STEFAN VAN BILJON
STUDENT NUMBER: VBLSTE004

DESIGN REPORT

KL-METAMATIC
GHOST SHIP

Submitted in partial fulfilment of the degree Master of Architecture (Professional)

University of Cape Town, October 2010

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PART 02

TECHNOLOGY RESEARCH PAPER: SOFT MACHINES

PART 03

GHOST SHIP: GUESTHOUSE FOR AN ANCIENT MARINER

PREFACE

This report documents my thesis in three parts. The aim is to provide a comprehensive representation of the project's development from theoretical beginnings to architectural detail.

The theoretical ideas underpinning my design were developed in two complementary papers, *KL-Metamatic* (theory) and *Soft Machines* (technology). Three primary interests were identified:

1. The search for a design approach aimed at a more personal experience of space.

The goal was to develop a design approach that may allow occupants to rediscover their own imagination and senses through direct engagement with an atmospheric site.

2. The use of site as an *a priori* program.

My interest in phenomenology and the subconscious was developed through a site. KL-Berth, located within Cape Town's Duncan Dock, was selected on the strength of its *surprising* atmospheric richness, movement and personal significance for the researcher. The letters K and L indicate the berth's position along the terminal.

3. To work in the spirit of *techné*.

Techné, in the true sense of the word, refers to the act of uncovering the *mysterious*. Such experiments bear testament to a rigorous process of self-discovery through invention. This is a function of both craftsmanship and imagination. Experimentation is emphasised over preconception.

A series of abstract drawing- and model building experiments were conducted to stimulate my subconscious mind, more sensitive to spatial phenomena. The aim was to think through the hands and an activated subconscious to unlock unexpected results.

A similar procedure was applied to KL-Berth to discover a program, rather than predefine it. An attempt was made to literally *draw* program from the site.

Constant experimentation and drawing led the project down unexpected paths. Through focused risk-taking, the design evolved directly from the ideas examined in the Theory and Technology papers. To illustrate the development of my theoretical interests into a design, these papers are presented in their entirety as Parts 01 and 02 of this report.

Part 03 introduces a narrative (time-based) program developed for KL-Berth. The program, generated directly from the site, is designed to amplify the atmospheric qualities of the place.

A "client" personifying the site's eccentricities, was invented to narrate the program and provide a pretext for building. Storytelling became an important characteristic of the project. ■

PART 01

THEORY RESEARCH PAPER

KL-METAMATIC

"The most beautiful experience we can have is the mysterious. It is the fundamental emotion which stands at the cradle of true art and true science. Whosoever does not know it and can no longer wonder, no longer marvel, is as good as dead, and his eyes are dimmed." - Albert Einstein (quoted in: Kaku, 2006; p. 343)

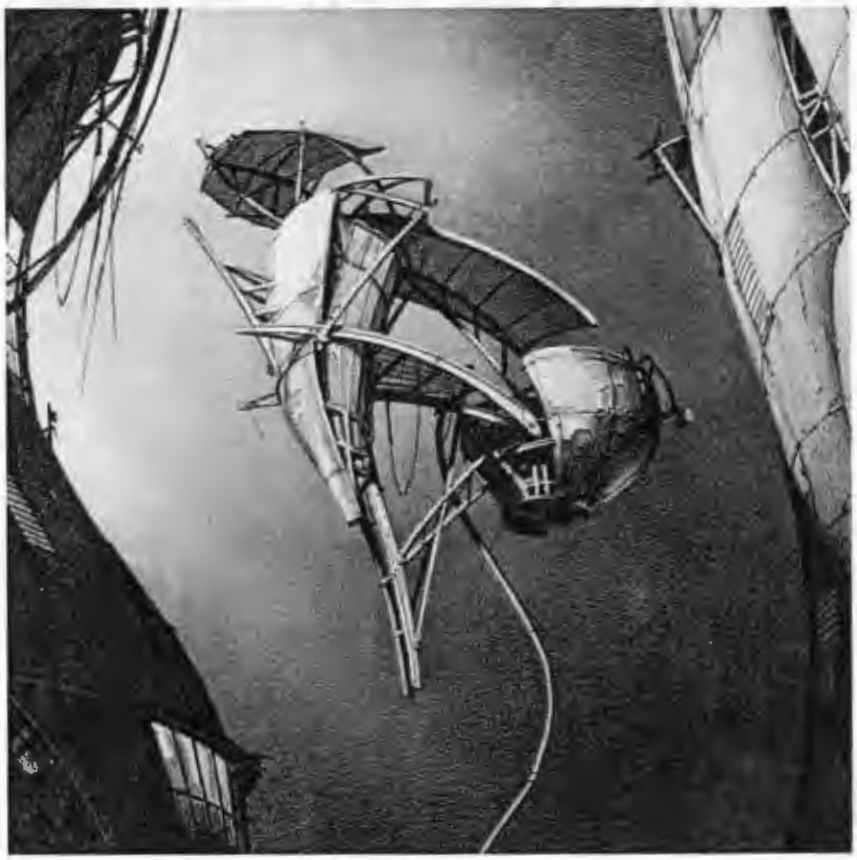

Fig. 01. *Photon Kite* by Lebbeus Woods (1988)

PRETEXT

This paper documents the search for a design approach aimed at a more personal experience of space. Movement is argued to be a key to spatial experience that actively engages the *imagination* of occupants.

There is a concern for the way in which perception works. In this paper, it is argued that spatial experience is formed in die blind spot between environmental input and the subconscious. An attempt to activate the subconscious *directly* through architectural space might help to produce a more elusive, personally affecting architectural experience.

The machine is used as an architectural metaphor for movement. Machines convert energy from one form to another. In the context of this investigation, potential energy is stirred to action. The aim of the project is to formulate an approach to space-making that allows occupants to rediscover their own imagination and senses through action.

Small pleasures, often unnoticed or forgotten, may be rediscovered. This might mean taking notice of a particular light-effect or shape for the first time. Consciousness expands in small steps. Perhaps, with compounded interest, the city itself may be experienced through new eyes. These eyes, synecdochous to the entire *being*, is what Juhani Pallasmaa refers to as *The Eyes of the Skin* (Pallasmaa, 2005).

This paper explores the outlined interests through a site, chosen for an actual architectural design. KL-Berth, located within the Duncan Dock at Cape Town harbour, was selected on the strength of its atmospheric richness, movement and personal significance for the researcher (discussed later). The letters K and L indicate the berth's relative position along the terminal.

The concept of *techné* is referenced throughout this paper. The term refers to the act of learning through the hands. This approach to *building* knowledge applies lessons from a variety of fields, often distant from architecture. I propose that this approach is appropriate in the pursuit of a more direct experience of architecture. The suggestion of surprise, due to unlikely connections, becomes equally important. ■

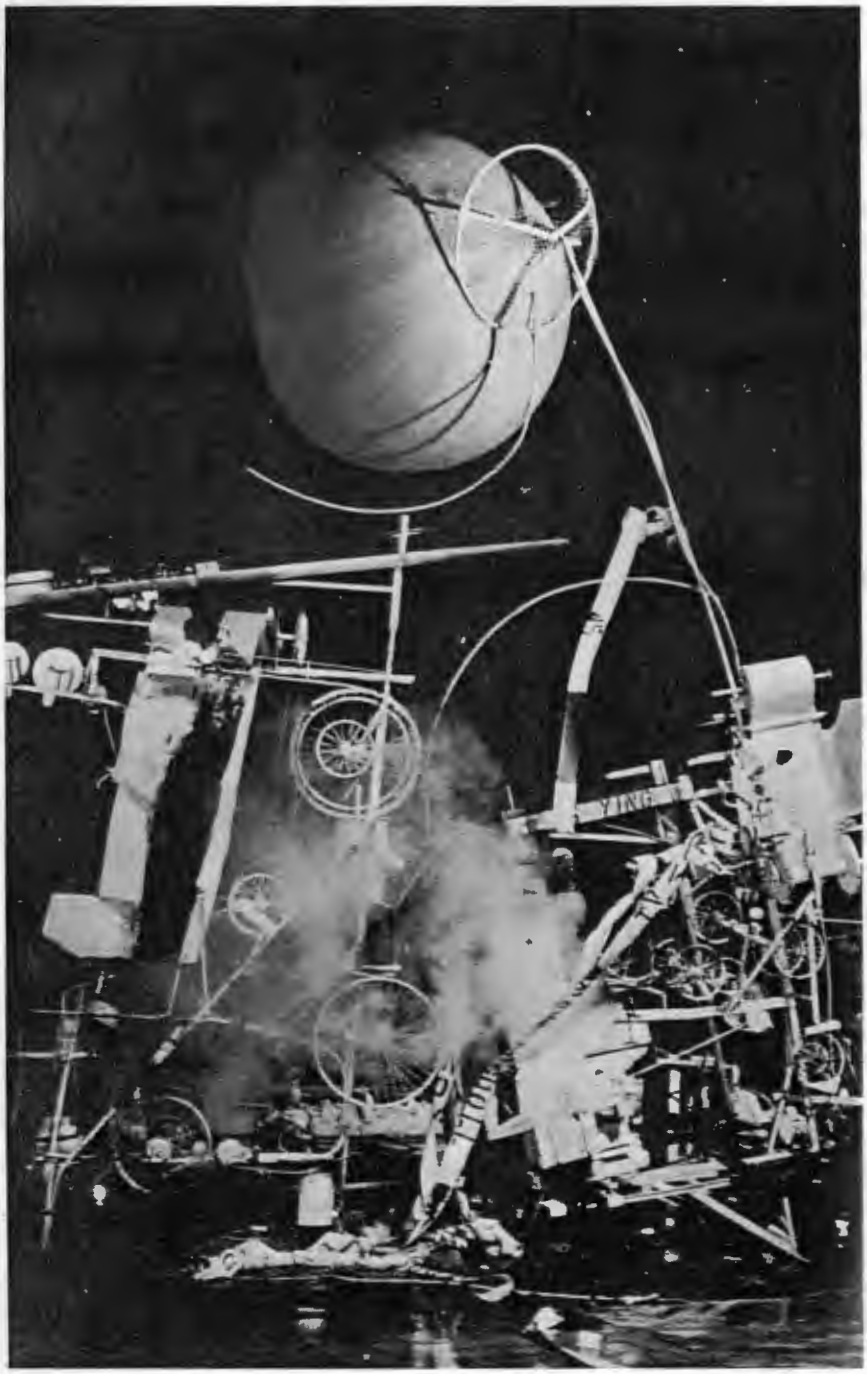

Fig. 02. A *metamatic* sculpture by Jean Tinguely

INTRODUCTION

This paper will look for creative resonance in mechanical form - a phenomenology of technology that reveals a glimpse of the unseen. In its original sense, *techné* represented humankind's drive to uncover the nature of existence through invention. This was a function of both craftsmanship and imagination.

Since our earlier experiments, this spirit of imaginative risk-taking has given way to economic determinism. This project is undertaken in the original spirit of *techné*. Experimentation is emphasized over preconception. This is not a nostalgic pursuit, but as an attempt to recapture the machine's role as an instrument of revelation, discovery and wonder.

The role-reversal of fiction and reality, perhaps the defining aspect of modern life, shifts our perception towards the cybernetic. Borders demarcating inner and outer landscapes dissolve and authenticity is no longer a matter of defining this distinction. For me, authenticity resides in the pleasure of using my hands to invent.

I pursue architecture that engages both the imagination and the senses through participation. An appreciation of technological beauty beyond utilitarian concern is suggested. Oscillating between playful mechanics, the surreal, and a love-affair with context; presence (the here and now) is highlighted. The aim of this paper is to explore the *intentionality* of the machine. Intent movement may allow structure to not only generate its own program – but to become it.

Kinetic sculptor, Jean Tinguely used the term '*metamatic*' (beyond mechanical) to describe his inventions. Driven by asynchronous gears, sputtering lawnmower engines and humour in good measure, his machines come alive to physically engage the human world. This project is an attempt to pursue a similarly *metamatic* architecture. Beyond utilitarian validation, it favours emotional affection and self-discovery.

The resulting design would represent an attempt to condense and amplify the experience of a specific, phenomenologically rich site. The idea is to create a platform where man, machine and nature may be resynchronized in *unexpected* ways by employing strategies of chance and surprise.

The design, envisioned as a building-machine, aims to challenge the assumptions of a sleepwalk existence. However fleeting these moments may be, architecture on KL-Berth must affect its users on an emotional level. Perhaps through a recognition of fleeting moments, the city itself may be seen from a fresh perspective.

Fig. 03. KL-Berth, looking northwest (Duncan Dock, Cape Town harbour)

This paper is presented as a conceptual pretext for such a design. Research cannot pretend to establish a 1:1 relationship to design. The function of theory is to allow design to take place in a considered manner. It underpins the work in *spirit*, rather than direct application. The design will engage the outlined interests in a practical, experimental fashion.

The text provides a cross-section through a broad, but related range of interests that underpin my approach to architecture. Four broad interests establish a thematic undercurrent for the project:

1. The selected site at KL-Berth, located within Cape Town's Duncan Dock.
2. A fascination with technological artifacts (big machinery, industrial ruins and techno-hieroglyphics).
3. Cybernetic theory (collapsing relationships between man-machine, real-virtual).
4. The found object. This concept relates to the potential of chance to allow the unseen/unnoticed into the creative process. In the context of this project, the investigation of chance makes no distinction between design process and built experience.

Chance has been used as a revelatory mechanism in a range of creative fields from art (Dada, Surrealism) and music (John Cage) to literature (William S. Burroughs). Working in a discipline of control, the cultivation of surprise as a strategy might seem anathema. However, if preconception is subdued in a directed fashion, these experiments may become a laboratory for new forms and possibly, new ways of arriving at program. Form becomes an *a priori* program.

At first glance, chance and design seem to be diametrically opposed. This paper will examine the terms as two aspects of the same whole. The role of subjectivity versus the illusion of unquestioned "correctness" is architecture's Janus face[1].

I suggest that chance is an essential working condition for architecture. By way of simultaneity and environmental incidence, it underpins our perception of space (Manolopoulou in Borden et al, p. 257). A concern for indeterminacy acknowledges the fact that architecture is played out in *time*. Chance, coupled with the time dimension, describes an experience of space not easily captured in architectural representation. In this paper, the awareness of such unseen forces is referred to as a *hyper-dimensional* experience.

[1] Janus, the Roman god of *gateways* (transition from one world to the next), is an appropriate patron for this project. The mirror plane he guards is the area of my architectural interests. The mirror concept is reiterated throughout the paper.

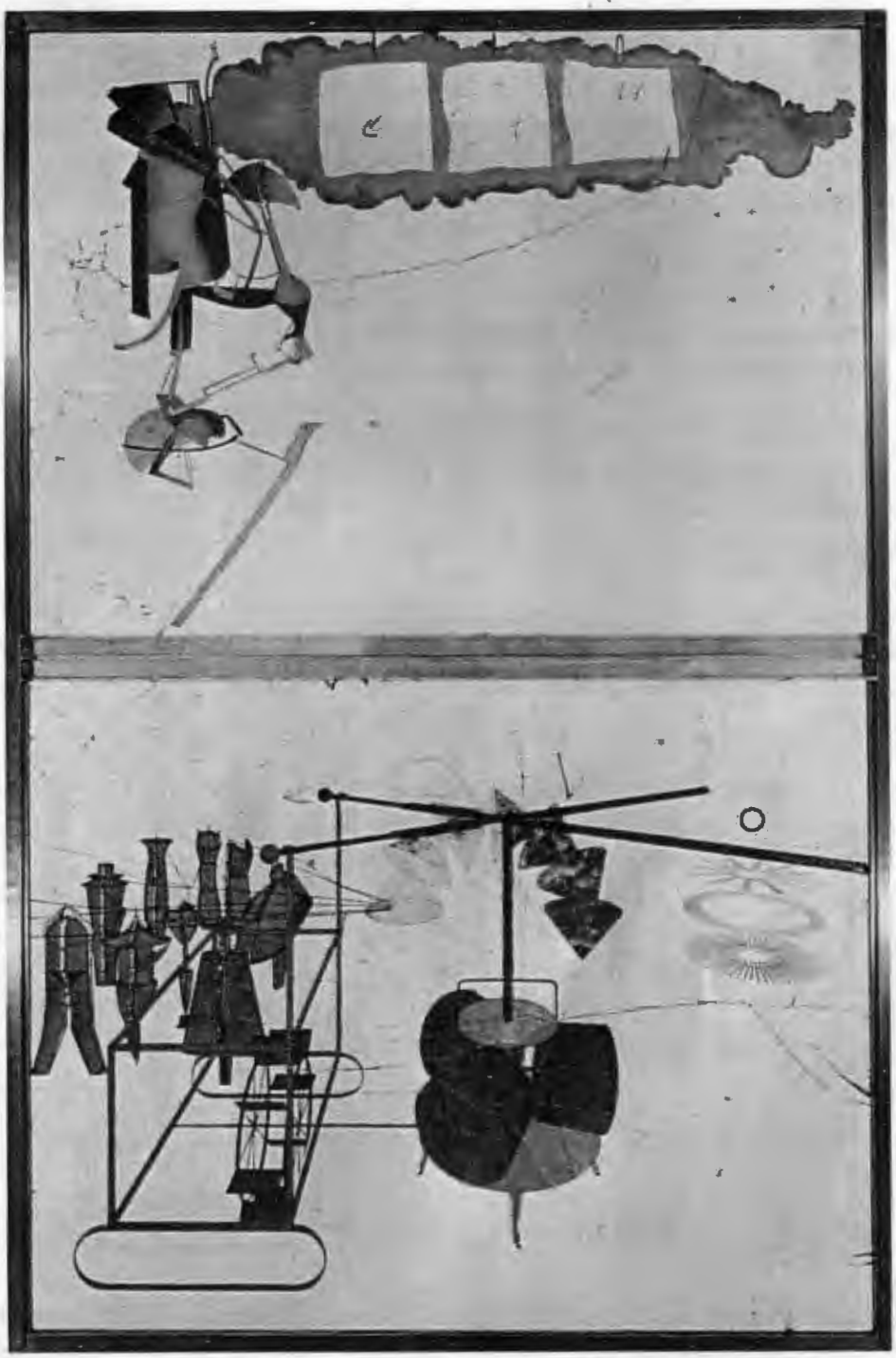

Fig. 04. *The Large Glass (The Bride Stripped Bare By Her Bachelors, Even)* by Marcel Duchamp (1915-1923)

Can the incorporation of chance in the design process attempt to capture something of an immensely complex reality? The ultimate aim is to open up the design process in pursuit of unknown trajectories. Direct participation and surprise may subvert regressive behavioural codes, thereby breaking down the barriers between art and life; imagination and participation. Yeoryia Manolopoulou argues that through an investigation of aleatory procedures architects can *"more profoundly consider the non-optical accounts of space, the issue of inhabitation and the unpredictable lives of their buildings."* (Manolopoulou in Borden et al, p. 261).

A fascination with Marcel Duchamp's *Large Glass - The Bride Stripped Bare by Her Bachelors, Even* (1915-1923) fuelled my own interest in the unseen forces underpinning spatial experience. Duchamp depicts strategies beyond visible perception as a game of indeterminacy. Without saying a word, the *Large Glass* draws the observer into its world. Imaginative participation is required to unravel a mysteries set of visual cues. These cues, in turn, also allow the observer to project personal associations *back* into the work. The observer's experience of the object moves beyond physical presence, into the deeper reaches of the subconscious. Unseen dimensions are activated to create a highly personal encounter between observers and object. Duchamp's work is referenced throughout the paper as a paragon of hyper-dimensional thinking that invites participation.

I argue that through an acceptance of imperfection and chance, architecture may truly empathise with the human condition. Underpinning the quest for a synthesis of art and life, imagination and tactile reality is the knowledge that it is ultimately impossible to do so. Ironic as it seems, this realisation is not self-defeating. Like the inconclusive game of seduction in Duchamp's *Large Glass*, aspiration and unfulfilled desire can serve to test the limits of experience in search of something more – the uncanny. The immense complexity of existence can never be fully synthesised. It is the *process* of discovery that is important. Indeterminacy becomes a basis for invention.

Fig. 05. KL-Berth located in the Duncan Dock, Cape Town harbour

2 KL-BERTH
2.1. TWISTED METAL

This project began with a vivid childhood memory. Driving with my parents across Cape Town's industrial landscape, the harbour was a source of constant fascination. This was a living landscape, a habitat for metal mammoths and a stop-off for strange vessels on a voyage into the unknown.

One landmark in particular captured my imagination, as it continues to do so in its conspicuous absence. Revealed through stolen glimpses from the highway was a titanic mountain of decaying technology[2]. Capturing varying degrees of corrosion and distortion, the scrap-mountain was hauntingly beautiful. Twisted forms described imaginary spaces and evoked half-remembered dreams. Was this landscape evidence of or inspiration for some unfamiliar form of inhabitation? Even stranger, the spaces were the result of *accident* – the afterthought of a long day's work behind the forklift console.

Like a magic mirror, the forms reflected my own imagination fused with the environmental phenomena of the site. Inner and outer landscapes seemed to merge. This fascination with fantastic form was complimented by an interest in the imagined origin and destiny of inert objects – dead matter alive with imaginative potential.

[2] During a meeting with civil engineer Steven Bentley (resident engineer at the V&A Waterfront) on 18 March 2010, I learned that this mountain on KL-Berth comprised more than 130 000 tons of scrap steel. Large amounts of steel were scrapped during the early 1990's following a downturn in local machine manufacturing for the South African railway industry. The material was stockpiled on KL-berth before being exported for use in Far Eastern automotive industries.

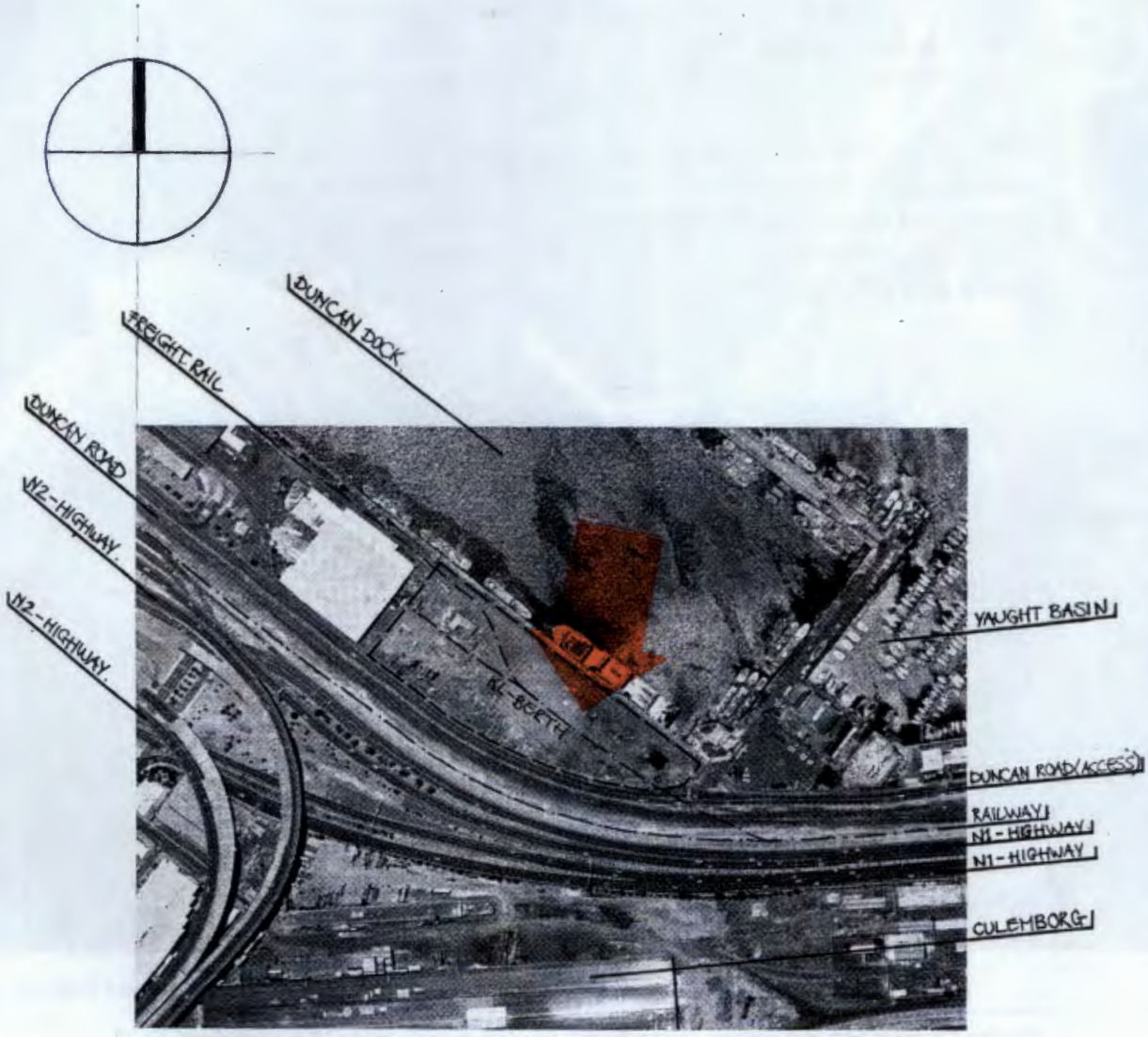

Fig. 06. KL-Berth site context

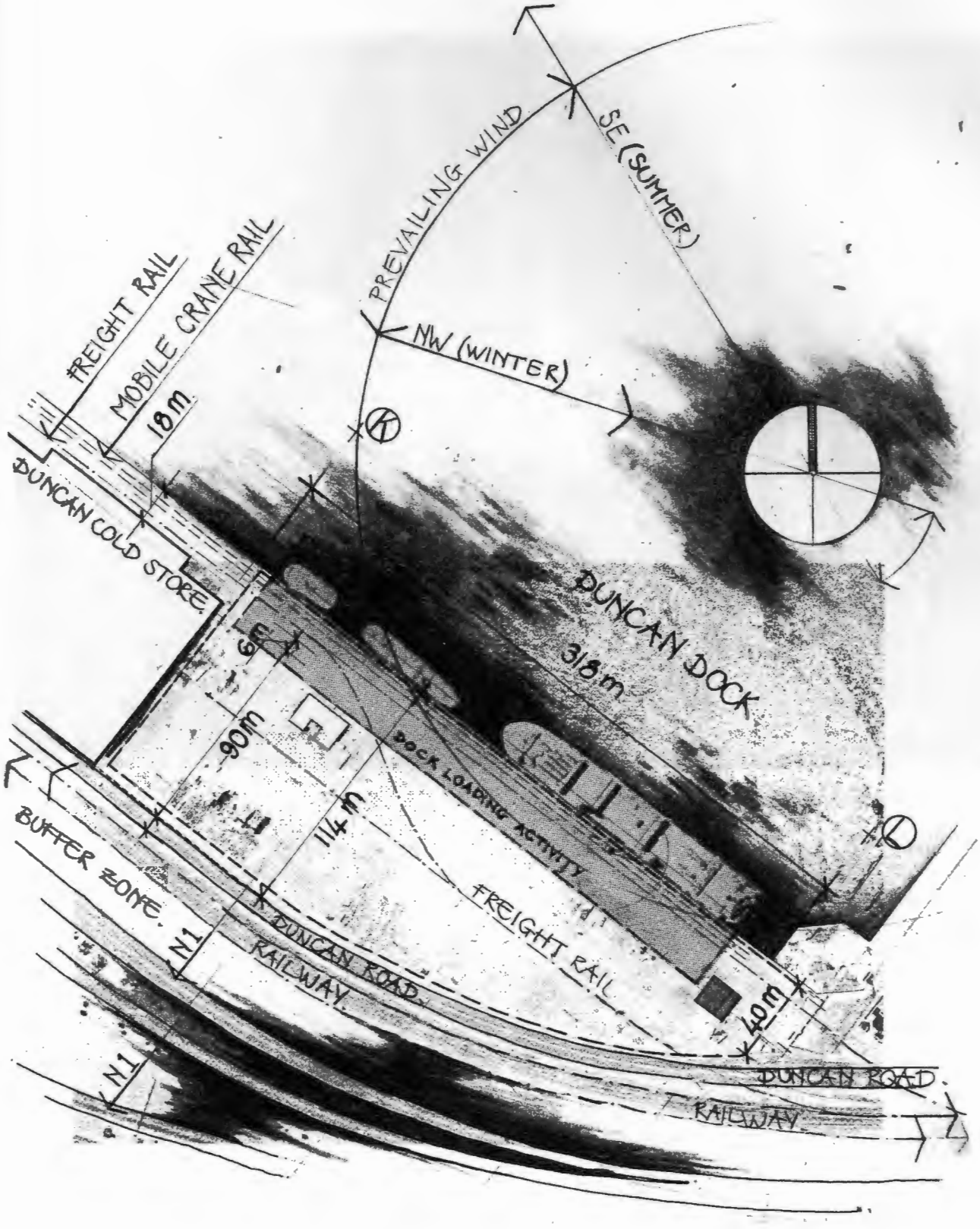

Fig. 07. KL-Berth site diagram

Fig. 08. View into harbour from KL-Berth (looking north)

2.2. GROUND ZERO

My instinctive attraction to the site at KL-Berth springs from its ability to straddle worlds. This is compounded by its transitory location on the water's edge. KL-berth exists in what is essentially a wholly artificial landscape, reclaimed from the sea during the Second World War[3]. The site's geographical position, once an anonymous point in open water, became the city's edge. It is a *ground zero* literally holding back the sea from flooding the city.

The implicit violent tension between an artificial industrial landscape and natural forces is an important consideration in my development of the site. There is a relationship between the destiny of decaying artifacts, dumped on the site, and the history of the site itself. Form mutates from one shape and meaning to the next. Similarly, KL-Berth was alchemically transmutated from one state to another (water to earth).

The site is described by a type of reverse archeology. Layer upon layer of detritus from somewhere else is deposited and left in transit, before being moved further along its journey (dredged material to create foreshore, scrap metal). Foreign elements, incorporated as part of the site's narrative, are an intrinsic idiosyncrasy of KL-berth. The site, never a permanent home to person, artifact or even nature, is in all regards a place of transit[4].

[3] Planning for the Cape Town foreshore reclamation started in 1937 (from interview with Steven Bentley, resident engineer at the V&A Waterfront). Work on the Duncan Dock commenced in 1938 and was practically completed in 1945 with the official opening of the Sturrock dry dock. Source: *Cape Town Information* website: History of Cape Town. URL: http://www.cape-town.info/cape-town-information/history-of-cape-town/history-of-cape-town.php (accessed on 13 May, 2010)

[4] A *meta-site* that describes other conditions.

Fig. 09. Scratched surface, KL-Berth

Fig. 10. Found objects, KL-Berth

2.3. THE PERSISTENCE OF MEMORY

Time does not pass through the site without leaving a mark. In the same way that cosmologists construct theories regarding the universe through a process of empirical deduction, KL-berth's history is evidenced in its effect. We can not see dark matter or black holes, but we know they exist because we can observe their *effects*[5]. The invisible forces governing the fate of KL-berth are perceptibly manifested as scars and traces.

The scrap-mountain is long gone. It survives on the site as wounds inflicted by the impatient bite of front-end loaders, anxious to make room for a waiting line of sojourners (marine vessels, cargo, a film set[6]).

> *"If architecture is to be of any use in contemporary society, it must be much bigger than the vicissitudes of the Spectacle. If it has any importance left, it must help us remember not in a specific way, although it is often called upon to do so, but in an enigmatic, empathetic way."* (Spiller, 2006; p. 166)

At the deepest level, the project is concerned with time. History on KL-Berth is not a distant event, but an ongoing process of redefinition. I am concerned with tracing the effects of time within built structure, not as a sentimental veneer but a veritable *material.* Structure may be animated to speak for itself.

Marcel Duchamp worked on *The Large Glass (The Bride Stripped Bare by Her Bachelors, Even)* on-and-off between 1915 and 1923. Dust, accumulated on the work's surface during prolonged periods of non-activity was used by Duchamp as a material. In the artist's absence, time's effect is evidenced as both a destructive and creative force.

Like the accumulation of dust on the *Large Glass*, the creative process at KL-Berth cannot stop when the architect lays down the pencil.

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[5] Dimensional distortions and light anomalies.

[6] The 2005 film *Lord of War*, directed by Andrew Niccol and starring Nicolas Cage, was partly filmed on set at KL-berth. Peter Fortune, a manager at Transnet's Multi-Purpose Terminal (of which KL-berth is a part), remembers that the site was used to film a number of scenes, each set in a different global context. Even in fictional narrative, KL-berth is incapable of claiming a fixed identity.

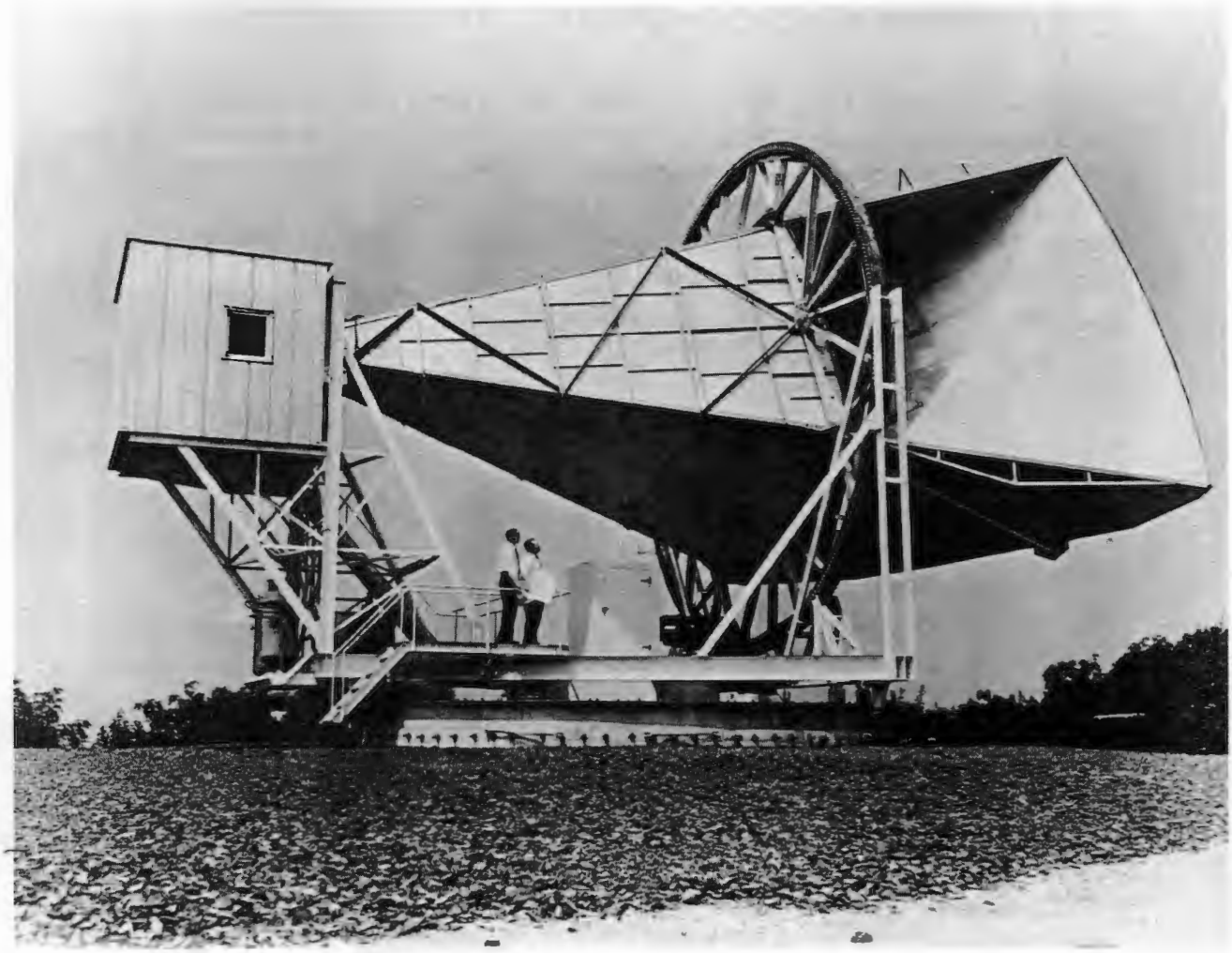

Fig. 11. The *Holmdel Horn Antenna* (New Jersey) registers invisible cosmic background radiation

2.4. REAWAKENED AWARENESS

I argue that ambivalence works at the heart of architecture. It is not an empirical process, but a precise delineation of imprecise conditions. To communicate the complexity of existence, seen and unseen, architecture must come to terms with this ambivalence. The illusion of "correctness" may be questioned by imbuing built form with a degree of self-awareness. This becomes possible by making overt reference to structure's own process of coming into *being*. By revealing the invisible forces that give shape to experience, the participant is presented with the opportunity to complete the creative process. This is done in the absence of the architect through active engagement.

Cut off by water and highway, KL-berth is a concrete island. To reach the site requires a pilgrimage. This journey produces a critical distance from the rest of the city.

A *monastic* association is evoked. The site is a place of contemplation where the body is reconnected to the senses. The monastic association extends to a concern for experiential metaphysics (inner and outer landscapes). On the island, sound seems louder. The sense of smell is heightened. Vision is reintroduced to the rest of the senses. The atmosphere is *felt*, experienced through the body[7].

As a non-place of industrial infrastructure, KL-berth is an unlikely site for public program. As such, it is charged with strange new sensations. Presence is constantly highlighted by movement generated on site.

[7] During my first all-day site registry of KL-berth (after a prior, brief visit for introductory purposes), I was struck by the amplified clarity of sound on the terminal. The effect of foghorns blaring through early-morning fog is compelling. The fog produces a degree of visual "white-out", amplifying awareness of the other senses.

Fig. 12. Charged atmosphere: Lightning strikes a NASA launch pad north of Cape Canaveral, Florida

3 METAMATIC PROGRAM
3.1. CALL AND RESPONSE

This project documents the search for an understanding of program in the age of virtual dissolution. I am looking for an approach to program that befits the spirit of the post-industrial city – a place shaped by the *becoming* of invisible forces (information, desires, a machine cycle). Such forces may be intercepted and converted into motion to transform imagination into a tactile spatial experience.

The aim is to create a program of its own time i.e. to generate program on site and of the site through an indefinite process of renewal and replacement. Time *is* the program at KL-Berth. This is expressed as structural animation and a tracing of time's effects at different scales.

Program is self-generated out of a metabolism of two systems: one propositional and the other, reactionary (next page).

Propositional: A *metamatic* laboratory (junkyard, workshops and train sent out to scavenge and retrieve discarded technology). Experimental constructions or *modules*, partially manufactured from salvaged material on site, are inserted into a docking station for "field testing". The modules represent spatial relatives of associations made to the ready-made construction material at hand. They are designed as effects machines for the rediscovery of the senses.

The program is literally built from the site as an assemblage of found elements. The architect initiates this process of organic evolution documenting the passage of time in built form. For this purpose, actual objects found on site or imported from elsewhere, are documented, interpreted and incorporated into the design of an initial set of event-modules.

As the initial modules are replaced by newer additions, they may be transferred to remote locations as enigmatic connections to the site. The railway can be understood as a link to remote locations enabling the site to literally extend its fingers beyond its physical boundary. As the material originated from somewhere else, it is appropriate to complete the circle by sending the transformed matter back into a wider context ("a letter from home").

Space is organically bred by desire and expediency. The modules appeal to the personal memories and associations of visitors. Experience is found somewhere between given information (structure, representation) and the imagination. To this effect, representation will attempt to simulate the experience of *visiting* the project in person.

Reactionary: The idiosyncratic modules relate to public engagement and are installed as effects machines on a three-dimensional pier. Visitors themselves do not assemble the modules. Direct participation in this context refers to imaginative and physical engagement with structure (designed and pre-assembled by architect and specialists).

The pier itself is a "docking station" for the revolving line-up of event-modules, engaging the site's water/land threshold and atmospheric conditions.

This pier would be an "imagination theater" where visitors themselves are cast as performers. By breaking down the barrier between spectacle and spectator, the spectacular becomes *Carnivalesque.* Regressive behaviour is subverted through psychodrama. Mikhail Bakhtin (Bakhtin, 1984) theorises that the Spectacle's transformation into *Carnivalesque* occurs in an atmosphere of *removal (reality suspension).* Again, the monastic reference becomes important. The intention of a pilgrimage to KL-Berth is however more sensual than spiritual[8].

> *"[The] unfinished and open body (dying, bringing forth and being born) is not separated from the world by clearly defined boundaries; it is blended with the world, with animals, with objects."* (Bakhtin, 1984; p. 26)

The *Carnivalesque* is concerned with a reawakened awareness of the body and the senses. It is a revolt against repressive social codes. To create this type of experience requires a dramatic shift in perception. Space must be evocative and unique to produce such a moment of awareness. Reality is temporarily suspended, ironically, to understand it better. Experience is valued on its own terms. KL-Berth's isolated, *anti-place* character suits this purpose as it enables unexpected experience (new sensations – sights, smells, sounds).

[8] Perhaps akin to François Rabelais' *Abbey of Thélème* from his 16th Century satirical novel, *Gargantua and Pantagruel.* Rabelais describes the Abbey of Thélème as an anti-monastery built by Gargantua the giant. This was a free space where imagination creative pursuits were directed toward productive ends.

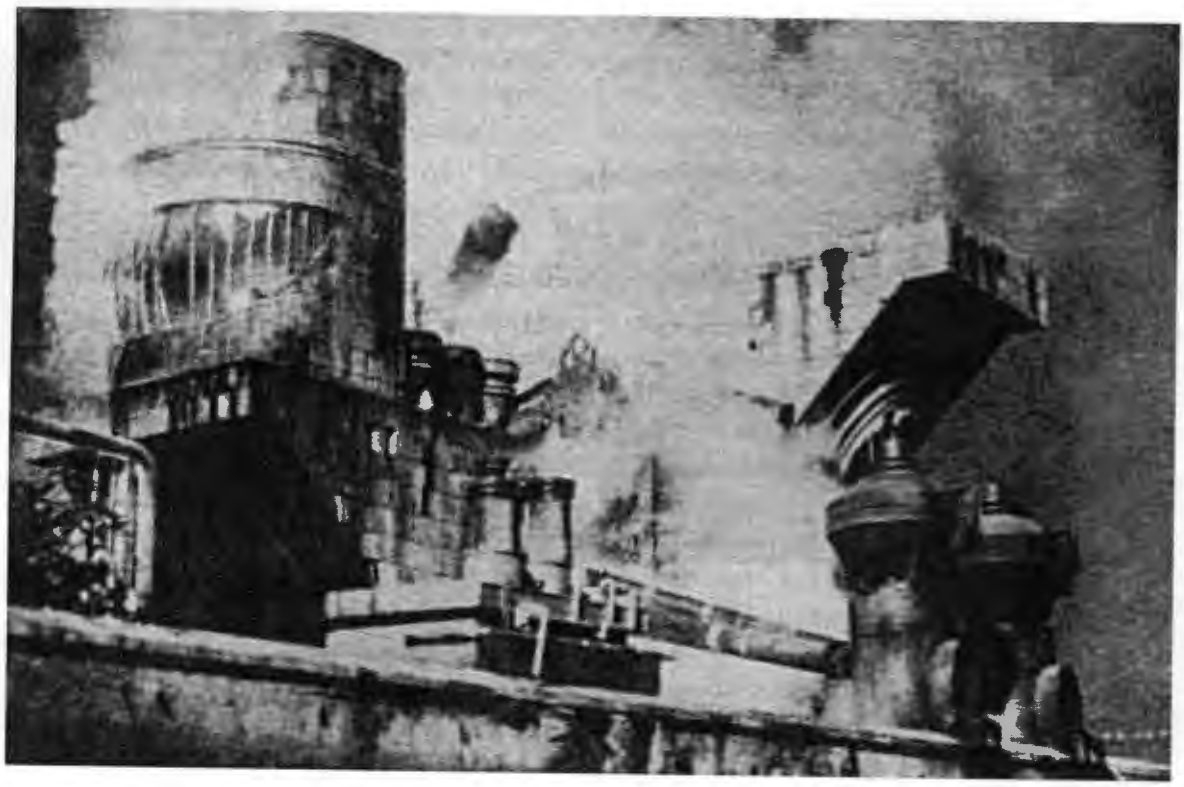

Fig. 13. Anton Furst's atmospheric chemical factory from the 1989 film, *Batman* (dir. Tim Burton)

Transnet currently uses KL-berth as a project cargo terminal for big machinery, military hardware and construction-related cargo[9]. Only a narrow section along the water's edge is used for this purpose. The site's shape, a triangular wedge, makes the rest of the terrain unviable for container storage. I intend to retain the site's current use, overlaying the proposed program onto existing animation.

The building-machine is a vehicle for discovery. The heuristic program represents an approximation of circumstance. It is sympathetic to a human condition rife with mistakes. A new perspective on urban experience requires the involvement of the imagination and all senses e.g. to listen to a distant foghorn heralding the arrival of a vessel veiled in early-morning mist; or to notice a particular light effect.

Experience is revealed in seductive glimpses. This strategy favours a system of *anticipation* and *reward* over gratuitous overexposure.

This is the advantage that architecture has over visual media. Its impact does not need to be abbreviated to a single image. Space can reveal itself through movement to communicate on a highly personal level. Dramatic timing is a crucial factor in the creation of such a vivid experience.

[9] Examples include a pre-assembled Antarctic base, Gryphon fighter planes and the steel trusses for the Greenpoint Stadium. Since 1964, KL-berth has also been used as a logistics base for Far Eastern fishing industries. The Duncan Cold Store adjacent KL-berth is used for temporary storage of very high-grade sashimi for the Japanese market, not for retail in South Africa.

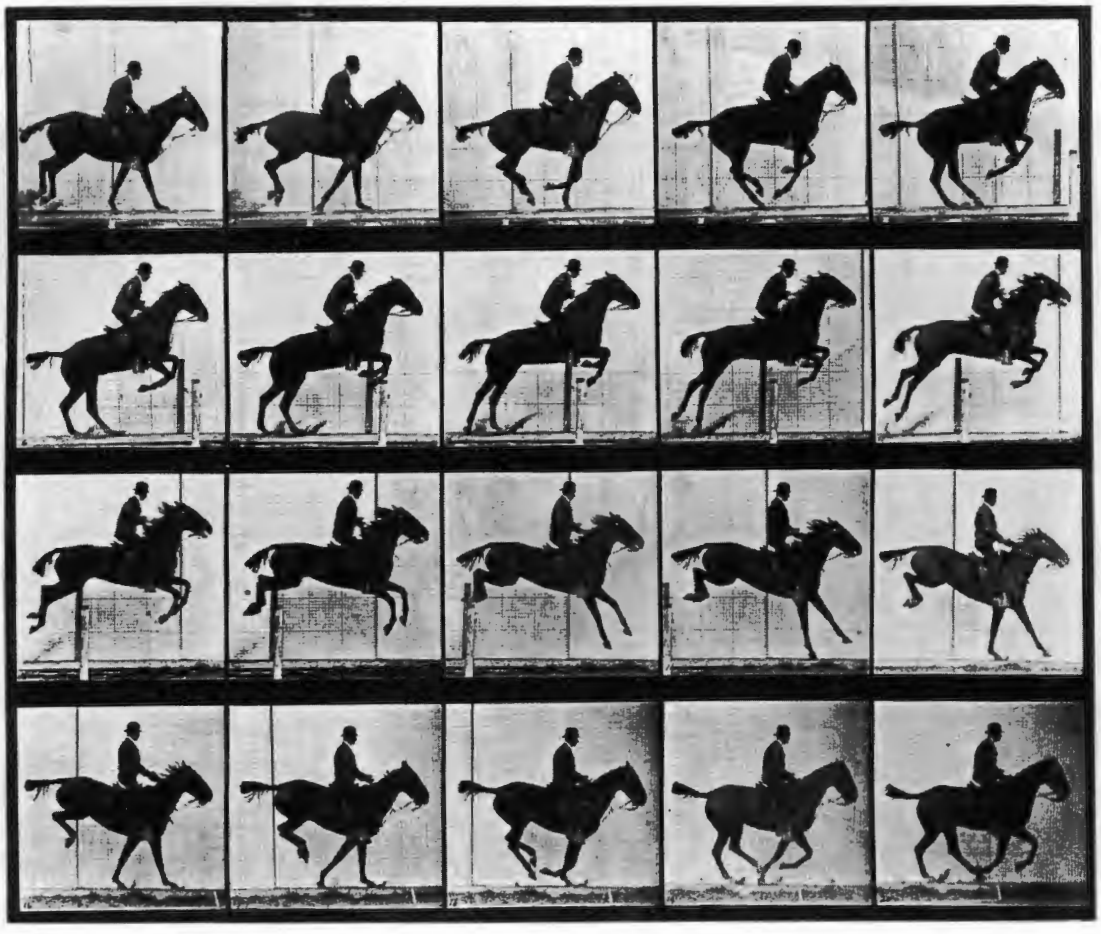

Fig. 14. Photo series of a horse in motion by Eadweard Muybridge (~1878)

Fig. 15. Multi-phase photo of a pelican landing, captured by Étienne-Jules Marey (~1882)

3.2. MOTION CAPTURE

Movement at KL-Berth is to be generated and captured at the following scales:

1. The project documents its own design process. Instead of mimicking design drawings verbatim, the aim is to sustain the energy released during the design process through the physical act of *drawing*. Evidence of origins is scarred into built fabric through a representational strategy.
2. Immediate use is expressed spatially through visitors' interaction with event-modules.
3. Daily use is expressed as response to climatic and tidal conditions. This extends to seasonal use-patterns.
4. Long term use is documented by a revolving line-up of event-modules.

Natural weathering processes are to be embraced, rather than fought. Corrosion and the accumulation of barnacles enhance the organic metamorphosis.

The result is an architectural special effects machine, public spectacle (*Carnivalesque*) and environmental indicator in equal measure. The odd contraptions of Heath Robinson and Rube Goldberg come to mind. The cartoon machines invented by these two artists perform very simple tasks by way of elaborate chain-reactions. Of importance to my own work is the *spirit* in which these machines are presented. It is not the result that is important, but rather the *process*. Each machine is a journey of discovery, drawing the observer directly into the action. Imaginative engagement is essential to the effect.

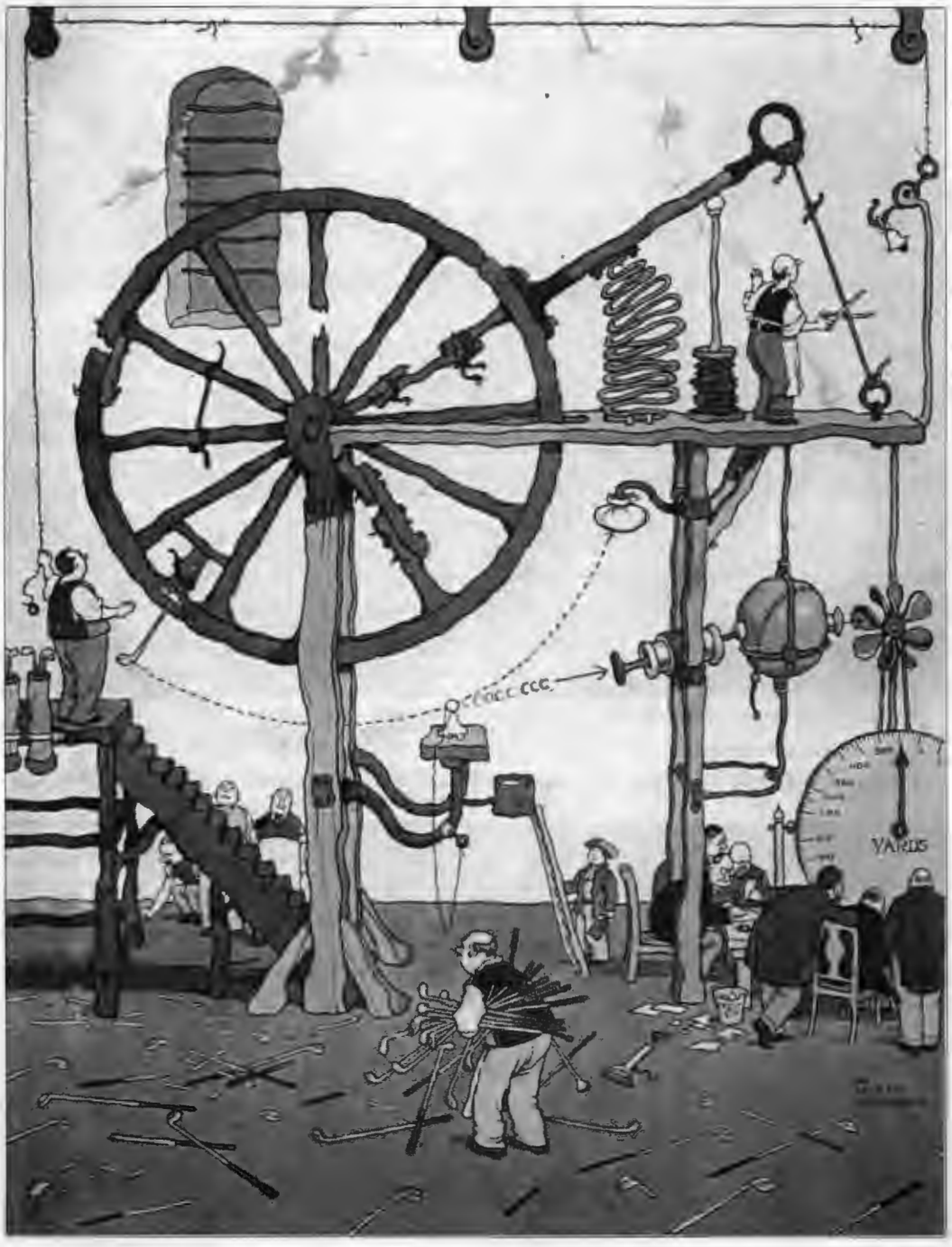

Fig. 16. *Testing Golf Drivers* by W. Heath Robinson (1872-1944)

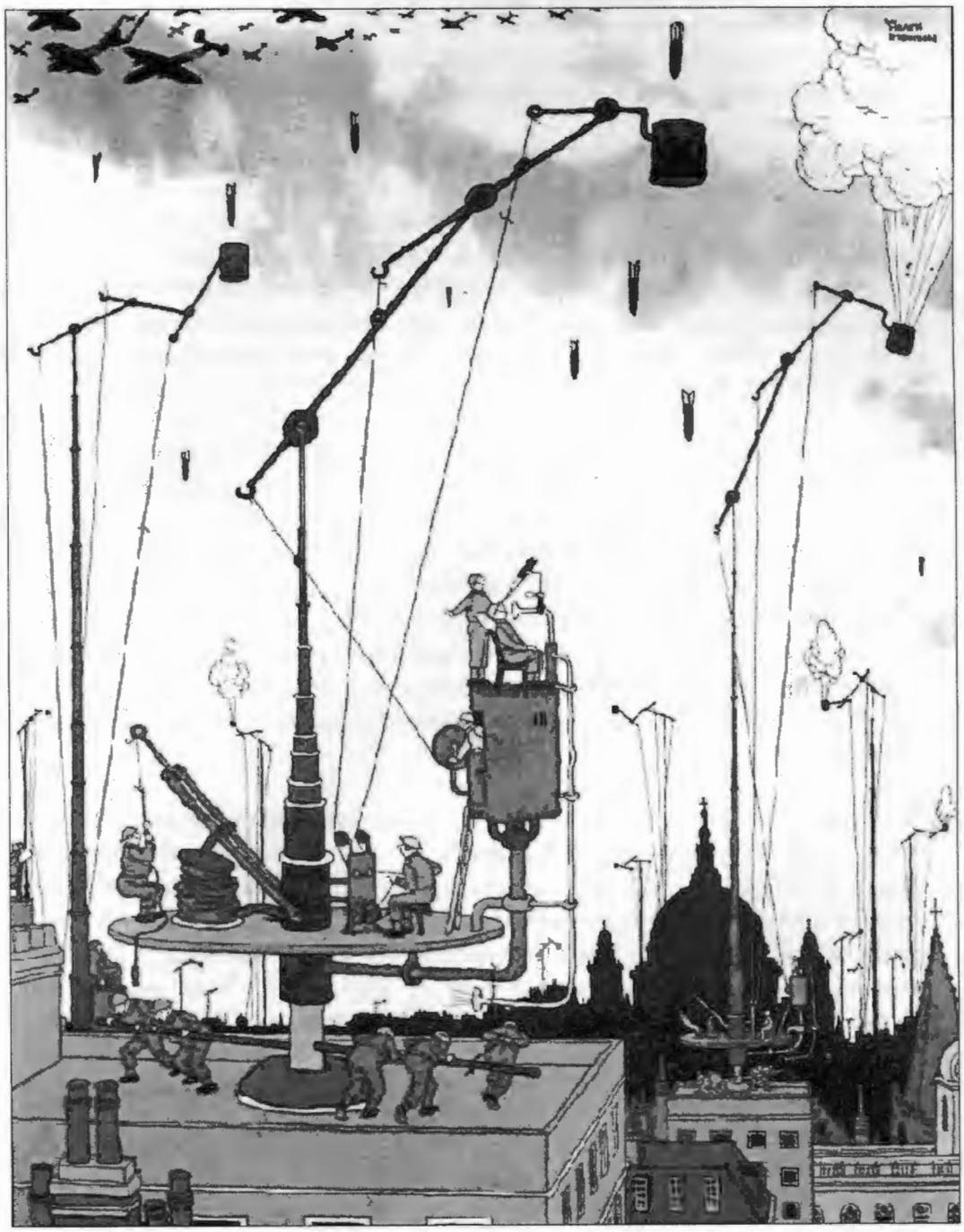

Fig. 17. *The Multi-Movement Bomb Catcher* by W. Heath Robinson (1872-1944)

3.3. HYPERDIMENSIONALITY

The project is conceived as a testing laboratory for *metamatic* program. The aim is to uncover and spatialise the invisible forces that shape perception. Perception in itself is a shadow of a more complex reality. Through the use of *pastime*, the passage of time is documented (fleeting atmospheres of the pier).

There is a suggestion of something beyond mechanical. Inert material attains a life of its own through constant animation. The programmatic objective is to traverse the mirror-plane between built experience and imagination - an adventure in hyper-dimensionality. This means finding the point at which architecture becomes a *responsive* participant in the experience of space. Is space a finite physical construct? Is it a cognitive condition working in the blind-spot between physical reality and human imagination? This paper argues a case for the latter.

There is reciprocity between physical dimensions and the imagination. It is the fourth dimension that opens the door to this phenomenological realm. *M-Theory*, the top contender for what Albert Einstein called *"a theory of everything"*, posits that the universe as we experience it is described by no less than eleven dimensions. These are the four familiar dimensions (space-time) plus at least seven hyper-dimensions (Kaku, 2006; p. 394)[10]. It is theorized that resonant vibrations jump to and from the lower- and hyper-dimensions. It follows that the building blocks of existence exist in more than one place at any given moment. Seen and unseen dimensions create experience in equal measure.

What cannot be seen, may be *recognised*. This recognition of the unfamiliar is the measure of this project. At KL-Berth, personal association and physical structure collapse into a unified experience. Hidden dimensions are revealed through movement. The transient site and program create a gateway into the spaces of the visitors own mind. It is within this perceptual twilight that the most exciting spatial adventures are to be played out. Janus guards the doorstep to a spatial experience played out in the mind as much as the body. Duchamp calls this point of transition where one of infinite possibilities *become*, an *"intra-thin"*[11].

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[10] Hyper-dimensions are superimposed onto the lower four dimensions by a fraction of a millimeter. The number of extra dimensions is related to potential energy. *M-Theory* is based on the idea that atoms are not in fact the elemental building blocks of the universe. They may be broken down into quarks and strings. Strings are theorized as vibrations that, when arranged into sets or chords, form the basis of material existence.

[11] Duchamp, M; Matisse, P (editor). *Notes*. Paris: Centre National d'Art et de Culture Georges Pompidou (1980), not paginated.

As suggested, the project as a whole functions as a clockwork mechanism coordinating different rhythms: those of the body, the machine and nature. Time, expressed as movement, is used as a portal to unseen dimensions. The clockwork mechanism spatialises minute fluctuations and distortions in time.

The building-machine becomes a *metamatic* barometer of participation and tension rather than an abstract time-keeper. As site conditions fluctuate, the structure evolves as a physical representation of invisible forces acting on the site. Experience is synthesised from a chance combination of these dynamics. KL-Berth reveals and synchronises these systems in unexpected, exhilarating ways.

The building-machine's intention of uncovering the unseen, embodies the spirit of *Techné.* This means using action/intent to make visible something of the complexity of existence. Patterns and rhythms are perceptible, but the combined effect results in an experience more elusive and compelling.

To restate, the proposed program is layered onto existing activities at KL-Berth. This is in keeping with the dimensional superimposition of *M-theory.*

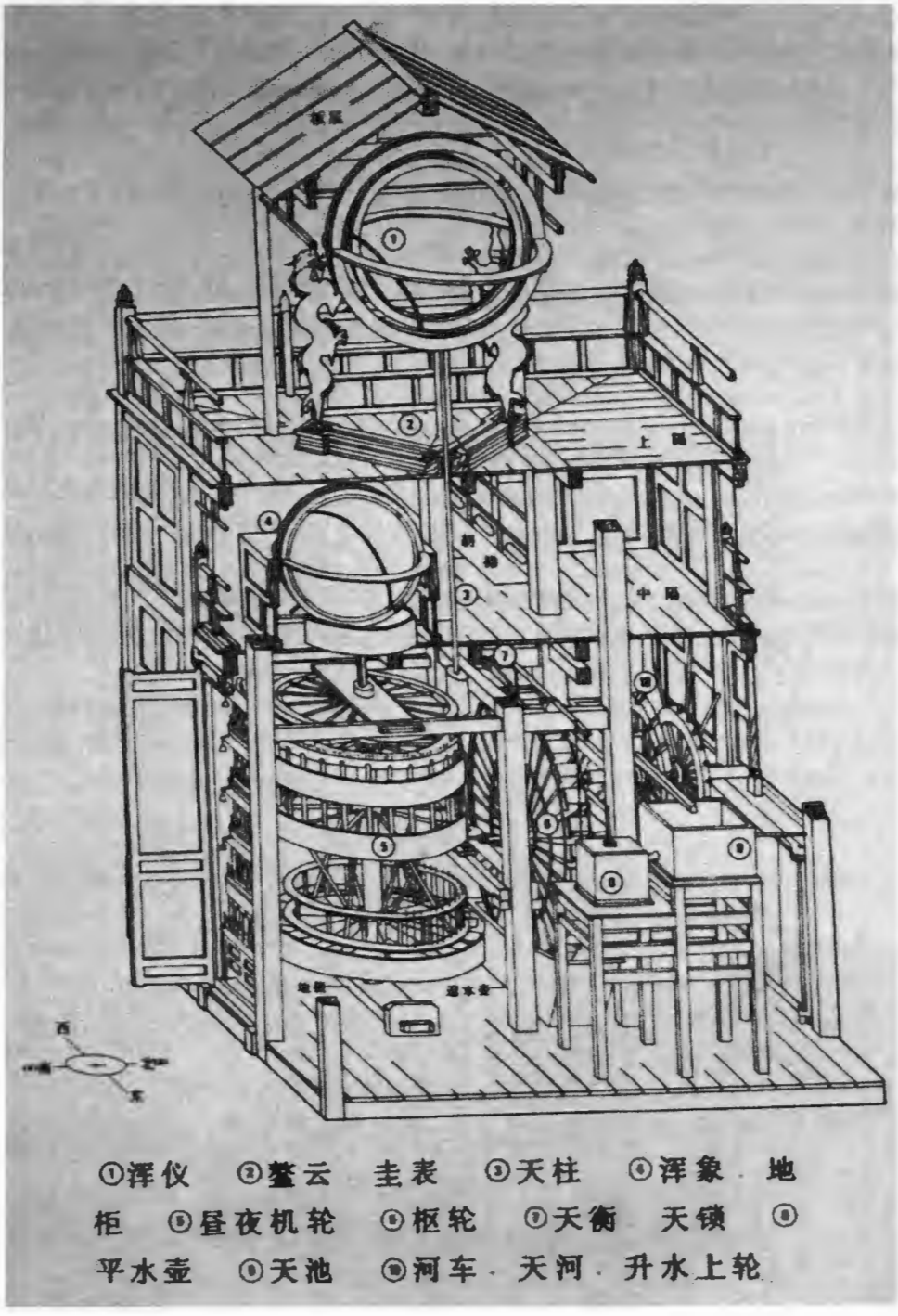


Fig. 18. Su Song's Clepsydra/Water Clock (1094)

Fig. 19. Al Jazari's Castle Clock automaton (late 12th Century)

Fig. 20. Solar clock structure at Jai Singh II's Jantar Mantar complex in Jaipur (1727 and 1734)

3.4. CLOCKWORK AUTOMATA AND VIVID EXPERIENCE

There is a historical lineage of buildings built as clockwork automata. Su Song's Clepsydra (water clock, 1094) and Al Jazari's[12] Castle Clock (late 12th Century) were exquisite instruments expressing invisible forces. They enabled observers to recognise hidden dimensions through *fascination* and mechanical engagement. Moreover, these constructions evidence a synthesis of skills from numerous fields such as engineering, masonry and art.

Jai Singh II's Jantar Mantar complex in Jaipur is a set of fourteen astronomical instruments built between 1727 and 1734. Each machine-building is a working instrument expressing forces not visible to the naked eye. The structures measure time, track the location of stars and even predict solar eclipses to great accuracy.

More contemporary examples of mechanically automated buildings (*programmatic*, not related to building services) can be found in the Russian Constructivist works of the 1920's. These projects, similar to my own interests, grew out of a concern for Cubist multi-dimensionality and *movement*. Movement, in this context, was analogous to Revolutionary social shifts in Russia at the time.

The embodiment of these principles can be seen in Vladimir Tatlin's *Monument to the Third International* (1919). This was Tatlin's proposal for the Comintern headquarters in St. Petersburg. The twin-helix structure facilitates movement up the tower through various mechanical means. Contained within this structure, four geometrical volumes, or *modules*, contain programmatic elements. These volumes rotate at varying speeds, symbolizing the intent movement of Socialist ideals.

Both Konstantin Melnikov and the Vesnin Brothers' competition entries for the *Pravda Building*, Leningrad (1924), feature the incorporation of mobile elements. Mechanical movement engages public attention, albeit for propaganda. Russian Constructivism had an overt utilitarian Socialist agenda. My project is concerned with the *phenomenon* of movement, more than the construction of a social instrument. What is important is the incorporation of metaphor and kinesis.

[12] Leonardo da Vinci's Mesopotamian precursor. Da Vinci was most likely familiar with, and influenced by, Al-Jazari's automata designs three centuries later.

Fig. 21. Vladimir Tatlin's *Monument to the Third International* (1919)

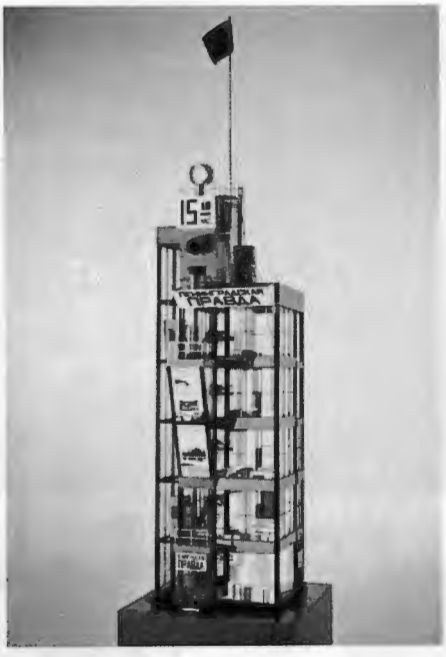


Fig. 22. Left: *Pravda Building*, Leningrad (1924) by Konstantin Melnikov
Fig. 23. Right: *Pravda Building*, Leningrad (1924) by the Vesnin Brothers

Figs. 24, 25. Nek Chand's *Rock Garden* in Chandigarh (started 1957)

3.5. MUSEUMS OF PRESENCE

The proposed events-pier at KL-Berth echoes elements of sites around the world that, through active participation and technological innovation, deliver a critical reflection on post-industrial society.

Nek Chand's *Rock Garden* (Chandigarh, India) comes to mind. The artist started work in 1957, secretly building his arcadia on a land conservancy near Chandigarh. Piece by piece, hundreds of statues, water features and fantastic structures were crafted from junk material such as broken ceramics and discarded plastic. After its discovery by authorities in 1975, the garden was targeted for demolition. With public support it was saved and has since become one of the Chandigarh's most cherished cultural landmarks.

The *Rock Garden* is a profound comment on "throwaway culture" and the importance of seeking a balance between environmental concerns and industrial progress. The experience of transformed junk has metaphysical undertones relating to an eternal return, destruction and rebirth. In this way, inert matter takes on life as existential totems. They reflect human hopes and fears.

Closer to the post-industrial experience is the annual *Robodock Festival* in Amsterdam. The festival promotes a theme of sensual rediscovery through direct engagement with technology. A kind of industrial multimedia event spanning several days, *Robodock* encourages unlikely collaborations between architects, artists, theater designers and technological specialists. The focus is on rediscovering mankind's true *universal solvents* – creativity and freedom. *Robodock* is designed for this purpose. The result is a carnival centered on the experience of technology.

Collaboratives from around the world attend the event to showcase their unique interpretations of post-industrial throwaways. The idea is to look for and exploit the experiential potential of technology, even if it finds its source in military research. Technology acts as a medium reaching far back into our collective past to rediscover the primal drive for creation (rather than consumption). This is a quest to rediscover the essence of things, easily whitewashed by the electric sunshine of neon light and television glare.

Robodock is an interactive event probing the human psyche to remember its creative instincts. Motion, interaction and surprise appeal to these forgotten sensations. In this regard, the festival is a museum of presence. It grabs hold of the best that the industrial environment has to offer in the way of self-rediscovery through the senses. Engagement and enjoyment are not a measure of immaturity. If architecture on KL-berth is to have meaning, it will come from a similar engagement.

Fig. 26. *Robodock Festival 2007*, Amsterdam

Fig. 27. A *Survival Research Laboratories* performance

Survival Research Laboratories are a machine performance art group based in Petaluma, California. A team of artist-technicians, led by Mark Pauline, re-appropriate the products of industry, military research and consumer throwaway. Their mechanical creations mock the repetitive machinations they were originally designed for. Spent technology is granted a degree of individuality denied during a "productive" lifetime.

The element of danger causes human observers to enter a type of primal survival mode. In this state of heightened perception, forgotten senses and instincts are evoked through engagement with machines. The tables are turned and the lines between human creator (master) and mechanical product (slave) are smeared. The work of *Survival Research Laboratories* represents our ambivalent relationship to technology. It is not something outside of ourselves, but fundamentally connected to our psyche. By highlighting this ambivalence, a moment of productive shock is created where the world and the body's position in it may be re-evaluated. The *happenings* of Survival Research Laboratories collapse life and art into a total event. Mark Pauline describes the effect as follows:

> *"If you try to impose enough order and organization and throw it out at people, they're going to reject all of it consciously, but subconsciously they can't reject it because they're there in the midst of it and it's all happening around them."* (Vale, 1994; p. 27)

The work of Survival Research Laboratories contributes to this discussion in spirit. The way in which movement increases the awareness of presence is important. The element of danger in their work is in fact more imagined than real[13]. This echoes my argument that by purposefully activating the subconscious of participants, a more personal spatial experience may be created.

[13] Safety barriers are erected to ensure the safety of spectators. It is within the imagination that vivid experience is created.

Fig. 28. *Mountain of the Adepts* from Stephan Michelspacher's *Cabala, Speculum Artis Et Naturae In Alchymia* (1654)

4 PILGRIMAGE: AN ALCHEMICAL LABORATORY

As suggested earlier, in visualizing the design of KL-Berth, a "monastery complex" comes to my mind. This reference is based on an atmospheric association, not a spiritual one. Visitors make a pilgrimage to this urban island on the edge of the city and the sea to discover a place of reflection. This also brings to mind an alchemist's laboratory.

Alchemy was both a philosophy and a practice. The alchemist's aim was to find a *universal solvent.* Through modern eyes, this may be viewed as a metaphor for self-knowledge. The multi-layered meaning of alchemical symbols is reflected in what this project attempts to do with architectural form. Personal engagement is absolutely required to discover the meaning of architecture at KL-Berth.

Carl G. Jung identified alchemy as a precursor to modern psychoanalysis (Jung cited in: Lembert, 2004; pp. 91-93). Of great importance to this project is the idea that psychological states can be projected onto external objects as vessels for self-reflection. Jung argues that, like psychoanalysis, alchemy was a process whereby the subconscious was brought into consciousness. In alchemy, this is referred to as the *Great Work.* The *Great Work* is a discovery of true will and the senses. Jung's words exemplify this concept:

> *"[...] while working on his chemical experiments the operator had certain psychic experiences which appeared to him as particular as particular behaviour of the chemical process. Since it was a question of projection, he was naturally unconscious of the fact that the experience had nothing to do with matter itself (that is, with matter as we know it today). He experienced his projection as a property of matter; but what he was in reality experiencing was his own unconscious."* (Jung quoted in Lembert, 2004; pp 92-93)

Similarly, at KL-Berth the psychological aspects of architectural space are emphasised over utility. Spatial experiences range from solemn to pyrotechnic. A narrative, rather than a descriptive program, marries opposites as an acknowledgement of contradiction to create what may be called *nameless space.*

Nameless space leaves the participant to imagine the type of rituals that may take place there. This is to be a heuristic structure that requires exploration, in direct confrontation with routine and passivity. Its spaces represent not so much a 'solution', but an interrogation of spatial metaphysics. Value is found is useful uselessness.

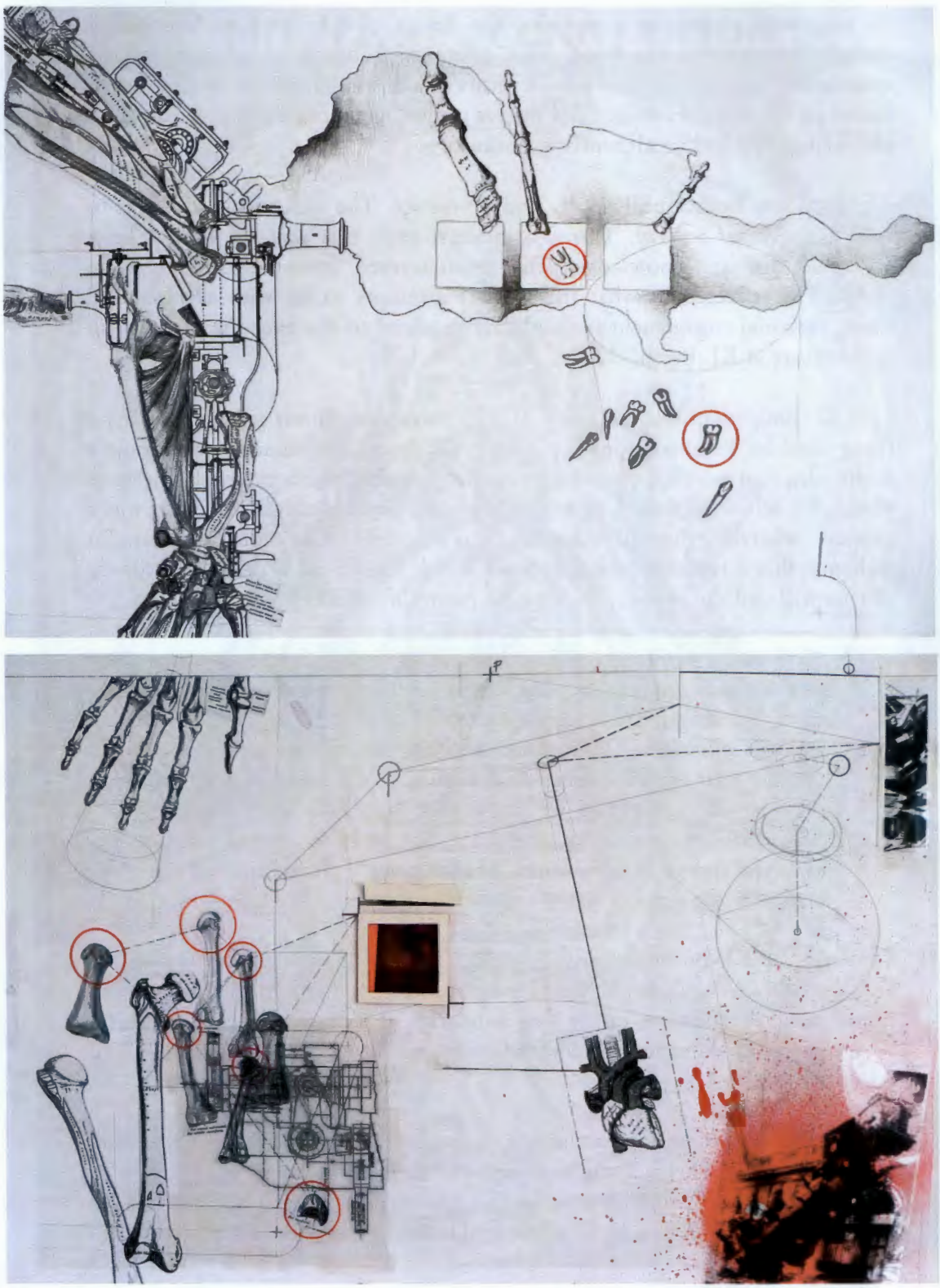


Fig. 29. Interpretation of Marcel Duchamp's *Large Glass* by Stefan van Biljon (2010)

The isolated location of the site plays an important role in the consideration of program. Suggested is a retreat from the rest of the city. It is a place where experience is appreciated on its own terms in an unlikely atmosphere. It may be public, but it is not intended to be trampled. The necessity of a pilgrimage to reach the site discourages this type of over-occupation. As such, it remains a special place. The site is not however, completely cut-off from the city. It allows enough distance to refocus the mind.

Perhaps, this project is an attempt to construct my own version of Duchamp's *Large Glass* in architectural form. It may allow participants the opportunity to see themselves reflected in structure. Attention is drawn to phenomena that might otherwise go unnoticed. Similar to the *Large Glass*, structure becomes a machine for revealing the unseen forces that underpin experience, and perhaps even social encounters on site

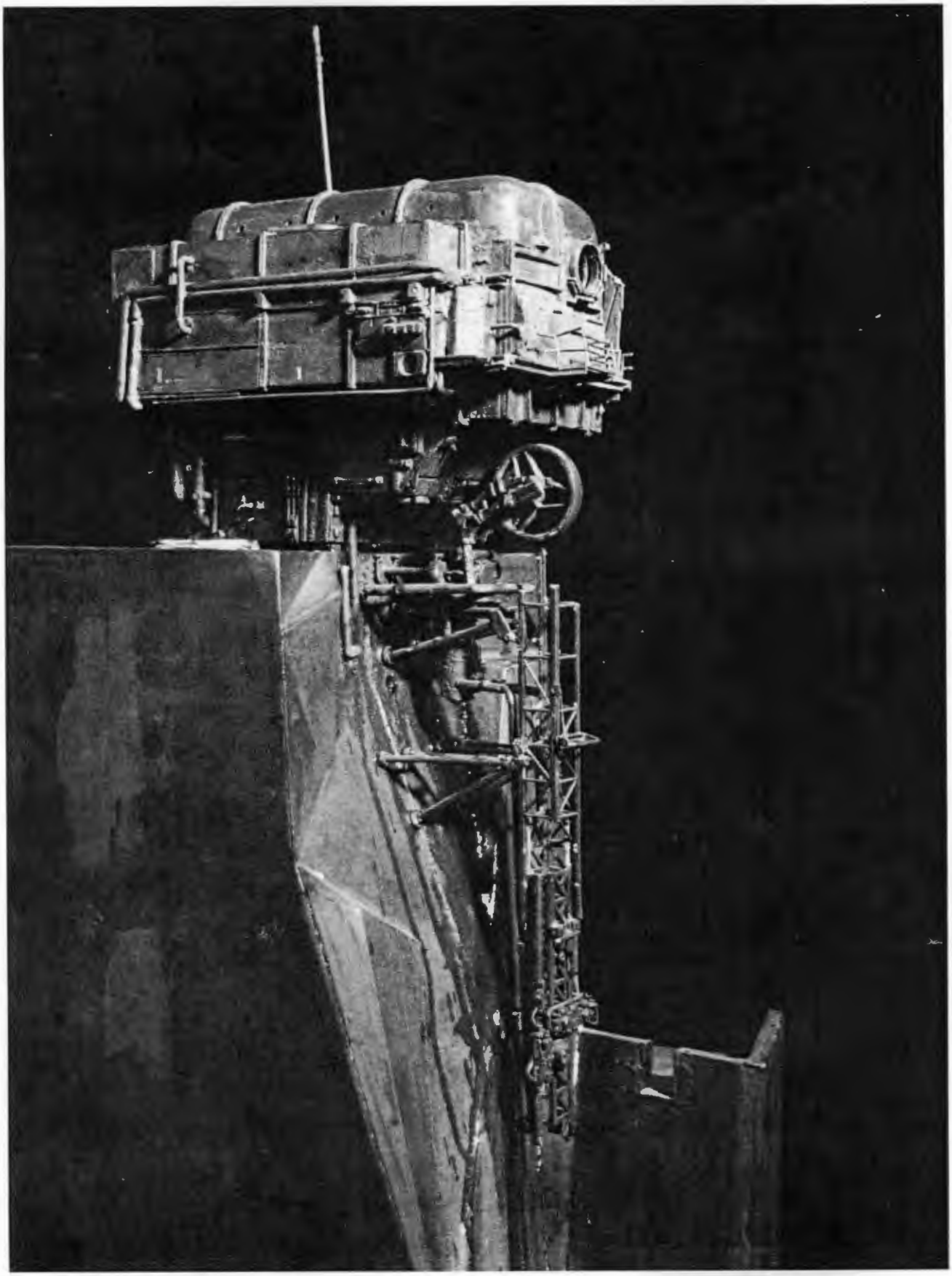


Fig. 30. A *Living Unit* by Mas Yendo

5 PLAYFUL MECHANICS

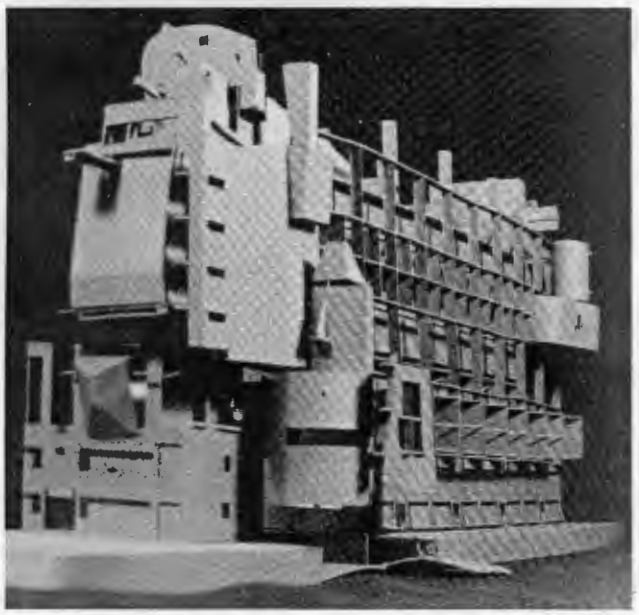
Digital technology has surpassed the machine as symbol for progress. Binary code renders technology virtually invisible. Lebbeus Woods argues that superseded technology can become an art form (Yendo, 2001; p. 4). When the machine's scientific responsibility diminishes, it gains poetic meaning.

This type of poetry through mechanical autonomy, seemingly indifferent to human intention and purpose, contributes to this discussion. The machine once again concerns itself with architectural fundamentals, often overlooked in favour of scientific abstraction. The emotional content of architecture becomes worthy of renewed attention. When commenting on the work of architect Mas Yendo, Woods argues that the building-machine serves a two-fold purpose:

> *"First, the machine would become a 'diversion', like the English or French garden, a physical and metaphorical reality that, paradoxically, had gained in poetic power even as it had lost intellectual primacy. Secondly, the intellectual downgrading of the machine restored to it a basic pragmatic value. Hence, the irony in Mas Yendo's diversions, and the paradox in his exaltation of the machine at the same time that he restores it to the most prosaic functions."* (Yendo, 2001; p. 4)

Le Corbusier's *Vers une architecture* (1923) set the critical groundwork for a machine-inspired architecture. The book is schizophrenic, oscillating between a reverence for classical ideas of value and the grinding wheels of technological progress. This project is not concerned with a debate on "what is beautiful" or "what is true". Instead, it pursues a unified dynamic between the intrinsic logic of machine form and the phenomenology associated with it.

During the 1980's architects like Neil Denari, Kaplan and Krueger, Phau and Jones were concerned with similar goals. These architects viewed the machine as an instrument of poetic intention.



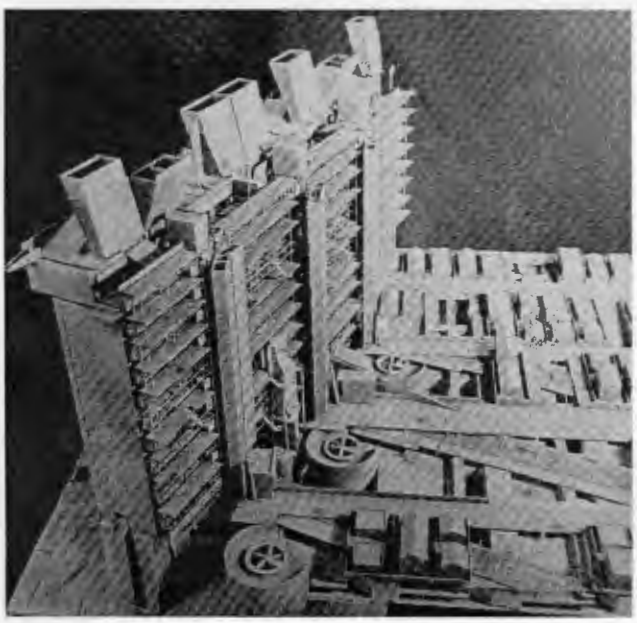


Fig. 31. Above: *Adam's House (in Paradise)* by Neil Denari (1984)
Fig. 32. Below: *California Unité* by Wes Jones and Peter Pfau (1980's)

"The machine is an instrument for describing things. At the same time, it expresses its own state. Inherent in the mechanism – that is, the operability of the machine - is an aspect of function that is conjunctive with its self-descriptive function." – Neil Denari (McCarter, 1987; p. 19)

The machine converts energy from one form to the next. Potential energy is set in motion. Desire becomes *action.* The building-machine mediates desire stirred up by the city. It expresses itself as a proposition, an argument (McCarter, 1987; p. 19). Participants may choose to accept, dispute or develop this argument, but direct participation is always required. The potency of the machine lies not in its form, but its *intention.* Structure is relieved of stylistic repression.

With form and intent collapsed to a singularity, idiosyncratic expression comes from the building-machine's internal logic. It had been set the task to produce the "stuff" of knowledge (revealing invisible forces). The resultant form will reflect eccentricity as an honest expression of its being, rather than stylistic determinism. When speaking of machine architecture, I am *not* referring to stylized mechanics (looks like a machine). What is suggested is structure that truly *functions* as a mechanism with mobility and intent.

This project traces its genealogy through the work of Denari, back to the clockwork automatons of the Middle Ages and Renaissance. It should, however, respond to a contemporary situation where technology is rendered invisible due to its omnipresence. Within a nanosecond, information flows mutate identity. It creates and destroys virtual communities instantly. Technology shifts shape to keep up with the pace of information transmission.

In this world, architecture must be able to evolve like its human counterpart in a struggle for survival and relevance. Instead of acting as complacent accessory, architecture may direct forces toward something constructive. It can thereby assume a critical stance to the invisible flows that shape life in the city. Architecture, braced for the impact of cultural tides, not only responds to culture but helps to produce it.

Fig. 31. Studies for a machine architecture by Iakov Chernikov (1928-1931)

How can architectural structure become a revolutionary instigator? Can it, as suggested, claim a life of its own to inspire new forms of program? Revolutions may be small, but their personal significance is in no way lessened by scale. A renewed appreciation of everyday sensations is significant enough to warrant architectural attention. Instead of providing advertising space for a consumer wonderland, perhaps architecture can once again focus its attention on some of the small pleasures of city life?

Revolution in this context refers to an appreciation of the exhilarating potential, accidental or contrived, that the post-industrial metropolis embodies. Experience can not be carried in a shopping bag. On KL-Berth experience constitutes the enjoyment of small moments. Inert material may be animated with life by granting form a poetic purpose. Form becomes an *a priori* program.

Response to architecture is a personal affair. This may be described as a moment of silence or *emptiness.* The experience of space is crystalised into a realization of the body and its relation to the world (not wanting, but simply *being*).

Neil Denari notes:

> *"The first law of thermodynamics describes the origin of all mechanical processes: in the indestructibility of energy, a machine's primary function is through the generation of heat and motion, to do something."* (McCarter, 1987; p. 23).

My project claims its mechanistic spirit from a similar translation of potential energy (desire) into action (vivid enjoyment of phenomena).

To equate the experience of place with *pleasure* is the measure of the building-machine.

Fig. 34. Jean Tinguely and his *metamatic* painting machine, Biennale de Paris (1959)

True to the spirit of times, the use of the mechanical idiom is ambivalent. On the one hand it expresses the urge for movement, change, intention and presence. On the other hand there is a suggestion of more sinister familiarity: regiment, impersonality and unquestionable authority by way of accuracy, regardless of the accuracy of the *intention* it enacts.

The acceptance of contradiction is essential in the pursuit of architecture designed to engage the human condition riddled with uncertainties and imperfections of various kinds. This project must express the contradictions of post-industrial society to avoid abetting the status-quo of economic determinist and popular opinion.

As is the case with any machine, energy leakage leads to a condition of increased entropy (measure of chaotic behaviour in systems). For human beings, energy leakage is manifested as the loss of existential foothold on shifting terrain. On the other hand, chaotic dispersal leads to the formation of more complex systems (Gleick, 1987).

> *"Thus a living organism continually increases its entropy – or, as you may say, produces positive entropy – and thus tends to approach the dangerous state of maximum entropy, which is death. It can only keep aloof from it, i.e. alive, by continually drawing from its environment negative entropy – which is something very positive as we shall immediately see."* (Schrodinger, 2004; p. 71)

Entropy in this sense becomes a prime mover for survival through forced readjustment and change. Architecture can be viewed as an attempt to make sense of chaos through order and invention. Uncertainty is directed towards positive affirmation. In this project it is done through an attempt to increase awareness (see things *differently*) through movement.

I find hope in radical uncertainly because it gives architecture something to react against. It gives it a purpose, namely to create value in the face of meaninglessness. The goal is to build a machine-building that produces such negative entropy. That is to say, a positive life-affirming force bringing renewed awareness of the relationship between the human body and environment.

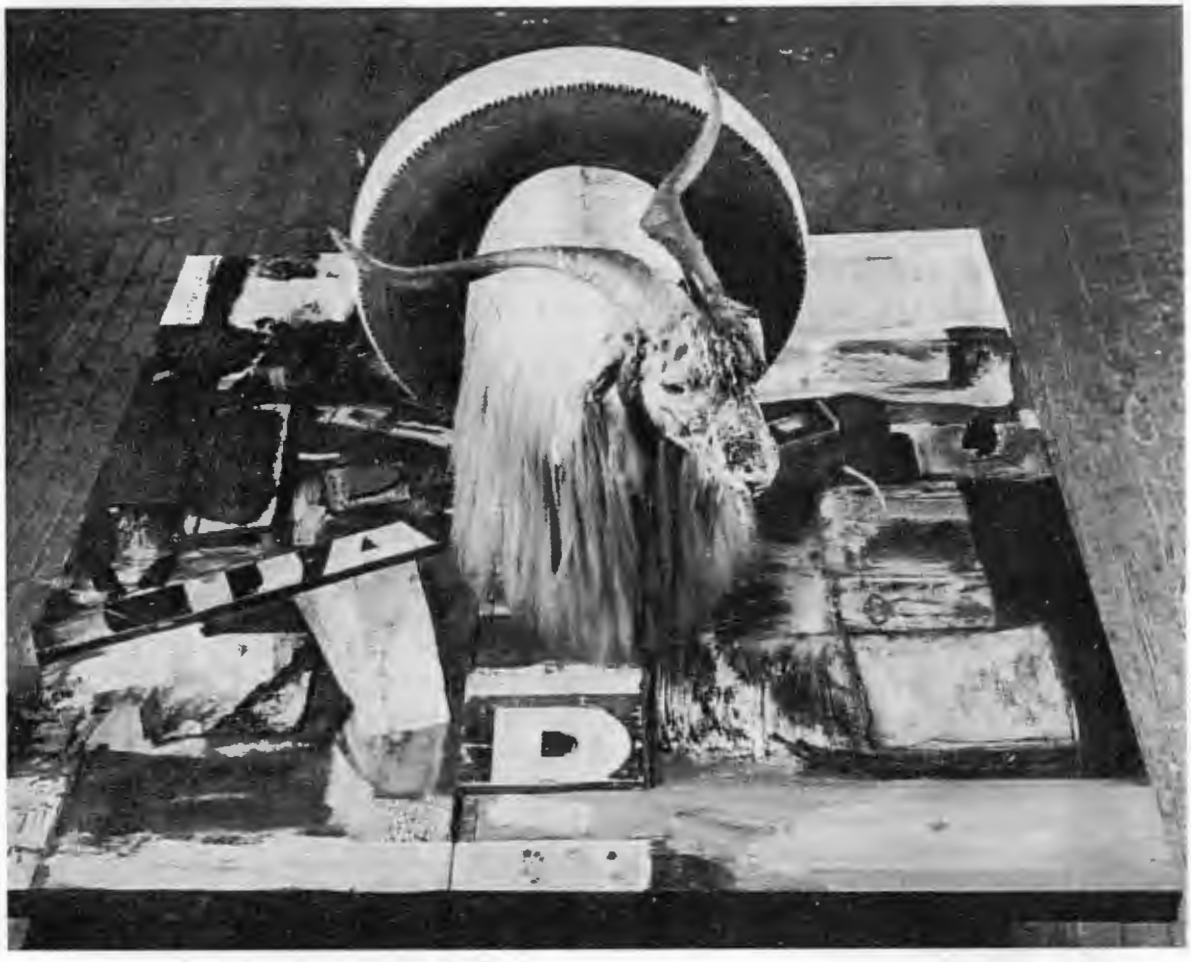


Fig. 35. *Monogram* by Robert Rauschenberg (1955-1959)

6 PERFECT IMPERFECTION

This project is concerned with dimensionality. The results produced from incongruous juxtapositions of order and chaos, the seen and the unseen and different modes of spatial representation will be pursued. The aim is to discover ways of reaching beyond the familiar to tap the potential of chance and subjectivity in architecture. This refers not only to design procedure, but also to spatial intent.

With this approach, borrowed from conceptual art and Surrealism, *process* is given priority over synthesis. The project probes the reciprocal relationship between perception and the material universe. A cybernetic experience is created. The aim is to create an architectural expression capable of condensing phenomena and surprise into a memorable moment.

The *Makyoh* ('magic mirror') is a Japanese device. Its surface appears unassumingly smooth, but when light is reflected off it, a glowing phantom image is projected, seemingly from nowhere[14]. The mirror concept is important to my work because it suggests a threshold between dimensions. Presented to the mirror is the world of reality, but reflected back, is the virtual. A *doppelgänger* is confronted, familiar but strangely elusive. It is a window into the unseen through a reflection of the self. This is known as the *Lacanian Gaze*[15].

The mirror reflection, the *other*, completes the self when confronted. The reflection represents the self's repressed desire for self-realisation. At KL-berth, the idea is to find the mechanical resonance in the human psyche. It is a place where technology may be identified as part of us, never outside our bodies.

"In this permutation the gaze is the unattainable object of desire that seemed to make the other complete. However, for Lacan, it is important to understand that the eye and gaze, although split, are part of the same person."[16]

The mirror also reflects the dual nature of contemporary culture (virtual/actual). The one aspect is fluid, intangible but potent. The other is the world of concrete and neon signage. Hidden things, that were always there, may perhaps be revealed for the first time.

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[14] The phantom image is imprinted in the mirror's metal backing through a process of differential hardening.

[15] When seeing an image of the self projected onto an external object (mirror), the self's autonomy is brought into question. This may be an existential moment where the assumed integrity of a person's outlook on the world is temporarily suspended.

[16] Online article: Lee, P. *Eye and Gaze.* The University of Chicago (Department of Art History, 2003). URL: http://humanities.uchicago.edu/faculty/mitchell/glossary2004/eyegaze.htm#_ftnref8

Fig. 36. A junk sculpture by Nancy Rubins

Robert Rauschenberg and Jean Tinguely used this strategy i.e. technology as mirror, to bring life back into art. The artifact becomes a hyperlink to personal associations and realities beyond the physical extent of the work. It extends into the viewer's space and imagination, breaking down the observation hierarchy.

By exerting his own imagination the viewer completes the work.

The viewer's personal involvement with the work becomes the missing element required to animate the work. The primary objective of the design will be to pursue this concept through architectural form. This defines what I have called *nameless space.*

A two way relationship is established where both parties invade the reality of the other. This is what Bernard Tschumi refers to as the *violence* of architecture (Tschumi, 1994; p. 122). He clarifies:

> *"By 'violence,' I do not mean the brutality that destroys physical or emotional integrity but a metaphor for the intensity of a relationship between individuals and their surrounding spaces."*
> (Ibid)

Viewer and object become a singular organism experiencing itself in relation to its context. A highly personal meaning beyond the logic of the object itself is produced. The object acts as a mirror reflecting the desires of visitors. Experience deepens when the viewer detects something of himself in the work, startling but somehow familiar. Such a moment can be recognised, but not easily verbalised. Like a mirror, the building-machine's function is to negotiate the collapse of the actual and virtual.

Architecture is about communication. In a layering of systems, it is not the importance of any given system, but the tension between them that gives form to architecture. Within this tension, invention takes place. The process has little to do with problem solving, but rather the *translation* of tension into something useful.

Spaces are meant to accommodate and enhance human activity, rather than *style* it. To this end, architecture must remain symbolic i.e. open-ended to communicate on a personal level. I suggest that architecture is about critical reassembly, not insistence. Permanent incompleteness leaves room for wonder and imagination, vitally important for personal affect.

7 THE CULTIVATION OF ACCIDENT: CREATIVE DISRUPTION

"When you cut into the present, the future leaks out."[17]
- William S. Burroughs

Disruption is subversive. It can reveal mechanisms of control. Spectacular consumption can be short-circuited in favour of situations that test the limits of perception. In *Parasite* (1982), Michel Serres suggests that disruption is a healthy remedy for stagnation. Disruption doesn't destroy communication, but is essential to the creation of new thought processes. Serres' definition of disruption, or *noise*, as a positive force resonates with this project's aim to create moments of renewed self-awareness. As mentioned earlier, the work of *Survival Research Laboratories* has a similar, if more drastic effect. It is their *intention* that contributes to this discussion.

Noise acts as a Hermeneutic translator. It shifts thresholds to enable unexpected, inventive connections between people, events and the city. This concern with the subversion of *status quo* urban behavior through surprise takes inspiration from the Situationist theory of Unitary Urbanism. Guy Debord described the technique as: *"the complex, ongoing activity which consciously recreates man's environment according to the most advanced conceptions in every domain"*[18]. In this context, event can be seen as a moment of inventive self-reflection strategised through architecture. This ultimately represents an attack on the boredom of passive consumption in the city.

The resultant questioning of the body's situation within the Spectacular post-industrial city involves an adjustment of parameters. Dichotomies collapse. Life becomes art, architecture becomes event. Foucault defines this type of event as:

> *"[...] the moment of erosion, collapse, questioning, or problematization of the very assumptions of the setting within which a drama may take place – occasioning the chance of possibility of another, different setting"* (Tschumi, 1994; p. 257)

Event and invention share the same etymological root. Event, as such represents a psychological *turning point* (Tschumi, 1994; p. 257). Here lies the challenge and continued relevance of architecture in the age of its digital disappearance. Through a hyper-awareness of the body's situation in space, the city becomes a testing laboratory for the rediscovery of life in the first person.

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[17] From the notes for *The "Priest" They Called Him*, a 1993 collaboration between Burroughs and Kurt Cobain (Nirvana), released by Tim/Kerr records.
[18] From *The Amsterdam Declaration* written by Constant Nieuwenhuis and Guy Debord, published in *Internationale Situationniste* #2 December 1958.

Situationist ideas necessarily require a surrogate vessel for performance. Like the Situationist artist-instigator, architecture can only *inspire* action. Events, as moments of creative questioning, seize the potential realised through architecture. Invention becomes the *raison d'être* of urban life. Situationist protocols cannot be used as a design "method". Once set down on paper or built form, it loses its meaning. Situations are concerned with the energy of the present moment. It must occur in real time or not at all. Architecture can only attempt to embody this spirit as a Situation machine.

The most energy is released at the moment of design. My attempt to embody the Situationist spirit is through a transmission of energy, through my own body, the pencil, onto paper and into built form.

8 THE FOUND OBJECT

Rendered obsolete by the whims of assembly-line culture, technological artifacts quickly find their way to the nearest scrap yard. The re-appropriation of spent technology grants it some degree of individuality. It attains a life of its own, denied during its productive lifetime by the anonymity of mass-production.

The use of the found object as building material allows an element of *chance* into the creative process. This opens a door to hidden trajectories. This process of discovery promotes *techné* in the original sense of the word. Technology becomes the challenge of recognizing potential in found material and situations. New knowledge is literally constructed through imaginative craftsmanship. By proposing to invent a *"machine that processes desire into experience",* a framework for new knowledge is created. This framework is fleshed-out through a process of discovery. Design documents this rigourous search for the unnoticed.

Invention starts with an imaginative impulse, the desire to transform ideas into tactile reality. On the subject of creative investment i.e. to understand the world through our bodies and handiwork, French phenomenologist Maurice Merleau-Ponty argues that: *"It is in the experience of the thing that the reflective ideal of positing thought shall have its basis."* (Merleau-Ponty, 2003; p. 281)

Technology, in its essence, represents the human capacity to re-appropriate found material. This is done to gain an advantage over the environment. I posit that chance and re-appropriation encapsulates the very spirit of technology. From found material we fashion tools. Tools are connected to form machines, complex artificial systems. They are prostheses adjusting the "natural" limits of the human body. The mind connects directly to the hand that operates the machine. Nature died the moment our ancestors discovered shelter. A technological archeology (to *reveal*) is suggested through the re-appropriation of found material (in this case, spent technology).

> *"This architecture, call it architecture of chance, is all architecture: it is the architecture of the moment, indeterminate, vulnerable to accidents, but constructively so; it gains from failures and imperfections, and accepts chance as an essential element of existence."*[19]

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[19] Manolopoulou, Y. *The Active Voice of Architecture: An Introduction to the Idea of Chance.* Field: A Free Journal for Architecture (Volume 1, Issue 1. July, 2009).
http://www.fieldjournal.org/uploads/file/2007_Volume_1/y-%20manolopoulou.pdf

The found object idea may be extended as a metaphor for the KL-Berth site as a whole. A moment of discovery is suggested. The actual pilgrimage to discover the site is just as important as the site experience itself. The building itself becomes a found object, formed piece by piece from the detritus of post-industrial culture. It becomes an organic entity capable of evolution and some degree of autonomy. Each constituent element is synecdochous, referencing the whole and relationship of parts. Liberated from utility, technology offers pure experience and wonder.

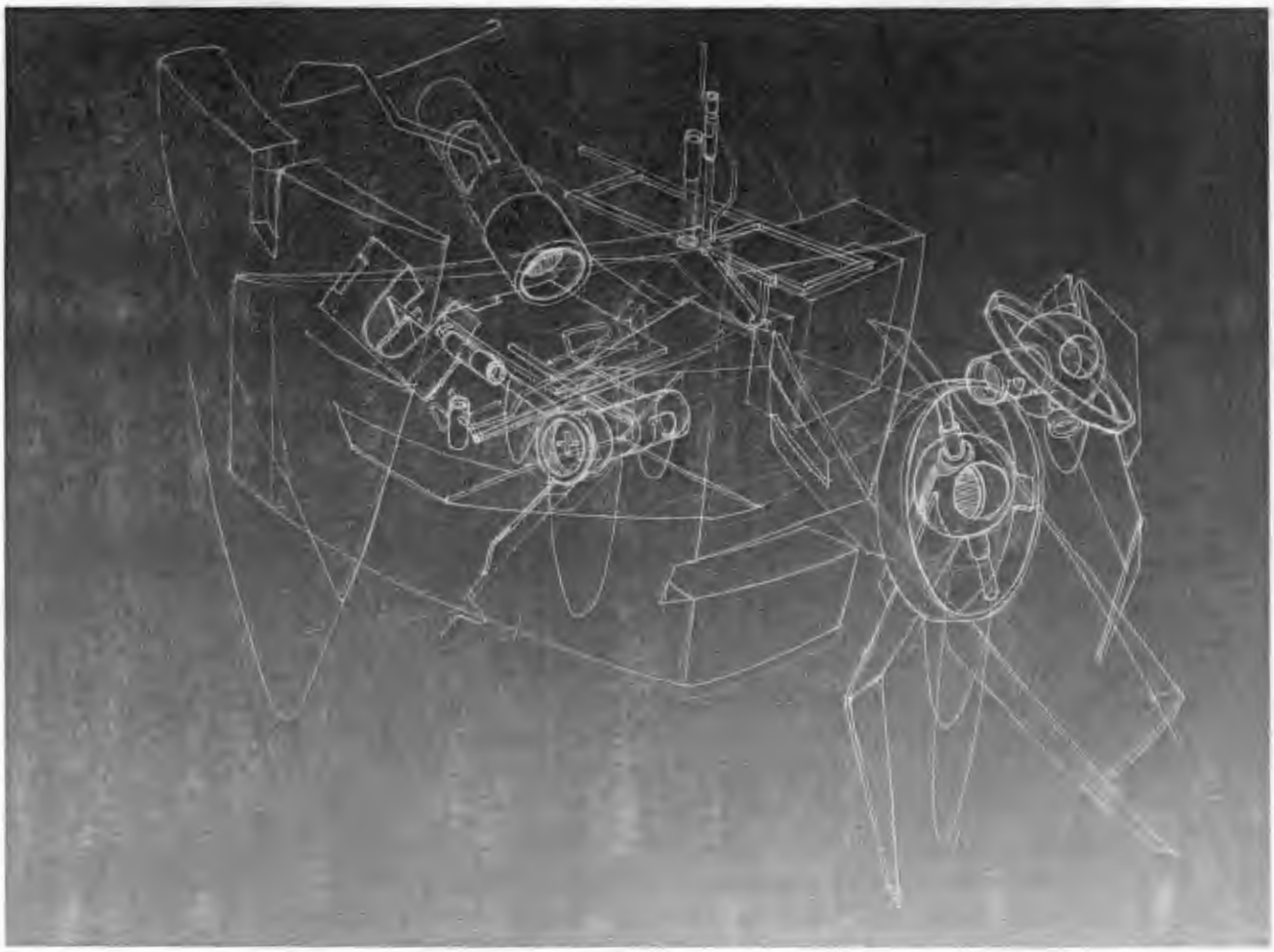

Fig. 37. *KL-Metamatic* sketchbook by Stefan van Biljon (2010)

9 WATCH THE HANDS

I argue that a more hands-on experience of architecture is essential if it is to have any meaning in a society stricken with *Attention Deficit Disorder*[20]. The separation between the intellect and primal instinct inhibits the full potential of such an experience. I am in pursuit of architecture that appeals to an animal mind that craves creative engagement. After all, thinking with the hands and senses has facilitated the brain's evolution.

Perhaps evolution has reached a point where it starts working in the opposite direction whereby, through comfort, we become accustomed to *too* much automated intervention. True three-dimensional thinking then takes a back seat.

"Evolution shows clearly that 'If you want to keep it, use it!' [...] What if technology is freeing humanity from skills and aptitudes that we should retain, that make us essentially human?" (Evans, 1998).

In contemporary society as well as in most design disciplines, digital technology has surpassed mechanical engagement. As such, technology has become invisible due to its overwhelming proliferation. This project is not meant to be an exercise in counterproductive regression. Instead, it is an attempt to take stock of de-emphasised, *essential* human faculties.

The value of digital technology in design has been proven. However, it can never replace the human hand's longstanding direct partnership with the imagination. Evolution discards whatever faculties are no longer used. Curiosity and play are prime movers for discovery.

> *"Where is the philosophy to let us understand that gigabits alone will never make the qualitative change from information to understanding? [...] Perhaps 'hands on' learning may help to restore a healthier sense of reality [...] by offering direct experience, real phenomena in an atmosphere of play [...] supplying a sense of phenomena and richness of experience, to counteract the electronic Babel."* (Evans, 1998).

[20] Attention Deficit Disorder (ADD) is a neurobehavioural disorder characterised by hyperactivity and difficulty to sustain focus on problems.

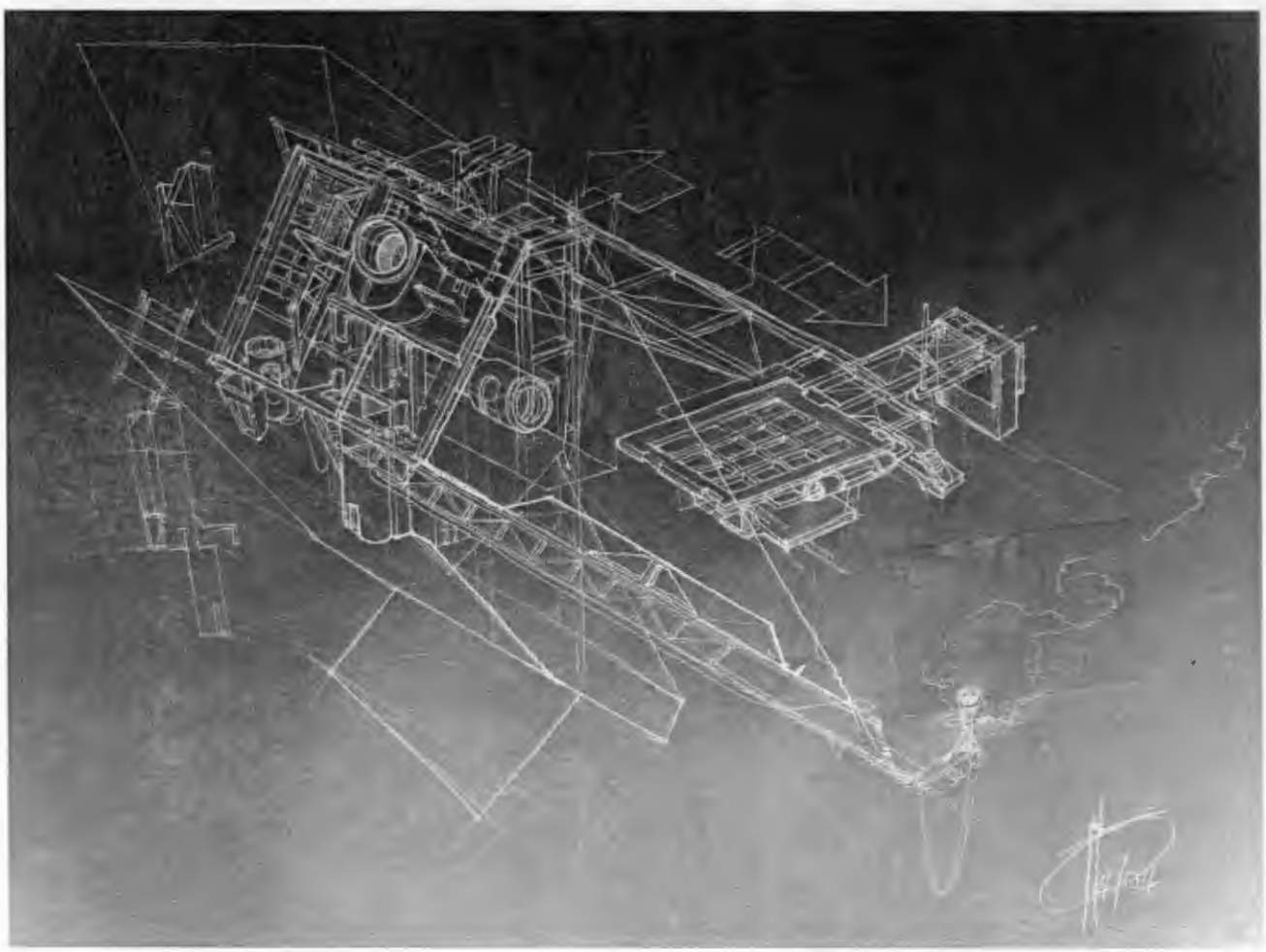

Fig. 38. *KL-Metamatic* sketchbook by Stefan van Biljon (2010)

10 CONCLUSION

In this paper I have attempted to show that space is experienced in the subconscious as much as in tactile reality. It was argued that if architectural form can purposefully activate an occupant's subconscious, a more vivid experience of site-specific phenomena may be produced.

Duchamp's *Large Glass* was studied as an inert object, appealing to the observer's imagination to complete the creative process. The most important idea distilled from this study is the possibility of psychological projection onto external objects. To recognise oneself in an external object is uncanny. A moment of shock is produced and the body's integrity is brought into question. Such a moment may affect a person's perception of experience. This idea resonates with Jung's concept of transformation through transference in alchemy and psychoanalysis. This project is an attempt to apply this principle to architectural form. Small, but beautiful details are noticed, perhaps for the first time.

I have argued that, what we experience as reality is an incredibly complex superimposition of sensory inputs, environmental factors and *chance*. The complexity of this experience cannot be grasped in a single impression. Glimpses of invisible forces may be allowed into spatial experience through a cultivation of surprise.

At KL-Berth, this can be done through an organic structural approach. An attempt will be made to document the passage of time within built structure, always mobile and surprising. Dramatic timing becomes crucial. Special moments are to be highlighted through a strategy of anticipation and reward. This may be as simple as waiting for a ship to depart from KL-Berth, changing the dynamic on site (new areas become accessible etc).

Natural processes of corrosion and decay are to be captured as part of the structure's metabolism. KL-Berth's location on the edge of the sea makes this an important consideration (saline water, barnacles). Rather than combat them, natural weathering processes may be used to enhance the atmosphere and tactile qualities of the project.

It was suggested that the measure of the building-machine is an equation of experience and pleasure.

To work in the spirit of techné requires borrowing from diverse, often obscure areas of knowledge. With this project, the idea is to shift the mind's eye towards the unknown. When the end-product of design becomes more difficult to imagine, experimentation becomes a necessary response. This is the creative risk-taking that was mentioned at the outset of this paper. Paired with an enjoyment of craft, the project at KL-Berth continues to evolve in this spirit. ■

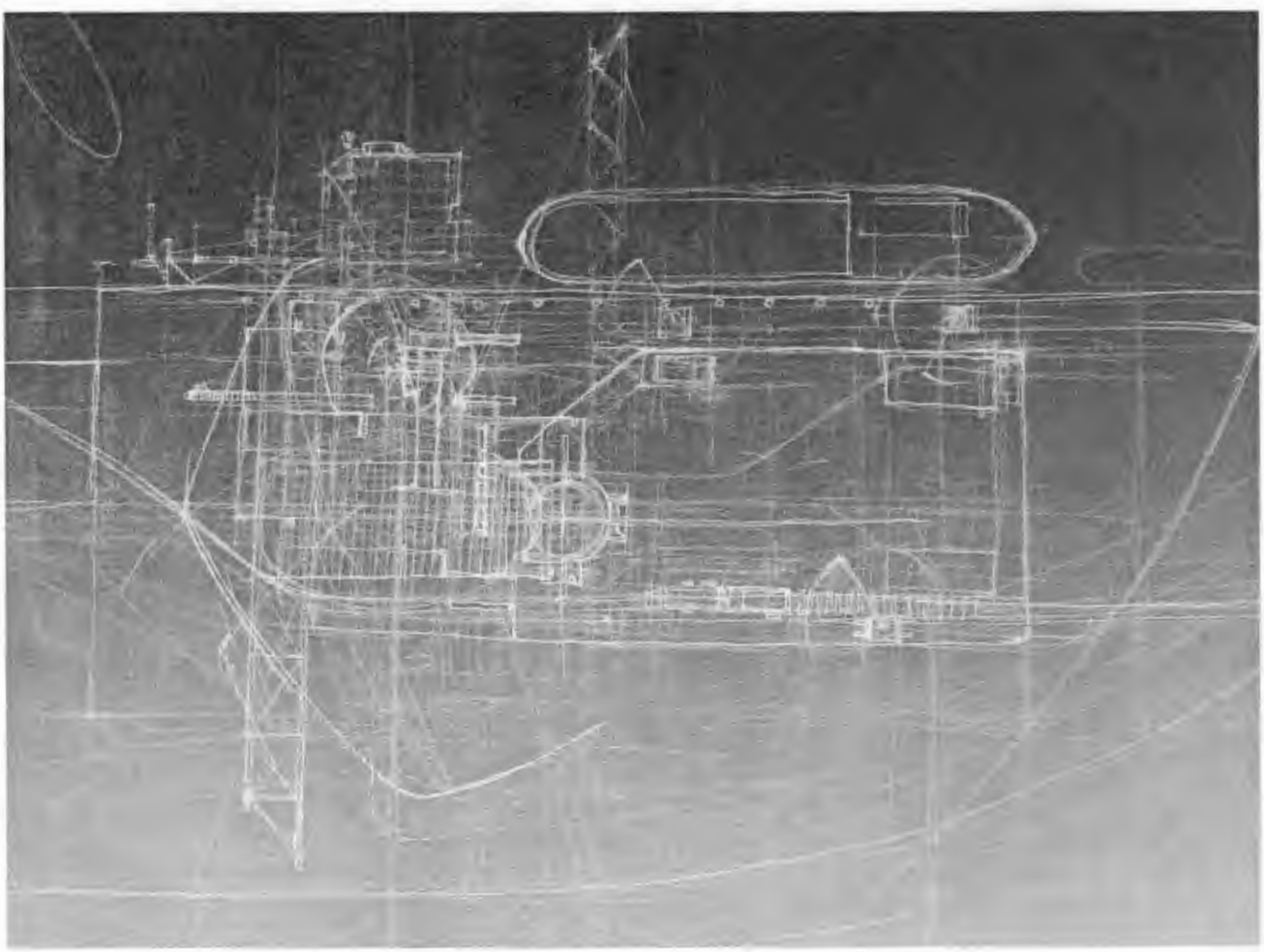

Fig. 39. *KL-Metamatic* sketchbook by Stefan van Biljon (2010)

GLOSSARY

The following definititions are intended as a quick-reference. Concepts and authors are fully referenced in the text of this paper.

Alchemy: A polyvalent term referring to a practice and philosophy of transformation. Alchemists sought a universal solvent and the means to turn base metals into gold. The process of dissolution and congealment can be understood as a metaphor for a spiritual quest for truth.

Aleatory: Synonymous with chance. Relates to the productive use of indeterminacy in creative fields.

Anthropomorphic: Human-like. Something that embodies characteristics of the human body's gestures and movement.

Automaton: A self-sufficient machine.

Carnivalesque: No separation between spectators and spectacle.

Clepsydra: An automated water-clock

Cybernetic: Describes processes of control paralleled in natural and artificial systems. In the comtext of this project, the word is often used to describe a human-machine organism.

Doppelgänger: Uncanny resemblance. Something that looks exactly like something else, but is not the same.

Entropy: The measure of chaotic behaviour in any system.

Found object: An object uses as part of an artwork, but originally designed for another purpose. The object is discovered and re-appropriated to give it new meaning.

Happening: An art performance. The audience is often engaged as co-performers (breaking down the *fourth wall*).

Hermeneutic: Relates to communication.

Heuristic: To discover.

Hyper-dimension: What constitutes a spatial experience beyond what can be seen or heard. It can be recognized, but not identified. A spatial experience that affects occupants on a highly personal level (uncanny, a glimpse of unnoticed factors working to form an experience).

Intra-thin: The moment where one of infinite possibilities become a reality.

Janus: The Roman god of gateways. In the context of this paper, Janus is used as a symbol for ambivalence, somehing that traversed more than one situation at the same time.

KL-Berth: The site chosen for the design project related to this paper. KL-Berth is located within the Duncan Dock at Cape Town harbour. The letters K and L denote the berth's relative position along the terminal. KL-Berth is currently used as a project cargo (multi-purpose) berth. A large mountain of scrap-metal stockpiled on the site during the early 1990's triggered my interest in the site.

M-Theory: A leading contender for what Albert Einstein called a "theory of everything". The theory is based on the idea that the universe consists of eleven dimensions.

Makyoh (Magic Mirror): A Japanese device that projects a phantom image when light is reflected off its surface. The phantom image is imprinted in the mirror's metal backing through a process of differencial harderning.

Mechanical: The conversion of energy from one form to another through physical means.

Metamatic: A term invented by artist, Jean Tinguely to describe something that is beyond mechanical. It refers to an inert object that attains life through unpredictable movement.

Meta-site: A site to describe other conditions. In the context of this paper, the term is used to describe KL-berth as a place of transition.

Nameless space: Where hyper-dimensional experience is played out. The aim is to draw on the imagination of occupants. This may produce a highly personal, affecting experience.

Phenomenology: A philosophy of perception that posits that reality is a subjective experience. Via the senses, experience is created in the mind, not in an external environment. In this paper, the term is used to describe an approach to architectural design that emphasises the sensory aspects of materials and space.

Post-Industrial: Used in this paper to denote a shift in emphasis from industry (actual) to information exchange (virtual).

Program: Describes what architectural space/structure is used for or understood.

Spectacle: Refers to the numbing effect of mass media, consumerism and popular opinion.

Techné: The concept of *techné* is referenced throughout this paper. The term refers to the act of learning through the hands. This approach to *building* knowledge applies lessons from a variety of fields, often distant from architecture.

Totem: A symbolic object or entity that is used for protection.

Transference: In psychotherapy, transference describes a situation where a patient relates to the therapist in a manner simulating other relationships in their life. The goal is to bring repressed emotions to the surface.

Uncanny: Familiar, but unfamiliar at the same time.

Universal Solvent: A term related to Alchemy. The Universal Solvent is a metaphor describes a philosophical truth discovered after rigorous introspection.

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- Bakhtin, M.M (Trans. Iswolsky, H). *Rabelais and His World.* Bloomington: Indiana University Press (1984, first published in 1965).

  Bakhtin's analysis of the Carnivalesque is important for this paper. The body's meaning changes when it is directly involved in spectacle, instead of merely observing it.

- Beckmann, J (editor). *The Virtual Dimension – Architecture, Representation and Crash Culture.* New York: Princeton Architectural Press (1988).

  The Virtual Dimension – Architecture, Representation and Crash Culture is a selection of essays exploring the relationship between architecture and the human experience of the world. The key question posed by the collection concerns the way in which human beings are transformed by our interaction with technology and architecture. What are human beings being changed into?

- Baudrillard, J (trans. Glaser, S.F). *Simulacra and Simulation.* Michigan: University of Michigan Press (1994, originally published 1985).

  Baudrillard discusses the relationship between images (mass-media, pop-culture) and human identity. Post-industrial society has reached a critical point where all meaning is replaced by a simulation of it. Further, this simulation operates independent from the source (the original has been deleted). Baudrillard's ideas about the role of image (and therefore also, architecture *as* image) in the creation of meaning is important to this project.

- Borden, I; Ray, R (editors). *The Dissertation: An Architecture Student's* Handbook (Second Edition). London: Architectural Press (2006).

- Debord, G (trans. Nicholson-Smith, D). *The Society of the Spectacle.* New York: Zone Books, 1994 (first published in French 1967).

  The Society of the Spectacle explores the idea that social interaction has been replaced by a representation of it, a second-hand (virtual) experience handed down by the power players of hyper-capitalism, mass-media and the authorities that support it. People are alienated from each other and the environment because relationships are mediated through an system of commodified signs. Identity shifts from the real to the hyper-real.

- Denari, N.M. *Gyroscopic Horizons.* United Kingdom: Thames and Hudson (1999).

- Gleick, J. *Chaos: Making a New Science.* New York: Viking (1987).

- Henderson, L.D. *Duchamp in Context: Science and Technology in the Large Glass and Related Works.* Princeton, New Jersey: Princeton University Press (1998).

  The book features facsimiles of Duchamp's research notes, showing his fascination with technology in relation to ontological questions. His works function as existential machines, juxtaposing the unseen forces underpinning human relationships with technology. Duchamp's work (with special attention given to the *Large Glass*) is important to the proposed research as a study in hyper-dimensionality (art as a medium, rather than an end). This may be extended as a metaphor for architectural making.

- Kaku, M. *Parallel Worlds – The Science of Alternative Universes and our Future in the Cosmos.* London: Penguin Books (2006).

  Kaku explains M-Theory. The idea that the experience of existence is created by seen and *unseen* dimensions contributes to this paper.

- Leach, N. *The Anaesthetics of Architecture.* Cambridge, Massachusetts: MIT Press (1999).

  Leach examines the challenges facing the architectural profession in a world preoccupied with image rather than content. Leach's thesis is based on the idea that image robs cultural products (including architecture) of meaning by aestheticising them. Leach notes, "The separation between spatial practices and representations of space has become complete". Lived space is reduced to an image (plans, sections, perspectives). Freedom is a practice and not magically embodied in built form. Leach points to the work of Guy Debord as an example of dissident spatial theory. Debord's concept of détournement (using the capitalist system of sign-exchange against itself) may provide a starting point for rethinking spatial practice in South Africa. In the context of the proposed research, the book is also a prompt to rethink architectural representation. Leach offers no answers, but the start of a debate.

- Lembert, A. *The Heritage of Hermes – Alchemy in Contemporary British Literature.* Berlin: Galda + Wilch Verlag (2004).

- Manolopoulou, Y. Drawing on Chance: Indeterminacy, Perception and Design (PhD thesis). UCL, London (2003).

  Manolopoulou's thesis that chance underpins spatial perception in a significant way is important. By extending the consideration for chance into the design process, a more vivid experience might be created.

- Manolopoulou, Y. *Unformed Drawing: Notes, Sketches, and Diagrams.* The Journal of Architecture (Volume 10, Number 5, 2005), p. 517–525.

- McCarter, R (editor). *Pamphlet Architecture no. 12 - Building; Machines.* New York: Princeton Architectural Press/Pamphlet Architecture (1987).

  Building; Machines features the early work of Neil Denari and Wes Jones. The idea that the *intent* movement of machines may be translated into architectural form contributes to this paper. The machine is used as a metaphor for change.

- Merleau-Ponty, M (trans. Smith, C). *Phenomenology of Perception.* London: Routledge (2003).

  Merleau-Ponty's argument that the body acts as a filter for reality is important. The experience of space is subjective, synthesised in the mind via the senses. The idea that the same space may be experienced in infinite ways is central to this project.

- Pallasmaa, J. *The Eyes of the Skin.* Great Britain: Wiley-Academy (2005).

  Juhani Pallasmaa's suggestion that architecture must engage the entire body to affect people on a more personal level is an important consideration for my own project.

- Puglisi, L.P. (trans: Byatt, L). *Hyper Architecture: Spaces in the Electronic Age.* Berlin: Birkhäuser (1999).

- Sadler, S. *The Situationist City.* Cambridge, Massachusetts: MIT Press, 1998.

  Constant's *New Babylon* project envisions a city of changing spaces, engaging all the senses, not only sight. The idea of an alternative experience to the city, one of collaboration, difference and chance, is central to my proposition.

- Schrodinger, E. *What is Life?* Cambridge: Cambridge University Press (2004).

- Serres, M. *Parasite.* London: The John Hopkins University Press (1982).

  The key idea is that communication and invention actually *depend* on interference (noise, parasite) to function productively. Interference modifies information, enabling unusual connections between diverse areas of knowledge to create new ideas.

- Serres, M. *The Troubadour of Knowledge.* Ann Arbor, MI: The University of Michigan Press (1997).

- Spiller, N. *Visionary Architecture: Blueprints of the Modern Imagination.* London: Thames & Hudson, 2006.

- Tschumi, B. *Architecture and Disjunction.* Cambridge, Massachusetts: The MIT Press (1994).

  Central to this collection of essays by Bernard Tschumi is the idea that architecture only exists through its friction with events. There is no quantifiable relationship between form and programme. Architecture can't insist on the permanence of values. What's left is the potential to amplify forces already in motion. The inherent uncertainty of life in the city can act as an energizing force questioning the body-situation in relation to city space and society. An awareness of architectural instability equates to a questioning of the body's own integrity. Architecture, in this context, is the design of events as inventive turning points (fleeting moments of questioning/reconciliation). Regressive behavioural codes, often taken for granted in a state of virtual existence, are dismantled. My own design would strive for this process of continual re-evaluation of limits through disjunction, rather than a synthesis of conflicting forces.

- Vale, V; Juno, A (editors). *Industrial Culture Handbook*, RE/Search: Issue 6/7. San Francisco: RE/Search Publications (1994, originally published in 1983).

  The Industrial Culture Handbook contains an in-depth interview with members of Survival Research Laboratories. Mark Pauline explains the philosophy behind the group's re-appropriation of military technology. The idea that mechanical motion has the potential to increase the awareness of the body and the senses contributes to my own project.

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02	A metamatic sculpture by Jean Tinguely	Tomkins, C. *The Bride & the Bachelors.* New York: The Viking Press, Inc. (1968), unpaginated photo plate. Photo credit: David Gahr.
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20	Solar clock structure at Jai Singh II's Jantar Mantar complex in Jaipur (1727 and 1734).	Internet URL: *To See the World Through the Window* online-blog. Blog entry: *Sundial in Jantar Mantar* (posted by "tamus" on July 14, 2009 at 9:43 am). http://windowshots.files.wordpress.com/2009/07/jantar_mantar1.jpg
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22	*Pravda Building*, Leningrad (1924) by Konstantin Melnikov.	Internet URL: *BLDGBLOG* online-blog. Blog entry: *Sleep Labs of the Soviet Empire* (Posted Monday, February 26, 2007). http://bldgblog.blogspot.com/2007/02/sleep-dorms-of-soviet-empire.html
23	*Pravda Building*, Leningrad (1924) by the Vesnin Brothers.	Internet URL: *Flickr.com* photostream of user "tchertykovtseva" (uploaded on November 23, 2008 by "tchertykovtseva"). http://www.flickr.com/photos/tchertykovtseva/3054327326/
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26	*Robodock Festival 2007*, Amsterdam.	Internet URL: *Flickr.com* photostream of user "Elmer Kroese" (Uploaded on September 23, 2007 by "Elmer Kroese"). http://www.flickr.com/photos/23039429@N00/1430834879/sizes/o/in/set-72157602129533490/
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33	Studies for a machine architecture by Iakov Chernikov (1928-1931).	McCarter, R (editor). *Pamphlet Architecture no. 12 - Building; Machines.* New York: Princeton Architectural Press/Pamphlet Architecture (1987), p. 60.
34	Jean Tinguely and his metamatic painting machine, Biennale de Paris (1959).	Tomkins, C. *The Bride & the Bachelors.* New York: The Viking Press, Inc. (1968), unpaginated photo plate. Photo credit: Galerie Alexandre Iolas.
35	*Monogram* by Robert Rauschenberg (1955-1959).	Tomkins, C. *The Bride & the Bachelors.* New York: The Viking Press, Inc. (1968), unpaginated photo plate. Photo credit: Michael Katz; Collection Moderna Museet, Stockholm.
36	A junk sculpture by Nancy Rubins.	Internet URL: *Sculpture Center* website. *Nancy Rubins: MoMA and Airplane Parts that visited Fondation Cartier pour l'art contemporain 2002/2003 then visited Forte Belvedere in 2003 and is now at SculptureCenter* (Photo uncreditied). http://sculpture-center.org/exhibitionsExhibition.htm?id=10098
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PART 02

TECHNOLOGY RESEARCH PAPER

SOFT MACHINES

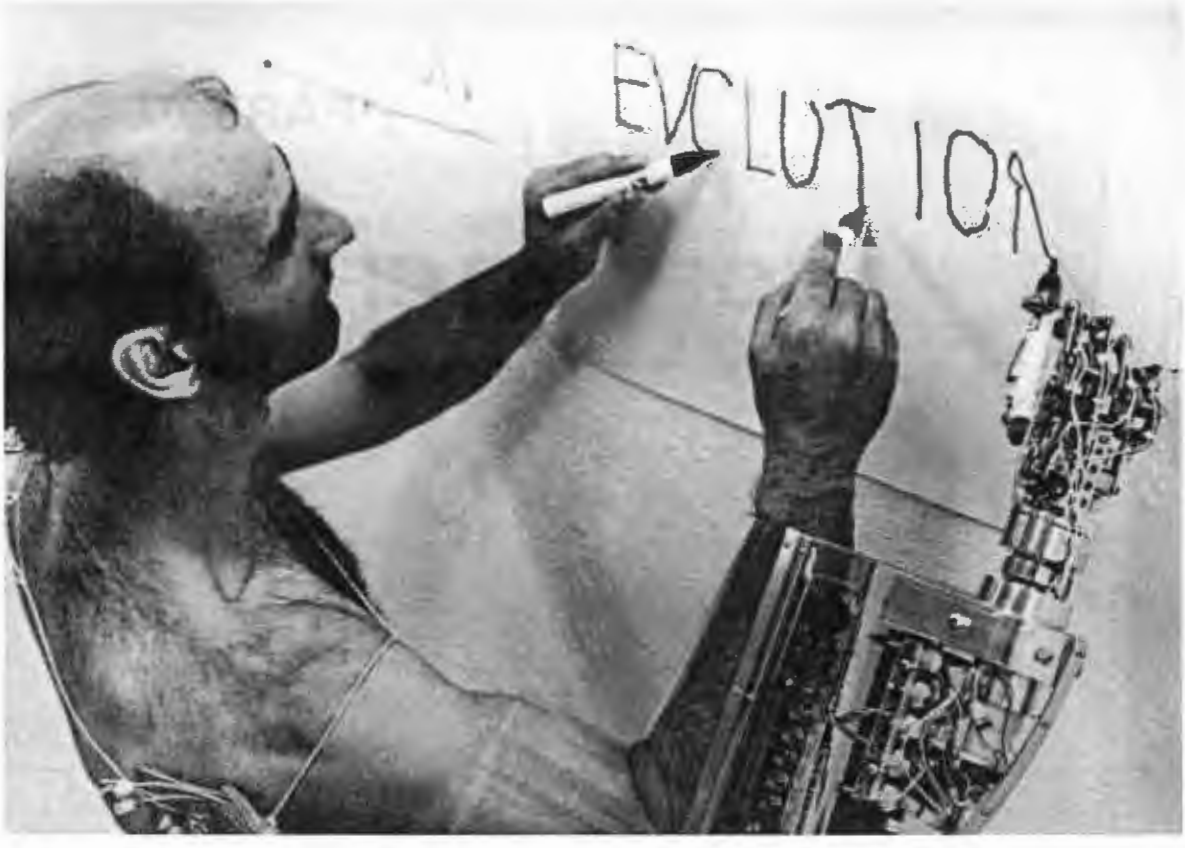

Fig. 01. Greek-Australian artist Stelarc with his cyborg *Third Hand*

PRETEXT

This paper takes a close look at *techné* as the act of learning through making. Creative experimentation is not only a self-enriching pursuit, but essential to the evolution of ideas. It also allows unexpected potential to play a part in the creative process. I will attempt to show that this element of spontaneity encourages the development of unique design solutions.

The final section of this paper, entitled *Drawing Experiments,* aims to test some of the outlined ideas in a practical manner. The goal is to develop a better understanding of abstract concepts through *making.* Through the technology of drawing, an attempt is made to activate the subconscious of the designer in pursuit of unexpected results. This type of spatial experiment is referred to as *nameless space.*

This paper suggests that technology is an innate human drive. The mind evolved through interaction with our handiwork. Evolution and technology is examined as a singular, mutually reinforcing process.

Paired with a theory paper, entitled *KL-Metamatic*[1], this paper establishes a theoretical framework for an actual architectural design. KL-Berth, located within the Duncan Dock at Cape Town harbour, was selected as a site (see appendix for details). The site was selected on the strength of its atmospheric richness and personal significance for the researcher. The letters K and L indicate the berth's relative position along the terminal. ■

[1] This paper explores movement as a key to personal engagement in architecture.

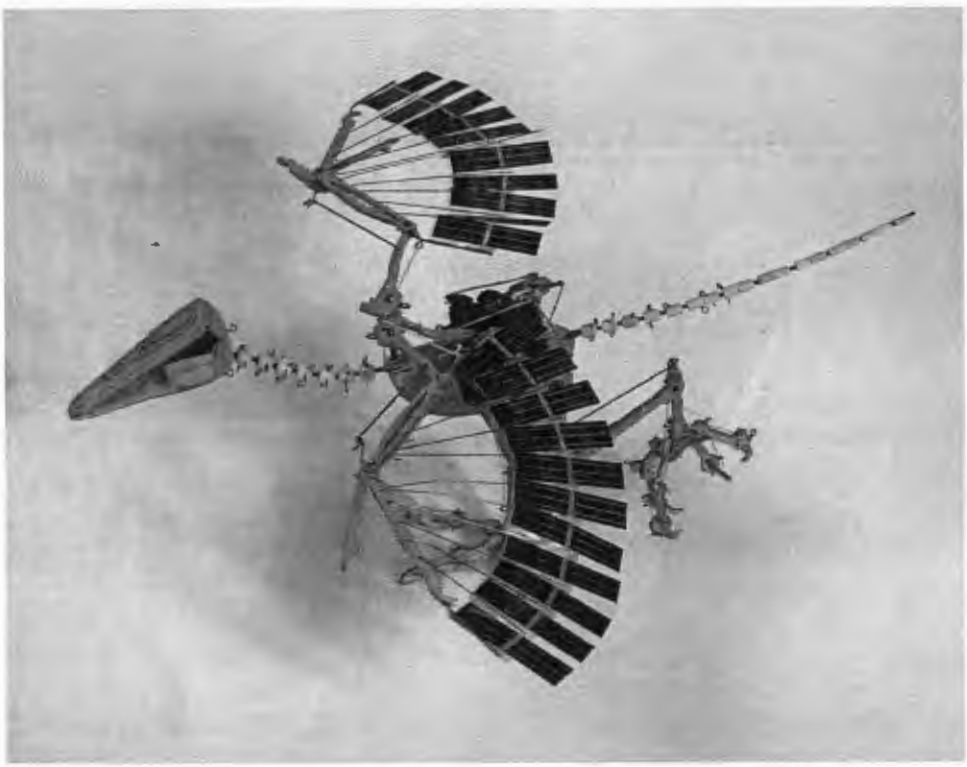

Fig. 02. Above: *Super Pepto Bismo* (1996) by Panamarenko
Fig. 03. Below: *Archaeopterix IV* (1991) by Panamarenko

INTRODUCTION

Experimenters like Leonardo da Vinci, Nikola Tesla, Marcel Duchamp and Panamarenko synthesized lessons from a wide range of pursuits into focused creative efforts. These interests were often obscure. I argue that it is this eclectic quality that inspires a fresh approach to invention.

I intend to develop my own project in the experimental spirit of these inventors whose work I admire. This means to think with my hands and imagination. This resonates with my own process-driven, rather than theoretical approach to design.

Engineer and artist Tim Hunkin, famous for his own idiosyncratic designs, argues that technological disciplines often *"trumpet the use of theoretical stuff like pure science and virtual reality"*, but take intuitive experimentation for granted (Hunkin, 2008, unpaginated). Working "on a hunch" is often seen as a vestige of the past.

Techné, in the true sense of the word, refers to the act of uncovering the *mysterious*. Such experiments certainly bear testament to a rigorous process of self-discovery through invention. More importantly, they evidence an enjoyment of craftsmanship and learning from direct experience. This refers to a *process*, not merely a product.

Technology never exists outside of our own bodies. It extends our senses and allows us to discover the world through direct involvement. We literally craft our understanding of the world with our hands by giving physical form to ideas. As a consequence we evolve, developing the capacity to unravel the mysteries of the cosmos. For us, reality only exists because we are able to observe it.

Mankind's evolution not only parallels that of the machine, but traces the development of a singular being. Man and machine are two aspects of a singular cybernetic organism. As such, this paper examines *techné* through cybernetic theory. This involves a comparison of control processes, paralleled in biological and artificial systems.

Special reference is made to the writing of J.G. Ballard and Jean Baudrillard. Their vivid descriptions of technology and its psychological effects capture the exhilarating experience of life in the post-industrial city (merging inner and outer landscapes). Both authors make specific reference to architectural phenomena.

Fig. 04. An *Ornithopter* by George R. White and Doug Froebe (1930's)

Fig. 05. Tim Hunkin's waterclock on Southwold Pier, England (1998-2001)

Fig. 06. The remains of *Lucy*, 3.7 million years BC
(AL 288-1, *Australopithecus afarensis* female)

2 TECHNÉ
2.1. AL 288-1

Human beings walk on two legs because our hands are of far more use making tools, building civilizations or using bricks to prop open a bothersome door. Even the crudest act of *thing-using*, or learning to solve problems, requires creativity (Hunkin, 2008). In essence, human creativity springs from this ability to understand and manipulate materials to make life a little bit easier.

Based on fossil evidence, the first recorded primate to walk on two legs[2] was named *"Lucy"* (Australopithecus afarensis AL 288-1, discovered in Ethiopia, 1974). Lucy's bipedalism suggests the possibility that she was using her hands to learn.

Over the course of the last 3.7 million years, the human brain has evolved to a size roughly three times larger than that of Lucy's[3]. Proto-technological thinking, paired with developing hand-and-eye coordination, helps to explain why the human brain was able to evolve exponentially in a comparatively short time span (Evans, 1998).

Paleontologist André Leroi-Gourhan's famous homunculus diagram[4] indicates that a significant portion of the brain's motoric areas are dedicated purely to hand function (next page). This suggests that technology did in fact drive cognitive ability in human beings.

Studying architecture at a time when the computer has all but taken over the way most students design and draw, a strong case can be made for using the hands as primary means of production. Giving physical form to ideas through a hands-on approach is a thoroughly rewarding pursuit.

Francis Evans' essay, *Two Legs, Thing Using and Talking: The Origins of the Creative Engineering Mind* (1998), sheds some light on the mechanics and profound value of this approach to problem-solving. He argues that our ability to learn through the use of our hands i.e. first-hand experience, is essentially what makes us human.

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[2] *Lucy* was a biped, not a *facultative* biped. Facultative bipeds occasionally walk on two legs.
[3] Online human evolution resource: Foley, J. *Homonid Species.* http://www.talkorigins.org/faqs/homs/species.html (last modified on 30 April, 2010).
[4] Leroi-Gourhan, A. *Gesture and Speech.* Cambridge, Massachusetts: MIT Press (1993), p. 82. (Originally published in 1964).

Fig. 07. André Leroi-Gourhan's homunculus diagram (1964)

Historically, technology is studied in terms of *context* or *content*, a seemingly inevitable consequence of social forces and need. Evans (1998) proposes a third perspective based on understanding technology as a cognitive function driven by *spontaneous* creative inspiration. This approach describes the moment at which a new idea is born. Ideas, once formed, cannot be thought *out* of existence. They are there, and it is impossible to re-imagine the mindset before a particular mental problem was solved. His argument points to an element of unpredictability accompanying new ideas. To illustrate the point, he uses the example of the microprocessor:

> *"Who, in the early 1950's, imagined such a minute but powerful device? Nobody foresaw its industrial and administrative impact, or the way that it would put computing power into the ordinary home. Science fiction stories of the 50's would describe the captain of a space ship about to make the jump to light speed - and taking out his slide rule to make the calculations. The microprocessor was unexpected and it profoundly changed the future."* (Evans, 1998; section 2, unpaginated)

An analogy may be drawn between the spontaneity of new ideas and the indeterminate nature of architecture. How architecture is understood and used is ultimately beyond the control of the architect, however well intended the design may be. It is this spontaneity that is of importance to my project as it points to subconscious mental processes. To work in the spirit of *techné*, would then require an attempt to uncover, and proceed to amplify these hidden processes.

A case is made against technological determinism and the idea that technology is necessarily developed out of some fundamental human need. At times ideas have obscure origins, beginning either by accident or inspiration. Technological thinking transcends dealing with essential needs such as shelter, food and mobility to an even more basic level.

Technology, as a process, was never deliberately *established*, but stems from our inherent primal curiosity. This idea is echoed in Evans' statement:

"[...] man did not invent technology: technology invented man."[5] (Ibid; section 6, unpaginated)

[5] This may be likened to an old riddle: Which came first: the chicken, or the egg?

Fig. 08. Mind's eye: *Dog Picture*, illustrating the gestalt psychology concept of *Emergence*. This refers to a situation perceived as a whole, rather than in parts.

It has been suggested that technology can never exist *outside* of the human being. It is a fundamental human process that enables us to spontaneously adapt our *behaviour*, rather than our physical characteristics. If technology, including architecture, can be viewed in such anthropomorphic terms, it becomes possible to link the process to more specific cultural questions. For architecture, this may refer to communication on a basic human level through tactile experience. Here, technology enters the realm of phenomenology rather than abstract scientific theory.

It is always *thinking* that evolves, not technology itself. Francis Evans' maxim: *"Evolution is blind: Technology is mind,"* refers to the subconscious processes responsible for creative problem solving (Ibid; section 9, unpaginated).

A rock can become a hammer in the mind's eye. It could just as easily become a weapon or a seat. To recognize this potential, a personal creative impulse is required. The rock will always be a rock, but its meaning is fluid in the eyes of the prospective technologist (Evans, 1998). Each person's interpretation of the same rock would be different and it is difficult, if not impossible, to predict what another pair of eyes might see *in* the rock.

Any act of design is therefore an extremely personal affair. The rock example is analogous to the purpose and experience of what may be termed *nameless space*. Nameless space encourages participation, both imaginative and physical. It appeals to the fundamental human drive to discover. This type of space transcends the labels we attach to designs, and instead, demands nothing but a willingness to *feel*. On this type of tactile experience, architect and phenomenologist Juhani Pallasmaa writes:

> *"The eyes want to collaborate with the other senses. All the senses, including vision, can be regarded as extensions of the sense of touch; the senses are specialisations of the skin. The senses define the interface between the skin and the world, the interface between the opaque interiority of the body and the exteriority of the world."* (Pallasmaa, 2005; p. 29)

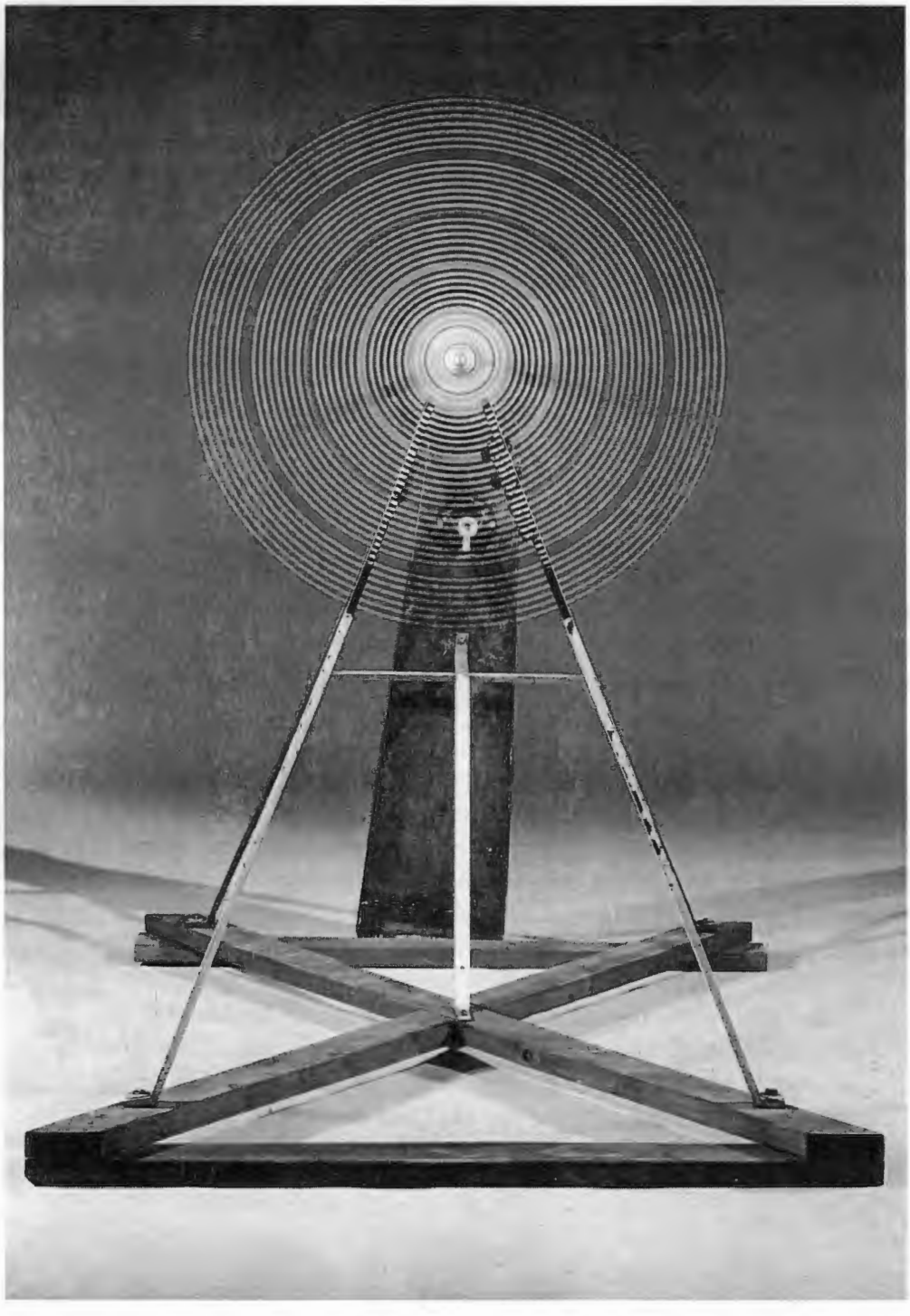

Fig. 09. Idiosyncratic invention: *Rotary Glass Plates (Precision Optics)*, 1920 by Marcel Duchamp

The feeling of space comes into existence through trial and error. In this case, invention precedes analysis. By minimizing the scope of design at the moment of conception, potential is excluded. Tactile experience and sensitivity to the unknown are shut out.

The final section of the paper propels this argument through a set of drawing experiments all the while focusing on uncovering and amplifying subconscious processes using techniques devised by the Surrealists during the 1920's.

The aleatory processes of the imagination play a pivotal role in the construction of new knowledge. This argument can explain an obsession with *making* things. An enjoyment of making is certainly a shadow of a more primal desire to *know*.

Fig. 10. Greek-Australian artist Stelarc with cyborg interface, *Involuntary Body*

2.2 SAVAGE AMUSEMENT

The human body as exemplar of Classic beauty and integrity is dead. From the remains a cybernetic upgrade is born. The death and resurrection of the body is analogous to the disassociation that defines the post-industrial city. It is a mysterious, disjointed place caught somewhere between a dream and brightly-lit reality. The ruptured body finds a reflection in the fragmented experience of the city itself, an uncanny *doppelgänger*.

I argue that for architecture, the question is not about making a case for or against fragmentation, but rather how to use its potential as an inescapable working condition.

The recognition of difference creates what Michel Serres calls the "*educated third*" (Serres, 1997, p. 49), an evolutionary love-child born from unusual, spontaneous connections. It is through the tension created by unfamiliarity in the familiar that we come to understand ourselves better. Serres' *"educated third"* can also be understood as a metaphor for the human body's evolution towards the cybernetic.

Architecture, appealing to these collapsing boundaries provides the platform for spatial experiments that use the potential created by conflict. Synthesis is shunned in favour of free-association and invention. The past and the possible are re-assembled like shards of a broken mirror. French phenomenologist, Maurice Merleau-Ponty describes this mental reconstruction of spatial experience as follows:

> *"We must not [...] suppose that the determinate forms reached through the critical attitude are actually in the primordial experience, or, in consequence, talk about a synthesis which is present, so long as the manifold is as yet undissociated. [...] In order to perceive a surface, for example, it is not enough to explore it, we must keep in mind the moments of our exploratory journey and relate the points on the surface to each other. [...] Let us therefore say provisionally that there is a merely <u>possible</u> stuff of knowledge* (Merleau-Ponty, 2003; p. 281)

J.G. Ballard, in the introduction to his novel *Crash*, identifies the reversal of fiction and reality as the defining characteristic of modern life (Ballard, 2008a; *Introduction* unpaginated). The author, no longer charged with the invention of fiction, since it is already there, is faced with the new challenge of constructing *reality*. This is achieved through a creative re-assembly of various existing fictions.

The author, or designer, takes the role of a scientist experimenting with the unknown, to *"devise various hypotheses and test them against the facts"* (Ibid). This role reversal extends to the conception of time: *"We have annexed the future into the present, as merely one of the manifold alternatives open to us."* (Ibid)

Ballard's suggestion of a time-space distortion twists the once-clear distinction between the natural and artificial towards the cybernetic. Here, technology becomes what may be referred to as *"the mortal deconstruction of the body"* (Baudrillard, 1994; p. 111). Technology is no longer a prosthetic medium but a cybernetic continuum of man and machine.

Shock is no longer a physical response to the over-stimulation and unpredictability of the *Spectacular* city. Reaction is imploded into the subconscious where the thrill of the neon-lit post-industrial landscape is stretched into the deepest reaches of the mind. This phenomenon is known as the *"death of affect"* (Ballard quoted in: Denari, 1999; p. 48). Fueled by the limitless power of imagination, it is *here* that this landscape reaches its full potential. This psychological transformation signals the complete destruction of binary opposition. Internal and external dimensions collapse, become fluid and fuse in a petrochemical marriage of dream and reality.

Mourning the *death of affect* as an unpleasant consequence of overexposure to *Spectacle* is to deny the rich experiential pleasure inherent to the condition. The cybernetic interpretation, our affection for the modern city, is metabolised in the imagination. Once ingested, desire stirred up by this uncanny environment is distilled into a repressed, almost erotic, affiliation with technology. Ballard adds: *"Modern technology offers an endless field-day to any deviant strains in our personalities."* (Ballard, 2008b; *Introduction* unpaginated)

Repressed desire is elusive. Its existence is revealed only in stolen glimpses. It is also often misdirected on passive consumption[6]. Participatory architecture, through its immediacy, may intercept and translate this wasted energy into something more progressive. In a moment of participation, our latent psychological connection to technology becomes clear. Jean Baudrillard uses the extreme example of a car-crash to illustrate the point:

> *"Technology can never be grasped except in the (automobile) accident, that is to say in the violence done to technology itself and in the violence done to the body. It is the same, any shock, any blow, any impact, all the metallurgy of the accident can be read in the semiurgy of the body"* (Baudrillard, 1994; p. 112)

Only in a moment of physical engagement the true nature of the cybernetic mindset is revealed - brightly lit, mysterious and exhilarating. I propose that no such trauma, however dramatic a car crash may be, is necessary to tap the phenomenological richness of the post-industrial city. Architecture as a physical discipline can highlight presence just as effectively.

By engaging the body physically, the architectural mechanism mediates between fluid imagination and environmental experience, in effect giving physical expression to ideas and desires. Techné, at the architectural scale, highlights our primal curiosity to understand.

Ballard and Baudrillard's description of a new morality, a post-human state of mind, has a powerful spatial relative. It now enters the realm of architecture. I suggest that at its deepest level, architecture and technology in general, represents humankind's primordial desire to not only stand on equal terms with nature, but to *conquer* it. We shape it in the image of our imagination. Onto untouched wilderness we project a route-map for our deepest hopes and fears, a technological *dobbelgänger* for company on our outpost. Perhaps this is the *Robinson Crusoe* pathology. We read ourselves in the technological map.

What we make with our hands is an attempt to test our limits and develop understanding of our relationship to the world. In this sense, technology is an affirming, rather than an alienating process of self-discovery. Architect Wes Jones summarises this attitude towards technology succinctly:

> *"The machine is man's answer to his alienation from nature, not its cause."* (McCarter, 1987; p.54)

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[6] Disassociation and the increased susceptibility to suggestion are easily exploited under hyper-capitalism.

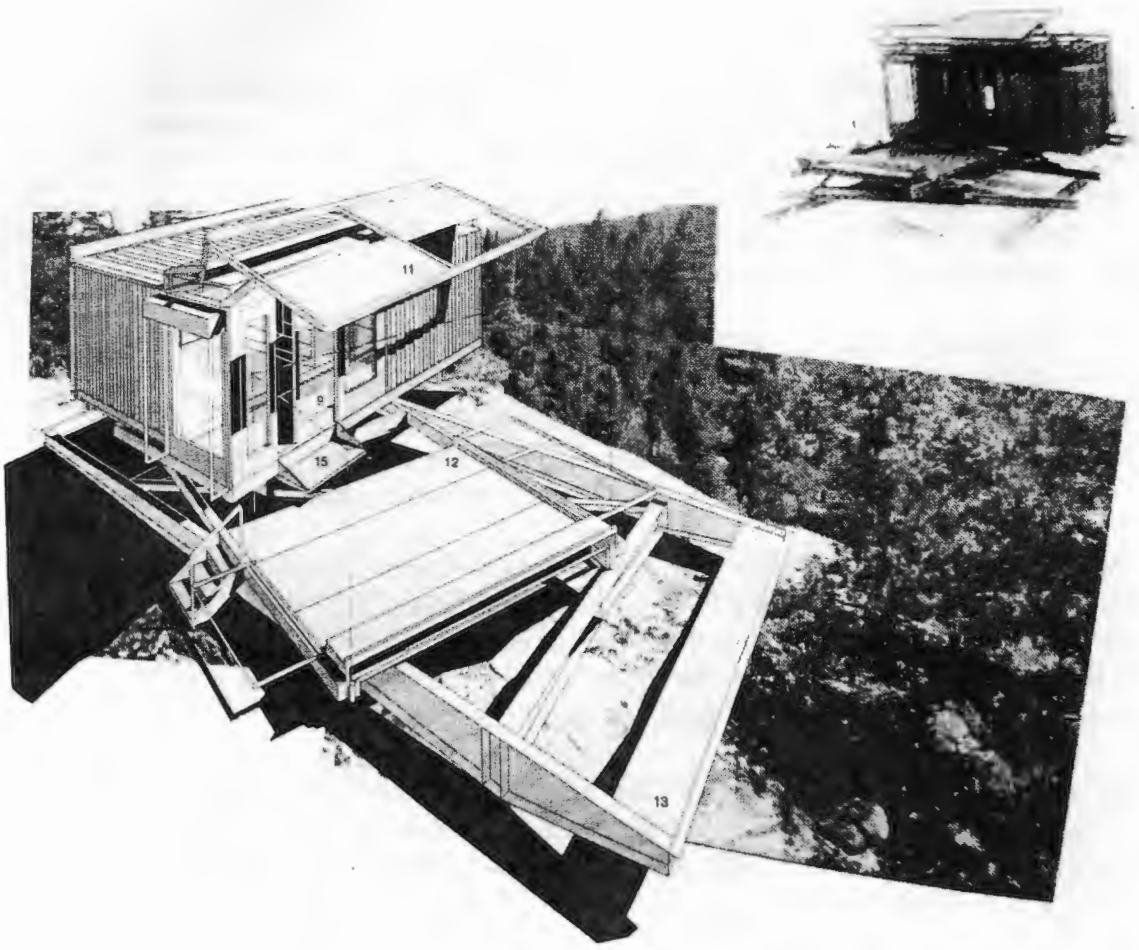

Fig. 11. *Guest Cabin* (1992) by Wes Jones, a machine mediating nature

Psychological projection into a physical environment brings to mind the concept of *transference.* In psychotherapy, this is a situation where patients relate to a therapist in a manner that simulates other relationships in their lives. An external situation is projected into a surrogate medium to gain insight on personal motives and strategies.

Similarly, imagination may be resonated in built form to reveal new insights and experiences. This could simply refer to taking notice of small things that normally go unseen, perhaps a gentle breeze or a light effect. In this spatial situation there is a suggestion that participants transfer themselves into a work to become a part of its narrative.

Architecture becomes enigmatic. It not only refuses a single reading, but allows participants the opportunity to re-assemble their own destinies. In other words, to recognise oneself in something else is startling, but invariably breeds new thought-processes. This quest for discovery is completed in the true spirit of *techné.*

Participation becomes the process of writing yourself into the world. A creative dialogue between man and technology is set in motion, driving the evolution of thought.

2.3 MECHANICAL ANIMALS

Technology is never a means to an end. *Techné*, as suggested, is a poetic attitude to making. Through it, technology becomes a vehicle for existential contemplation. The self is mirrored in the created object, but there is enough distance for reflection. Through uncanny familiarity, new insight is gained. It is this ambivalent spirit that breeds invention. Technology is mankind's attempt to understand nature, and in turn, *himself* as part of nature.

As it contains our daily lives, architecture as *techné* on a grand scale, is the ultimate attempt to reveal this duality. I am convinced that the expansion of consciousness through experience lies at the heart of architectural design. This is the purpose of technology in general, to ask more questions than provide answers in an ongoing drive to evolve.

Direct participation and experimentation often give way to economic and utilitarian determinism. Products are invented for consumption. Experimental risk-raking is dispensed in pursuit of market-driven outcomes.

I suggest that experience is more important than stylized efficiency. It is this very *imperfection* that leaves room for personal affection. Technology is made visible once again as we recognise our own imperfections reflected in our handiwork. Architecture may be humanised through inconclusivity.

Technology is liberated from utilitarian validation. Its value can now be measured beyond such criteria. Technological thinking, as is generally understood, implies an emphasis on economic and utilitarian determinism. This approach inevitably leads to stylised utility fetishisation. Difference is excluded at the expense of experience. Theodor Adorno points out that when this is the case, technology can no longer be experienced, only operated (McCarter, 1987; p. 9).

Considering the proposed cybernetic human condition, Adorno's observation implies a counter-productive process. When operating technology (architecture), stripped bare of experience, we become increasingly impoverished ourselves in terms of imagination and quality of life:

> *"[...] our gestures become brutal and precise, without deliberation or civility. We are 'processed' through the moving walkway, the revolving door, the escalator – the simple opening of a door to enter a room – is becoming obsolete."* (McCarter, 1987; p. 9)

2.4 MADNESS AND CIVILISATION

> *"In a century or two, or in a millennium, people will live in a new way, a happier way. We won't be there to see it – but it's why we live, why we work. It's why we suffer. We're creating it. That's the purpose of our existence. The only happiness we can know is to work toward that goal."* - Anton Chekhov – *Three Sisters*, Act 2[7]

Cybernetic existence is a double-edged sword. On the one hand it is easy to despair, mourning the loss of meaning amidst economic and environmental uncertainty. The other hand contains a message of profound optimism. On the topic of global interconnectedness and instant communication, Baudrillard points out the downside:

> *"We live in a world where there is more and more information and less and less meaning"* (Baudrillard, 1994; p. 79).

For Baudrillard, rather than creating meaning, information destroys it. But there is an up-side to this condition of media overload and its accompanying fragmentation.

When trying to understand technology beyond our means, gauged on the current situation, physicists classify civilisations into either Type 0, I, II, III and IV. This is based on modes of energy consumption (Kaku, 2006; p. 307-317). As we still primarily use fossil fuels, human civilisation is classified as Type 0. Theoretical physicist Michio Kaku puts the angst accompanying our time into perspective by noting that this confusion may be nothing less than the growing pains of a civilization on the brink of mass-evolution into a mature Type I civilization (Kaku, 2006; p. 307).

We are at a fork in the road. We must make the decision between self-destructive atrophy with its pollution and war, or evolution by harnessing natural energy and greater freedom of information.

For architects, this ambiguity creates the ideal condition for spatial experimentation. It is an opportunity to probe uncertainty in order to reveal a glimpse of the unseen. This is a positive affirmation of the potential granted by our time and made possible through the joy of *techné*.

[7] Chekhov quoted in Kaku (2006), 359-360.

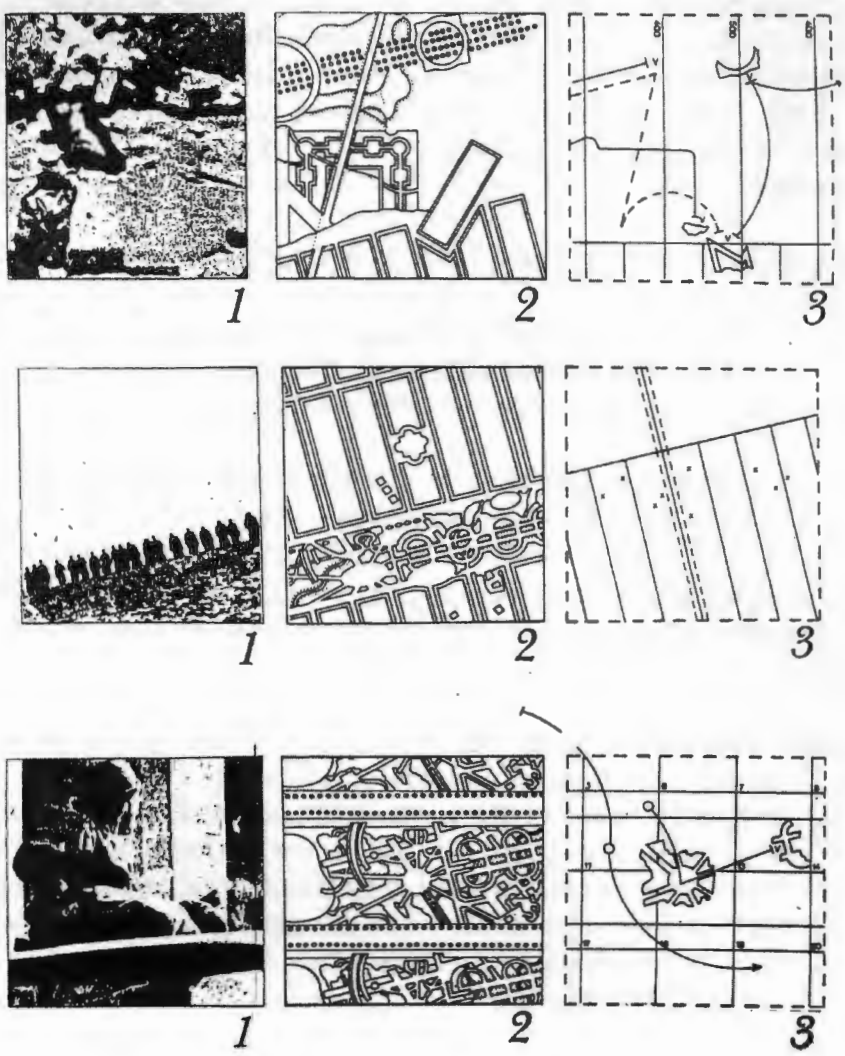

Fig. 12. *The Manhattan Transcripts* (1978-81) by Bernard Tschumi Architects, tracking the friction between space and movement

3 DRAWING EXPERIMENTS
3.1. THE PSYCHOGRAM

> *"Pure logic could never lead us to anything but tautologies; it could create nothing new; not from it alone can any science issue [...] ...to make any science, something else than pure logic is necessary. To designate this something else we have no word other than intuition."* [8] – Henri Poincaré

Design is never an absolute procedure. I suggest that there is no causal link between human behavior and architectural form. It is a question of reciprocity, of *inspiration*, rather than cause-and-effect. Bernard Tschumi argues:

> *"...there is no architecture without program, without action, without event."* (Tschumi, 1994; p. 4)

In this sense, architecture is defined as the resultant friction between spaces and events, rather than meaning inherent to form itself. I agree with Tschumi's assertion and suggest that new juxtapositions of form and associations are a key to inspiring exciting new types of program.

By conducting form experiments, I am searching for a process of *arriving at* program, rather than predefining it. Working in the spirit of *techné*, the aim is to think through one's hands and an activated subconscious.

The incorporation of chance in the process of design in no way represents an attempt to abdicate authorship. Nor do the experiments attempt to discover a complete design scheme. The aim is to pick up *traces* of unforeseen possibilities; thinking through specific conditions with material at hand. In the context of my project, this refers to the site at KL-Berth.

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[8] Poincare' quoted in Craig E. Adcock. *Marcel Duchamp's Notes from the Large Glass: An N-Dimensional Analysis.* Ann Arbor: UMI ResearchPress (1983), p. 144.

As long as designs are drawn by human hands, it is irrevocably an act of personal creativity. The resulting *psychogram*[9] is meant to project body language directly into design, rather than capture a random emotional moment. It is meant to transfer into the design a trace of an imperfect human condition. In lends an anthropomorphic quality to mechanical objects. To transfer the subconscious into the process of design means to trust and amplify the mind's instinctual reaction to a given situation.

> *"[...] the unformed drawing is 'alive' and changeable. It forms questions as much as answers."* (Manolopoulou, 2005; p. 519)

If this feeling can be sustained into built form, a sense of permanent impermanence may mediate the world of imagination with material reality (Manolopoulou in Borden et al, 2006; p. 260). This type of spatial experience necessarily requires participation. The participant is invited to become part of the creative process, to complete it *psychologically*, according to personal strategies.

This approach to space-making is also an appeal to the constructive nature of perception itself. The experience of existence is a hyper-complex combination of cultural, environmental and psychological factors *"linking vision with language in curious and unpredictable ways."* (Manolopoulou, 2005; p. 522)

Each participant is afforded a personal, unique experience of the same drawing or space. The idea is to create space more sensitive to the subtle ways in which perception actually works to create a spatial experience. This is the essence of *nameless space,* pursued through a series of drawing experiments included in this paper.

My interest in Surrealist techniques stem from this idea. Surrealism was focused on subconscious processes and the revelation of desire. In this regard, the technology of drawing becomes a vehicle to better understand the true, hidden drives of the designer. I will be experimenting with variations of the *Exquisite Corpse* and *Automatic Drawing* techniques devised by the Surrealists during the 1920's. I will also attempt to extend this process into model building.

[9] A term invented by Coop Himmelb(l)au

Exquisite Corpse: The technique is named after the result of a game played by André Breton and friends *("The exquisite corpse will drink young wine")*. It can best be described as a call-and-answer procedure. It involves a series of images, words or objects composed through the application of a set of rules.

Exquisite Corpse is performed through collaborative turn-taking. Each player takes a turn to write down a word, fold over the paper; and pass it along to the next player. The result is, often humorous, but is meant to provide a thumbnail sketch of the group's collective unconscious. As explained below, the architects of Form:uLA Dimension Laboratory use a variation of this procedure in an architectural context.

Automatic Drawing: This technique developed from written experiments (*Automatic Writing*). Speed is crucial. A drawing is started with no preconceived idea, executed too fast to rethink lines or second guess decisions. Accidents may later become significant.

Conscious control is shut down completely to reveal the true intentions of the subconscious. The body, with its fast actions, and subconscious are literally projected into the drawing. I argue that this anthropomorphic quality may effectively sustain the immense energy released during the moment of design into built form. Breton suggests:

> *"Write quickly without a preconceived subject, fast enough not to remember and not to be tempted to read over what you have written."*[10]

The goal is to short-circuit conscious editing, a form of architectural divination, that may allow glimpses of deeper subconscious processes to seep into the work unhindered. There are architects who have used these techniques in their work in varying capacities. Outlined in the following section are the techniques that are most relevant to my own work.

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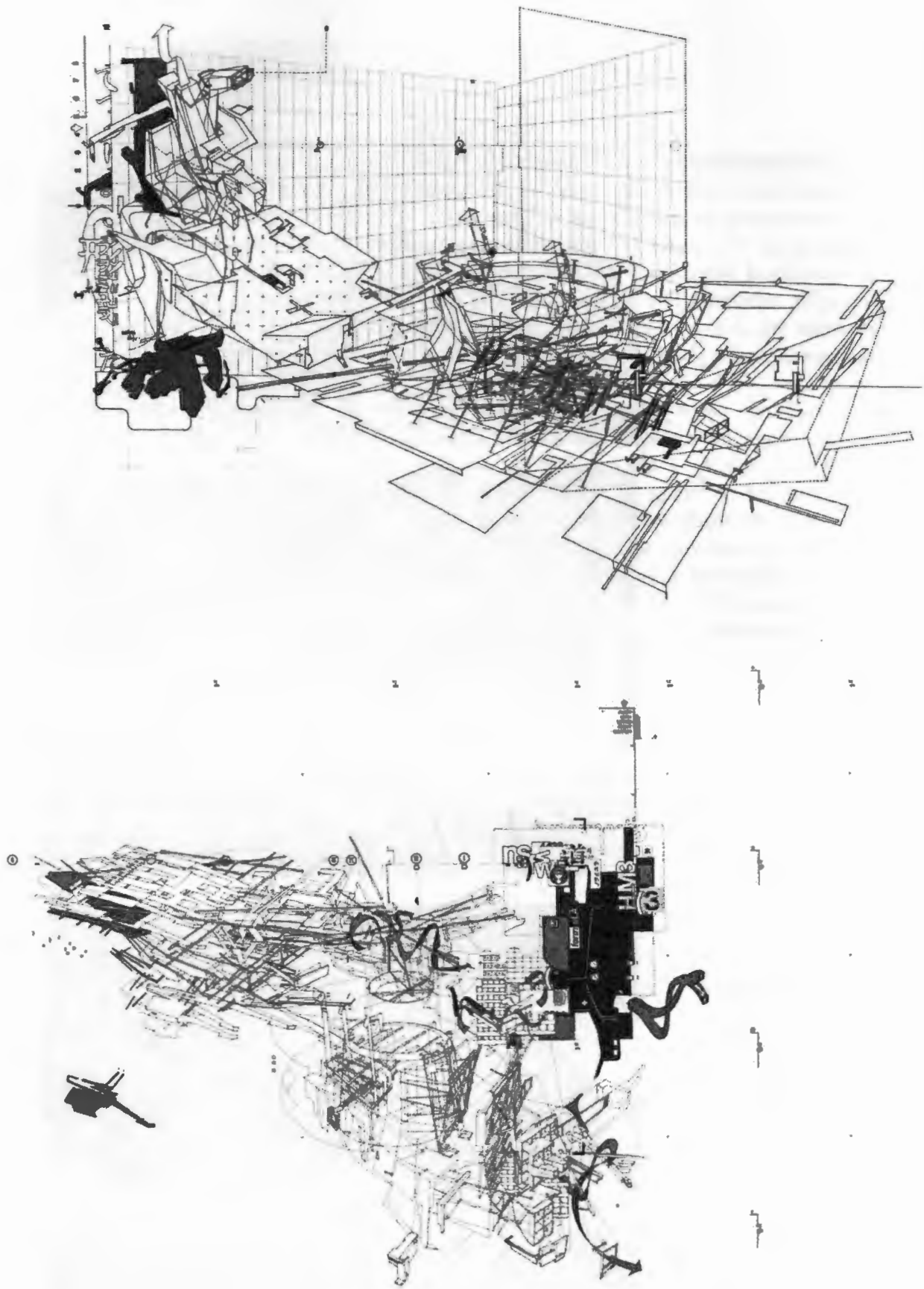
[10] Andre´ Breton quoted in: Lucie-Smith, E. *Movements in Art since 1945: Issues and Concepts*. London: Thames and Hudson (1995), p. 33.

Fig. 13. Above: *Open House psychogram* by Coop Himmelb(l)au (1983-1989)
Fig. 14. Middle: *Open House* sketch model
Fig. 15. Below: *Open House* model

Coop Himmelb(l)au: Coop Himmelb(l)au's drawing experiments are proof of the exciting potential that may be unlocked when perceptual filters are subdued during the design process. They typically start with a sketch called a *psychogram*. The sketch is by no means random. By using what is essentially a variation of Surrealist automatic drawing, the architects' instinctual spatial intent is captured. The sketch is rapidly interpreted as a model. A prime example of this is their *Open House* design. Architect Michael Sorkin comments on the procedure:

> *"[Their Open House project] is a shrine to the sensitive dependence on initial conditions. The impetus to retain – with utter fidelity – the character of the first sketch is exactly this. Instead of trying to smooth things out, rationalize an impulse without ready quantification, Himmelblau trust the evidence of their sensibility, and then struggles to retain it – whatever the consequences. [...] Instead of retreating into the tactic of the impossibility of building, they attempt to build the impossibile."*[11]

[11] Sorkin, M, *Exquisite Corpse: Writing on Buildings*. New York: Verso (1991), p. 347.



Figs. 16 & 17. *Hypermesh* drawings by Form:uLA Dimension Laboratory. Published on the web-blog of Form:uLA Dimension Laboratores, March 2010 (see List of Figures for details)

Form:uLA Dimension Laboratory: Bryan Cantley and Kevin O'Donnell employ a number of aleatory procedures as a way of unlocking new forms and programmatic associations. The most interesting technique is a variation of the *Exquisite Corpse* called *Hypermesh* or *Oscillation Drawing*.

> *"A single drawing beginning with one of their typically fantastical machine forms is passed back and forth between them, and with each pass the image is altered according to a short but eccentric set of rules: change the orientation, activate the edges of the composition, add coded text, superimpose an inset "window" into another dimension of information [...] The machine form mutates, like the birds that turn into fish in an Escher drawing. Transforming in a process akin to natural growth, the final form may be radically unlike its antecedents [...] The oscillation exercise is itself a machine for generating new forms."* [12]

[12] Keffer, R. *Call and Response: The Architecture of Form:uLA Dimension Laboratory*. Loud Paper (online magazine): Art/Architecture (Volume 4, Number 3). URL: http://www.loudpapermag.com/articles/call-and-response-the-architecture-of-formula-dimension-laboratory

Figs. 18 & 19. Experimental *Habitats* by Mas Yendo.
Models assembled from salvaged materials.

Mas Yendo: When designing his experimental structures, Mas Yendo constructs striking models from scavenged materials, some even hacked from plastic model kits. Through assemblage he gives *ready-mades* new meaning and purpose. This is a strategy to explore the potential of the subconscious. Scale is open to interpretation. The main advantage to this technique is that the model is, by default, layered with information, textures and personal associations.

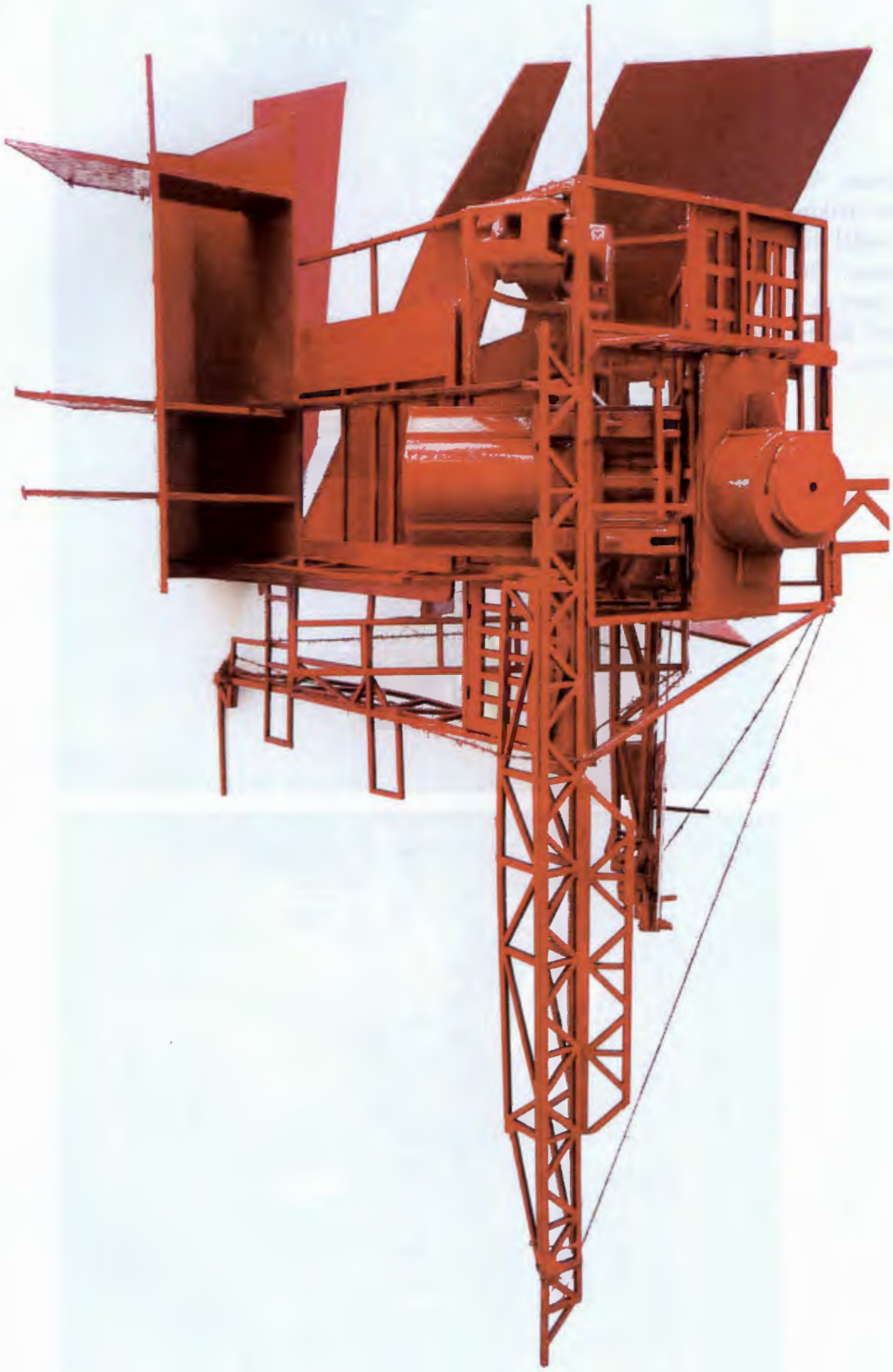


Fig. 20. Stefan van Biljon – Model A (2010).
Assembled from scrap material

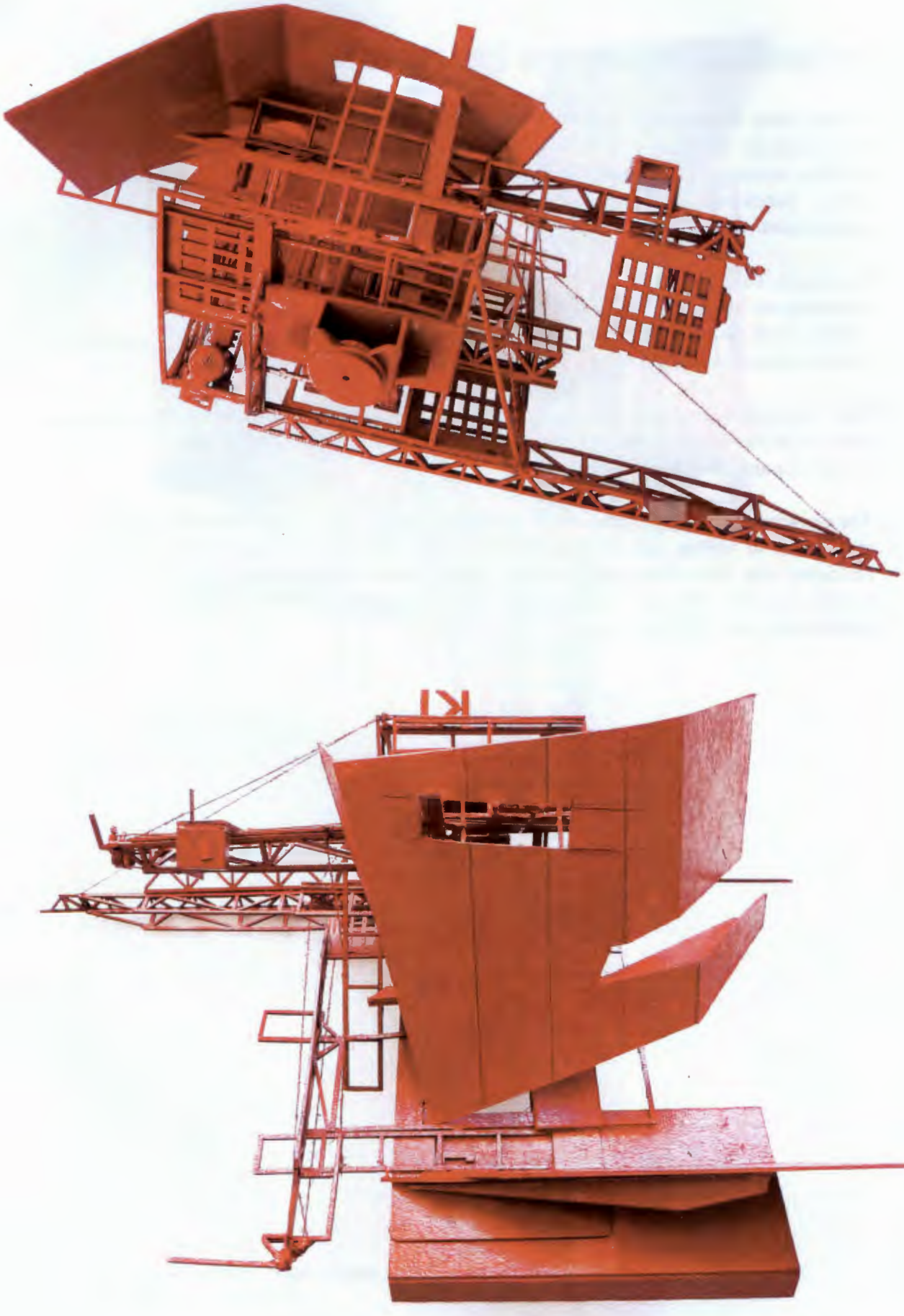
3.2. PERSONAL EXPERIMENTS

For my own experiments I draw on a personal collection of found items. These include scrap objects, discarded bits of technology as well as model building leftovers. Over time, these elements were either salvaged from junk yards, discovered by chance or are residual remains from previous experiments.

To restate: The goal of this experiment is not to arrive at a design scheme. It represents an attempt to trace the *evolution* of form as it is carried through various media and subconscious interpretation procedures. The aim is to allow unexpected elements to get assimilated in the development of an idea.

The resulting forms and associations may be radically different from the point of departure. It is desired that the results remain open-ended to allow for direct participation from observers.

The drawings attempt to simulate the experience of *nameless space* through a translation of energy into movement (drawing). As such, the experiments anticipate the representation strategies for my actual architectural design. Similar to the drawings, this design would seek to provoke personal involvement and *affect* from users.



Figs. 21 & 22. Stefan van Biljon – Model A (2010)

The process starts with the construction of a model from the gathered materials (Models A, B & C). Elements are instinctually selected and assembled as a spatial i.e. physical representation of subconscious associations. The next step is a drawing exercise based on the model. Forms are explored through rapid sketches interrogating the latent spatial possibilities of the model.

The drawings oscillate between the second and third dimensions. This is done to create a degree of self-awareness when looking at the drawing. What the eye perceives as representative of three-dimensional space is confused by strong two-dimensional elements. The collision of incompatible geometries and dimensions forces the mind to continually re-examine the page. The ambiguity of scale and mass enhances the effect. A total synthesis of the drawing surface is no longer possible.

Once the drawing is sufficiently charged, forms may migrate back into the third dimension, pulling the hieroglyphics and surface marking along with it. The moment of conception is forever etched into the surface of the emergent forms and is a constant reference to the process of creation.

When retrieved into three-dimensional space, the resulting models do not represent a rigid facsimile of drawing, but a metamorphosis. The forms are no longer validated by drawings. The purpose is to break down the causal hierarchy between model and drawing as a set of actions that follow on one another.

The hierarchy of design, representation and building is broken down and collapsed into a unified impression. This technique will reiterate the importance of process over synthesis. Drawing becomes a tool to recognise, rather than exclude, the potential afforded by accident.

Figs. 23 & 24. Stefan van Biljon – Model B (2010)

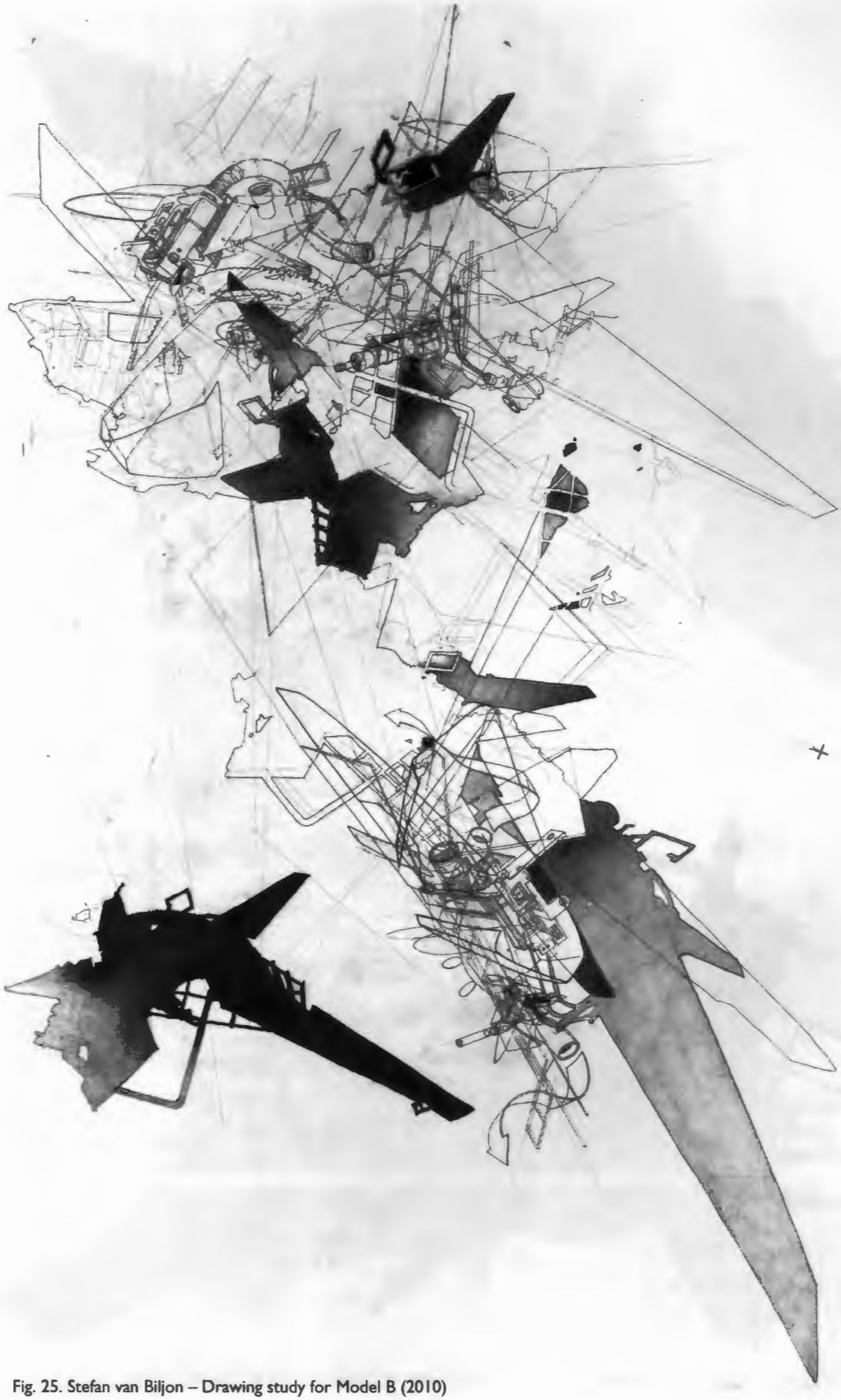


Fig. 25. Stefan van Biljon – Drawing study for Model B (2010)

Figs. 26 & 27. Stefan van Biljon – Model B (2010)

Figs. 28 & 29. Stefan van Biljon – Model C (2010)

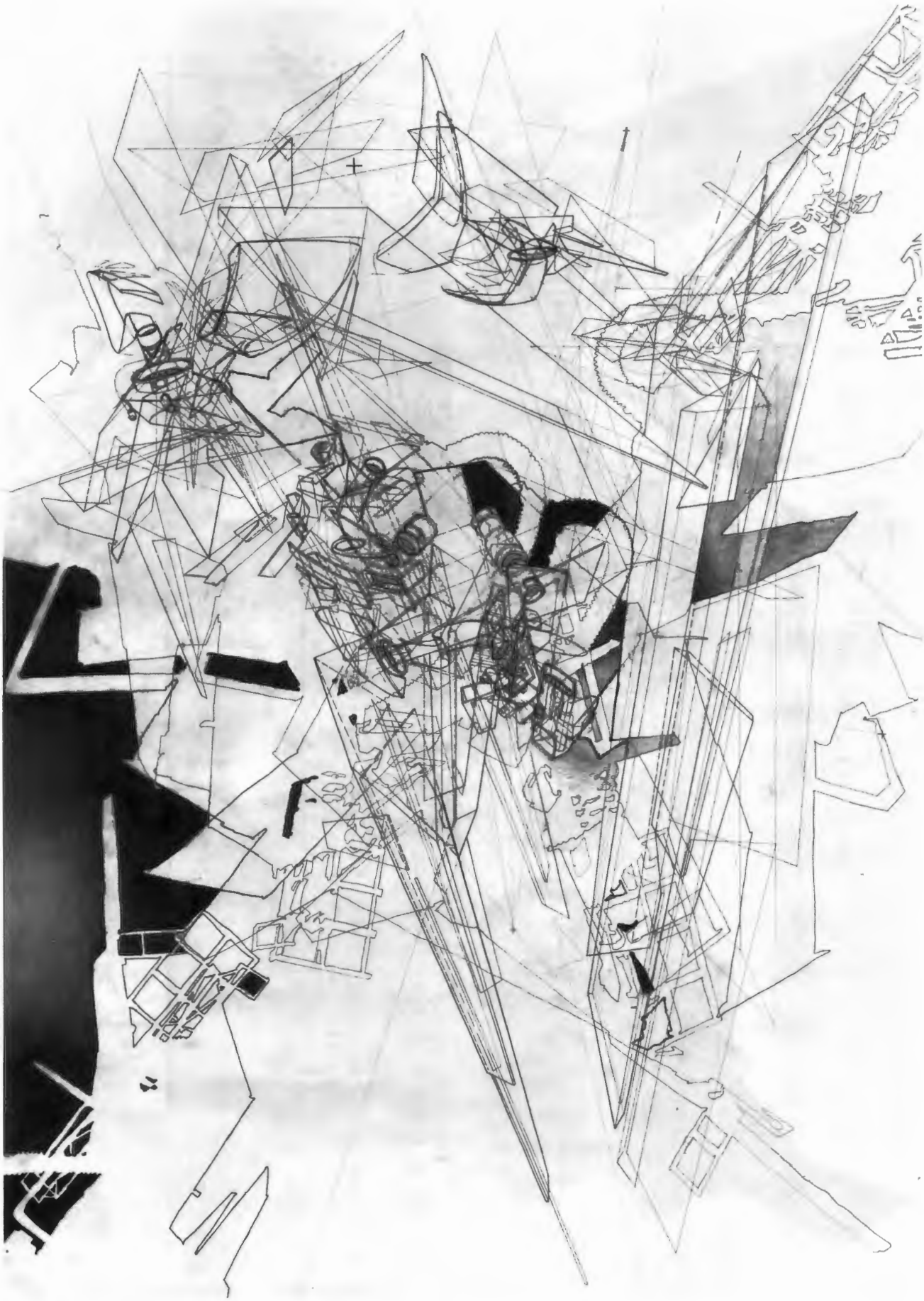


Fig. 30. Stefan van Biljon – Drawing study for Model C (2010)

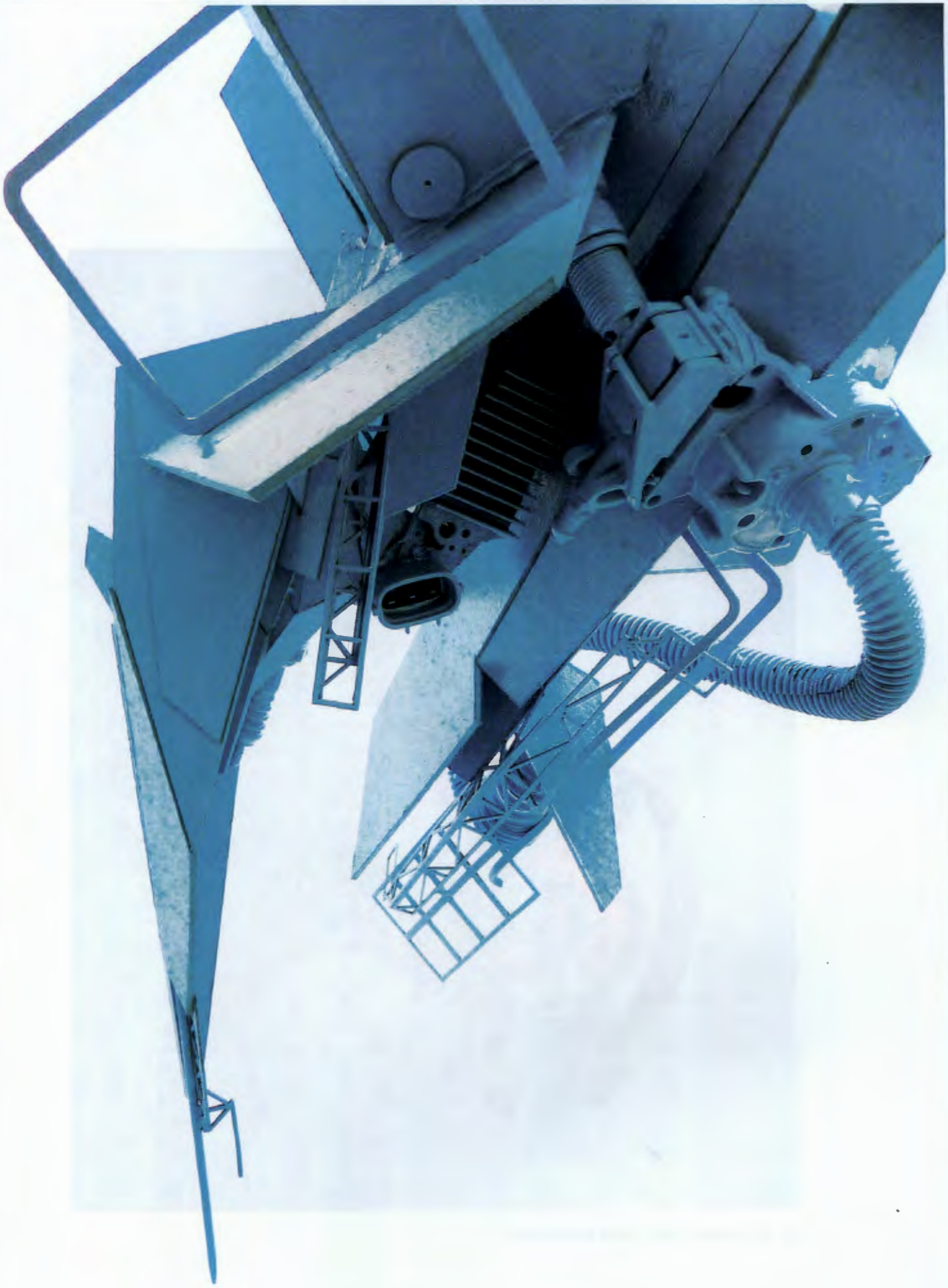


Fig. 31. Stefan van Biljon – Model C (2010)

Fig. 32. Stefan van Biljon – Scrap Model (2010)

The ultimate goal of these drawing experiments is to translate the energy released at the moment of design conception right through to built reality as a way of imbuing structure with a life of its own. The emergent forms are not simply the result of designed determinism, but are intended to touch dimensions beyond visible reality (psychological).

What emerges from the experiments is an attempt to stimulate the subconscious mind, more sensitive to spatial phenomena. This refers to both designer and observer.

This is where the imagination is fused with sensory input. The suggestion of a dimensional jump recalls William S. Burroughs' use of cut-ups in various media (literature, sound recordings). Burroughs believed that reality itself may be altered by "cutting" into its fabric. He explains:

> *"[...] I would say that my most interesting experience [...] was the realization that when you make cut-ups you do not get simply random juxtapositions of words, that they do mean something, and often that these meanings refer to some future event. I've made many cut-ups and then later recognized that the cut-up referred to something that I read later in a newspaper or in a book, or something that happened. [...] Perhaps events are pre-written and pre-recorded and when you cut word lines the future leaks out. I have seen enough examples to convince me that the cut-ups are a basic key to the nature and function of words."*[13]

These experiments are intuitive. Intuition is elusive, but as I have attempted to show, it is an essential principle governing any act of design. To amplify subconscious processes would be a key to unlocking fresh results. Results may be confusing at first, but they serve to trigger unexpected associations and ensure a deeper level of participation with the designer's own creative process.

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[13] Odier, D. *Journey Through Time-Space: An Interview with William S. Burroughs.* Published in Evergreen Review (Volume 13, Number. 67/ June 1969).

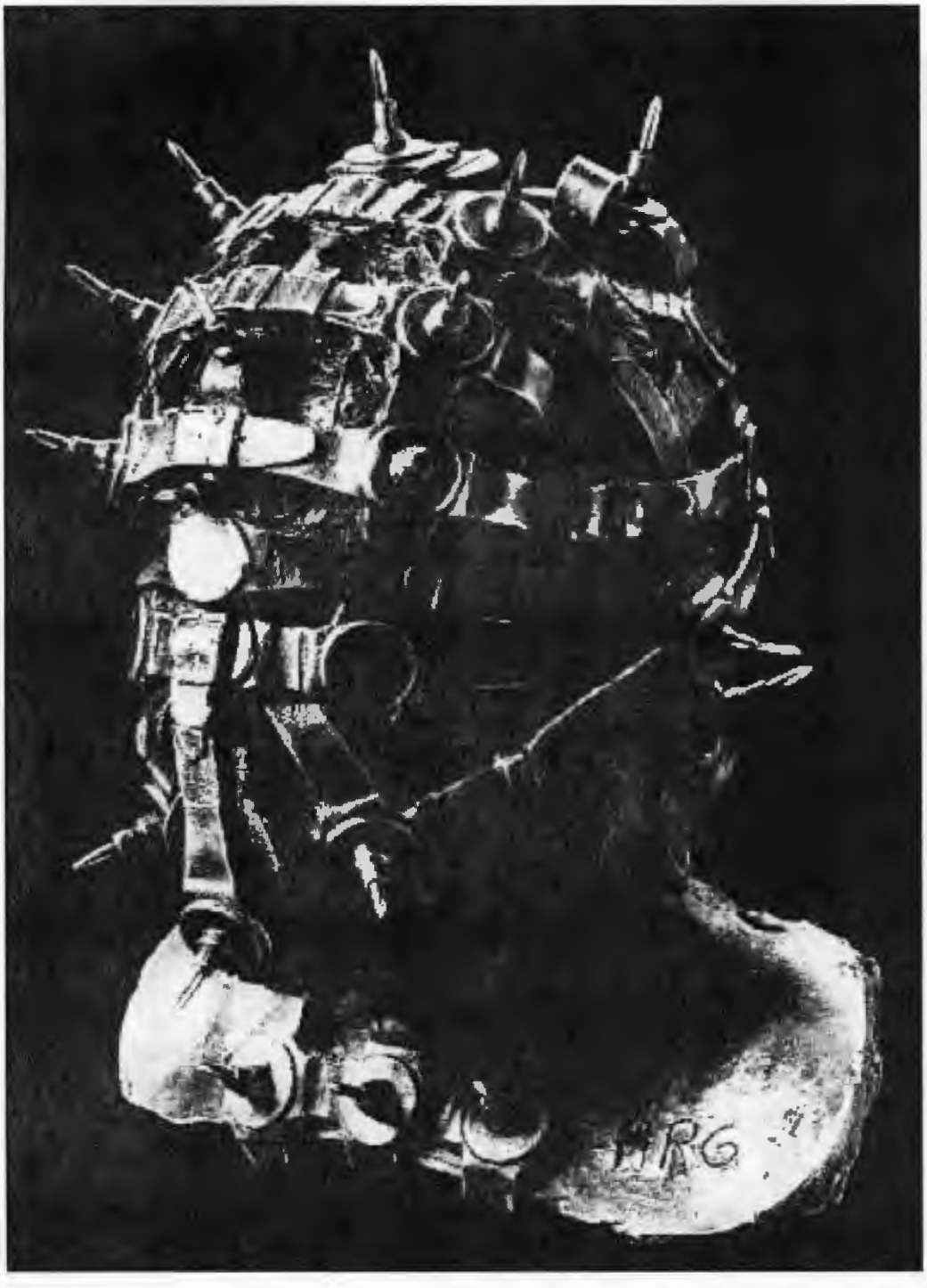

Fig. 33. Biomechanical: *Watchguardian* (Head V), 1993 by H.R. Giger

4 CONCLUSION

In this paper I have attempted to show that the mind evolved through technological engagement. I argued that technology is not exclusively a response to basic human needs. Instead, there is an element of spontaneity that accompanies the birth of new ideas. This pointed to the role of the subconscious in the creative process.

The mechanics of the subconscious and its response to design problems is a highly personal affair. I have argued that by attempting to reveal and subsequently amplify these processes, unexpected results may be obtained. By projecting subconscious desire into the design process, the work is given a more anthropomorphic quality.

The aim is to develop an approach to space-making that is more sensitive to the subtle ways in which perception actually works. In turn, a more vivid experience of space may be created.

The transition from theory to practice is elusive. Research enables design to proceed in a considered manner. As such, the drawing experiments conducted as part of this paper intend to develop a better understanding of the abstract concepts to be explored in my design.

The project continues to attempt a fusion of the familiar with more elusive dimensions. ■

GLOSSARY

The following definitions are intended as a quick-reference. Concepts and authors are fully referenced in the text of this paper.

AL 288-1: Archaeological catalogue number for the skeletal remains of *"Lucy"*, an Australopithecus afarensis female who lived approximately 3.7 million years ago.

Aleatory: Synonymous with chance. Relates to the productive use of indeterminacy in creative fields.

Anthropomorphic: Human-like. Something that embodies characteristics of the human body's gestures and movement.

Cybernetic: Describes processes of control paralleled in natural and artificial systems. In the comtext of this project, the word is often used to describe a human-machine organism.

Death of Affect: Overexposure to Spectacle has a numbing effect. The response to the intensity of the post-industrial city is no longer a physical sensation. Instead, it is internalised and repressed.

Doppelgänger: Uncanny resemblance. Something that looks exactly like something else, but is not the same.

Educated Third: An innovative solution resulting from a combination of unlikely ideas.

Found object: An object uses as part of an artwork, but originally designed for another purpose. The object is discovered and re-appropriated to give it new meaning.

Hyper-dimension: What constitutes a spatial experience beyond what can be seen or heard. It can be recognized, but not identified. A spatial experience that affects occupants on a highly personal level (uncanny, a glimpse of unnoticed factors working to form an experience).

KL-Berth: The site chosen for the design project related to this paper. KL-Berth is located within the Duncan Dock at Cape Town harbour. The letters K and L denote the berth's relative position along the terminal. KL-Berth is currently used as a project cargo (multi-purpose) berth. A large mountain of scrap-metal stockpiled on the site during the early 1990's triggered my interest in the site.

Nameless space: Where hyper-dimensional experience is played out. The aim is to draw on the imagination of occupants. This may produce a highly personal, affecting experience.

Phenomenology: A philosophy of perception that posits that reality is a subjective experience. Via the senses, experience is created in the mind, not in an external environment. In this paper, the term is used to describe an approach to architectural design that emphasises the sensory aspects of materials and space.

Post-Industrial: Used in this paper to denote a shift in emphasis from industry (actual) to information exchange (virtual).

Program: Describes what architectural space/structure is used for or understood.

Psychogram: A rapidly executed sketch that is intended to capture a designer's subconscious intent. It is used as a technique to circumvent preconception.

Psychopathology: The study of mental illness. In the context of this paper, it is used to denote the psychological effect of the post-industrial city.

Robinson Crusoe pathology: The desire to conquer nature. By understanding nature, the human being, as part of nature, gains self-knowledge.

Spectacle: Refers to the numbing effect of mass media, consumerism and popular opinion.

Techné: The concept of *techné* is referenced throughout this paper. The term refers to the act of learning through the hands. This approach to *building* knowledge applies lessons from a variety of fields, often distant from architecture.

Thing-using: Proto-technological thinking.

Transference: In psychotherapy, transference describes a situation where a patient relates to the therapist in a manner simulating other relationships in their life. The goal is to bring repressed emotions to the surface.

Uncanny: Familiar, but unfamiliar at the same time.

BIBLIOGRAPHY

- Ballard, J.G. *Crash.* London: PS Section, Harper Perennial (Harper Collins Publishers, 2008. Originally published in 1973 by Jonathan Cape Ltd, Great Britain). Cited in text as **2008a.**

  Ballard's vivid description of a post-human future sets a tone for this project. The detached analogy of a car-crash/sexual encounter is especially powerful as it illustrates the mutual redefinition and profound interconnectedness of people and technology. The natural and the mechanical are dissected on the same examination table.

- Ballard, J.G. Concrete Island. London: PS Section, Harper Perennial (Harper Collins Publishers, 2008. Originally published in 1974 by Jonathan Cape Ltd, Great Britain). Cited in text as **2008b.**

- Beckmann, J (editor). *The Virtual Dimension – Architecture, Representation and Crash Culture.* New York: Princeton Architectural Press (1988).

  The Virtual Dimension – Architecture, Representation and Crash Culture examines the relationship between architecture and the human experience of the world. The key question posed by the collection concerns the way in which human beings are transformed by our interaction with technology and architecture. What are human beings being changed into?

- Baudrillard, J (trans. Glaser, S.F). *Simulacra and Simulation.* Michigan: University of Michigan Press (1994, originally published 1985).

  Baudrillard discusses the relationship between images and human identity. Post-industrial society has reached a critical point where all meaning is replaced by a simulation of it. Further, this simulation operates independent from the source. The original has been deleted. Baudrillard's ideas about the role of image (and therefore also, architecture *as* image) in the creation of meaning is important to this project.

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- Evans, F.T. *"Two Legs, Thing Using and Talking: The Origins of the Creative Engineering Mind."* The full text of Evans' paper is hosted on Tim Hunkin's website at the following URL (from where I had sourced the text):

  http://www.timhunkin.com/art9_francis_evans.htm (last modified on: 3 January 2010). The paper was originally published in the journal: *AI & Society* (Volume 12, Number 3 / September, 1998).

  Evans argues that creativity has spontaneous origins. Human beings crave physical engagement with technology. It is this innate human drive to learn through doing that facilitated our evolution.

- Gleick, J. *Chaos: Making a New Science.* New York: Viking (1987).

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  Hunkin attempts to make sense of an obsession with *making*. The idea that risk-taking is important in the creation of new ideas contributes to this paper.

- Kaku, M. *Parallel Worlds – The Science of Alternative Universes and our Future in the Cosmos.* London: Penguin Books (2006).

- Leach, N. *The Anaesthetics of Architecture.* Cambridge, Massachusetts: MIT Press (1999).

- Manolopoulou, Y. Drawing on Chance: Indeterminacy, Perception and Design (PhD thesis). UCL, London (2003).

  Both of Manolopoulou's pieces in this bibliography explore the value of aleatory processes in architectural design. The idea that an instinctual reaction to a design problem may be drawn out the subconscious is investigated in my own drawing experiements.

- Manolopoulou, Y. *Unformed Drawing: Notes, Sketches, and Diagrams.* The Journal of Architecture (Volume 10, Number 5, 2005), p. 517–525.

- McCarter, R (editor). *Pamphlet Architecture no. 12 - Building; Machines.* New York: Princeton Architectural Press/Pamphlet Architecture (1987).

- Merleau-Ponty, M (trans. Smith, C). *Phenomenology of Perception.* London: Routledge (2003).

  Merleau-Ponty's argument that the body acts as a filter for reality is important. The experience of space is subjective, synthesised in the mind via the senses. The idea that the same space may be experienced in infinite ways is central to this project.

- Pallasmaa, J. *The Eyes of the Skin.* Great Britain: Wiley-Academy (2005).

  Juhani Pallasmaa's suggestion that architecture must engage the entire body to affect people on a more personal level is an important consideration for my own project.

- Serres, M. *Parasite.* London: The John Hopkins University Press (1982).

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- Tschumi, B. *Architecture and Disjunction.* Cambridge, Massachusetts: The MIT Press (1994).

  Central to this collection of essays by Tschumi is the idea that architecture only exists through its friction with events. There is no quantifiable relationship between form and programme. Architecture can't insist on the permanence of values. What's left is the potential to amplify forces already in motion. The inherent uncertainty of life in the city can act as an energizing force questioning the body-situation in relation to city space and society. An awareness of architectural instability equates to a questioning of the body's own integrity. Architecture, in this context, is the design of events as inventive turning points (fleeting moments of questioning/reconciliation). Regressive behavioural codes, often taken for granted in a state of virtual existence, are dismantled. My own design would strive for this process of continual re-evaluation of limits through disjunction, rather than a synthesis of conflicting forces (beyond the control of architectural determinism).

- Weiten, W. *Psychology: Themes and Variations (Seventh Edition).* Belmont, California: Thomson Wadsworth (2007).

LIST OF FIGURES

19	Experimental *Habitat* by Mas Yendo. Models assembled from salvaged materials	Internet URL: Photo posted by Lebbeus Woods on his blog, *LEBBEUS WOODS*. Blog entry: *"MACHINES FOR LIVING"* (published on February 27, 2010). Address: http://lebbeuswoods.wordpress.com/2010/02/27/machines-for-living/
20	Model A (2010). Assembled from scrap material	Model by Stefan van Biljon, 2010
21	Model A (2010)	Model by Stefan van Biljon, 2010
22	Model A (2010)	Model by Stefan van Biljon, 2010
23	Model B (2010)	Model by Stefan van Biljon, 2010
24	Model B (2010)	Model by Stefan van Biljon, 2010
25	Drawing study for Model B (2010)	Drawing by Stefan van Biljon, 2010
26	Model B (2010)	Model by Stefan van Biljon, 2010
27	Model B (2010)	Model by Stefan van Biljon, 2010
28	Model C (2010)	Model by Stefan van Biljon, 2010
29	Model C (2010)	Model by Stefan van Biljon, 2010
30	Drawing study for Model C (2010)	Drawing by Stefan van Biljon, 2010
31	Model C (2010)	Model by Stefan van Biljon, 2010
32	Scrap Model (2010)	Model by Stefan van Biljon, 2010
33	Biomechanical: *Watchguardian* (Head V), 1993 by H.R. Giger	Internet URL: Author unknown. *"The official WebSite of H.R.Giger-Giger's Watch Abart'93"* (last update: 21 May, 2010). Address: http://www.hrgiger.com/watch/exbition.htm
APPENDIX ILLUSTRATIONS		
34	KL-Berth located within the Duncan Dock, Cape Town harbour	Drawing by Stefan van Biljon, 2010. Based on a 2000 aerial photograph obtained from the National Geo-Spatial Information Office in Mowbray, Cape Town.
35	KL-Berth site context	Drawing by Stefan van Biljon, 2010. Based on a Google Earth photograph.
36	KL-Berth site diagram	Drawing by Stefan van Biljon, 2010. Based on a Google Earth photograph.

APPENDIX: KL-BERTH

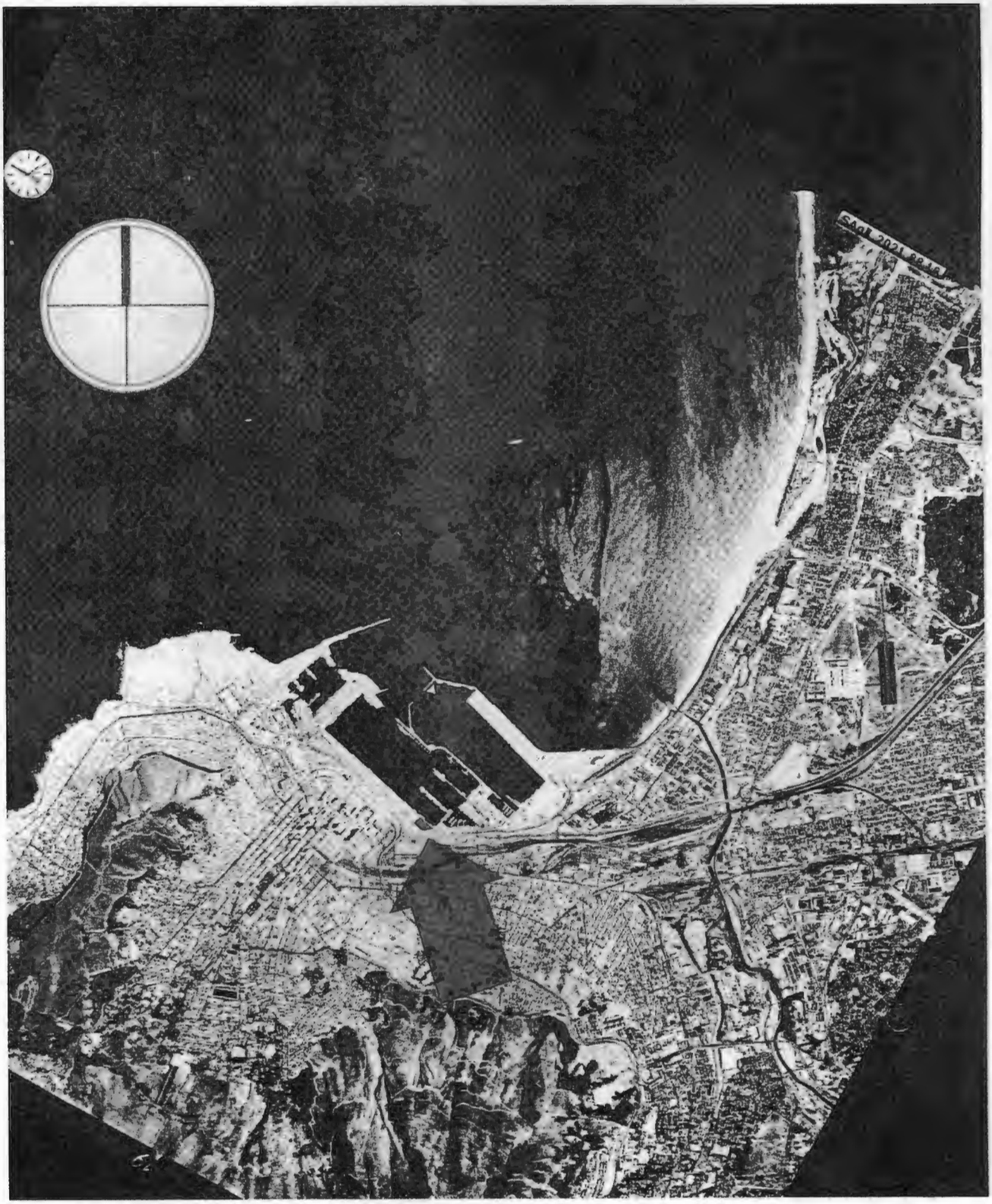

Fig. 34. KL-Berth located within the Duncan Dock, Cape Town harbour

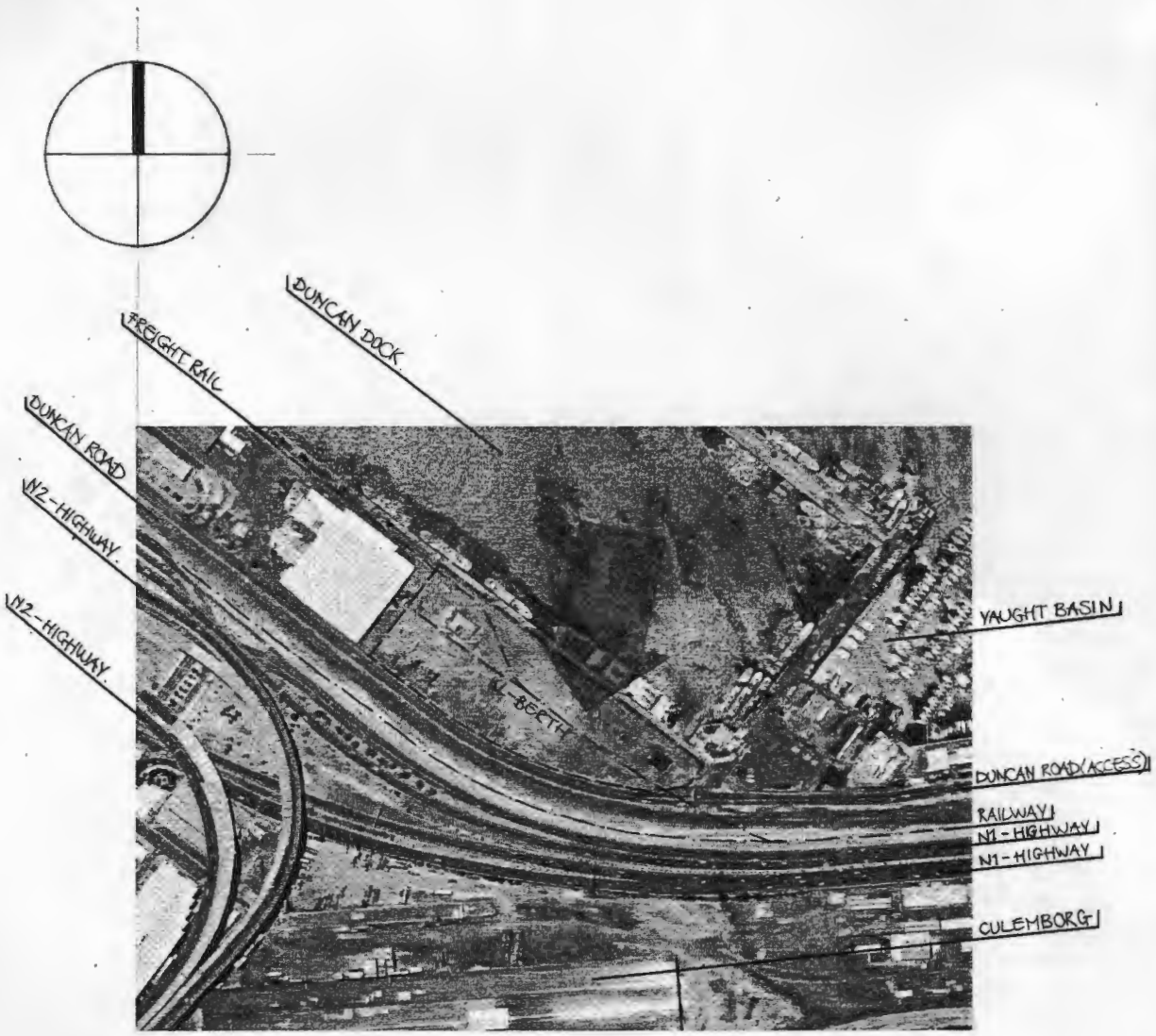

Fig. 35. KL-Berth site context

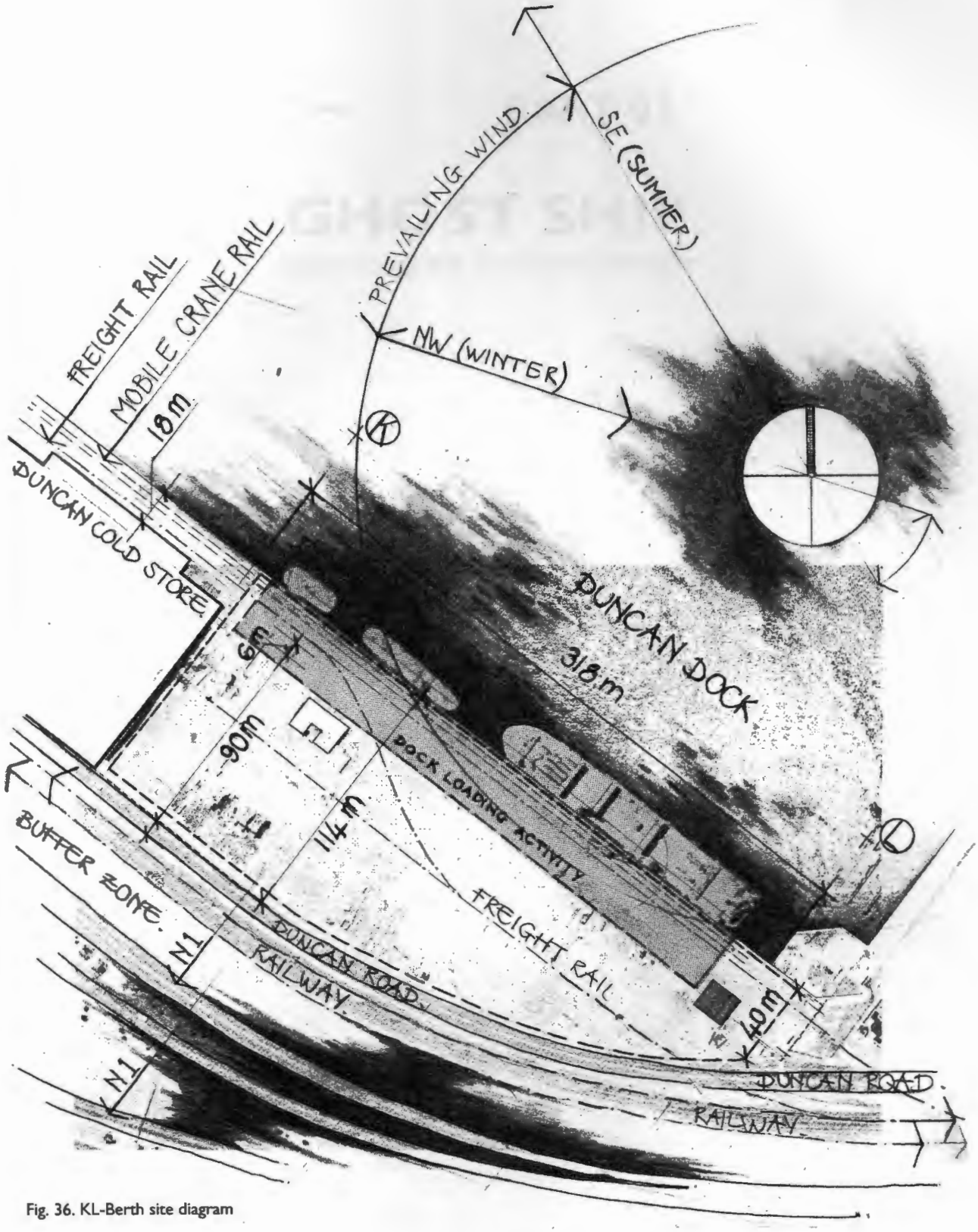

Fig. 36. KL-Berth site diagram

PART 03

GHOST SHIP

GUESTHOUSE FOR AN ANCIENT MARINER

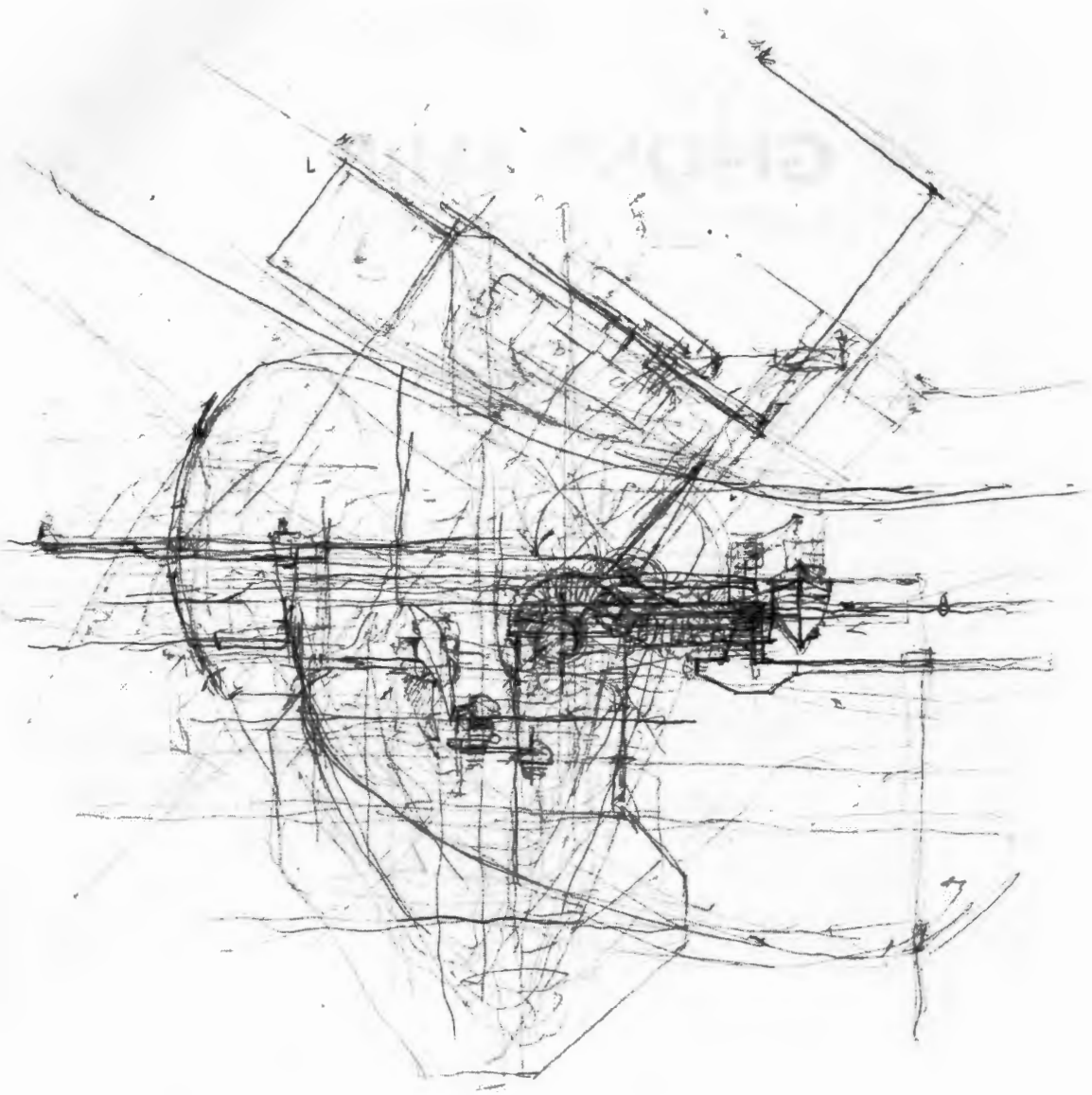

Fig. 01. Sketch done during first visit to KL-Berth suggests excavation. The impulse to *unearth* the site formed the basis for a program at KL-Berth.

INTRODUCTION

In Part 02 of this report, abstract drawing and model building experiments were conducted to stimulate the designer's subconscious mind, more sensitive to spatial phenomena. The aim was to think through the hands and an activated subconscious in search of unexpected results.

In this part of the report (Part 03), a similar procedure of exploratory drawing was applied to the site at KL-Berth. An attempt was made to literally *draw* a program from the site.

The development of a program for KL-Berth begins and ends with the eccentric character of the place. The task was approached in the same way a detective or novelist might construct a *modus operandi* for a character. To design a structure capable of *speaking for itself*, it became necessary to view the site in such anthropomorphic terms.

The building, imagined as a self-motivated machine, tunes itself to the dynamic forces acting on the site (elements, harbour activities). By *physically* responding to forces beyond the control of the architect, the building machine may attain a life of its own. It *becomes* its own program, rather than a backdrop for it. ■

Fig. 02. An early conceptual drawing suggests the reintroduction of water onto KL-Berth's excavated terrain. The orange elements indicate a seawall manifold. The manifold mediates the flooding of the site.

2 KL-BERTH
2.1. DISPUTED TERRAIN

Refer to pages 13-19 (Part 01) of this report for site diagrams and photographs.

KL-berth exists in what is essentially a wholly artificial landscape, reclaimed from the sea during the Second World War[1]. The site's geographical position, once an anonymous point in open water, became the city's edge. It is a *ground zero* literally holding back the sea from flooding the city.

There is a relationship between the destiny of decaying artifacts, dumped on the site, and the history of the site itself. Form mutates from one shape and meaning to the next. Similarly, KL-Berth was alchemically transmuted from one state to another (water to earth).

Permanent restlessness is the site's defining characteristic.

The implicit violent tension between an industrial landscape and natural forces became the inspiration for a program at KL-Berth.

To unlock the atmospheric potential of the restless site, a narrative (time-based) program was required. The building was imagined as a machine capable of re-agitating, and finally fulfilling the site's desire to return to its natural state – that of the ocean. The site became its own program.

The machine's act of flooding and draining KL-Berth references the way in which the site was created. A dynamic relationship between natural and artificial landscapes is revealed. The kinetic energy of the tide *physically* animates the architecture to create a vivid sensual experience.

[1] Planning for the Cape Town foreshore reclamation started in 1937 (from interview with Steven Bentley, resident engineer at the V&A Waterfront). Work on the Duncan Dock commenced in 1938 and was practically completed in 1945 with the official opening of the Sturrock dry dock. Source: *Cape Town Information* website: History of Cape Town. URL: http://www.cape-town.info/cape-town-information/history-of-cape-town/history-of-cape-town.php (accessed on 13 May, 2010)

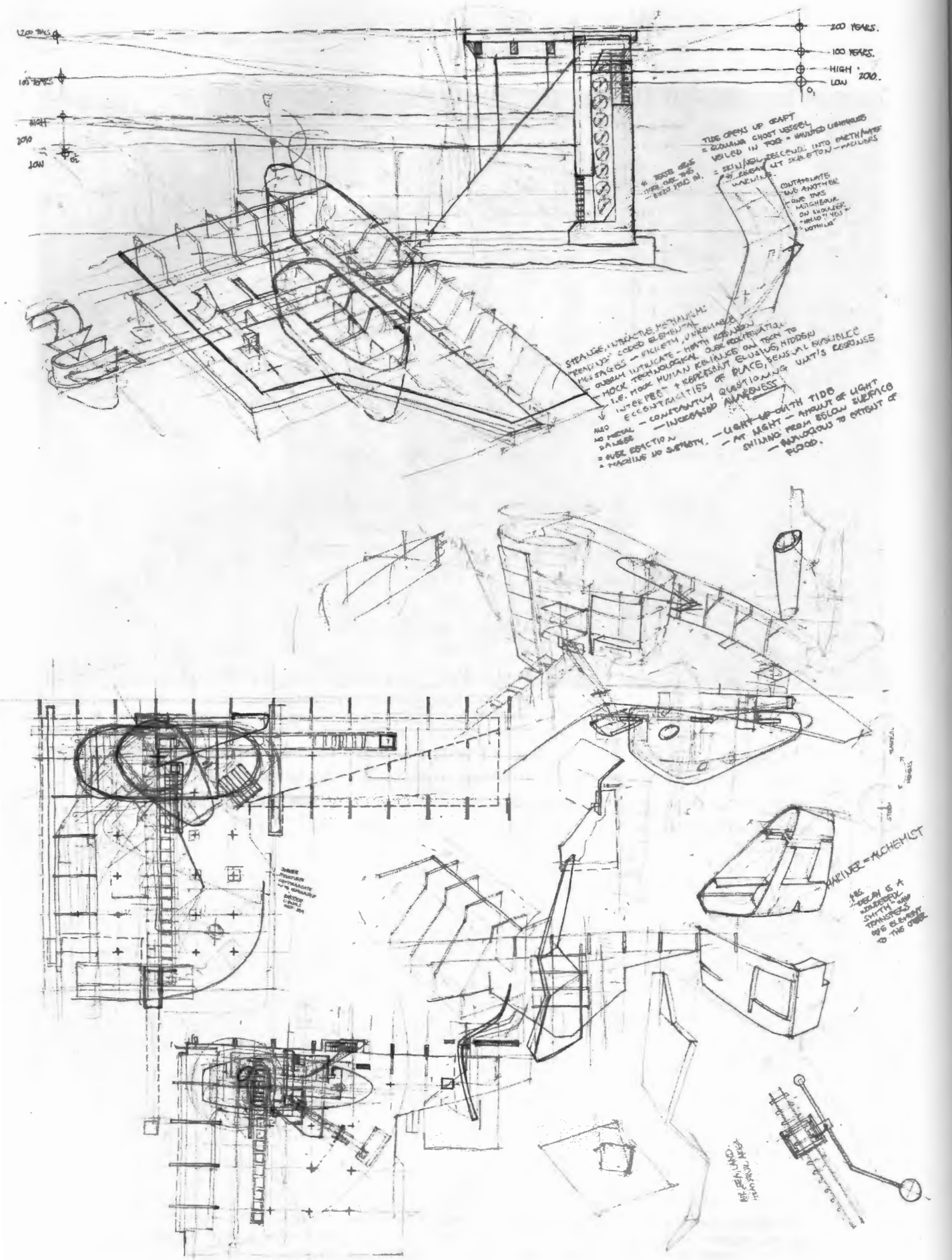

Fig. 03. Early massing sketches show the project mounted in an excavated site. Top section shows seawall manifold regulating the flooding of KL-Berth over an extended period of time.

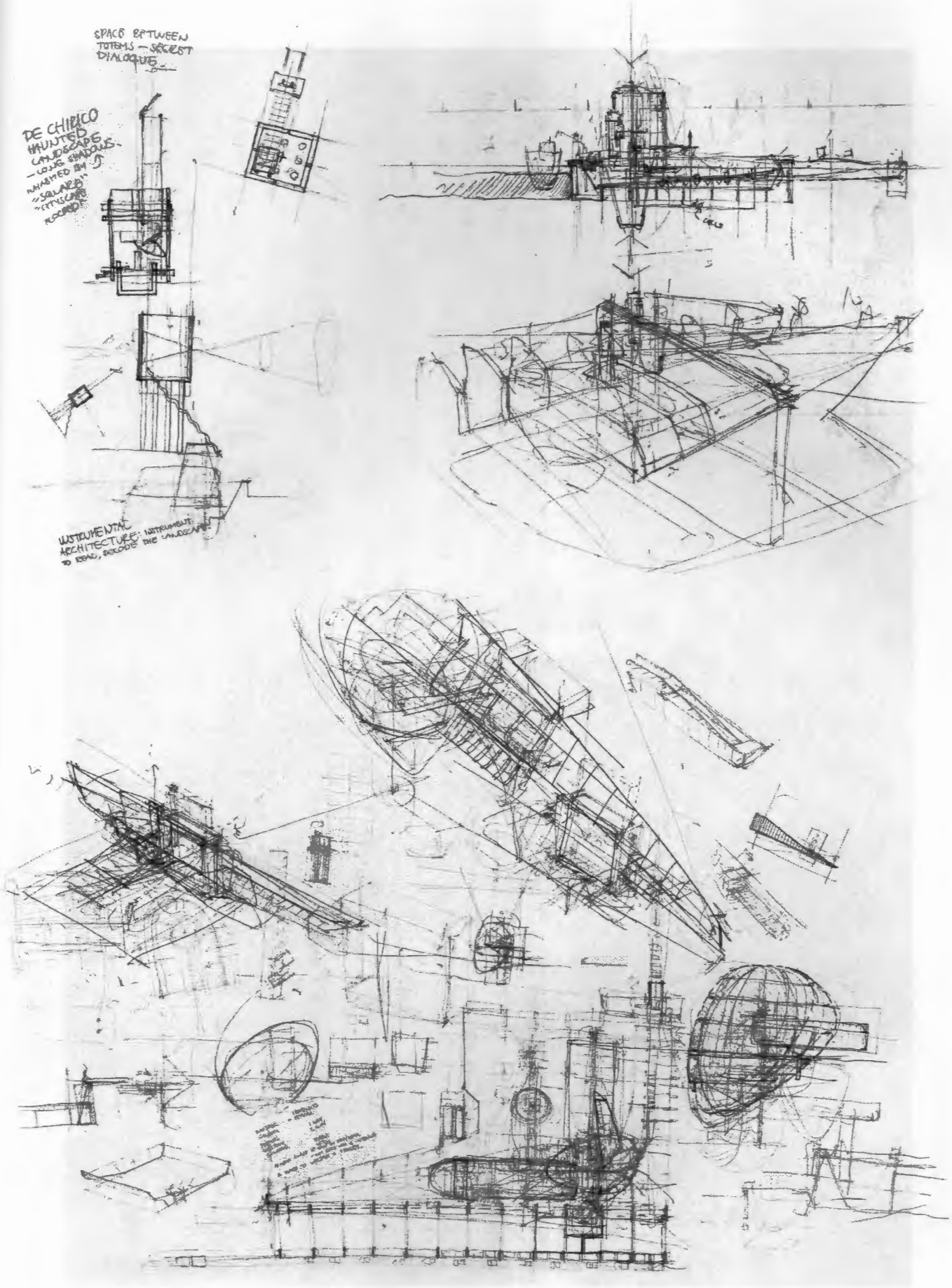

Fig. 04. Early sketches showing the project as a conceptual *ghost ship* haunting the excavated KL-Berth.

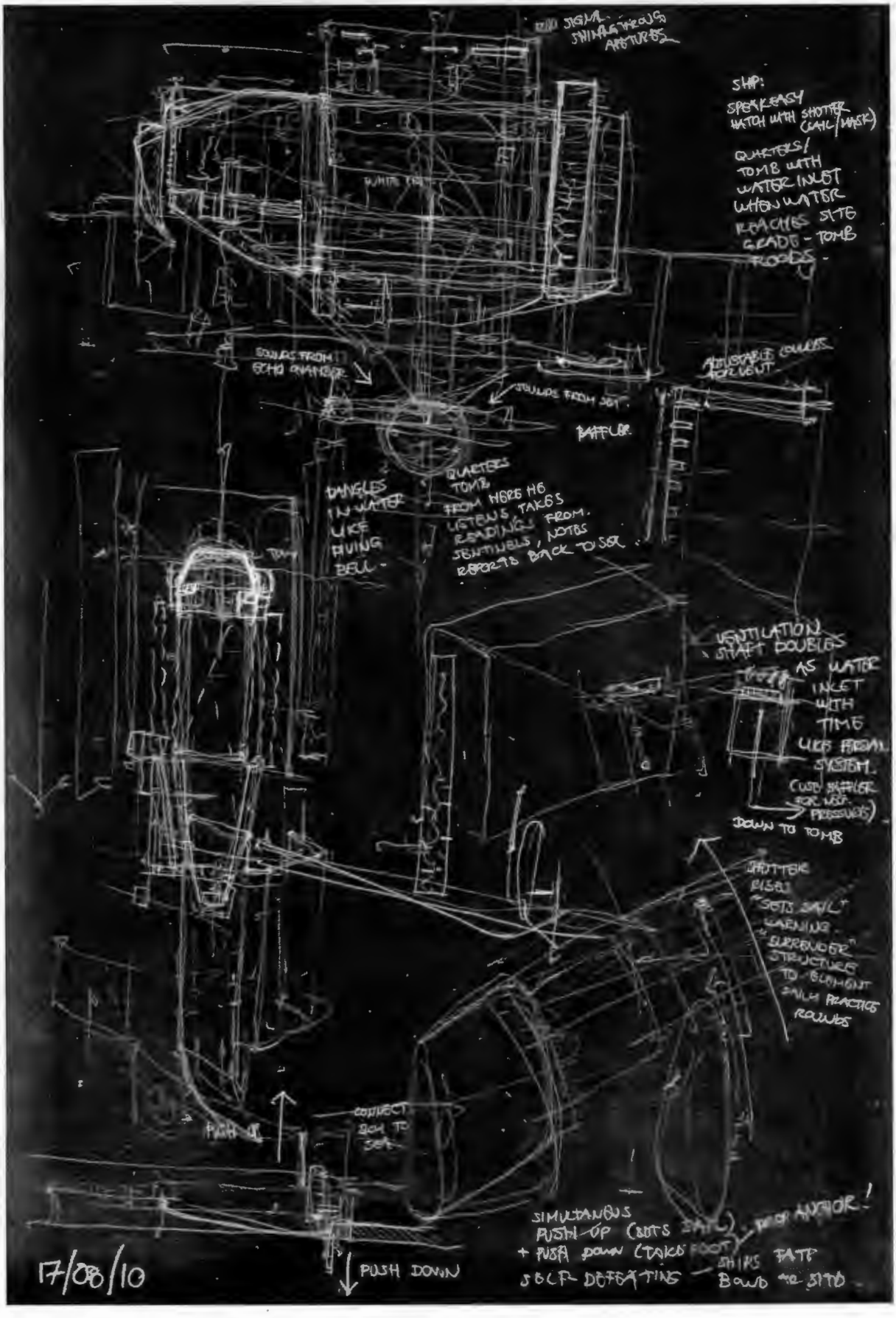

Fig. 05. Large-scale moving elements respond to the elements as a physical expression of forces acting on site.

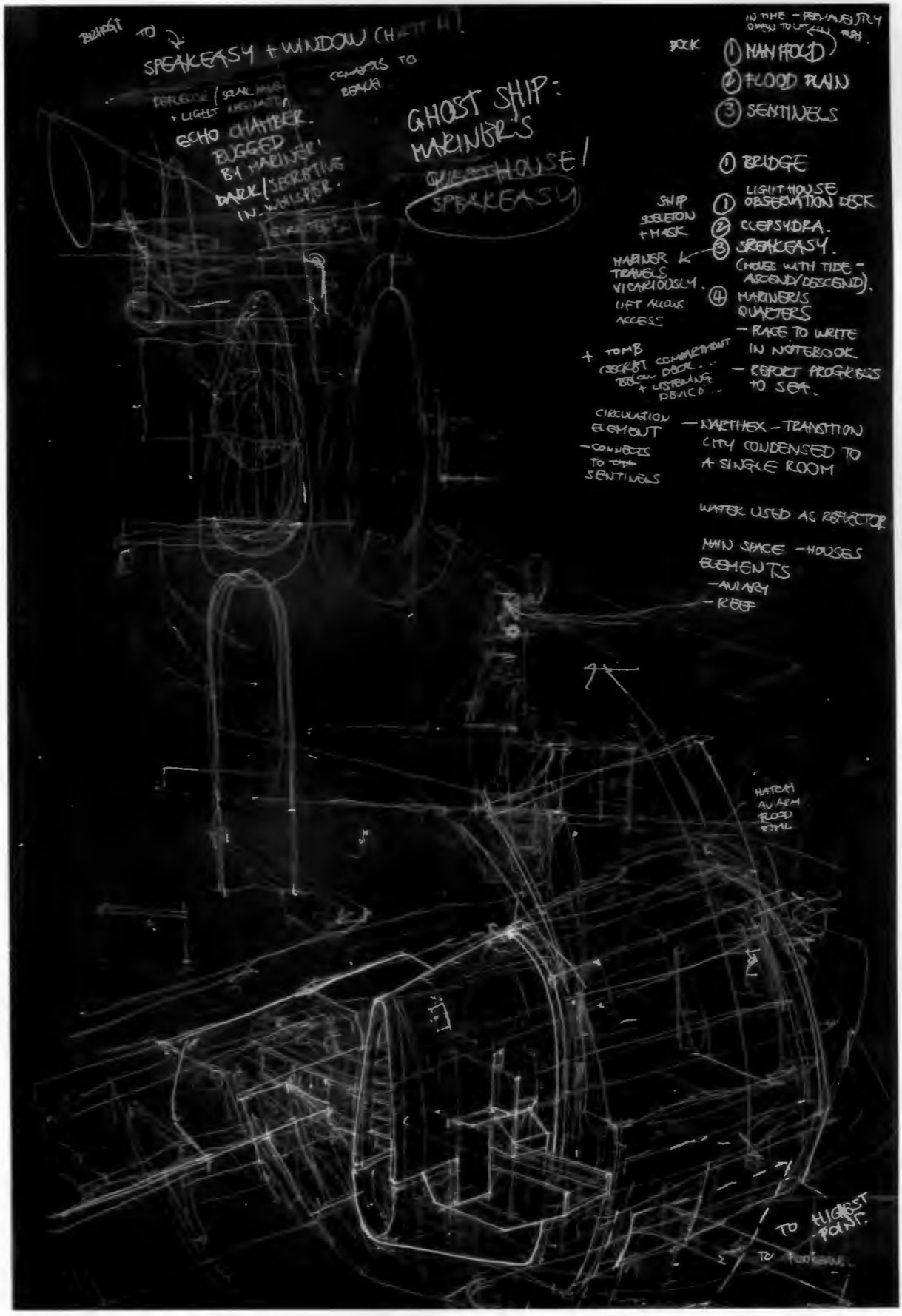

Fig. 06. The ghost ship "sets sail" by opening itself to the elements.

Fig. 07. Above: Isolated by highway and sea, KL-Berth is a concrete island.
Fig. 08. Below: The project located within dock activity at KL-Berth.

2.2. THE ANCIENT MARINER

Samuel Taylor Coleridge's *Ancient Mariner*[2] was introduced as a client for the project.

A restless character, the *Ancient Mariner* personifies the nature of KL-Berth. This observant and obsessive storyteller's bondage to the ocean became a pretext for the program at KL-Berth[3].

Doomed by the ocean to teach the importance of balancing human interests with those of nature, the *Ancient Mariner* is given an indefinite mandate over KL-Berth. He is appointed the task of recording and supervising the site's return to the ocean.

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[2] *The Rime of the Ancient Mariner* was originally published in: Coleridge, S.T; Wordsworth, W. *Lyrical Ballads*. London: J & A Arch, Gracechurch-Street (1798)

[3] In Coleridge's poem, the *Ancient Mariner* kills an albatross (sign of good fortune) during an expedition. The killing of the bird has disastrous consequences for the *Mariner* and his shipmates. The ship is marooned and the crew dies, except for the *Mariner*. Now alone at sea, the *Mariner* curses nature for his bad fortune. At last, after observing sea snakes in the moonlight, the *Mariner* rediscovers nature's beauty. The ocean's curse is lifted and the *Mariner* finds his way back to shore. The *Mariner* now travels the earth. He is compelled to tell his tale of balance and the appreciation of beauty in small things, often taken for granted.

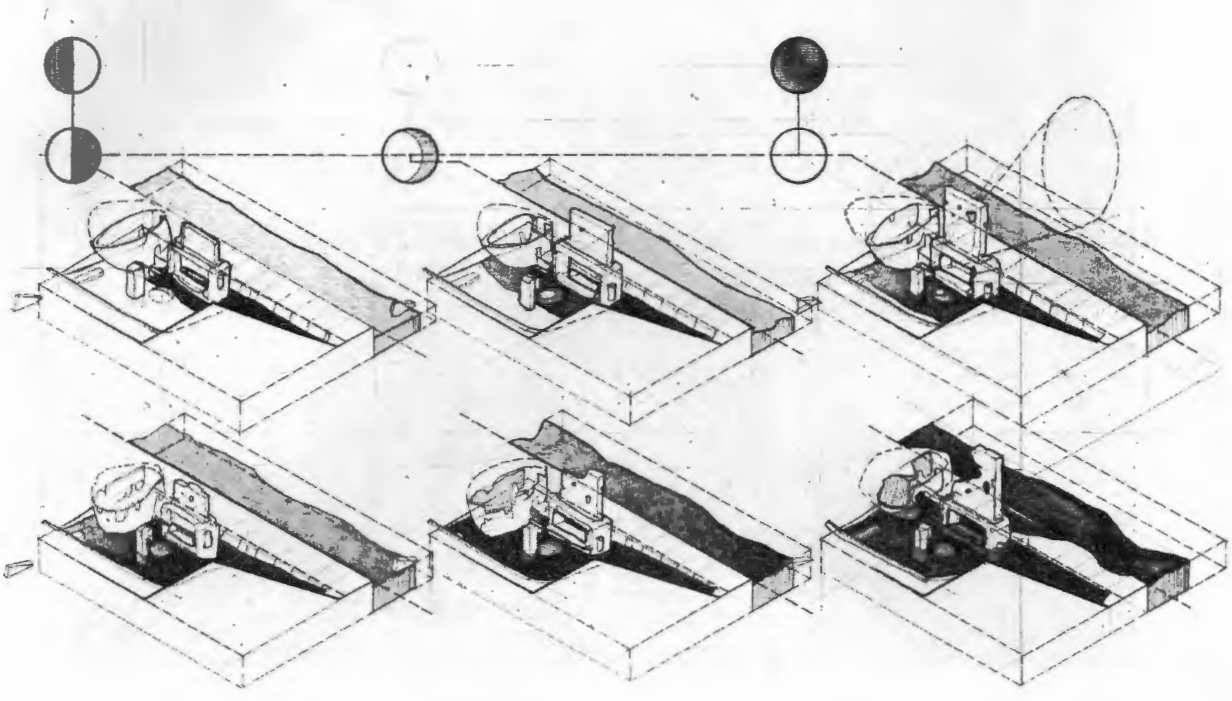


Fig. 09. The tide, negotiated by a seawall manifold, determines the extent of KL-Berth's flooding.

Top Left to Right: KL-Berth during different moon phases.
Bottom Left to Right: KL-Berth is gradually consumed by the ocean over an extended, indeterminate period of time.

The *Mariner* thinks of himself as an alchemist changing earth back to water. He builds a machine to secretly and patiently return the site to the ocean. Until his task is completed, the *Mariner* haunts KL-Berth - his fate bound to that of the site.

A manifold in the seawall introduces water back onto the site. The extent of the flood depends on the tide.

The *Mariner* is concerned about climate change. He realises that by observing the rise of the mean sea level on KL-Berth's seawall, he is able to gauge wider environmental issues relating to climate change (see **Appendix A**).

Recognising this opportunity, the *Mariner* uses the ocean's seizure of KL-Berth to animate a flood warning system. The building now gives tactile, though cryptic, expression to his message of balance. Each day the mean water level rises by a minute fraction. The site becomes a barometer for environmental conditions beyond the physical boundaries of the site.

Rising sea levels are reflected in the extent and severity of the flood on KL-Berth. Daily the site undergoes increasingly convincing test-rounds in anticipation of the ocean's inevitable seizure of the site. The flood is choreographed to create a shifting landscape that registers the passage of time as the sea gradually consumes more of the site.

The effects of the flood are used to amplify the atmospheric qualities of the site. Using the kinetic energy of the tide, the machine generates sound, smells, texture and selected perspectives on the site.

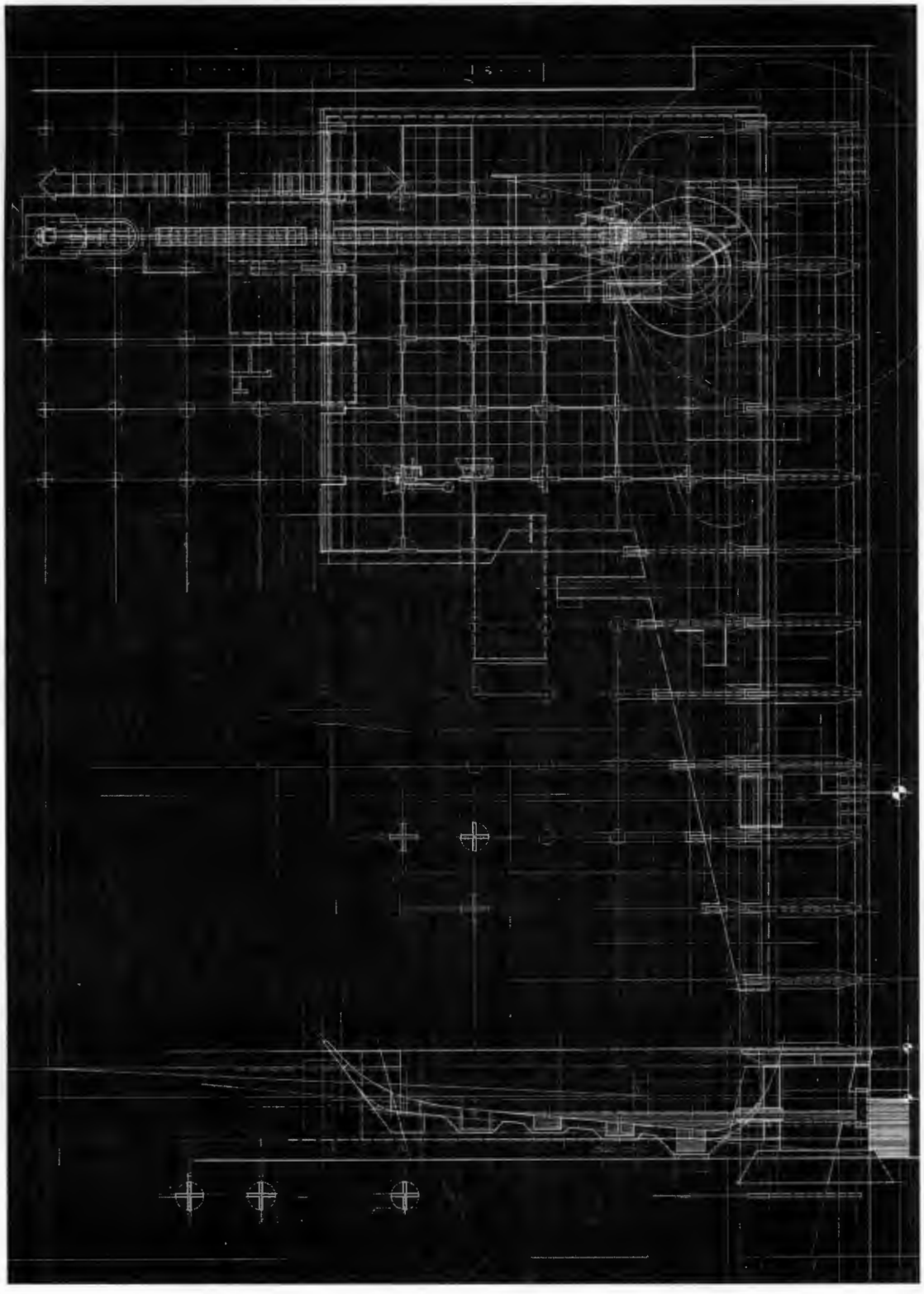


Fig. 10. Site development plan indicates bridge element enabling access onto excavated site.
Section indicates seawall manifold regulating water level on site.

To appease his obsession with storytelling, the *Mariner* decides that he would also like to entertain guests on KL-Berth. He designs his flood machine to double as a *Guesthouse.*

In his storytelling, the *Mariner* professes responsibility and an appreciation of the hidden, unobserved beauty in everyday occurrences. Weary sojourners from land and sea are welcomed to the *Mariner's Guesthouse* to experience the atmospheric site. The *Mariner* hopes that they may rediscover their own ability to observe, to *feel* the environment through the *Eyes of the Skin*[4].

The combination of isolation, contemplation and atmosphere makes KL-Berth the ideal temporary home for the modern day alchemist.

Although the evidence of his inhabitation is visible, the *Mariner* prefers to keep to the shadows. Hidden from view, he observes both the ocean and his guests. Bound to the site, the contemplative hermit can only travel vicariously through the stories of visiting sailors and land-guests.

The *Mariner's* machine communicates in gesture. These gestures are deliberately cryptic. Guests are required to interpret the structure's response to the elements. This requires personal participation with the site's character.

Atmospheric restlessness is used to create a place of contemplation. Guests themselves give the machine's evocations significance by reflecting upon them.

Natural processes of corrosion and decay are captured as part of the structure's metabolism. KL-Berth's location on the edge of the sea makes this an important consideration (saline water, barnacles). Rather than combat them, natural weathering processes may be used to enhance the atmosphere and tactile qualities of the site. Creation and decay is magnified to the scale of the site itself.

[4] Pallasmaa, J. *The Eyes of the Skin.* Great Britain: Wiley-Academy (2005).

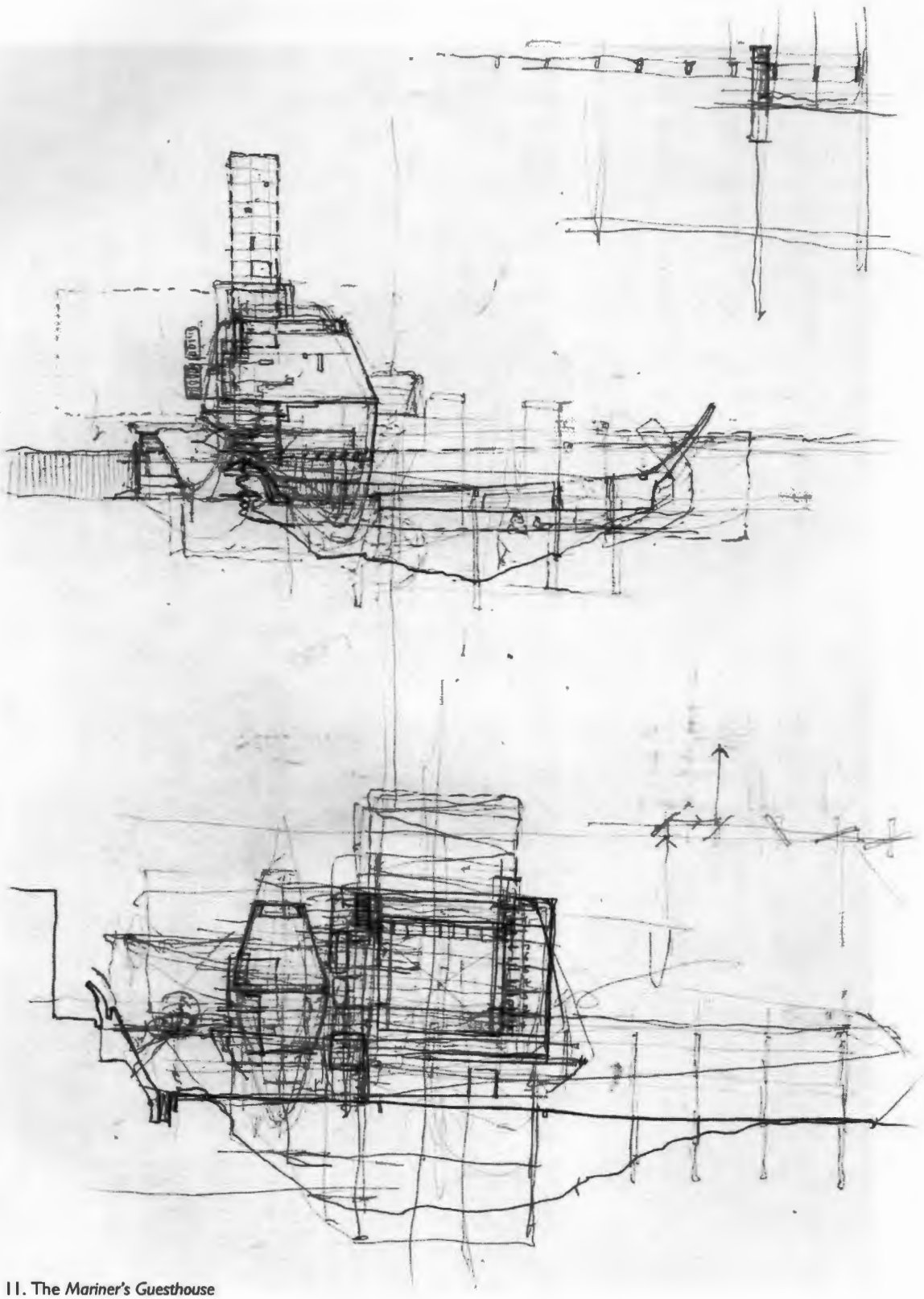
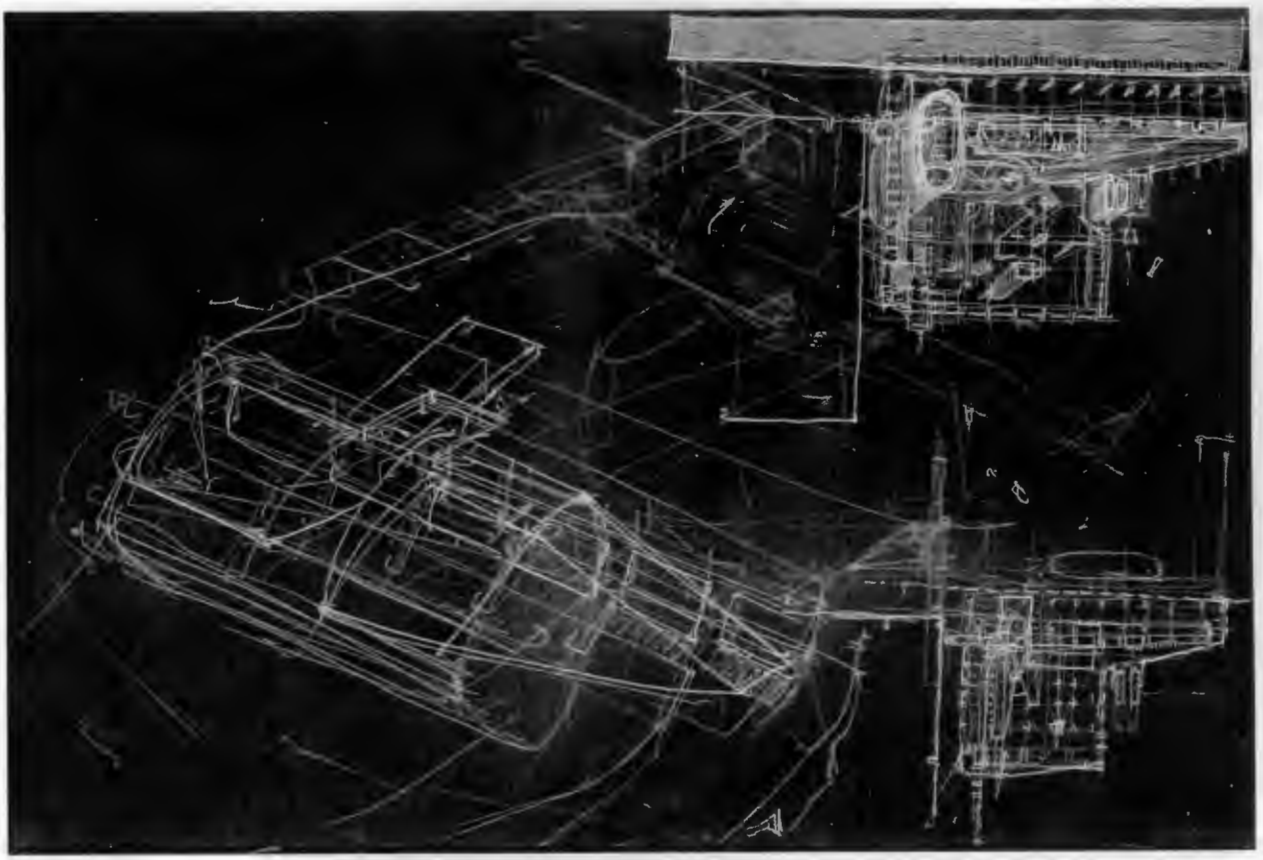
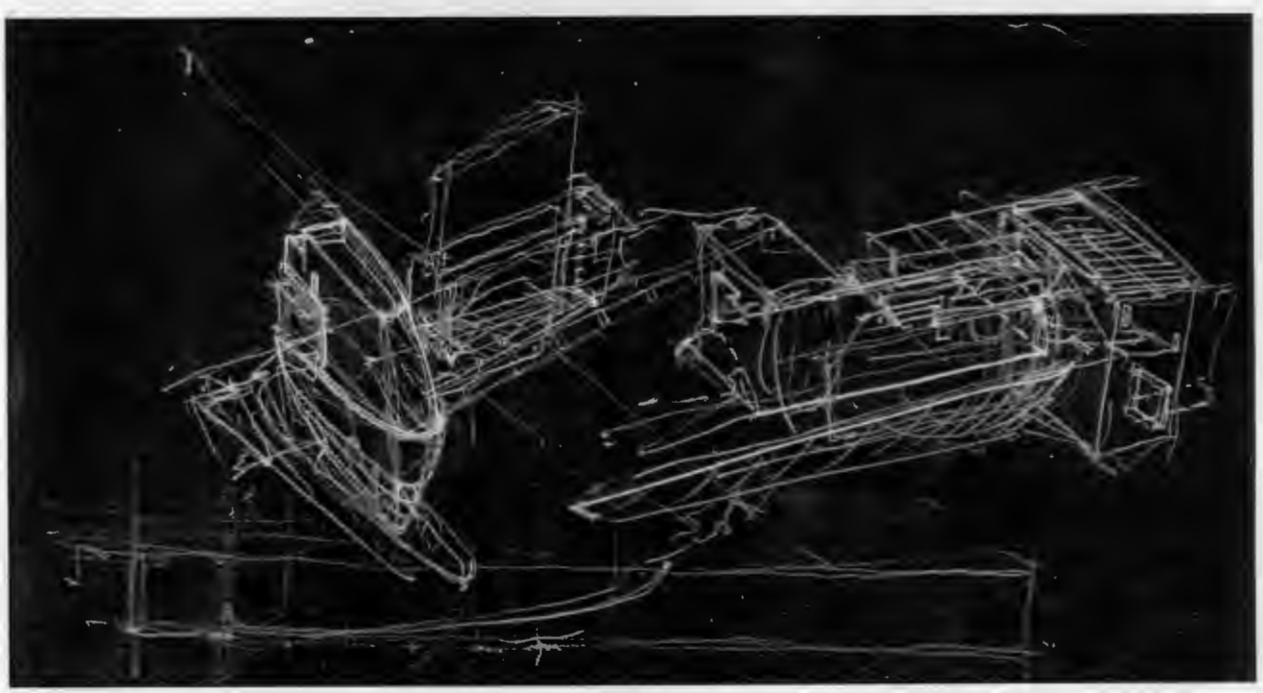
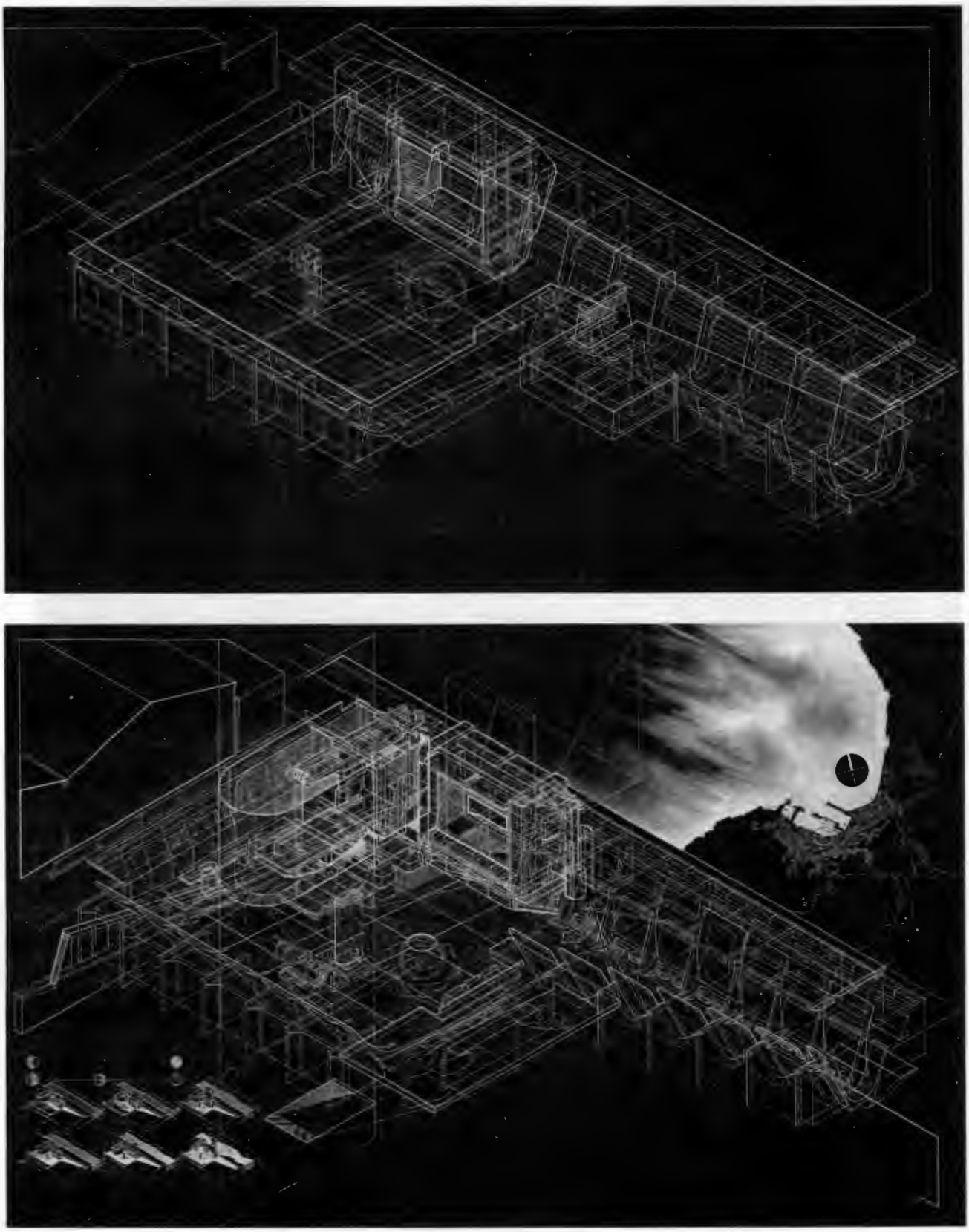


Fig. 11. The *Mariner's Guesthouse*





Figs. 12 & 13. *Mariner's Guesthouse* massing studies.



Figs. 14 & 15. Development of the *Mariner's Guesthouse* in an isolated industrial context.

Only once the ocean is avenged, consuming the site, can the *Mariner* find rest for his spirit. The building he has haunted for years now becomes his tomb. In preparation for this, he obsessively relates his warning and keeps record of the ocean's secret return. The exact date of this event is unknown. It is determined by the shifting balance between the man-made and natural environments.

To insure his long-desired rest, the *Mariner* installs corroding steel panels in the retaining seawall. These panels act as *time-release valves*[5]. When the panels rust through, the ocean floods the site regardless of ocean level.

The *Mariner* uses 3CR12 carbon steel to manufacture these panels. The 3CR12 alloy corrodes at the rate of approximately 1mm per year depending on sun exposure, bio-fouling and the chemical composition of the local seawater[6].

The panels are built from layered 3CR12 sheets. The *Mariner* predicts that a total thickness of 200mm might shorten his indefinite mandate at KL-Berth to approximately 150 years.

Concerned about structural failure and the safety of his guests, the *Mariner* uses 316L Marine Grade stainless steel for all structural elements of his *Guesthouse*. This alloy is specially designed for durability in the harsh marine environment (corrosion rate of less than 0.1mm per year[7]).

The inevitable flooding of KL-Berth is thus determined by the outcome of a race between rising sea levels and the corrosion rate of the *Mariner's* time-release valves.

The *Mariner*'s machine, his *Ghost Ship*, finally becomes a partially submerged ruin. The site, now home to sea life and the elements, returns to its origin through entropic decay. This is a natural and beautiful process.

The building, like the *Mariner*, haunts KL-Berth. Facing inevitable destruction, the *Mariner's Guesthouse* is not permanent. The haunting of KL-Berth is a function of risk, patience and desire.

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[5] When the panels fail, the ocean floods KL-Berth permanently. This dramatic event can be likened to a dam wall bursting.

[6] Refer to **Appendix B** for the researcher's correspondence with David Smith from the Metallurgical Services department at *Columbus Stainless Pty (Ltd)*, Middelburg, South Africa.

[7] Ibid

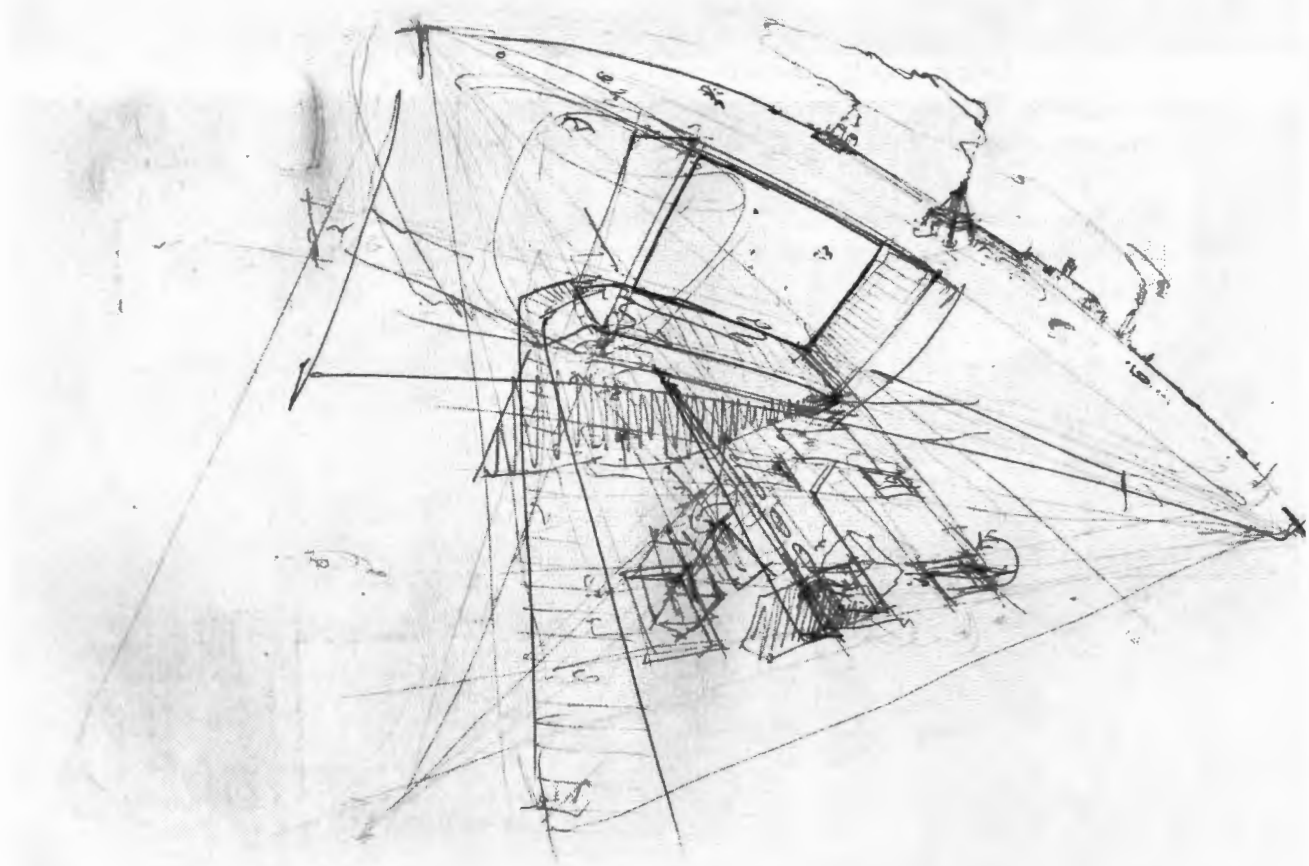

Fig. 16. The *Mariner's Guesthouse* is an instrument that interprets the landscape of Cape Town Harbour.

2.3. THE UNFINISHED BODY

During its reclamation from the ocean, KL-Berth was defined by a type of reverse archeology. Layer upon layer of detritus from somewhere else was deposited and left in transit, before being moved further along its journey (dredged material to create foreshore, scrap metal).

The site, never a permanent home to person, artifact or even nature, is in all regards a place of transit. The site is permanently unfinished, striving for stasis, but never attaining it.

"[The] unfinished and open body (dying, bringing forth and being born) is not separated from the world by clearly defined boundaries; it is blended with the world, with animals, with objects."[8] - Mikael Bakhtin

Like Bakhtin's *Unfinished Body*, KL-Berth is able to shift perceptual boundaries. Through its terminal open-endedness, the site allows visitors to recognise what they themselves have lost. At the *Mariner's Guesthouse*, this realisation relates to a rediscovery of the senses and imagination through direct engagement with an atmospheric site.

I argue that through an acceptance of imperfection and chance, architecture may truly empathise with the human condition. Aspiration and desire may serve to test the limits of experience in search of something more – the *uncanny*.

It is this very *imperfection* that leaves room for personal affect. Technology is made visible once again as we recognise our own imperfections reflected in our handiwork. In this sense, architecture at KL-Berth is humanised through its inconclusivity.

Considering KL-Berth's permanently open-endedness, it is a contradiction in terms to suggest a permanent program for the site. At the *Mariner's Guesthouse*, the passage and registration of time *is* the program. The *Mariner* himself is merely a guest on the site.

Forces beyond the site boundaries exert constant change on the site. The effects of Global Warming accelerate the rise in sea levels, steadily increasing the risk of the tide permanently flooding KL-Berth.

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[8] Bakhtin, M.M. (trans. Iswolsky, H). *Rabelais and His World*. Bloomington: Indiana University Press (1984, first published in 1965), p. 26.

2.4. HAUNTING MEMORIES

In the spirit of KL-Berth, the design for the *Mariner's Guesthouse* is deliberately inconclusive. The effects of time may complete the work in the absence of the architect. In this manner, chance (the *unexpected*) is allowed to animate the work over an extended period of time.

Marcel Duchamp worked on *The Large Glass (The Bride Stripped Bare by Her Bachelors, Even)* on-and-off between 1915 and 1923. Dust, accumulated on the work's surface during prolonged periods of non-activity was used by Duchamp as a material. In the artist's absence, time's effect is evidenced as both a destructive and creative force.

Like the accumulation of dust on the *Large Glass*, the creative process at KL-Berth cannot stop when the architect lays down the pencil.

Time does not pass through KL-Berth without leaving a mark. The *Mariner's Guesthouse* registers the invisible forces governing the fate of KL-Berth in built structure. Elemental forces (tide, wind, sun) are manipulated by the *Mariner's* machine to generate sounds, weathered textures and views on the site.

The passage of time at KL-Berth is captured and expressed at the following scales:

1. Immediate use is expressed through visitors' interaction with the *Mariner's Guesthouse.*

2. Daily use is expressed as a structural response to climatic and tidal conditions. The site experiences a mixed semidiurnal tidal range (two sets of low- and high tides daily, one set slightly more severe than the other). The tide acts as an organic time-keeper.

3. KL-Berth experiences spring tide once every two weeks. The manifold in the seawall adjusts the flooding of the site accordingly.

4. Long term use is expressed as the cultivated weathering of the structure as well as the inevitable rise of the water level.

   The *Mariner's Guesthouse* embraces natural weathering processes. Corrosion and the accumulation of barnacles enhance the organic metamorphosis. The result is an architectural special effects machine and environmental indicator in equal measure.

   When KL-Berth is inevitable flooded, the *Mariner's Guesthouse* becomes a partially submerged *anti-ark*[9]. The slowly decaying ruin bears testament to the *Mariner's* message of balance and the appreciation of unexpected beauty.

The act of time-capture is related to storytelling. KL-Berth becomes a place of imaginative interpretation on the part of visitors. The *Mariner's Guesthouse* is imagined as a sounding board for the ocean. Secrets may be deciphered by whoever is patient enough to interpret the structure's gestures.

The *Guesthouse's* function of uncovering the unseen, embodies the spirit of *Techné.*

[9] The *Mariner's Guesthouse surrenders* itself to the elements, instead of holding out against them.

Fig. 17. Early studies for secret spaces built for contemplation.

2.5. CONNECTED ISOLATION

KL-Berth's isolated position helped inform the contemplative program. Cut off by ocean and highway, KL-berth is a concrete island. To reach the site requires a pilgrimage. A *monastic* association is evoked. The *Mariner's Guesthouse* is a place of contemplation where the body is reconnected to the senses.

Suggested is a retreat from the rest of the city. It is a place where experience is appreciated on its own terms in an unlikely atmosphere. The *Mariner's Guesthouse* may be public, but it is not intended to be trampled. The necessity of a pilgrimage to reach the site discourages this type of over-occupation. As such, it remains a special place.

The site is not however, *completely* cut-off from the city. It allows just enough distance to refocus the mind.

The monastic association extends to a concern for site-specific phenomenology. On KL-Berth, sound seems louder. The sense of smell is heightened. Vision is reintroduced to the rest of the senses. The atmosphere is *felt*, experienced through the body[10].

As a non-place of industrial infrastructure, KL-berth is an unlikely site for a sensual program. It is charged with strange *new* sensations. Presence is constantly highlighted by movement generated on site.

A new perspective on urban experience requires the involvement of the imagination and all senses e.g. to listen to a distant foghorn heralding the arrival of a vessel veiled in early-morning mist; or to notice a particular light effect.

To create this type of experience requires a dramatic shift in perception. Space must be evocative and unique to produce awareness. Reality is temporarily suspended, ironically, to understand it better.

[10] During my first all-day site registry of KL-berth (after a prior, brief visit for introductory purposes), I was struck by the amplified clarity of sound on the terminal. The effect of foghorns blaring through early-morning fog is compelling. The fog produces a degree of visual "white-out", amplifying awareness of the other senses.

NOMENCLATURE

1	HULL
2	HATCH
3	SHUTTER
4	LIGHT ARRAY
5	SEAWALL MANIFOLD
6	FLOOD LANDSCAPE
7	MARINER'S TOMB
8	SENTINEL
9	HYDROKINETIC SWITCH
10	GEOTHERMAL POWER PLANT
11	TIDAL GAUGE
12	BRIDGE
13	PIER
14	SEA

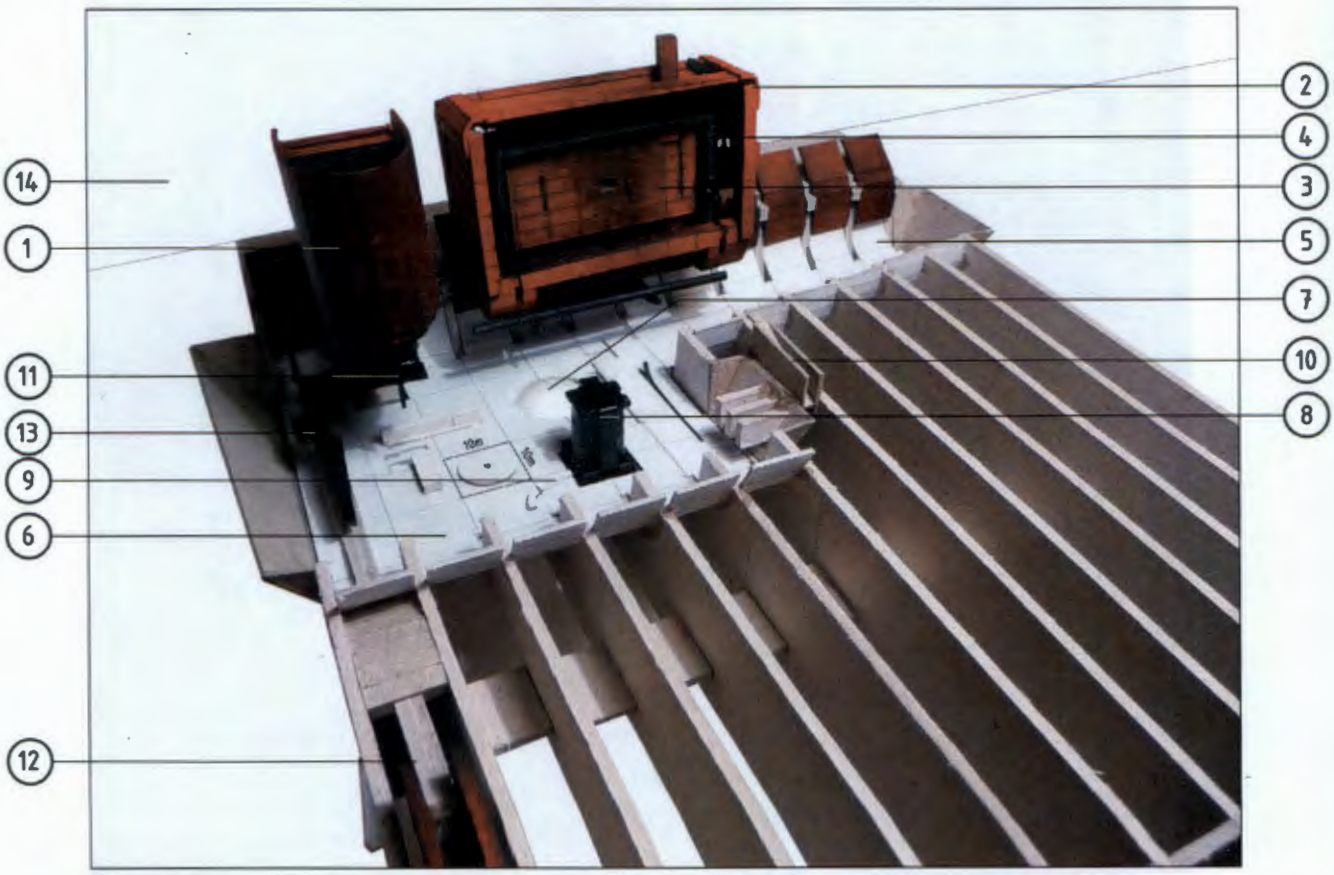


Fig. 18. Components of the *Mariner's Guesthouse*.

3 GHOST SHIP
THE MARINER'S GUESTHOUSE

The *Guesthouse* is the *Mariner's* measuring instrument and diary. It captures and expresses the forces acting on the site at various scales. This function calls for a robust, but sensitive structure. It must work with poetic purpose to illustrate the delicate, often unseen, forces that make up the site's character. Liberated from pure utility, technology offers experience and wonder.

The *Guesthouse* functions as a clockwork mechanism connecting guests with the natural rhythms acting on KL-Berth. Dramatic timing becomes important. Special moments are highlighted through a strategy of anticipation and reward.

As site conditions change, the structure evolves as a physical representation of invisible forces acting on the site. The *Guesthouse* reveals and synchronises these forces in unexpected, exhilarating ways.

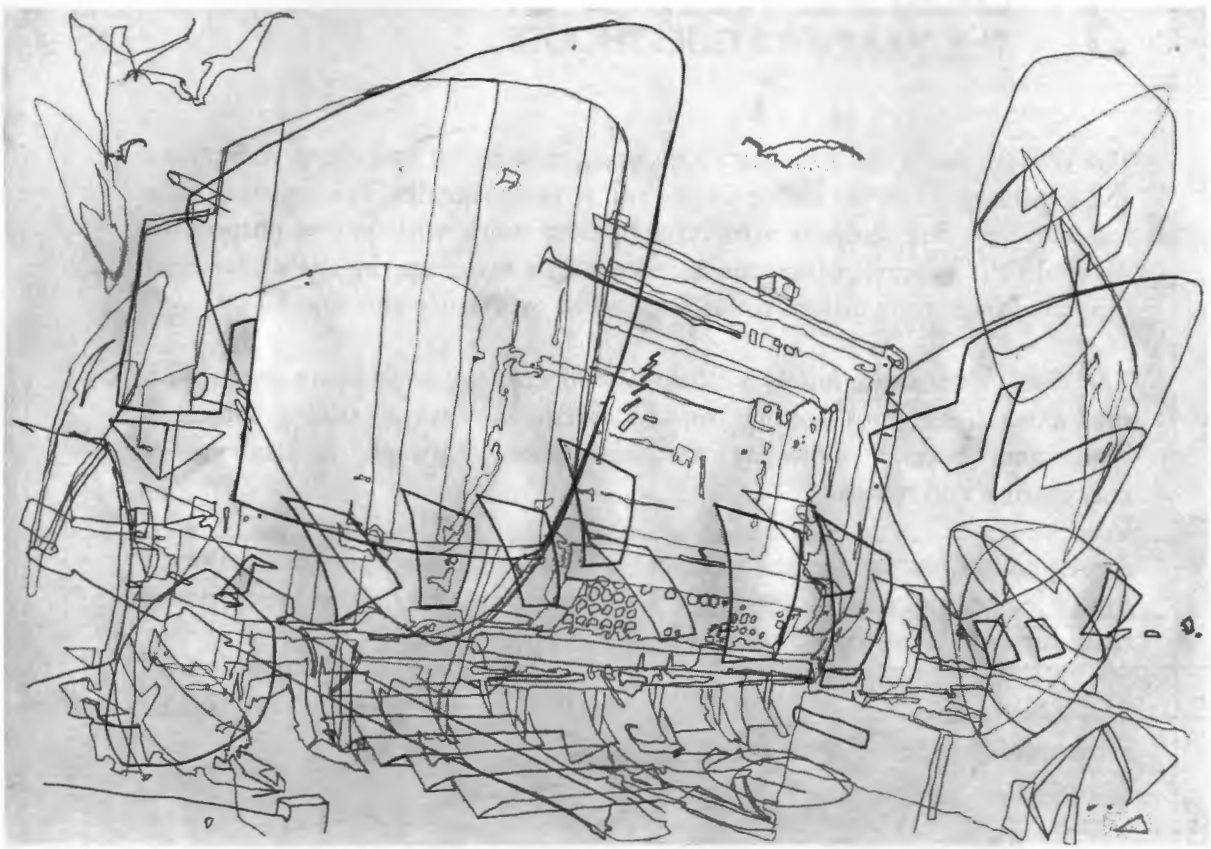
The *Guesthouse* is comprised of four main elements that allow guests to rediscover their senses in different ways.

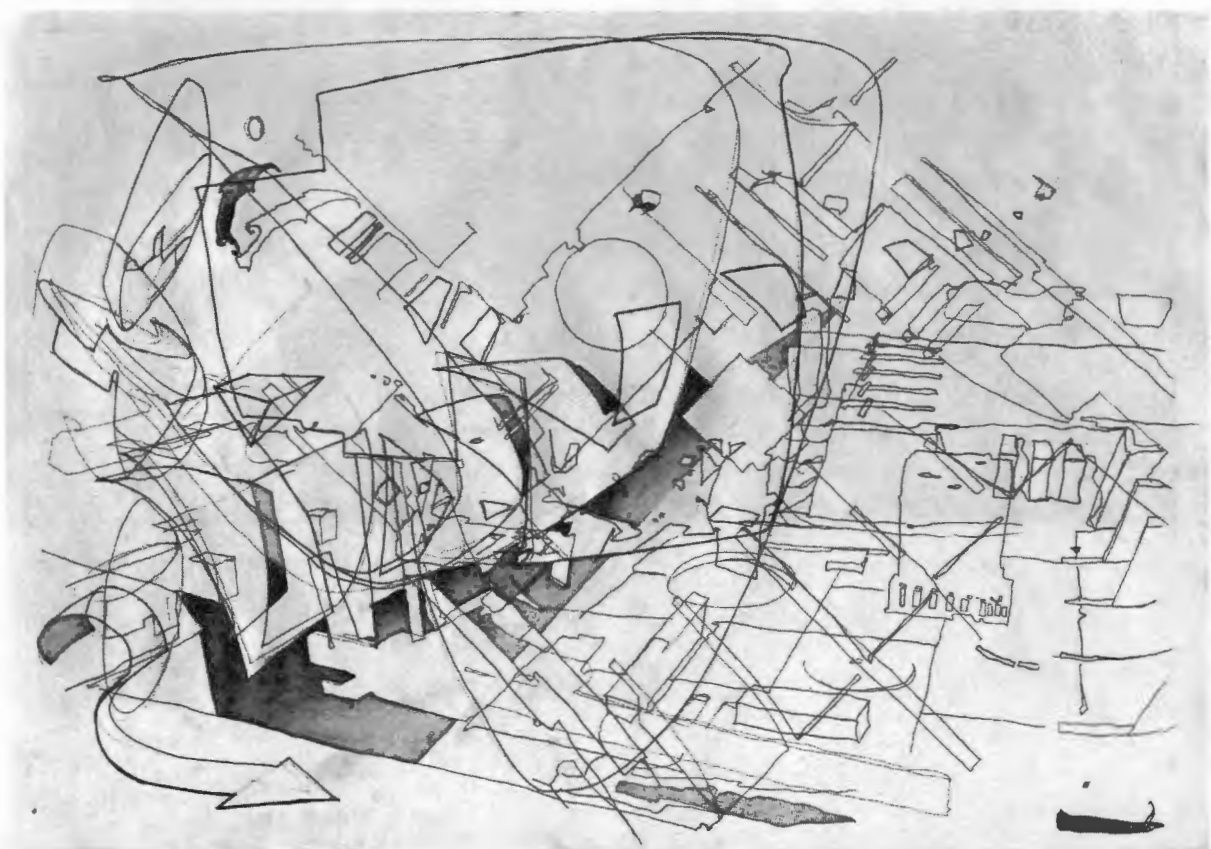
3.1. BRIDGE

The *Mariner's Guesthouse* can not be accessed directly. It haunts the site. An intermediate structure is required to link the *Guesthouse* with the outside world. The *Bridge* provides such access to the *Guesthouse.*

The *Bridge* is a subterranean tunnel cut into the rock foundation of KL-Berth. The structure allows access to the *Guesthouse* from underneath the flooded terrain.

The *Bridge* is wide enough to allow only a few guests to enter the *Guesthouse* at a time. Naturally lit from behind a sheet of water, the Bridge introduces the atmospheric site to guests. Water splashing onto rock compels guests to touch the *inside* of the site upon entering the *Guesthouse.*





Figs. 19 & 20. Studies of the *Hull* from various station points

3.2. FLOOD LANDSCAPE

Upon reaching the *Guesthouse*, the subterranean *Bridge* turns back over itself to form a pier. The pier provides access to the *Flood Landscape*.

The *Flood Landscape* is a notional cityscape threatened by the tide at the ocean's edge. This flooded landscape highlights Cape Town's own stormy relationship with the ocean. The artificial horizon of the water level represents a shifting balance between the natural- and man-made environments.

The *Flood Landscape* provides infrastructure for marine fauna and flora to infiltrate and inhabit the site via the seawall manifold. The portion of the *Flood Landscape* closest to the seawall is permanently flooded. An ideal habitat for seaweed and kelp is established.

The portion of the *Flood Landscape* furthest from the seawall is exposed to the sun and wind for a large part of the day. This condition creates a suitable habitat for barnacles and crabs.

As the tide draws back, a world underneath is momentarily revealed. Predators like seagulls are attracted by the exposed marine life on the *Flood Landscape*. In time, a micro-ecology develops on KL-Berth. Texture is added to the site's atmosphere.

Spring tide is a special event at the *Mariner's Guesthouse*. When the water level on site extends far enough into the *Flood Landscape*, a hydrokinetic switch opens the *Mariner's Tomb*. The *Mariner* rushes to this chamber, hoping that his release from the site's bondage is imminent. He is usually disappointed, but is assured in the knowing that the cataclysm is inevitable.

When the ocean finally reclaims KL-Berth, the *Mariner's Tomb* is flooded through elevated ducts. The *Mariner* is put to rest.

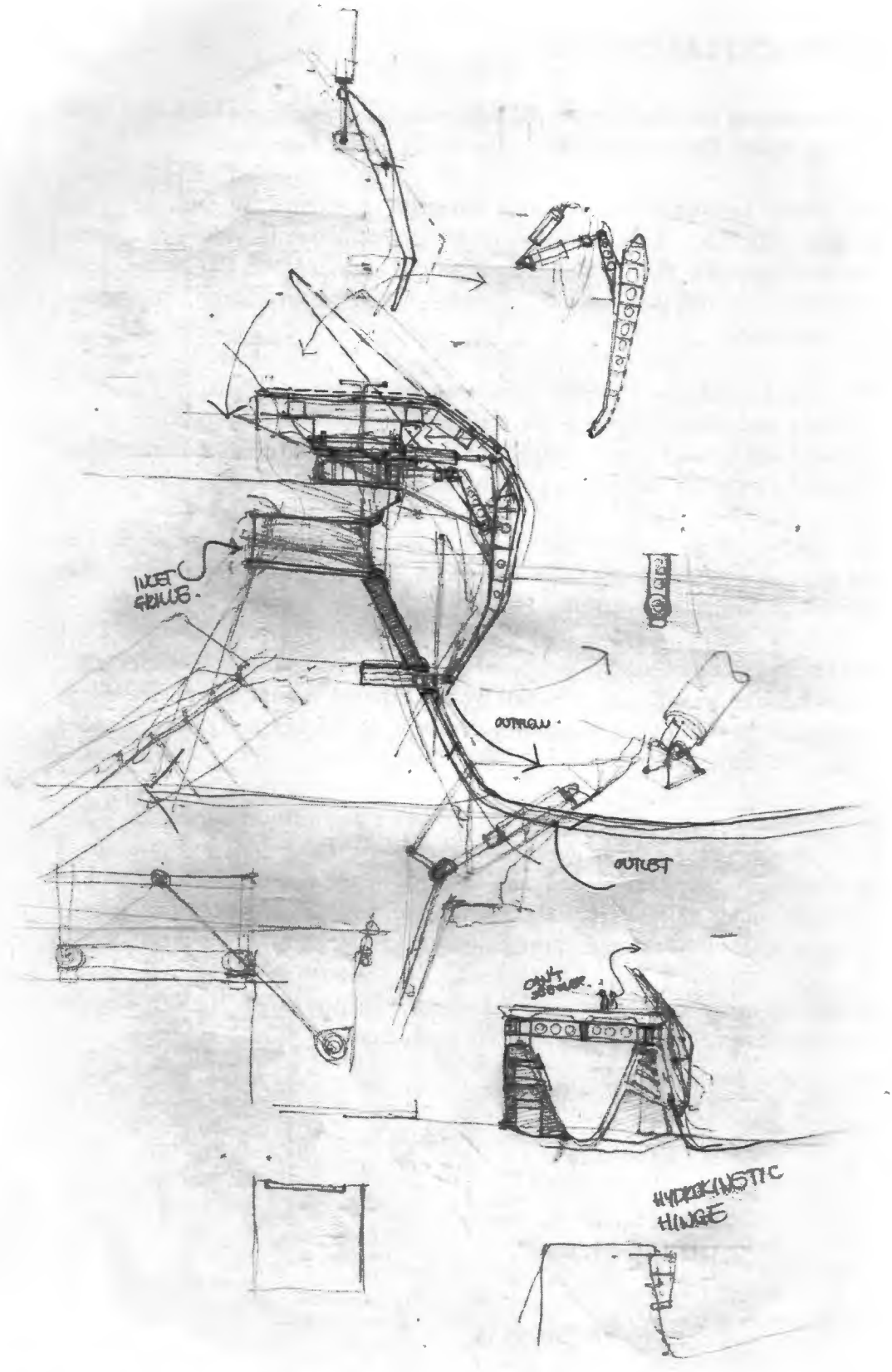


Fig. 21. Hydraulic actuators for seawall manifold.

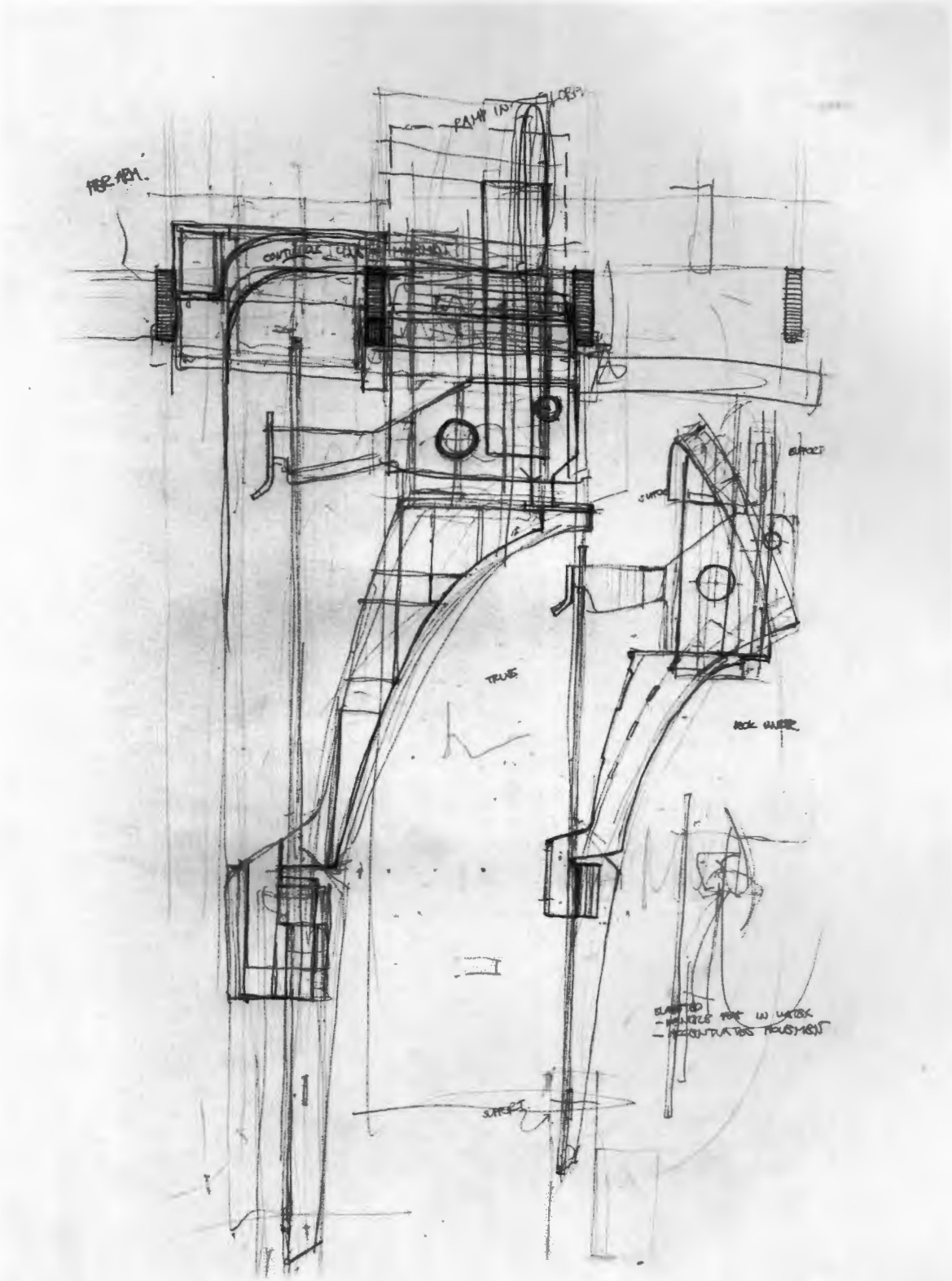


Fig. 22. Studies for *Pier*. These drawings are interpretations of a model partly built from found objects (obtained from scrapyards, see fig. 18). Through drawing, a metal machine component becomes a pier for the *Mariner's Guesthouse*.

Fig. 23. Studies for the *Mariner's Tomb*.

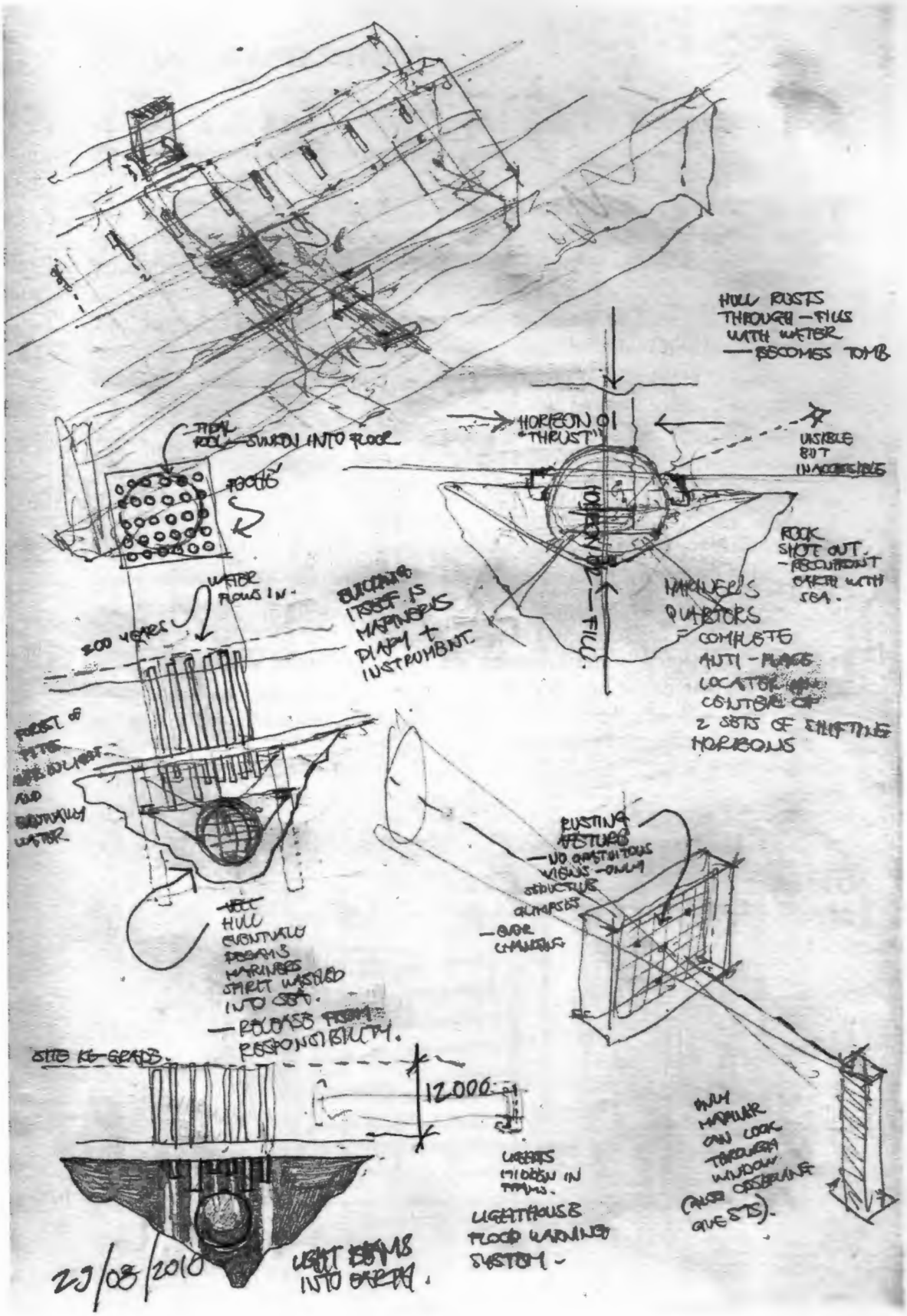


Fig. 24. Studies for the *Mariner's Tomb*.

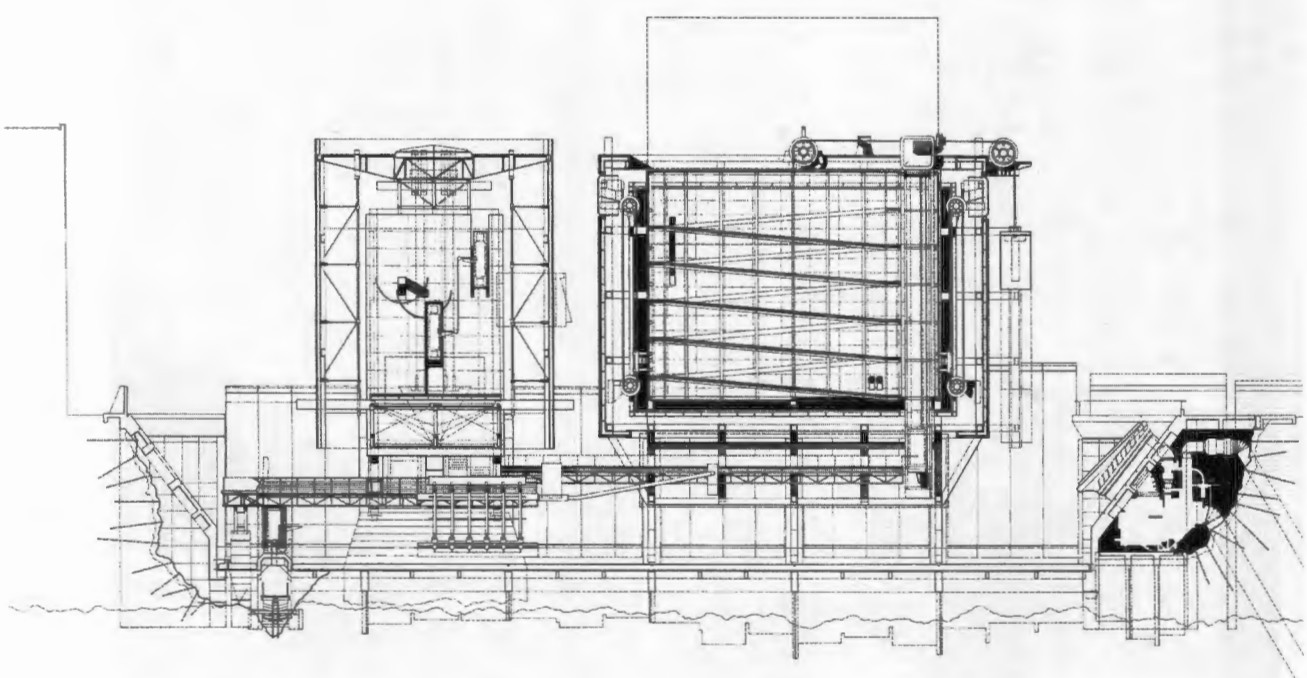


Fig. 25. Cross section looking towards the ocean. From left to right: *Bridge/Pier*, *Hull*, *Hatch/Shutter* with walkways, *Geothermal Power Plant*.

3.3. HATCH AND SENTINEL

The *Hatch* is the *Mariner's* window to the ocean. The *Shutter* of the *Hatch* is fitted with a walkway allowing guests to explore the "window".

The water level of the *Flood Landscape* determines how far the *Shutter* is opened to frame a view into the harbour. A *Tidal Gauge*, doubling as seaweed float, measures the water level. The *Shutter* is opened accordingly.

The "eaves" of the *Hatch* are fitted with an array of lights. As the *Shutter* opens, the *Hatch* emits more light, pulsing with the tide. The *Hatch* is a visual beacon transmitting the Mariner's flood warning to the city.

When KL-Berth is finally consumed by the ocean, the *Shutter* lifts permanently. It is suggested that the *Ghost Ship* sets sail as it surrenders itself to the elements.

During spring tide, a hydrokinetic switch allows access to the *Sentinel*. This observation tower allows a privileged view of the harbour through the opened *Hatch*.

Ironically, guests inside the *Hatch* are refused a gratuitous view of the scene framed by this large window. As the cladding of the *Shutter* slowly corrodes, surprise viewports are created allowing guests to sneak a look outside.

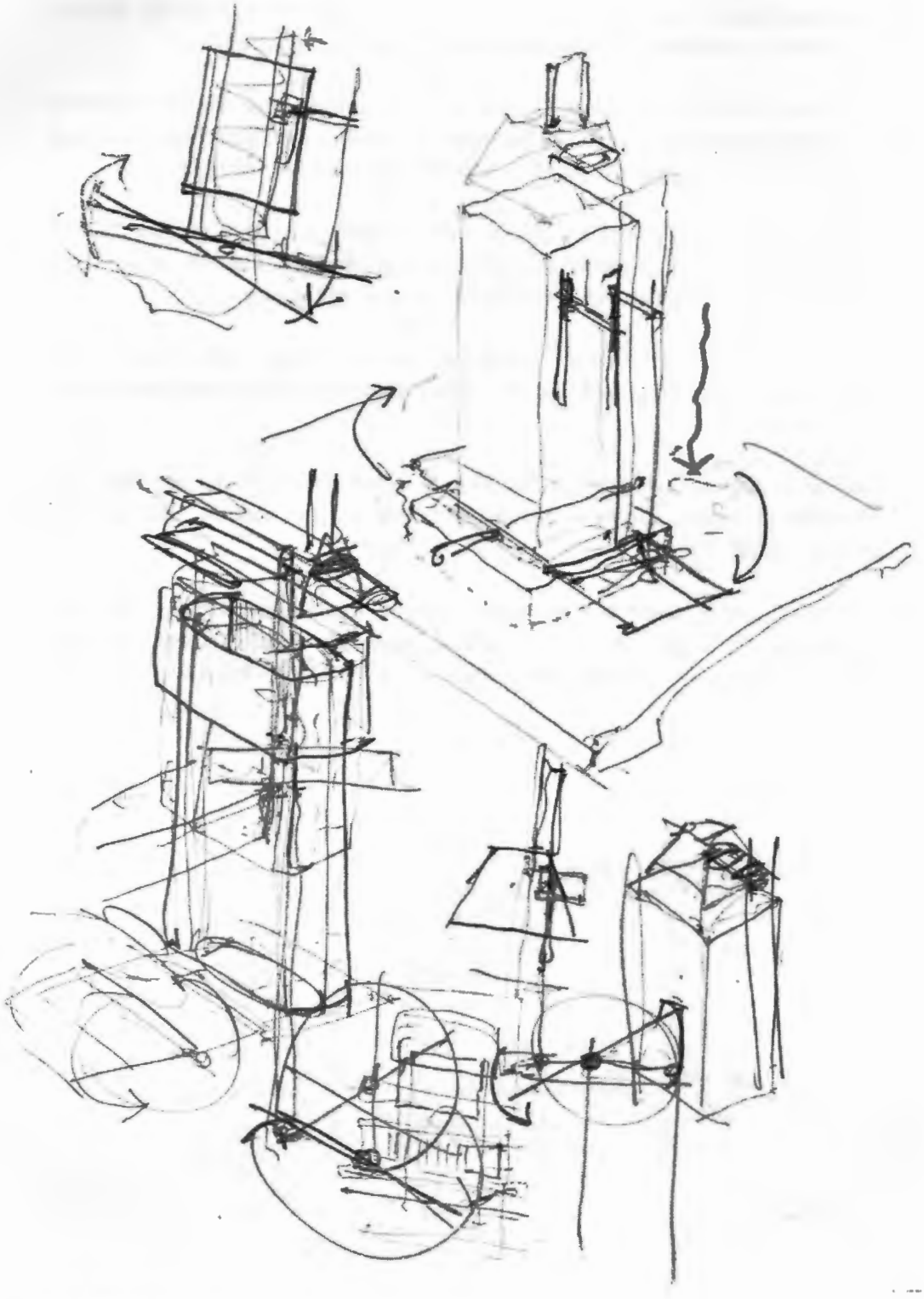


Fig. 26. *Sentinel* studies.

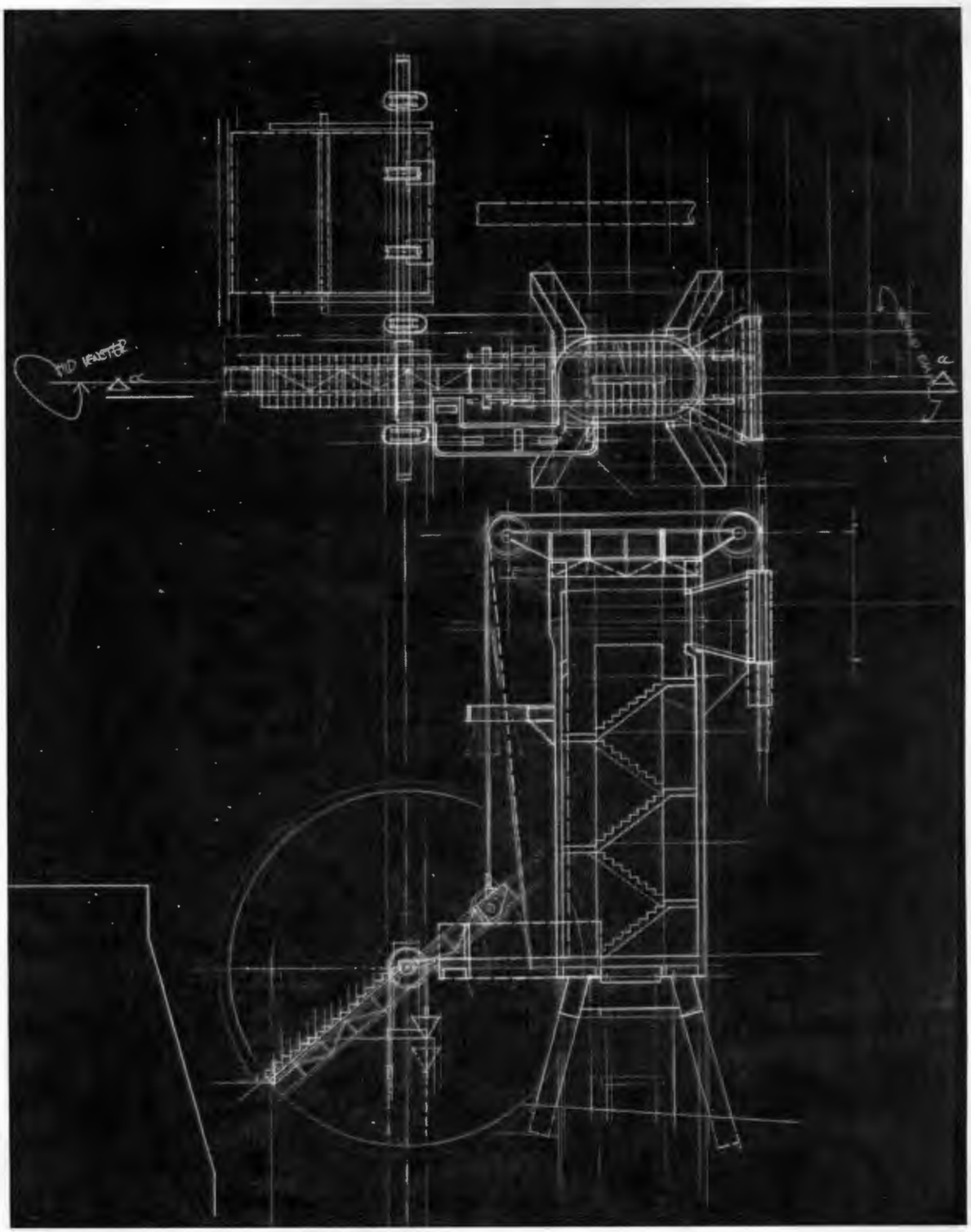


Fig. 27. A hydrokinetic switch, activated at spring tide, unlocks access to the *Sentinel* observation tower.

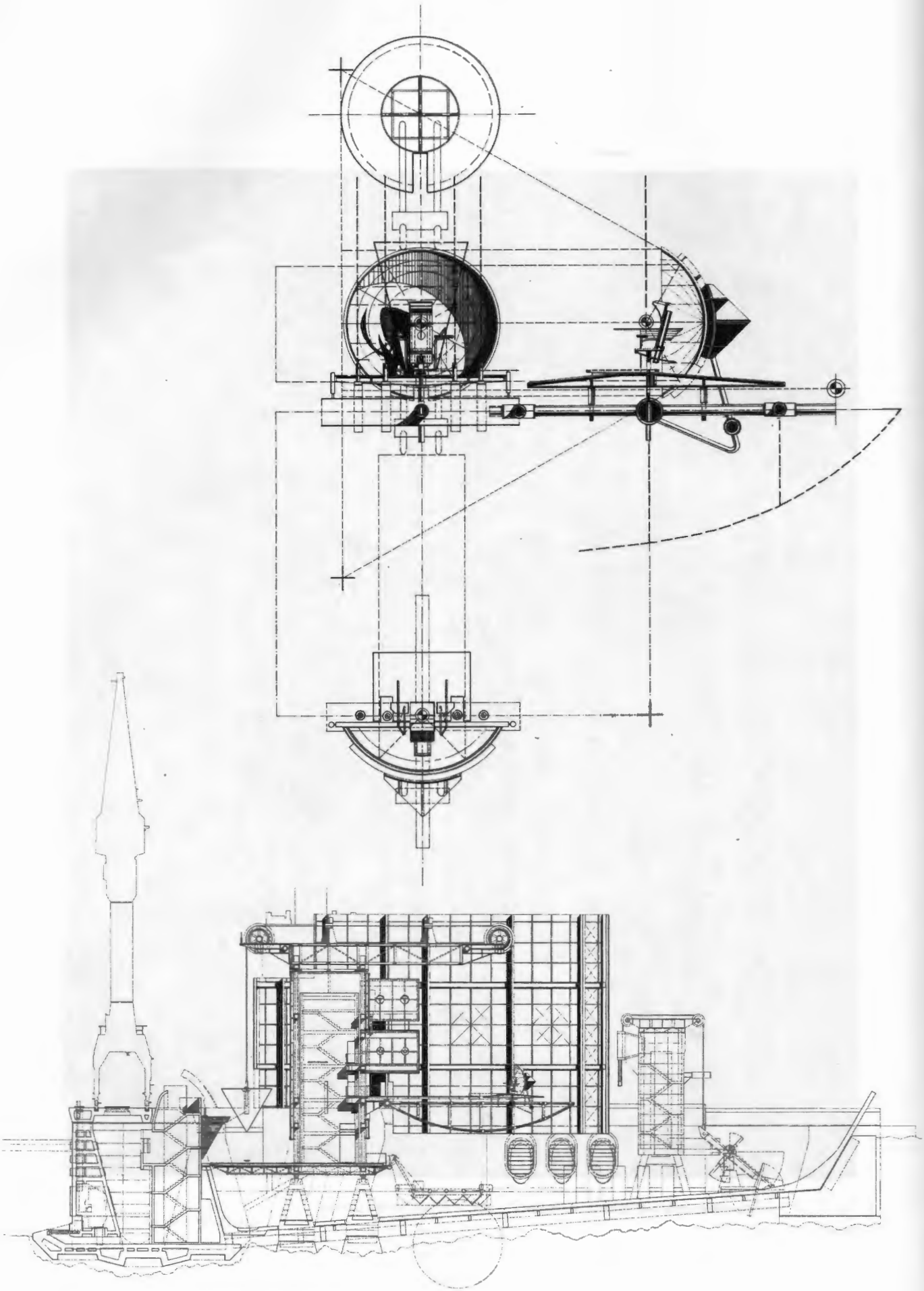


Fig. 28. Above: The *Listening Chair*.
Fig. 29. Below: *Hull* section showing the *Listening Chair* and two *Lanterns*.

3.4. HULL

The *Hull* is the "speakeasy" of the *Mariner's Guesthouse*. This structure can be thought of as a large empty room furnished with a chair and two lanterns.

The *Hull* is an introverted space. To focus guests' attention on what they *hear*, the plate-steel veil of the *Hull* restricts views to the outside. Open only to the sky above and the water below, the *Hull* keeps guests in close contact with the site's atmosphere without diverting attention from what is *heard*.

The wind beats on the plate-steel veil, producing a haunting metallic drone. As the veil weathers, rattled by the elements, the drone becomes increasingly distorted. Sound may also change pitch as the water level underneath the *Hull* rises. The *Mariner* interprets this distortion in pitch as increasingly urgent.

A *Listening Chair* uses a parabolic mirror to focus the *Hull's* voice and site ambience to a single spot. By sitting in the *Listening Chair*, it becomes possible to *listen* to KL-Berth's atmosphere. Seated, the *Mariner* anxiously listens for news from the ocean.

In addition to lighting the *Hull's* interior at night, the *Lanterns* provide just enough space for two people to share a secret.

Between the hushed tones inside the *Lanterns* and the wind beating on the plate-steel veil, the *Hull* creates a sonic experience of KL-Berth that ranges from a whisper to a thunderous drone.

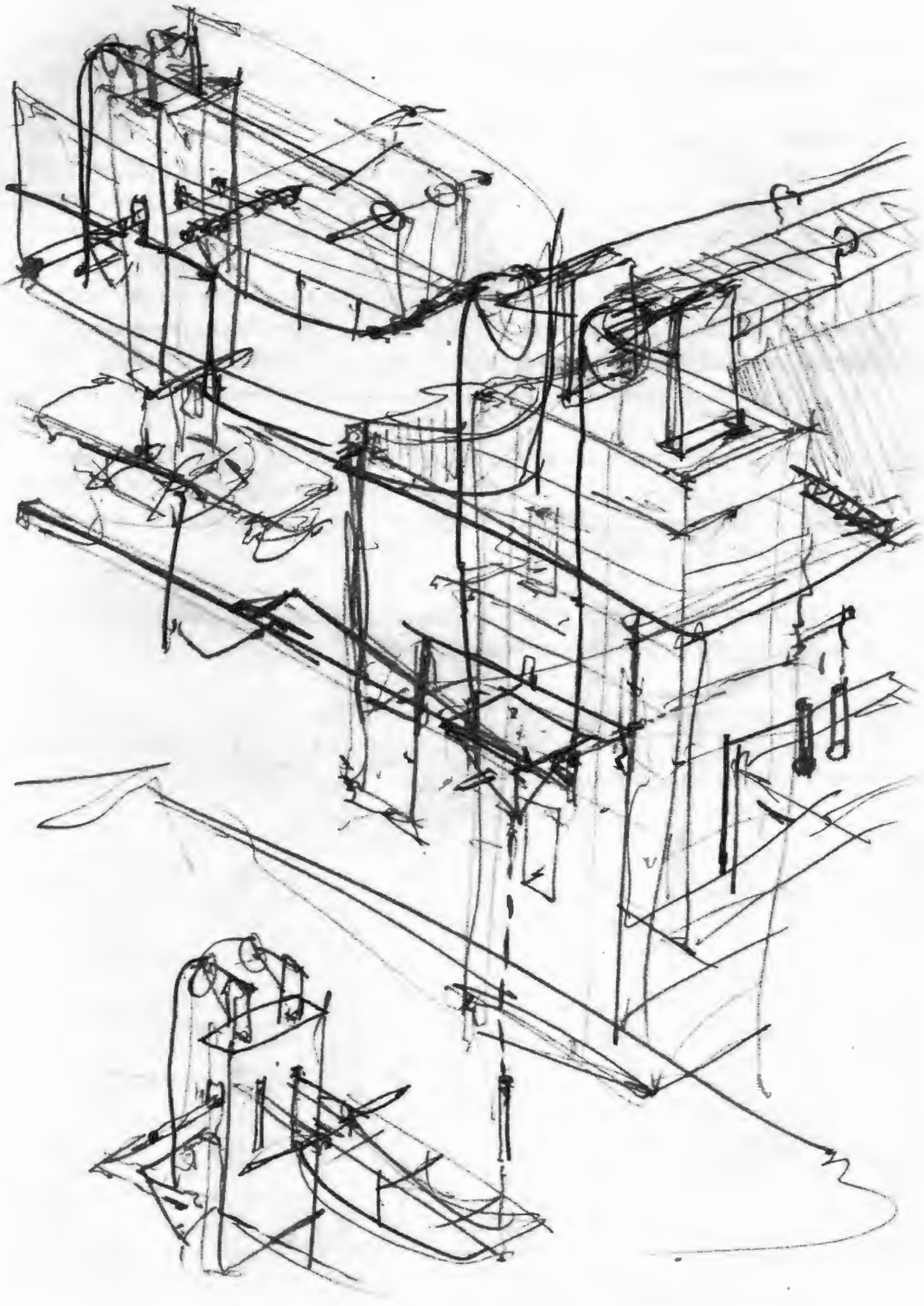


Fig. 30. Studies for the *Hull*'s bascule (counterweight) structure. This system enables the *Hull*'s large unsupported span (from underneath). The floating structure appears to haunt the site.

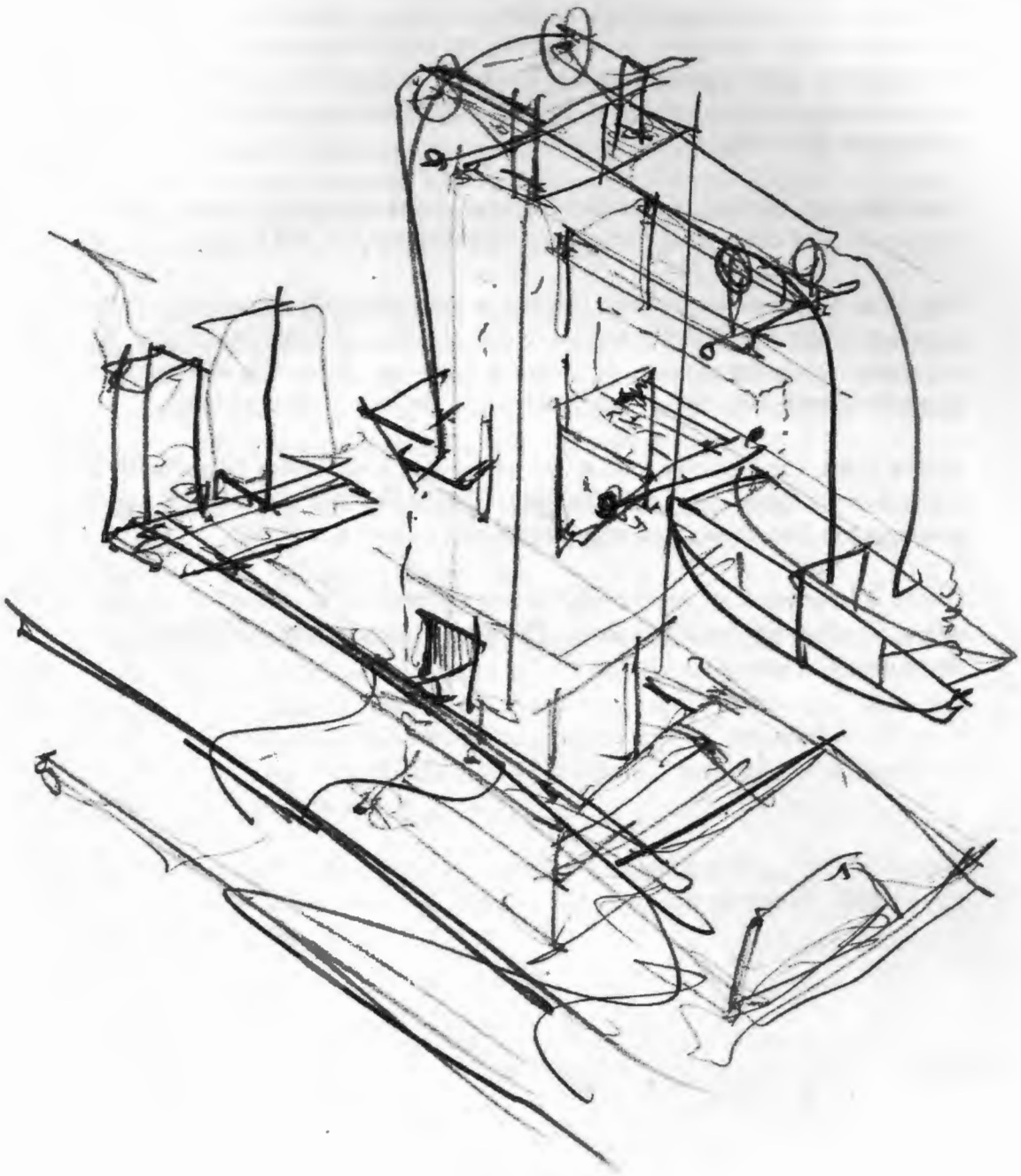


Fig. 31. Bascule structure for the *Hull*.

3.4. GEOTHERMAL POWER PLANT

All large-scale moving parts of the *Mariner's Guesthouse* are powered by a geothermal heat-exchange plant located on site. Although the structure's response to the elements is *triggered* by tidal movement, the use of hydroelectric power generation on KL-Berth is unviable. A hydroelectric power scheme would require a greater difference in water level than is available at KL-Berth.

The *Mariner* installed a geothermal heat exchange plant because of its practicality and conceptual congruence with the program at KL-Berth.

The plant forces seawater down through a layer of sandstone to the granite substrate of the site (KL-Berth is located at the foot of Table Mountain). As the water travels deeper into the earth, it heats up. From the subterranean geothermal well, hot water is pumped back to the heat exchange plant.

At the plant, the retrieved hot water vapourises a secondary liquid with a lower boiling point (typically butane). This is known as a *binary cycle* arrangement. The vapourised secondary liquid powers a turbine.

Steam, a byproduct of geothermal power generation, is exhausted on KL-Berth, heightening the atmosphere. The outlets are elevated high enough to avoid injury to guests.

4 CONCLUSION

With this project, my mind's eye shifted toward the unknown. In pursuit of a design approach more sensitive to *idiosyncratic* site phenomena, an attempt was made to emphasise experimentation over preconception.

A personal, *physical* experience of site phenomena may allow occupants to rediscover their senses and imagination. I am convinced that such an experience may be designed by incorporating the architect's *own* emotions and subconscious processes, more sensitive to phenomena, into the design process. Vivid experience may be equated with the amount of energy captured during design.

I became the test subject for my experiments. Drawing was used to enact a psychological occupation of space as it developed. I worked with techniques devised by the Surrealists during the 1920's, expanding the *Automatic Drawing* technique to include model building. Similarly, the use of found objects prompted personal associations to resulting shapes.

Although initially done in abstract, the recontextualisation of found materials eventually led to the definition of various programmatic and structural elements for the *Mariner's Guesthouse.*

Models were assembled from found materials which included the remnants of previous models. This was followed by a series of drawn studies based on the models. The shapes extracted prompted word associations and ideas that might have remained undiscovered otherwise. Drawing was used as a form of psychoanalysis to reveal instinctive reactions, not always apparent in architectural representation.

The process of instinctual association through drawing, paired with a personal fascination with KL-Berth's atmospheric potential, defined the program at KL-Berth.

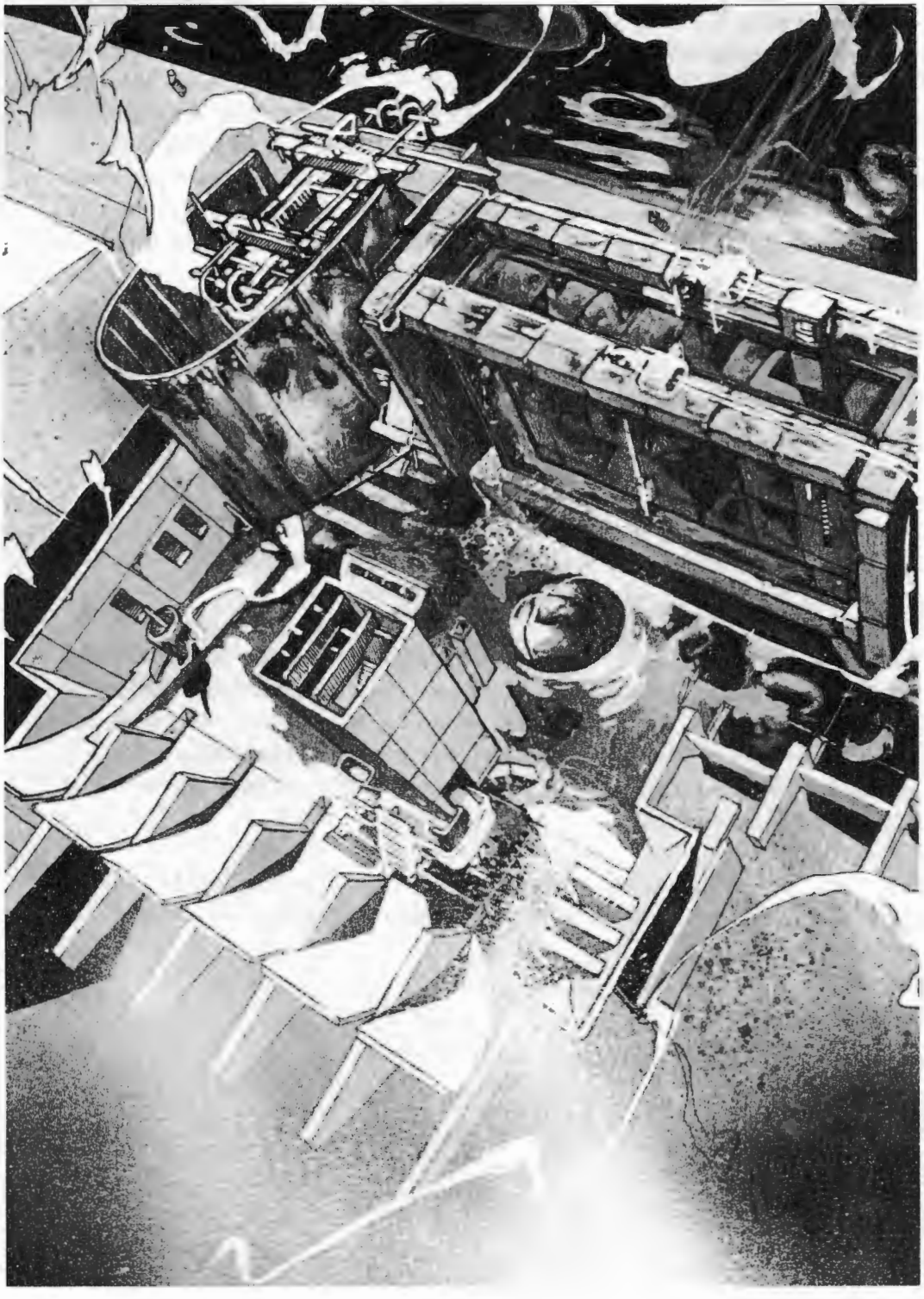


Fig. 32. The *Mariner's Guesthouse*: Time recorded in built form.

In essence, my thesis uses the *technology* of drawing (and model building by extension) as an instrument to uncover, confront and better understand my own creative impulses. The experiments conducted during the course of this project allowed me to confront, and learn to trust my first creative impulses. Consequently, the project is very personal.

I feel that this approach to uncovering the unseen through craftsmanship embodies the meaning of *Techné.*

I argue that chance, contingency and the weathering effects of time are essential characteristics of architecture. I attempted to address this condition by allowing chance to play a role in the design *process.* The aim of this process is to produce buildings equally sympathetic to a state of permanent restlessness.

A concern for indeterminacy acknowledges the fact that architecture is played out in time. By allowing structure to metabolise change, as a *positive* force beyond the architect's control, the hidden beauty of the unlikeliest site may be uncovered. Architecture may attain an *afterlife* beyond design.

In this sense, it may become possible to sustain the designer's own enthusiasm into a *tangible* spatial experience. ■

APPENDIX A: RISING SEA LEVELS

During the Twentieth Century, sea levels rose at an average of 1.8mm per year[11] [12]. Recent satellite measurements indicate that since 1993 this rate has increased to an average of between 2.8 ± 0.4mm[13] and 3.1 ± 0.7mm per year[14].

Sea levels will continue to rise significantly in the future due to the effects of global warming. These effects include the release of excess water from melting glaziers into the oceans and the expansion of ocean water as it heats up[15].

Because of the complex interconnectedness of global climate systems there is a degree of uncertainly accompanying the prediction of rising sea levels during the next century. A recent study published in the September 2008 issue of the *American Association for the Advancement of Science*'s journal, *Science*[16], predicts that sea levels may rise by anything between 0.8m to a theoretical ceiling value of 2m by 2100.

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[11] Church, J; White, N. "*A 20th century acceleration in global sea-level rise*". Geophysical Research Letters 33 (January 6, 2006).

[12] Douglas, B.C. "*Global Sea Rise: A Redetermination*". Surveys in Geophysics 18 (1997): pp. 279–292.

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A 2009 study conducted for *The Copenhagen Diagnosis Climate Science Report*[17] also predicts a possible ceiling rise of 2m for global sea levels by 2100 - more than double the levels published in the *Intergovernmental Panel on Climate Change's Fourth Assessment Report (AR4)* of 2007[18].

Globally 160 million people live less than 1m above sea level[19]. The slightest rise in sea levels has very real socio-economic implications. At KL-Berth the fluctuating water level bearing on the seawall may be used as a barometer for these wider environmental issues.

The project attempts to highlight the importance of finding a balance between the man-made and natural worlds.

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APPENDIX B: NOTES ON METALLURGY

E-MAIL CORRESPONDENCE WITH DAVID SMITH FROM THE METALLURGICAL SERVICES DEPARTMENT AT COLUMBUS STAINLESS PTY (LTD), MIDDELBURG, SOUTH AFRICA.

From: Stefan van Biljon
To: tcl-enquiries@columbus.co.za
Date: Friday, August 27, 2010 at 12:16 PM
Subject: 316L corrosion rates

To Whom It May Concern,

I am currently completing my Master of Architecture at UCT. My project is located within the Duncan Dock and uses the corrosion of steel panels to systematically allow water back onto the site and into the building.

With enough time, the metal panels corrode to allow the water to penetrate certain areas of the site (similar to a time-release capsule).

If I were to use 316L marine-grade stainless steel, what is the mm/year corrosion rate for this material in natural seawater (and also atmospheric corrosion)? Also, what would be the corresponding rates for 3CR12 sheets?

Thanks in advance.

Kind regards,
Stefan van Biljon

From: David Smith <smith.david@columbus.co.za>
To: Stefan van Biljon
Cc: steyn.johan@columbus.co.za, <luus.theuns@columbus.co.za>
Date: Thursday, September 02, 2010 at 14:41 PM
Subject: RE: 316L corrosion rates

Hi Stefan,

The corrosion rate of 316 in seawater is less than 0.1mm per year i.e. negligible. However, pitting corrosion may occur, particularly when the water flow is slow. I cannot find pitting rates in the literature. I did find a reference somewhere where 316 was immersed in seawater & pitting corrosion occurred in stagnant areas with a maximum pit depth of 2.5mm after 4 years. This does sound a bit iffy in terms of wanting a specific time span for penetration to occur. As for atmospheric corrosion, there will only be staining, if that, in marine atmospheres. As for 3CR12 the corrosion rate will be >1mm/year. Again I can't find an exact rate in the literature, and again it depends on factors such as flow rate, temperature, dissolved oxygen, bio-fouling etc. Pitting corrosion will also occur in 3CR12. You may have a larger source of literature to access & may have more success in finding something a bit more concrete.

It is certainly an interesting project. From my understanding of your project I would suggest you use a material that corrodes uniformly i.e. that doesn't pit. You will be able to get a better time frame for penetration than with stainless steels that pit. Carbon steels may be a better choice. Electrochemical corrosion tests are useful in determining approximate corrosion rates of metals in various solutions. Your design will have a big influence. If the steel plates have crevices present e.g. at fixtures or bolted connections, you could get crevice corrosion which can be quite rapid & lead to failure of the plate when the rest of the plate is relatively uncorroded. Galvanic corrosion is also something to be avoided (that is the connection of dissimilar metals such as copper & mild steel). Waterline corrosion is also something to consider - the tidal zone has a different corrosion rate to totally submerged sections.

I'm afraid I can't give you the answers you want but I hope my comments will be of use.

Kind regards,
Dave Smith

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From: Stefan van Biljon
To: David Smith <smith.david@columbus.co.za>
Date: Thursday, September 02, 2010 at 15:20 PM
Subject: RE: 316L corrosion rates

Hi Dave,

Thank you very much for your help and suggestions! I will follow up on the materials you mentioned. It is quite a trick because certain submerged elements need to be secure (structural skeleton) and others are encouraged to corrode and eventually disappear (metal skin). I am allowed some freedom to speculate (what I want the materials to do) as I understand that there are many parameters that influence the selection and specification of my corroding components. This is also a time concern. A study of corrosion is very interesting and certainly worth a thesis on its own! But, the more scientific I can make my choices, the better. As the details develop and more questions surface, may I refer back to you at your convenience?

Kind regards,
Stefan

From: David Smith <smith.david@columbus.co.za>
To: Stefan van Biljon
Date: Thursday, September 02, 2010 at 15:36 PM
Subject: RE: 316L corrosion rates

Hi Stefan,

Please keep me informed. I will be pleased to help if I can. You have certainly got me interested. Stainless steel such as 316L & the duplex steels like 2205 could be employed as structural elements but would need to be electrically insulated from corroding elements to prevent galvanic corrosion (you could use painted mild steel but it's not as good. Or as profitable for us!)

Regards,
Dave

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STEFAN VAN BILJON, 2010

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