the aesthetics are not strikingly obvious throughout the site, especially in the 'random acts of nature' zone, rather they need to be found through the eye of the beholder.

The social agenda of the scheme proposed is perhaps the most extreme departure from conventional site planning: in searching for spaces of radical openness, and a process that resists gentrification by empowering the disenfranchised to help make decisions and take control, there is a quiet revolution. To reclaim the civility and communality of place is a struggle for empowerment in urban design. These struggles will be hard fought, one site at a time,

neighbourhood after neighbourhood. For this schematic paradigm to have integrity, the local disempowered groups of West End would have to have a collaborative role in design and planning, and their input would be decisive for the final priorities and activity mixes. The role of the designer becomes one of facilitator and enabler, rather than controller, which represents a fundamental but necessary shift in the psychology of the professional designer.

The scheme, in conclusion, is an aesthetic, social and perceptive challenge to the status quo of urban renewal, and it is envisaged that the new ways of seeing nature and technology, like the ferns nestling in corroding, fertile spaces, will eventually settle in the corroding, fertile public mind.

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