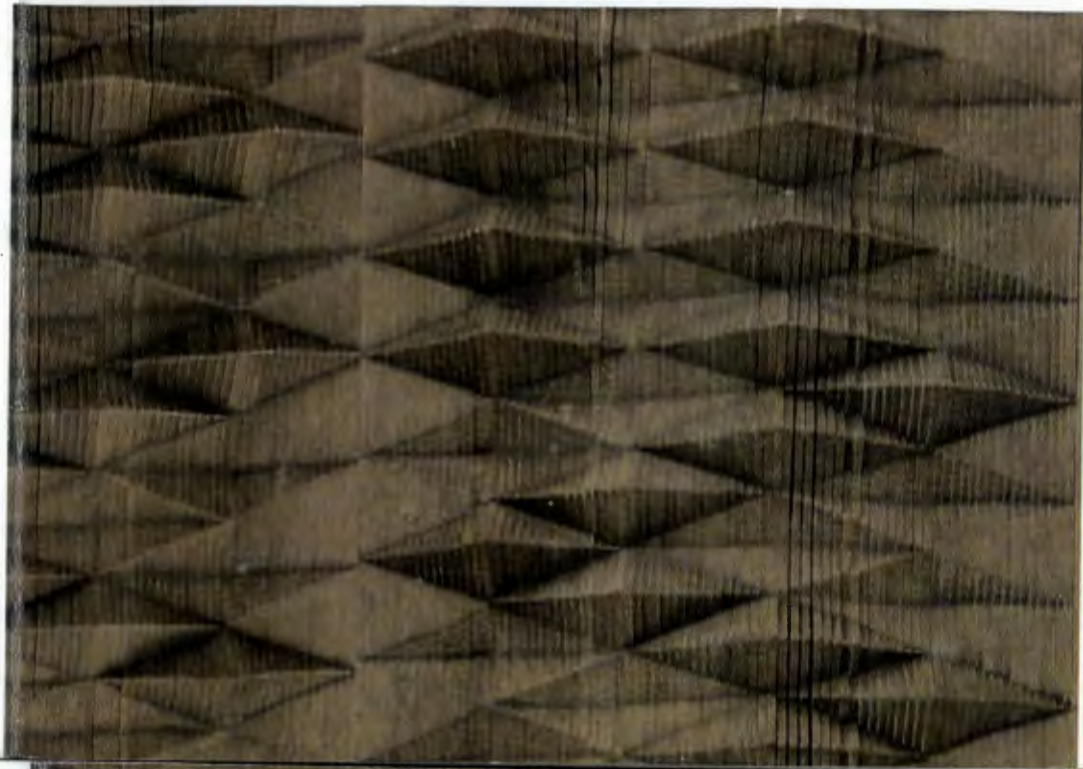


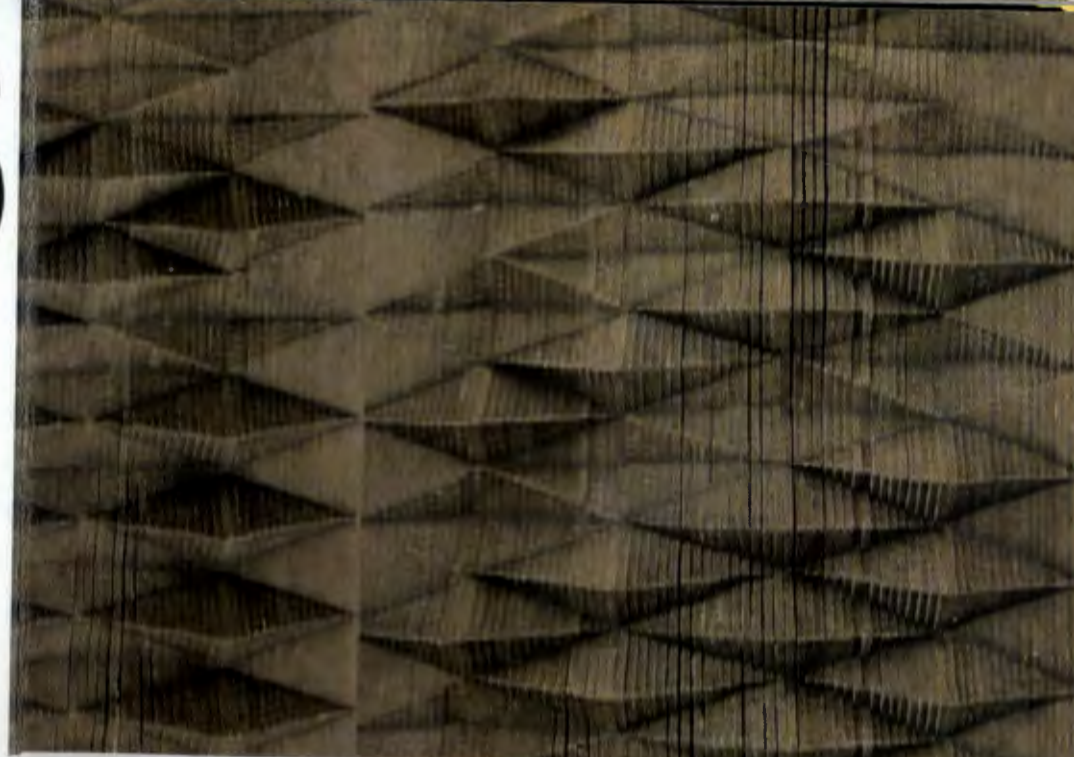
CAPE -

(of no)



FLATS

a new landscape of experience



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please

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this . . .

introduction

- to be or not to be
- a round table discussion

an exploration into the justification of architectural form

- the (generation) of form
- where it all started
- liberating theory
- Bjarke and architectural evolution
- Mark Gelernter and form

running along the bottom

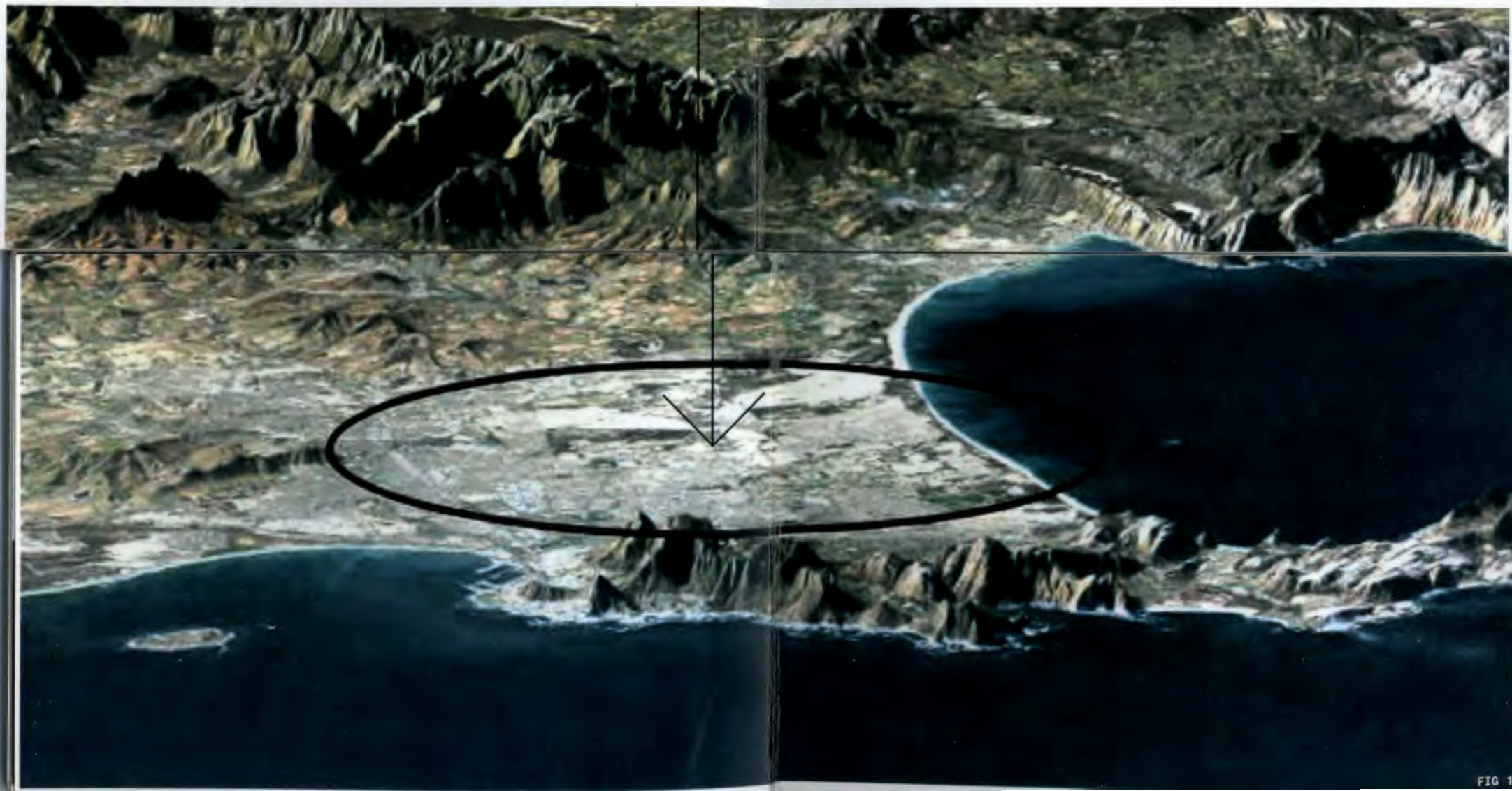
- from Plato to Derrida: a map tracing the history of architectural form and major philosophies that helped shape it

running along the top

- the journey continues
- form follows fun
- get physical
- Mozambique surprise
- memorialize this
- nature of/ nature and

how the invention of new technologies have allowed for new architectural form

- 1851188919141938194519642000>
- what now?
- Gaudi and Wright
- So...
- animals and architecture



time to digest

- taking shape
- manifesNO

setting up the parameters

- how does theory inform that which must now be made?
- a series of studies
 - connecting the dots
 - theory in time and space
 - defined framework

now. to translate this into architecture

- searching for site
- why can't we turn dirt into pyramids?
- waste is only useful when it has a purpose

- the first attempts
- staring at the river
- the image that glued it all together
- and that is how i ended up in the Cape Flats

investigating the flats

- imbalance
- aerial analysis
- 1827
- 1950
- mountain sandwich
- recycling living conditions
- taking a closer look
- why not?
- site



FIG 2

site analysis

- site model
- site diagrams
- hydrological study
- cape flats aquifer
- water channel study
- wind tunnelling

how can you contain sand dunes?

- biodegradable geo-blankets
- gabions
- earth retention systems
- slope protection systems
- fynbos

fynbos as a design element

- growing form
- flower power

using the knowledge gained to start generating an architectural language

- abc
- building blocks
- resulting architectural language

programme

- healing space
- gardening unit
- resource hub
- youth facility

INTRODUCTION

Well I guess the only place to start with this document is to continue where I left off. A lot has changed since the completion of the original technology and design documents in June. When I say change I do actually mean - a lot has evolved. It has been a really interesting process to see the intangible, seemingly separate, seeds of ideas and theories that were planted during these first two documents start to grow into a coherent physical form that can be read, understood and experienced as a spatial language. It has definitely been a leap-of-faith approach towards design, where I trusted my instincts not knowing where this project would end up or if this project would eventually result into an honest (or any) representation of what has been building and growing in my mind since the beginning of this year.

My process has not been linear, it has been more like a to and fro pin-ball-machine approach. Where the ball is shooting where ever it wants but within a bigger loosely defined context or framework. The framework I am talking about is my theory and technology documents. These documents were in turn a more distilled and refined version of my interest within the field of architecture.

TO BE OR NOT TO BE

say for example I started this year by deciding to design a primary school in Gugulethu the following would have most probably happened.

I would have gathered information relevant to that topic with an immediate preconception of what this school should or shouldn't be. To help with this preconception, I would have looked at typologies and similar projects build in the same social and economical conditions and see what I can learn from them, then visit them and maybe do a post occupancy evaluation to see if the spaces are being used for what they were intended for and if not how have they changed? I would have interviewed teachers and asked them about the pros and cons of teaching children within these spaces and if they could what would they change and why... etc. , I would have studied the new teaching curriculum, and any future propositions for the curriculum to anticipate new ways of adjusting the learning environment to accompany these changes.

then, while contemplating the extent of public/private thresholds and armed with the glue of social-minded movement patterns I would be in the position to cut and paste the required necessities (the fixed requirements) such as class rooms, storage, parking, staff rooms, toilets, offices, hall space etc. into the site.

A site that I have chosen out of an intense urban analysis of the greater context, probably at a scale of 1:5000 to ensure I am not building a primary school right next to an existing one, and also to understand the context ensuring that the new building would enhance the existing urban conditions, while stitching in perfectly with the existing urban fabric and/or language.

design development

- placing programme
- new challenge, new solution
- layers of landscape
- healing space
- garden unit
- youth facility
- resource hub

conclusion

- design is form making in order
- beatlejuice
- referencing

After placing the required m2 of fixed necessities in a rational and practical way ensuring it responds to all the climatic needs such as sun, wind and rain I would then engage playfully with the more 'flexible' social spaces. I would start to push and pull them in order to blur the boundaries between inside and outside allowing classes to spill outside on a good day while on a bad day children could still play freely inside. The walls would probably be a darkish colour up until the average height of a gr. 7 student so that they can rub and kick it without the marks becoming visible. The toilets would be smaller and basins lower, while windows and openings would be at a level so that teachers and supervisors could always have a clear view of the children no matter where they are running to. Being a low income area vandalism is always a problem and you can respond to this in one of two ways, believe in the community and give them a quality product with high quality finishes hoping they would then look after it with pride or build everything out of robust unbreakable heavy duty materials and hide it under a layer of rainbow coloured paint, either case could be argued... I can go on about do the same about old age homes, student housing, hospitals, blocks of flats, mixed use commercial buildings... etc.

But the point is in each scenario I can predict with almost 90% accuracy what the building would look like. Yes, if you explore this road unexpected changes and discoveries would happen but they are limited to an already limited pallet.

The point of my thesis was to explore a side of architecture town I finally had the chance to explore, to follow a road, a pathway or a random stranger into the darkness of the great unknown. Please note: The intention was never to arrive at a new body of knowledge or discover some miracle architectural project, it was purely a way of arriving at an endpoint knowing that most of the way I had no idea where I was going therefore forcing myself to arrive at conclusions by my own accord. Teaching myself to critically evaluate a situation, circumstance or condition without a brief or lecturer guiding me and without a predetermined result, product or building stuck in my head from the get go. So, armed only with curiosity, a gut feeling and a launch platform constructed out of a select body of knowledge that I have filtered out of 5 (almost 6) years of architectural study and 24 years of life... I started my journey into the great unknown.

and what a journey it proved to be.

If I had done the school in Gugulethu I would have been assured of a safety net, a recipe to pass thesis. But that was never my intention; I wanted to push myself as an architect. To teach myself how to approach design as a non-generic concept, initially divorced from context, program or materiality. A way of thinking which could then be applied to any future brief, situation or problem and ultimately result in the most honest solution for its specific requirements.)



**a round table discussion
between Phillip Johnston,
Pietro Belluschi and Louis
Kahn.**



1
"There is something that interests me almost as much as architecture itself and that is the moral main spring of architecture. I don't mean good or bad morals, but the values that we have that lead us to design. Under what basic living aim do we start doing architecture? I feel that architecture is an art primarily and hardly anything else. I probably go too far in defending this thesis that the aim of architecture is the creation of beautiful spaces, and that everything else is so subordinate to it that it's just as if it didn't exist."

2
"I have a quarrel with the very essence of your statement... To me the architect has the task of processing every-day materials of life into superior aesthetic forms. You cannot successfully take an abstract form, and say "I am going to do something with this because I know its good" The moment you do that you defeat the very idea of architecture."²



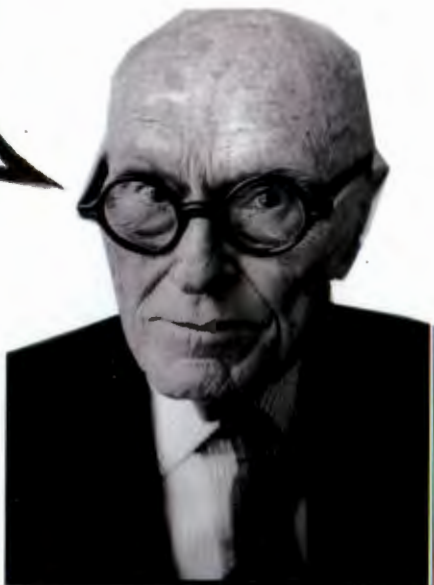
1. Stern, Robert A.M., Alan Plattus, and Peggy Deamer. "[RE]reading perspeca - The first 50 years of the Yale Architecture Journal." In *On the Responsibility of the architect: roundtable discussions with Philip Johnson, Pietro Belluschi, Louis Kahn, Paul Weiss and Vincent Scully*, by Charles Brickbauer and Joan & Norman Carver, p.42.

2. *ibid*



3 "... I do not think you two are really in disagreement at all. One is talking about a service which is deplorably dishonest right now; the other speaks about the high planes which architecture must reach... I do not believe starting with form, necessarily, is the way to produce architecture. I believe the concept should be equal to that of planting a seed."³

"Then I say isn't it better to have students do something impractical now - it's the only chance they'll have. They have time to really plow their gardens and see what that seed will sprout into. I am not ignoring discipline. Discipline is an absolute essential. If you don't know your grammar, how are you going to write poetry?"⁴



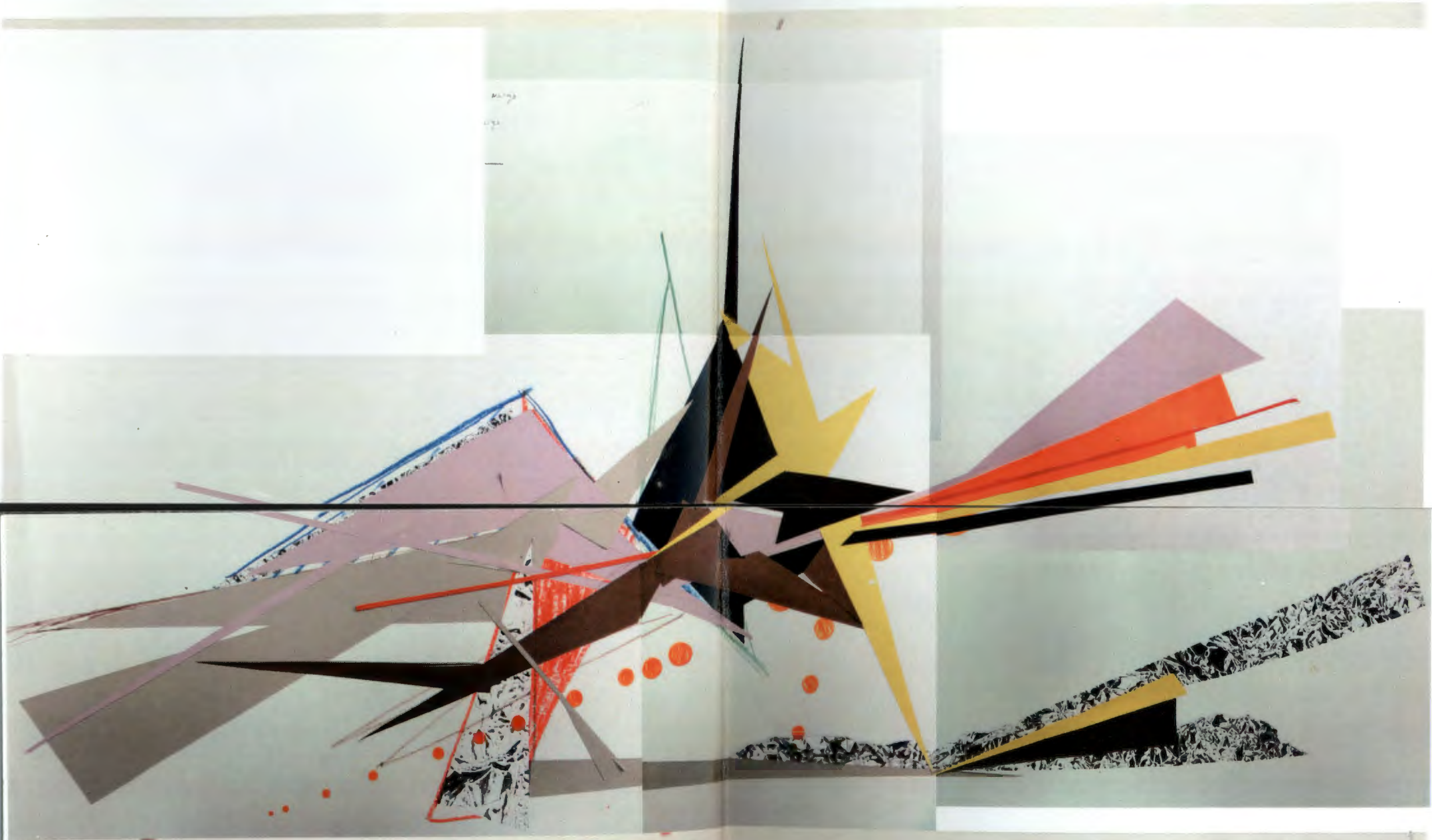
"The real test of discipline is to really understand the many complex factors inherent in architecture. Architecture is not a pure art - it is a social art. The prime function of an architect is to be an artist, but the need is that he should be an artist with concept flowering from the seed, so that he will arrive at form through a complex meeting of all circumstances"⁵



3. Stern, Robert A.M., Alan Plattus, and Peggy Deamer. "[RE]reading perspecta - The first 50 years of the Yale Architecture Journal." In *On the responsibility of the architect: roundtable discussions with Philip Johnson, Pietro Belluschi, Louis Kahn, Paul Weiss and Vincent Scully*, by Charles Brickbauer and Joan & Norman Carver, p.43.

4. *ibid*

5. Stern, Robert A.M., Alan Plattus, and Peggy Deamer. "[RE]reading perspecta - The first 50 years of the Yale Architecture Journal." In *On the responsibility of the architect: roundtable discussions with Philip Johnson, Pietro Belluschi, Louis Kahn, Paul Weiss and Vincent Scully*, by Charles Brickbauer and Joan & Norman Carver, p.43.



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An exploration into the justification of architectural form.

The (generation) of form.

There is something Julian Cook taught us in second year that I would never forget. He asked the question... think about a hall space and then draw a quick plan of it (sketch A). All of the drawings reverted to the traditional rectangular shape of a hall. We immediately drew the known form that since our first day in grade 1 we have associated a hall space with. He then asked us to quickly draw a plan of a space where people can dance, music can be performed, markets can be accommodated, lectures could be held and indoor sports could be played and viewed. The resulting sketches was a mixture of interesting shapes, morphed by organic organizations juxtaposed with sharp 90 degree angles intersecting at various intervals (sketch B). Each plan looked amazing and in a quick 10min exercise I realized the potential that lies within architecture. He was basically talking about a hall space because all these activities could be accommodated within the rectangular space of sketch A, but it lacks the expression of emotion and experience. By not mentioning the word hall and only mentioning experiences and possible activities the potential of spaces dreamt up within the minds of the students became endless. They did not immediately revert to their first known physical form of a hall space, they reverted to their emotions, feelings and experiences that each of these mentioned activities have generated within them throughout their lives. Each student's story was different and each one made their connections in their own unique way. Therefore the physical manifestation of the plans had its own special character of the person who drew it embodied within its lines. This made me super excited. And still does.

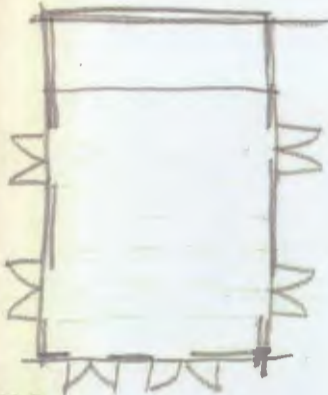


FIG 5

A

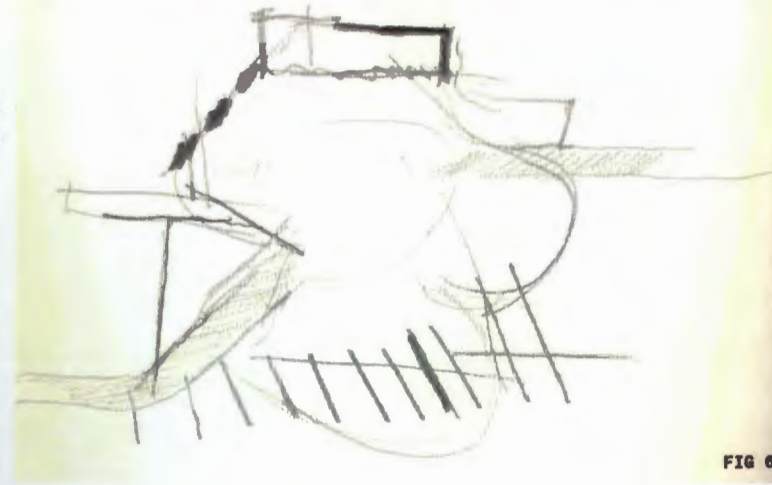


FIG 6

B

Where it all started.

A precedent study of Le Corbusier's Villa Savoye and Eileen Gray's E1027.

Grays approach to explore theory in conjunction with the design process as a tool of experimentation is the way that I feel all architectural projects should be approached. The idea of a manifesto with fixed rules on how to generate form should be discarded. A clear relationship between theory, design experimentation and technological considerations should always be present within the design process. The one informing the other, to and fro, until design equilibrium is reached.

"External architecture seems to have absorbed avant-garde architects at the expense of the interior... The thing constructed is more important than the way it is constructed and the process is subordinate to the plan not the plan to the process."⁶

The reason for this comparison is not so much the architecture but the relating texts, Gray's 'From Eclecticism to Doubt' and Le Corbusier's 'Five Points of a New Architecture' and the way they influenced the respective designs. Le Corbusier published the first version of the 5 points during the fall of 1927. During this time construction on Gray's E1027 has already begun and the construction of Villa Savoye only started in 1928. What is interesting is not who finished first but the fact that Gray published her text during the construction of E1027 and Le Corbusier published his text a year before construction on Villa Savoye started. Le Corbusier's text takes the form of a manifesto, which is then realised point by point in Villa Savoye. Gray's text operates more like a dialogue, open to interpretation and adaption through realizations and experimentation in design. Gray is not concerned in proving a doctrine and allowed the specificities of the site and of the program to suggest themselves into the house. Even though the 5 point is cited, each one is mediated according to the needs of the site. For Gray intention is more important than form.⁷

6.Gray, Eileen. "From eclecticism to doubt" *L'Architecture Vivante*, translated by Caroline Constant. p240
7.Bohner, Ashley. "Theory After (After-Theory)." *Perspective 38: Architecture After All*, 2006

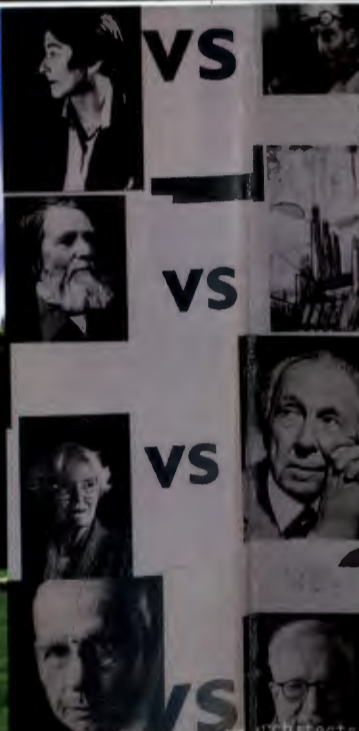


FIG 9 - Eileen Gray's E1027

FIG 7 - Le Corbusier's Villa Savoye

FIG 8 - Battle of the Architects

"By liberating theory from the need to be instrumentalized in practice, can it be appropriated and used to inform the way we work, rather than to dictate what we make?"

I believe that architecture must not follow a recipe. Each project is unique and is generated from its own requirements and context. Design must get rid of any preconceived stylistic notions and should not be governed by style. In Colin St John Wilson's book *Architectural Reflections: Studies in the Philosophy and Practice of Architecture* he says that without purpose there can't be architecture. There is a relationship between purpose and form; you cannot satisfy the one without knowing the source of the other. So, it's not form follows function like Louis Sullivan proclaimed as early as 1896 but more a to and fro relationship between the two.

Berthold Lubetkin's penguin pool in the London Zoo is a good example of this. He was interested not only in the dimension needed for a penguin pool and the sizes of their required living and eating courtyards, he was also interested in their movement, their daily patterns and how they behave. He used this to generate the form of the ramp, creating a space that serves not just the functional needs of the penguins but also a space that allows them to naturally express themselves. This building is set in strong contrast with the elephant's enclosure in the background. Where Lubetkin gives expression to systems of movement and routine, the architects of the elephant enclosure were interested in the language of form and not the purpose of form. As a result they ended up creating a building that looks like an elephant but the inside spaces where the elephants must live are not appropriate for them.

So within this photo you see two approaches towards design resolution. The one expresses itself in the outer shell of its buildings form and the other one internalizes this expression to suit the occupants (the penguins) of the space. On the one hand you have a monumental building that serves as a landmark for the visitors of the zoo but unfortunately it creates an uncomfortable environment for the elephants to live in. Then again would, would one ever be able to truly mimic the conditions in which animals naturally live in the wild? I don't think so. So who is right? Is there a right and a wrong design approach? Is any design valid as long as it can be justified? And through whose/what lens does it get justified? These have always been questions that have really intrigued me within the field of architecture.



FIG 10 - View into Lubetkin's Penguin Pool (1933 - 1934) at the London Zoo



"Public debate about architecture quite often ends up contemplating the final result of architecture, the architectural object. Is the latest tower in London a gherkin, a sausage or a sex tool? What about the stories behind projects? How do you document the adaptation and improvisation that happens during the design process?"¹¹

"The avant-garde is almost always negatively defined. The cliché of the radical young architect is this idea of an angry young man rebelling against the establishment, frustrated that the world doesn't fit in with his or her vision. So rather than REVOLUTION I am interested in the idea of EVOLUTION, where the design process gradually evolves by adapting and improvising to the changes of the world, finally resulting in a complex meeting of all circumstances."¹²



Running along the bottom...

From plato to derrida:

**a map tracing the history
of architectural form and
the major philosophies that
helped shape it.**

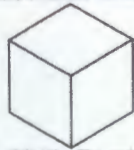
Running along the top...

The journey continues:

THALES 624 BC
Put forward a material description of nature, that the world is a organism, it has a physical body and conscious soul.

PLATO 428 BC
Embraced the Pythagorean idea that the word organizes itself in mathematical relationships. He saw form as an ideal pattern. Plato assumed that the ideal form must be something separate from form, and superior to individual physical objects. His world had two realms, the existential realm of physical objects and the metaphysical realm of ideal forms.

→ Plato reduced the basic elements of the world into four geometrical solids:



1. FIG 21 -The cube.



2. FIG 22 -The tetrahedron.



3. FIG 23 -The octahedron.



4. FIG 24 -The icosahedrons.

ARISTOTLE 348 BC

Rejects Plato's dual world view and accepts that form is part of the material world. Put forward an organic concept of the world while emphasizing the use of the senses and contemplation of the physical realm.

VITRUVIUS 80 BC

He believed that the source of form emerged out of the primary need for creating shelter. Architectural form was discovered and perfected over time by the ancients, using nature as a means to measure the beauty of a building. He viewed proportion as the fundamental principal in nature (Vitruvian man).

On an implementation level, he sees that these principals need to satisfy three aspects of a building:
1. Durability. 2. Convenience.
3. Beauty.

GREEK ARCHITECTURAL THEORY:

Believed in forms determined by divinity, founded in geometry e.g. the Doric temple= width of a triglyph, deriving from this unit all building dimensions. Standard typologies like the orders evolved over time. Rules and forms derived through cultural traditions, representing timeless and universally objective truths.

→ The architect must do this by establishing a standard geometrical module that satisfies overall dimensions and proportions, after which he needs to consider the site location and the aesthetic values of the structure.

→ Contradictory to this belief, he also stated that the architect needs to use his own intuitive judgment.

FORM FOLLOWS FUN

So, how have we as humans adapted and changed over the short period that we have occupied the earth? Before I continue I just want to say that yes: I know it is impossible to summarise or even begin to explain the evolution or progress (or lack thereof) that we as a human race have experienced up to now. So to make it architecturally relevant I have limited my exploration running along the bottom to the evolution of form within the field of architecture. It is basically a chronological exploration on how various theories, philosophies and religious views etc. have influenced and shaped architectural form and the meaning, concepts and structural logic behind it. The reason for this exploration is to hopefully start identifying cyclical patterns that could be used as a guideline to help project (from the present moment) the future requirements that would be needed to successfully accommodate the architectural requirements of our current society. Architecture is all about projecting. The more knowledge accumulated the more accurate the predictions would eventually be (as long as the source of the knowledge is not corrupted). In a lecture given by Louis Kahn at Berkeley in 1966 he mention's Le Corbusier's concern about the fact that people accused him of being a revolutionary, he confessed that: 'I only have one master; the past. And I have only one discipline; the study of the past'¹⁶

16. Kahn, Louis, "Berkeley Lecture (1966) Thoughts on architecture and personal expression; an informal presentation to students at Berkeley." *Perspecta 28: Architects Process Inspiration*, p24, 1997

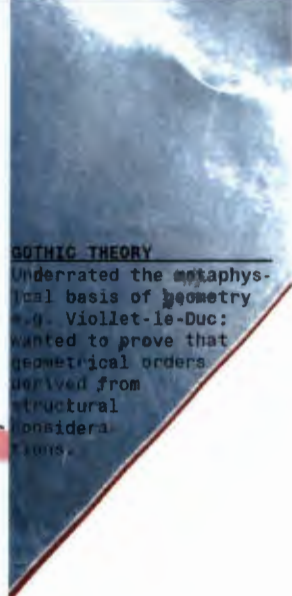


FIG 12
The Geological Time Spiral by Joseph Graham, William Newman and John Stacey. A graphical representation of geological time. The spiral begins 4.5 billion years ago.

THE MIDDLE AGES
Complete taken in due to supply knowledge of the Divine, with little sense of personal aesthetic insights on society

CHRISTIAN PHILOSOPHY
Disagreed with Greek outlook, had a more secular interest in the physical nature and the priority of the individual. They returned to the earlier/ancient worldly preoccupation with the metaphysical world of the gods. No individual thought, dependant on an all powerful external source.

ARCHITECTURE THEORY
Christian cosmology shaped the conception of architecture. Architects started with simple geometrical figures, and through a process of prescribed steps generated complex geometrical figures. This was rationalized for God provided artisans with mathematical knowledge and harmonies.



GOTHIC THEORY
Underrated the metaphysical basis of geometry e.g. Viollet-le-Duc: wanted to prove that geometrical orders derived from structural considerations.

PLOTINUS 204 AD
Founder of Neoplatonism. He believed there is an ultimate source of reality - the One, or the absolute, that is beyond all conception of knowledge.



"Everything is dynamic and temporary, processes flowing one into the other. In his 1998 book *Annals of the Former World*, John McPhee continues this line of thought by visualizing the planet as a surging liquid of proto-continental forms:

Human time, regarded in the perspective of geological time, is much too thin to be discerned- the mark invisible at the end of a ruler. If geological time could somehow be seen in the perspective of human time, on the other hand, sea levels would be rising and falling hundreds of feet, ice would come pouring over continents and as quickly go away. Yucatans and Floridas would be under the sun the one moment and underwater the next, oceans would swing open like doors, mountains would grow like clouds and come down like melting sherbet, continents would crawl like amoebae, rivers would arrive and disappear like rainstreaks down an umbrella, lakes would go away like puddles after rain, and volcano's would light the earth as if it were a garden of fireflies."

In a way we are all slaves to our past and to me that is not a bad thing. Well maybe the word slave is a bit harsh - we are all students of the/our past. When Gropius taught at the Harvard Graduate School of Design in the 40's He refused to teach the history of architecture to his student because he wanted them to start from scratch detached from any 'irrelevant' influences of the past. That is just stupid. It's like expecting a plant to grow after you have cut off its roots. The past is like the rings of a tree, it becomes a recording of our existence. The past offers us endless information that must be used as a tool to learn from, so that we do not make the same mistakes again. I hope I am wrong but there seems to be a negative vibe amongst the students and a few architectural professionals that I have come into contact with. A lot of them feel that architecture is doomed and that the world is not as it used to be, that architecture is stuck between periods and nothing really significant is going to happen in our time, that we are ruled by a capitalist mentality, nothing is special anymore ... etc etc etc. I don't know why this mentality exists; people seem scared of architecture as if architecture is something to be scared of. They should just relax and stop worrying about the things that they cannot control and start having fun. In the end that is what architecture is all about: Serious, well researched, relevant, irrelevant, contextually appropriate, cleverly considered, budget pleasing, client pleasing honest FUN. I agree with Peter Eisenman that we cannot be avant-garde anymore, but for now we are young and we can challenge that which we do not agree with and change it.

If the world is framed by architecture then the world can be rebuilt"¹⁷

17. Manough, Geoff. *The BLDG BLOG*. California: Chronicle Books LLC, p95. 2009.

THE RENAISSANCE:

Humanists:

The Humanists rejected the medieval, romantically worshiped everything ancient, studying and copying the work of antiquity. The period demarks the revival of philosophy, art & architecture of the ancient world, reasserting the Classical notion of individual power. They attempted to abolish the pre-ordained explanation of reality, replacing it with individuality and the powers of reason.

Two mindsets on theories of form:

1. **Aristotelianism:** Derived from Aristotle's empiricism, understanding is gained through human knowledge not through an intuitive grasp of supersensual ideals or forms.
2. **Platonism:** Derived from Plato's rationalism, all objects in the sensory world are only imperfect copies of metaphysical ideas (experience through knowledge).

Mannerists:

The concept of the artistic genius.

A sensory appearance is only an imperfect copy of timeless metaphysical ideals that God had implanted a copy of in the human mind. They believed that a new awareness of individual powers and personal nature of this inner source will lead to form.

Subject/object problem:

It deals with Western cultures assumption of the individual and his relationship to the world. Greeks developed it as a way to explain the origin and nature of the universe; it developed into a theory of how knowledge is possible. In attempting to explain the relationship between man and the world he inhabits, one inevitably sets up a dual conception for the individual to interoperate:

1. The individual is a physical object in nature, whose actions and behaviours are determined by the laws of the universe. Therefore the individual is a physical object that forms part of its surrounds.
Designer = part of outside world: subject to external forces, he receives information from outside himself.

2. The individual as a free thinking, his/her personal drives or detached from nature.
Designer = autonomous: created from

acting and creating subject, whose actions are determined by desires. Therefore the individual is a subjective being, detached from nature.

subject, initiating its own actions on the world, ideas are internal resources.

GET PHYSICAL

"Maybe all you need to dislodge your unhappiness is a dirty old abandoned warehouse where you can break stuff, scream and shout and swear as much as you want?"¹⁸

Buildings are valued for many reasons e.g. historical importance, cultural significance, symbolic of the future, nostalgically satisfying, necessity... etc. There is a trace of memory within in each and every building. It evokes a certain emotion within the person who has a connection to it. This emotion obviously varies from person to person and can never really be researched, documented or explained. It's an intangible emotion that gets distorted the moment you experience it. It's like trying to explain a dream; you think you can but the moment you start you realize it's impossible. For a long time I was really obsessed with the intangible (things like emotions, feelings, experience...) within the field of architecture. How do you design buildings; that would make people happy? That will inspire and motivate people? That will make people want to touch/stroke/hug it? In a way I blame this on Juhani Pallasma's *The Eyes of the Skin*. A reading we all had to do in 1st, 2nd and again in 3rd year. PHENOMENOLOGY. Phenomenology became the word of the year. Phe-no-me-no-logy... no matter how many times I say it I still don't think I can properly pronounce it. Designing for the senses became the thing to do. I am a sensitive architect I made you lick my building...

Even though I loved this mindset I eventually realized that it is a dead end. No matter how hard you try and form an argument around it someone can always poke holes in your design because it is not based on anything concrete - It's based on intangible unpredictable emotions. If you design a building out of solid concrete and paint it green it's going to evoke emotions. If you design a building out of solid gold it's going to evoke emotions (and probably get stolen). What these emotions might be cannot be predicted, it all depends on the mood that the person engaging with the building is in. I am not disregarding the architecture of experience. To me that is the main goal within architecture and any great piece of architecture automatically achieves this in one way or another. It is the endless pursuit of trying to predict these emotions in order to recreate them that I am against. Great architecture spontaneously generates all these emotions without trying to force it onto people.



FIG 13
The Colosseum, Rome

THE BAROQUE

>>>

ALBERTI 1404

Elaborates on the subject object problem finding theoretical justification for Classical forms and attempts to find a source of architectural ideas within the Aristotelian tradition.

He identified beauty with the characteristics of nature that have unchanging norms and viewed the typical in nature as more real than the idiosyncratic. The mind has the capacity to process and filter objects as beautiful, making the mind dependant on the outer world for its knowledge of beauty.

Sees structure in nature to be rationally organized, therefore it can be described mathematically. Derived proportional ratios from nature, arguing that if nature is ordered by mathematical and architecture uses the same laws then they will capture the underlying order of nature.

Saw classical as useful analysis in the attempt to discover ideal form and believed that the mind has the ability to filter and distinguish between the beautiful and the not beautiful.

LEONARDO DA VINCI 1452

Objective laws of nature jump into the mind without any mediating activity of the artist, guiding him to render an accurate image of sensory appearance.

Believed the mind has the ability to creatively recognise the materials gained in perception.

Abandoned the old Greek organic analogy of the cosmos for the new mechanistic one. It was a synthesis of Renaissance's Classicism with the emotion and tension of the Mannerists.

A belief in clear reason and rational structures e.g. Descartes

RATIONALISM

PALLADIO 1508

Used Classical forms as generator for new ones.

Reworked the proportions of Vitruvius to show how they could be used to create contemporary buildings. Attempts to set out absolute rules for design, based on the principals of nature.

GALILEO 1564

Believed there are two kinds of entities in the universe:

1. The universally objective primary qualities of size, shape, weight and position

2. Personally subjective qualities like colour, and smell.



FIG 14
Prisoners held captive inside Chile's National Stadium.



FIG 15
Die Voortrekker Monument

Even Alian de Botton who wrote a book called the Architecture of Happiness admits that sensitivity towards architecture also has problematic aspects. He asks the question that if one room can alter the way we feel, if our happiness hangs on the colour of the wall or the shape of the door, what will happen to us in most of the places we are forced to look at and inhabit? What will we experience in a house with prison-like windows, stained carpet tiles and plastic curtains?"

"No matter how attractive a building may be there will be times when the most congenial of locations will be unable to dislodge our sadness or misanthropy."

19-Botton, Alian de. *The Architecture of Happiness* New York: Pantheon Books, p.13, 2006
20-ibid p.16
21-ibid

EMPIRICISM:
Mind looks out into the world for knowledge.

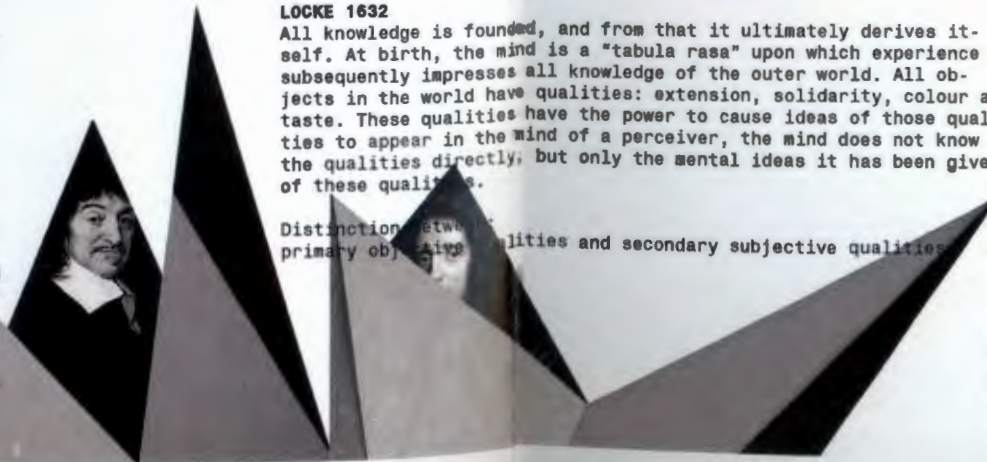
DESCARTES 1596
Believed that reliable knowledge of the world must be found within the reasoning mind.

Explains how the mind rationally builds up its picture of reality from a truth naturally contained within it.

Separates mind and the world in two distinct spheres, the mind can induce actions in the conveying body without actually being an integral part of it. The solid foundation of the mind uses two mental operations to arrive at the knowledge of things:

1. Intuition: "the conception that an unclouded and attentive mind gives us so readily and distinctively that we are wholly freed from doubt about that which we understand".

2. Deduction: A natural philosopher will be able to deduce from the fundamental principals first found by intuition in the mind. It clarifies that which is already known and leads to unknown truths.



LOCKE 1632
All knowledge is founded, and from that it ultimately derives itself. At birth, the mind is a "tabula rasa" upon which experience subsequently impresses all knowledge of the outer world. All objects in the world have qualities: extension, solidity, colour and taste. These qualities have the power to cause ideas of those qualities to appear in the mind of a perceiver, the mind does not know the qualities directly, but only the mental ideas it has been given of these qualities.

Distinction between primary objective qualities and secondary subjective qualities.

ACADEMIE ROYAL D'ARCHITECTURE 1671

Taught universal principals of architecture to students and they studied organizing principals of arithmetic, geometry, perspective and mechanics. They learned drawing to capture the essence behind sensory objects. Belief in similarity of minds, objective truths, that you can only work if all minds are structured in the same way, operate according to the same laws and have implanted in the same innate truths.



FRANCOIS BLONDEL 1618
Theoretical justification for reviving the Classical. Believed timeless Classical principals shape building form, Architecture must follow laws of nature and reason, rather than fantasies of the individual mind. Reason will manifest orderliness, which enables the mind to understand architectural form. Different building projects present different building problems, the special nature of which ought to be expressed in the building form.

Buildings have a tendency to generate their own stories and emotions with whoever it comes into contact with. In a sense buildings can be seen as a backdrop or stage onto which we act out our lives. Take Chile's National Stadium as an example, in 1962 it served as the host for the soccer World Cup final and united the people with hope and faith. The building was initially designed with the intention of creating a great atmosphere while viewing a soccer match. It was used for this purpose until ten years later the same stadium shattered the hopes and dreams of the nation when many people were tortured and executed under the orders of Dictator Augusto Pinochet. Who is to say that in 20 years time the new soccer stadium in Greenpoint, which was built under similar conditions, won't be used for the same political reasons?

Other examples are The Coliseum in Rome which was once a site where Christians were martyred and gladiators killed freely, is today one of the most visited tourist destinations in the world. The same can be anticipated about the Voortrekker monument. At the moment it's frowned upon because the memory of apartheid is still relatively fresh within the minds of many South Africans but I am sure in a few decades those memories would have faded and it will be respected for what it truly is, a great piece of architecture. So unless you can get your hands on the delorean used in the Steven Spielberg's trilogy Back to the Future, it would be impossible to predict the future of any building/structure, situation, emotion or idea. All we can do (like Le Corbusier said) is study the past, learn from it and to the best of your ability try and imagine what the role of your intended design would have within the context of the future. Then send it off into the great unknown, it will adapt, it will be changed, it will be re-appropriated.

FIG 16

A still from Steven Spielberg's Back to the Future trilogy.



THE ENLIGHTENMENT
Discovery that each age has its own values and forms of artistic expression.

PERRAULT 1613

New set of proportions derived entirely from rationality. Beauty in architecture has no objective existence; it is entirely arbitrary and only dependant on custom. Liberating beauty from sources either God or in



Positivism: continued with Baroque/Renaissance ideas, particularly about science & objective knowledge.

All human behaviours and architecture is completely determined by outside influences. Nature is orderly and rational, its underlying structure can be fully apprehended by the human mind. Successes in natural sciences gave them an optimistic view on the future, scientists would predict and control future events. Man is simply a component of nature and must therefore adhere to the laws of nature

LODOLI 1690

Applied positivism to architecture, emphasized that form should adapt to function.

Believed there are two ideas that guide architecture:

1. Function is derived from necessity.
2. Architecture must conform to the nature of materials.

Objected to the use of ornament and believed that decoration has no logical justification. A building ought to be entirely shaped by its function.



Romantic rebellion: Attacked Baroque/Renaissance programme. Personal and objective rather than objective and shared, they embraced intuition and emotion rather than reason.

They believed that man is part of nature and attempted to establish what man's natural state must be by establishing grounds for the virtue of emotion over reason. Genius and inner emotions are the sources of culturally related responses to beauty.

ROUSSEAU 1712

In mans natural state emotions and feelings provide reliable guides to behaviour, and supply more certain knowledge of the world than can reason itself.

Shares the Neoplatonic idea that knowledge implanted into the mind is apprehended through an immediate, intuitive and extra-rational procedure. He also stresses the value of individual idiosyncrasies.

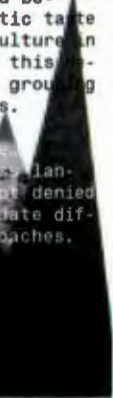
HERDER 1744

Develops a new concept of history and believed that the basic unit of aesthetic taste is more at the level of the shared culture in any given age and place. He believes this because most individuals within such a group tend to value the same artistic ideas.

Out of this follows the idea of style. The Classicists believed in a timeless language of architecture and this concept denied the idea of style that could accommodate different and equally valid design approaches.

Three new concepts developed:

1. Archaeological
2. Eclectic
3. Modern



MOZAMBIQUE SURPRISE

Last year during the June/July holidays while travelling through Mozambique with a few of my architecture friends we experienced another great example of the unpredictability of the future when it comes to the life of a building. While exploring the city of Beira I saw the most relevant piece of architecture that I have seen during my time as an architectural student, The Grand Hotel Beira. It was built as the pearl of Africa during the 1950's with the intention to attract rich Rhodesians (now Zimbabwean's) and other tourists. It functioned as a hotel until the Mozambique civil war started, during this time the hotel was used to house refugees and prisoners of war. Today it is occupied by squatters who have arguably turned the hotel into a functioning community.

At the moment the pool is being used as a well/laundry area while vegetables and corn is being grown where the rich holiday goers used to lie and tan; rice gets dried on the roofs and the grand double spiraling staircases gets used as a market place. All the Rhodesian teak parquet flooring have been used for firewood, all valuable bits and pieces (including electricity cables and water pipes) have been stripped and sold, the courtyard has been turned into a dump yard and the bar into a 'public toilet'. The hotel rooms including the penthouses have been converted into multifamily apartment units, while the reception area has been turned into a Church and a DVD-cinema room that offers a wide selection of pirated Bruce Lee karate movies. Trees and plants grow freely inside and walking through the 'hotel' felt like being inside a scene from the movie Jumanji.



FIG 17

1958, View of the front of the Grand Hotel Beira

BOULLEE 1728

Believed that the source of idea is found in the architects imagination. He used Platonic solids and illustrated architectural extremes of spheres, cubes and triangles.

Neoclassicism: A declaration that the objective and timeless principals of art are independent from individual sensibilities, they also reacted against playfulness of Rococo and returned architecture to objective foundations.

LAUDIER 1713

Proposes looking back to the beginning of civilization for the ultimate architectural form = the primitive hut. He believes it is the archetypal building upon which all subsequent architecture should be based, a rationalist structure of columns, beams and gable ends that come very close to the true principals of nature.

KANT 1724

Made a distinction between:

The form of experience supplied by the mind and the content of experience which stimulates sensory experience.

AND

The phenomenal world, known rationally and empirically from the nominal world of things in themselves which lies beyond rational or empirical knowledge.

Theory of knowledge

Inherited dualities between man and nature from the baroque.

The duality between empiricism and rationalism had a duality as to what knowledge is.

Empiricists emphasized importance of sense experience.

Rationalists emphasized the rational/conceptual basis of knowledge.

Baroque theory had assumed that all knowledge conforms to objects (the assumption that all knowledge comes from objects, which are separate from us).

He was the first person to suggest an answer for the subject/object problem.

Sensibility and understanding are two things through which understanding knowledge cannot take place. There is a distinction between

1. Intuition (immediate impressions of sense) and
2. Understanding (the mind's ability to think in concept).

It is equally necessary to make concepts sensible by adding objects to them in intuition and to make intuition logical by bringing them under concepts.





Fig 18
2009 ,View of the front of the Grand Hotel Beira



FIG 19
1958 -View of the front of the swimming pool area of the Grand Hotel Beira



FIG 20
2009,View of the front of the swimming pool area of the Grand Hotel Beira

THE NINETEENTH CENTURY: A time of Relativism.

Saw the erosion of Classical objective foundations and the 'own style in every epoch' of the Enlightenment. The century of realism confused architects as to what new style they should build in. It was the era of eclecticism where all previous traditions were revisited and juxtaposed together. The choice of style was justified in terms of its functional, aesthetic, or religious suitability for a particular project.

NIETZSCHE

Saw futility in rational thinking and objective knowledge. There is no original text of the world's structure; everything is an interpretation and reconstruction of someone's personal preconception. "God is dead", seeking order is a desperate attempt to impose reason on to what is in fact chaos. Human condition is pointless; the great people in life are those who act decisively despite this fact. Each view is equally valid, since no objective standard exist against which to judge them good or bad.

JEAN-NICOLAS-LOUIS DURAND 1760

In an attempt to generically view the Classic in architecture he wrote that good architecture satisfies two essential requirements:

1. Convenience
2. Economy

(Vitruvius = durability, convenience and beauty)

Architects must focus on economy, construction, commodity and beneficial conditions, beauty disappear when one concerns oneself with architectural decoration.

ECOLE DES BEAUX-ARTS 1863

Attempted to re-establish objective principles from the Classical period. This led to an archaeological revival of previous rational Classical buildings. It also linked art and architecture which stressed the aesthetic aspects of architecture over practical matters of construction. Later separated into separate ateliers, where students were taught to conceive buildings designed in practical terms. First time students could study architecture without prior working experience or knowledge. They studied history, mathematics and building construction. This generated tensions between theory and practice.



HEGEL 1770

Believed in a transcendental Absolute Spirit where intuition has power over reason and each age possesses a particular spirit to which all artistic work must inevitably conform: 'the spirit of the age'.

For many the Mozambican's the hotel could probably be seen as a monument to the failure of socialism or serve as the poster child for corruption and urban decay within Mozambique, but to me it's really quite amazing. All the pretence has been stripped out of the building and all that's left is the raw elements of basic human survival. The building and its original intended status has been completely inverted; instead of catering for the specific needs of the rich it now serves a basic structure to house the poor. If the architect were to see the building in its current state he would probably turn in his grave. But this to me is the role of architecture; it needs to be able to adapt and change into whatever is required from it over time, but we must be careful not to just project utopian ideas into the future; they have to be anchored in the present, because the present is the only certainty within architecture.

So don't paralyse yourself by trying to predict the future. Learn from the past. If I were to now design a hotel for rich people within a socially economically and politically unstable 3rd world country I would add a backup plan... a sort off 10 steps to turn your 5 star luxury hotel into a functioning squatter camp within 20 days (or your money back, guaranteed).

FIG 21
009 the Grand Hotel Beira - inside and outside views



GERMAN IDEALISTS:

"Romanticists that conceived the artist as a passive medium through which the Absolute Spirit manifests itself in the physical world."

POSITIVISM ARTISTIC DETERMINISM

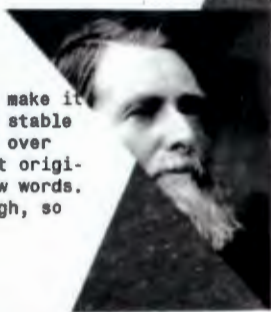
Conceived the artists as a medium through which purely physical forces can manifest themselves. Architectural form derives from the art of construction and great art of any period reflects the forces of its civilization.

REALIST MOVEMENT

Believed that by utilizing the scientific method of the natural sciences one will discover architectural forms intrinsically contained within a given set of contextual determinants. A scientific art that attempted to record the visual facts of experience.

RUSKIN 1819

Believed architecture reflects the way of life of those who make it and that good architecture can only result from emotionally stable and morally good people. Embraced the quest for correctness over originality, dismissed the idea of a new style and says that originality in expression does not depend on the invention of new words. Viewed architectural forms already known to us as good enough, so why challenge them when you can use them as they are?



CHOISY 1841

Architectural form follows logically from the technical means available to the designer. Different ages have different technical means; therefore designers in any given age will operate within the style inspired by the available technology. Individual designers have little or no say in the development of forms, forms inevitably emerge as a result of abstract necessity. Reyner Banham called this constructional fatalism and it is a result of a strictly deterministic view of architectural history.



THE TWENTIETH CENTURY:

End of WWI theory:

1. Functionalists: Choisy believed form derives purely and inevitably from material determinants such as structure, climate & purpose.
2. German Expressionists: Form at one moment will through sensibility and feeling manifest out of the transpersonal Spirit.

DEWEY 1859

Accepted that no absolute certainty of knowledge is possible and that men have a fundamental need for security. Human intelligence may not discover empirical truths about timeless realities, but it can discover empirical knowledge about the here-and-now that can guide the creation of a better world. He disagreed with the idea that every subjective view is equally valid. Most individuals contentiously agree upon a specific direction, the approximation to certainty is the best we can hope for.



PHENOMENOLOGY

Phenomenology offers an interesting account of the relationship between inner consciousness and the objects to which consciousness refers. It ignores the fact that there are subjective consequences in empiricism and does not provide certain foundations for objective knowledge.

FRANZ BRENTANO 1838

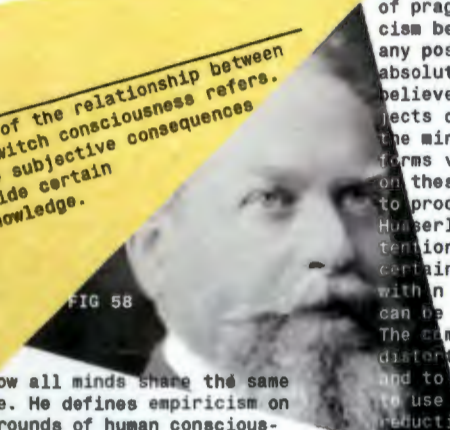
Attempts to answer how all minds share the same constructed knowledge. He defines empiricism on the more objective grounds of human consciousness. Humans experience is generated in the mind without external influence, and this experience is the source of dependable knowledge. Any act of consciousness intends to use an object which resides outside the mind, thus objects and consciousness are intimately tied together. Consciousness does not construct or interoperate knowledge of the outside world (refers back to Kant), it merely displays or discloses it.



FIG 58

HUSSERL 1859

He was against the relativism of the philosophies of pragmatism and historicism because they rejected any possibility of an absolute philosophy. He believed that external objects cause impressions in the mind and the mind performs various operations on these sensory contents to produce concepts. Husserl's concept of 'intentionality' implies that certain infallible truths within the consciousness can be easily apprehended. The common view of things distorts true intentions and to fix this one has to use phenomenological reduction by emptying the consciousness of everything that derives from scientific reasoning or rational thinking. Apparently if you apply this reduction the mind will become aware of changeless forms.



MEMORIALIZE THIS

After every war, tragedy or significant loss (for some) triumph for another we as humans have this tendency to memorialize it. The design of these memorials usually takes on a sculptural form carved out of exotic stone and layered with lots of inspirational quotes. But how would you commemorate someone who did not want to be commemorated? In 1980 Lebbeus Woods asked this question and proposed a tomb for Albert Einstein; the so-called Einstein Tomb, inspired by Boullée's Cenotaph for Newton. This proposal was no ordinary grave carved out of a mountain of granite, it has no place to visit, to lay flowers, wreaths or whatever on it, it is a post-terrestrial space station, sailing through the great big black void of space.

In order to respect Einstein's wishes he realized that he needed to build the cenotaph and send it into space where no one would be able to see it. So by using Einstein's theory of relativity the cenotaph would be designed to be shot up into space on a beam of light and because space is apparently curved it would (in theory) boomerang back to earth in eons of time from now. "So thousands of years from now, when people have long since forgotten about Einstein, this cenotaph comes crashing down onto earth in a sort of guerrilla style memorialisation to refresh their memories.

Imagine the power of such a memorial. Every time you stare up at the sky you can't help but wonder if perhaps at this very moment it might be passing above your head. It generates the same tension and excitement that you get just before your Christmas-cracker snaps open.

22, Mansueth, Geoff. The BLDG BLOG California: Chronicle Books LLC, p174. #1115.

FIG 22

Einstein Tomb, inspired by Boullée's Cenotaph for Newton



GERMAN EXPRESSIONISTS

Culmination of German idealism and romanticism: Paul Scheerbart 1863
Bruno Taut 1880
Adolf Behne 1885

- Revisited romanticism's dualistic notion: 1. The artist is passive receptor of existing outside spiritual and cultural forces.
2. The artist is a creative inventor of spiritual and cultural forces not yet existing.

JULIEN GAUDET 1834

He assimilated universal principals of classicism in architecture and defined classicism not as a particular style but as a general attitude towards design. The classical is based on unchanging principals of logic, reason and method, which history has shown to be valid for all times, countries, climates and schools. These styles are not archaeological forms to be copied; one must understand their underlying logic. Through the use of historical precedents of form and geometry one can create unprecedented yet objectively beautiful building forms. The architect selects elemental forms (wall, door, window, column, vaults and stairs) and adds them together according to geometrical principals (axiality, symmetry and proportion). Different beliefs, climates, cultures and sites require different arrangements of universal elements. Brief or programme influences and determines the design idea but he rejects the positivist notion that the design idea is solely determined by the outside constraints. Brief and programme gives you a list of requirements and indicates their relationships to you, but it does not suggest what their proportions or arrangement should be.

Building techniques cannot determine architectural form, the architect must first conceive the idea of building form after which the realization of architectural resources (what can be built) will follow. The architect judges beauty of composition by measuring it against his own inner sense of beauty, not against the 'facts' of nature. He doubted purely rational and analytical thinking and believed intuition is the true birthplace of artistic ideas. As to architectural form, he believed that the mind firstly discovers within itself objective information about the outside world, and then actively creates form in response to the logic of this inner material and to the outer constraints of the design problem at hand.

NEO-PLASTICISM

In 1917 Mondrian formed the De Stijl group. They believed a realm of timeless form exists and it can be expressed purely in geometry. They wanted to free art from 'fixed objective laws of plastic composition', artists who do this 'free themselves from individual sentiments and from particular impressions which he received from the outside and breaks loose from the domination of individual inclinations within him'.

NATURALISM & THE JUGENSTIL

They explored subjective in art. Experimented with colour and form as the means by which they might convey their emotional reactions to things.

VAN DE VELDE 1863

Stresses the expressive force inherent in lines and colours.

NEO-PLASTICISM VS. ABSTRACT EXPRESSIONISM:

Two opposing attitudes that developed after WWI, both had given up all contact with the visible world as the original source of images.

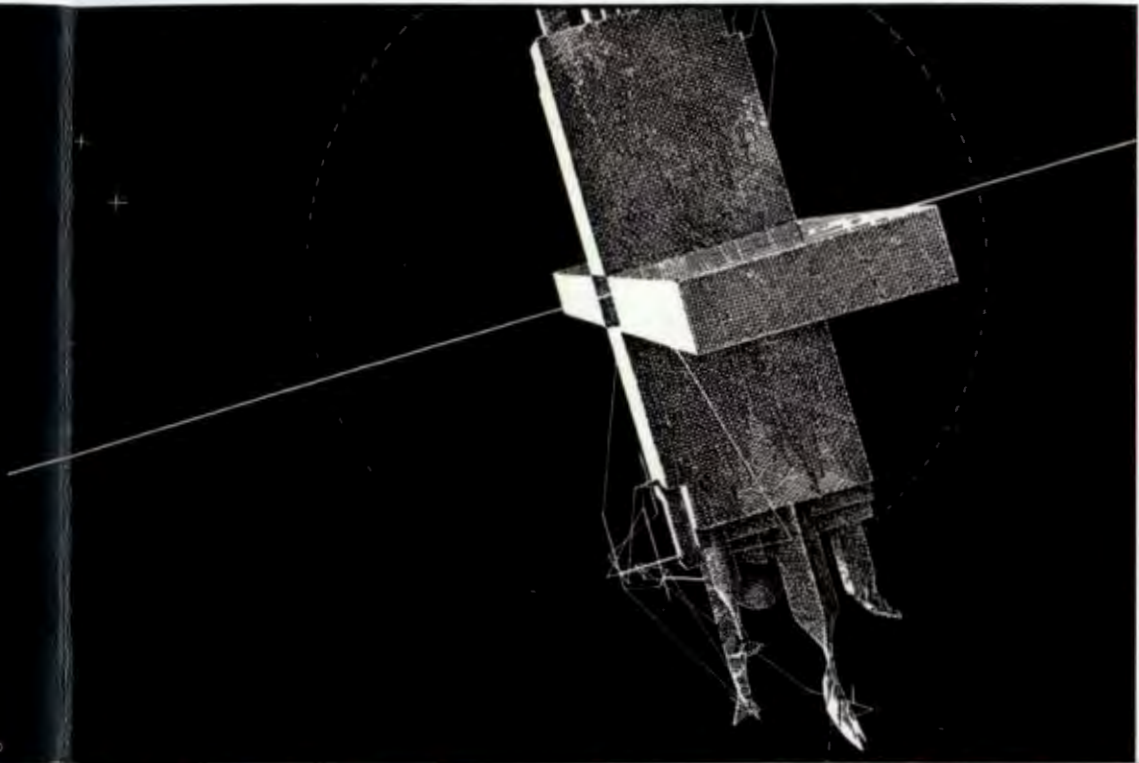
Neo-Plasticism: Form is an individual entity, governed by objective laws that are accessible to anyone who looks for it.

Abstract Expressionism: Form originates in the soul of the artist, responds to his/her emotions, and depends on the soul's personal/mystical nature.

FIG 23
Boulle's Cenotaph for Newton



FIG 24
Einstein Tomb



BAUHAUS:
Melting pot of Neoclassical, Romantic and Positivist ideas.

GROPIUS 1883

He offered reliable guides to timeless artistic certainties and a new system of education that embodied the spirit of the time.

Duality in his interests:

1. Arts-and-craft training.
2. Expressionist preoccupations.
3. Later - Positivist attitude.

He reinstated the medieval training that form is found in the nature of materials, their constructional systems and in their functional use. He used the spiritual ideas of the expressionist with a materialist conception of design.

During his first year at the Bauhaus Gropius had developed three opposing sources to form:

1. The artist must ignore the spiritual and derive form from function and material craft.
2. Ignore practical demands and existing spiritual conditions, he must create a new spiritual unity and new style for the age.
3. He must search out the existing spirit and passively let it flow through him.

He was clear on the thinking that students should not be given preconceived ideas about form. The Bauhaus approach of objective formalism removes the idea of 'style' with correct solutions to architectural and artistic problems. The avoidance of a subjective response and stylistic anarchy were the ultimate results of the principals of universal form that ultimately guided its students to produce objectively beautiful forms.

ITTEN 1888

Was a romanticist who asked students to emerge themselves in the right culture in order to encourage the 'rite' emotional response to objects. He wanted to free students from all outer constraint, while at the same time he wished to immerse students in a proper cultural milieu.



LASZLO MOHOLY-NAGY 1895

He reasserted a neo-classical belief that an objective and universally valid language of design exists independently from individual taste. Inspired by de Stijl, he attempted to explain that all architecture consists of lines, planes, masses and colours and that these elements are composed according to principals of balance, proportion and rhythm. He called these elements and organizing principals the universal 'language of vision'. The language he proposes ultimately leads to a limited range of styles and is basically a normative guide to a particular Modernist aesthetic.

JEAN-PAUL SARTRE 1905

He claimed that in the face of this existential nothingness, individuals must create their own centre and focus. Individuals have complete freedom to choose their own reality and they must accept complete responsibility for their choices.



"Every architectural form- does not solely exists as static consequence to an otherwise irrelevant act of production, but conversely, that the nature of form is in-laid in the process of making."²³



23 -Stern, Robert A.M, Alan Plattus, and Peggy Deamer. "RE]reading per-
spects - The first 50 years of the Yale Architecture Journal." In Notes on
a Theory of making, by Giuseppe Zambonini,p816

INTERNATIONAL STYLE

CIAM was formed in 1928 and ideas of Gropius. They were not merely image based but focussed on functionality, rationality and economics. This was expressed within their use of materials, construction processes and a view that architecture is a problem solving activity. Some modernists moved into architectural determinism, where they believed in buildings shaping people.

LE CORBUSIER 1887

The Modern Movement believed that the modern aesthetic is Classicism in its purest form, the Bauhaus asserted this by providing philosophical parallels between Classicism and Modernism: Good architecture is based on a universal language, and this language is comprised of simple elements rationally organized. Le Corbusier's Vers une architecture drew parallels between the classical language of Greece and the new aesthetic of the machine. He preferred regular solids (cubes, cones, spheres, cylinders or pyramids) stating that they give satisfaction.



SUBJECTIVE FORMALISM

Late Modern (Post WWII) the strict rules of International Style were rejected and personal expression became the norm of Modernists in the 1960's. Architects created buildings that resembled three-dimensional sculptures and rejected:

1. The notion of timeless principals of nature.
2. Architecture solving functional requirements. (They embraced form over function)

ARCHITECTURE AS A RIGOROUS IMPERIAL SCIENCE

1960's culture objected to the subjective formalism notion. A strong social consciousness emerged and it was a period of great faith in science and technology. It attempted to remove architecture from the subjective world of aesthetics and make it a more rigorous imperial science.

This period saw the launce of major research efforts, attempting to further develop key ideas:

1. A body of scientific knowledge about how people use and are affected by buildings.
2. A rigorous method for applying this knowledge to design problems.

ENVIRONMENTAL PSYCHOLOGY

Man and environment are two separate entities, acting on and constantly influencing each other. Empirical studies have been conducted in both controlled artificial and real spaces to explore people's behaviour within different environments with the aim to discover similar relationships between a particular spatial configuration and a particular human behaviour. However people did not react the same in similar settings, they could adapt the same behaviour to various environments while cultural background and personality shaped behaviour as much as physical setting.

DESIGN METHODOLOGY

According to Christopher Alexander's Notes on the synthesis of form (1964), design consists of solving functionalist problems and the problems of the modern world are to unprecedented to solve with past solutions and too complex to solve with personal intuition. He believed the designer must avoid all preconceptions because these preconceptions impose solutions already discovered in the problem.

According to Alexander the 1st stage of the design is analysis:

Gathering objective knowledge and combining them in a list of relationships – a pattern of interrelated subsets of problems.

The 2nd stage of design is synthesis:

Where the patterns and their relations result in a physical object. His method had the same problem as in science, patterns are suppose to be discovered in facts, but one must first have an idea of patterns in order to know which facts to consider.

Fig 25



Fig 26



Fig 27



Fig 28

PARTICIPATORY DESIGN

Rittel argued that the designer and the buildings user are equally important and that through structured arguments on design issues the designer and user will develop an ideal solution.

CONJURE-ANALYSIS THEORY:

Hiller and Leaman develop a theory that the designer possesses a set of solution types which have successfully solved design problems in the past.

STRUCTURALISM

There was a general philosophical attitude that emerged from linguistics and psychology that spread onto sociology, anthropology and eventually architecture. They believed language should be studied as a functional system and not as a series of isolated facts. The focus should be on the structure of a system and the relationships between the system's elements. The structuralists wanted to show how human knowledge and human behaviour resulted from interactions between information from the outside world and the active structuring and organizing process of the mind.



PIAGET 1896

Improves Kant's ideas and shows how sensory data and the mind's categories (Schemata) mutually construct each other. Mental schemata are not innately given at birth, it develops and evolves in regular response to stimuli.

Piaget's idea reconciles free will and causality (brings together the differences between Empiricism and Rationalism). The mind creatively invents a possible solution to a problem, tests it against the world and then either accepts it or modifies it and tests it again.

NORBERG-SCHULZ 1926

Self proclaimed Phenomenologist, but developed structuralist ideas on the source of form. Schultz shows that our sense of space is organized by mental schemata. Socialization guides individuals experimentations and leads to a socially acceptable behaviour rooted in language, classifications and patterns.

Socialization:

1. Integrates the individual into a common world, and results in a higher level of skills development.
2. Fossilizes concepts and makes it more difficult for the individual to break out of schemata that no longer work.

Knowledge for Schultz is objective, but dependant on the cultural mental schemata. He also readdresses the Romantic idea that art captures a different form to science, that art reveals the inner structures with which the artist understands the world and not an objective structure of the world itself. Artist often portray already well-established and widely shared schemata, this will result in a recognizable 'style' to people of the same education or culture.

CHRISTOPHER ALEXANDER 1931

Analyzed design problems into their component parts, discovering recurring patterns. He discovered that building traditional building forms could be broken up into simple patterns of form, these patterns appear time and again because they successfully resolve conflicting forces that are in constant play.



Fig 29



Fig 30



Fig 31



Fig 32



This project by Antón García-Abril of Ensemble Estudio was completed this year in February. The pictures are self explanatory and clearly show the process of making. What's really amazing is that although normal concrete is used it does not have that machine aesthetic usually associated with it. The layering of concrete as a construction method combined with the use of earth and hay bales as formwork made the structure appear as if it had grown out of the ground like a giant mushroom. Apparently it took a cow over a year to eat out all the hay from the belly of the cave. It would be great if that was true. Conceptually it is an amazing idea, building construction doubling up as food for animals and as soon they have finished eating you can inhabit the 'left over's'. The resulting space is like the modern interpretation of a cave, only now no longer are you bound to some remote part of the mountains... you can make your cave where ever you want, and then lie in it.

POST-MODERNISM

A shift from the scientific determinations of form towards architectural form as subject matter by itself.

Similarities between the Post Modern reaction toward the Modern and the 19th Century reaction towards the Enlightenment:

Modern & Enlightenment

1. Believed in the powers of humans to understand and control the world.
2. Set out timeless and rational principals of architecture, took up ambitious programmes to understand human behaviour.
3. Their programmes both failed as a result of conceptual difficulties.

Post-Modernism was deliberately in opposition towards Modernism and everything for which it stood.

ECCLECTICISM

The Post-Modernists searched through history, selected fragments of forms from previous styles, usually Classical, and collaged them together. They removed them from their context, and stripped them from their original meaning.

VENTURI 1925

In his book *Complexity and Contradiction in Architecture* (1966) Venturi attacks Modernism:

1. He objects to its rejection of tradition and tries to re-establish the importance of history within architecture. Venturi uses history as the source of form.
2. He objects to Modernism's preference for the rational and simple. They idealized the primitive and elementary at the expense of the diverse and sophisticated in an attempt to break with tradition.

Venturi preferred the visual complexities in the Mannerist, Baroque and Rococo periods and design's with principals he had re-discovered from these era's, reviving the 19th Century concept of eclecticism.

CLASSICISM

This period saw the revival of the Classical principals and Durand's argument for classicism; that it is more functional, economic and honest to both material and the construction process.

Rob Krier sees Classicism as the only correct way to build and to satisfy function in architecture by symmetrically laying out basic elements of buildings in logical proportions and different configurations.

DECONSTRUCTIVISM:

It was a period that undermined all previous concepts without supplying anything in their place. Nothing means anything, and anything means nothing. We saw the dismantling of hierarchies and all previous thinking of order to clear ground for a new sensibility.

Architects such as Eisenman, Libeskind, Hadid, Tschumi developed architectural forms that expressed a world without order or logic, fragments of form crashing into each other with incomplete twisting grids. They enforced Derrida's idea that order is an illusion, a desperate and futile attempt to organize a world that has no meaning or objective structure. They felt all previous architecture artificially imposed order onto structure and instead they said it is more honest to express their chaotic existential reality with appropriately chaotic architectural forms.

1. Form is not derived from function or use (Eisenman).
2. Form is not an objective property of the external world (as in Classicism where people invent their own structure and order).
3. Form is not derived from creative inner resources like the Romantics claimed.
4. Form is determined by a prevailing 'Spirit of the Age'

STERN 1939

He says styles are languages that evolve over time and these styles have two components:

1. syntax (form).
2. rhetoric (Context).

Modernism rejected the traditional rhetoric but kept the syntax. The Post-Modern was simply returning to a more explicit use of the classical rhetoric.

Fig 33





"We know that the white man does not understand our ways. He is a stranger who comes in the night and takes from the land whatever he needs. The earth is not his friend, but his enemy and when he's conquered it he moves on. He kidnaps the earth from his children. His appetite will devour the earth and leave behind a desert. If all the beasts were gone, we would die from a great loneliness of the spirit, for whatever happens to the beasts happens to us. All things are connected. Whatever befalls the Earth, befalls the children of the earth."²⁴



²⁴ American Indian Chief Seattle in Wines, James. *Green Architecture*. Los Angeles: p38.

²⁵ P. Reser, Joseph. "Whiter environmental psychology? The transpersonal ecopsychology crossroads." *Journal of Environmental Psychology*, p 283

"In our hearts we know there is something maniacal about the way we are abusing the planetary environment"²⁵



"This attitude creates desolate wastelands of the spirit as well as of the environment. You can scar people as well as the land"²⁶

"Therefore the mission in architecture is now, as in all human endeavour, to recover those fragile threads of connectedness with nature that have been lost for most of this century. The key to a truly sustainable art of architecture for the new millennium will depend on the creation of bridges that unite conservation technology with an earth-centric philosophy and the capacity of designers to transform these integrated forces into a new visual language."²⁷



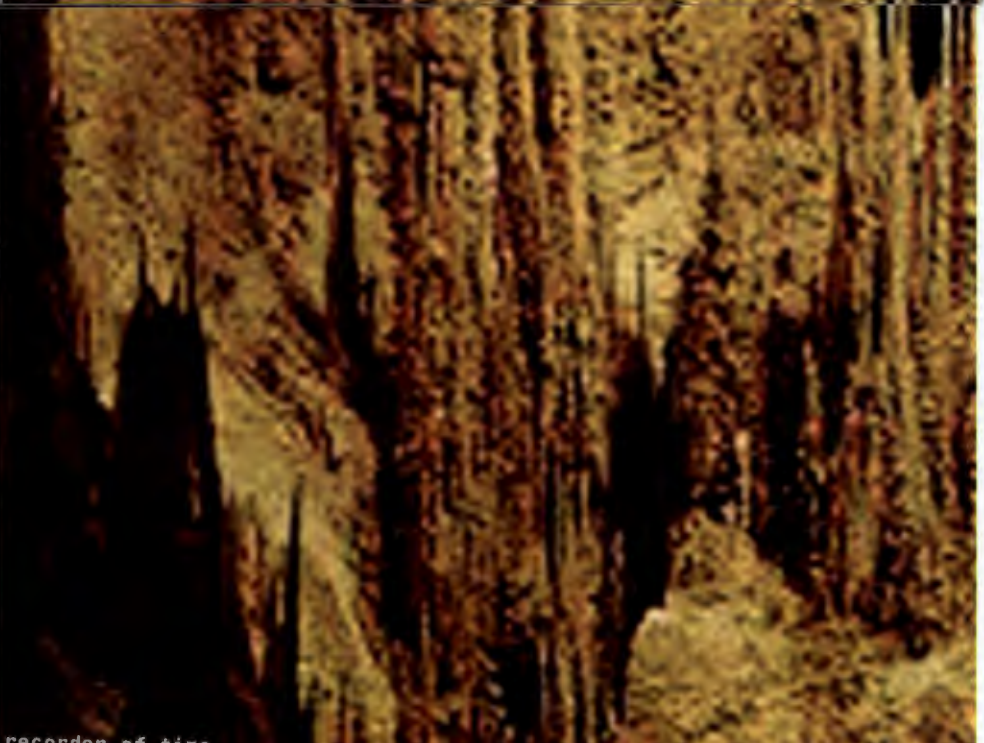
26 -Wines, James. *Green Architecture*. Los Angeles 1988 p29.

27 -Ibid p.237

Fig 34



Fig 35



recorder of process

recorder of time

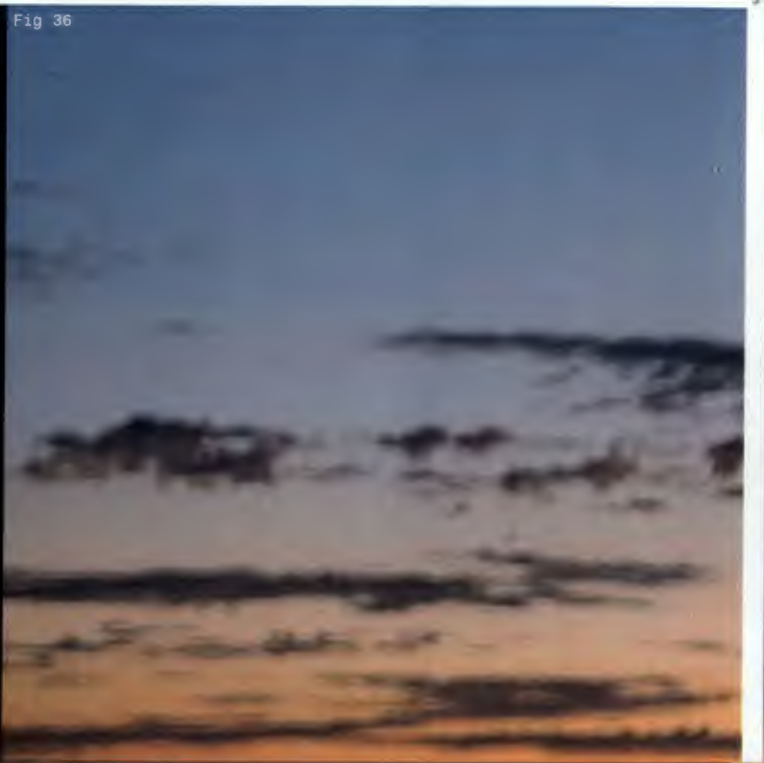
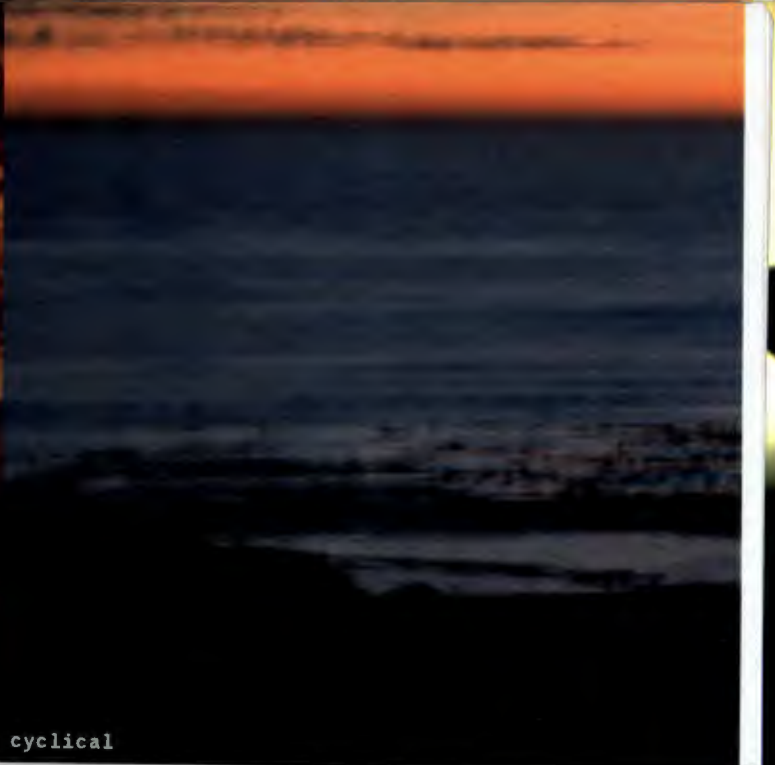
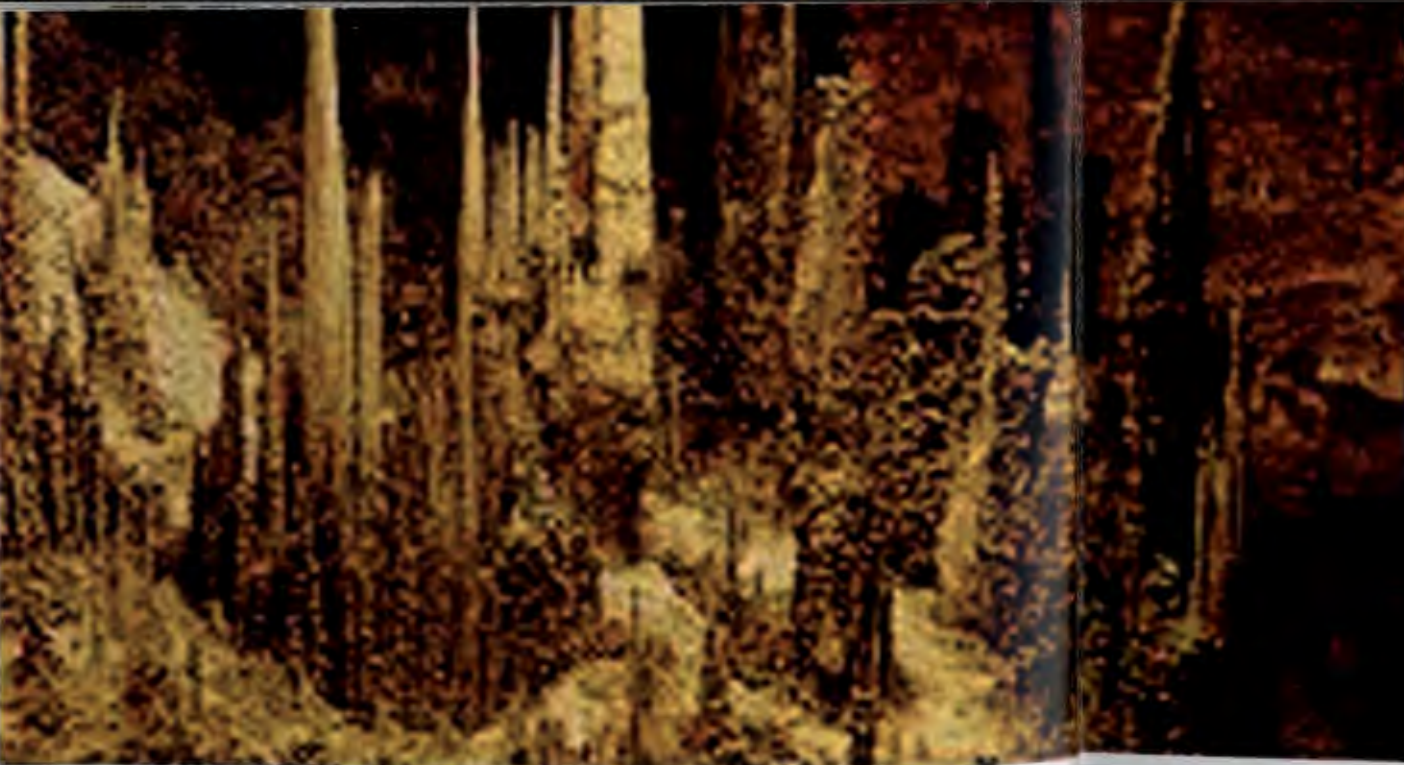


Fig 36



cyclical

Fig 37



Fig 38



energetic

Fig 39



powerful



Fig 40

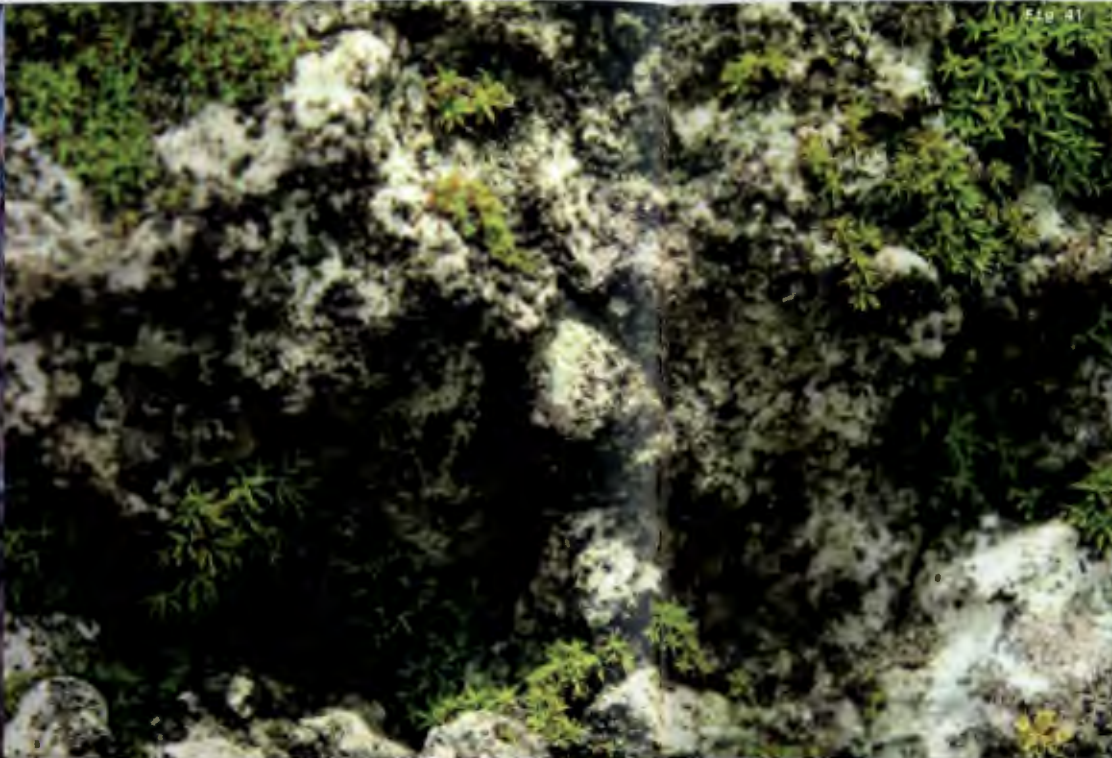


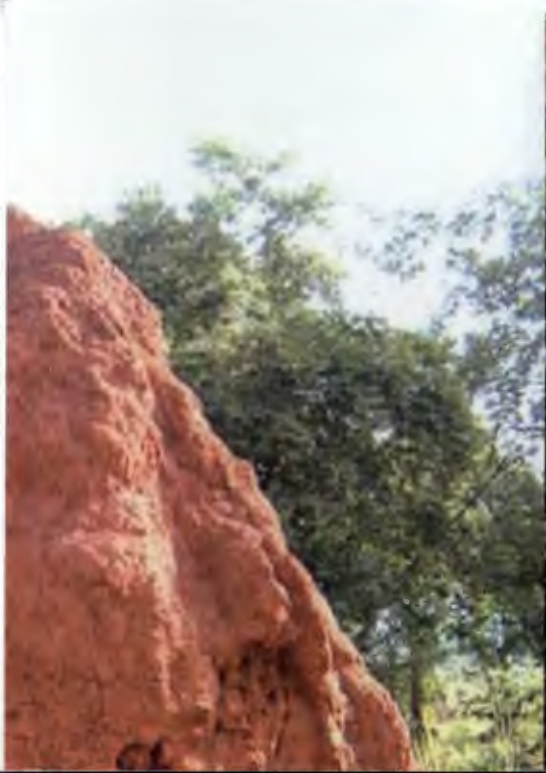
Fig 41



patient



Fig 42





magical



"Let us a little permit nature to take her own way, she better understands her own ways than we
...and then let us learn from her"²⁹



PETER SALTER'S MOUNTAIN PAVILION BUILT IN JAPAN (1995)

The intense snowfall in the region was taken into consideration by Salter, who designed the structure so it has an inner and outer shell, the interstitial space intended as a place for mountain creatures to make nests in the winter when the building gets completely submerged in snow.

Fig 46

LOUIS KAHN'S NATIONAL CAPITAL OF BANGLADESH, DHAKA, BANGLADESH, (1962-83)

By using local materials, labourers and construction methods the building's exterior turned into a calendar that has a chronology of construction built into it. The locally made bricks do not have a consistent colour therefore every new batch made can be identified within the building. So if you work out the time it takes to produce a batch and layer that over the average time it takes to use them all in construction, you can start mapping the buildings construction timeline. Like the rings of a tree, you can figure out its age.



Fig 47

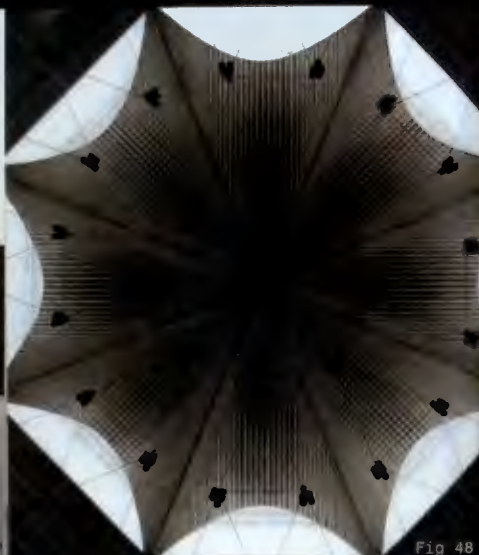


Fig 48



Fig 49

SIGURD LEWERENTZ'S ST. MARK'S CHURCH, AT BJORKHAGEN, SWEDEN, 1956 TO 1960.

His honesty by not allowing one brick to be cut during construction resulted in interesting and unique technical solutions when it came to solving standard details.



ALISON AND PETER SMITHSON, THE ECONOMIST BUILDING, LONDON (1959-64)

They realized glass and steel don't weather well but old buildings do. They added Portland stone into the facade of the Economist building and used this material to explore the encouragement of weathering within a building. This allowed the facade to start recording time within its materiality. Peter Salter who used to work in the offices of the Smithson's developed the same interest in weathering and 'controlled' deterioration within buildings. He explored these ideas in his Osaka Folly Pavilion.



PETER SALTER, OSAKA FOLLY, JAPAN, 1990

Fig 53

KONSTANTIN MELNIKOV'S "SONATA OF SLEEP"

The building was envisioned for tired over worked factory laborers from Moscow to come and sleep and recover in. It is purposely sloped to remove the need for a pillow. The building would also have two control rooms from where sounds of leaves rustling, birds chirping and waves breaking would be played. It would also control humidity and temperature while especially conditioned air would be pumped to all the rooms to further help you sleep. And if that's not enough the entire structure would be able to gently rock to make you fall asleep.



Fig 54

Fig 50



HOUSE IN LÈGE, BY ANNE LACATON AND JEAN PHILIPPE VASSAL allows nature to penetrate through the building.

EDOUARD FRANÇOIS - HOLIDAY HOUSES IN JUDICLES



Fig 51 EDOUARD FRANÇOIS - FLOWER TOWER, PARIS



François allows nature to become part of the buildings making. Therefore the façade is constantly changing while growing over time and now also responding to the cyclical habits of nature. The process of making it never complete it just gets better and evolves over time.



Fig 54

UK PAVILION AT SHANGHAI EXPO 2010 BY THOMAS HEATHERWICK

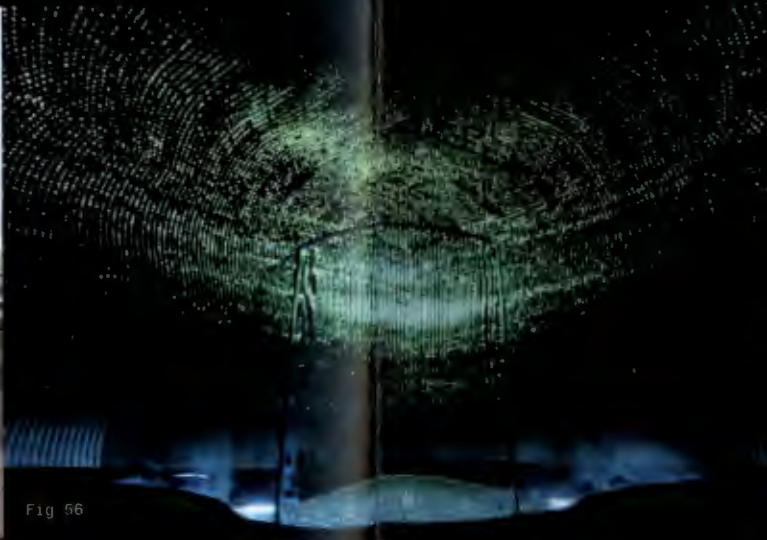


Fig 56

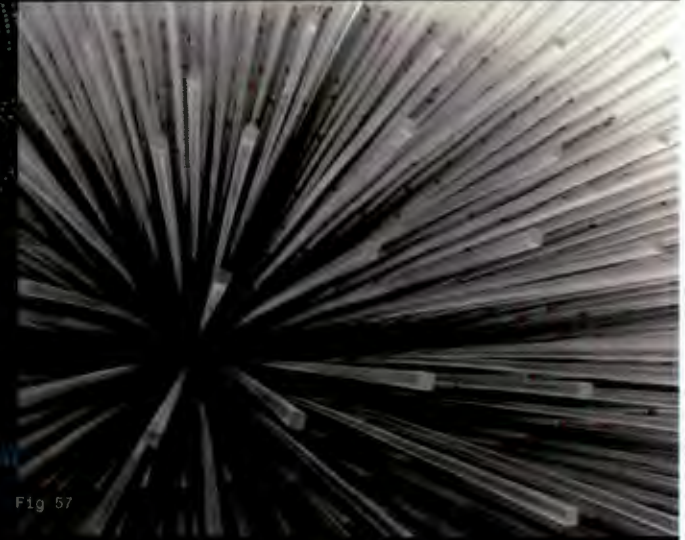


Fig 57

The UK Pavilion has a wooden structure that gets pierced by 60,000 fibre-optic rods each containing a plant seeds at their tips. This building/pavilion is like a frozen explosion. Looking at it makes me excited, this is truly a magical space with the dormant potential of the seeds embodied within it.

How the invention of new technologies have allowed for new architectural form.



Fig 58

1851

CRYSTAL PALACE by JOSEPH PAXTON

Miraculously constructed out of cast and wrought iron in only ten months it displayed new methods for prefabrication and systemized construction. The basic structural element was a rigid jointed portal frame that was then only recently realized in iron.



EIFFEL TOWER by GUSTAVE EIFFEL

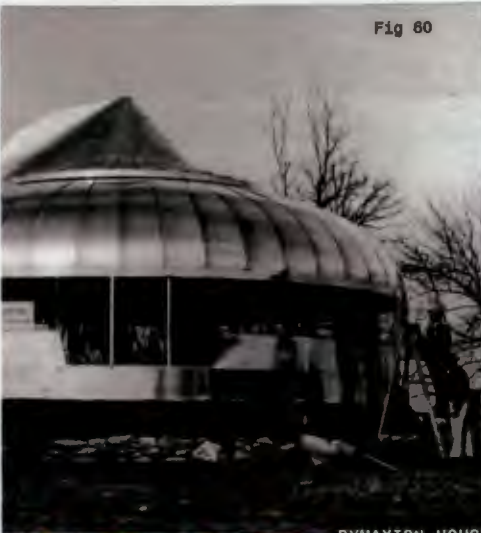
Completed for the world fair rising 984 feet the iron tower's up-rights were curved to offer the least amount of wind resistance. It was the tallest building/structure in the world until 1930 when it lost the title to the Chrysler building in New York

1889



Fig 59

Fig 60



DYMAXION HOUSE by **BUCKMINSTER FULLER**
First built in 1945 the Dymaxion House used light weight aluminium and it was Fuller's solution to the need for a mass-produced, affordable, easily transportable and environmentally efficient house.

1964

PLUG-IN-CITY by **PETER COOK**
was to be a machine driven mega-structure consisting of a massive framework into which standardized dwelling units could be slotted.

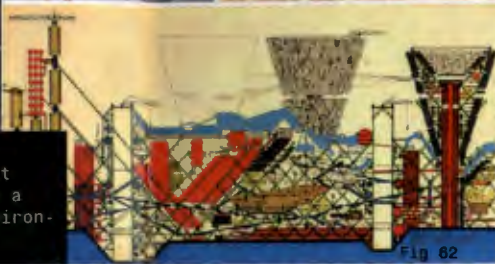


Fig 62

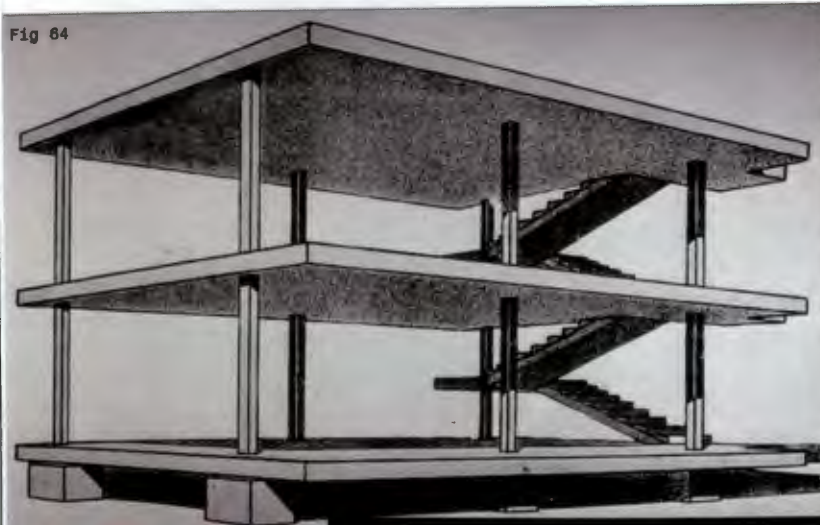


Fig 61

WALT DISNEY CONCERT HALL by **FRANK GEHRY** opened in 2003

1945

Fig 64



MAISON DOMINO by **Le CORBUSIER**
Modernist prototype conceived as a universal answer to the housing problem. Begins to formulate his 5-points and free's structure from envelope.

Fig 65

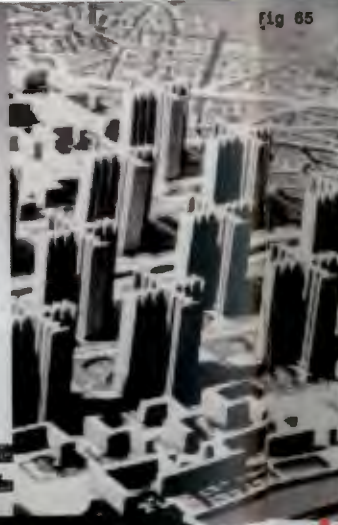


Fig 66



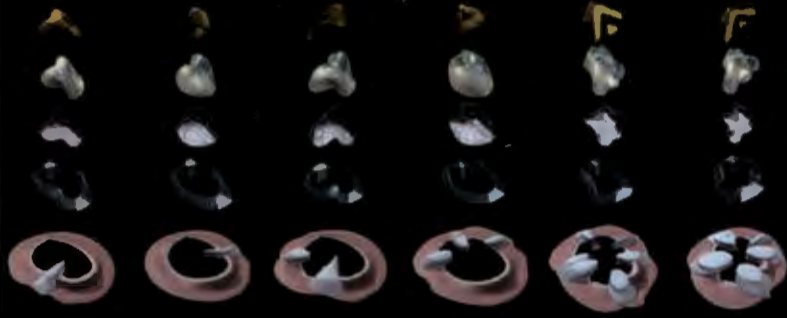
MAISON DU PEUPLE by **JEAN PROUVE**
It was one of the earliest examples of a unitized curtain wall system that radically altered the way future buildings would be built.



1914

1938

Fig 67



2000 >

EMBRYOLOGICAL HOUSE by GREG LYNN
Uses computer-aided design to produce irregular, biomorphic architectural forms.

What now ?



Fig 68



Fig 69

As we all know modernism failed. It left us with a legacy of truly terrible urban environments and resulting social conditions. There is serious speculation amongst ecologists that Homo-sapiens may end up being the shortest lived species to ever occupy the earth, mostly as a result of our own suicidal approach towards living. I am not one to really believe in all this dooms-day prophecies but I do believe there is a serious problem in the way we go about designing and constructing most of the buildings built today. First of all there seems to be a complete lack of interest in the process of making, buildings have become these empty hollow shells, divorced from its context, with the only interest being the facade and the architectural object. No longer is a house a small city and a city a large house like Leon Battista Alberti proclaimed. Instead Architecture has gotten lost in the spectacular; in the idea of image and branding and the part to whole relationship is no longer deemed important.²⁹ According to Eisenman Architecture has lost its most important quality that of space and time and it has become surface. Where painting has always been the collapse of space and time into surface, architecture has always been taking surface and bringing it into space and time. We have turned architecture into painting, into surface decoration.³⁰

I feel that a great part of the solution lies within technological considerations of construction, but filtered through a study on the way nature deals with its own engineering problems and how resourcefully it converts energy and materials into function. Now that we all know for sure the failures in the approach of the modernist ideology, lets learn again from nature like Antoni Gaudi and Frank Lloyd Wright did.

29- Krista Sykes. *The Architecture Reader: Essential writings from Vitruvius to the present* .p63

30- Lecture given by Peter Eisenman at EURAU 08, in Spain, 2008



Fig 70



Park Güell, viewed
by Antoni Gaudí
Barcelona, Spain
1914

Fig 71

GAUDI and WRIGHT

Antoni Gaudi and Frank Lloyd Wright were both great observers of the phenomena of nature, they intensely analyzed land surfaces, studied how plants grow, documented seasonal changes, re-searched geology and learned from the complex meeting of circumstances found within nature. When you look at their built work it is safe to say that these observations were not just a nostalgic admiration of the wonders of ecological engineering, it also portrays a great understanding of the gentlest levels of earth-centred cause and effect.⁹

Gaudi modelled the structural systems used in his buildings on tree-trunks, leaves and flower stems. In order to establish a dialogue with the context, Wright contemplated soil erosion, climatic changes and rock formations. This also helped to set up the formal composition of his architecture.⁹ According to Jonathan Hill the only architect Lefebvre praised in a short passage about Sagrada Familia was Antoni Gaudi. This was because he attempted to build without drawing and planning.¹⁰

"Gaudi spent forty years on the Sagrada Familia, his final decade devoted exclusively and obsessively to modelling, building and carving it, yet at his death the portals and towers of one transept were barely complete. In the later stages, he had been able to dispense with architectural drawing, supervising everything personally instead"¹¹

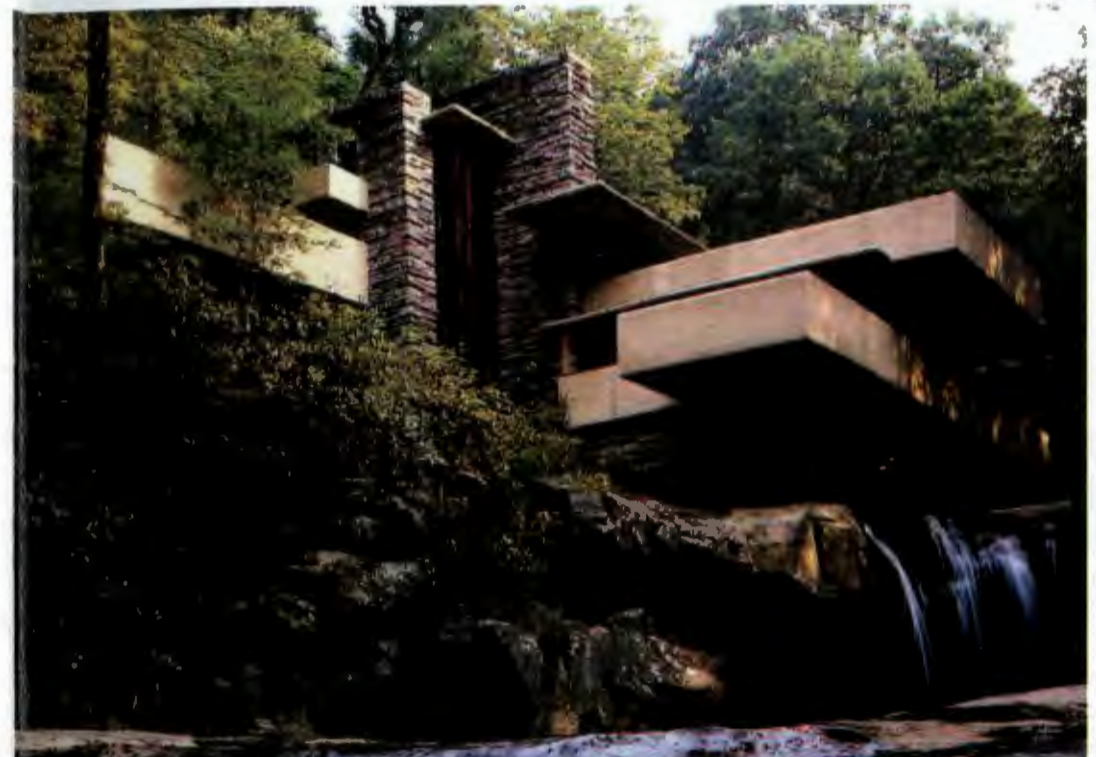
It is as if nothing rushed Gaudi, when you look at his work you get this feeling that it could just as well have been a stalactite slowly and patiently forming inside a cave over many centuries. A trace of its conception is ever present within the process of construction and the careful layering of materials eventually results in magical almost animal like structures.

31 - Wines, James. *Green Architecture*. Los Angeles: p234

32 - *ibid*

33 - Hill, Jonathan. "Immaterial Architecture." In *Hunting in the shadows*, by Jonathan Hill, p53

34 - *ibid*



Sagrada Familia
by Antoni Gaudi
Barcelona, Spain
1882 -



Lead up to Sagrada Familia Fig 73

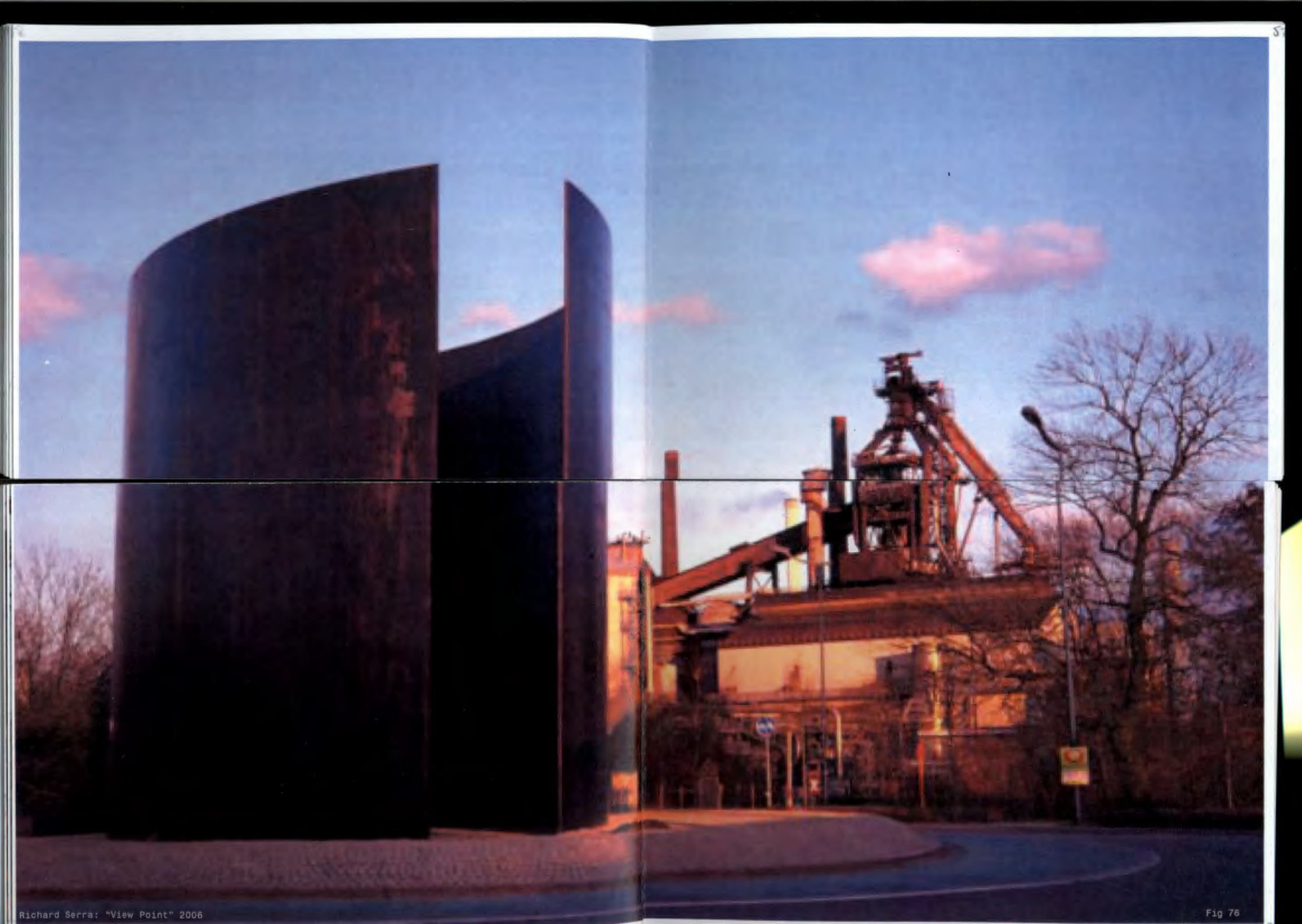


Interior view of Sagrada Familia Fig 74



Fig 75

Falling Water by Frank Lloyd Wright
Bear Run, Pennsylvania
1935 - 39





Richard Serra: "Vortex" 2002

Fig 77

So...

In architecture there are two essential conditions of truth: the truth with respect to 'programme' and that with respect to 'construction methods'. Truth with respect to the programme means fulfilling exactly and with simplicity the conditions imposed by needs; truth with respect to construction methods implies usage of materials enhancing original qualities and properties..."

The intended materials must be present at the conception of the building's design and the qualities, properties, limitations and uses of the materials must be explored and experimented with in-conjunction with the design process. It is not a secondary act that gets attached onto the design once it has been completed as if materiality and structure is some sort of afterthought. Inevitably it would help shape and start to give physical form to the design project. Take the work of sculptor Richard Serra for example. The perception generated by his huge and powerful shapes depends entirely on the material he decides to use. By using those huge sheets of steel a certain quality and feel immediately gets projected onto the viewer of the sculpture. Imagine those same sculptures being constructed out of cardboard or paper? The entire feeling that he attempted to evoke in the first place would be completely lost.

- E. Violette-le-Duc, Entretiens sur l'Architecture, p46



Richard Serra: "Matter of Time" at the Guggenheim Bilbao

Fig 78

"Everything that nature makes it records in what it makes, how it was made" in the rock is a record of the making of rock. Every grain of sand on a mountain is completely valid. There is no such thing as chaos; that's only in the mind... but never in nature."

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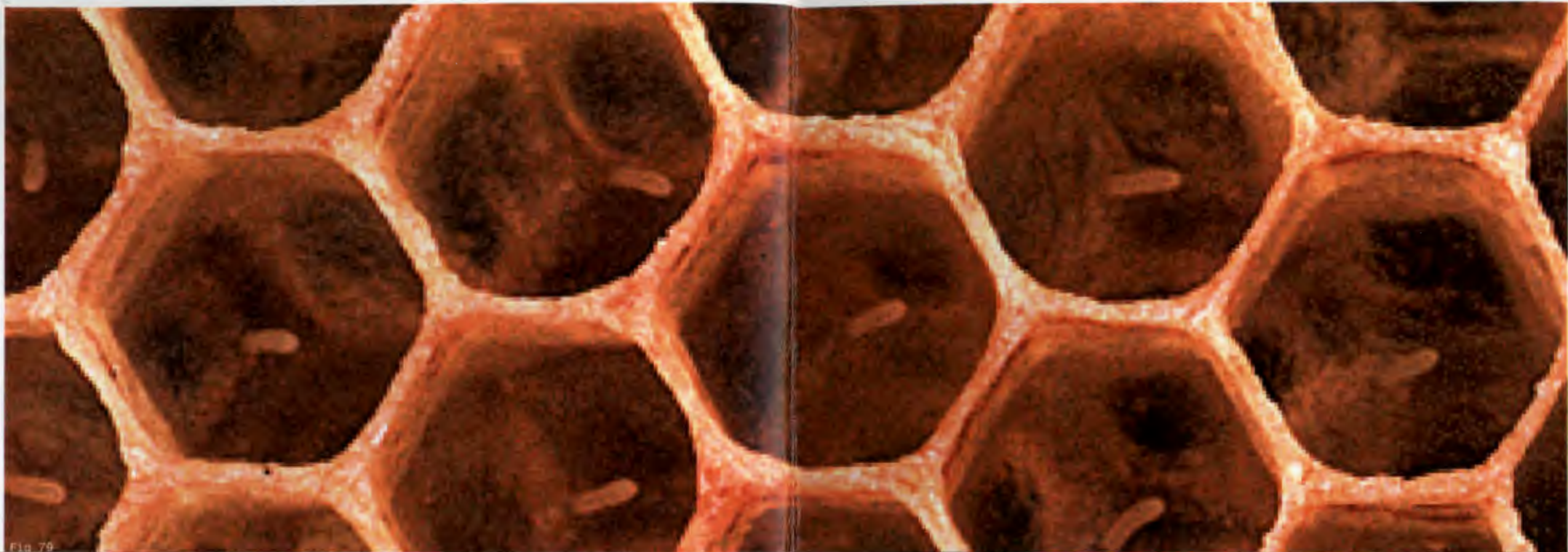


Fig. 79



Fig. 80



On the right is Frank Lloyd Wright's The Mile High Illinois at the same scale as the termite nest if it were to be converted into human scale.

ANIMALS AND ARCHITECTURE

In Juhani Pallasmaa's book *Animal Architecture*, inspired by a book of a similar title by Karl von Frisch, I read that *Homo sapiens* have only been on the earth for about one and a half million years and that animal architects have been constructing nests and shelter for tens of millions of years before we even made our first clumsy attempts at construction. Fossil spiders have been dated at more than 395 million years old and ants of more than 40 million years old have been found preserved in amber since the early Tertiary period. In terms of functionality, ecological adaptability, structural strength, efficiency of energy systems, economy and precision many animal constructions far surpass our best attempts. For example the tensile strength of a spider's thread is 3 times that of steel and its extension just before it breaks is 229% as compared to the 8% of steel.³⁰ What's even more incredible is that the production of steel produces lots of harmful gasses and requires lots of energy and extreme temperatures to reach the state where it can be used for construction, while the spider manufactures his web at body temperature and the only 'waste' he produces is his web. Other great examples are that of the termite nest, not only has it got an extremely complex and ingenious ventilation system, certain termites even orientate their nest on a north-south axis to maximise the heating and cooling properties of the sun.³⁰



Fig. 81

The compass termites orientate their slab-like nests exactly in north-south orientation to maximise morning and evening sun energy and minimize the excessive heat at noon.

30 - Pallasmaa, Juhani, *Animal Architecture*, p. 11
 30 - ibid, p. 82

If the nest of the Australian termite species were to be scaled up to human proportions it would reach a height of almost 2km and house the entire population of New York. The tallest building to date the Burj Al Arup was recently completed in Dubai, it reached a mere 840m. The closest comparison would be to the unbuilt Mile High Illinois tower by Frank Loyd Wright. The wells in the nests of desert termites can extend up to 40m under the ground, in human scale that is the equivalent of 10km.⁴⁰

It is quite interesting as well as surprising that the bigger the animals the more haphazard their construction becomes. If you look at most ape shelters, they are rather temporary and roughly built compared to the 0.002 millimetre tolerance to which bee's constructs their honey comb. It is not surprising that the famous scientist de Reaumur proposed that the bee cell be used as the basic standard for measurement.⁴¹

Pallasmaa writes that the evolution of man depends just as much on the development of his hands as on his capacity of thought. Most building animals have great manipulative skills, especially the spiders and insects. They derive their skills from their multiple jointed legs and subtle mouth parts. The weaverbirds achieve their precision as a result of their mobile heads and narrow beaks. It is therefore important not to lose touch with the physical art of making. It is so easy to just do everything on a computer but there is a certain quality and a certain richness that gets lost. It is hard to express yourself and to completely explore an idea within the confinements of a computer program.

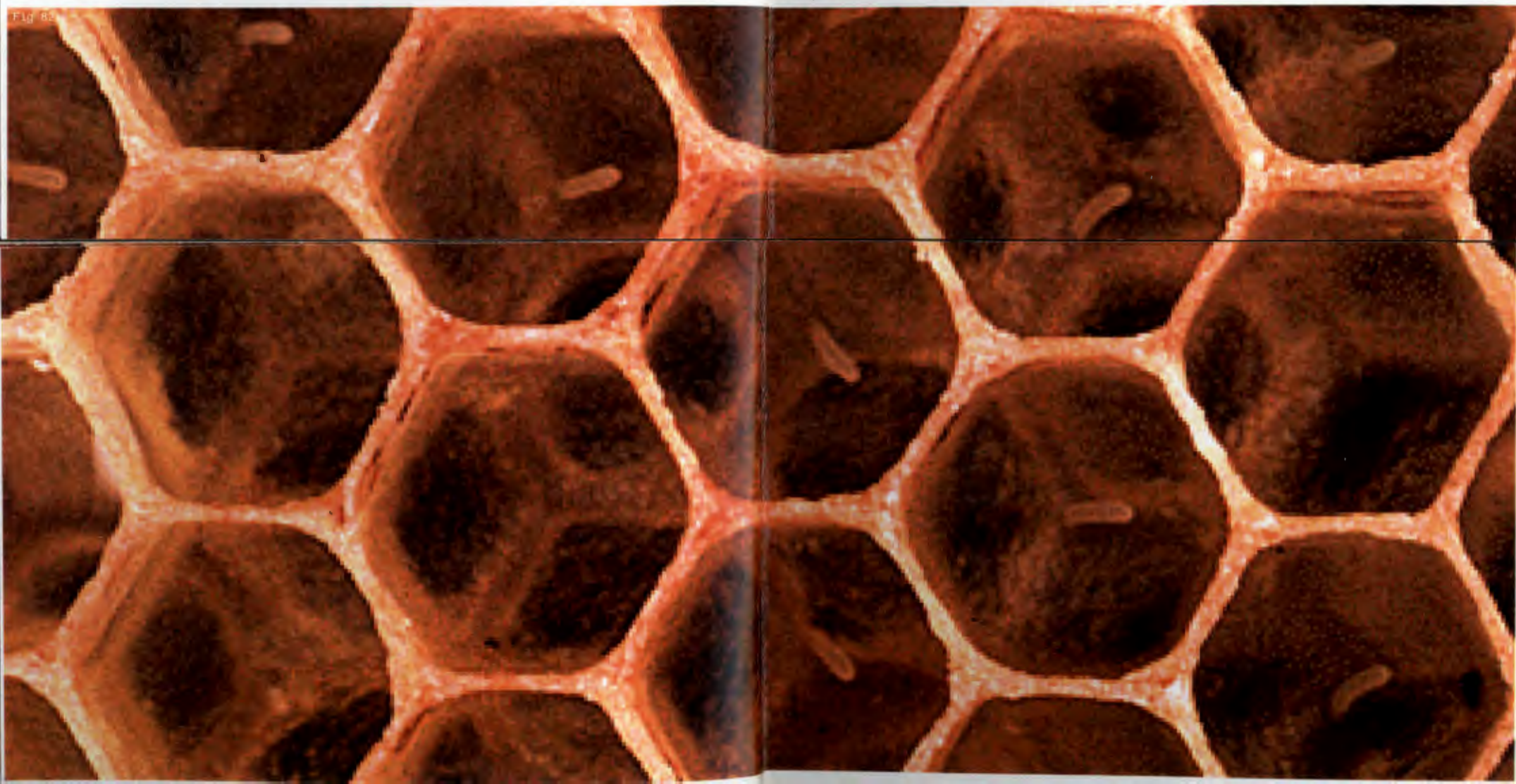
Again I want to refer back to Gaudi were at the end of his career he did not even use plans to construct his buildings; he built models and was constantly on-site to advice and inform the builders.⁴²

40 - Pallasmaa, Juhani. *Animal Architecture*, p 32

41 - *ibid* p 11

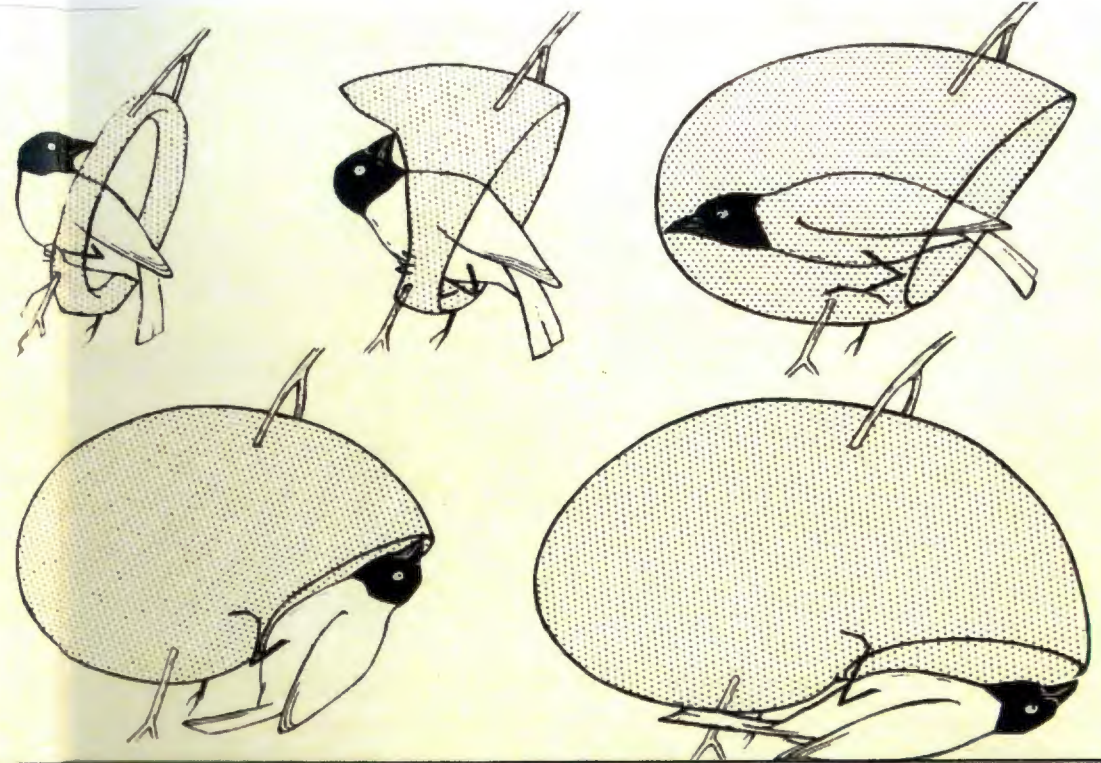
42 - Hill, Jonathan. "Immaterial Architecture." In *Hunting in the shadows*, by Jonathan Hill, p52

Fig 85





The sequence of nest construction by the Village weaverbird. The bird first constructs a ring, and then the rest of the construction is determined by the extent of the bird swaying on the ring.



Time to digest

What does this all mean?



"Form to me means the inseparable parts of something"

...the realization of inseparable parts - it has nothing to do with 'design' whatsoever. Design is only a means. It's only a way, to express one... little... spark... of what Form actually conveys to you. It is a realization of something that has an 'Existence will,' and has a sense of its parts."⁴³



"We are familiar with history and the forms it has deposited in its sediment, but we lack the historical ability to act... we are remote from the long processes that created tradition and also from the more recent process that sought to break that tradition. We are capable of de-signing any form we want, but not of justifying it, because these forms no longer grow out of real individual or common need."⁴⁴

TAKING SHAPE

According to Boris Pushkarev and old student at the Yale school of architecture, the visual image of our manmade environment has through the ages of history reflected the necessities that man faced and the ideals to which he has aspired. You can therefore trace the scale of values of a given society from the skyline of its cities. While Berthold Lubetkin had the unfashionable conviction that: "the proper concern of architecture is more than self-display. It is a thesis, a declaration, a statement of the social aims of the age."⁴⁵

So then in the words of Freddy Mercury 'I want it all, I want it all, I want it all, and I want it now'. We have become such a media hungry society that without even realizing it we have become image whores. We feed of images and every day we want more and more, faster and faster, bigger and better. According to MTV by the time you are 21 you would have seen more than 20million images. So it is safe to say that we have become image junkies, if we don't get our daily image fix we would not feel satisfied and would probably start getting withdrawals. This is evident when I sit in the library and inconspicuously spy on my fellow architecture students. I quietly observe (from a safe distance, as to not be detected) the way they choose which books to 'read'. They don't read the back cover to find out what the book is about, or read the introduction; they flip through it like the book is on fire and if their eyes don't catch a provocative image to satisfy their craving they immediately place it back on the shelf. If the book contains no images at all it gets thrown back onto the shelf like it's diseased. This is the desperate state of architects and people today. We have become so imaged obsessed that nothing else is important anymore. Buildings have become hollow shells of crazy forms to feed the image hungry zombies that have taken over our world. All that matters these days are the facades. Just look at the developments in China, Abu Dabi and Dubai, each building is crazier than the next. Even I am guilty of being an image junkie, that is obvious by reading (or looking) at this document. At least I am now in the first phase of recovery... identifying that I have a problem.



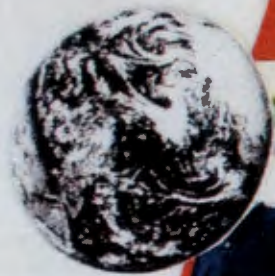
Next time you walk down Kloof street or on St Georges mall, or in fact anywhere have a look around you, most people are either talking on their cell phone, smssing, listening to their iPod or sitting in a cafe surfing the internet on their latest Mac Book. No one is engaging with their immediate surroundings, they are in their own worlds, completely divorced from their physical location. According to Peter Eisenman being in this mediated state is like being sedated. You become a passive and therefore lazy person. That is why imagery is everywhere, it's on billboards, building, aeroplanes, mountains, it's EVERYWHERE... Passive people are easily influenced and embrace images - because it's the easy thing to do. Guy Debord predicted this predicament more than 40 years ago in his book the Society of the spectacle.

I have therefore discovered that I want my building/structure to be anti-media, anti-image and anti-facade. The only thing left untouched by the evil of media domination is nature. Even though Nature gets exploited and abused its still just gently goes about its gentle way, the same honest way it always have. Therefore the building would not serve as an image-satisfying object. It will not be sexy enough to appear in any glossy magazine. It will be a landscape. It will be an animal. The more time that goes by the better and more powerful it will become. You would require patience to enjoy and experience this building. This is scary because I fear that we as a society have lost the ability to be patient. The building will therefore teach you patience. In a lecture by Shaun Mahoney from StudioMAS he referred to architecture today as face-lift architecture... almost all the buildings built today would need a facelift in 5-10 years. He goes on to make the point that what if architecture could be like Jack Nicolson, who just keeps on maturing into an even more charismatic and interesting person as he grows older. I agree with Mahoney all buildings should be given the opportunity to grow, to explore its character, to become a better building every year. A building should have such a personality that you would want to bake it a cake on its birthday and miss it when you go on holiday...

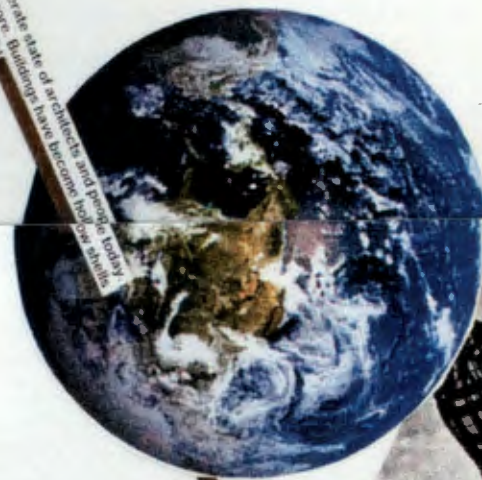
43. Kahn, Louis. "Berkeley Lecture (1966) Thoughts on architecture and personal expression; an informal presentation to students at Berkeley." *Perspecta 28: Architects Process Inspiration*, 1997: p24.

44. Stern, Robert A.M., Alan Plattus, and Peggy Deamer. "[RE]reading perspecta - The first 50 years of the Yale Architecture Journal." In *Order and Disorder*, by Giovanni Michelucci, p665, 2004.

45. Berthold Lubetkin as quoted in <http://www.c20asociety.org.uk/docs/building/dudley.html>



We have become so mixed and mixed that nothing one is important anymore. Buildings have become like the streets of crazy forms to feed the image hungry zombies that have taken over our world!





garden state
Erasmus Bauwan

"OF ALL THE IMPOSSIBLE TASKS THAT MODERNITY SET ITSELF, THE TASK OF ORDER STANDS OUT"



FIG 87
Vicente Guallart,
Speculations about "how to
make a mountain"



MANIFESTO

The previous paragraph could easily be mistaken for some kind of manifesto. That the building **MUST** conform to the above stated conditions. That is not my intention and it would be a giant contradiction. These qualities merely become guidelines to which I am starting to set up a design framework in which the design will start coming to life. I have always been interested in the construction process and how the development of a building can be recorded within its making and ultimately how weather conditions can be embraced and harvested. The building would therefore become part of nature, a hybridization of landscape and architecture. I feel that every place needs to be understood as a landscape. Whether it is natural or artificial it should not be seen as a neutral background to highlight the architectural object. The landscape is not a canvas to be used as a tool to draw attention onto the architect.

According to Abalos & Herreros the point of view has changed; landscape has lost its inertia and has become a medium with endless possibilities. Architecture has slowly begun the process of discarding its traditional definition and has calmly started to embrace new naturalistic conditions. By searching for a new environmental sensibility and formal complexity within the design and construction process you could start responding with precision to the new values of our society.⁴⁶



Guallart's speculations about "how to make a mountain" include the following: "The geological structure of the hill, on the micro, the medium and the macro scales, offers us rules with which to put forward a mineralogical system that will guide its functioning." These are the internal rules of a landscape - and, he believes they can be reproduced architecturally.

46. Manuel Gausa et al. *Metapolis Dictionary of Advanced Architecture: City, Technology and Society in the Information Age*. p184, 2003.

FIG 88
LOGICA NATURAL: By searching for logic in nature Guallart has developed an architecture that responds to the specific environment in which it appears creating inhabitable structures that offer human versions of both the visible and invisible landscapes shaped by geological, biological and computational forces.

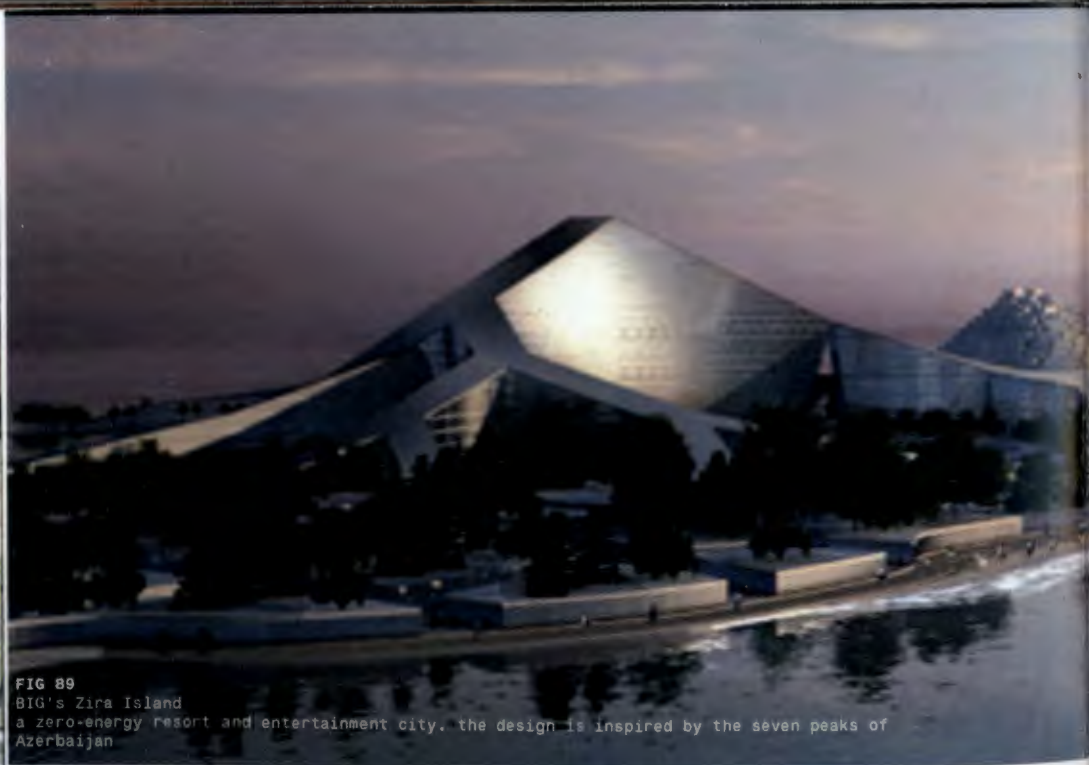
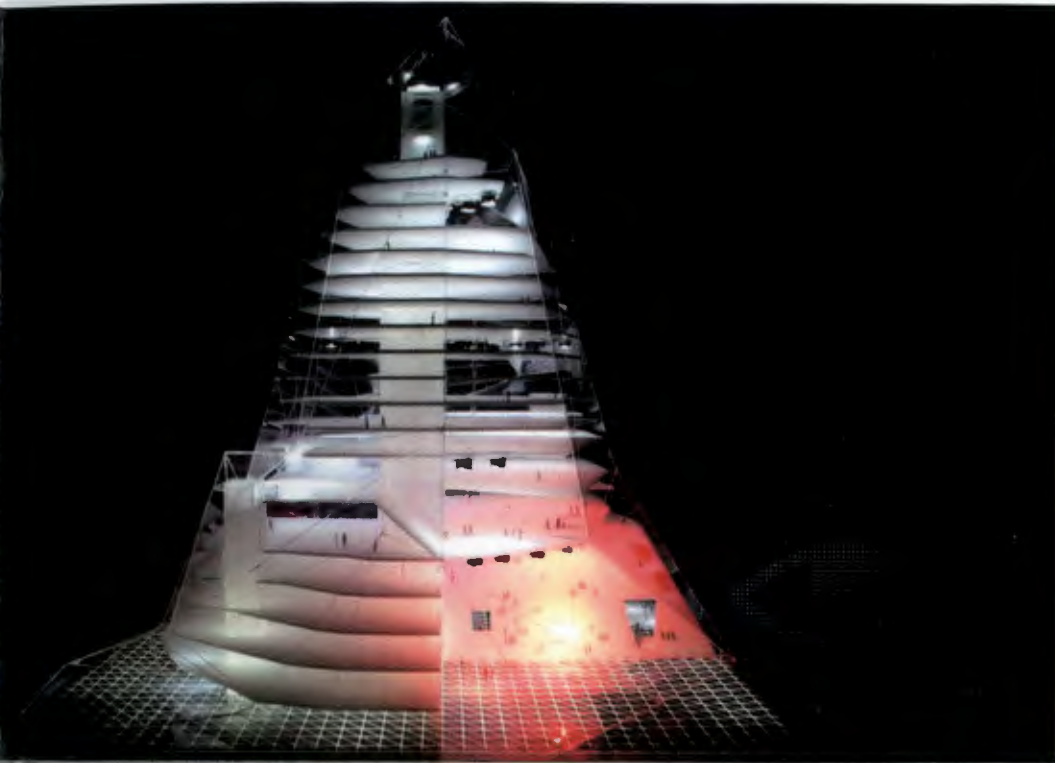
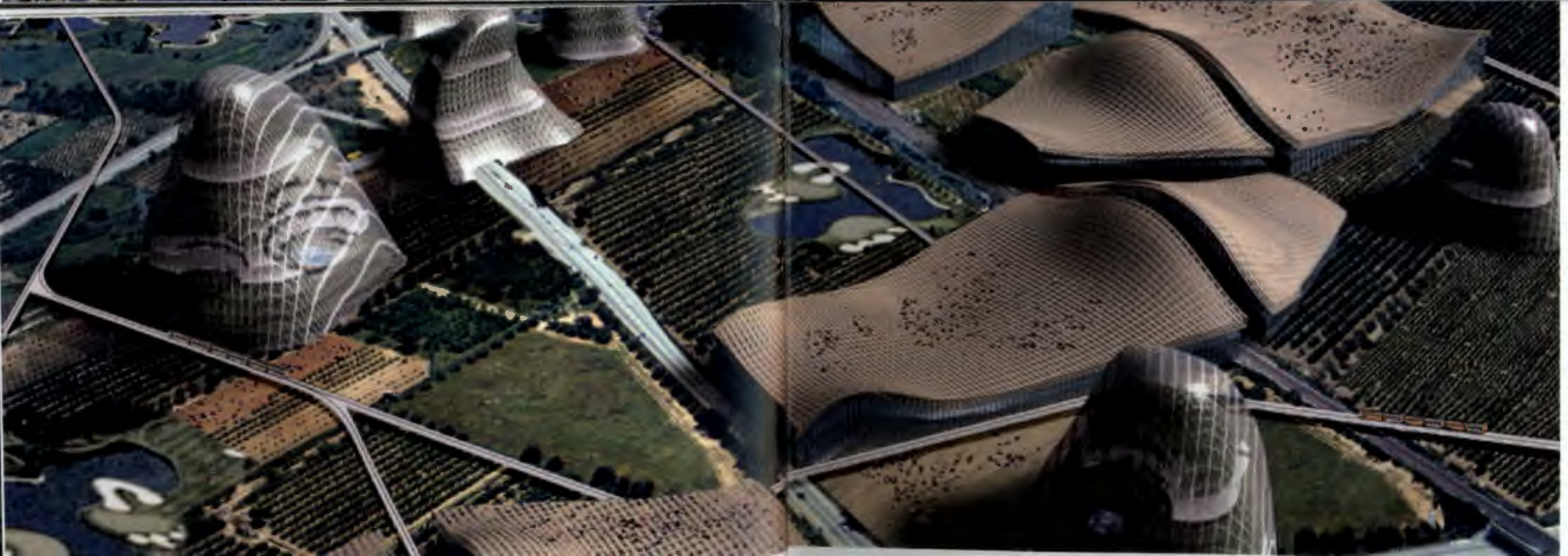
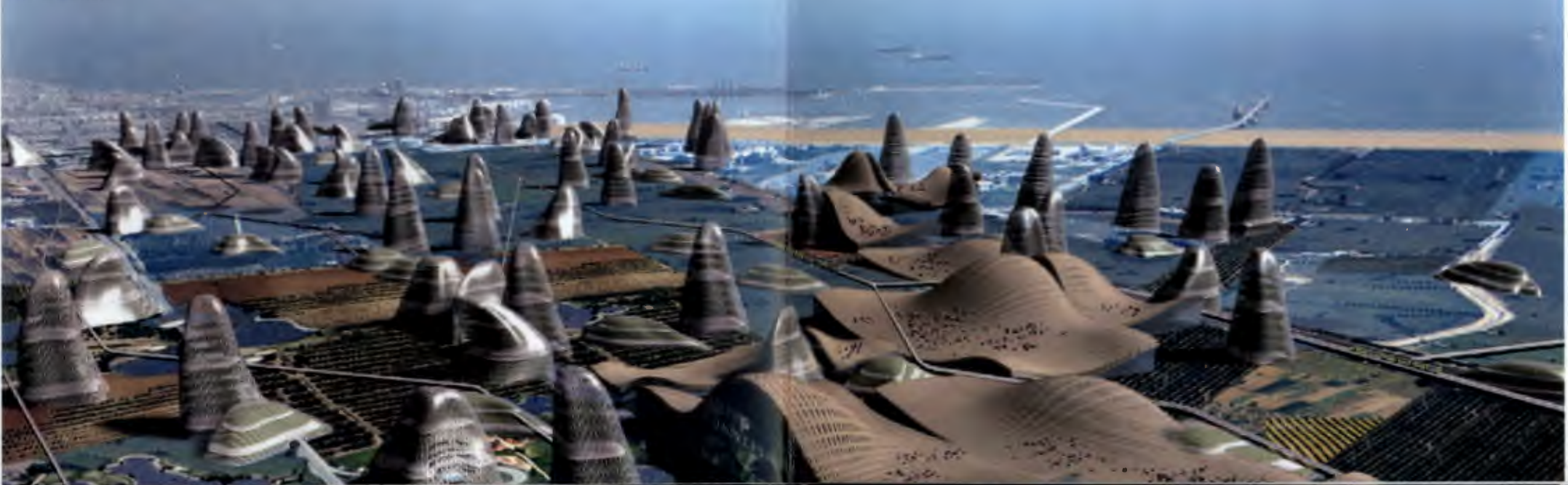


FIG 89
BIG's Zira Island
a zero-energy resort and entertainment city. the design is inspired by the seven peaks of Azerbaijan





FIG 91
Vicente Gallart,
speculations about "how to
make a mountain"



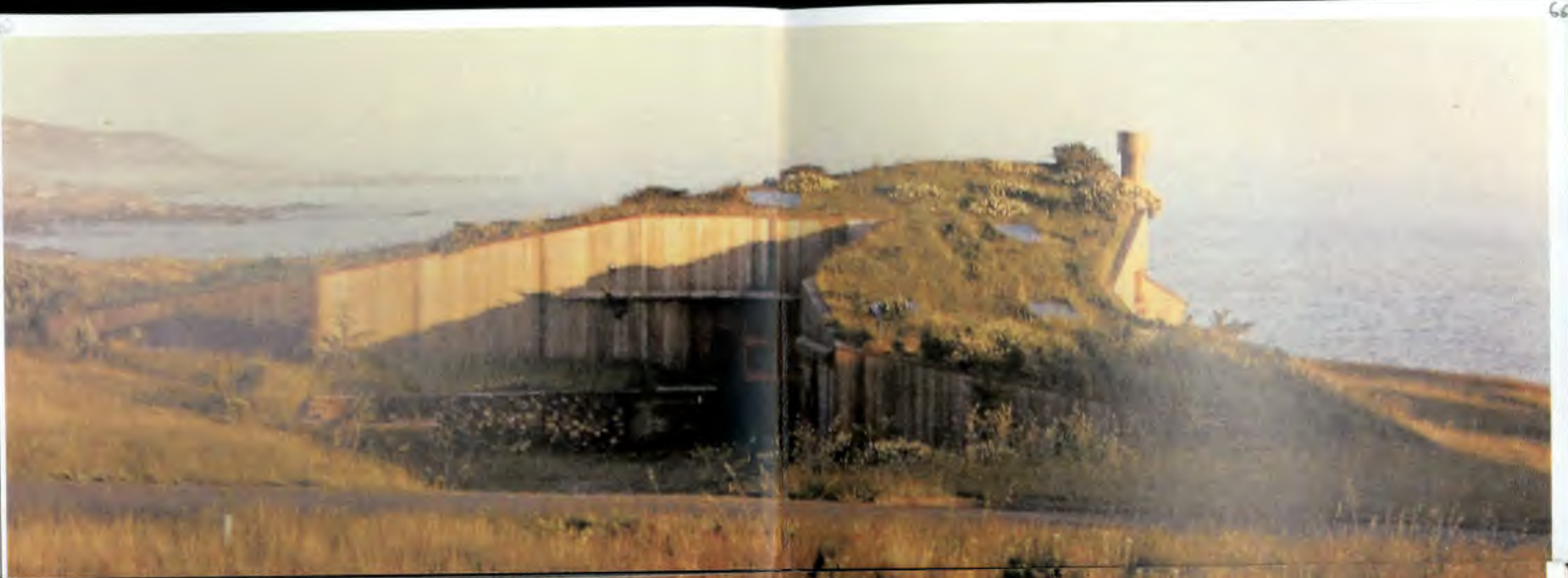


FIG 92
Brinsell Residence by Obie Bowman
California 1987



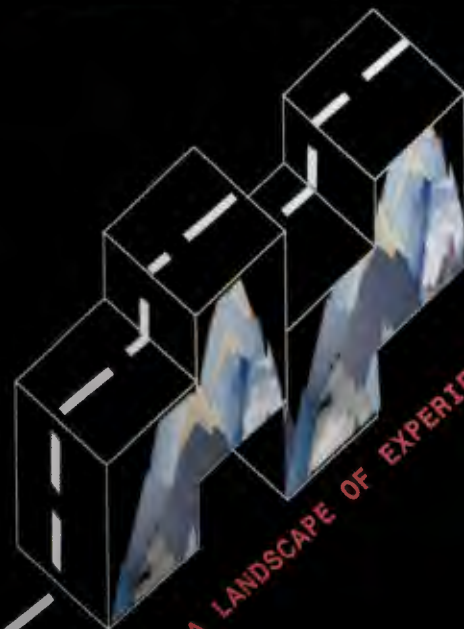
FIG 93
Peter Eisenman - Competition entry for the partially completed
City of Culture of Galicia, Spain



A MOUNTAIN
OF
THEORY



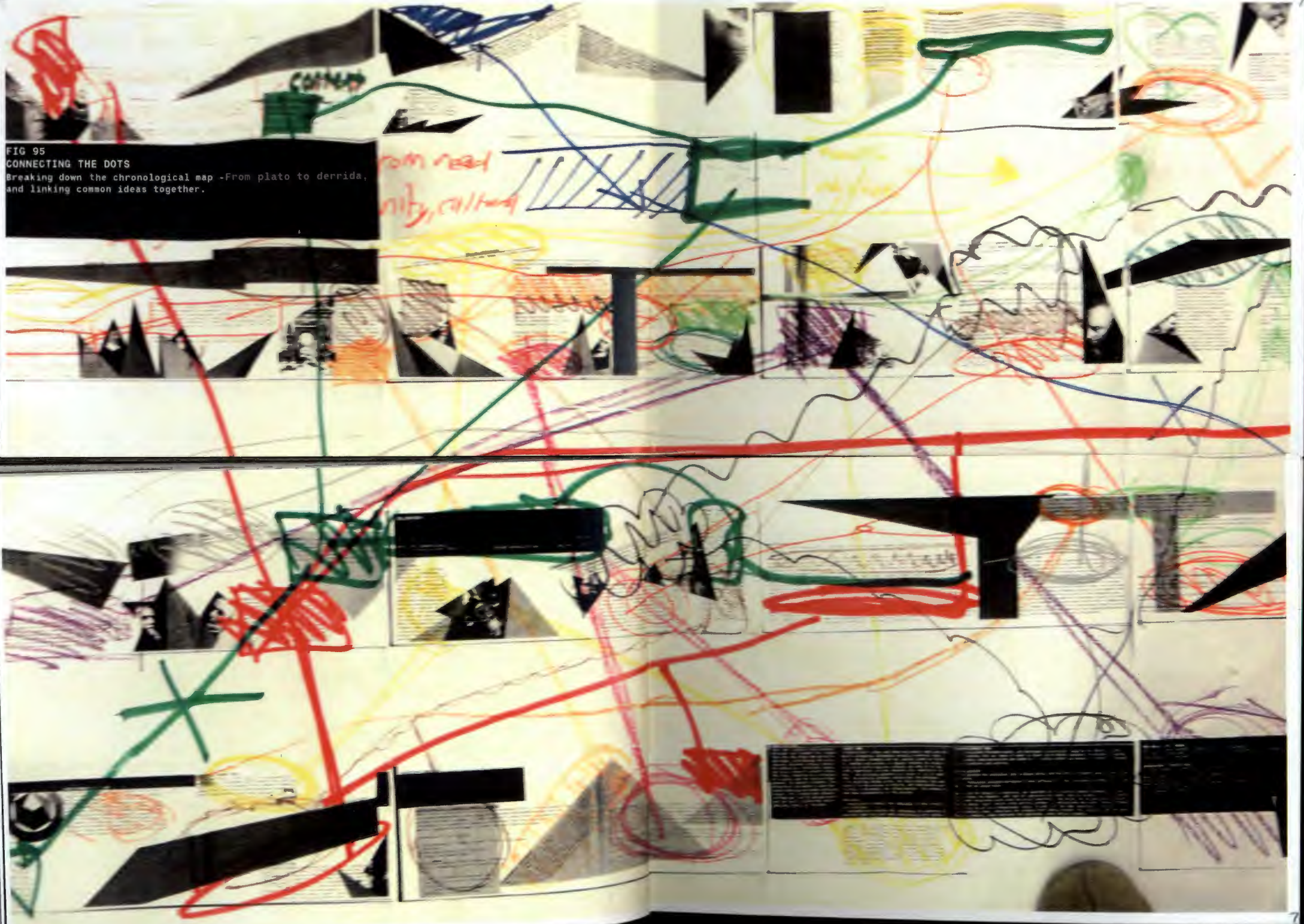
A MOUNTAIN
OF
TECHNOLOGY



A LANDSCAPE OF EXPERIENCE

Let's draw theory and write design like Peter Salter suggests.

FIG 95
CONNECTING THE DOTS
Breaking down the chronological map -From plato to derrida,
and linking common ideas together.





context

individual

divinity/cultural

Autonomous

Beauty

NATURE

STRUCTURE

PHENOMENO

RATIONAL

FUNCTION

HISTORY

STYLE

SPIRIT

COMPOSITION

HOW DO YOU OPERATE WITHIN A FRAMEWORK THAT DOES NOT YET EXIST?

Because there was no given brief, no set amount of m2 representing a fixed program that you need to squeeze into a given site like an old jigsaw puzzle. It became clear this was not BAS or BAS(Hons) the spoons have been packed away and we were gently thrown into the deepest ocean without a life vest. Here you were allowed to splash around for awhile, then you could swim anywhere in the world and do any project or projects that you wanted to. So, again raising the question, how do you operate within a framework that doesn't yet exist? Some floated around for a very long time waiting for a boat or a giant magical bird to come around and pick them up, some contemplated drowning, while others just started to swim hoping to find something which is not water. It is safe to say we all eventually ended up on the shores of Cape Town, scattered around the docks, Cape Flats, CBD, Woodstock, Groot Constantia and some even as far as Mosselbaai and the Breede river valley.

The following mapping exercises were my first attempts to start refining my framework. I did this by physically designing theory into space and time and it eventually acted as the gateway into my design project.

A SERIES OF STUDIES

At first I had no idea how to do this. It became like poking an unidentifiable object or a mysterious person until something unpredictable happens, depending on how they react, you either end up running away or learning something really interesting. Whichever one happens you are eventually pushed into a new direction.

My poking generated the following sequence.

- 1) Connecting the dots →
- 2) Theory in Time and Space Graph →
- 3) Defined framework

1) CONNECTING THE DOTS

It started off with a sort of double-or-nothing mapping exercise, where I did a mapping exercise to reveal patterns within a previous mapping exercise. I took the chronological mapping exercise 'from Plato to Derrida: a map tracing the history of architectural form and major philosophies that helped shape it' and started to link similar theories and opinions together with matching colors. This highlighted common themes in the theories of people who did not even live in the same century. What was really interesting about this exercise was that I realized even theory is cyclical. For example; just like the postmodernist rebelled against the modernist, the 19th century rebelled against the Enlightenment for similar reasons.

Although this exercise was interesting it was basically just an act of reorganizing information. I needed something more spatial.

2) THEORY IN TIME AND SPACE GRAPH

This mapping exercise was done after 'Connecting the dots' to satisfy the void that it left. The idea behind this exercise was to take all the information that I have gathered and read during the first 9 weeks of thesis, break them down into relevant categories and map them onto a timeline to show when and how they have influenced, affected and deflected each other. It was an attempt to map the intangible to show how my thesis exploration has been influenced. I wanted to construct a physical pathway of my journey that would inevitably justify any resulting architectural form.

For our first presentation this year we were asked to present a panel containing our interests. That was the seed for my thesis exploration and the starting point of this mapping exercise. It eventually evolved into a relevant body of theory which in turn stimulated and gave birth to the other factors involved.

This exercise was an attempt to show how integrated all systems of design is, that the one cannot live without the other. Even though each factor can be identified as an individual organ, they all fuse together as one system within the body of design, resulting in a complex meeting of all circumstances.



A JOURNEY

OF

DISCOVERY



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2

3

4

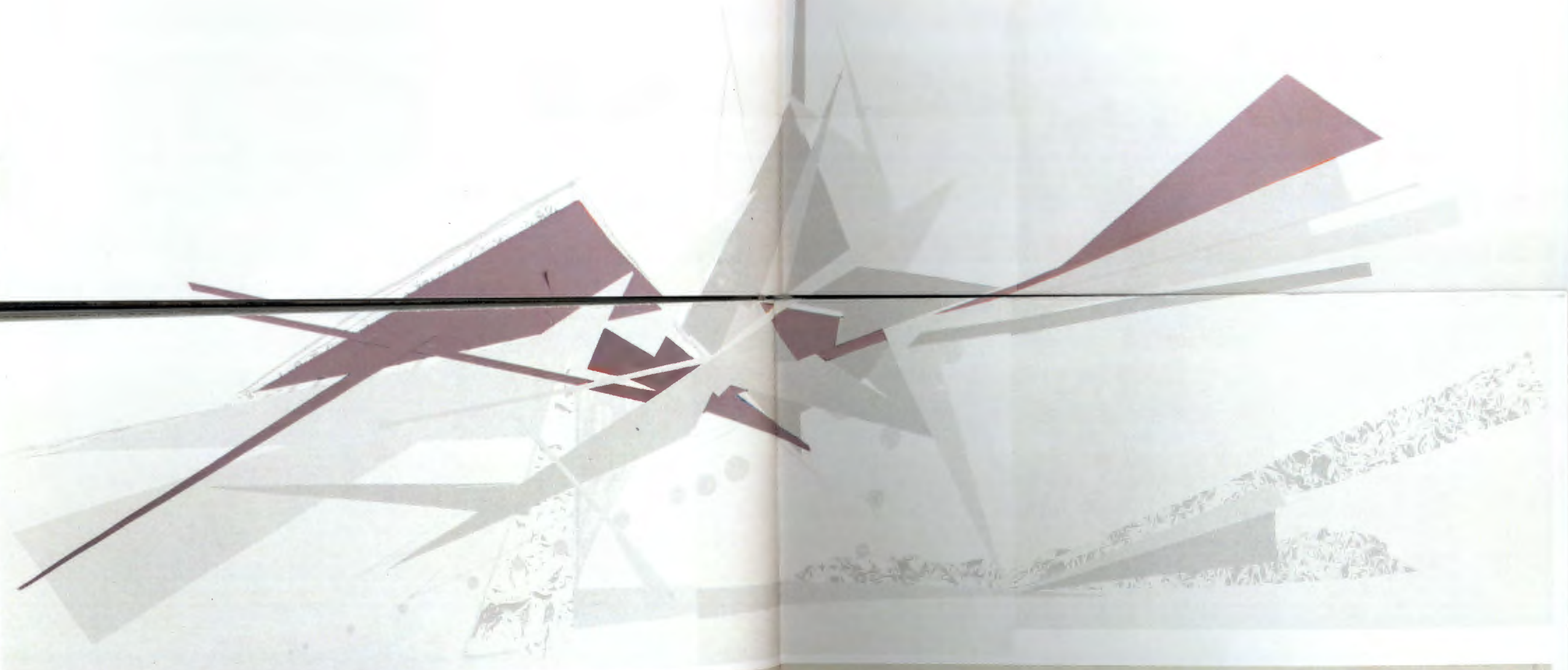
5

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1

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TECHNOLOGY

1

2

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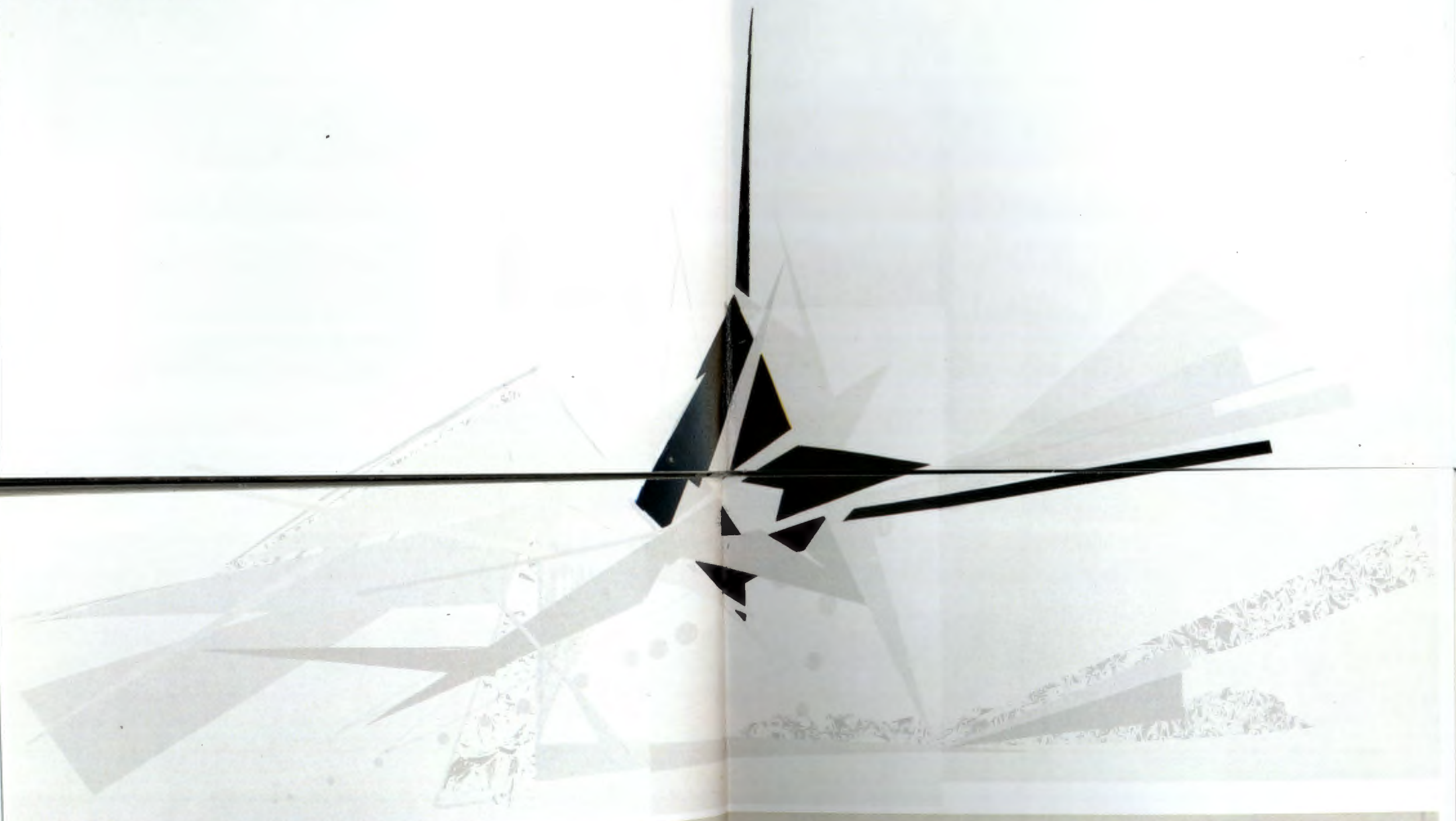
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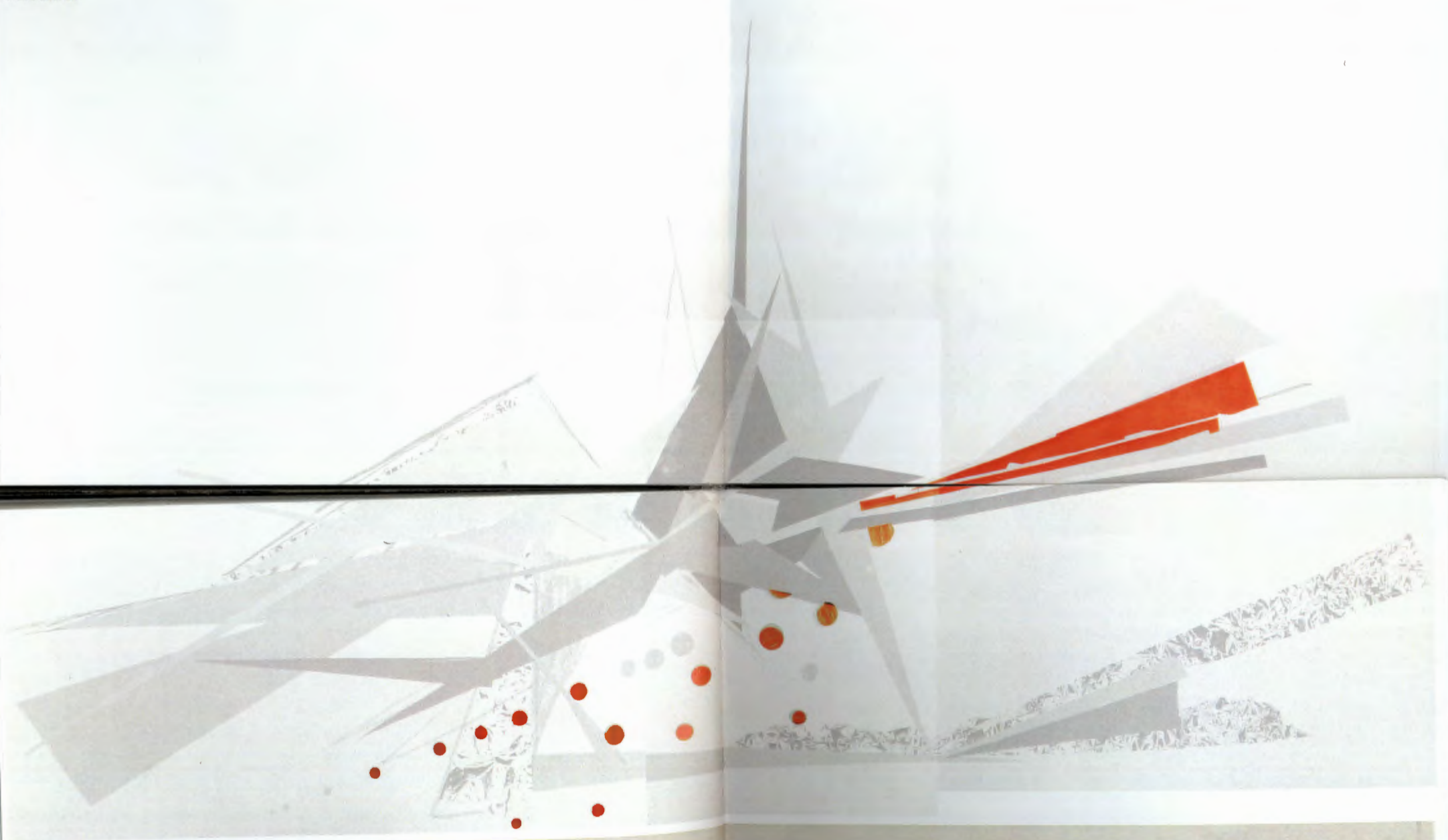
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1 2 3 4 5 6 7 8 9



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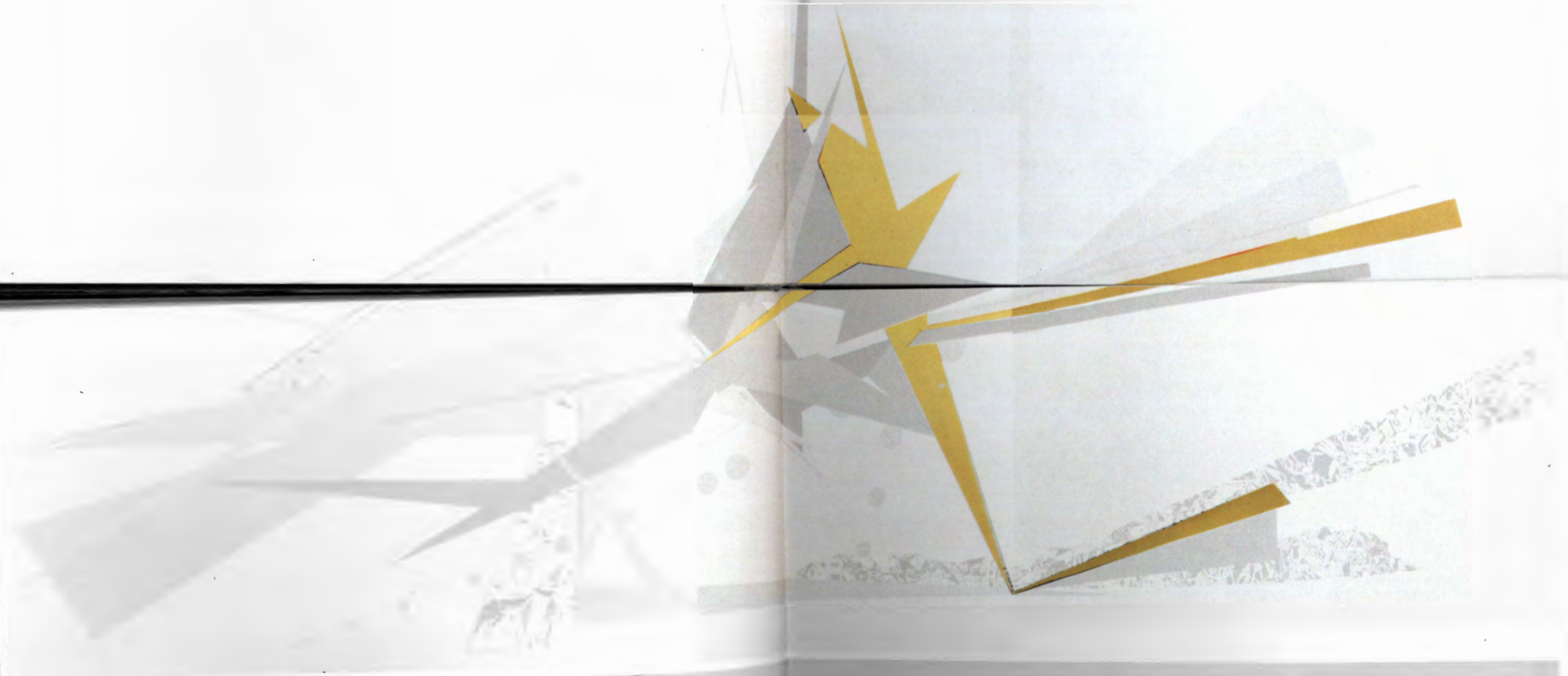
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9

WASTE (AS AN INPUT)



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2

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8

9



1

2

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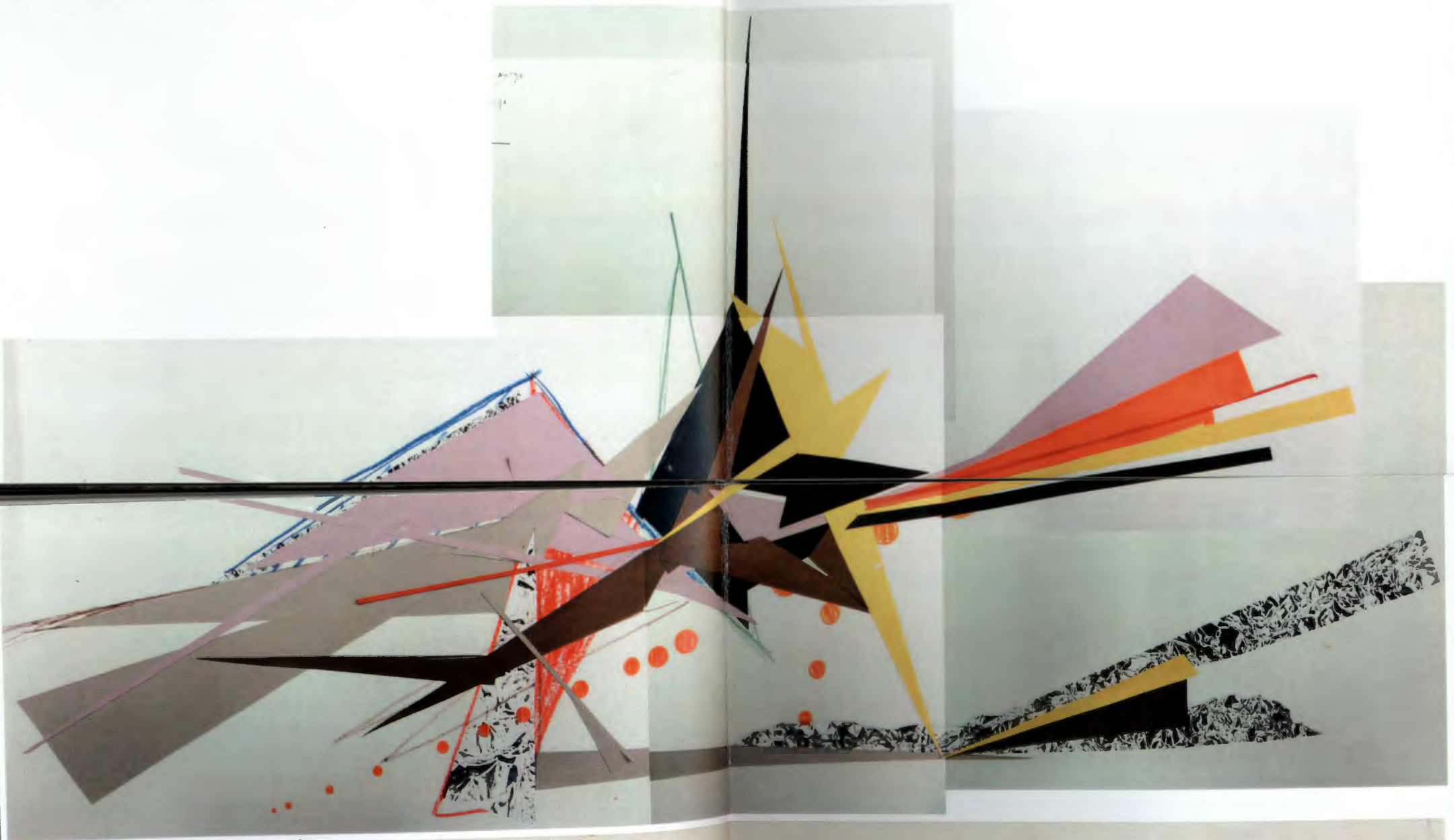
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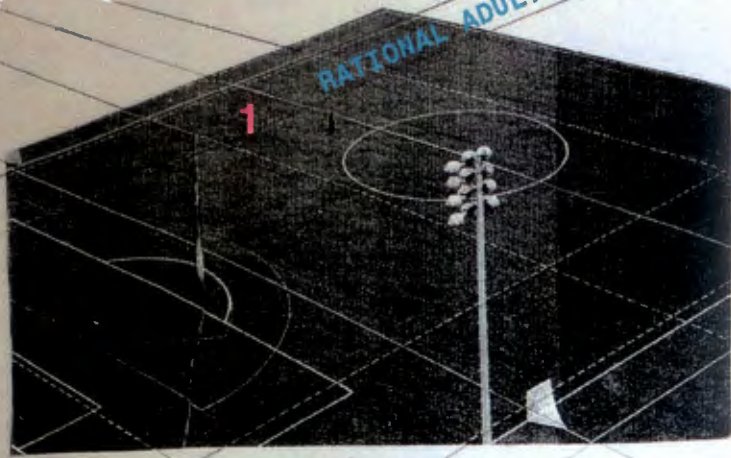
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COMPLEX MEETING OF ALL CIRCUMSTANCES



1 2 3 4 5 6 7 8 9

INTERESTS
WASTE
TECHNOLOGY
THEORY



RATIONAL ADULT

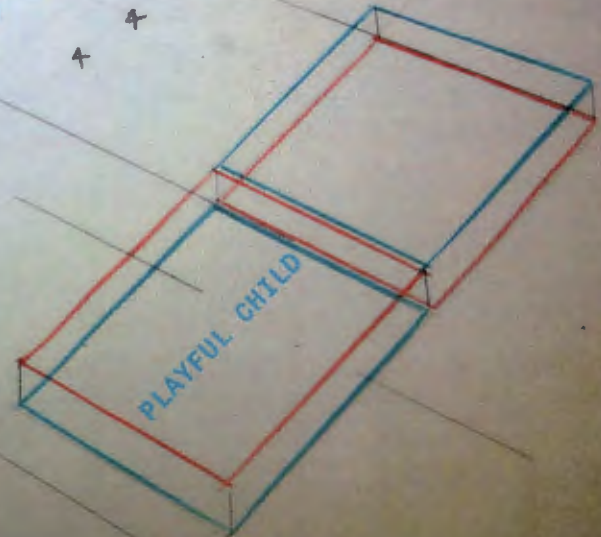
1

STRATEGY

2

FREEDOM TO GROW
AND ADAPT

3



PLAYFUL CHILD

PROGRAM

CONTEXT/SITE

PRINCIPLES OF NATURE

Natural action



3) DEFINED FRAMEWORK

This mapping exercise was done just before the FIFA soccer world cup started at a time when we all had soccer fever and couldn't wait for the games to start on home soil. As a result my brain was a bit preoccupied and I decided to use the soccer pitch as an analogy to explain my design framework in.

If you look at the history behind the spatial origins of soccer, it used to be a game that was played once a year for the entire day. The whole village including the streets, all the buildings and the full extent of the surrounding landscape became the pitch. For example the church would be the one goal and the post-office the other, so the game would basically cover the entire urban field of the village. This format was eventually abstracted and standardized into what we today call a soccer pitch so that it could easily be exported around the world.

In a way I feel that my exploration started as a soccer match being played without a lot of rules and regulations, pretty much across the entire urban field, with no red cards or half time breaks. At first I foolishly associated the lack of boundaries with a sense of freedom... a sort of openness that would not fix the project too quickly into anything concrete, so that I can be free to explore without constraints. After a while I realized that this freedom is far harder to operate in and that it is very easy for this freedom to quickly turn into a state of confusion. So I needed fixes and I therefore started to define my pitch. I began to set up fixed guidelines and limit my explorations to the data presented within this document. This has resulted in a series of parameters (identified in the previous exercise) that will now be used as a framework to push the design process to the next level.

Today the soccer pitch is always defined, the rules are the same for both teams and yet no two soccer matches has ever been the same. In order to have freedom within design, the regulating parameters and boundaries must first be established and clearly defined. Only then can design truly be freely explored. It is important to remember that these parameters are not set in stone; they can and will adapt, change and evolve during the rest of the design process, but that refers back to the case study I started this document with: ...Gray is not concerned in proving a doctrine and allowed the specificities of the site and of the program to suggest themselves into the house.

A clear relationship between theory, design experimentation and technological considerations should always be present within the design process. The one informing the other, to and fro, until design equilibrium is reached.

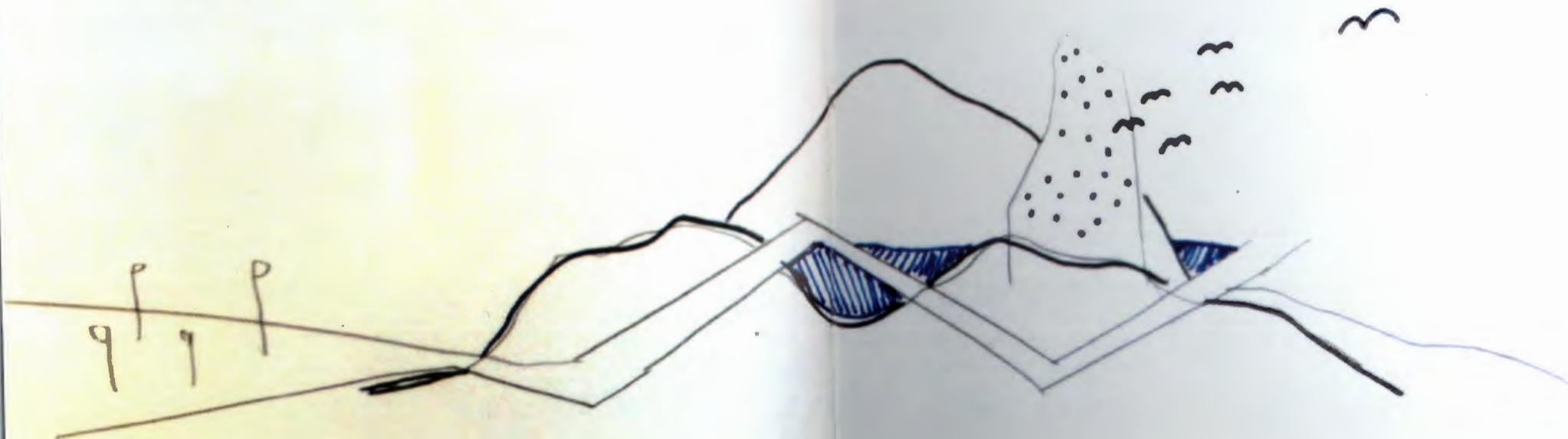
Alvar Aalto said it best that the adult within us sets up the rational constraints, while the child inside us freely plays within these boundaries.

now, to translate this
into **architecture**

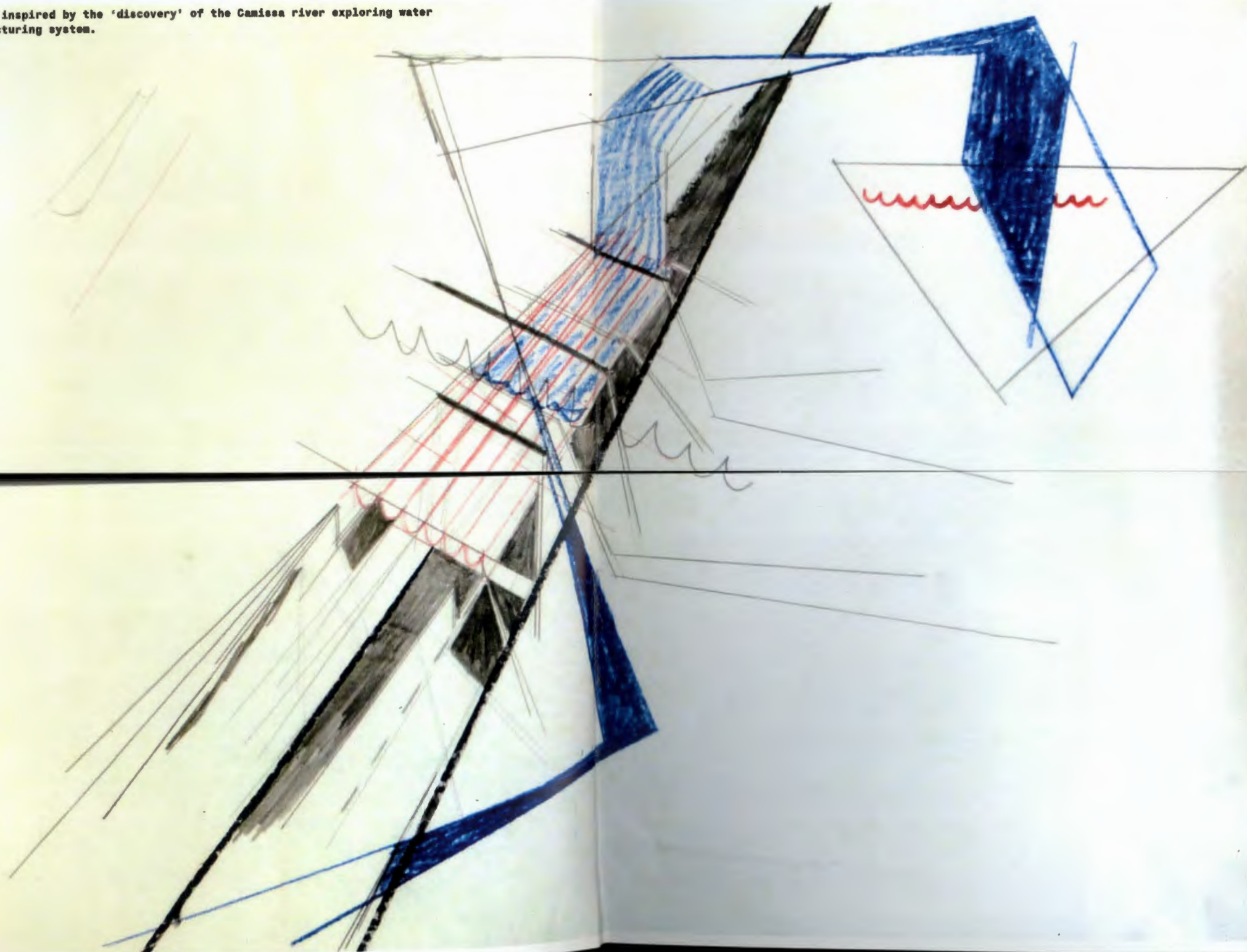
SITE EXPLORATIONS, THE BEGINNING

The first of many site explorations started with a mapping of the threshold between the built environment and nature. It started to identify the edge where these separate systems cross paths, where city meets landscape. I took the CBD as a starting point. Cape Town is sandwiched between mountain and ocean, and it surprising to see how few buildings located on this edge attempts to engage with this condition. During this exploration I also 'discovered' the underground water channel know as the Camissa river. It transports runoff water from the mountain into the ocean. This harvesting and channelling of water is something which eventually plays a big part in my final project.

An initial conceptual sketch stitching together the mountain, ocean and built environment into one system.

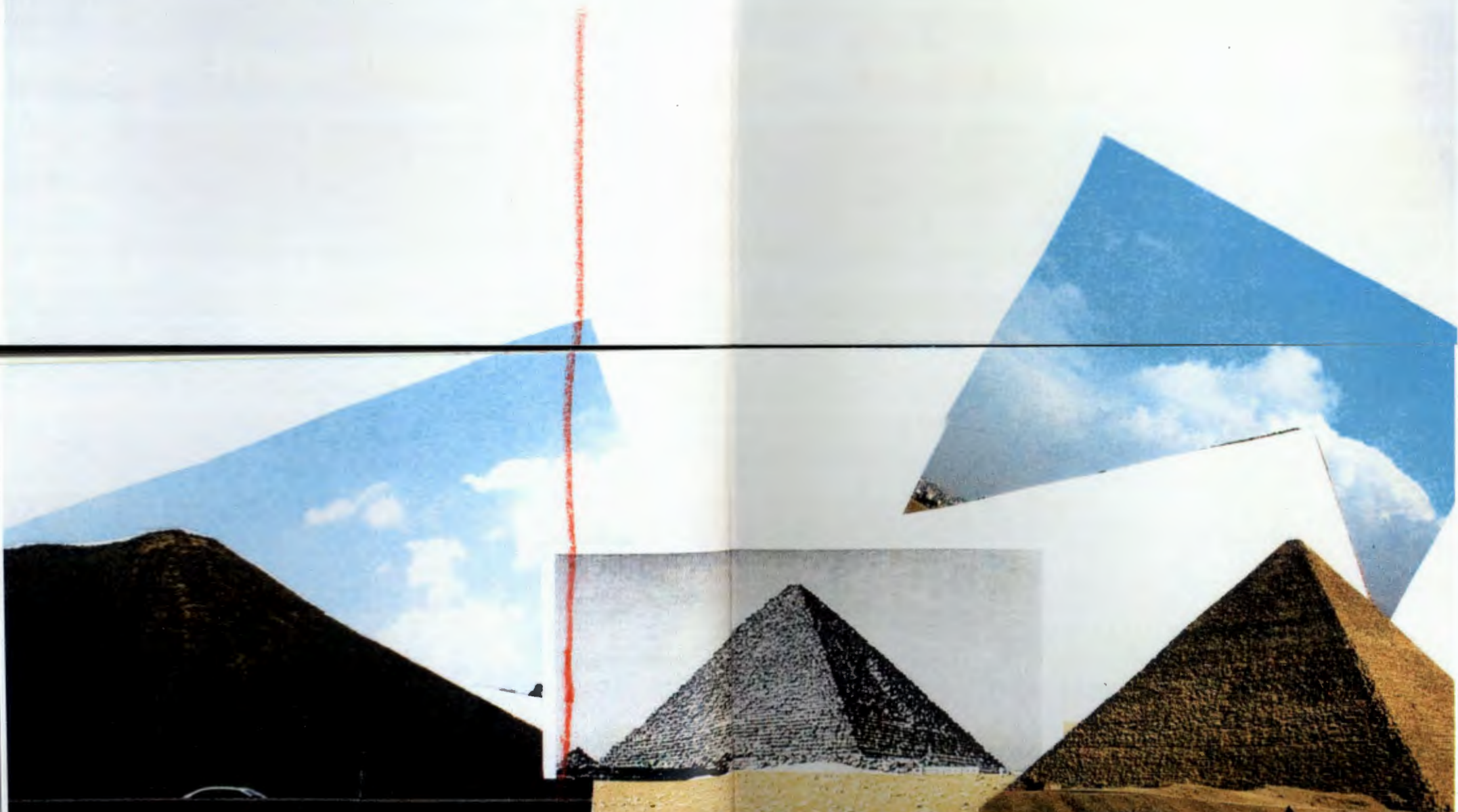


A drawing inspired by the 'discovery' of the Camissa river exploring water as a structuring system.



WHY CAN'T WE TURN DIRT INTO PYRAMIDS?

If you have ever been to Johannesburg you would notice them scattered all across the landscape an unimportant and an irrelevant side effect of the process of mining. If you look at the shape of a mine dump it closely resembles that of the ancient Egyptian pyramids. Yet they are not considered as a natural wonder of the world and are instead seen as waste. This is obviously because it has not been culturally appropriated into something significant. It serves no purpose other than being a pile of dirt. At this point I did not yet know that a big part of my project would revolve around pushing and shaping sand/dirt.



...product of a National humor action guided by the mystery of the spirit

WASTE IS ONLY USEFUL WHEN IT HAS A PURPOSE.

"Garbage is the broken knowledge that lies in the wake (and in the way) of progress"²⁰

All architecture the moment after it has been constructed starts its slow (sometimes very fast) journey towards destruction. The length of this journey depends on many external factors, such as climate, social conditions, the value it has to society etc. In a way all architecture is but waste in transit. ²¹ So what can we do to delay this inevitable journey?

Embrace it.

If you start at the end, at the known destination: waste, then you can reverse engineer your building to grow better over time. During the search for a site I did a lot research into waste as an initial input or generator for the architectural product. I was interested in creating a system where the input (something regarded as waste) gets transformed and processed into something useful. At first this was a physical exploration looking at concepts like architectural salvaging, waste re-appropriation and recycling but it eventually transformed into a metaphor that evolved into my program.

²⁰ - John Sealan in Till, Jeremy. Architecture Depends. 2009, p74

²¹ - ibid p 68



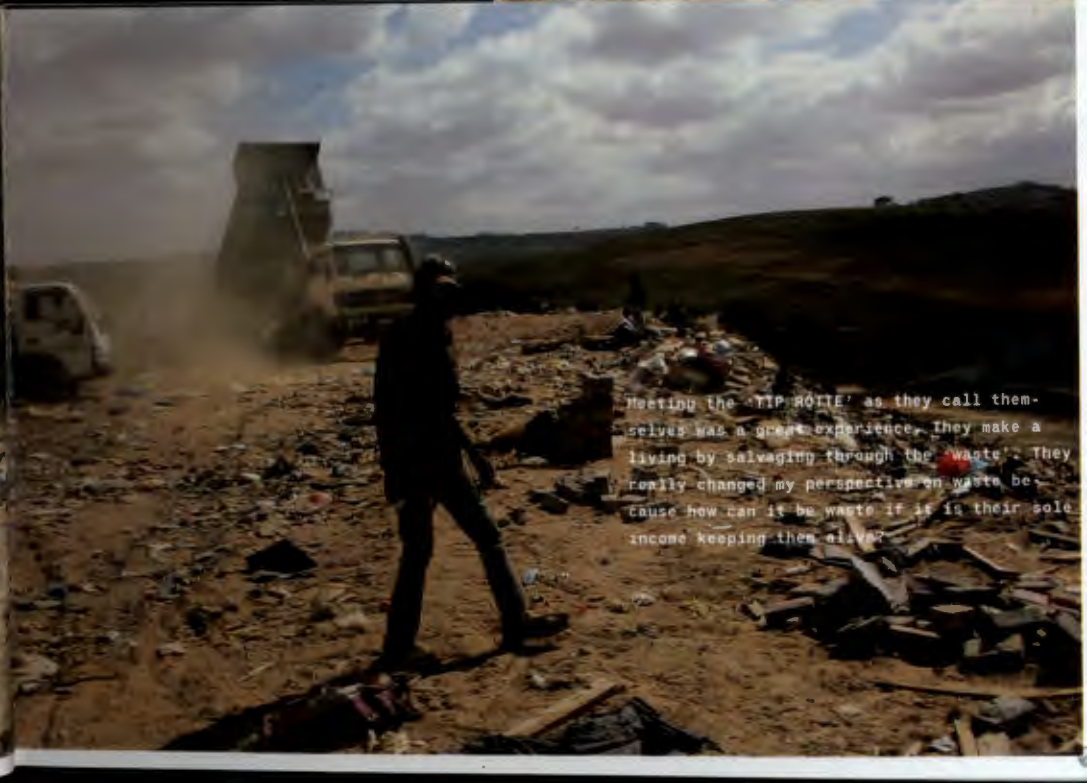
Fig 89

Angelus novus
by Paul Klee, watercolor,
1920

KIT 472 31



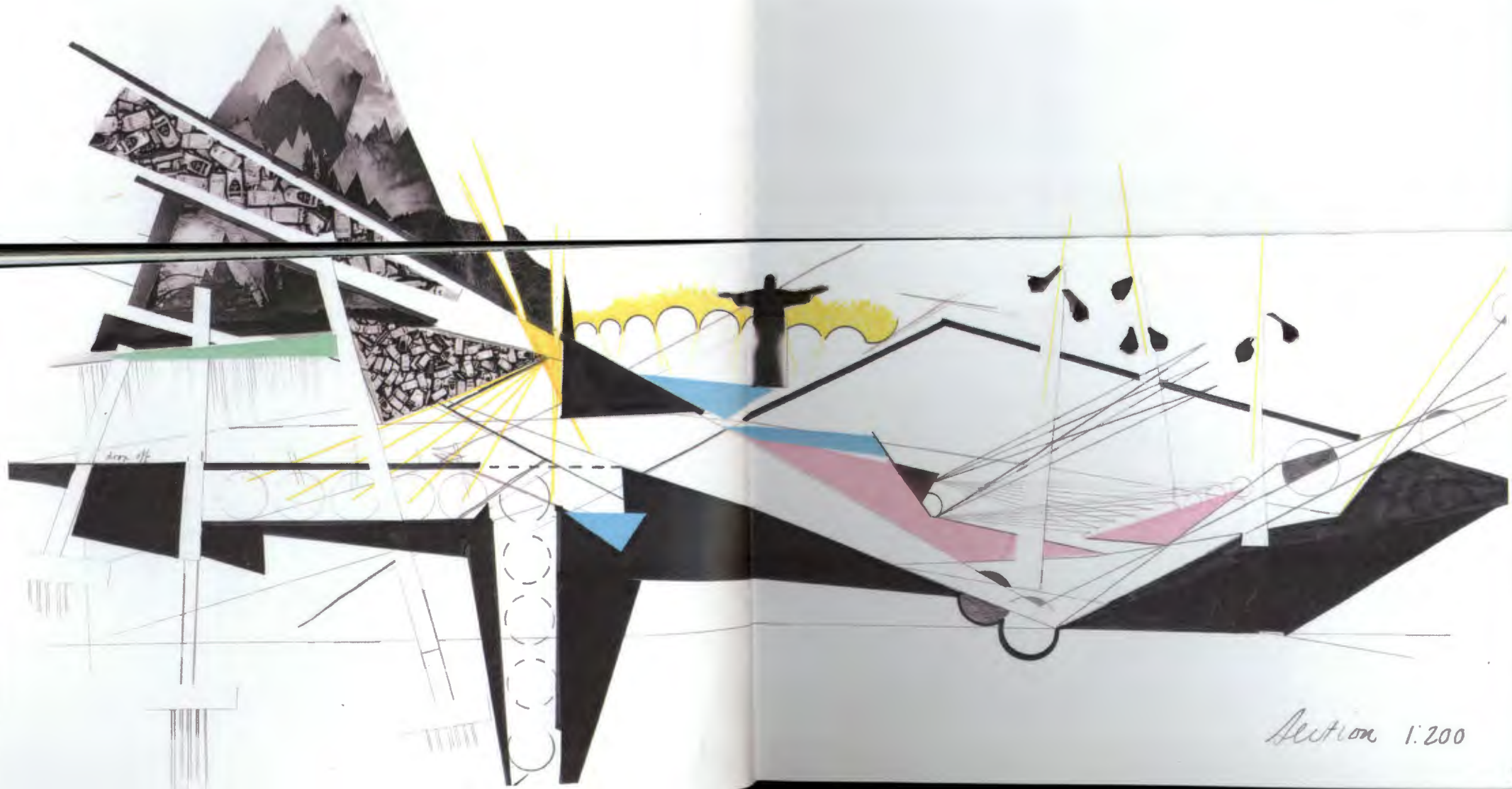
Nature vs Human waste :This photograph shows a distinct separation between the two systems.



Meeting the 'TIP BOITE' as they call themselves was a great experience. They make a living by salvaging through the waste. They really changed my perspective on waste because how can it be waste if it is their sole income keeping them alive?

THE FIRST ATTEMPTS

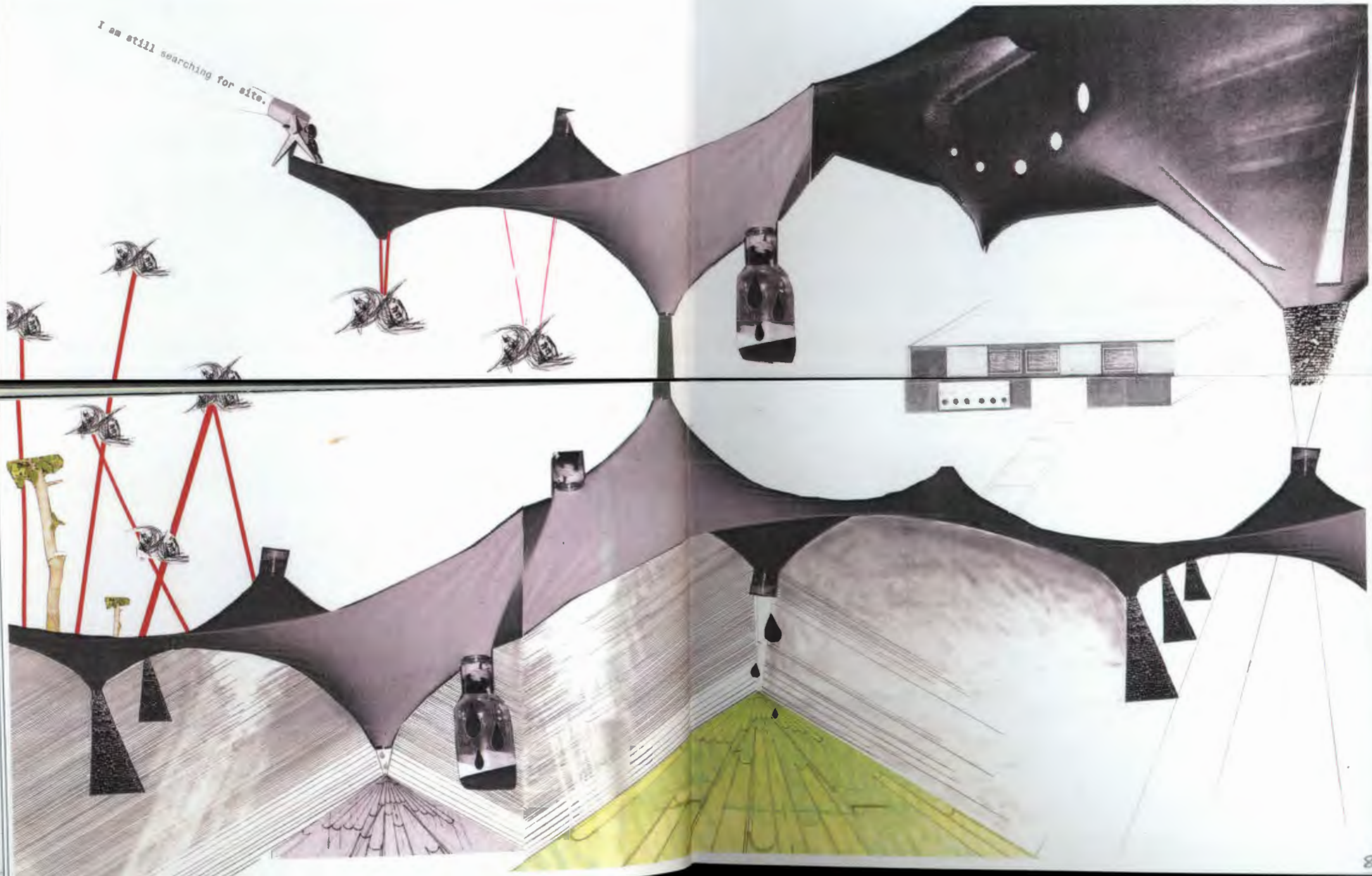
sketch of a building of stone & concrete of form



Section 1:200

These are the first attempts at translating all the discussed qualities into architecture. By now program has taken on the metaphor of recycling. Therefore it would be something cyclical, where you enter in one state of mind and leave in another, something like a healing facility, skills development centre or an educational training facility.

I am still searching for site.





STARING AT THE RIVER

It's fantastic to feel so far gone so close to the city. Like a portal into another universe. Scary at first not knowing what is on the other side. I eventually take my shoes off and cross the river at a point where a concrete imposter was hiding out. The cold water hit me like an icy breeze. A sharp texture of the stone pebbles, exposed as a result of year's worth of gentle erosion, is poking through the skin of the concrete mass and gently massages my feet as I cross.

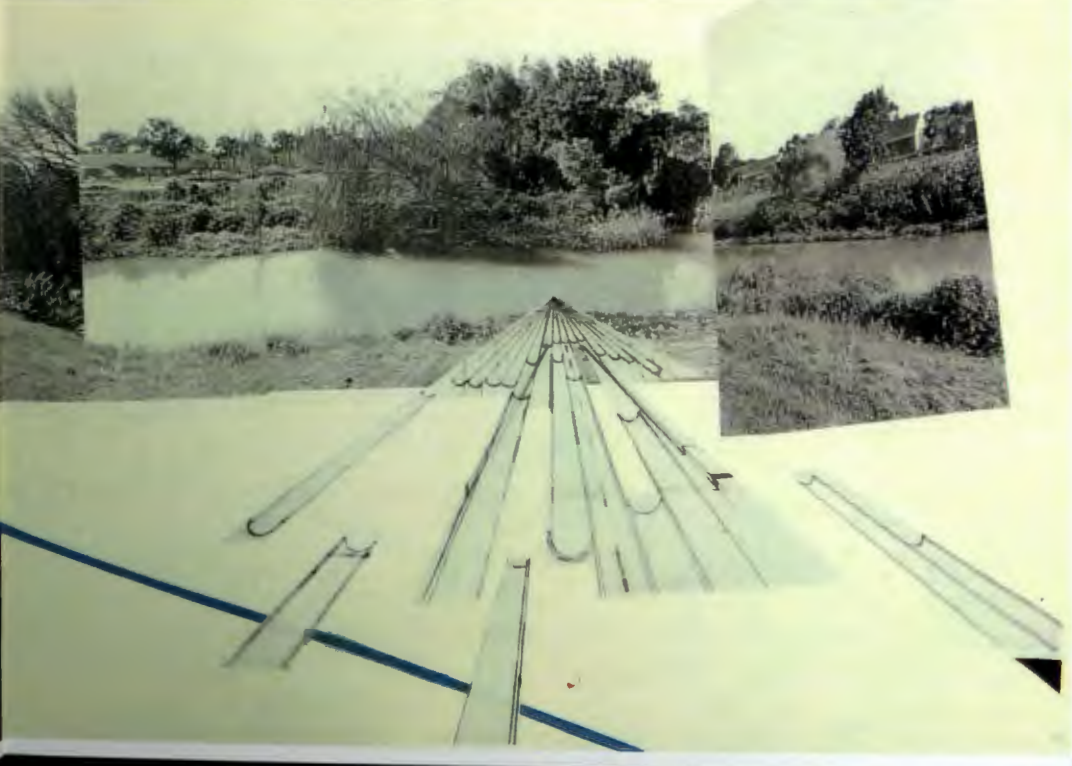
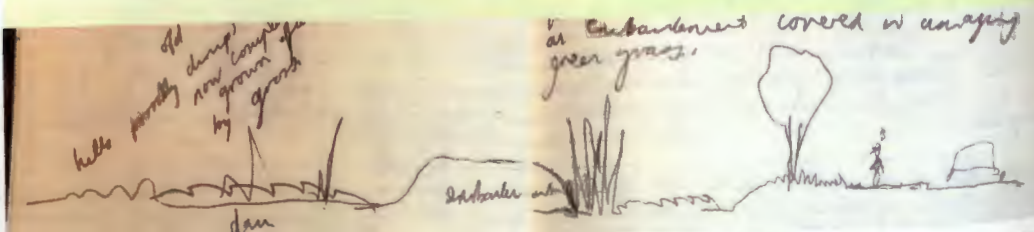
At first glance everything seems one. After awhile of wandering around, observing, I realise that they can be clearly divided into separate systems. The first and obvious is the road, the bicycle lane then the river. This is followed by a series of plants; one layer working on ground floor, responding to the river and framing the embankment, the other layer is higher up creating a series of enclosures, providing shade as well as housing birds' nests (and upon closer inspection a few homeless people). Then there is an embankment covered in amazingly green grass. This embankment gives way to a variety of reeds and water plants which eventually drowns out into a dam. They are

revived again on the farthest side and framed by a series of miniature grass covered dunes. These dunes used to be rubble that was dumped there many years back but has since been reclaimed by nature. Parents bring their kids here to cycle, chase birds, climb trees and take their dogs for a walk. Then they head on home, relaxed and seemingly happy.

I stopped and asked myself what am I doing here? Why am I always attracted to these spaces like a moth to a flame? Why do I want to intervene into this already beautiful space? Whatever I decide to design here will be like a folly in the landscape, an eyesore to the existing beauty.

So I crossed back over the river got into my car, onto the N2 and drove off to Stellenbosch for the weekend. Still having no site but at least I now knew what not to do...

Until I saw the following along the way...



THE IMAGE THAT GLUED IT ALL TOGETHER

This is a familiar site for anyone who regularly travels the N2 in or out of Cape Town. While driving past the densely packed RDP developments the rooftops line up to form this exciting 'roofscape' and creates this continuous landscape of burgundy roof tiles. I pulled off the road, parked on the yellow line with my hazards on, got out of the car and onto the first overpass in order to get a better view of the situation. I started thinking why can't this roofscape be inhabited? With the mountain teasingly lurking in the background I realised that I have found the scenario that I have been looking for. Instead of trying to tap into existing beauty, such as the well maintained parks and mountains in and around the CBD, I will duplicate these qualities in an area that has none or very little of it. I will blend the experiential qualities of a hike over a mountain with an architecture that distorts the barrier between landscape and the built environment.

I could now finally start to build an argument framed within an existing context.

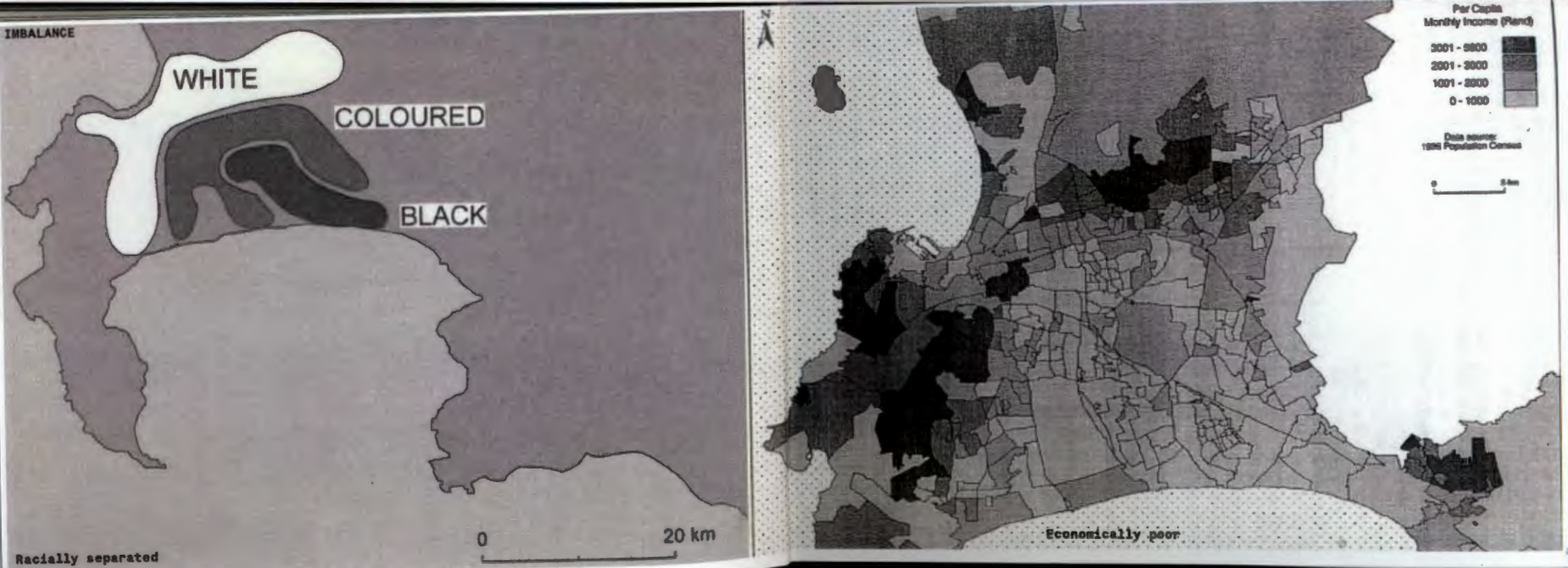




AND THAT IS HOW I ENDED UP IN THE CAPE FLATS

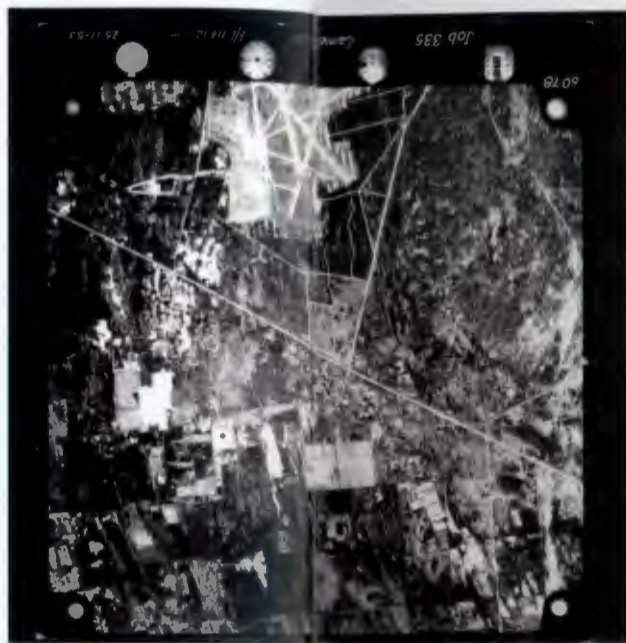


investigating the cape flats



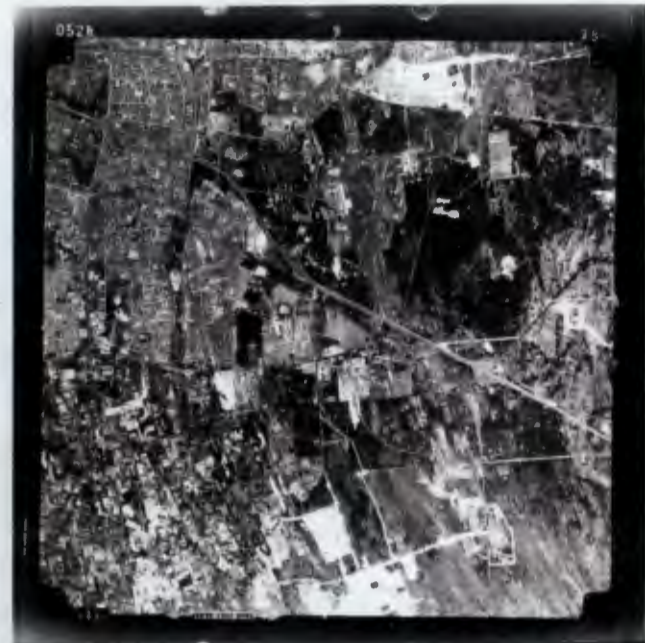


1938



1953

Aerial photographs indicating rapid urbanization from the 1950's onward as a result of the Group Areas Act



1977



1988



2000

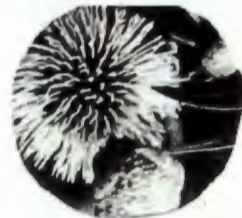
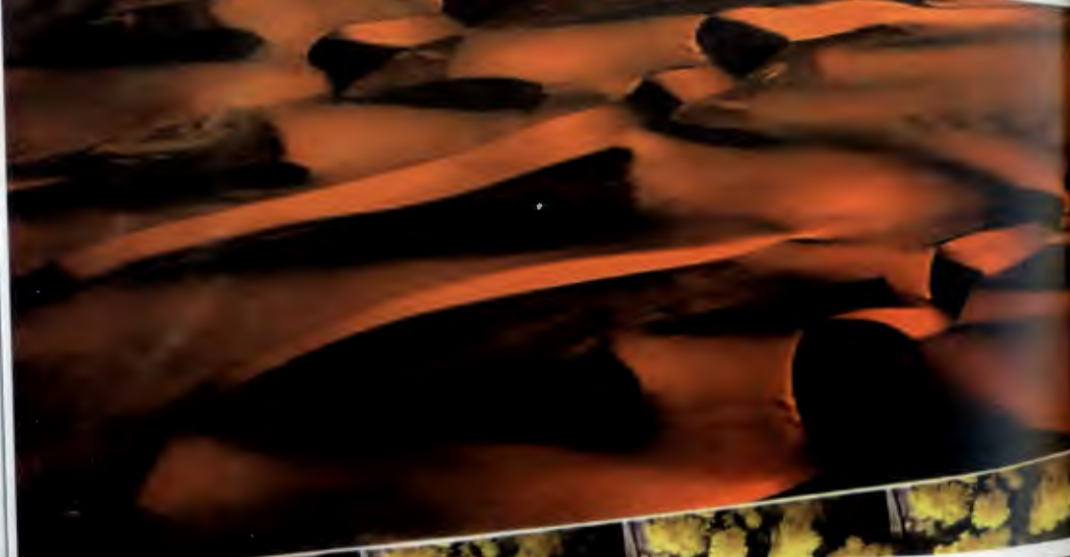


2009

1827

There are two significant historical events that changed the essence of the Cape Flats. In 1827 alien vegetation was introduced into the landscape by order of the colonial authorities. This was an attempt to tame the rolling dunes of the Flats so that their ox-wagons can cross through this sandy stretch with greater ease.

Lycopodium Wallii ←



1827

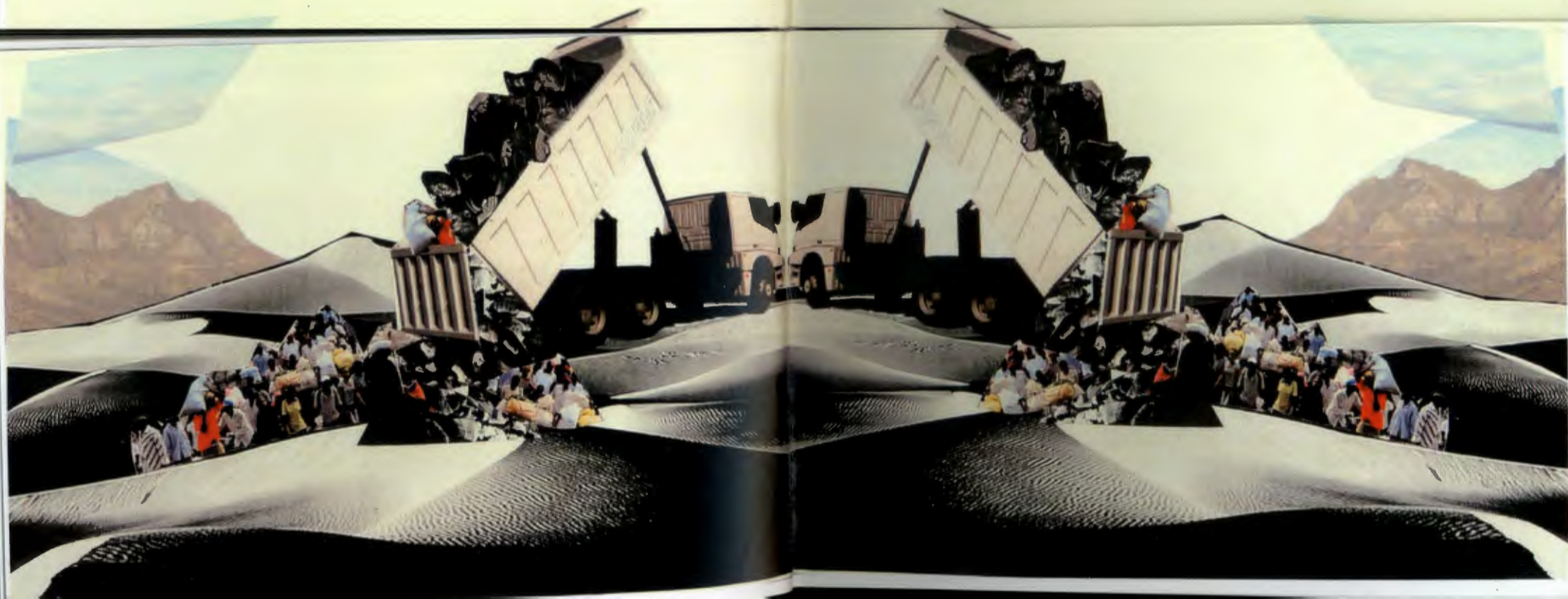
Hakea ←



1950's

During this time the Cape Flats served as the Apartheid Government's dumping ground. The area was designated suitable for non-whites under the Group Areas Act. This historical event can largely be blamed for the terrible urban, social and economical conditions the area finds itself in today.

1950



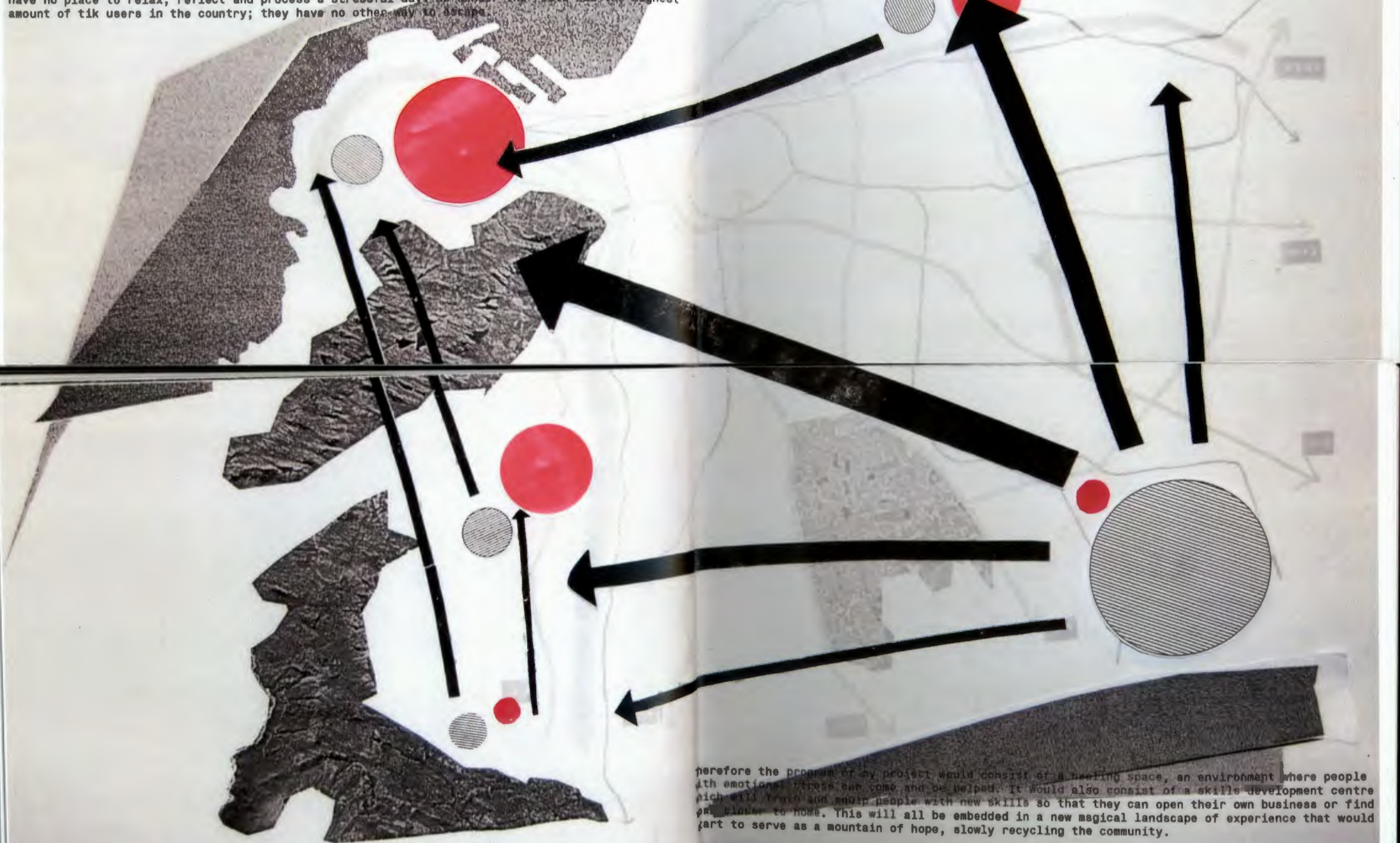
MOUNTAIN SANDWICH

You have this condition where the Cape Flats is sandwiched between two amazing mountain ranges. The mountainous heights of the Cape Peninsula on the left and the Hottentots Holland mountain range on the right. But they have no immediate access to any of the two because during Apartheid these areas were zoned whites only, for obvious reasons, and they were forced to live in the sandy wasteland sandwiched in between. It would be impossible to immediately reshuffle this imbalance. So in the meanwhile why can't the inhabitants of the Flats have their own mountain?



RECYCLING LIVING CONDITIONS

This also means that the inhabitants of the Flats are forced to travel huge distances to get to work and back. The pink dot indicates employment opportunities, while the striped dot indicates amount of people that lives in the area. The black arrow indicates how far people from the Flats have to travel to get to work. The thicker the arrow the more people it represents. Their jobs mostly involves strenuous labour at minimum wage and then they get back home after a overcrowded ride in a taxi, bus or train to terrible urban conditions and a cramped living environment. They have no place to relax, reflect and process a stressful day. No wonder the Flats has the highest amount of tik users in the country; they have no other way to escape.



Therefore the program of my project would consist of a healing space, an environment where people with emotions, stress can come and be helped. It would also consist of a skills development centre which will train and equip people with new skills so that they can open their own business or find jobs closer to home. This will all be embedded in a new magical landscape of experience that would start to serve as a mountain of hope, slowly recycling the community.



A common sight, rubble being dumped in one of the many open fields



A sandy situation.



A typical occurrence - a big fenced off institutional building surrounded by sand, RDP houses and



Fenced off wetland creates a dangerous urban environment.





A Fence off secondary school creates dangerous alleyways by not relating to its surrounding context



More examples of fenced off community buildings.



More examples of fenced off community buildings.



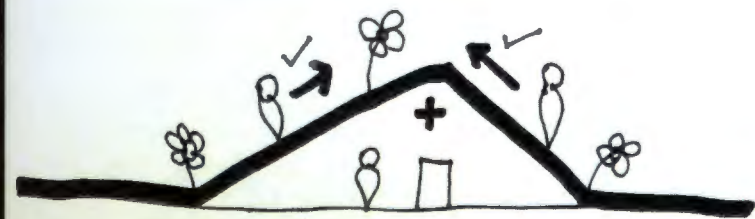


Two of the few examples where the building were designed to replace the fence as a buffer and begin to mediate inside/outside space.

WHY NOT?

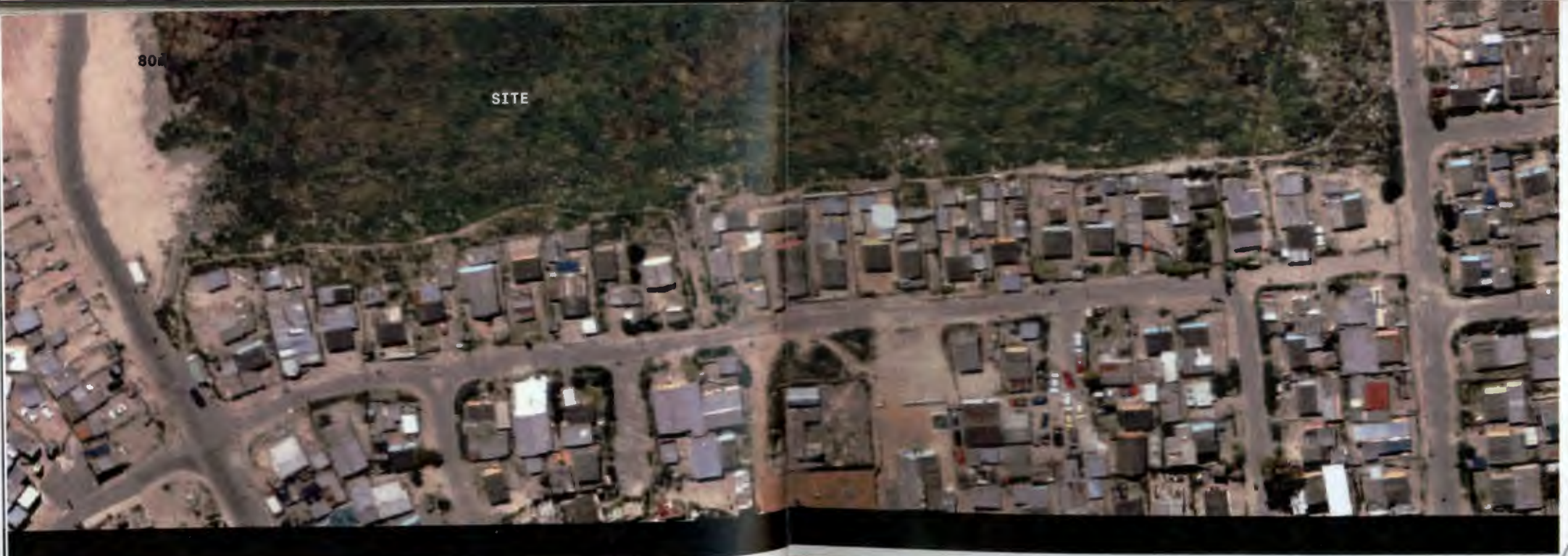
The majority of the community buildings that are suppose to enhance the life of the people who live in these areas are doing the exact opposite. They are placed into the context like object and make little attempt to stitch into the existing urban fabric. Parks are fenced off and only accessible during day time. It becomes clear that security is a big problem and it was obviously decided that the only way to deal with this issue is to fence en wall everything off.

Why does this need to be the case? Why can't these buildings fuse with the parks and create a continuous unobstructed landscape that can be enjoyed by anyone anytime of the day? By adapting the architectural language to respond to this problem I believe you can create a hybrid of landscape and built environment that can seamlessly tie in and enhance the existing context while still addressing all the practical implications such as security, privacy, ventilation and climatic conditions.





N ↑





SITE CHOICE

I chose this site as a result of the exploration leading up to this point and the reasons listed below.

The project needed a big open area.

I did not want to locate the building on the edge of the Cape Flats (that would defeat it's purpose) and the only big enough open areas within the built up environment is either storm water retention ponds, 'green' open space or sports fields.

Since I have been exploring how architecture can fuse and be influenced by nature this would be a great opportunity to test these theories.

I would be able to experiment with a design that responds to the cycles of nature, where spaces are allowed to flood during heavy rainfall and reveal themselves afterwards and allowing the landscape to change its use and function according to the seasons.

View of the site and the mountain lurking in the background



Site is polluted and the residence constantly complains about the smell. The pollution has chased away and killed almost all the animals that could have lived there.



More examples of the pollution



This used to be a water channel now it is filled with rubbish



storm water entering from one of the four entrance points



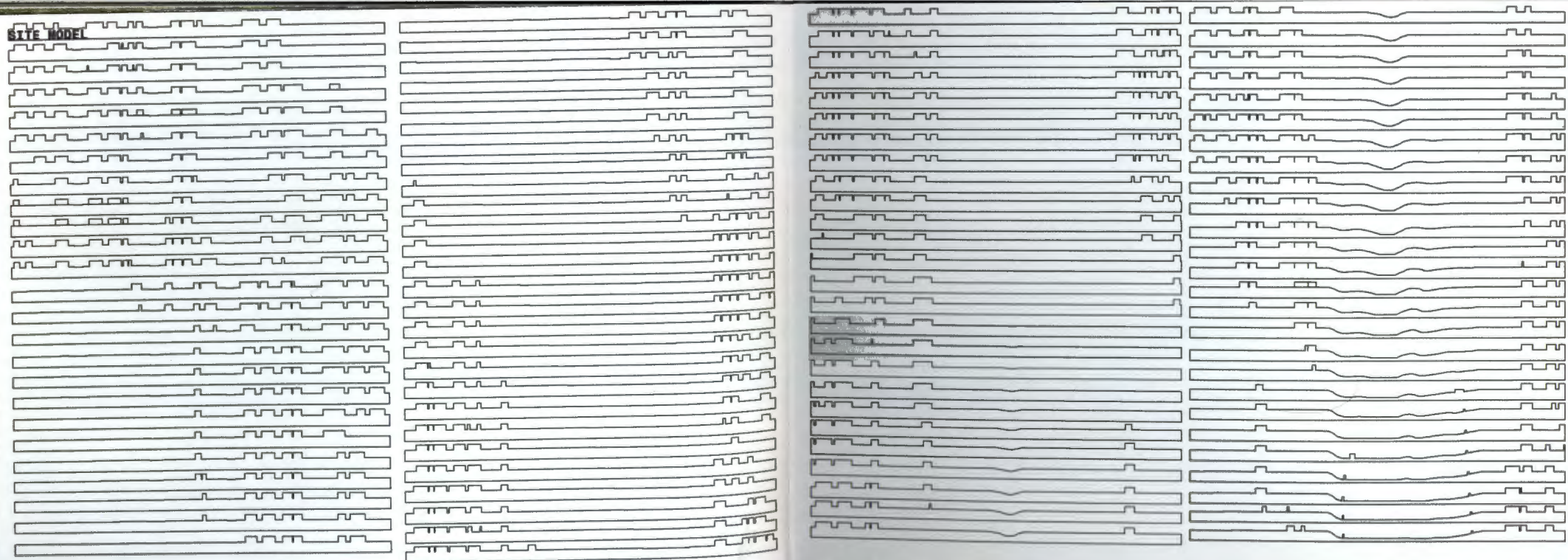
Why can't this...

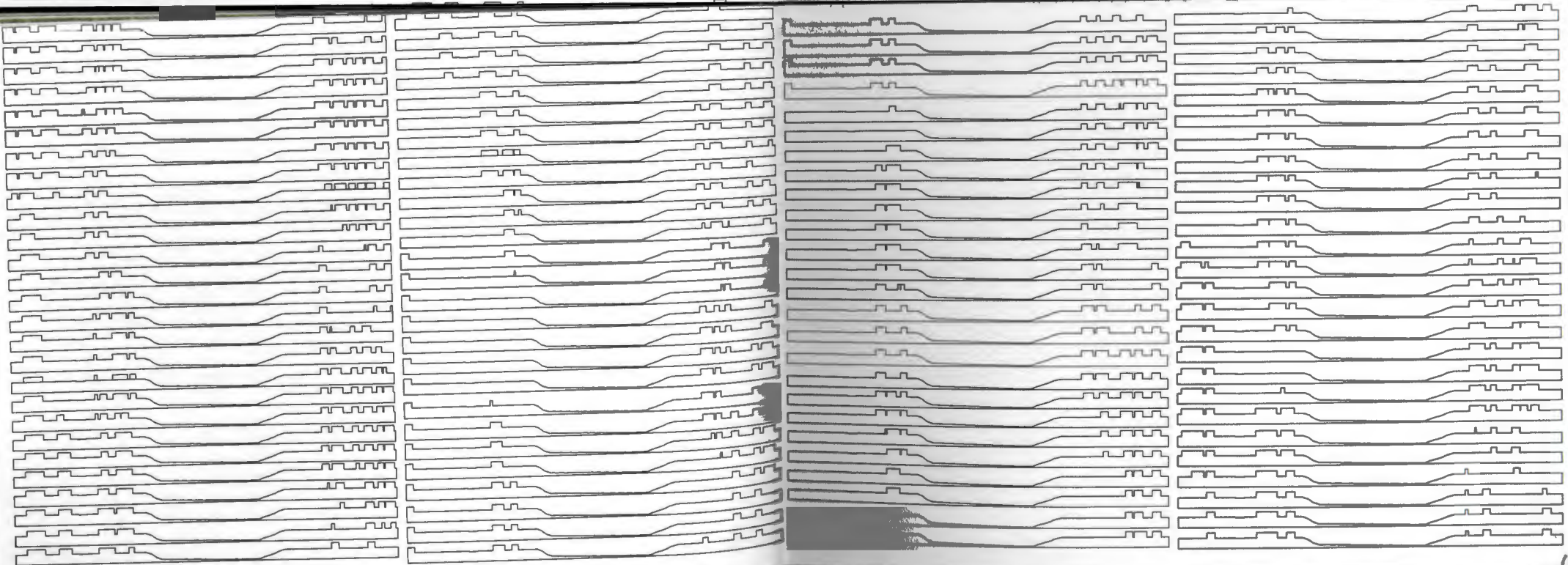
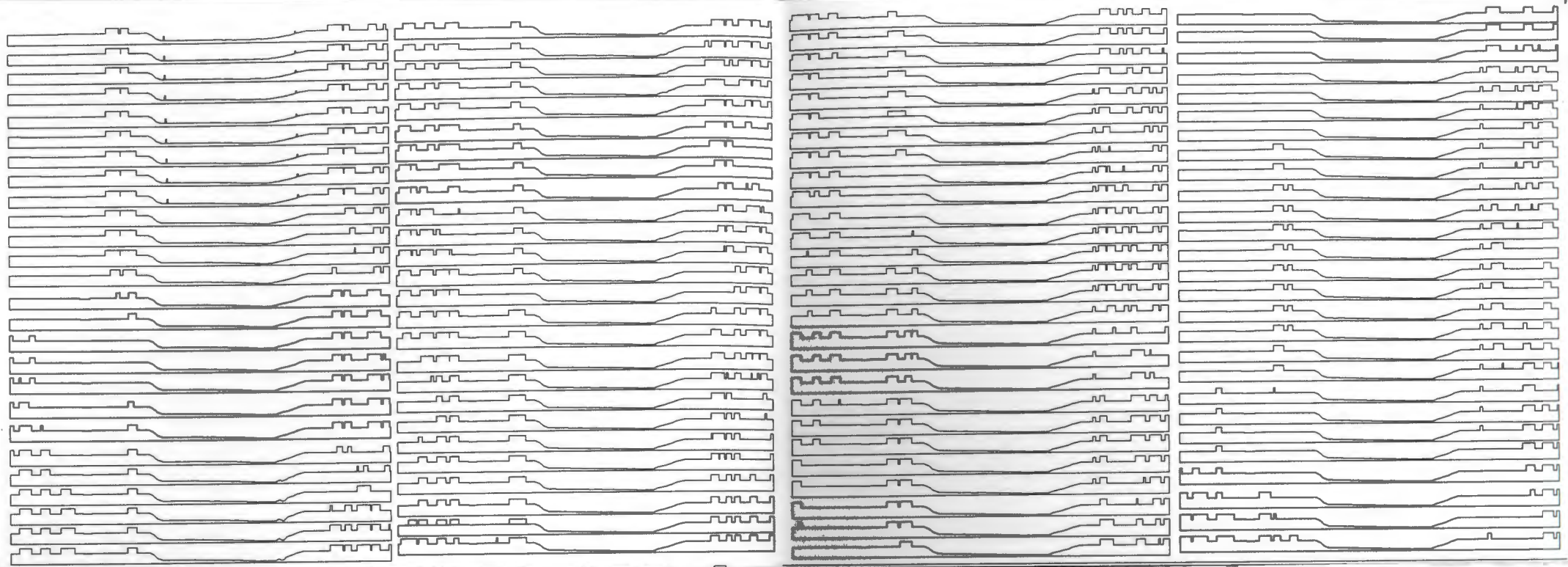


Look like this?

site analysis

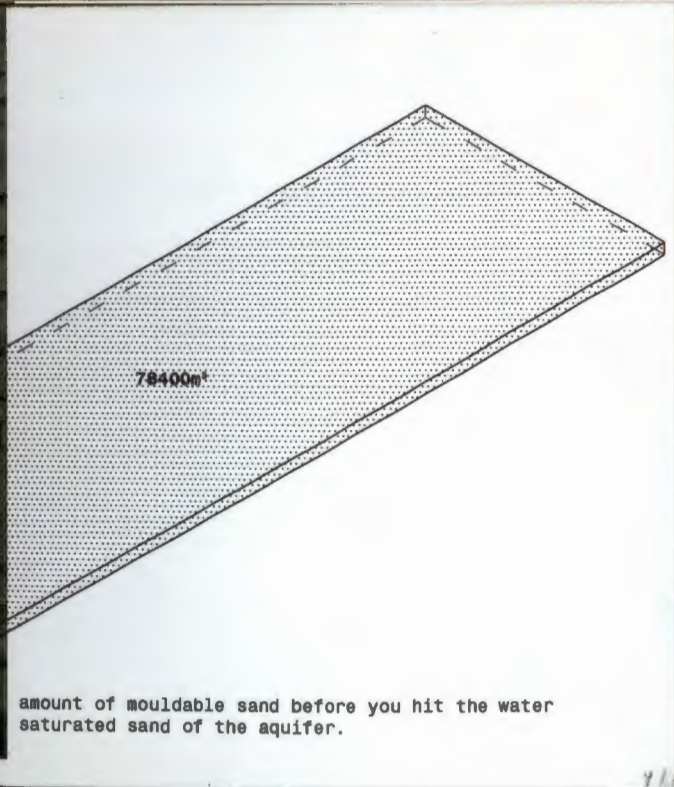
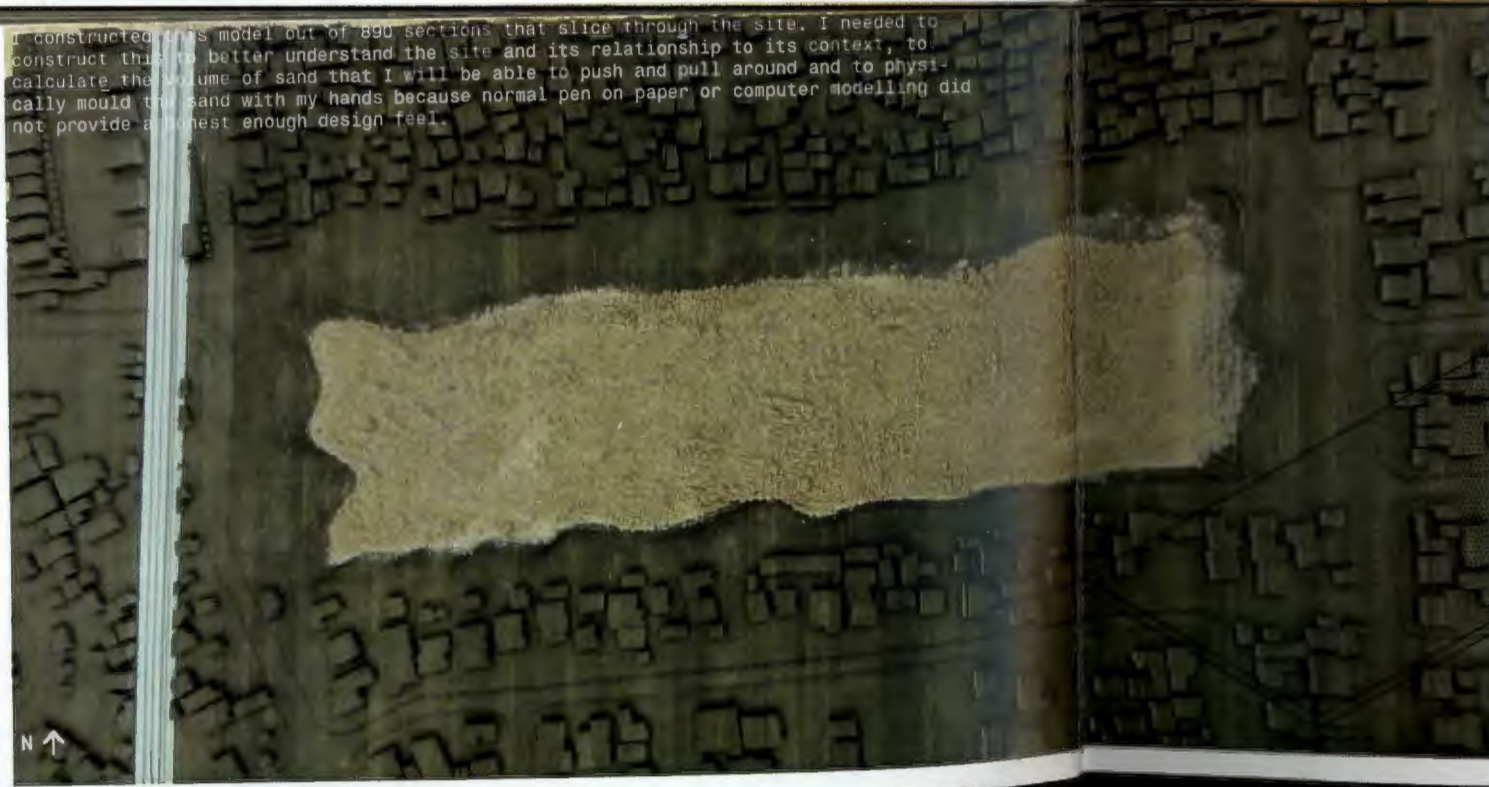
SITE MODEL







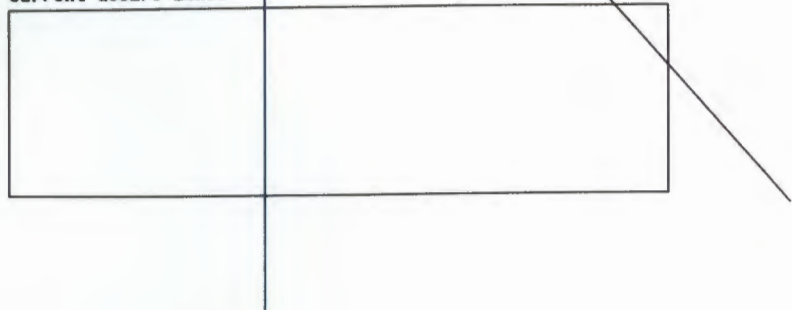
I constructed this model out of 890 sections that slice through the site. I needed to construct this to better understand the site and its relationship to its context, to calculate the volume of sand that I will be able to push and pull around and to physically mould the sand with my hands because normal pen on paper or computer modelling did not provide a honest enough design feel.



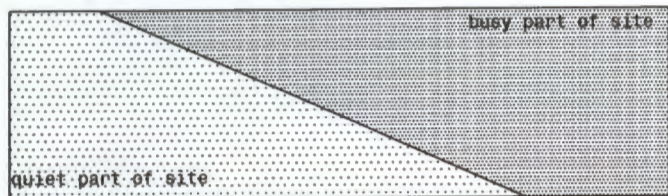
amount of mouldable sand before you hit the water saturated sand of the aquifer.

SITE DIAGRAMS

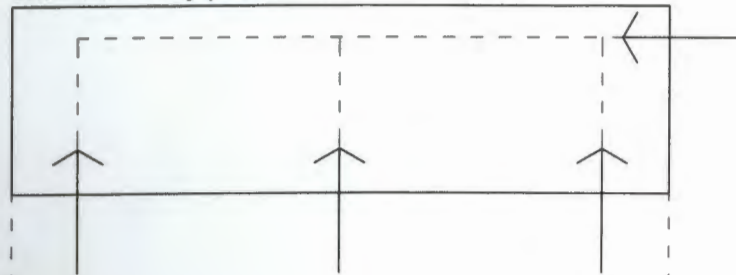
current desire lines



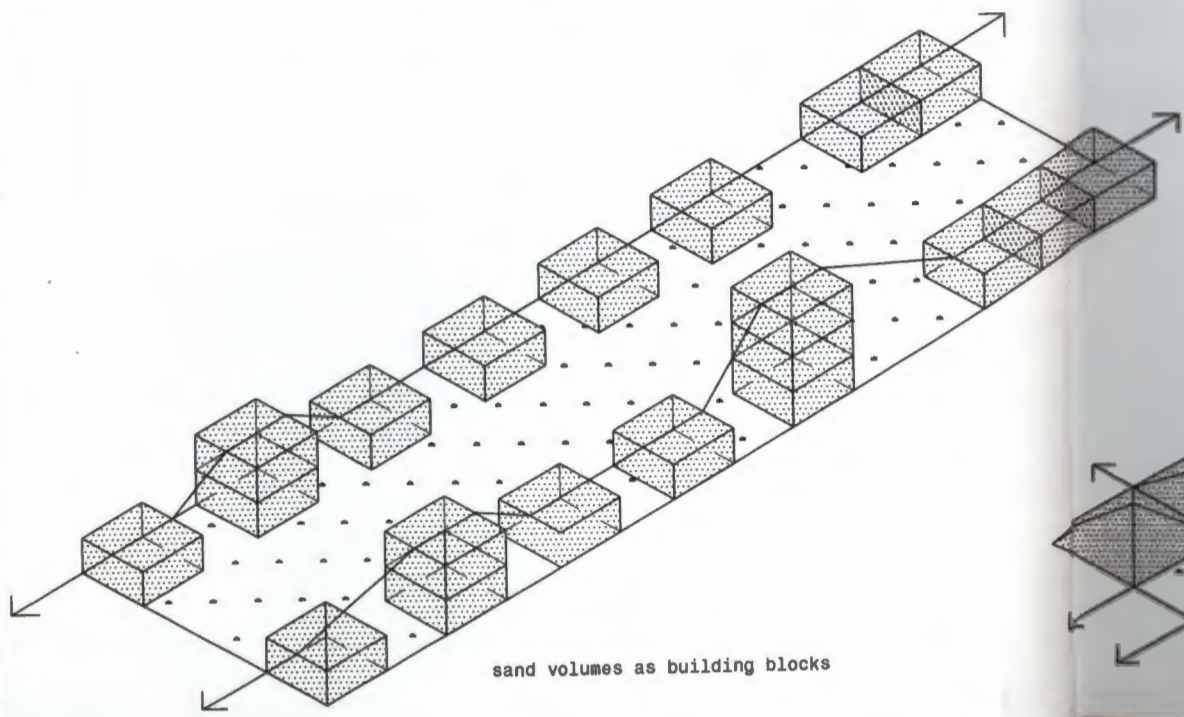
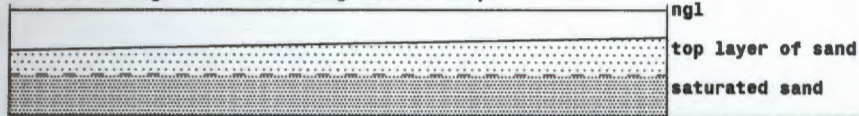
activity around site as result of context



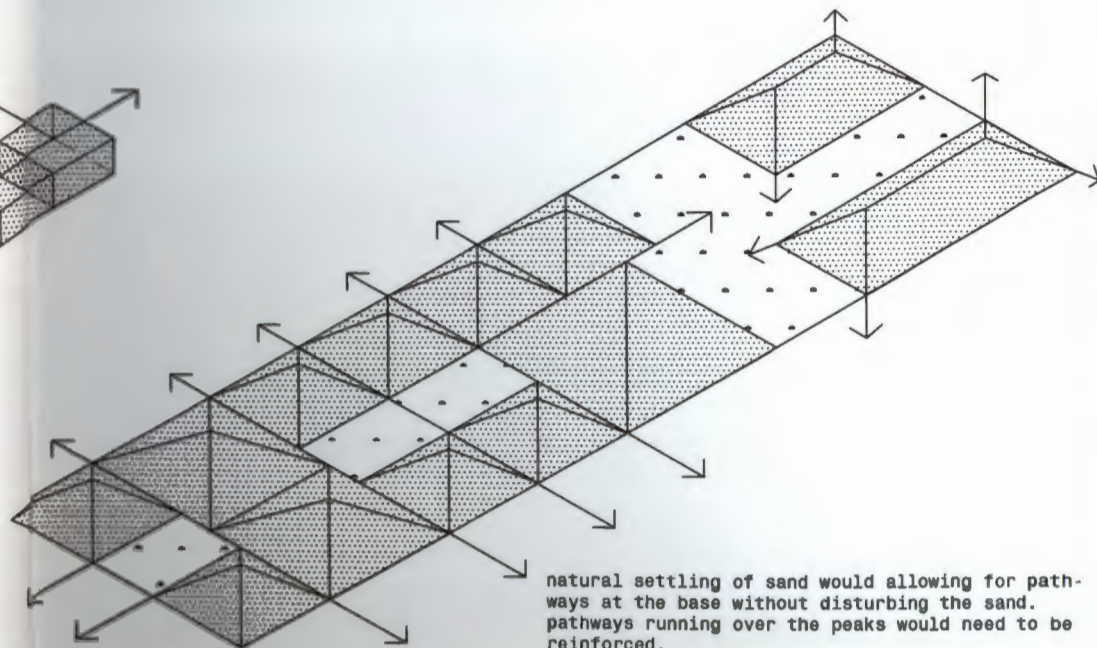
storm water entry points



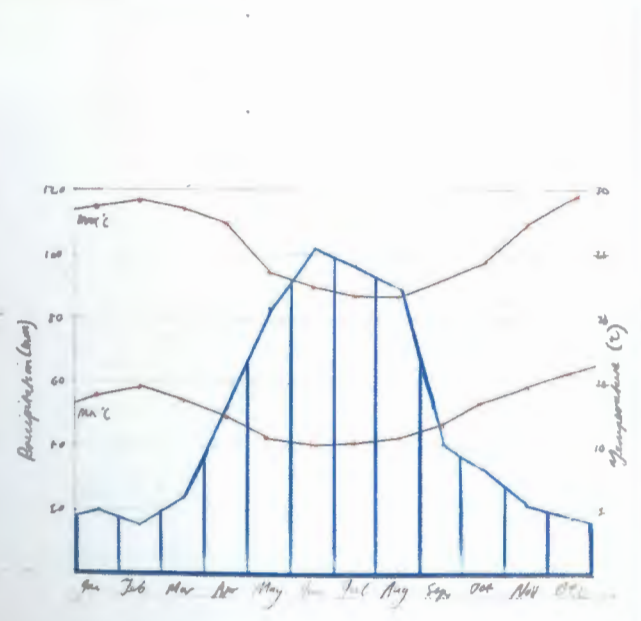
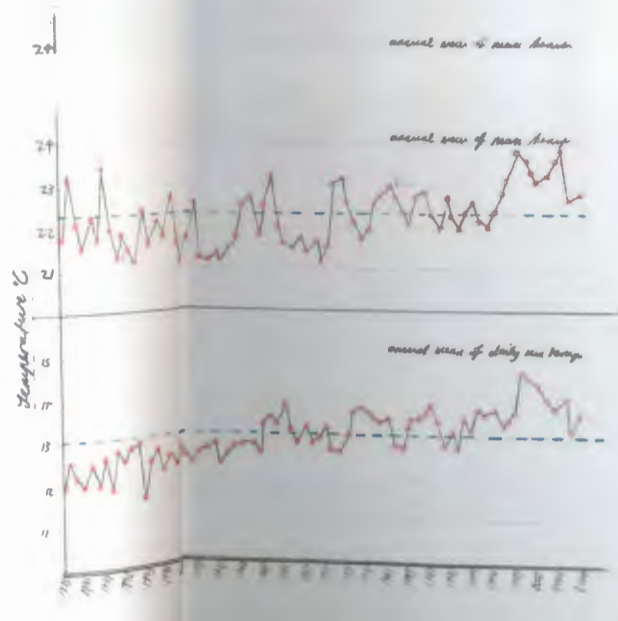
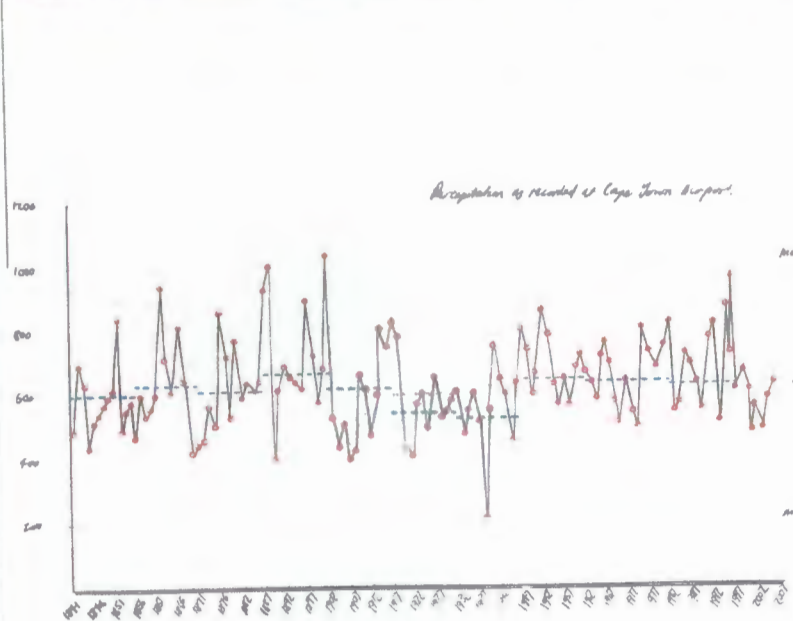
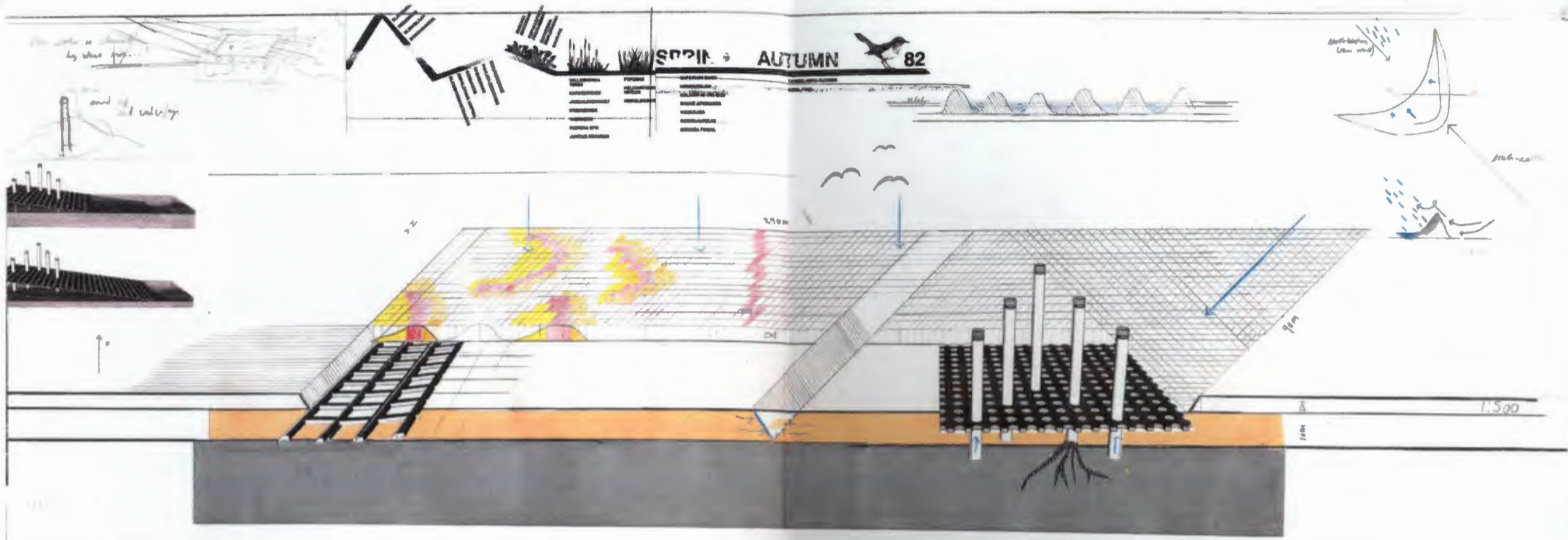
Section through site indicating current slope

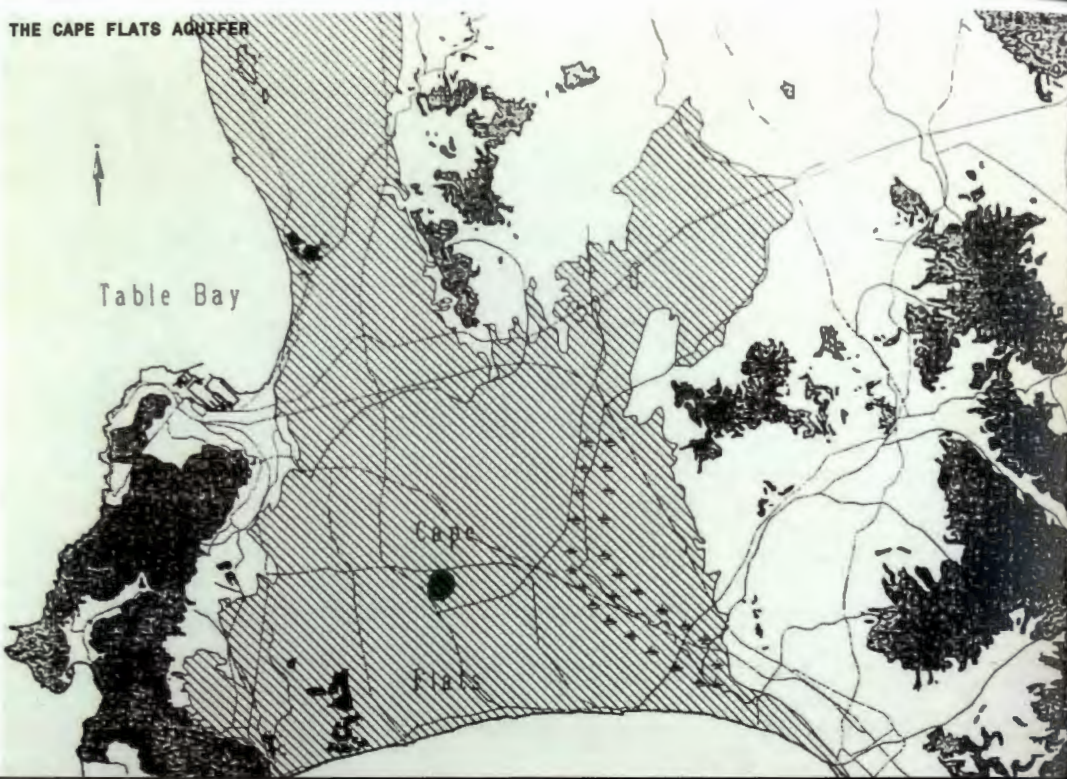


sand volumes as building blocks

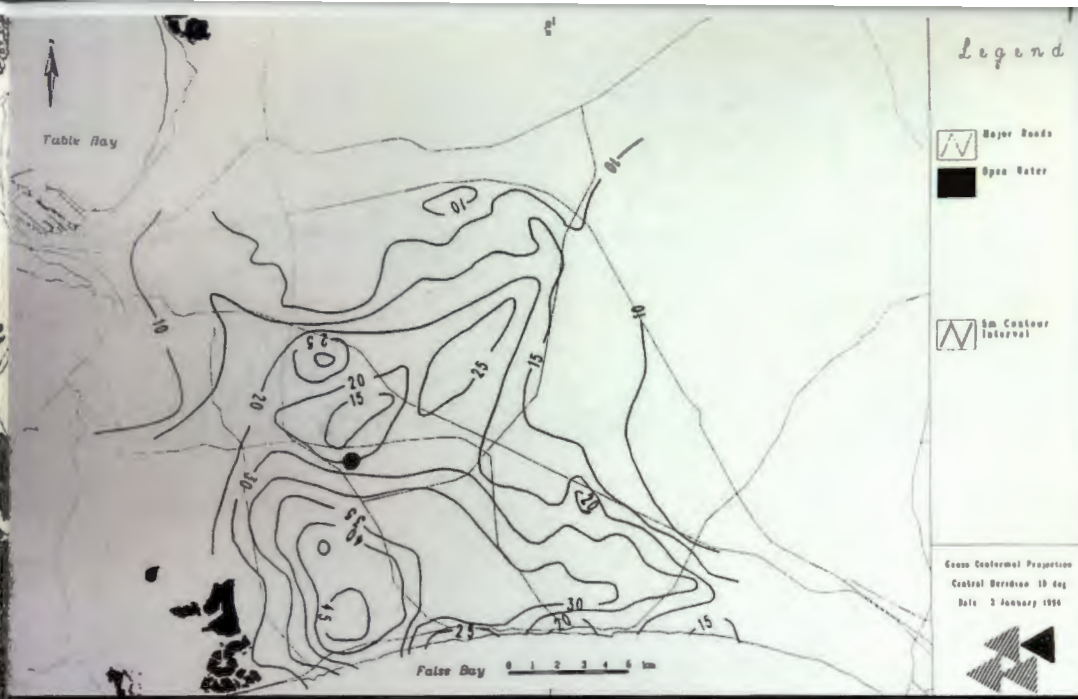


natural settling of sand would allow for pathways at the base without disturbing the sand. pathways running over the peaks would need to be reinforced.





location of the cape flats sand unit

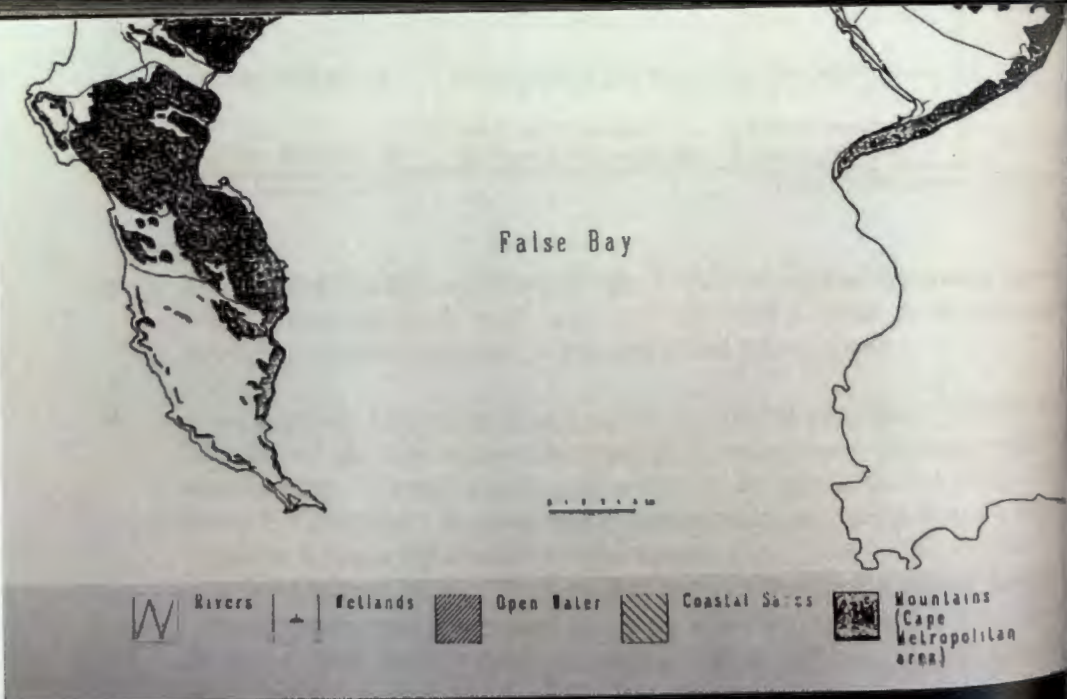


average thickness (m) of the sand unit on the cape flats

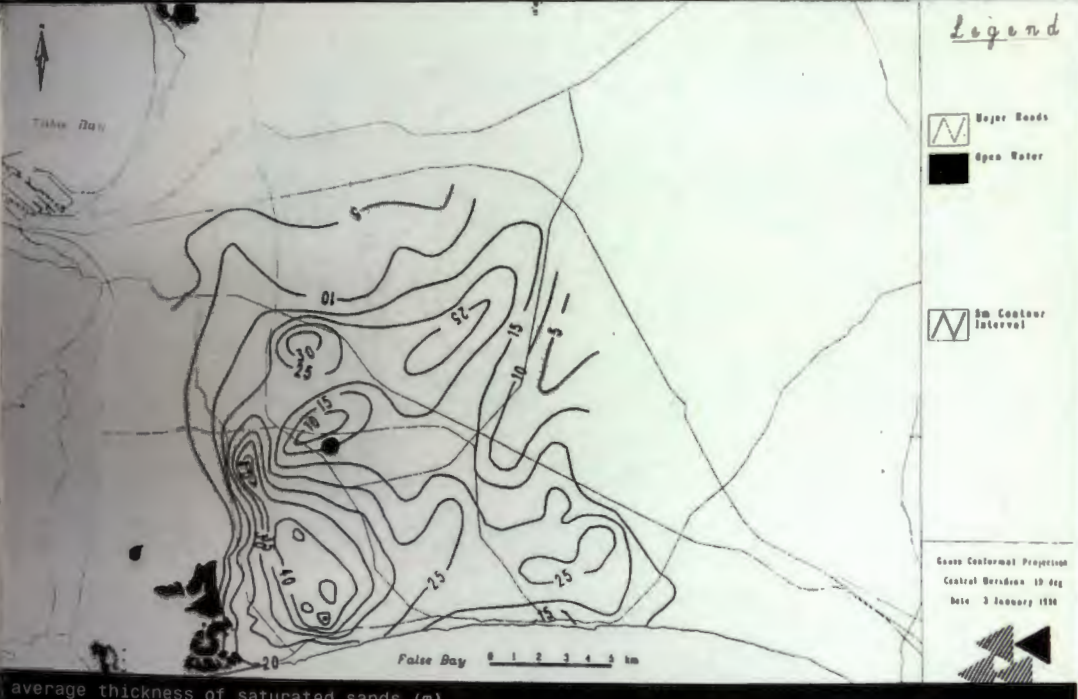
Legend

- Major Roads
- Open Water
- 5m Contour Interval

Geos. Conformal Projection
Central Meridian 18 deg
Date 3 January 1964



location of the cape flats sand unit

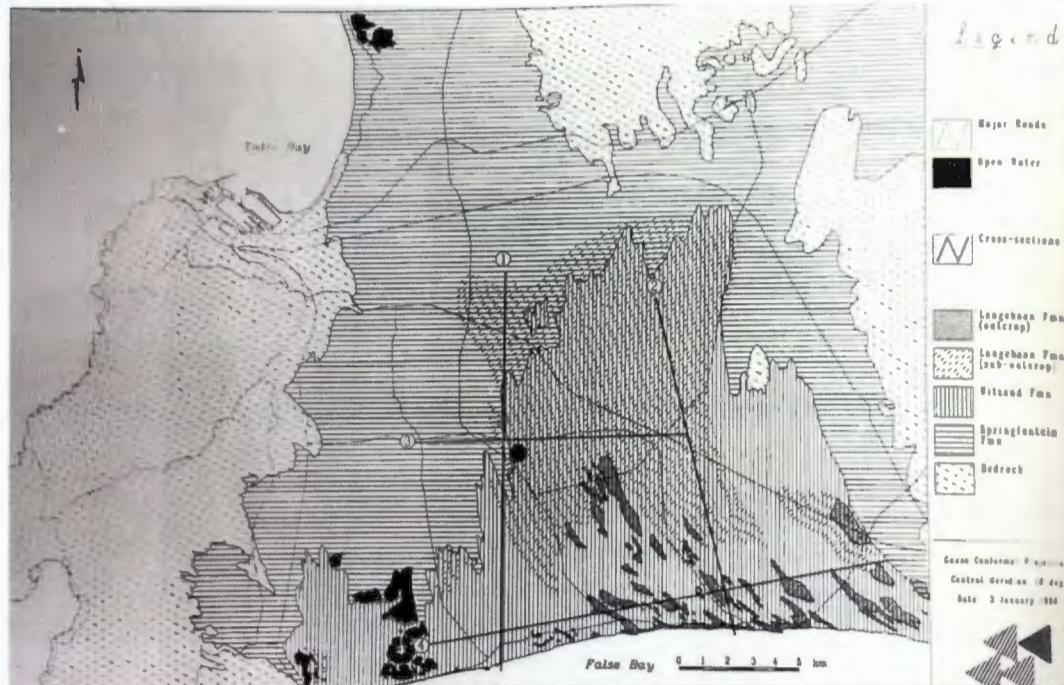


average thickness of saturated sands (m)

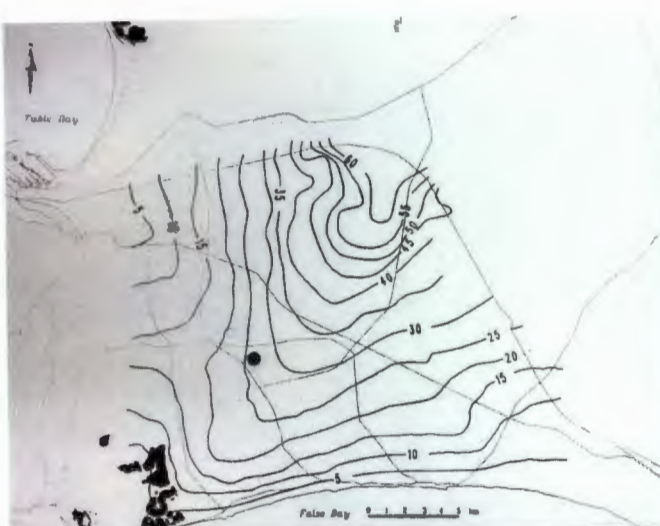
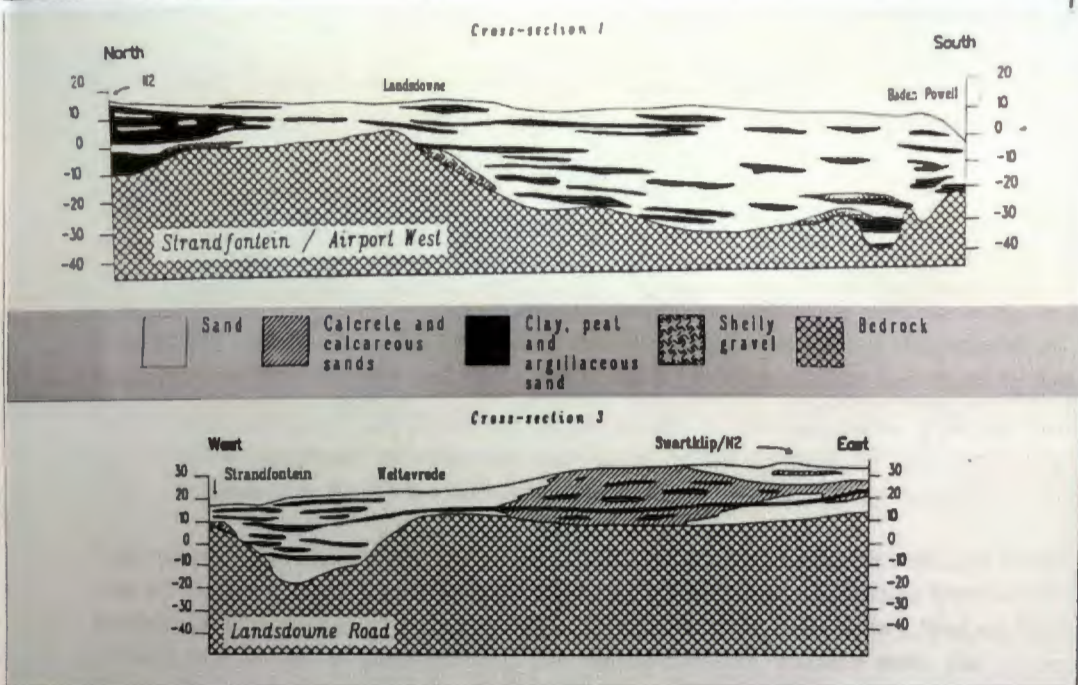
Legend

- Major Roads
- Open Water
- 5m Contour Interval

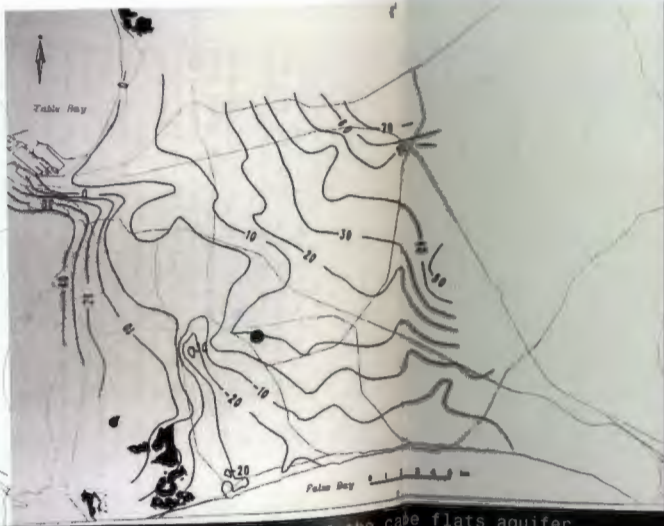
Geos. Conformal Projection
Central Meridian 18 deg
Date 3 January 1964



distribution of the major lithological units of the sandveld group within the cape flats



groundwater level contour plan

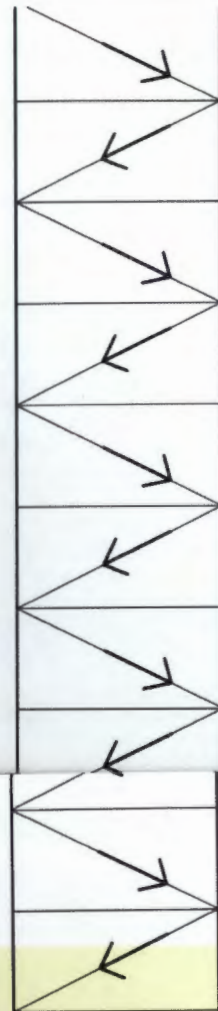
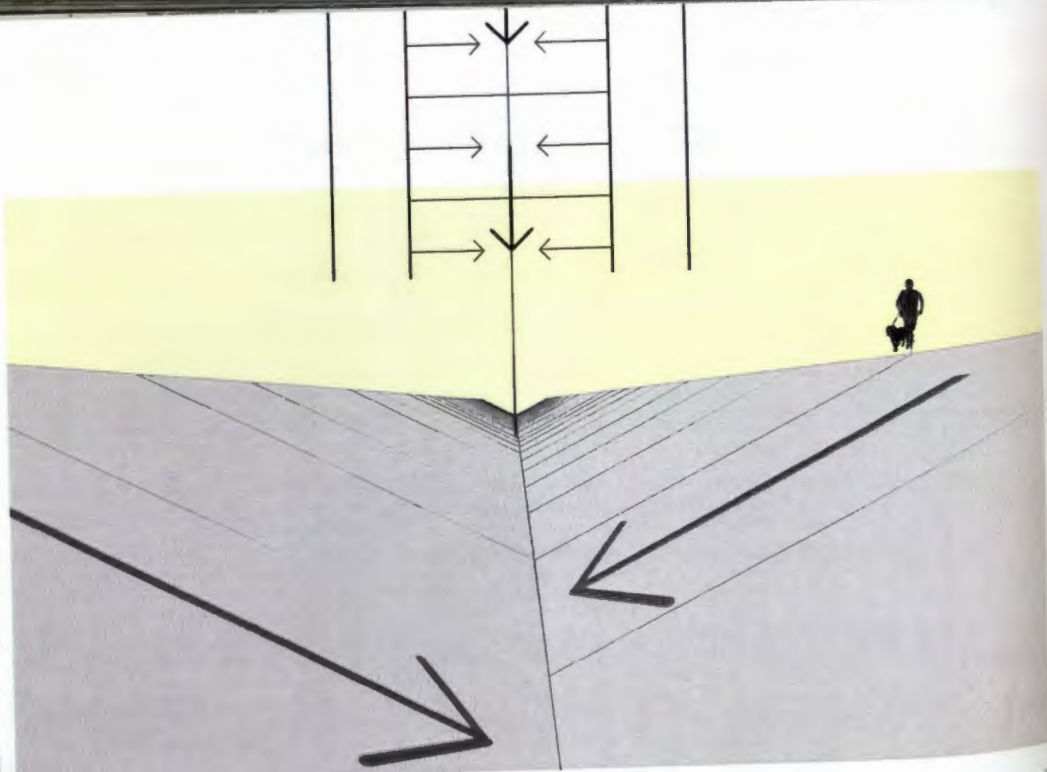
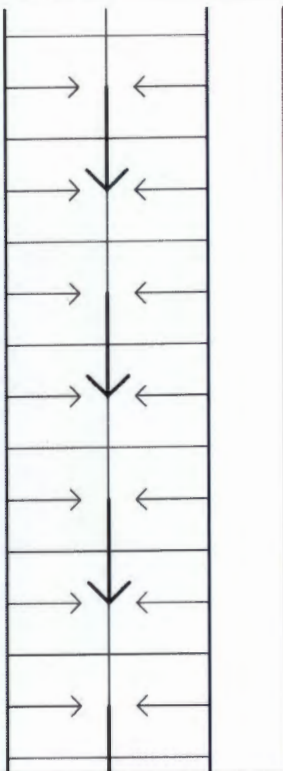


bedrock topography (mams1) of the cape flats aquifer

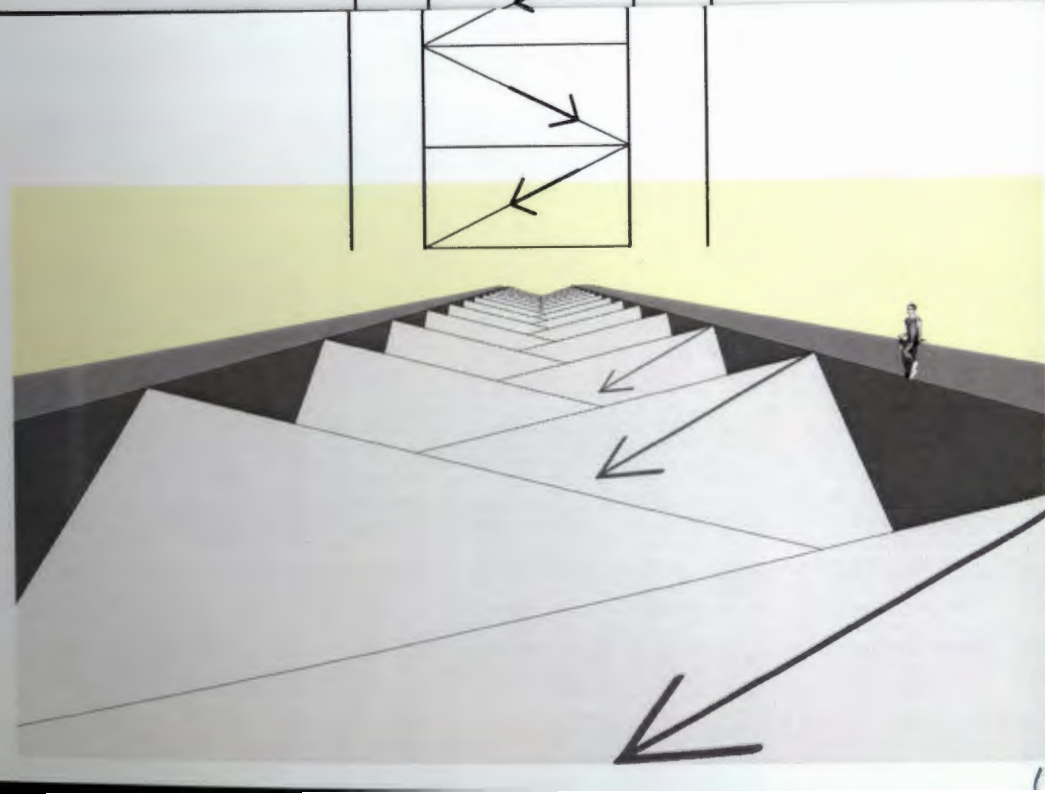


transmissivity distribution (sq m/d)

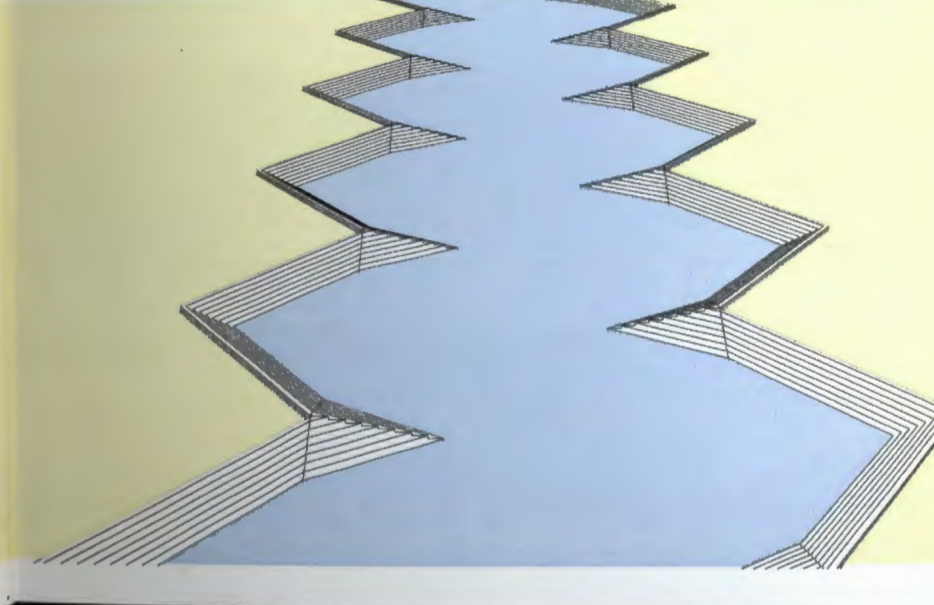
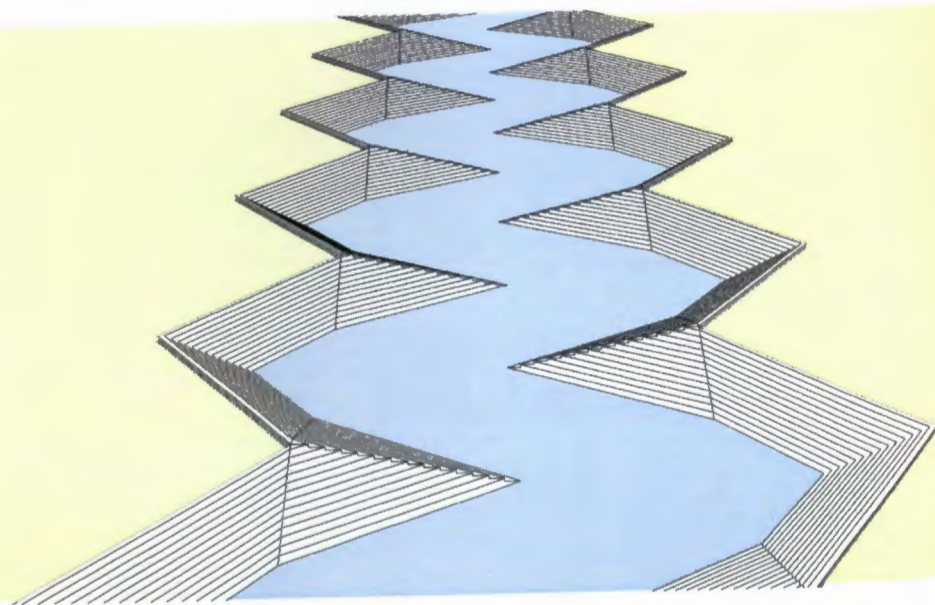
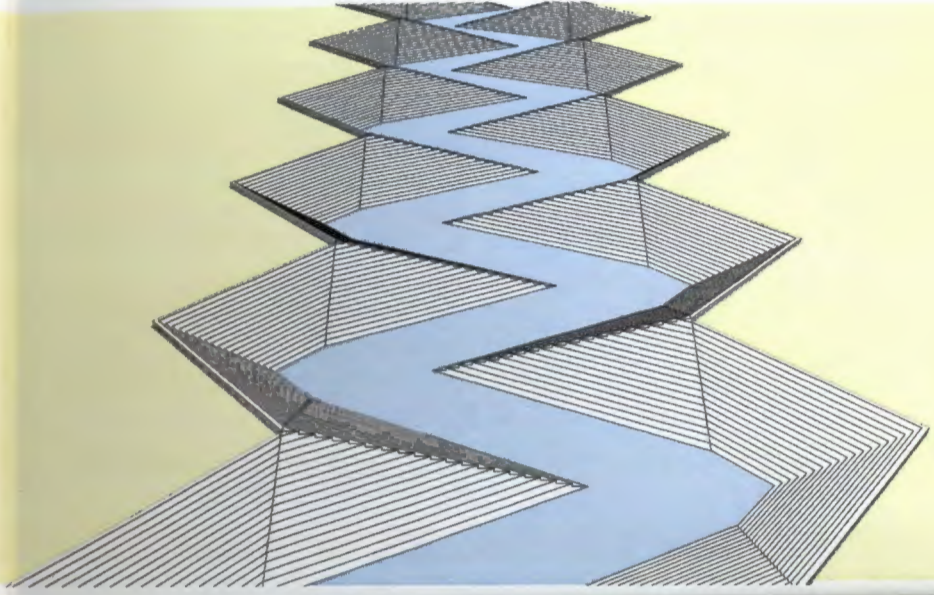
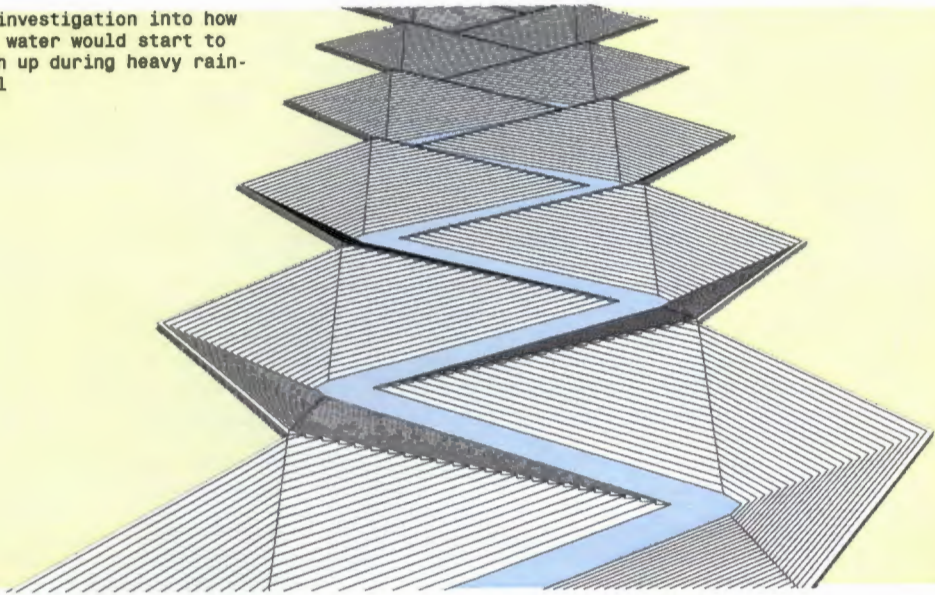
Channelling water straight down like this would cause too much erosion. I don't want to create a concrete channel because that would close the window into the aquifer. The transitivity of the site is 100 sq m/d and it would not be wise to close start closing the window because the water needs to go somewhere and you would start flooding the surrounding area.



By zigzagging the channel you can reduce erosion, you can also start controlling the speed at which the water would run and force it to dam up in preferred areas. By using a porous material like a gabion mattress the channel would start to act as a filter, cleaning the storm water before it enters into the aquifer.



An investigation into how
the water would start to
push up during heavy rain-
fall



WIND-TUNNELLING

If you design anything in and around the Cape Town area it would be foolish to ignore the infamous South-Easter and it would be really foolish if you design something in the Cape Flats and you decide to ignore the South-Easter. I do believe it has the potential to sandblast you to death.

The model I built allowed me to use it as a design tool and I decided to build my own 'wind tunnel' in studio consisting of a 3-speed fan, a desk, and some cardboard backing (NASA would be proud) and attempt to recreate the effects the South-Easter would have on the site. I wanted to see what would happen as soon as you start digging around as shaping the sand. I also wanted to see what the affect would be if you start adding objects into the sand and how I can learn from this and hopefully begin to generate an architectural language.



In the image above I sculpted 3 hand moulded dunes and then put the fan on full blast for 5min. It was surprisingly stable, the smaller sand particles were blown off into the mini shacks but the overall shape remained intact. I do believe that if I had not started to turn the studio into a beach and could have let the fan run for 2 more hours, most of the sand would have been displaced into the surrounding context.

In the experiment below I held a piece of balsa wood perpendicular to the site in order to mimic a wall of a building or structure. I again put the fan on full blast and the results were surprising. Within 30 seconds the sand immediately behind the wall was carved out and displaced by the wind. The perpendicular wall exponentially increased the rate at which the sand gets displaced.



I retested the experiment above by placing the balsa wood into a dune. It had a similar result, enhancing the speed at which the wind erodes the sand.



Below are the results in diagrammatised format. According to the tests nr 3 would be the best solution when attempting to insert architecture into this sandy landscape.

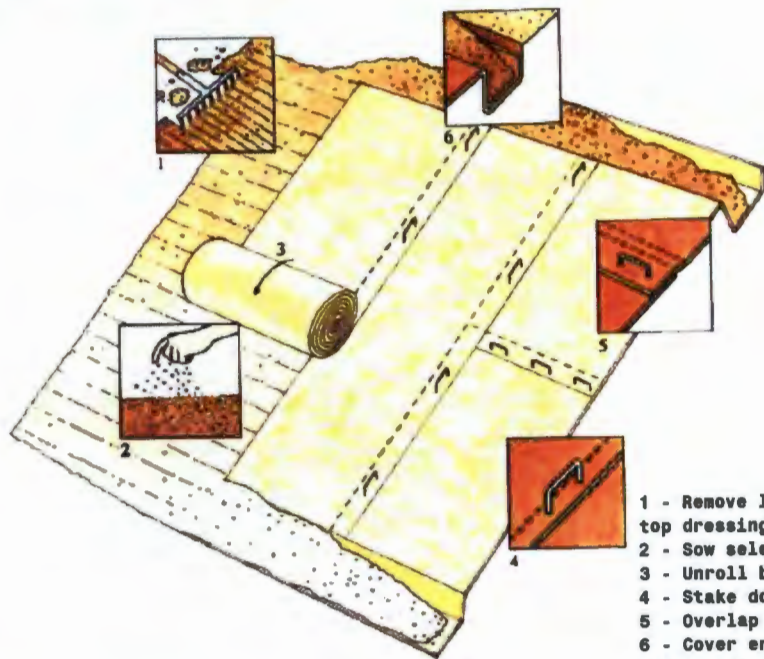


These experiments also revealed that if I don't find some way to stabilize and contain the sand I am going to end up annoying a whole lot of people by flooding their shacks with sand.



how can you contain sand
dunes?

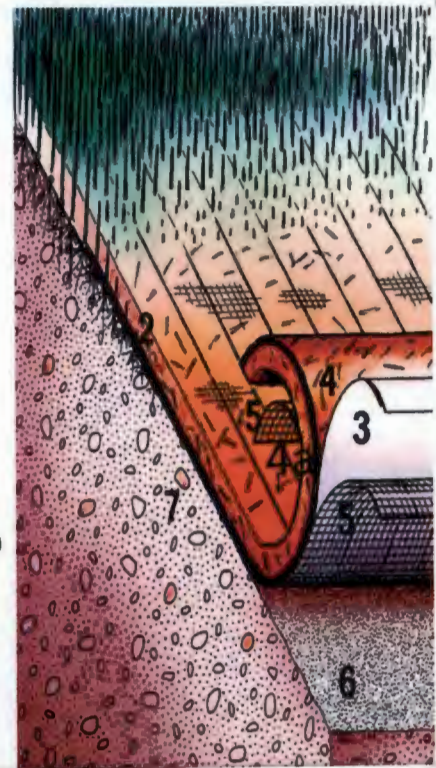




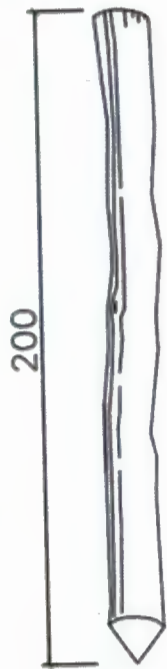
- 1 - Remove large stones and apply top dressing
- 2 - Sow selected seed and rake in
- 3 - Unroll blanket
- 4 - Stake down
- 5 - Overlap with atleast 10cm
- 6 - Cover ends with 100mm soil in 200mm wide trench

Pre-seeded erosion control matting

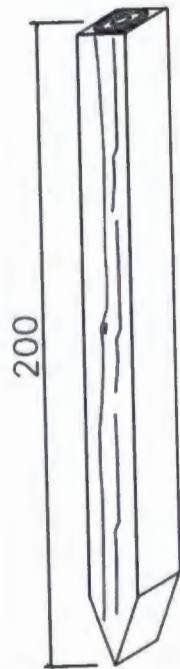
- 1 - Established vegetation
- 2 - Seeded mulch mat
- 3 - Seed retaining paper
- 4a - 5mm soil layer
- 4 - natural fibre matrix
- 5 - sandwiching polypropylene
- 6 - vulnerable soil
- 7 - protected soil



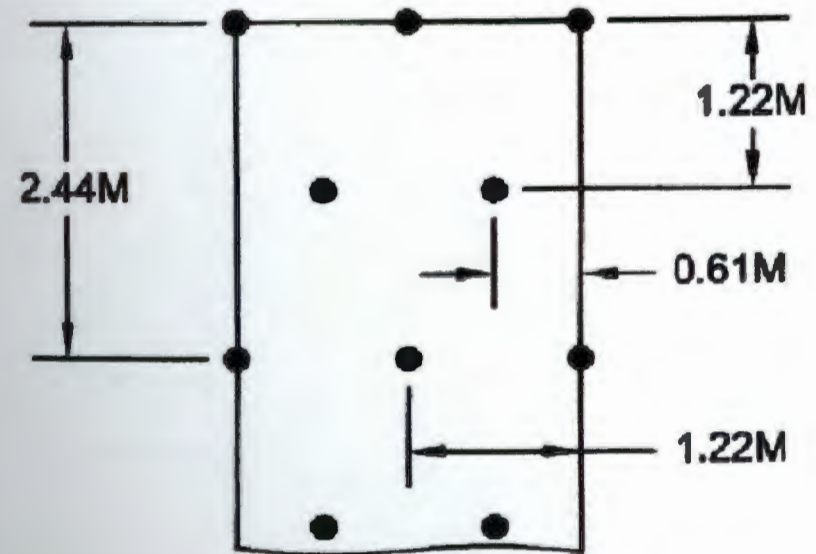
Live stake



Wood stake



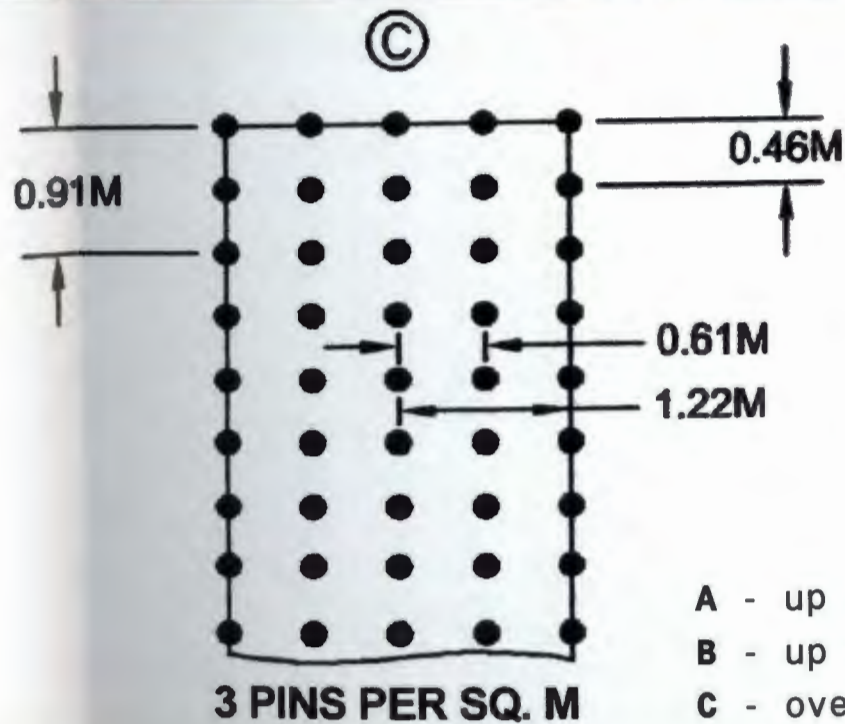
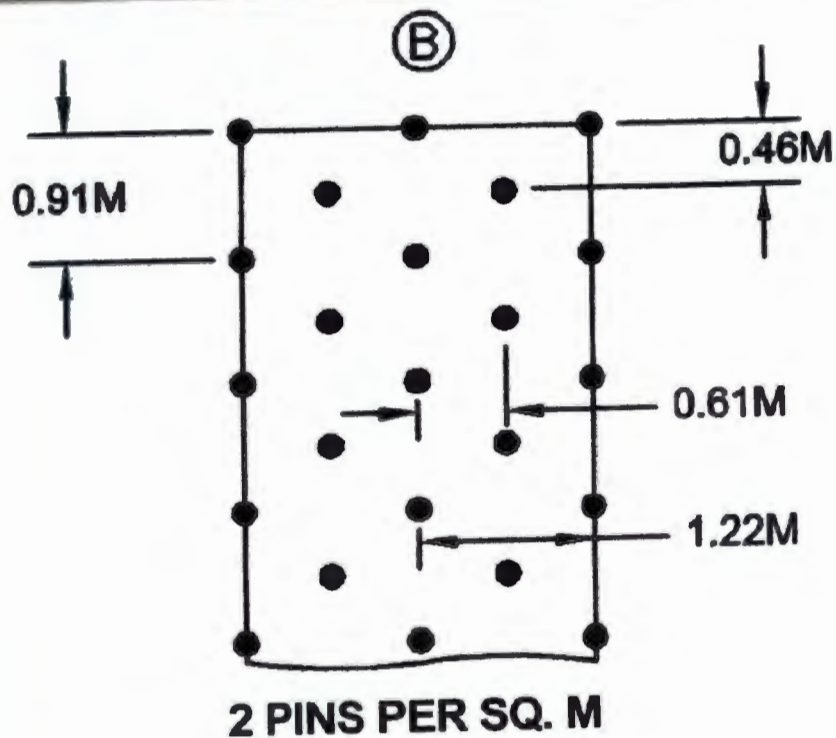
(A)



1 PIN PER SQ. M

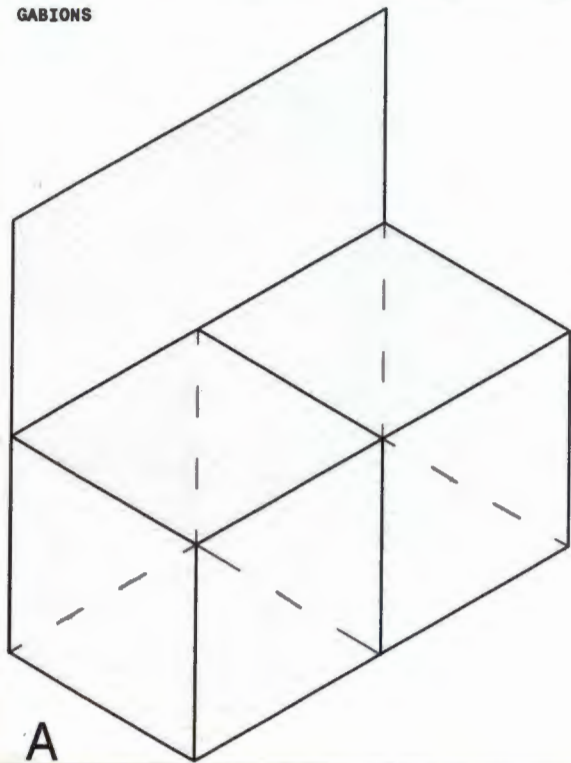


100 % straw for slopes up to 25 degrees.
 Degradability 12 - 18 months
 50% straw, 50% coconut for slopes up to 35 degrees.
 Degradability 18 - 24 months
 100 % coconut husk for slopes over 45 degrees.
 Degradability 36 months



- A - up to 15 degrees
- B - up to 30 degrees
- C - over 30 degrees

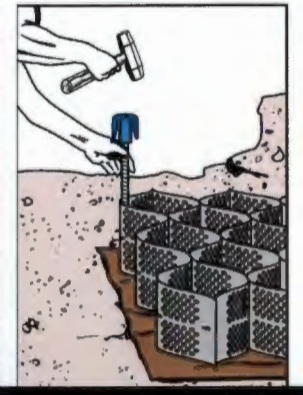
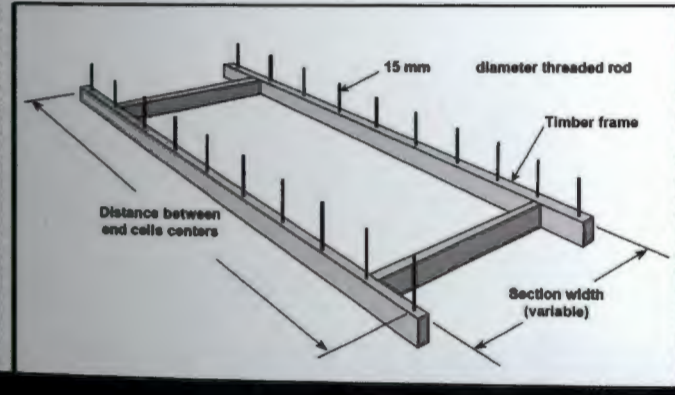
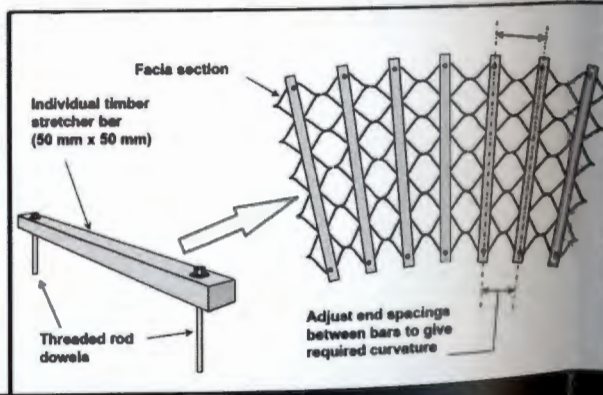
GABIONS



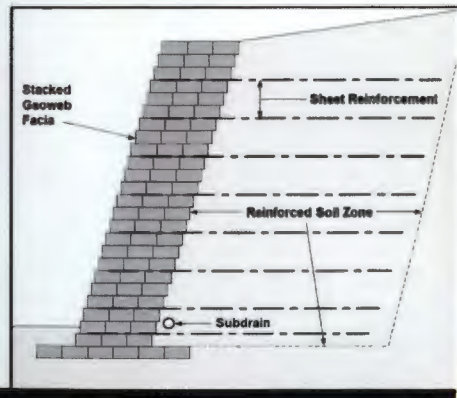
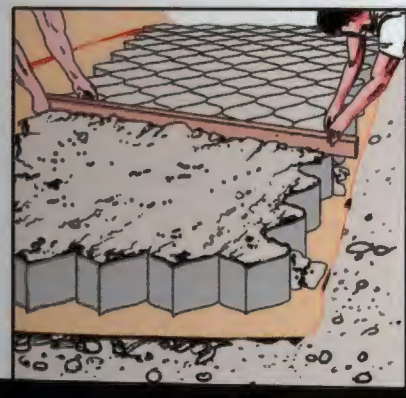
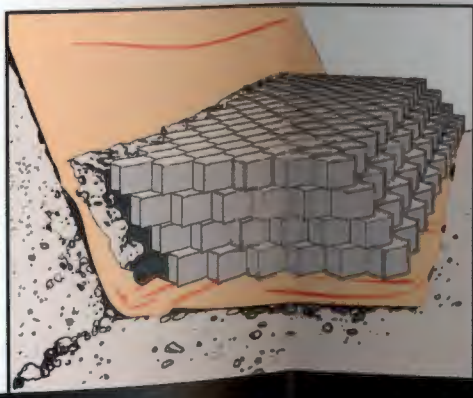
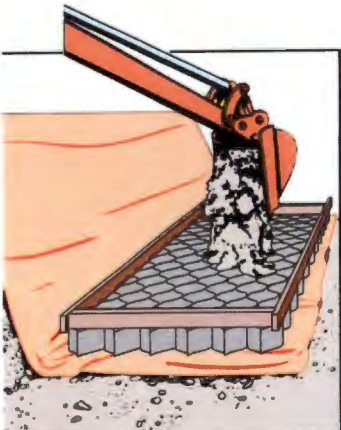
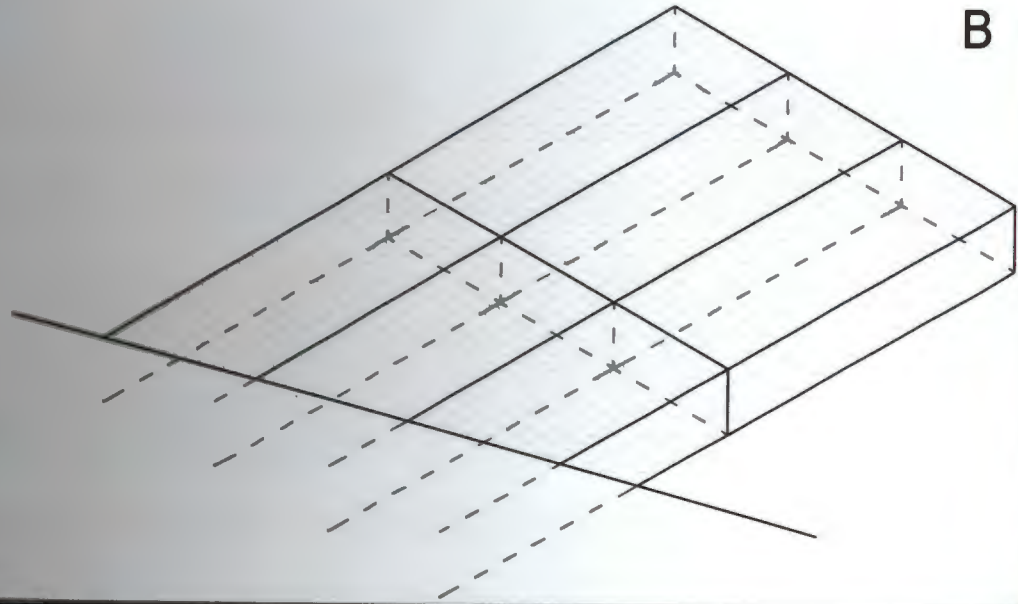
A



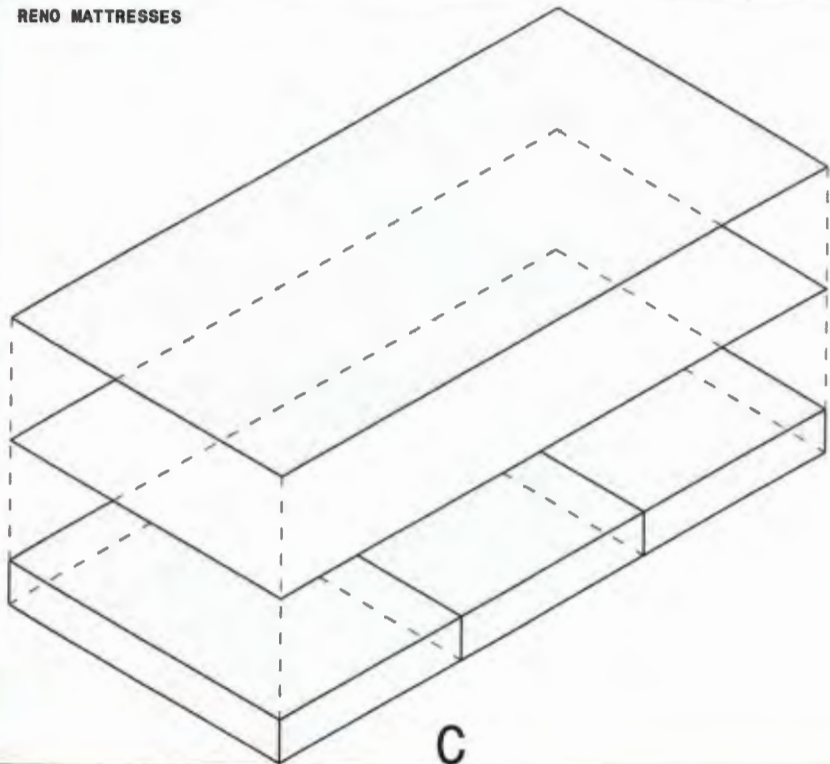
INSTALLATION OF EARTH RETENTION SYSTEM



GABIONMATS



RENO MATTRESSES

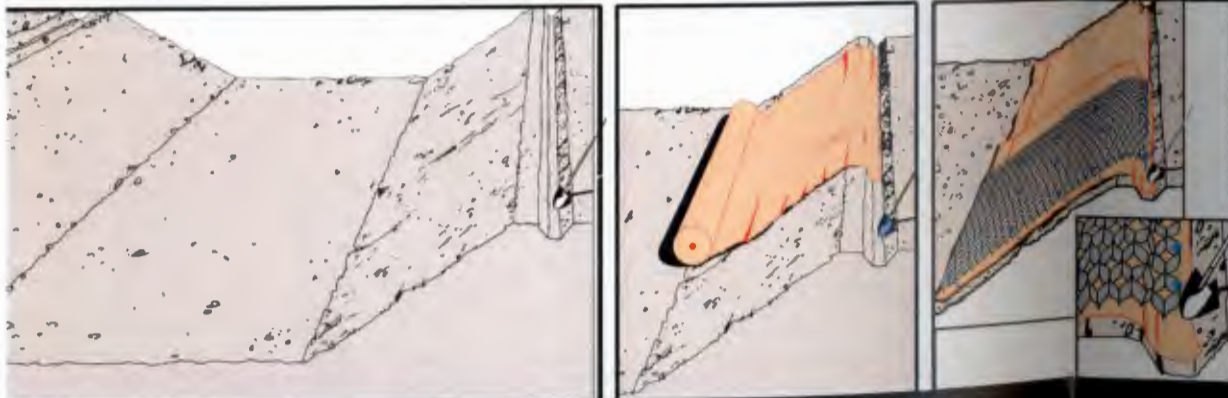


C

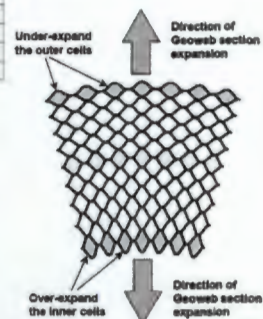
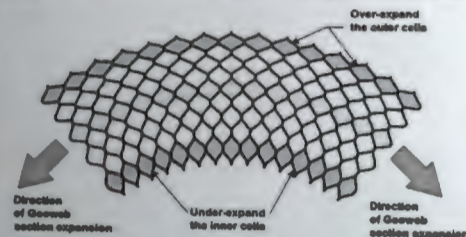
Reno mattresses are manufactured with double twisted wire mesh and are used to cover large surfaces. They can be combined with live plants, sealed with soil or vegetative pockets.



SLOPE PROTECTION SYSTEM



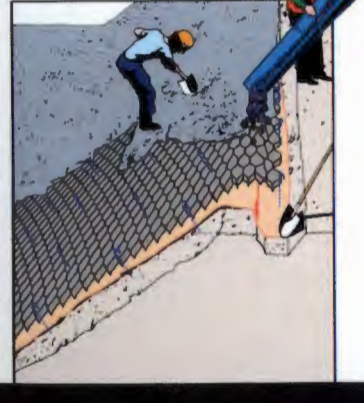
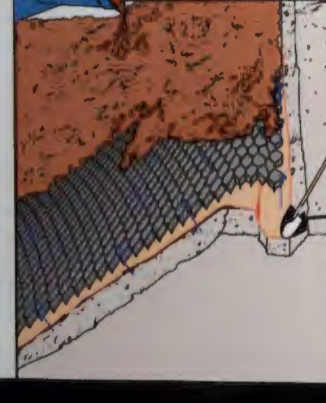
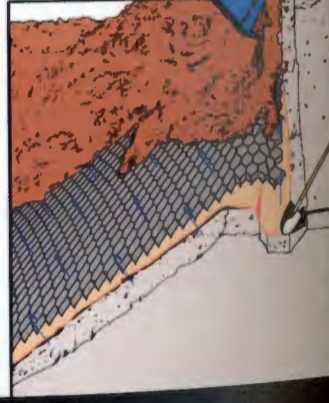
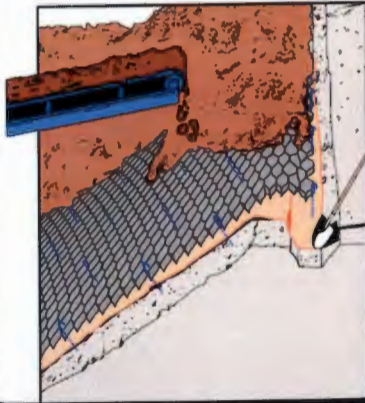
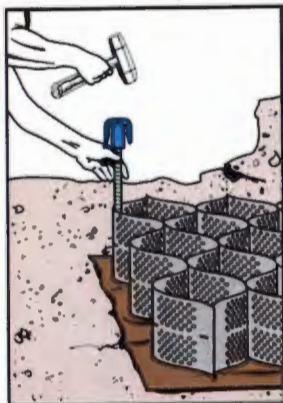
Geoweb® Cell Depth	Minimum Radius Expansion Direction	Minimum Radius Cross Section Direction
75 mm	400 mm	600 mm
100 mm	600 mm	1000 mm
150 mm	900 mm	1500 mm
200 mm	1200 mm	2000 mm



A	GABIONS																																					
	LENGTH (mm)	WIDTH (mm)	HEIGHT (mm)	NR OF CELLS																																		
a)	1800	900	900	2																																		
b)	2700	900	900	3																																		
c)	3600	900 <td 900	4	d)	1800	900	450	2	e)	2700	900	450	3	f)	3600	900	450	4	g)	1800	900	300	2	h)	2700	900	300	3	i)	3600	900	300	4	j)	1350	900	900	1
d)	1800	900	450	2																																		
e)	2700	900	450	3																																		
f)	3600	900	450	4																																		
g)	1800	900	300	2																																		
h)	2700	900	300	3																																		
i)	3600	900	300	4																																		
j)	1350	900	900	1																																		

B	GABIONMATS			
	LENGTH (mm)	WIDTH (mm)	HEIGHT (mm)	NR OF CELLS
a)	30000	1800	300	22
b)	30000	2700	300	33
c)	30000	1800	450	22
d)	30000	2700	450	33

C	RENO MATTRESSES			
	LENGTH (mm)	WIDTH (mm)	HEIGHT (mm)	NR OF CELLS
a)	2700	1800	300	3
b)	3600	1800	300	4
c)	2700	1800	450	3
d)	3600	1800	450	4
e)	3600	1800	600	4



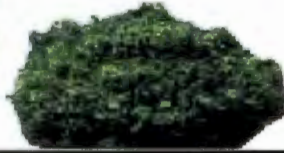
FYNBOS

The following plants are a selection of indigenous fynbos that thrive in sandy conditions. By re-introducing them to the area they will help stabilize the sand as well as add amazing beauty and colour to the existing dreary environment.

TREE



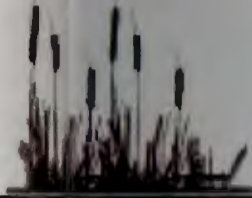
SHRUB



GROUND COVER



REED



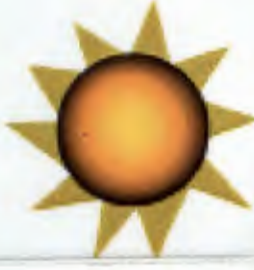
LAWN GRASS



GROWS BEST IN FULL SUNLIGHT



GROWS BEST IN SHADE



EDIBLE FRUIT



BERRIES ATTRACT BIRDS



FLOWERS ATTRACT BIRDS



HAS ATTRACTIVE FLOWERS



AROMATIC LEAVES



GROWS WELL FROM SEED



GROWS WELL FROM CUTTINGS



soetdoring



SWEET THORN (*Acacia karoo*)

HEIGHT: Fairly tall tree can reach up to 10m

LEAVES: Feathery and made up of smaller, green, glossy leaflets.

FLOWERS: Fluffy golden-yellow balls.
Grows in small groups.
Has a sweet scent.

FLOWERING TIME: November - January

FRUIT: Curved, woody pod which contains a row of seeds.

USES: Good shade trees.
Useful as wind break.
Good fodder trees as the leaves, flowers
and pods can be eaten by animals.
Seeds can be roasted, ground and used as coffee.
Gum could be eaten or used as a glue.

GROWING TIPS: Prefer full sun but could also grow in partial shade.
Fast growing plants.
Don't need much water except when young.
Seeds have a hard coat, must be treated before planting.

bastersaf- fraan



BASTARD SAFFRON (*Cassine peragua*)

HEIGHT: Small to large tree can reach up to 12m.

LEAVES: Tough, leathery and dark green, with slightly serrated edges.
The leaf veins are easy to see.

FLOWERS: Fragrant small white flowers.
Bunch in small groups.

FLOWERING TIME: February - May

FRUIT: Small oval berries that turn purple when ripe.

USES: Wind resistant and usefull as a windbreak.
Berries attract birds.

GROWING TIPS: Plants can be grown from seed, as well as from cuttings taken from
smaller branches.

WARNING: Leaves may be poisonous.

wilde olien- hout



WILD OLIVE (*Olea europaea* ssp. *africana*)

HEIGHT: Small to medium sized tree that grows to 6-8m high.

LEAVES: Narrow and fairly hard.
Green and glossy on top with a silvery/brownish underside.

FLOWERS: Whitish and very small and grow in groups on the stem.

FLOWERING TIME: October - March

FRUIT: Small, oval and turn black when they ripen in winter.
Edible but has a bitter taste.
Fruit is used to make olive oil.

USES: Good spreading shade tree.
Wind resistant and a row of them can form a good windbreak.

GROWING TIPS: Slow growing tree, grows best in sunlight.



waterbessie



WATERBERRY (*Syzygium cordatum*)

HEIGHT: Tall tree grows from 8-15m high.

LEAVES: Dark green, leathery and grows near the end of branches.

FLOWERS: Small, creamy white and have a fluffy appearance.
They grow in groups at the end of branches.

FLOWERING TIME: August - November

FRUIT: Oval berries that grow in bunches at the end of the branches.
Start off green and changes to deep purple when ripe.

USES: Good shade tree.
Produces berries that both humans and birds can eat.

GROWING TIPS: Grows easily from fresh seed.
Slow-growing plant that needs a lot of water.



kanferbos



WILD CAMPHOR (*Tarchonanthus camphoratus*)

HEIGHT: Small tree grows up to 5m high.

LEAVES: Grey-green above.
Whitish and furry below.

FLOWERS: Creamy-white and grows in groups on the stem.

FLOWERING TIME: April - June

FRUIT: Small nut covered with white woolly hairs.
Looks like cotton wool.

USES: Good fodder tree, as the leaves and shoots can be eaten by animals.
Wind resistant and can act as a windbreak.

Prevents sand from being blown away in strong winds.

WARNING: Wood splinters are poisonous and cuts are difficult to heal.



k. Lipboegoe



CAPE MAY (*Coleonema album*)

HEIGHT: Rounded, woody shrub that grows to about 2m.

LEAVES: Small, thin and have a pleasant smell especially when crushed.

FLOWERS: Many small white flowers near the branch tips.

FLOWERING TIME: May - November

USES: Very attractive plant especially during flowering time when it is covered in white flowers.

GROWING TIPS: Very hardy, wind-resistant plants.
Needs very little care.

To flower well, they must be grown in full shade.
They grow easily from seed and cuttings.



duineboegoe



ACMADENIA (*Acmadenia obtusata*)

HEIGHT: Small shrub that grows up to 1m.

LEAVES: Small, thin and has a pleasant smell especially when crushed.

FLOWERS: Pink and star shaped with a darker pink line down the centre of the petals.

FLOWERING TIME: August - October

USES: Very attractive plant especially during flowering time when it is covered in pink flowers.

GROWING TIPS: The plants flower best if grown in full sun. They can be grown from cuttings, which should be planted either from March - April, or from August - September.

groot noem- noem



LARGE NUM-NUM (*Carissa macrocarpa*)

HEIGHT: Fairly dense shrub with many branches that grows to 4m high.

LEAVES: Dark green and shiny above, while the undersurface is paler.

THORNS: Many short, stout thorns.

FLOWERS: White and fragrant star-shaped flowers. Often grow in groups.

FLOWERING TIME: July - November

FRUIT: Is a large berry which turns red when ripe. Sweet and juicy and can be eaten fresh or made into a jam.

USES: Wind resistant and makes a good hedge. Humans and birds can eat the fruit.

GROWING TIPS: Grows well from both seeds and cuttings. Needs to be watered fairly often in summer.

bitterbos



CHRISTMAS BERRY (*Chironia baccifera*)

HEIGHT: Low-growing dense shrub.
Grows up to 50cm high.

LEAVES: Small narrow leaves.

FLOWERS: Bright pink and star-shaped.

FLOWERING TIME: November - February

FRUIT: Bright orange-red round round berries.
Can be eaten but has a bitter taste.

USES: Very attractive plant, especially when planted in groups.

GROWING TIPS: Likes moist conditions.
Needs to be watered fairly regularly.
Seeds germinate well if planted in spring or summer.



bietou



BROTHER BERRY (*Chrysanthemoides monilifera*)

HEIGHT: A dense shrub that grows to 2m high.

LEAVES: Tough and have a slightly serrated edge.

FLOWERS: Bright yellow and daisy like.

FLOWERING TIME: Spring to autumn

FRUIT: Small round berries that turn purple when ripe.
Very tasty to eat.

USES: Wind resistant plant that acts as a good windbreak or hedge.
Berries attract birds.

GROWING TIPS: Fast growing plant.
Young plants should be watered regularly.
Needs little water when growing well.
Plants grow well from seeds which should be planted in spring when
it is warm and should always be kept moist.



kaapse sando- lien



CAPE SAND OLIVE (*Dodonaea angustifolia*)

HEIGHT: Tall shrub with many branches.
Grows up to 5m high.

LEAVES: Long, slender and glossy green.
Feels sticky to the touch.

FLOWERS: Small, yellowish-green and grown in groups at the end of branches.

FLOWERING TIME: July - October

FRUIT: The papery, winged seeds are large and decorative.
Reddish-green colour.
Grow in clutches.

USES: Wind resistant and makes a very good hedge or windbreak.

GROWING TIPS: Fairly fast growing plants.
Grow well from seed and can seed themselves.

draaibossie



WILD ASTER (*Felicia fififolia*)

HEIGHT: Low growing shrub with many branches.
Reaches a height of 1m.

LEAVES: Narrow, needle-like leaves which cover the twiggy stems.

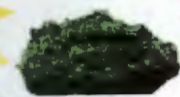
FLOWERS: Blue or violet daisy-like flowers with yellow centres.
Covers the shrub for about a month.

FLOWERING TIME: October - November

USES: Colourful flowers brighten up gardens.
Also help to prevent the soil from being blown away.

GROWING TIPS: Grows best in sheltered, sunny spaces.
Can grow on slopes.
Grows very well from seeds if planted in March or April.
Starts growing within a week.
Releases seeds into the ground after flowering.

sewejaartjie



EVERLASTING (*Helichrysum dasyanthum*)

HEIGHT: Low spreading shrub.
Grows 0.5m high.

LEAVES: Broad and tough.
Edges folds inwards.
Green on top.
Furry and white underneath.

FLOWERS: Small, bright yellow flowers that clustered together in large groups at the end of the stem.

FLOWERING TIME: August - November

USES: Grows close to the soil surface, preventing it from being blown or washed away.
Flowers can be dried and used as decoration.

GROWING TIPS: Hardly plants which like full sun.
Don't need much water.
Can be grown from both seeds and cuttings.

wildedagga



WILD DAGGA (*Leonotis leonurus*)

HEIGHT: Tall, woody plant that reaches a height of 1-2m.

LEAVES: Long and slender.
Has a pleasant smell.

FLOWERS: Long, tubular and orange.
Grows in dense, circular groups around the stem.

FLOWERING TIME: November - January

USES: Colourful flowers produce much nectar and attracts sunbirds.

GROWING TIPS: Grows very easily and quickly.
Needs to be watered often.
Needs to be pruned regularly, especially after flowering.
Plants grows easily from seed.
Cuttings should be planted in Spring or late Autumn.

duinegeelbos



CONE BUSH (*Leucadendron coniferum*)

HEIGHT: Strong woody shrub that grows to 4m high.

LEAVES: Hard and long.

CONES: Hard, roundish cones are produced at the tips of branches. Female cones are pinkish in colour.

USES: Wind-resistant and acts as a good windbreak. Very attractive plant.

GROWING TIPS: Grows best in open, sunny conditions. Can be grown from seed.

bobbejaan klou



PINCUSHION (*Leucospermum cordifolium*)

HEIGHT: Low spreading bush about 1m high.

LEAVES: Hard and tough with toothed tips.

FLOWERS: The orange flowerhead is large, round and spikey and is made up of many smaller flowers.

FLOWERING TIME: August - January

USES: Wind-resistant and acts as a good windbreak. Produces large beautiful flowers that can last over a month after its picked.

GROWING TIPS: Grows best in open, sunny positions. Best to plant in Autumn, begins to flower after 3 years. Young plants needs to be watered regularly.

skilpadbessie



TORTOISE BERRY (*Nylandtia spinosa*)

HEIGHT: Sturdy shrub which grows up to 1m high.

LEAVES: Small and thin.

FLOWERS: Lots of small and pink.

FLOWERING TIME: April - October

FRUITS: Bright red and juicy berries which can be eaten.

USES: Very attractive plant especially when covered with its pink flowers. Berries attract birds.

GROWING TIPS: Grows best in sunny areas.
Can be grown from seed.

maagpynbossies



PELARGONIUMS (*Pelargonium spp.*)

HEIGHT: Small shrubs which grow 25cm - 1m tall.

LEAVES: Smooth and oval aromatic leaves with serrated edges often tipped with red.

FLOWERS: Reddish-pink and the two upper petals are larger with dark purple markings.

FLOWERING TIME: August - November

USES: Produces colourful flowers.

STEMS: The base of the plant is woody, but the side branches are soft and green.

GROWING TIPS: Easy to grow.
Can grow back easily if parts are broken or cut off.
Can grow over rocks and cement.
Grows easily from cuttings, which should be left to dry for a day before planting.
Planted seeds would start to grow within a week.

september- bossie



SEPTEMBER BUSH (*Polygala myrtifolia*)

HEIGHT: Dense, leafy shrub that grows up to 2m high.

LEAVES: Bright green with a tough texture.

FLOWERS: The purple flowers are usually grouped together at the tips of short branches.
Has a purple tuft of tiny hairs at the tip of each flower.

FLOWERING TIME: All year round, especially from May - December.

USES: Very attractive.
Attract birds.

GROWING TIPS: Fast growing plants.
Needs to be watered fairly often.
Releases their seeds into the ground after flowering.



taaibos



WILD CURRENT (*Anacardiaceae*)

HEIGHT: This shrub grows to 3-4m high.

LEAVES: Divided into 3 leaflets, the middle one is the biggest.
The leaf tip is slightly dented.

BRANCHLETS: Reddish-brown or grey, with short white hairs.

FLOWERS: Small and creamy-white.

FLOWERING TIME: August - October

FRUIT: Small red and yellow berries that grow in bunches.

USES: Can act as good shade plants.
Wind-resistant.
Attract birds.

GROWING TIPS: Grows well in sunny or fairly shaded areas.
Grow easily from seed when planted in autumn.
Fast growing plants.



strandblom



WILD SAGE (*Salvia africana-lutea*)

HEIGHT: Small shrub that grows about 1m high.

LEAVES: Soft, oval and grey-green.
Have a pleasant smell when crushed.

FLOWERS: Large and brown.
Grow in groups at the branch tips.

USES: Flowers produce much nectar.
Attract birds.

GROWING TIPS: Hardy plants.
Don't need much water.

vaalsewejaar-tjie



EVERLASTING (*Helichrysum argyrophyllum*)

HEIGHT: Low growing ground cover that spreads over the soil surface.

LEAVES: Silvery leaves are small and rounded.

FLOWERS: Becomes covered in many bright, golden-yellow flowers with a dry papery feel.

USES: Can grow on steep slopes.
Can grow over cement, stones and areas where other plants won't.
Shelter the soil and prevent it from being blown or washed aways.
Flowers can be dried and used for decoration.

GROWING TIPS: Easy plants to grow.
Don't need much water.
Strong plants that will grow back if it gets broken.
Grows well from seed and cuttings.

suurvy



SOUR FIG (*Carpobrotus acinaciformis*)

HEIGHT: The plant spreads and grows close to the ground.

LEAVES: Large, juicy leaves which grows upright and are pointed.

FLOWERS: Large with thin, soft pinky petals.

FLOWERING TIME: August - October

FRUIT: Large and juicy, can be eaten fresh or made into jam.

USES: It is a hardy ground cover and helps to hold the sand and prevent it from being blown or washed away.
Fruits can be eaten.

GROWING TIPS: Grows very fast.
Needs little care.
Grows well from cuttings.
Needs little water.
Can grow back easily if damaged or broken.



buffelsgras



BUFFALO GRASS (*Stenotaphrum secundatum*)

HEIGHT: The grass creeps along the ground surface to make a thick mat.

LEAVES: Light green and fairly broad.

USES: Strong can be walked and played on.
Prevents soil from being blown or washed away.

GROWING TIPS: Grows well in sunny areas and could also grow in shade.
Grows mainly in spring and autumn, usually stops growing in winter.
It can be grown from seed, although runners are more successful.



dakriet



THATCHING REED (*Chondropetalum tectorum*)

HEIGHT: The reeds are tall and thin, and grow about 1.5m high.

LEAVES: Small brown and scale like.
Grows very close to the stem.

USES: Can be used to thatch a roof as well as macking brooms and mats.

GROWING TIPS: Fast growing.
Needs little care.
Wind-resistant.

fynbos as a design element



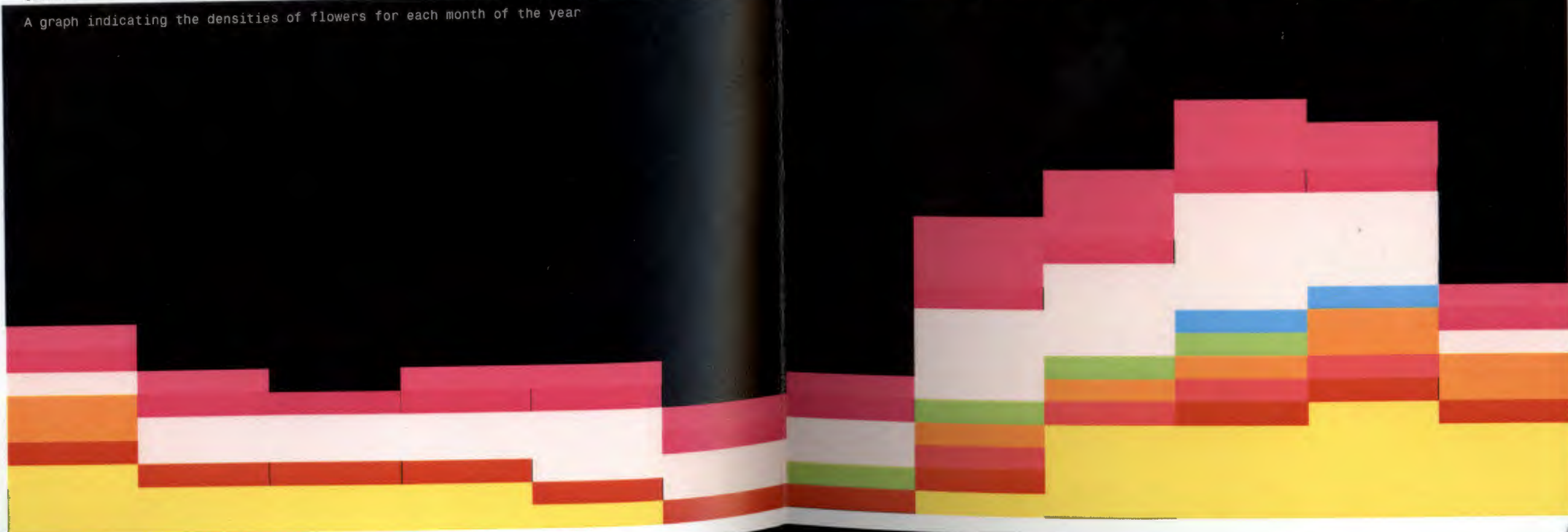
JANUARY FEBRUARY MARCH APRIL MAY JUNE JULY AUGUST SEPTEMBER OCTOBER NOVEMBER DECEMBER



A graph indicating when and how long these plants will flower and what colours to expect each month

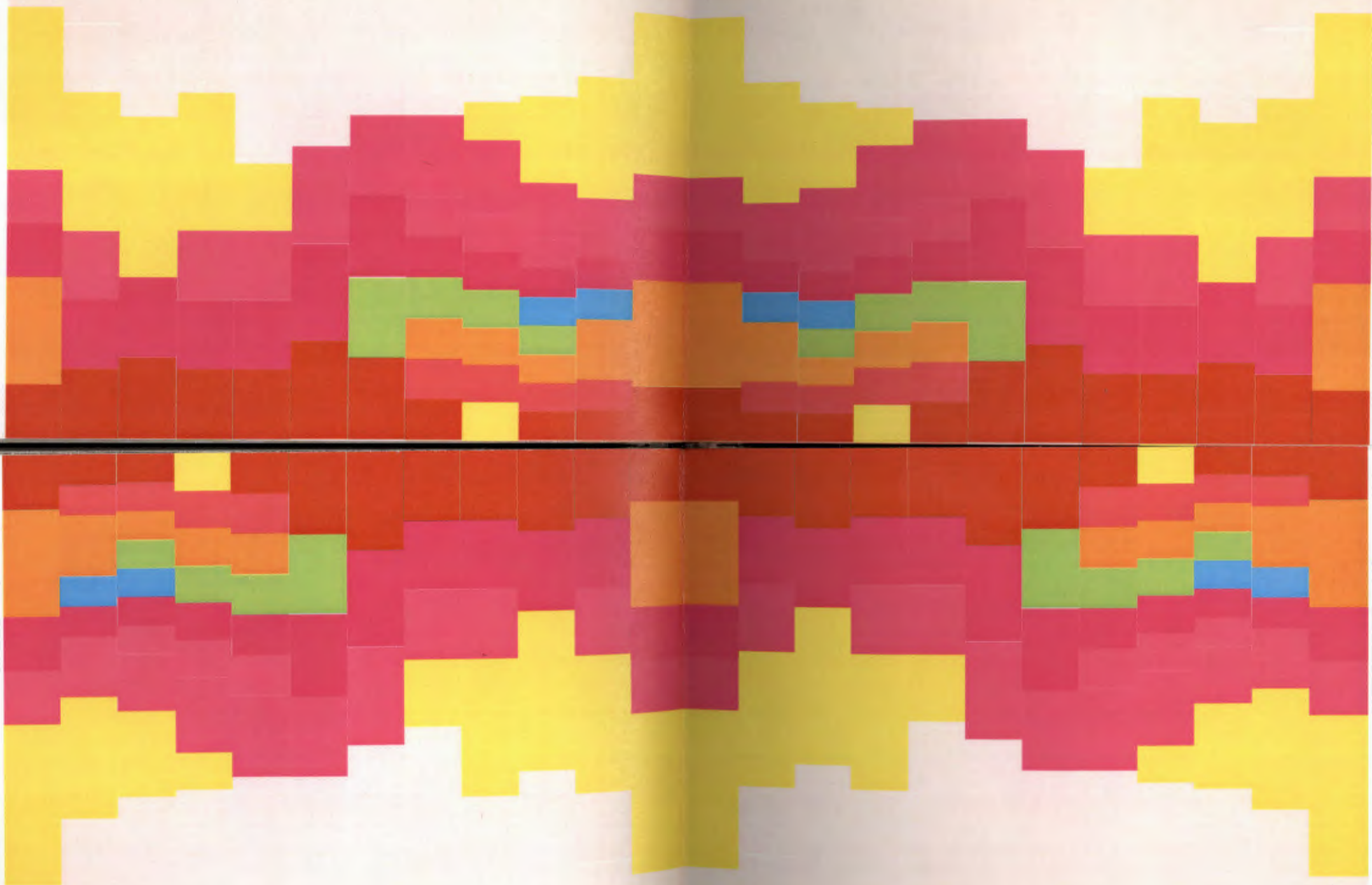
JANUARY FEBRUARY MARCH APRIL MAY JUNE JULY AUGUST SEPTEMBER OCTOBER NOVEMBER DECEMBER

A graph indicating the densities of flowers for each month of the year





An exploration into potential flower patterns for the landscape, it is possible to start creating waves of colours at various heights through orchestrating how they will bloom and when.



FLOWER POWER

The introduction of the fynbos and their now known cyclical flowering patterns will allow the building to change with the seasons, to grow over time and be different every day. Flowers will open and close with the sun, live and die with the seasons. Smells would change intensities and attract a wide variety of birds and insects. Crossing through a dirty, smelly, wet sand land will be replaced by a kaleidoscopic journey of great smells and colors.

Planting, caring and maintenance of these flower ranges will be done by a special gardening crew that will live inside the dunes. They will be selected from the community and educated in the botanical art of flower making. They will learn everything they need to know about plants and how to care for it from a seedling right through to a fully grown plant. It would be a privilege to be part of this gardening crew. They would pass on their skills to the community offering work shops and training courses. Eventually they will be so well respected that people from all over the world would come to visit their beautiful flowers.

The two images on the right are small gardens located close to the site. These flower beds are maintained by the inhabitants of the flat blocks in the background. They said if they have more space they would plant more flowers. So this is a realistic option and I feel the community would get involved and look after their beautiful new landscape with great pride and honor.



using the knowledge gained to start generating an architectural language

ABC

The following exercise to start generating an architectural language is a synthesis of all the variables explored and experimented with in the previous chapters.

You have:

Aerodynamic considerations

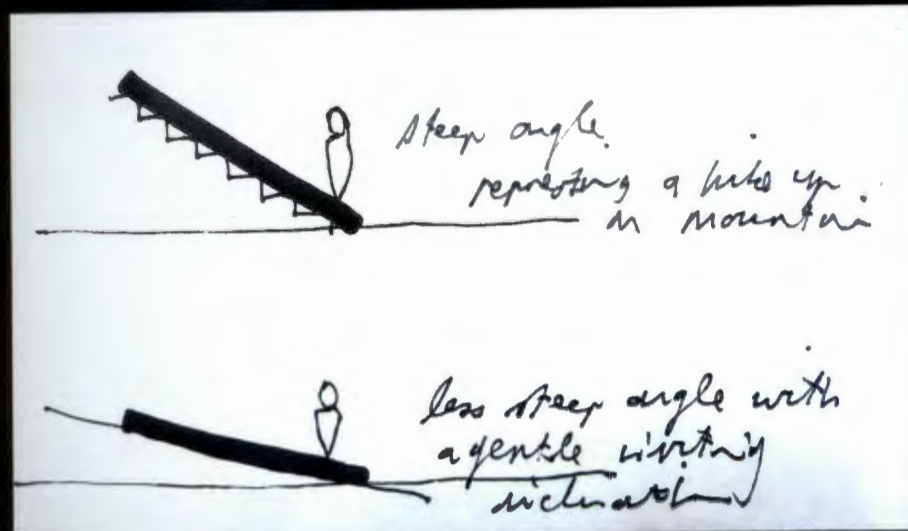
Plant growing angles

Walking comfort

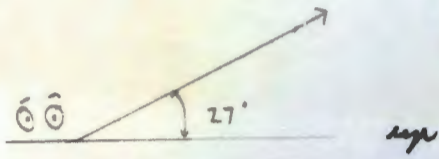
Safety angles

All coming together allowing me to make an informed decision when fixing the first phase of the next exploration, an exploration that would start to fix the building blocks onto which many of my design decisions would be anchored.

These four variables all have 1 thing in common, they both have or need a steep slope as well as a more subtle slope.



fields of view Vertical.



up

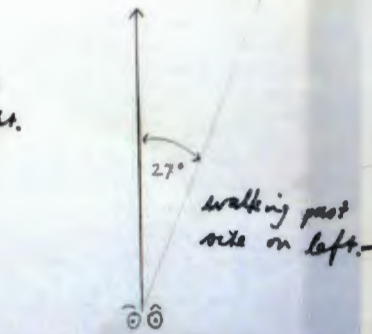
27°

walking past site on right.



down

fields of view Horizontal

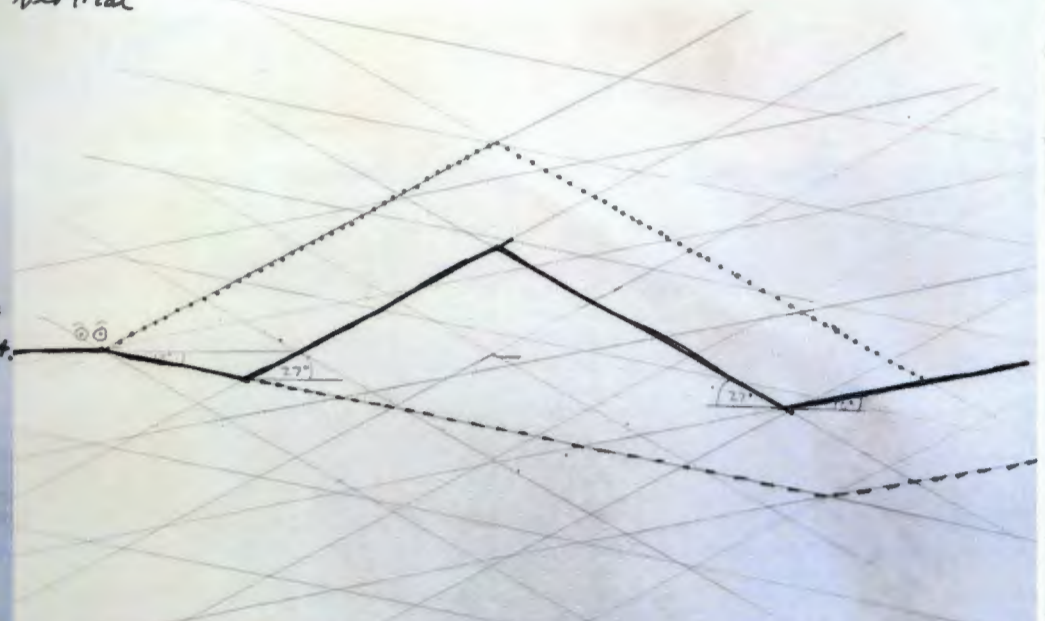


walking past site on left.



facing site

Vertical



Human crown pattern. up 27° down 10° safety plan section



BLANGHOUT
BESEMBOS
BLINKBLAAR
BOSGHWARRIE

RUSCHIA
MACOWANII
CEPHALOPHYLLUM
PROCUMBENS
EUPHORBIA
MARLOTHIANA
SOUR-FIG

SKILPADBESSIE
PHYLICA ERICOIDES
SPEKBOSSIE
GONNABOS
ASPALATHUS HISPIDA
BLOMBOSRANKTAIBOS



WILDENOWIA TERES
KATSTERTRIET
JAKKALSTERTRIET
STEEKBIESIE
VLEIBIESIE
FUIRENA SPP.
JUNCUS KRAUSSII

PYPGRAS
HELICHRYSUM NIVEUM
KINKELBOSSIE

SPRING

AUTUMN

CAPE RAIN DABY
HONGERBLOM
SOLDIER-IN-THE-SOX
MALVE AFRIKANER
VOOLTJES
BOBBEJAANTJIE
MORABA FUGAX

CANDELABRA FLOWER
APRIL FOOL



BUILDING BLOCKS

Sand is such a flexible medium and you can basically shape it in any form, I wanted to develop a sort of building block or puzzle piece system that I can use and slot into the landscape where ever I please and in turn slot architecture into these pieces. Because the architecture needed to fuse in with the landscape and I never want a dead end dead wall or dead facade I needed a system that always touches the earth.

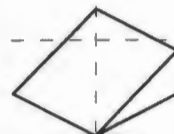
start

axo

steep slope



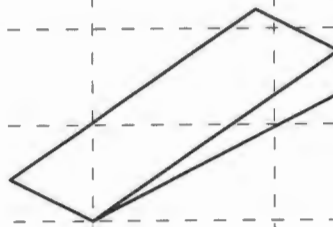
For the sake of the experiment the height was fixed at 5m



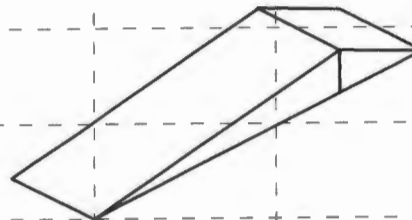
slight slope



slight slope stretched



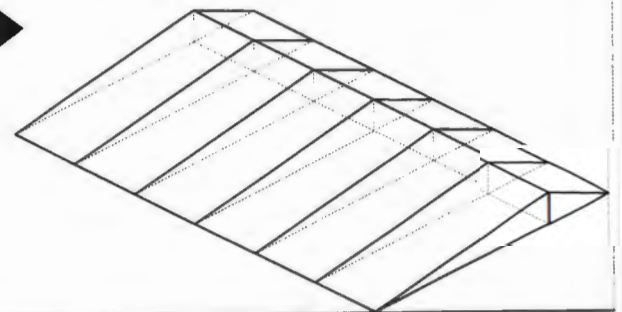
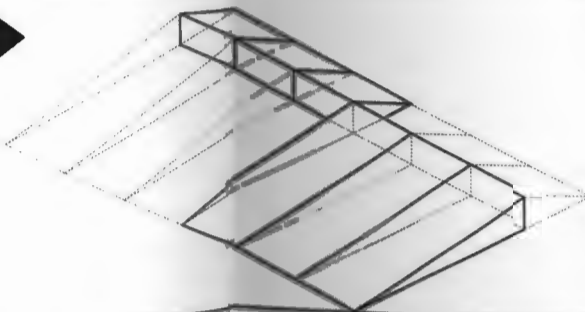
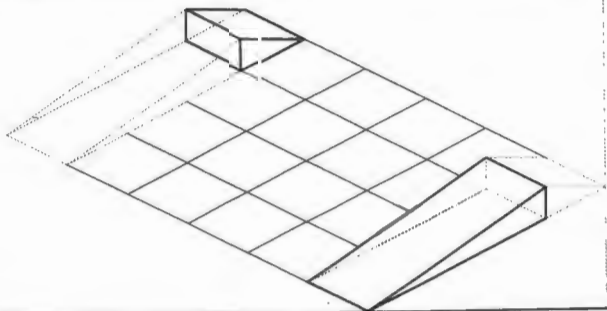
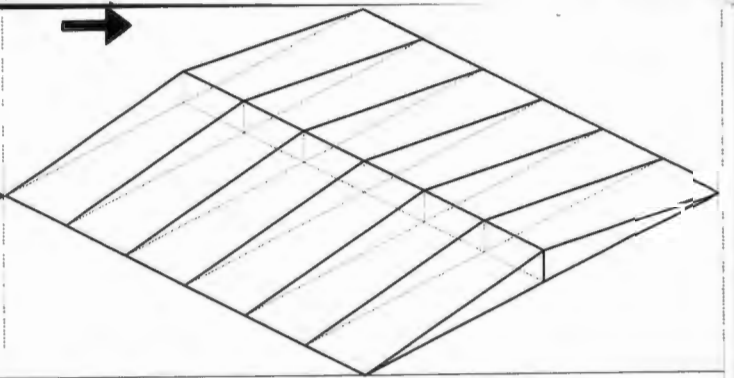
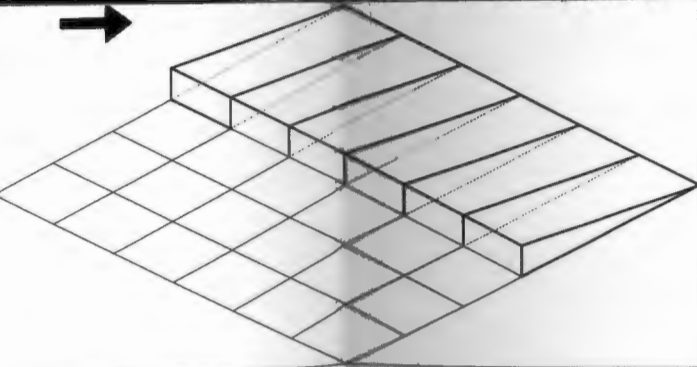
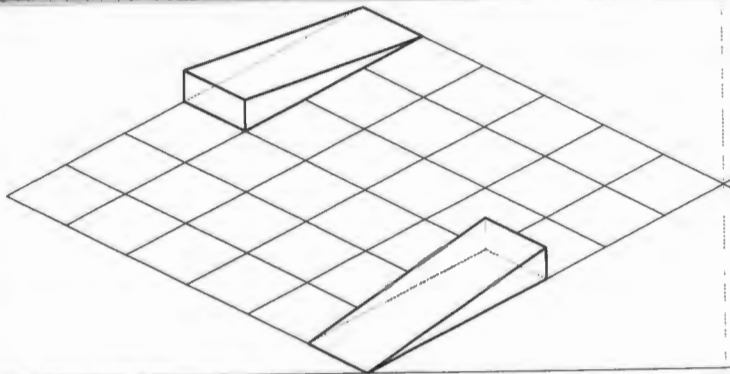
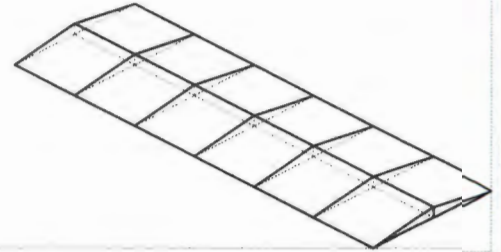
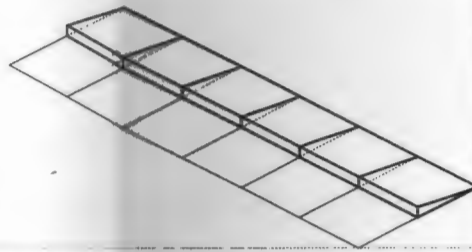
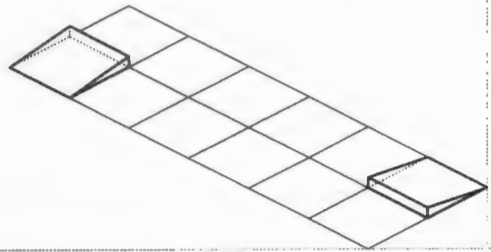
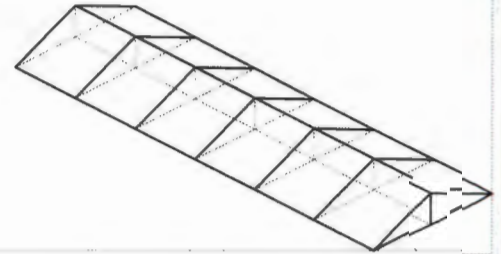
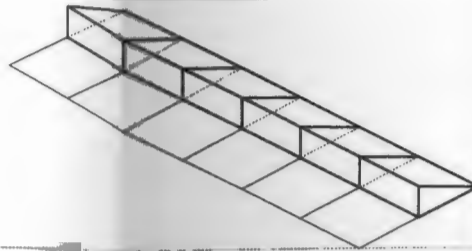
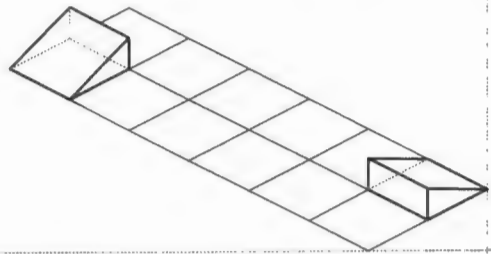
both



mirror

extrude

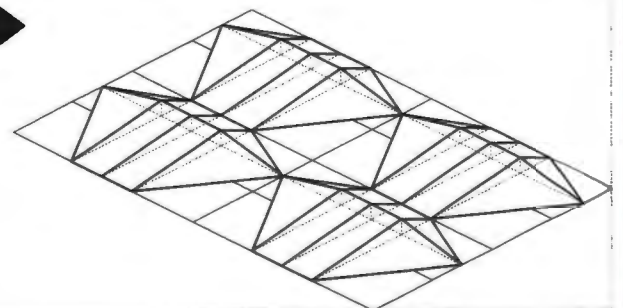
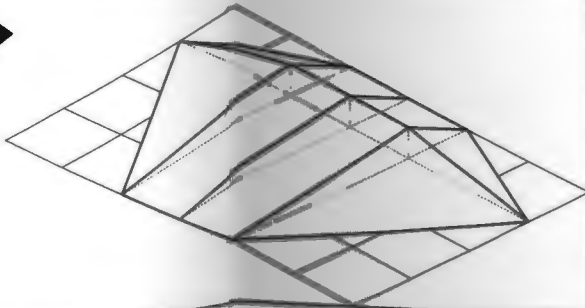
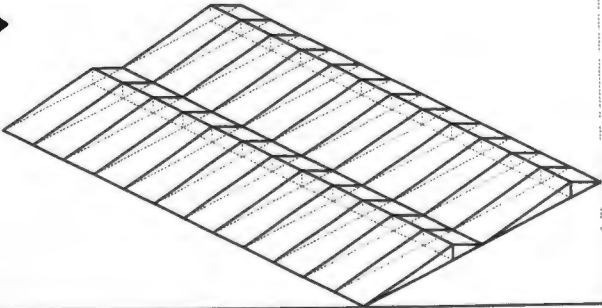
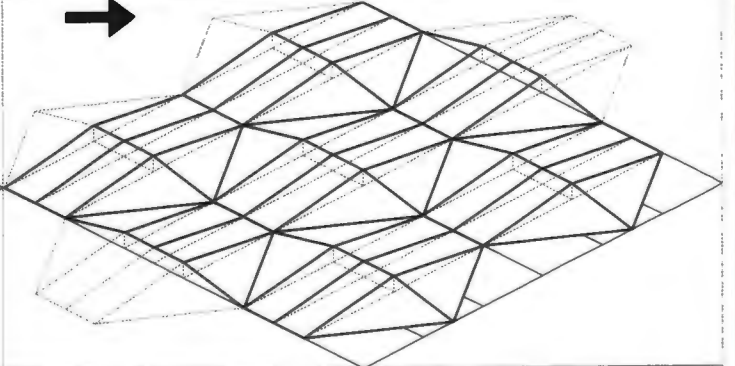
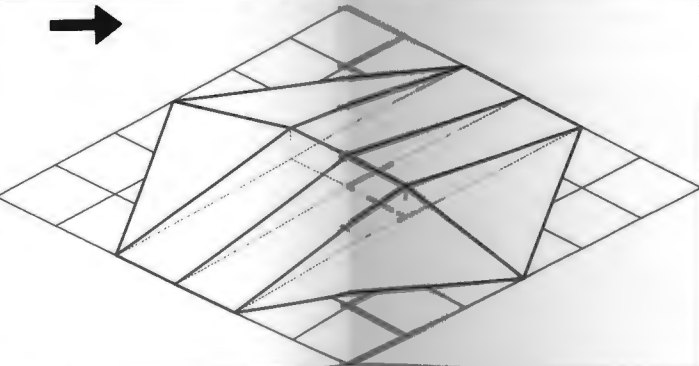
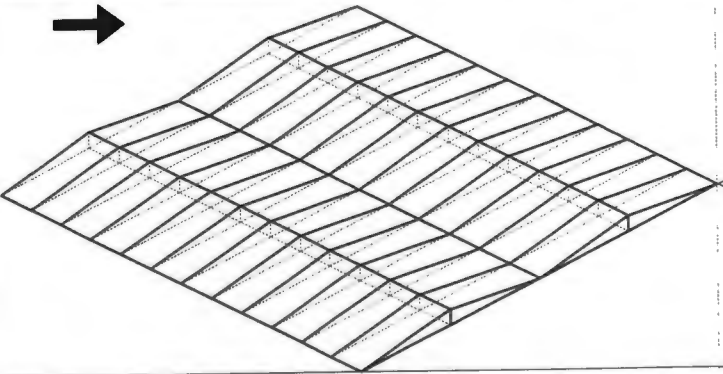
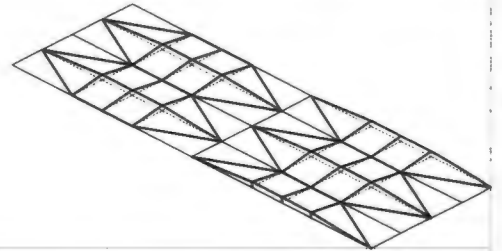
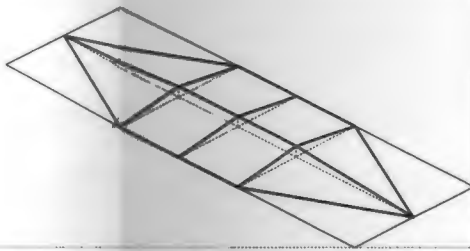
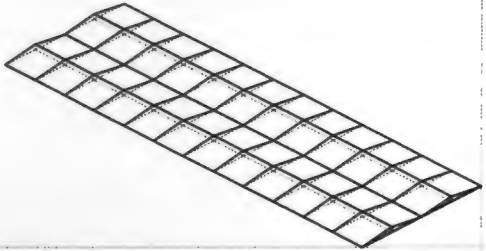
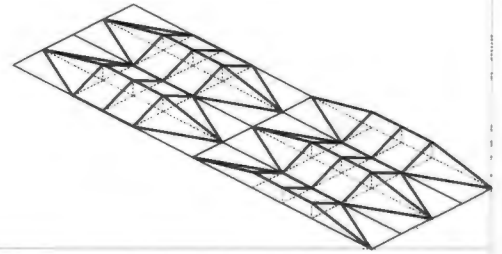
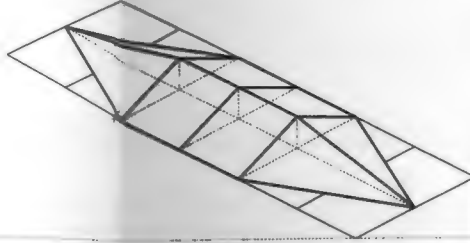
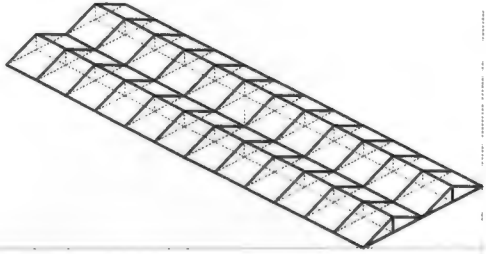
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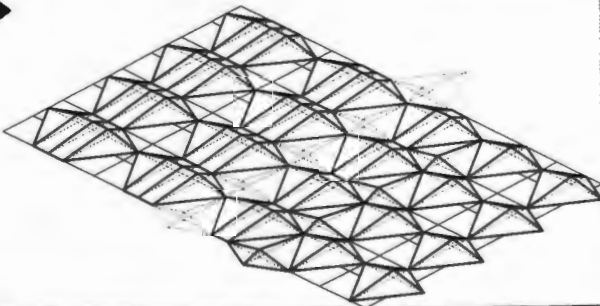
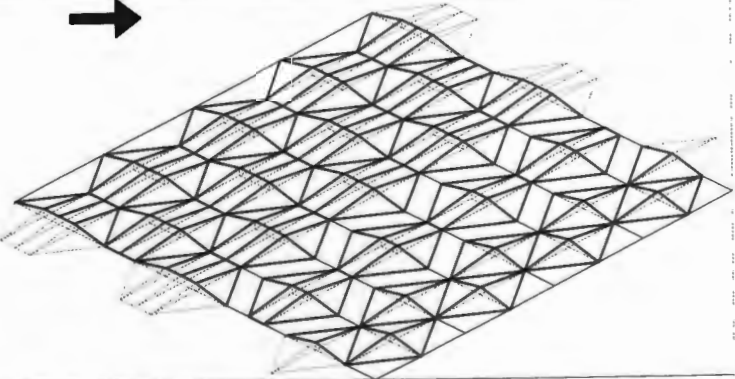
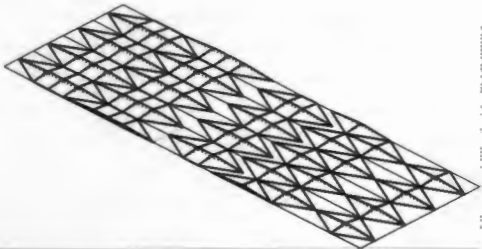
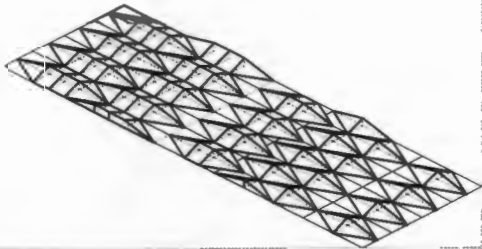
replicate

zoom in
to touch

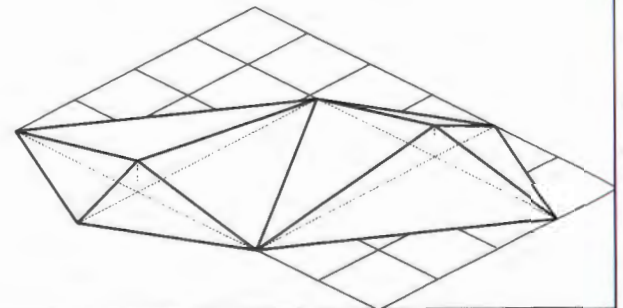
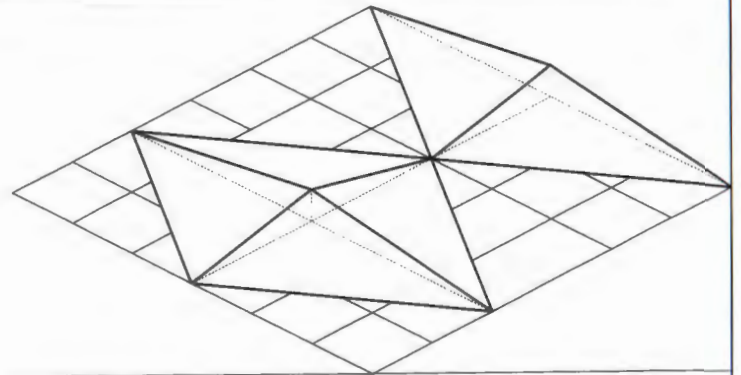
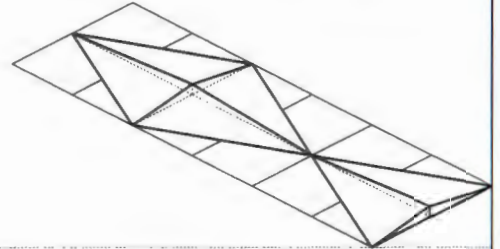
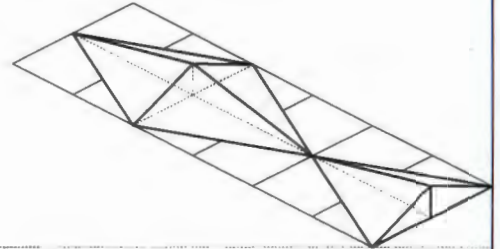
the centre pieces can now be pulled
out and replaced by architecture

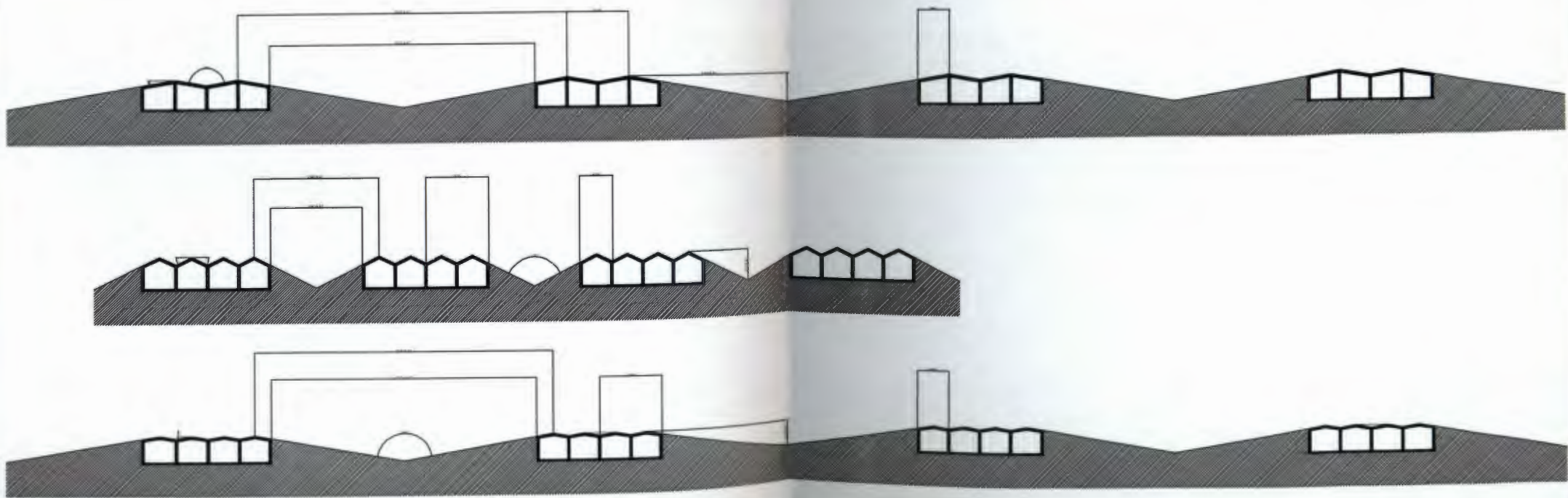
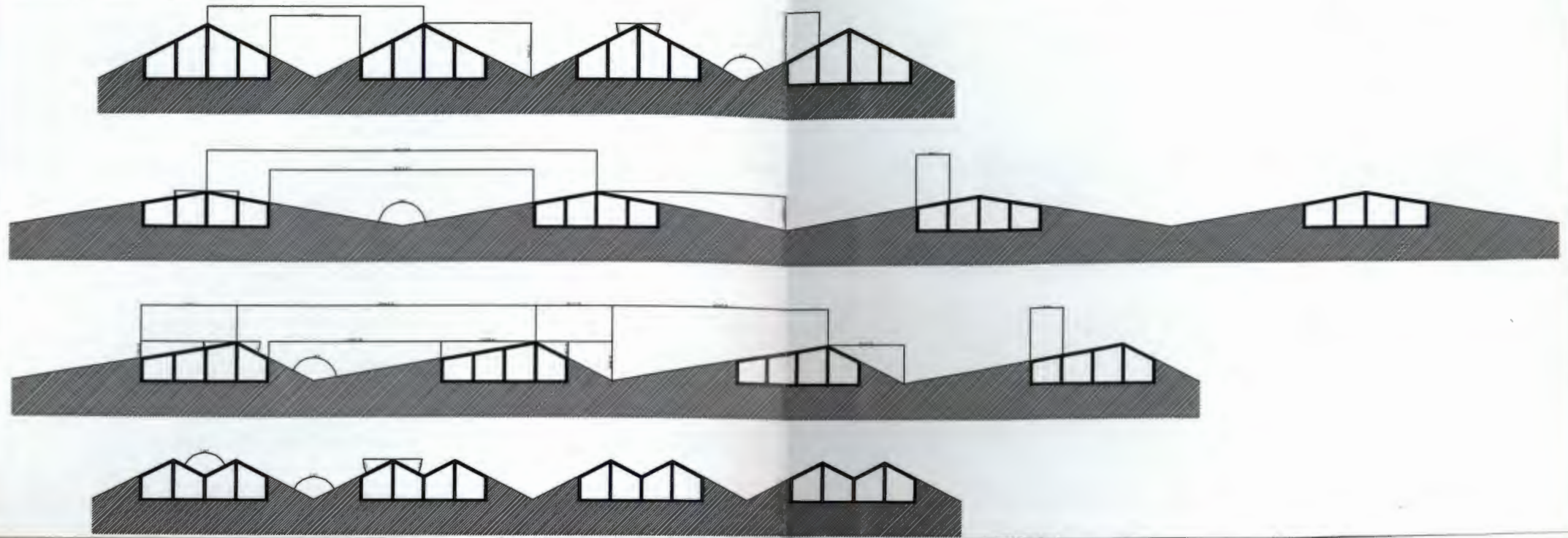


repeat



refine into purley landscape building blocks





program

HEALING SPACE

- individual reflection units
- group counseling spaces
- cleansing chambers

GARDENING UNIT

- living units
- cutting and sorting
- grow space
- seed storage
- equipment storage
- offices

RESOURCE HUB

- hosts all the shared facilities
- skills development workshops
- mini library
- lecture rooms
- food space
- toilets

YOUTH FACILITY





- hosts groups of youth while enrolled in skills development programs



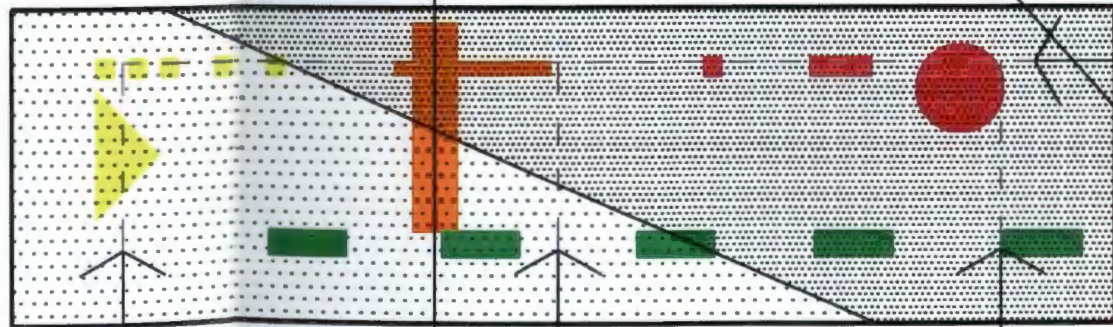
design development

PLACING PROGRAM

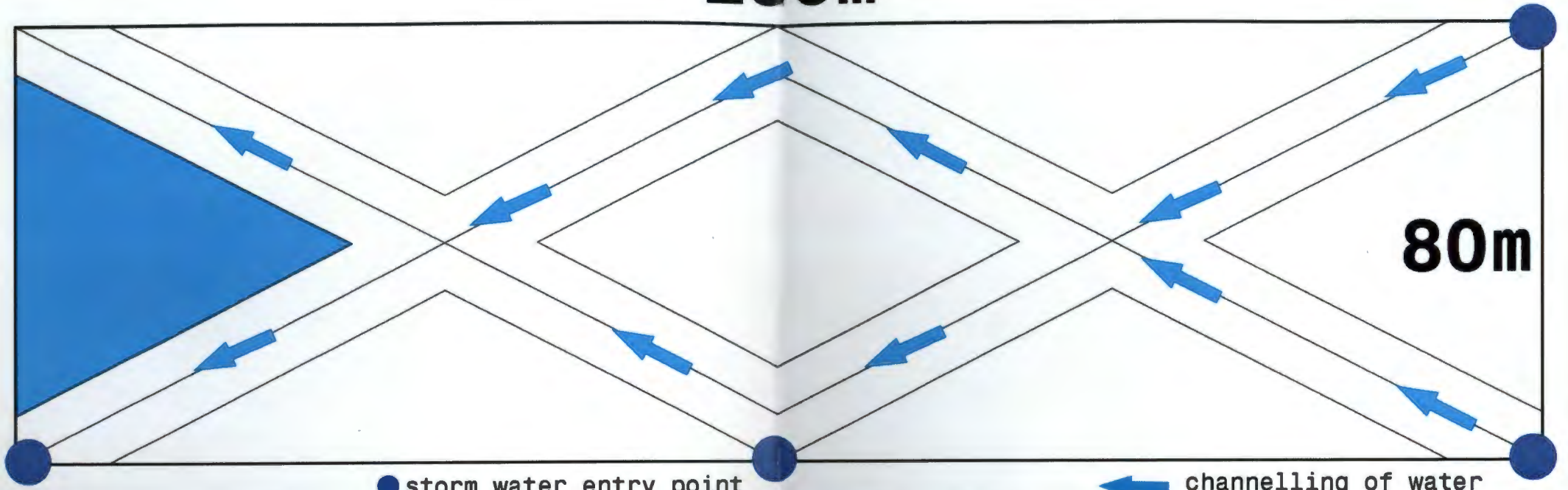
The placing of the program on the site responded to the site analysis done earlier. The resource hub picks up on the main desire line as it would be the most public of all the buildings. I imagine the youth facility having a great vibe, always busy with people coming and going and games being played in and around it, therefore it ties onto the busiest corner of the site while starting to form a relationship with the other identified desire line. The gardening units are scattered across the site so that they can always observe the landscape. The healing space is placed at the quietest part of the site for tranquility and peace of mind. It also lines up with one of the storm water inlets; this will allow water to become part of the cleansing process.

- gardening units 
- youth facility 
- healing space 
- resource hub 

N ↑



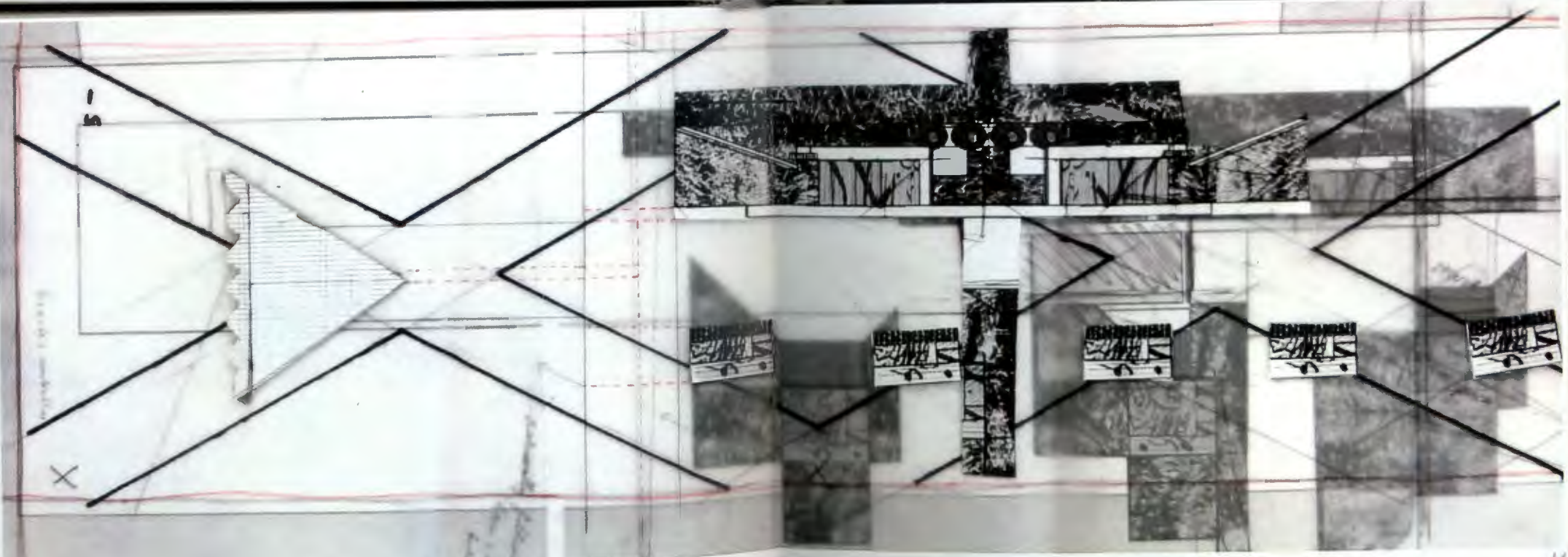
280m



80m

● storm water entry point

← channelling of water





NEW CHALLENGE, NEW SOLUTION

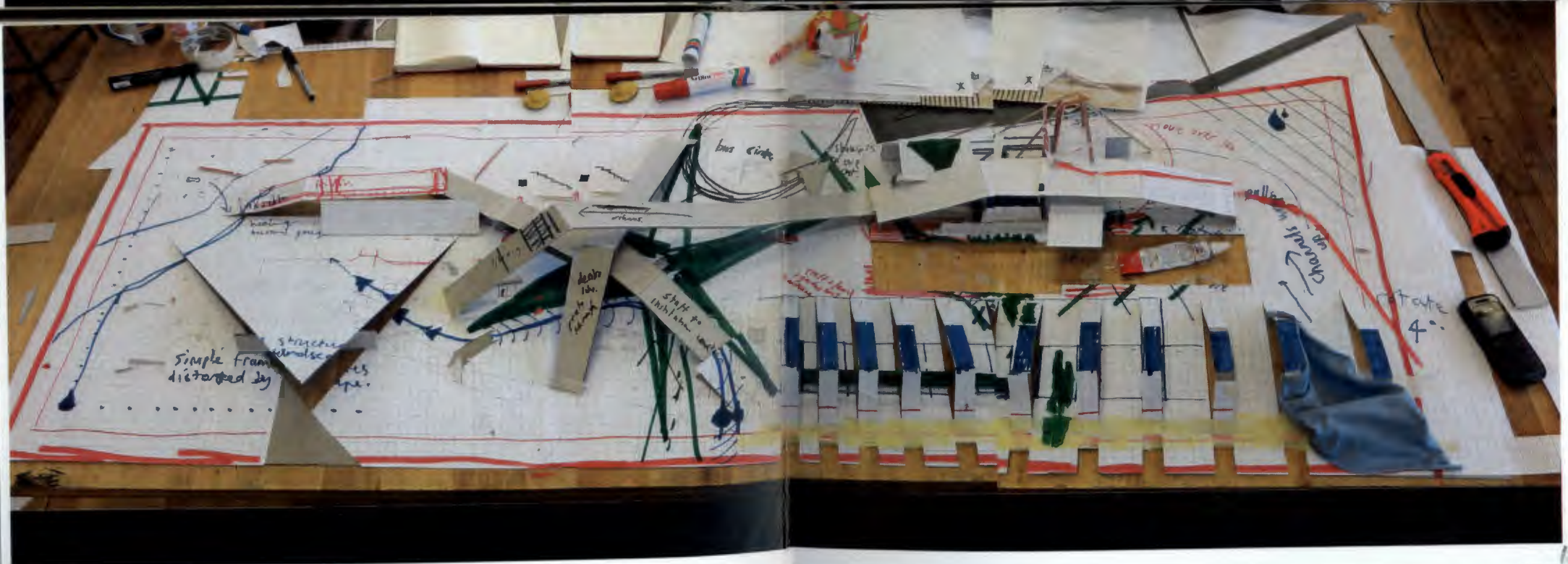
Designing became a real challenge. Not only did I have to design the architecture, I also had to design the landscape into which it sits. The sandpit served its purpose but it became to lose to continue using it as a design tool. I needed the freedom of designing in and with sand but contained in something more permanent.

The model below turned out to be the solution. I used the architectural language generated during the previous chapter and build a model which is solid, but flexible, free to play around with while still bound the rules set up by the building blocks exercise.



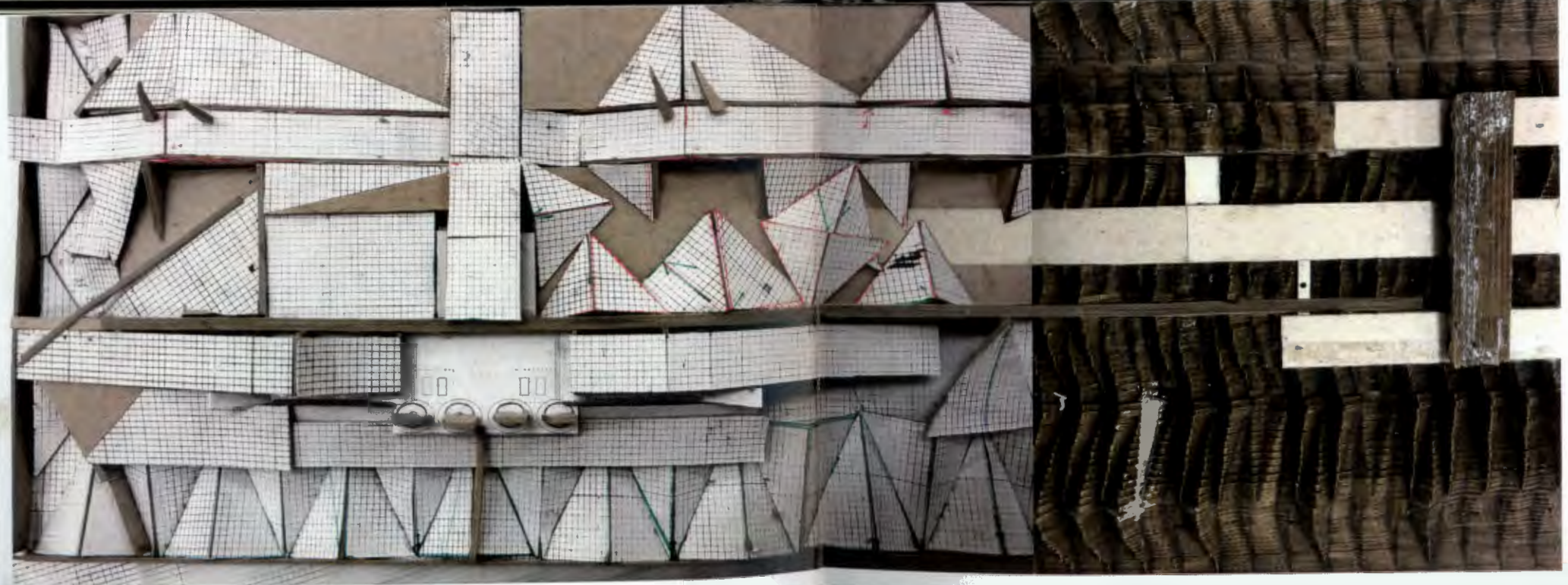
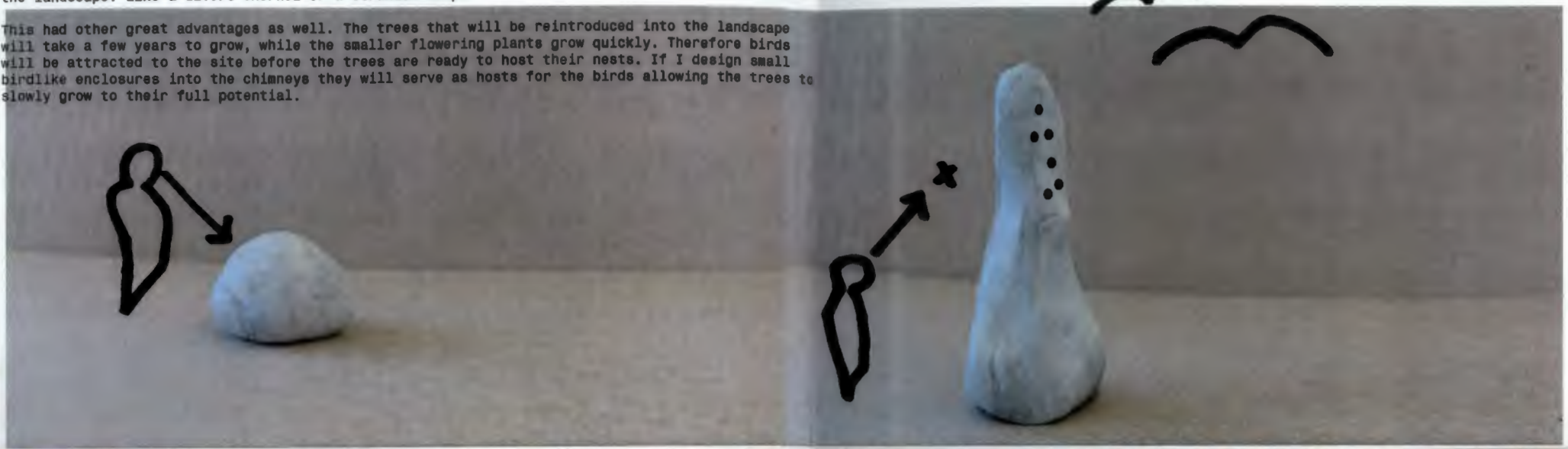


I had to constantly adapt my design approach to best try and keep all the factors in play. I built this model by slicing a flat piece of cardboard and then pulling the building out of it, allowing it to stay fused to the landscape.



Because roofs were turned into walkways, and architecture into landscape all basic principles on how to deal with necessities such as privacy security, ventilation, sunlight had to be reconsidered. I found that a good way of starting to deal with these problems were to treat windows like balls of press-stick; just pull and extrude until it is in a place where all these problems can be solved. A lot of the windows therefore started to take on this chimney like shapes poking out of the landscape. Like a divers snorkel or a stranded ship.

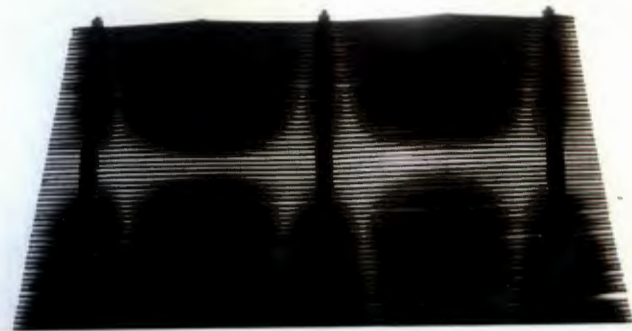
This had other great advantages as well. The trees that will be reintroduced into the landscape will take a few years to grow, while the smaller flowering plants grow quickly. Therefore birds will be attracted to the site before the trees are ready to host their nests. If I design small birdlike enclosures into the chimneys they will serve as hosts for the birds allowing the trees to slowly grow to their full potential.

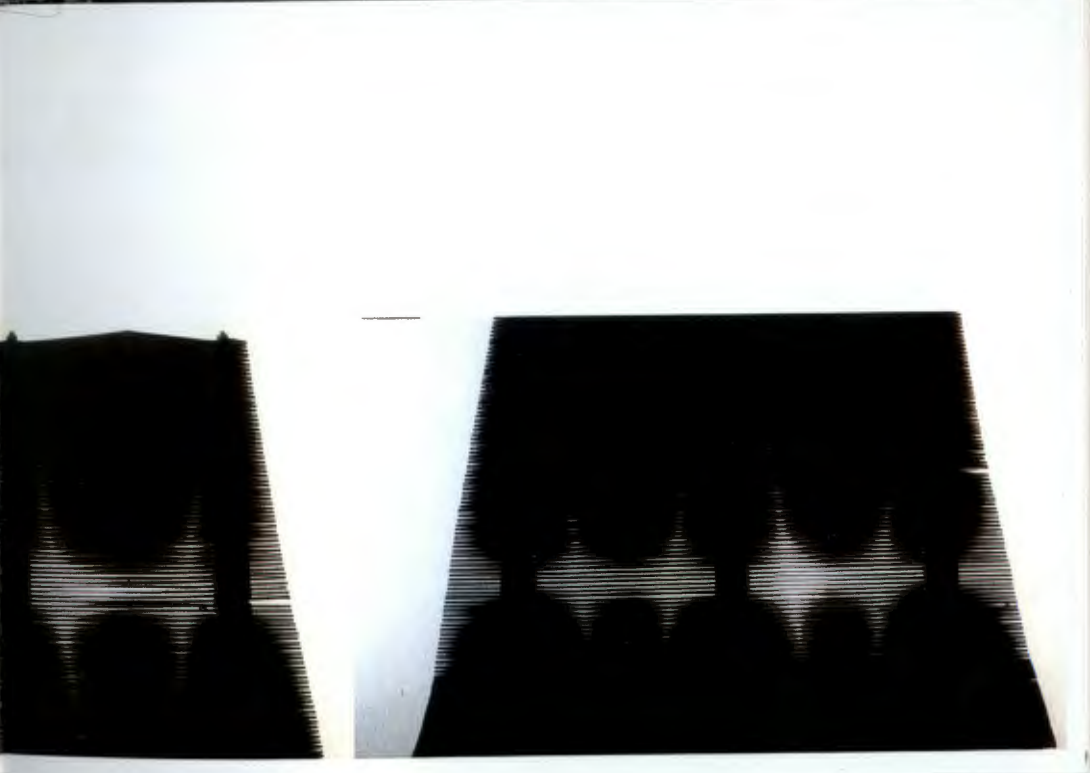
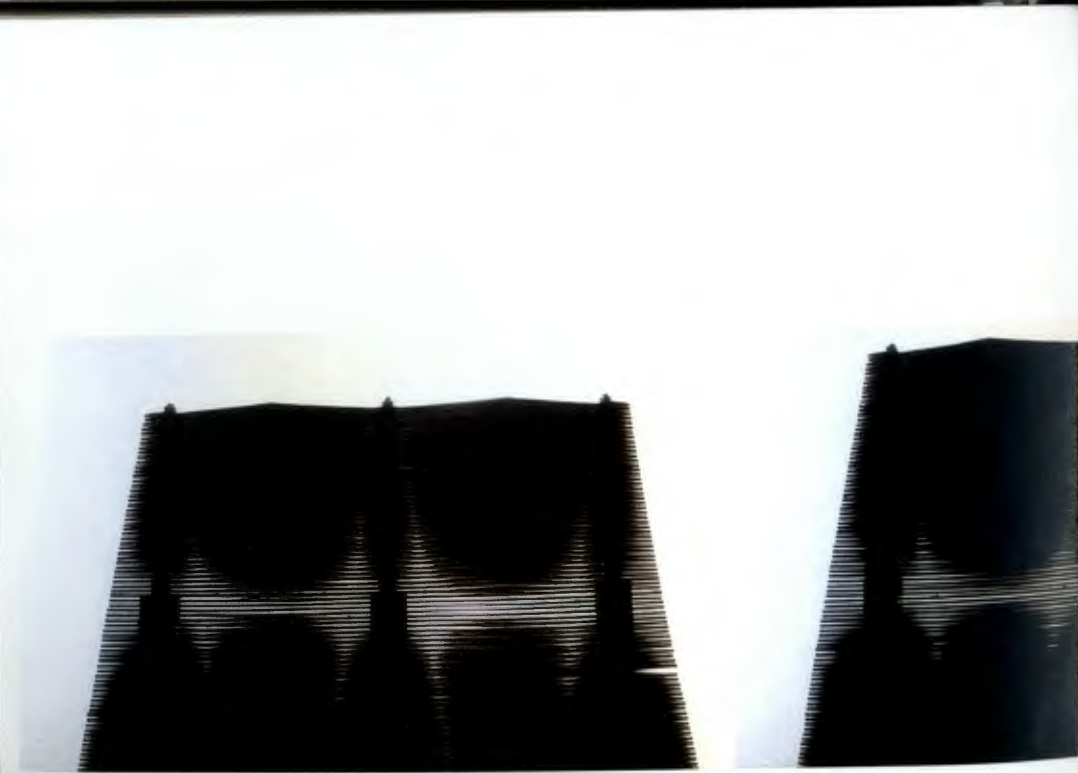




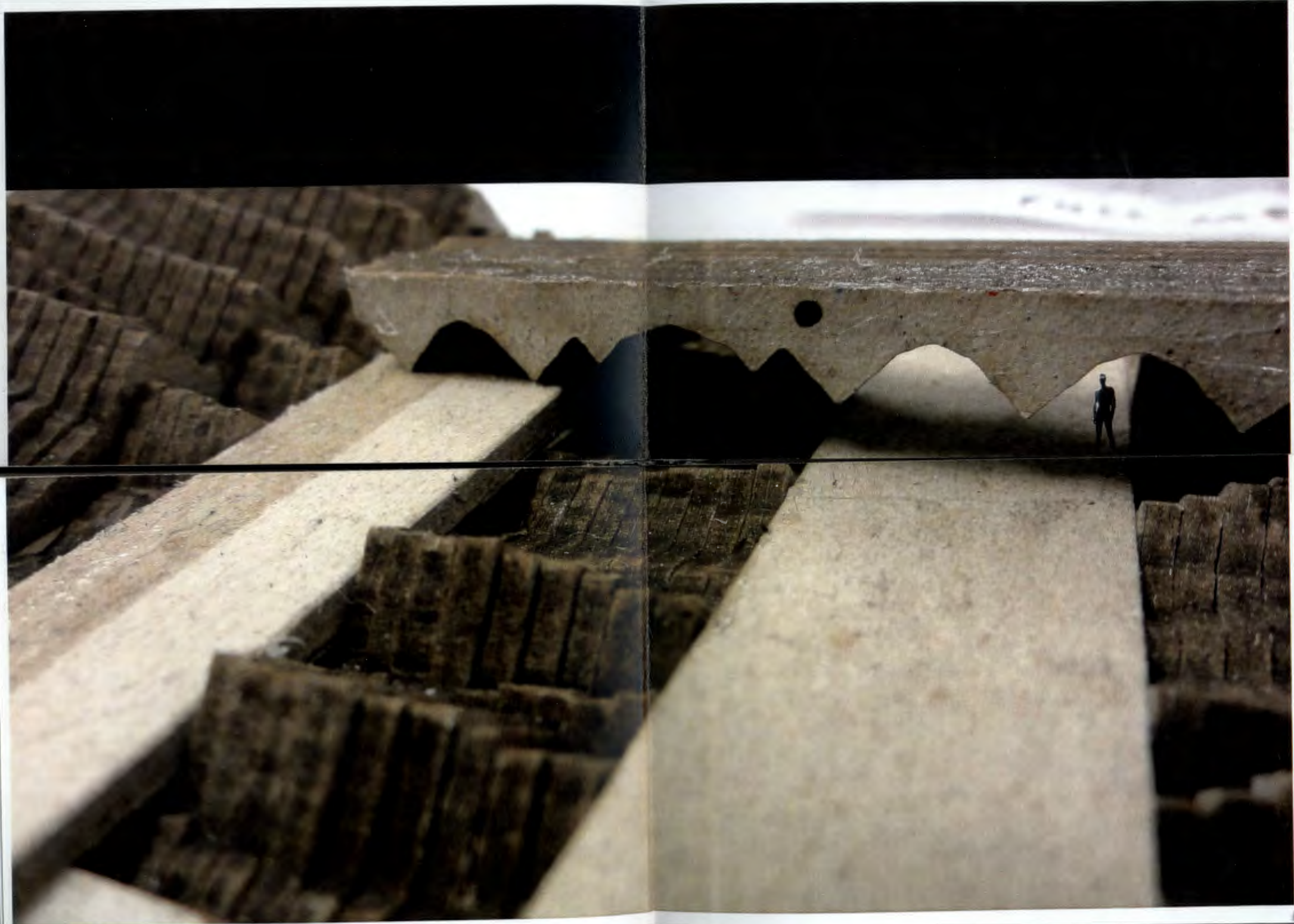
LAYERS OF LANDSCAPE

Lighting up the landscape from below





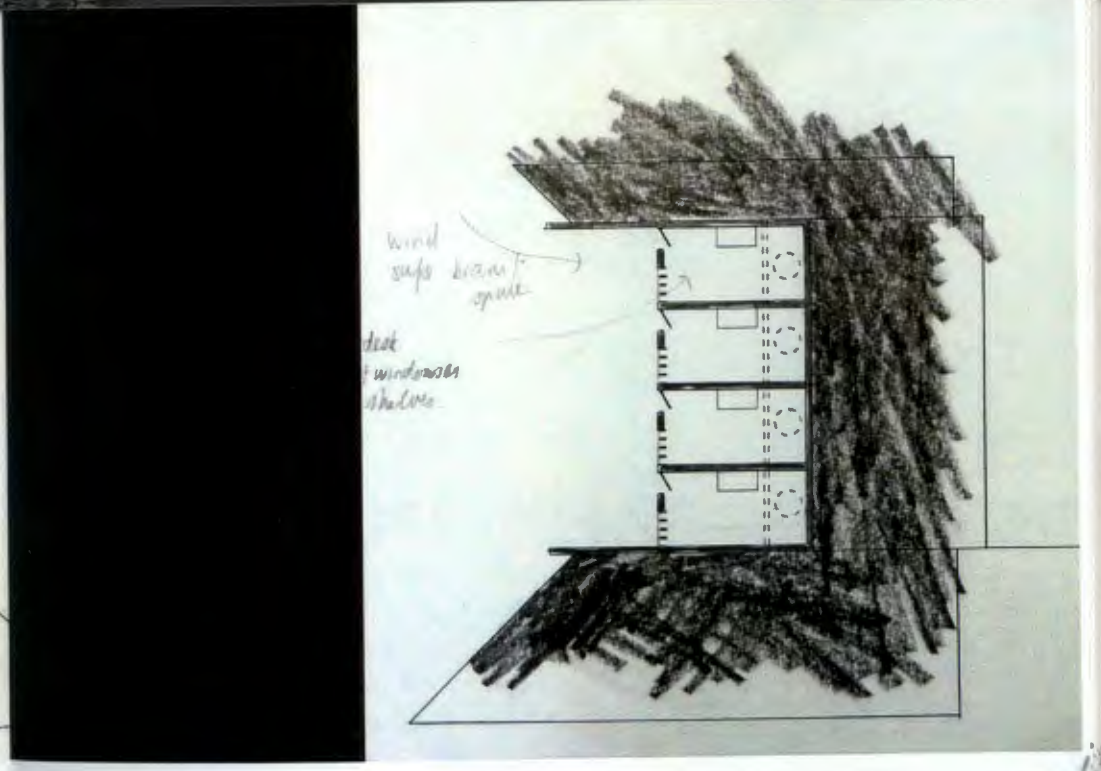
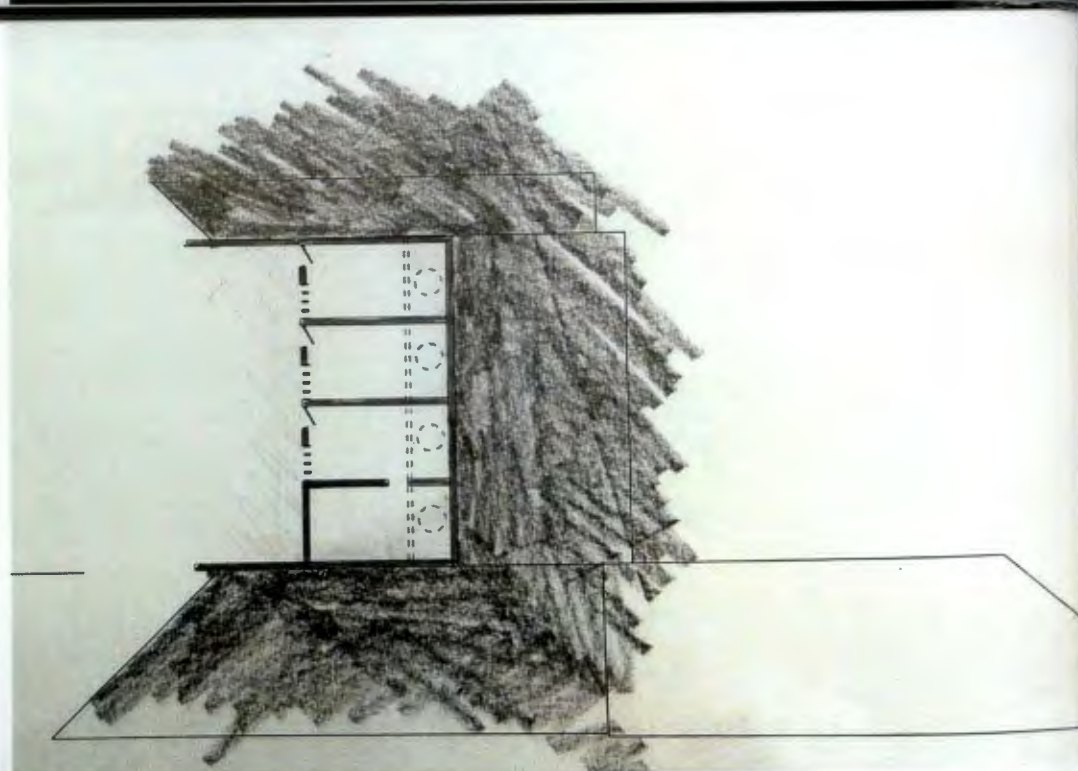
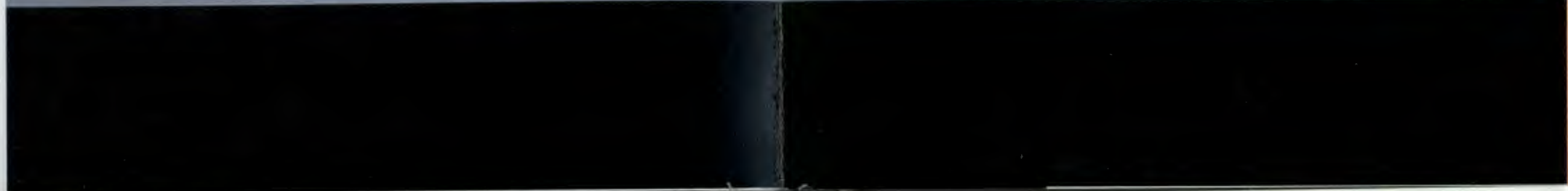


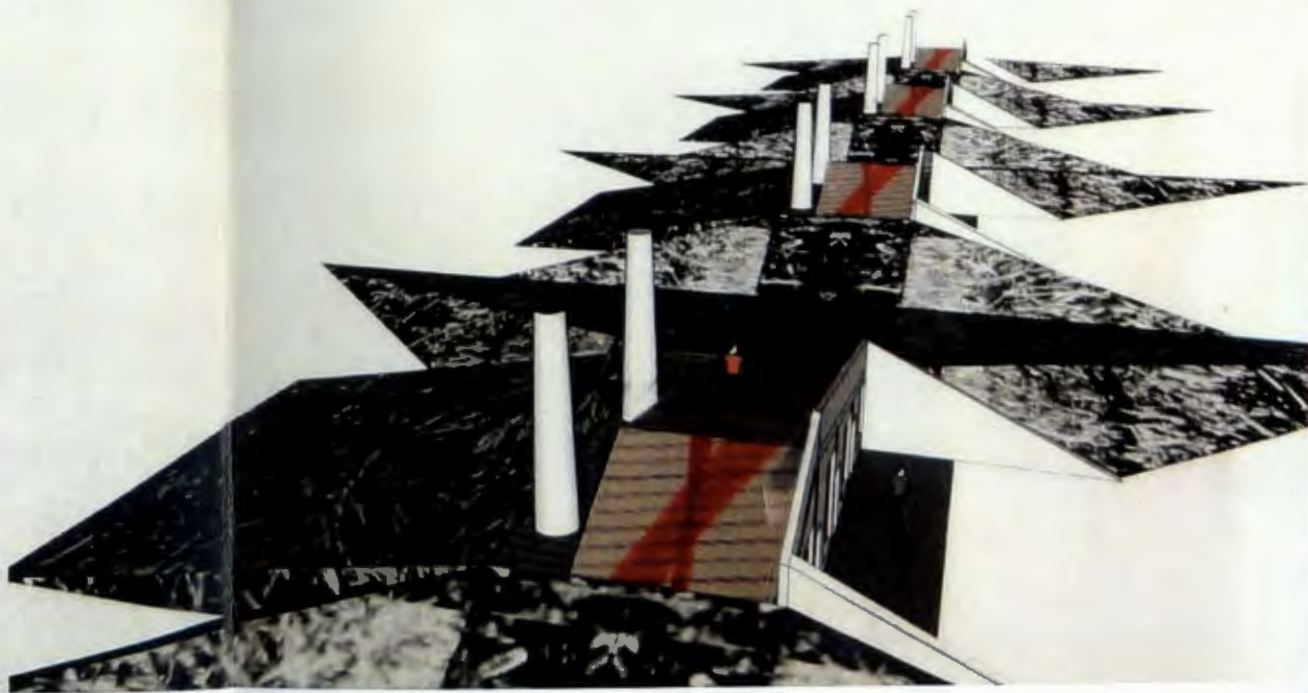
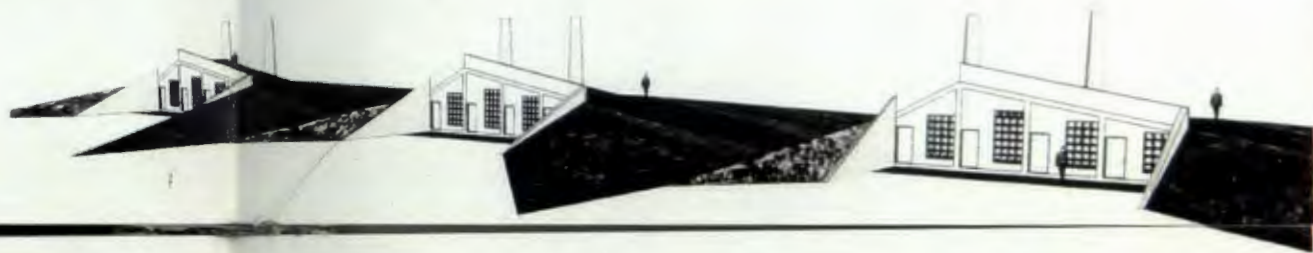


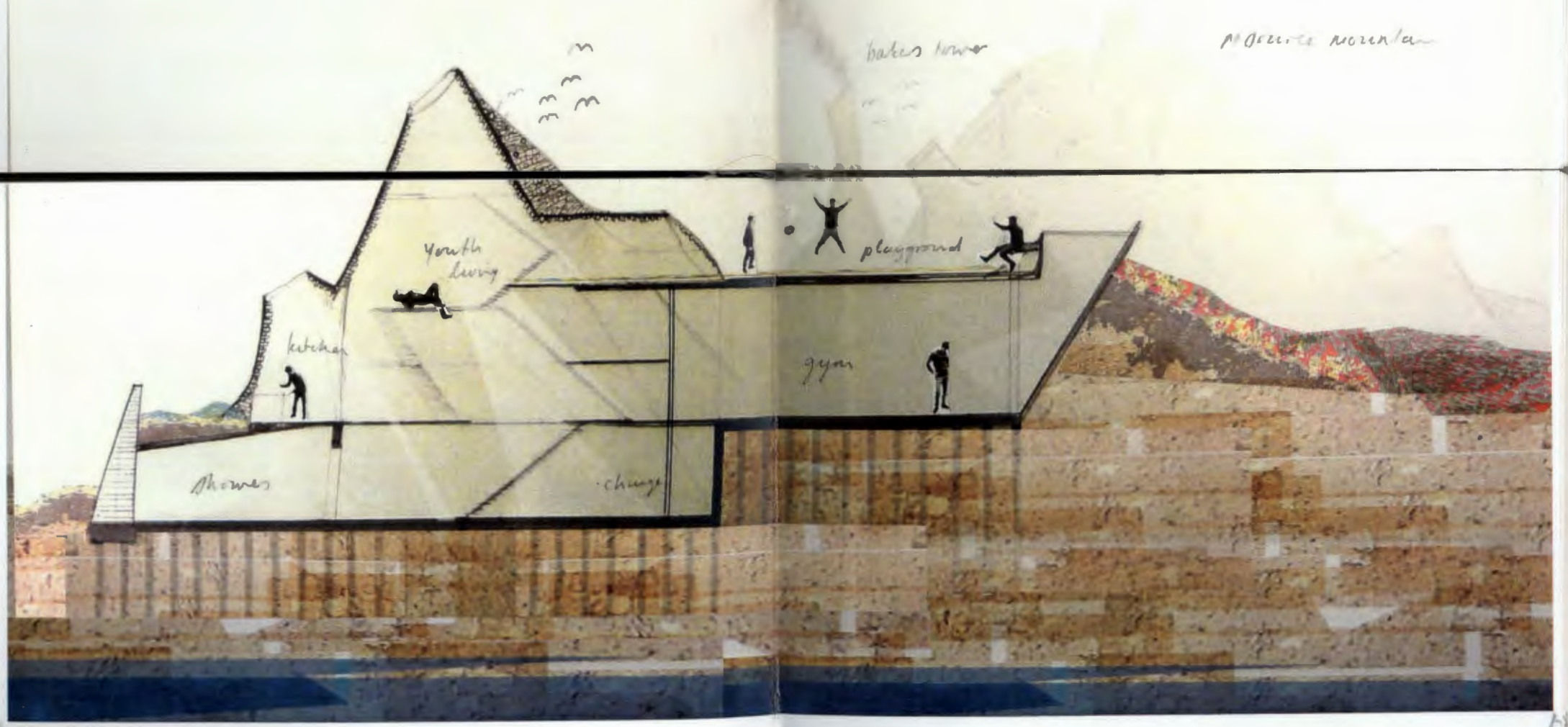












bates tower

Mountains

youth living

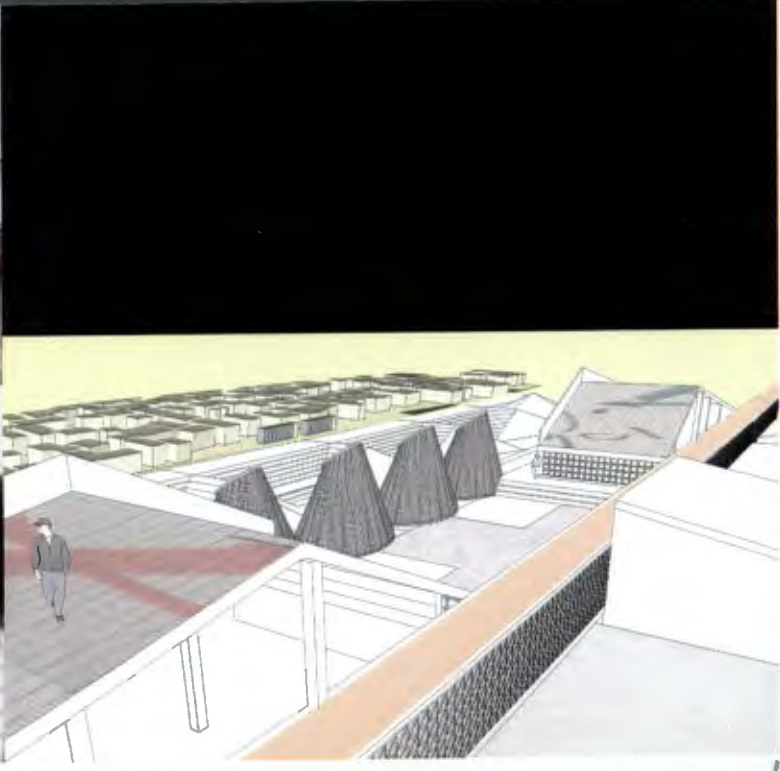
kitchen

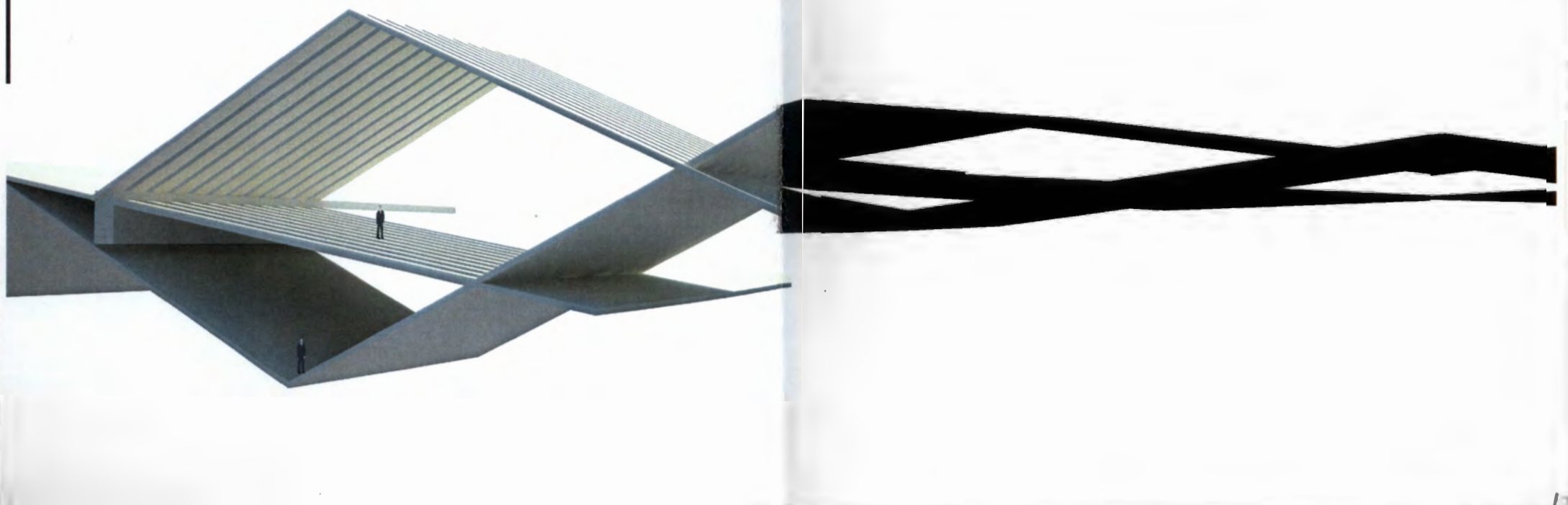
playground

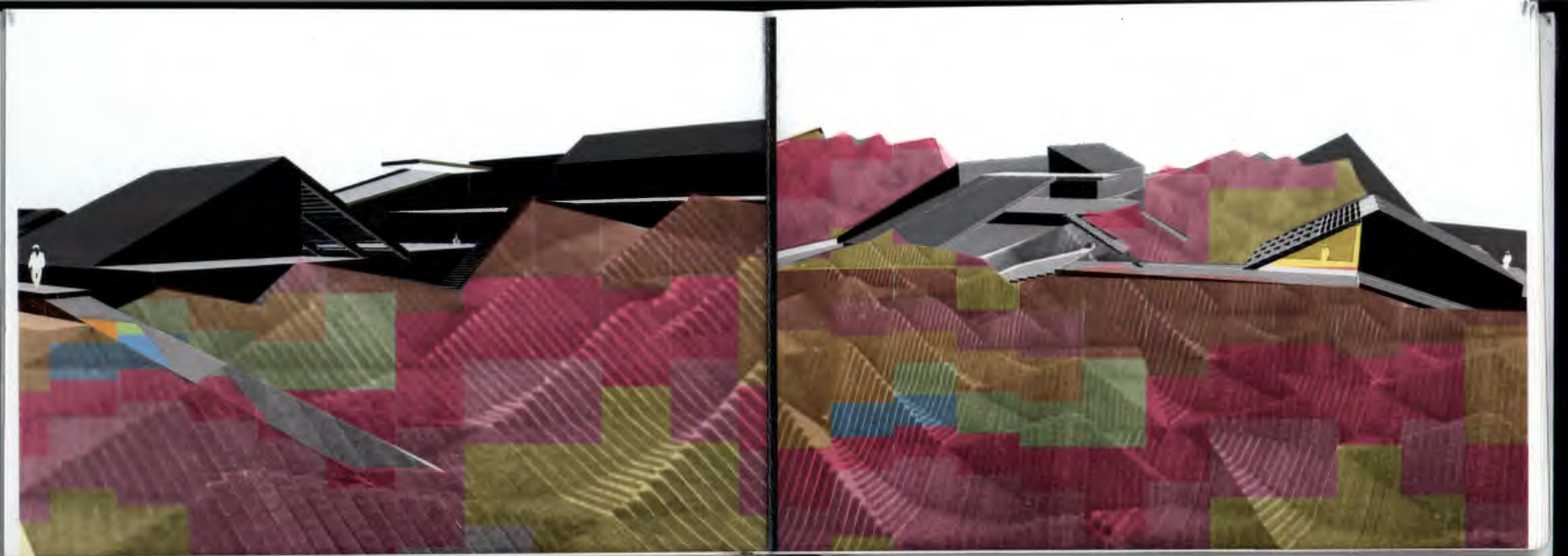
gym

showers

change









conclusion

Design is form-making in order
Form emerges out of a system of construction
Growth is a construction
In **order** is creative force
In **design** is the means - where with what when with how much
The nature of space reflects what it wants to be
Is the auditorium a Stradavarius
or is it a ear
Is the auditorium a creative instrument
keyed to Bach or Bartok
played by the conductor
or is it a conventional hall.
In the nature of space is the spirit and the will to exist in a certain way.
Design must closely follow that will
Therefore a stripe painted horse is not a zebra.
Before a railroad station is a building
it wants to be a street
it grows out of the need of street
out of the order of movement
A meeting of contours englazed.
Thru the nature - why
Thru the **order** - what
Thru **design** - how
A form emerges from the structural elements inherent in the form.
A dome is not conceived when questions arise how to build it.
Nervi grows an arch
Fuller grows a dome

Mozart's compositions are designs
They are exercises of **order** - intuitive
Design encourages more designs
Designs derive their imagery from order
Imagery is the memory - the form
Style is an adopted order
The same order created the elephant and created the man
They are different designs
Begun from different aspirations
Shaped from different circumstances
Order does not imply Beauty
The same order created the dwarf and Adonis
Design is not making Beauty
Beauty emerges from selection
affinities
integration
love
Art is a form making life in order - psychic
Order is intangible
It is a level of creative consciousness
forever becoming higher in level
The higher the order the more diversity in design
Order supports integration
From what the space wants to be the unfamiliar may be revealed to the architect.
From order he will derive creative force and power of self criticism to give form to the un-
familiar.
Beauty will evolve.
-Louis I. Kahn ⁴⁷

⁴⁷ - Stern, Robert A.M., Alan Plattus, and Peggy Deamer. "[RE]reading perspecta - The first 50 years of the Yale Architecture Journal." In Architecture is the Thoughtfull making of spaces, by Louis Kahn, 68-69. Cambridge

BEATLEJUICE

Writing words about architecture after quoting Kahn is like being forced to do a show right after someone has managed to revive the Beatles for one last inter-universal show - impossible to follow.

But I am going to write some words anyway.

Architecture is a smoothie, the perfect blend of all the relevant ingredients. It is each and every architect's responsibility to find these ingredients within every project he or she undertakes. There is no ultimate architectural form. No one philosophy that dictates what must be designed. Architectural form is relevant if it is a result of an honest interegration of the situation it finds itself in, when all the influences and factors that are in play have been taken into consideration.

Architecture should never suffer under concept.

Architecture should never suffer under theory.

Architecture should never suffer under ego.

Architecture is a journey of evolution. And every project has its own journey and evolves in its own way. You must not be scared to embrace this journey, allow yourself to travel along unknown roads and trust your instincts and intuition to guide you.

That is what I have learned this year.

AND I am more excited than ever to almost being able to call myself an architect.

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