



ECHOES IN SPACE

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“Logic is doubtless unshakable,
but it cannot withstand
a man who wants to live.”

Franz Kafka, *The Trial*

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Fig.2. Relics & Questions, Author 2017

1. ABSTRACT

An experimental attempt to formulate a way to understand space, in the phenomenological sense. An exploration of the intangible aspects of spatial expressions/entities to be translated into tangible representations, with an intention to educate masses.

2. INTRODUCTION: PRESENCE

We've all heard of the story of the point, as the innocent and simple dimensionless entity which one day decided to travel in linearity to become a line. And the line which lay on a surface all its life, tired of running endlessly in circles and squares, decided to stand upright on another fine day to reach for a sky it watched and longed for everyday. And while doing so, realised the incredible sense of freedom in the third dimension. The dimension of Space. It is here that it realised it could be anything it wanted to. Free to swim, float or fly in any direction. To bend over at vertices to become forms and figures. To dance in splines and waves. It first became a pyramid, then a cube and then it bent and curled further and further. Till it infinitely stretched itself in clear circles and curves, that's when it became a form so perfect and pure. It called itself the Sphere.

The story of the point realising itself to become a sphere, is merely the story of an entity realising the presence of space. An awareness of its surroundings and what it can do with it to feel emancipated.

2.1 Effect & influence

A sound favourable space amplifies and pushes the user's mind and body to feel and live better. In simple words natural light, fresh air, soothing colours and textures present in a space, in the right amount and tones, can significantly contribute to a user's well being. Adversely, a living being exposed an unfavourable space, is disturbed in the mind, continually leading to amplification of undesirable psychological and physiological conditions.





And a space to live in, is a fundamental necessity of man to survive. To realise and understand its experience is just as important. Architecture deals with space as an intervention within it. Its entities that encapsulate space, are intended to create synergies between space and the user's psyche on a more spiritual level.

Architect Daniel Libeskind emphasises this fact more precisely in an interview:

"Many people don't see architecture as important, even very smart people. They leave it to somebody else. But to me, there's nothing more important than architecture. It creates your world and influences how you feel both mentally and spiritually.

So, if you live in a horrible place, you'll be impaired mentally. Let's say you live in a dark environment with no windows and with nothing but a blank wall behind you. You'd be in a prison, and that would have a detrimental impact on your mental health.

The most neutral architecture is often the most aggressive. But in buildings that move us, there's an element of care. It's not a question of whether a building makes us feel good or bad. It's about being moved. That's what the word emotion means. What we feel is the sense of intensity, passion and involvement. It's something that goes very deep."

Here's an instance of the influence of space over cognitive activity in human behaviour, reported in an article from 'SCIENCE' magazine:

The psychologists, at the University of British Columbia, were interested in looking at how the color of interior walls influence the imagination. They recruited six hundred subjects, most of them undergraduates, and had them perform a variety of basic cognitive tests displayed against red, blue or neutral colored backgrounds.

The differences were striking. When people took tests in the red condition – they were surrounded by walls the color of a stop sign - they were much better at skills that required accuracy and attention to detail, such as catching spelling mistakes or keeping random numbers in short-term memory. According to the scientists, this is because people automatically associate red with danger, which makes them more alert and aware.

The color blue, however, carried a completely different set of psychological benefits. While people in the blue group performed worse on short-term memory tasks, they did far better on those requiring some imagination, such as coming up with creative uses for a brick or designing a children's toy out of simple geometric shapes. In fact, subjects in the blue condition generated twice as many "creative outputs" as subjects in the red condition.



Fig.4.1, Realms, Author 2016

That's right: the color of a wall doubled our imaginative power. What accounts for this effect? According to the scientists, the color blue automatically triggers associations with the sky and ocean. We think about expansive horizons and diffuse light, sandy beaches and lazy summer days. This sort of mental relaxation makes it easier for us daydream and think in terms of tangential associations; we're less focused on what's right in front of us and more aware of the possibilities simmering in our imagination.

Clearly, the influence of space over humans has to be acknowledged and realised. It has a significant role to play in cognitive development and over all well being of the spirit and body, something that impactful in our lives can not be left to be ignored. But alas, it is.

2.2 Unawareness

We are all contained in this vast and endless volume. An intangible entity in which we are continually enveloped in. Its presence felt so deeply in our subconscious, yet it lays absolutely inconspicuous to the conscious mind.

And though it exists everywhere around us, within every physical entity, everything we can possibly touch, over every sight of anything and everything our eyes had looked upon, we fail to sense it more precisely.

Why isn't its presence felt as directly as music? or as fine as taste? Why is it inconspicuous to our 'fore-mind'. Why is that when one walks into a space, one doesn't listen to what it has to say?

2.3 Rationale

Space is continually maintaining an intimate dialogue with our subconscious but not our fore-thought, because our conscious mind is not taught/trained to understand it or sense it directly it doesn't even look for it consciously. Much like the difference between hearing and listening or seeing and looking.

Space contains elemental entities which it usually encapsulates. Forms, shapes, textures, volumes, voids, light, shade etc. these entities put together in space, define it's characteristics. The fact that people are generally unaware of the presence of these entities individually is part of the reason that there is an unawareness of the wholistic concept of space. Each entity plays a significant role in constructing our notion of space.



Fig.5, Flight, Author 2017

For instance, we would have probably experienced space more closely/precisely if we weren't bound to the surface by gravity. Thereby, we would've be more aware of volumes, heights and forms that could guide us in movement through the third dimension. Much like swimming or free falling in anti-gravity perhaps.

But that leaves out the other critical elements of space like light and shadow. And to sense them more precisely, one would have to see the world in black and white. Only in light and shade. Only in the contrasts the bright and dark. Only then there would be such clarity in understanding the gradients between light and shadow. But then again, that leaves out another crucial entity to learn about space, the element of "visual touch", to perceive textures and forms by vision alone, in other words by "the touch of the eye".

One could go on endlessly about such possibilities which help in realising space. However, reality disagrees with this thought. We can't freely fly or float in space, nor are we colour blind, or even that sensible enough to "touch with sight".

2.3.1 Negligence

The reality is that we aren't aware of the sensibilities of space because of a lack of education on this subject. An absolute negligence of the subject in the present day educational system where no schooling or primary educational institute speaks of space as a dedicated topic in their curriculum. No subject in education today reveals the attributes, effects, influence of space on our lives. Space is left as an untouched and ignored realm. Psychology And its probably because the subject is too complex and abstract in character for a young mind to contemplate this concept easily. An intangible entity of sorts with tangible components.

3. CASE STUDIES: THE ONES WHO KNOW

Although in the social and educational scenario, space is a rare subject that is explored deeply, there are those whose focus primarily on working with or around the subject of space. Psychologists, studying its influences over human behaviour, Artist who base their work on spatial expressions; and Architects, who primarily encapsulate space to create places. To explore what already exists with respect to educating about space, I made a study based on how they analyse, work and realise space. An inquiry into what has already been made; To better understand as to how I can derive a medium to educate.

3.1 Mind readers

"I had to achieve a kind of representation in stone of my inner most thoughts and of the knowledge I had acquired. Or to put it another way, I had to make a confession of faith in stone." - Carl Jung



Fig.6, Bollingen tower, CG. Jung Institute Los Angeles

Peter Sear, a psychologist and writer, had written an article on the intimate relationship between architecture and psychology.

“The father of analytical psychology, Carl Jung described a building as ‘a structural diagram of the human psyche.’ Like art, architecture offers a vehicle for conveying our deepest thoughts. Jung rarely wrote explicitly about architecture, but demonstrated how important surroundings were to him by carefully building his own tower at Bollingen, and subsequently dedicating a whole chapter of his book, Memories Dreams and Reflections, to it. (Jung 1963). The tower was ‘an expression of Jung’s inner world.’ (Hauke 2002a), Jung confessed that it represented a ‘psychic wholeness.’(Jung 1961:252) The tower became a place where Jung felt at home, a space in which he could thrive. The building climbed up from the depths of his unconscious to become a shelter precise for him and his work.”

In 1935, Willy Hellpach (German psychologist and writer) wrote a book called Geopsyche, which was the first analytical work on environmental psychology. Environmental Psychology is an interdisciplinary field which deals with the interplay between humans and their environment. It’s studies explore the psycho-emotional interaction and relationship between the human psyche and space. For example, the understanding of way-finding by humans in space gives a distinct clue to how people are aware of moving through space by memory, experience or deduction. Although a lot of inferences have been concluded to assess human behaviour and influence with respect to space and environment, it is still too broad at times. The issue sometimes remain that observation or result from

psychological analyses can not be applied or confirmed to be consistent and common to all individuals alike because each mind has a subjective perception of its own regarding space.

The overall academy worthy inferences made by psychologists are recorded in theoretic discourses which is available to the public. People generally would not read into them as it is more of a scientific discourse, and not many can comprehend them on all levels of complexity.

3.2 The Dreamer and his Atmosphere

“Painters understand nature and love it, and teach us to see.” - Vincent Van Gogh



Fig.7. Starry night, MoMA learning archive 1889

Artists who tried to depict abstract sensations in space worked on similar lines. Their perceptions of space painted in abstract expressions talk of their notion and emotional relationship with it.

An excerpt from The Museum of Modern Art describes Van Gogh's observation and interpretation of space:

Van Gogh's impressionist translation of his room, *Starry night* and many others, clearly depict his perception of light in motion, stillness and the dynamism of the atmosphere. In a letter to his brother Theo, van Gogh wrote passionately about painting a scene as he experienced, imagined, and, ultimately, interpreted it, not as it was expected to be rendered.

He had an interest in expressing emotional and psychological responses to the world through bold colors expressive, often symbolic images. In a letter to his sister Willemien, touching upon the mind and temperament of artists, van Gogh once wrote that he was "very sensitive to color and its particular language, its effects of complementaries, contrasts, harmony."

One can find such translations of spatial atmospheres into painting in works of many artists like Monet, Matisse, Jackson Pollock, Picasso, Edward Munch and so on. Although it communicates to senses, the information conveyed is quite abstract in nature for a lay man to completely the idea of space. An awareness of art is required to comprehend such sensitive mediums.

3.3 The Makers of Space

"You know you aspire for beauty, for sensuousness, for atmosphere, the emotional response. That's the realm of the ineffable and the immeasurable. And that's what you live for: a chance to try." - Architect Siamak Hariri



Fig.8, Bahai temple at Santiago, Hariri and Pontarini Architects 2016

And what of the ones who are specifically educated in the subject of space? The Architects and spatial designers. They create atmospheric spaces relative to each context and requirement accordingly. It is in their intent that each space designed should enhance or assist the user to live, work or dwell comfortably. But how far do they actually go to explain the concepts of space to the ones unaware of it? Apart from academic training, they tend to only explain the ideologies of the built spaces that they or some other has designed and created.

They only explain the expression of a singular or a set of expressions in such spaces. They don't educate about spaces in its purest essence. An effort is not made to breakdown the concept of space itself or it's elements, and educate the masses of how space works and influences us. Most literary works written by them, are again generally too complex for a lay man to grasp. Films and documentaries also explore works of architecture, but then again there isn't one which speaks purely of space itself in the most effective manner.

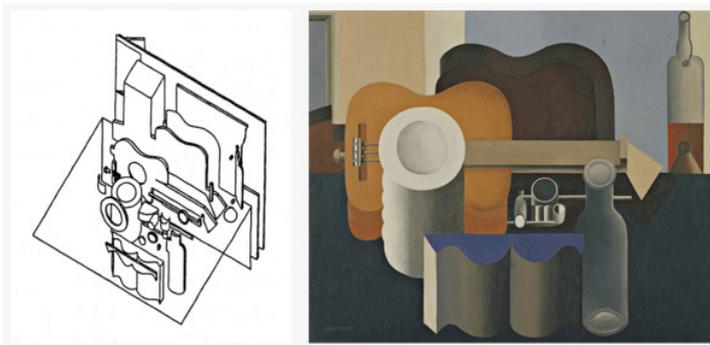


Fig.9, Still Life, Le Corbusier, 1920

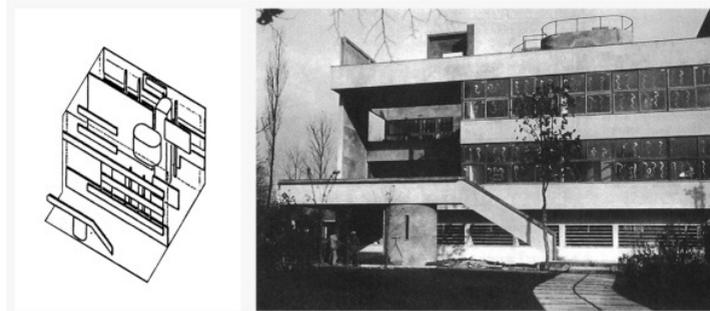


Fig.10, Villa Stein-de-Monzie, Vaucresson Garches, 1927

“I prefer drawing to talking. Drawing is faster, and leaves less room for lies.” - Le Corbusier

Architects from the modernist movement had a peculiar style to represent and explain atmospheric moods they intended to design. They would visualise space in their minds, imagine forms and volumes and textures then bring it forth its representation over a dimensional platform, either by sketching or painting them.

The Swiss-French Architect Le Corbusier created sketches and painted his ideas over canvas. Much like the artists mentioned earlier he depicted emotions and atmospheres he intended to translate in space using an artistic expression. Similarly, Architect Mies van der Rohe would also depict space through collages, which gave a sense of depth, volume, vistas and voids in space. Later on many others like Zaha Hadid, Daniel Libeskind etc. also used this medium to express the same. Daniel Libeskind describes drawing having a more profound relationship with a designer.

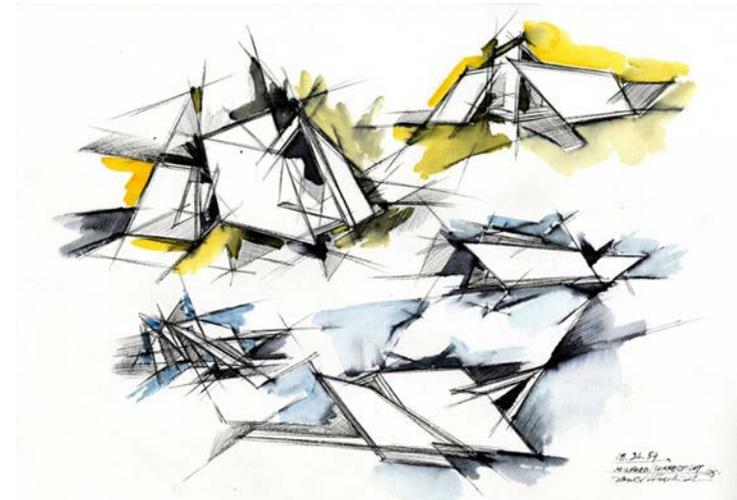


Fig.11, 18.36.54 residence sketches, Daniel Libeskind, 2013

Architect Daniel Libeskind explains this practice as followed:

“I thought about the fact that drawing is really a score. It’s just like a piece of music, interpreted by a community, and of course proportions, light, materiality are all implicated in the drawing, which when it comes to a building of course also has to present the atmosphere of a building. A drawing has to illuminate the practice and of course in our work we have many computers. An of course you cant do anything without a computer. To be efficient on time, rational and so on. But still, I truly believe that drawing is the source of architecture. It is really the source, because the hand itself is the eye and the mind interconnected and really sharing in that process which is not purely intellectual but is really spiritual of a desire, a faith in something you can not see and its a proof of something you can not see and its a proof of something that is really there but not purely visible.”

Although they were quite abstract in nature the architects gave theoretic information as a backing to make its understanding and perception more clear. The theory behind the abstract representations and the artworks together did something technical blueprints, drawings or 3d visualisations could not achieve. They helped communicate “feeling or emotion” in atmospheres. It nudged the viewers think beyond logic and reason. It pushed their minds forward to sense the intended feeling behind the spatial expression. To understand the conceptual ideation behind designing the space.

3.4 A potential tool?

This hybrid medium of artistic imagery combined with theoretic backing, became a tried and tested methodology among architects to convey spatial concepts. The methodology part abstract and part direct in its nature of approach, gave the viewer a clearer picture in understanding the wholistic perception of space. Alternatively, a photorealistic visualisation or a photograph of a space can mostly show what a space looks like from certain vantage points, but little about what it truly ‘feels’ like. I understand that this could be a potential mode of explaining abstract concepts as space which could be further explored.

4. ANALYSIS

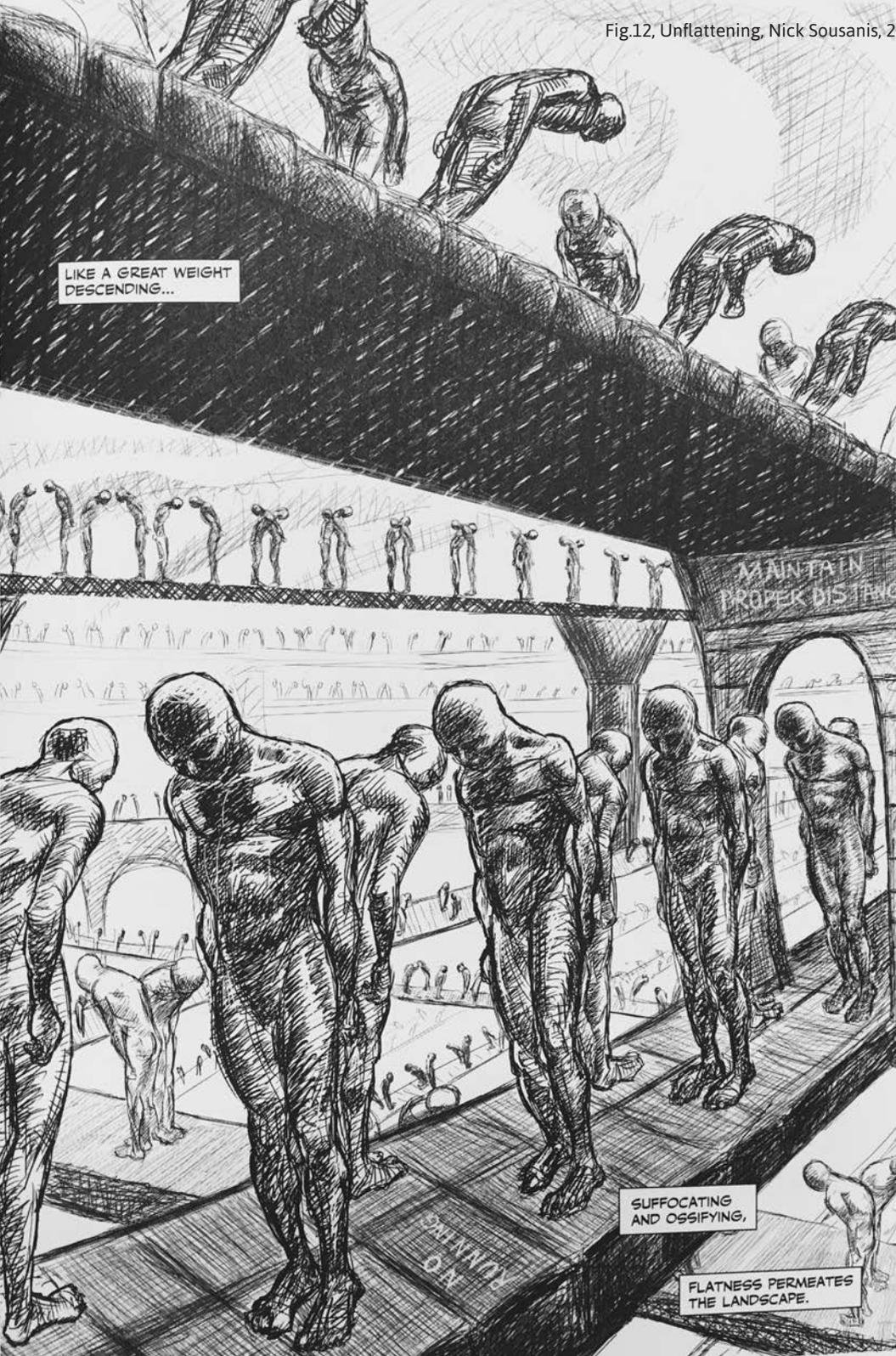
What I could infer from understanding this, is the way Psychologists, Artists and Architects speak of the same subject, but use different modes of to convey the information and construct the idea behind their expressions. Psychologists use theoretic discourses, Artists use drawn or painted expressions, whereas Architects used both. And of the three, the mode and methodology by which the Architects used seemed to convey the idea closer to a lay man’s understanding than the other two. What makes this mode peculiar and easier is that it is not a one dimensional mode, it involves both verbal and visual mediums to give a wholistic understanding. I intended to study this union further.

4.1 The Drawback: One dimensional thinking

Upon research over the marriage between image and theory, I came across a book called ‘Unflattening by Nick Sousanis’, produced in a graphic novel styled format, which was an experiment in visual thinking. A serious inquiry into the ways humans construct knowledge.

The book explains how a singular mode of conveying information limits our capability of understanding and deciphering information. The conventional form of scholarship, where in general only one medium is used to convey an idea. The nature of theoretic discourses, in rows and rows of text, one after another, can not always completely transfer thought from writer to reader.

Fig.12, Unflattening, Nick Sousanis, 2012



He explains this problem in terms of Flatness. Flatness, not in its literal meaning, but in a way of representing our thinking being locked into patterns of one dimensional thought and behaviour. Not able to look at a subject from more than one perspective leads to incomplete understanding of the subject itself. He explains of how when we try to explain the complexity of our experience and thought, we take no choice but to flatten it in some way.

For instance, if one is asked about the weather today, and in return the response is only about the temperature. Surely, knowing the temperature does play a role in understanding the weather, but does not convey the whole idea. The wholistic idea would be understood if the response spoke of the remaining factors that define the subject of the weather, like wind, humidity, precipitation, air pressure etc.

At times when we try to explain the complexity of our thought or experience we take no choice but to flatten it to a linear way. Factors like our body movement and visual system, are a part of how we learn.

So how do we look in an added dimension? how do we look further beyond it? It's when we start bringing additional modes of input we start getting a better sense of the world. And what if there we other additional modes fused with conventional text? What if a single piece of information can be read in amalgamation of different mediums to arrive at the same conclusion, but with more clarity and understanding.

4.2 Sequential Art

In Unflattening the author explores the possibilities of what text fused with image can do to convey information. He explores the realm of visual story telling in graphic novels, graphic journals and comics which explore thought and ideation processes by use of drawings and writings put together. An art form known as Sequential Art.

He adds that,

“Traditional thinking has long held that truly great works of art and literature are only possible when the two are kept at arm’s length.”

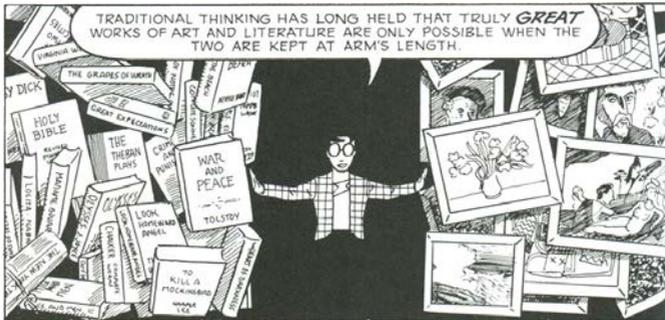


Fig. 15, Understanding Comics, Scott McCloud, 1993

Nick Sousanis expands on that statement:

“But in sequential art, the two merge seamlessly to recreate and re-tell ideas and thoughts in a whole new multifaceted way of understanding. The images and text can stretch as far as being abstract or realistic, with permutations of both also quite possible.

One of most remarkable abilities of comics is that the Graphic reader actively creates meaning through a gestalt of closure - joining the separate and transforming static into kinetic. We animate life into comics”

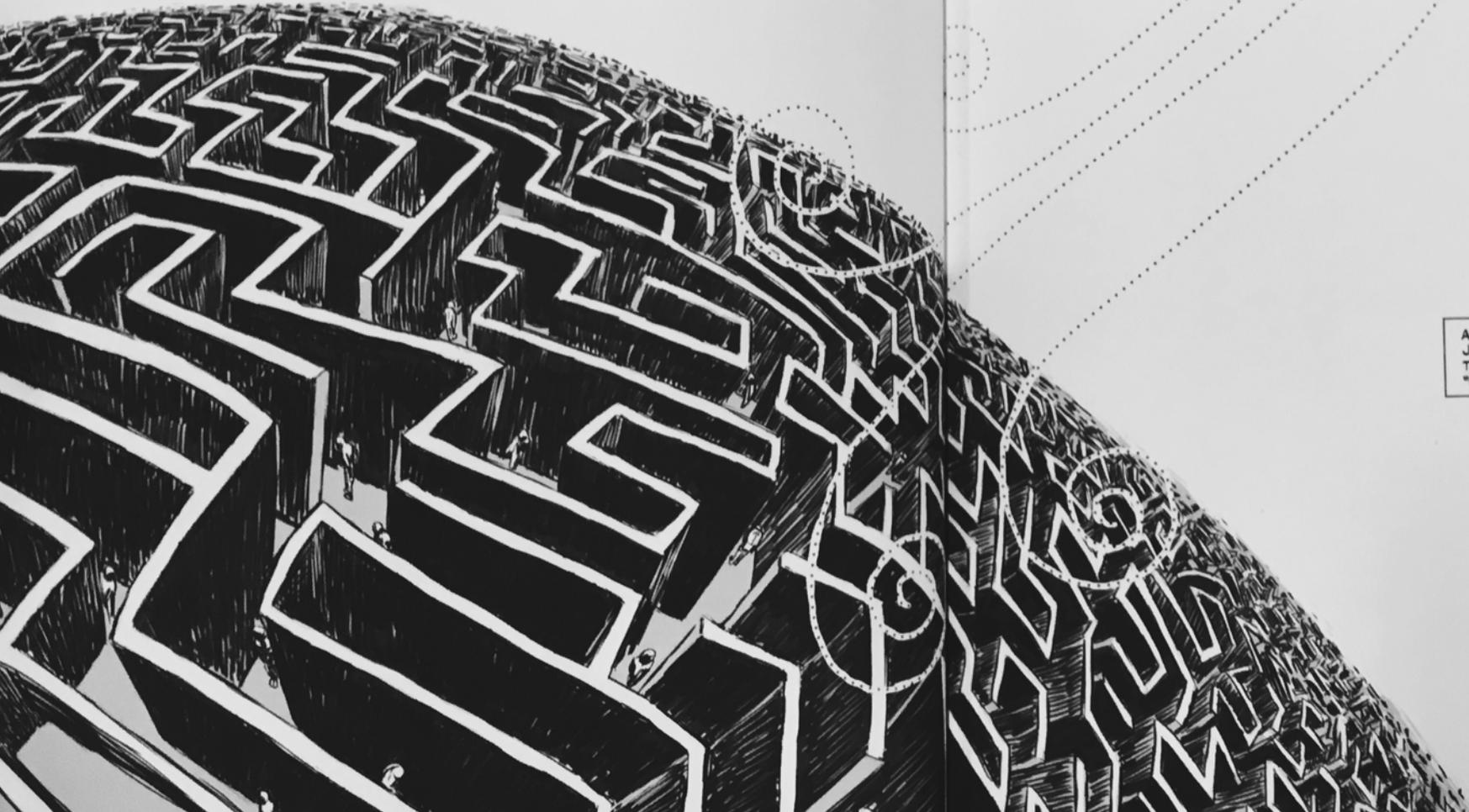
This implies how each static frame in a series of comics, contribute to hinting animated motion though they remain still by themselves our minds tend to animate and set them in animated motion through our imagination. So this hybrid mode triggers imagination, this creates dynamism out of the static, this is a unique capability of comics that no other medium of art can do. A means of generating imaginative dynamism out of static information. Continually involves the readers participation in understanding.

Comics are basically a combination of two modes of input, Text and Image. It helps to step out and see things from a different perspective. This also gives the ability of representing ideas from a realistic to abstract form.

And when we look at scientific scholarships done in past history, often times had illustrations aiding text to simplify the complexity of theories put across. It only helped them to explain scientific concepts with better clarity.

AND LOOK
ANEW.

ITALO CALVINO WROTE, "WHENEVER HUMANITY SEEMS CONDEMNED TO HEAVINESS, I THINK I SHOULD FLY LIKE PERSEUS INTO A DIFFERENT SPACE. I DON'T MEAN ESCAPING INTO DREAMS OR INTO THE IRRATIONAL. I MEAN THAT I HAVE TO CHANGE MY APPROACH, LOOK AT THE WORLD FROM A DIFFERENT PERSPECTIVE, WITH A DIFFERENT LOGIC AND WITH FRESH METHODS OF COGNITION AND VERIFICATION."



A CHANGED APPROACH IS PRECISELY THE GOAL FOR THE JOURNEY AHEAD: TO DISCOVER NEW WAYS OF SEEING, TO OPEN SPACES FOR POSSIBILITIES, AND TO FIND "FRESH METHODS" FOR ANIMATING AND AWAKENING.

IT IS ESSENTIAL TO NOTE HERE THAT THIS NEED NOT BE ACHIEVED ONLY BY SUCH HEROIC EFFORTS AS WINGED SANDALS (OR STALLION).

RATHER, IT IS, AS CALVINO NOTED, ABOUT FINDING DIFFERENT PERSPECTIVES, AND THIS BEGINS IN THINKING ABOUT SEEING...

Fig. 16, Unflattening, Nick Sousanis, 2012

4.3 Mind, Space & Time

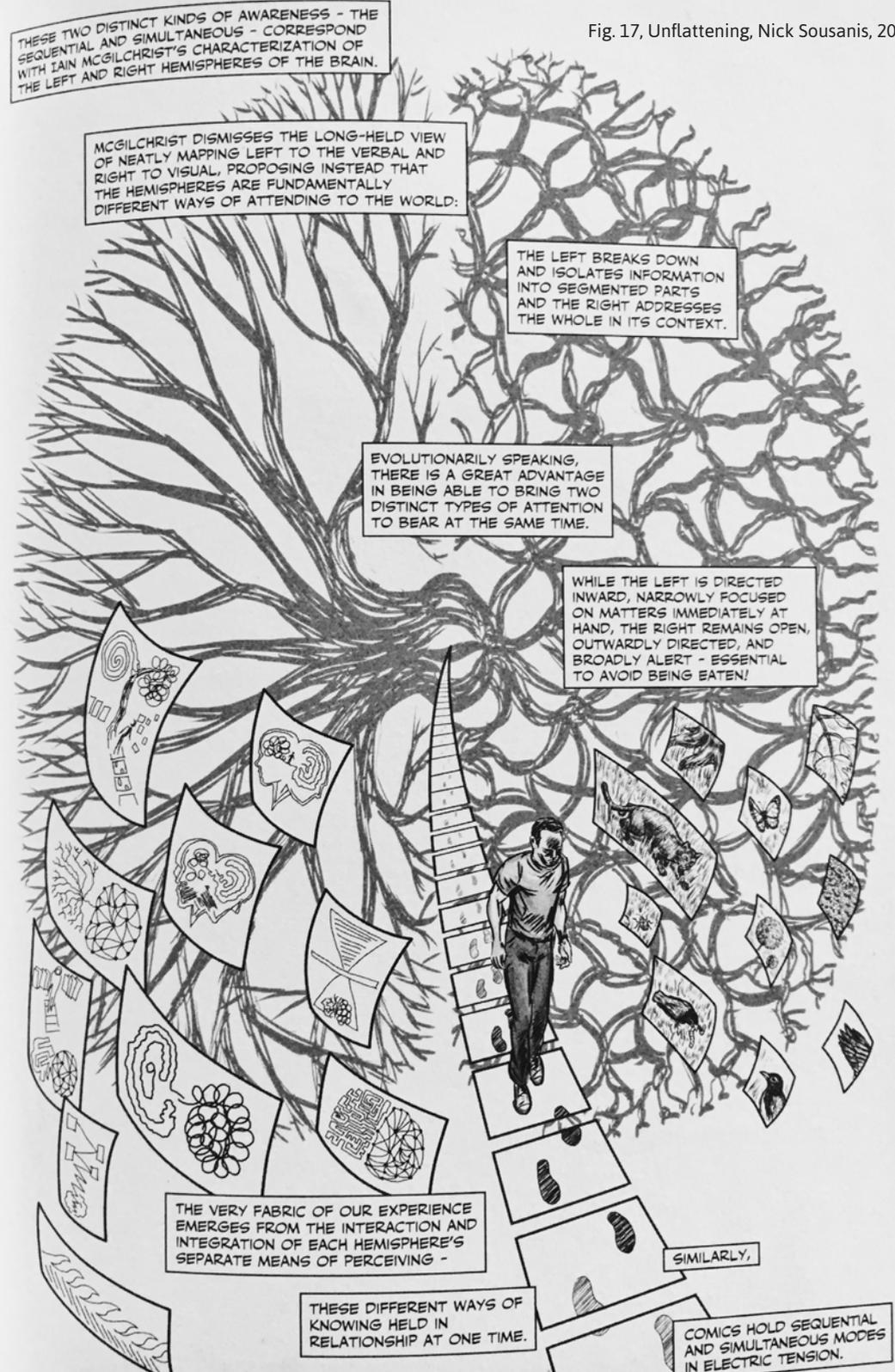
*"The intuitive mind is a sacred gift,
and the rational mind is a faithful servant"*
Albert Einstein

Sense of making images are as old as humans are. Much older than film. We learned to draw before we learned to write.

In April 2016, Researchers at the Psychology Department at the University of Waterloo have conducted experiments which concluded that drawing pictures of information that needs to be remembered is a strong and reliable strategy to enhance memory, even stronger than that of writing it down.

Ian McGilchrist (Psychiatrist and author of *The Master and his emissary: The Divided Brain and the Making of the Western world*), dismisses the long held view of neatly mapping the left hemisphere of the brain to verbal and the right to visual, proposing instead that the hemispheres are fundamentally different ways of attending to the world.

"The left breaks down and isolates information into segmented parts and the right assesses the whole in its context. Evolutionarily speaking, there is a great disadvantage in being able to bring two distinct types of attention to bear at the same time. While the left is directed inward, narrowly focused on matters immediately at hand, the right remains open, outwardly directed, and broadly alert. The very fabric of our experience emerges from the interaction and integration of each hemisphere's separate means of perceiving. These different ways of knowing held in relationship art one time."



Sousanis further explains:

“How the Human brain works in two parts. One which works in linearity with the awareness of sequence of events in time along with the awareness of space. The other part which works simultaneously in parallel are thoughts, memories and other perceptions. The two modes of information become interdependent and inextricable. They interweave, interanimate and generate a kind of multiplicative resonance - A dynamic cycle of read-look, read-look...”

Each informs and enriches the other to achieve a meaning. R.C Harvey (Author, critic and cartoonist) states:

“That neither conveys alone without the other.”

This helps us to plumb depths of greater discourse and understanding. Comics beyond uniting text and image, allow for the integration and incorporation of multiple modes signs and symbols. Notational symbols and representational imagery (as termed by Author Perry Nodelman). Frames, windows, clouds, thought bubbles etc drawn are a series of tools exclusively used only in comics.

The extensive use of text in comics have graphic characteristics in their own sense. Form, colour, shape etc is carefully chosen to reflect the context of the scenario. Composing of frames with pictures and text while designing layouts in each page, in a way depicts how a comic artist forms a screenplay similar to motion picture.

Space and time can be depicted in multiple variables and representational techniques in comics. This is one of the primary reasons why I favour the use comics over other media like film, text etc.

The comic space makes it easier to visually embody the idea of space. Multiple layers of reality can be depicted in the same time to compose an idea. Comics can be linear, multidirectional and wholistic while reading, unlike film. And because the information can be acquired all visually through image, along with text as supporting data about the information that has to be conveyed to the reader. Furthermore, unlike film and audio, each page can be flipped through at the pace of the reader, giving ample time to absorb and process the data.

Art and illustrations in comics can vary between extremes of realism and abstraction. And the comic artist can go as far as being as he wishes with the illustrations and still convey the information in a more direct sense by the use of informative text by its side. Hence the writer/artist has the freedom to control the level of abstraction as per his/her needs. A fine balance between art and language.

4.4 A Thought Generator

Comics are not only a powerful tool to express complexities of thought, but also a powerful tool to generate thinking. When analysing space, our eyes dart to and forth in all directions, making relationships to perceive ideas of depth, volume, colour and contrast etc.

Drawing on paper activates the visualisation engine in the mind. One starts perceiving and relating such thoughts and ideas in relation to reality like how our eyes do.

An act of drawing encourages the artist to communicate and reflect on ones visualisation capabilities of space. The act of drawing helps discover specifications and details which text would have otherwise missed, mistakes leading to discoveries that weren't intended. That makes drawing also a process of discovering than just creating. Drawing is not a representation of ones thinking, it is what one is thinking. It is the interaction between the artist and the drawing which makes it a mode to generate and propel thought.

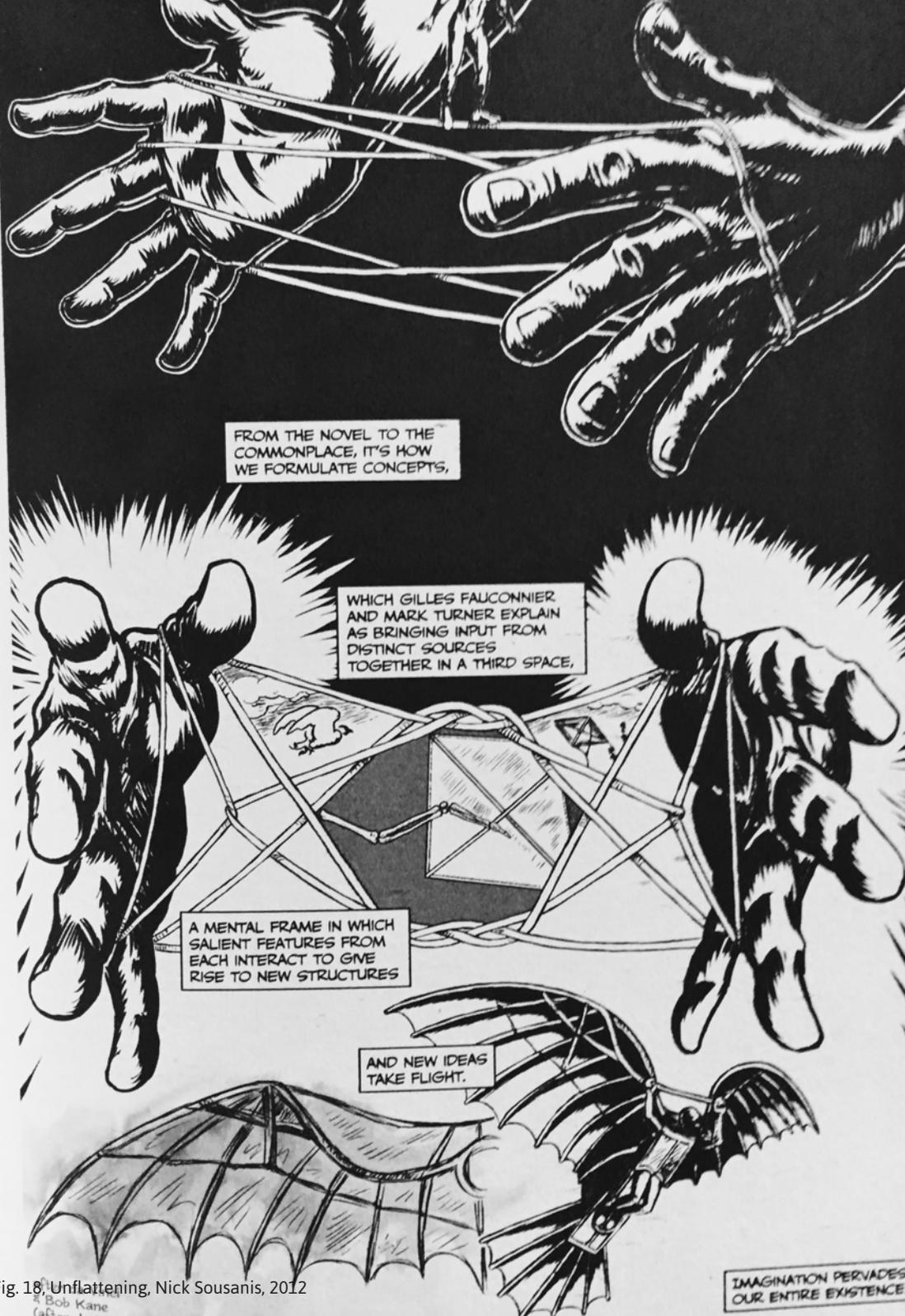


Fig. 18 Unflattening, Nick Sousanis, 2012

4.5 Spatial Explorations

Comics give the maker a certain freedom to play, manipulate and explore the notion of space and time in many ways to suit one's intent. Rules of reality can be bent here in ways which can not be otherwise represented in other media. The following examples express how powerful yet simplistic a tool comics can be, to explain complex ideas and concepts with ease.



Fig. 19, le reflet du rêve, Marc Antoine Mathieu

Manipulation of physical realm concepts in comic space

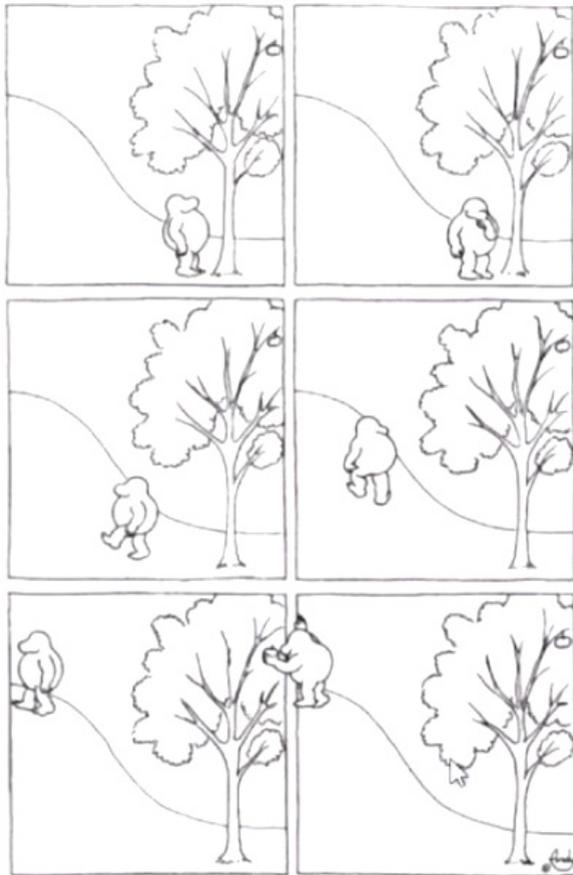


Fig. 20, Konkykru, Andy Bleck

Manipulation of linearity in space and time



Fig. 21, Unflattening, Nick Sousanis, 2012

Nick Sousani's explains wholistic simultaneous and linear sequences in reading spaces



Fig. 22, Watchmen, Alan Moore, 1986

Events from past, present and future can be simultaneously depicted in a single page

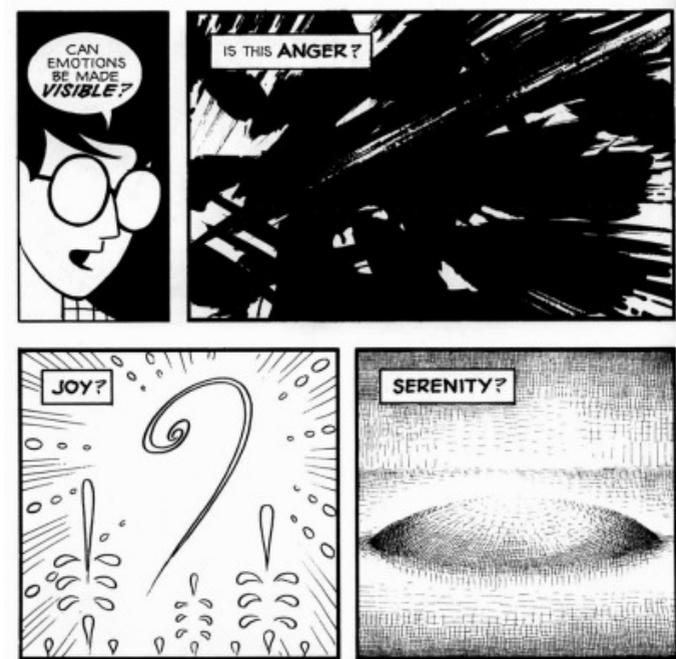


Fig. 23, Understanding Comics, Scott McCloud, 1993

Abstract representations through visual imagery

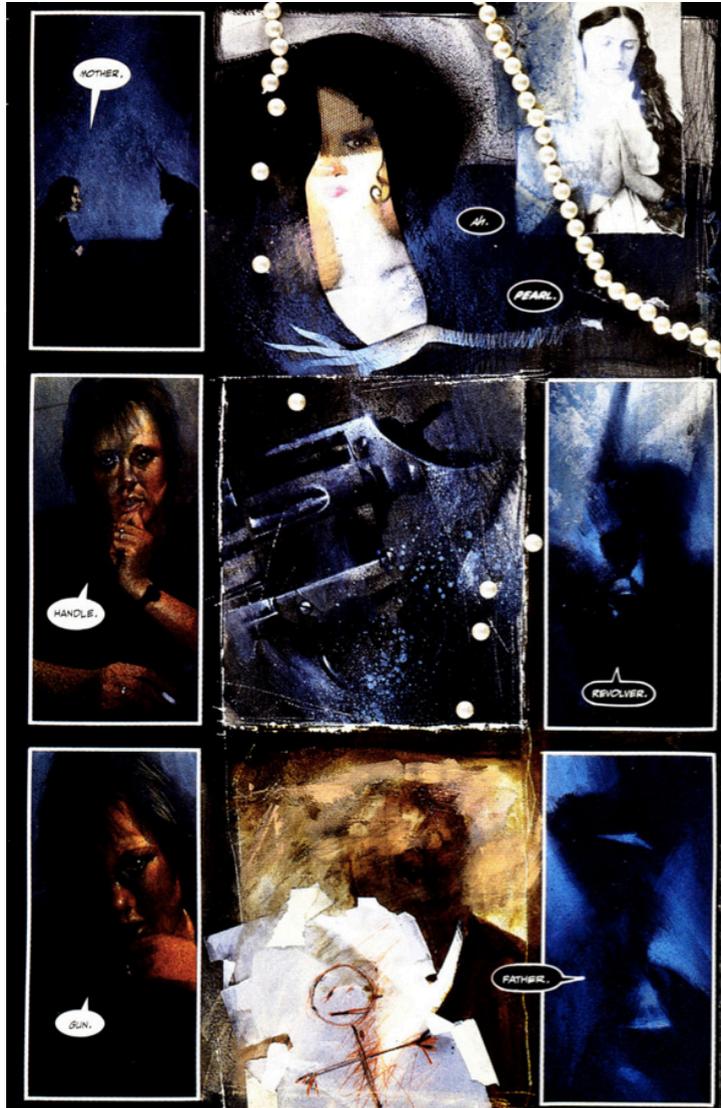


Fig. 24, Arkham Asylum, Grant Morrison, 1989

Abstract representations of atmospheres and mental moods



Fig. 25, Abstract, Andy Bleck

Highly abstract mode of representation in comic space

4.6 Sequential Art V/s other modes

Throughout my study on the primary topic, there were other possible modes of expressing the concept of space I had considered during my thesis. Although they had the potential to be effective in their own ways, I compared them to Sequential art to assess which could be most favourable for me. A few to be named are as followed:

4.6.1 Mixed media film/Motion picture

A documentary or film focused on showing and explaining the entities of space. Either in direct or abstract means. Although many films and documentaries have already been made over concepts of space relative to architecture, it hasn't had a widespread impact in creating awareness.

4.6.2 Experiential space

A space dedicated to explain space itself. A museum or experiential installation which explains basic attributes of space through phenomenological expressions. Expressions which invoke emotions and sensations within the user to help them better understand the impact of space. An experiential space dedicated to explore space seems to be a powerful medium, but the issue with it is that it is limited to a localised audience that it exists in. Only a limited number of viewers can reach this space. It's reach is very limited. Furthermore, space technically exists all around us, if one is merely taught to look for it's presence, one can be aware of it. An experiential space in that case would seem redundant.

4.6.3 Digital multimedia

A digital platform available online at anytime for free for users all over the world to access basic information in realising space. Use of VR/virtually designed space to explore and experience space through digital means. An online database of information with mixed media, can be a far reaching tool, but it lacks the touch of the elemental.

Virtual media is something that can communicate information over screens. And with virtual reality, visuals and sounds of space can be perceived to a great extent. But it doesn't involve the users imagination to project, process and perceive information the way sequential art can with abstract ideas.

4.7 Inference

Of all these possibilities for an outcome, I favoured to choose Sequential art because of certain factors that held as advantageous over other modes. All above mentioned media have great attributes which support as an additional medium, but the sense of evoking abstract thought and animating imagination is limited in all these, the linearity of time as a sequence, limitations of exposure and the absence of touch, in all such mediums put Sequential art as a primary mode.

5. DEFINING THE OUTCOME

So as noted previously, Architects once used paintings, collages and artworks to explain atmospheric experiences in spaces they proposed to design. But since the invention of 3d visualisations, the use of older means to express spatial atmospheres and ideas has been long lost.

By using 2 dimensional medium to explain/educate the 3 dimensional spatial expressions, I intend to take a step forward in evolving that methodology to explain ideas of abstraction. Using text to encourage the idea behind an image to convey the information. Using familiar tones to explain something unfamiliar.

To summarise, I define my approach as:

A philosophical, ontological and phenomenological approach to translate spatial expressions on a two dimensional medium. An experimental attempt to formulate a way to understand space, both its physical and psychological values and in uences, over two dimensional modes of expression. Furthermore an illustrative exploration of the physically intangible aspects of spatial expressions/ entities to tangible representations.

5.1 Parameters

To shape an outcome I devised a series of attributes and parameters that I could work within to define and attain the final outcome.

5.1.1 Target group

As for a target group I aim at creating an outcome for beginner level learners who are interested in understanding the influence and aspects of space. Possibly even for young learners in the creative field of art, architecture, photography, design etc.

5.1.2 Intent of outcome

To finalise on the nature of the outcome I set a few parameters and conditions to help me derive the best possible outcome :-

- Ease of Accessibility.
- Theoretic content must be conveyed/translated precisely.
- A visual expression/medium should be involved to depict imagery.
- To express the concept in simplistic terms of understanding or absorbing the information.
- An alternative medium to existing modes of conveying the idea.
- Info should be easy to manipulate/ exible enough to shift

5.1.3 Approach

A definitive approach of possible techniques and methodology to achieve the desired goal:

- Explain the concept as a narrative
- A phenomenological approach (added sense of touch, visual, smell etc).
- Use of sketches, drawings, paintings and photographs set along with text.
- Qualities of spatial depth, distance, volume etc to be translated over paper and image. Paper has qualities of being both a two dimensional and 3 dimensional at the same time.
- Approach, explore and explain the theoretic content from multiple perspectives and subjects like art, philosophy, culture, history, science, architecture etc. to give a broad, unbiased and wholistic sense of the concept.
- Give a notion of abstraction and realism.

6.PROCESS & METHODOLOGY

The process involved writing and sketching the ideas simultaneously side by side. Sketches to text to painting and digital art all composed together in a series. The thinking process and prototyping into arriving at how I get to expressing an idea, as a documentation is featured ahead.

6.1 Working title

“ECHOES IN SPACE”

The title is suggestive of the fact that Space has always been in constant communication with us, on levels we were not ready to comprehend or perceive. They remain as living echoes from different tangents in time. The illustrative work shall take the reader on a narrative journey to perceive and listen, rather than to just hear and pass.

6.2 Subjects of Interest

Regarding the basic topics I would like to explore regarding space, I decided upon the following :-

- Pure space/Zero space/The Void
- Presence of absence/Volumes in space
- Solids and Forms
- Light (Lumina) (Radiance, Iridescence, opalescent etc):
- Shade (Tales from the Realm of shadows): Significance of shadows
- Textures and touch (By the touch of the eye): Touch perceived by skin and vision
- Genius loci/Spirit of a place: Influence of environment over human beings
- Pneuma/Mindspace: Psychic implications of space
- Value of space: To make one understand that it is one of man's basic needs to experience his life experiences meaningfully.

6.3 God is Nothing

To begin with, as the introductory chapter of the outcome, I intend to explain the value of space in its purest essence. In a world full of 'clutter', we have forgotten the value of nothingness, and there lies the true realisation of the value of space. We are surrounded by a farrago of things, objects and entities all around us. To realise what it means to be free of it all is by itself a sense of awakening within our consciousness. To express this I intend to explain Space in its bare form, without any entity or object within. A concept of sort of nullity in space devoid of all matter, which is Zero space or the Void. This would be a starting point of explaining the concept of space itself. To understand this concept I realise that one has to understand the state of nothingness. I begin exploring this with the origin of mankind's realisation of it.

The invention of zero in mathematics by the Indian mathematician and astronomer, Brahmagupta, led to profound revelations in Science and Mathematics. It's discovery had not only influenced the logical practices but also in the spiritual and philosophical realms.

In the first millennia BC, scholars from the ancient Hindu school of thought and philosophy called the Advaita Vedanta, contemplated over the concept of realising/discovering/understanding the penultimate level of consciousness. They consumed a potion of herbs called the 'Som-ras', which heightened their consciousness to seek. There are millions of deities and gods in Hindu mythology, over 33 million in fact. Each categorised under Elemental, conceptual types. But there is one that prevails over all is an enigma called Nirguna Brahman. Nirguna Brahman is conceived to be an unconceivable spirit, an unimaginable kind of divinity. One that exists everywhere but does not exist anywhere.

To recognise day, night should relatively exist. Similarly, to recognise the existence of unimaginable nature, relatively the imaginable nature must exist. And the concept of nothingness or zero is an unachievable concept for a living being to experience, unimaginable. A feeling that can never be experienced by a conscious being.

Zero.

Formless, shapeless. A non entity, A non being.
A non-being that transcends all beings...

In other words, Nirguna Bhavan is nothing or no-one. Nirguna Brahman is true Nullity in spirit. An all supreme consciousness, which is free of any conscious thought or feeling. Pure and free by itself. The ultimate reality underlying all phenomena in the Hindu scriptures. Brahman is formless but is the birthplace of all forms in visible reality. Nirguna can be translated from Sanskrit as "without qualities", a consciousness free of thought and conception, a consciousness absolute. The ancient Hindus understood and realised, in their terms, that the God of all Gods was in fact "Nothingness". And going by the definition of God, as a divine entity beyond man's comprehensions. One which is primordial, has no beginning or end. One which is Omnipresent, that is present everywhere. One which is immortal. Upon whom the rules of the universe were not applicable. A transcendent being beyond all real comprehensions and conceptualisations. Nirguna Brahman is zero in every sense.

So if god according to the ancients is zero, what would be the physical manifestation of it? This could be understood better by understanding the idea of what is not God, the opposite of zero.

Something can not be nothing. And in physical terms, matter is something. Matter has presence. It can or can not have a consciousness. It has form and thereby it can not exist everywhere. Limits in physicality define its parameters of existence. Matter is imaginable. Matter exists. If matter is the anti-concept of zero by physical terms, then what would be the physical manifestation of zero? non matter?

Something that does not have a physical presence or absence. Something that is everywhere omnipresent. Something primordial.

There could only be one unaffected by the rules of the universe, unaffected by time, truly immortal...
Space.

A non-being.
One that exists everywhere
One that is within all.
Space is God.

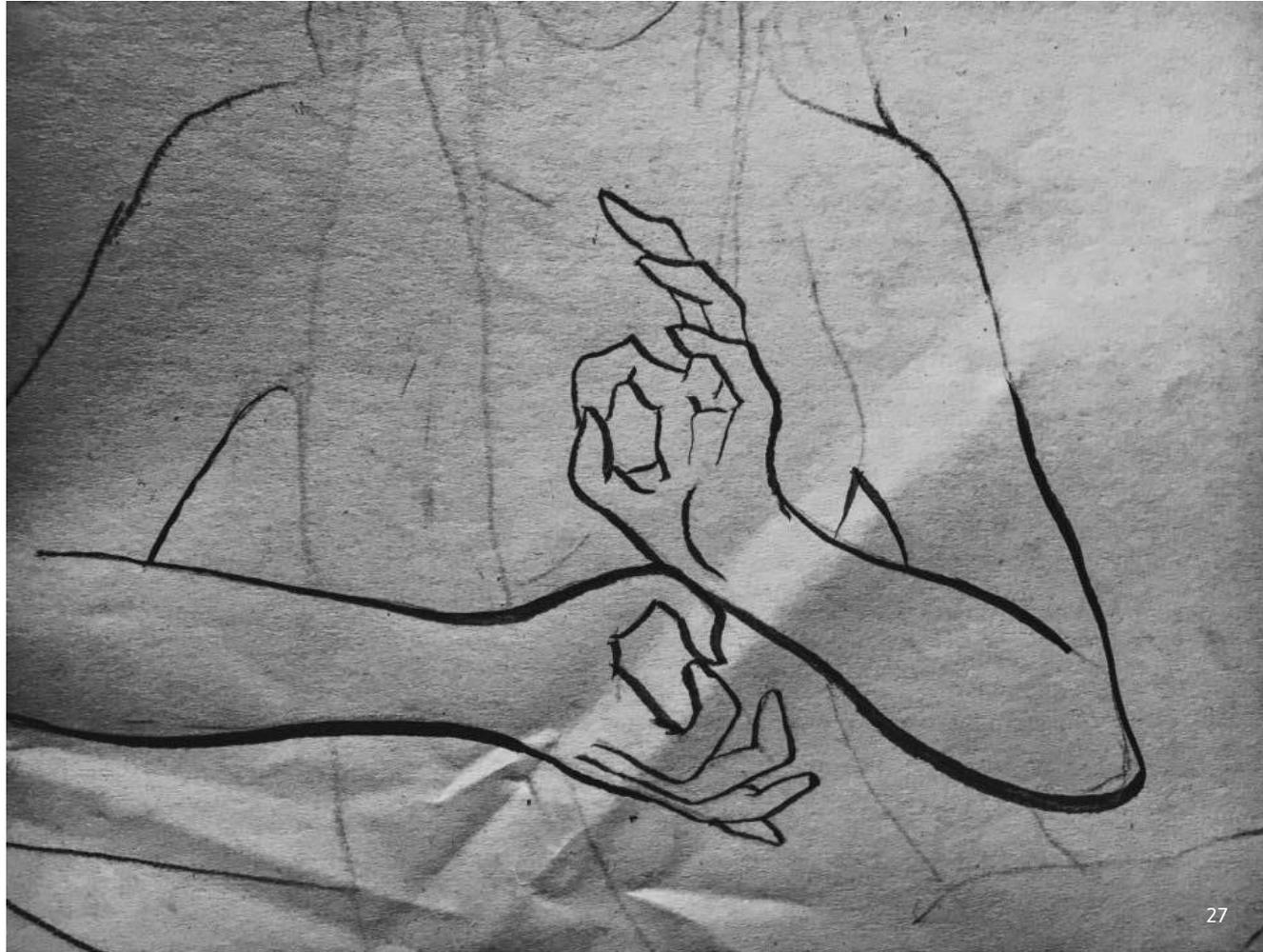
Only in understanding the absence of something, can its presence be truly realised.

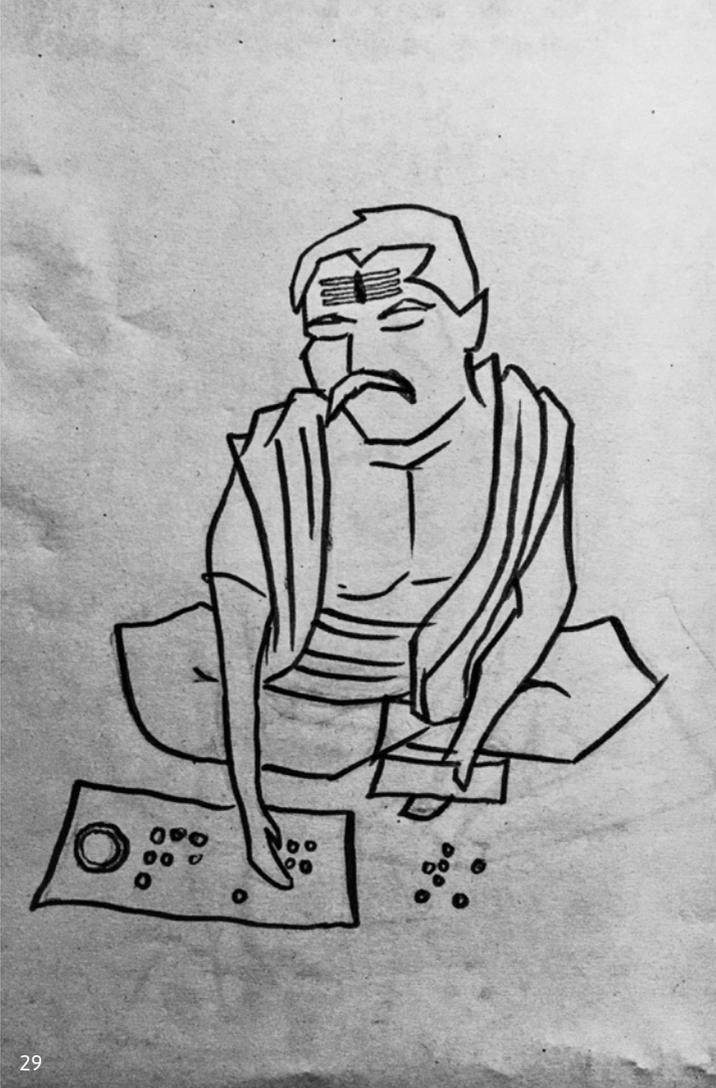
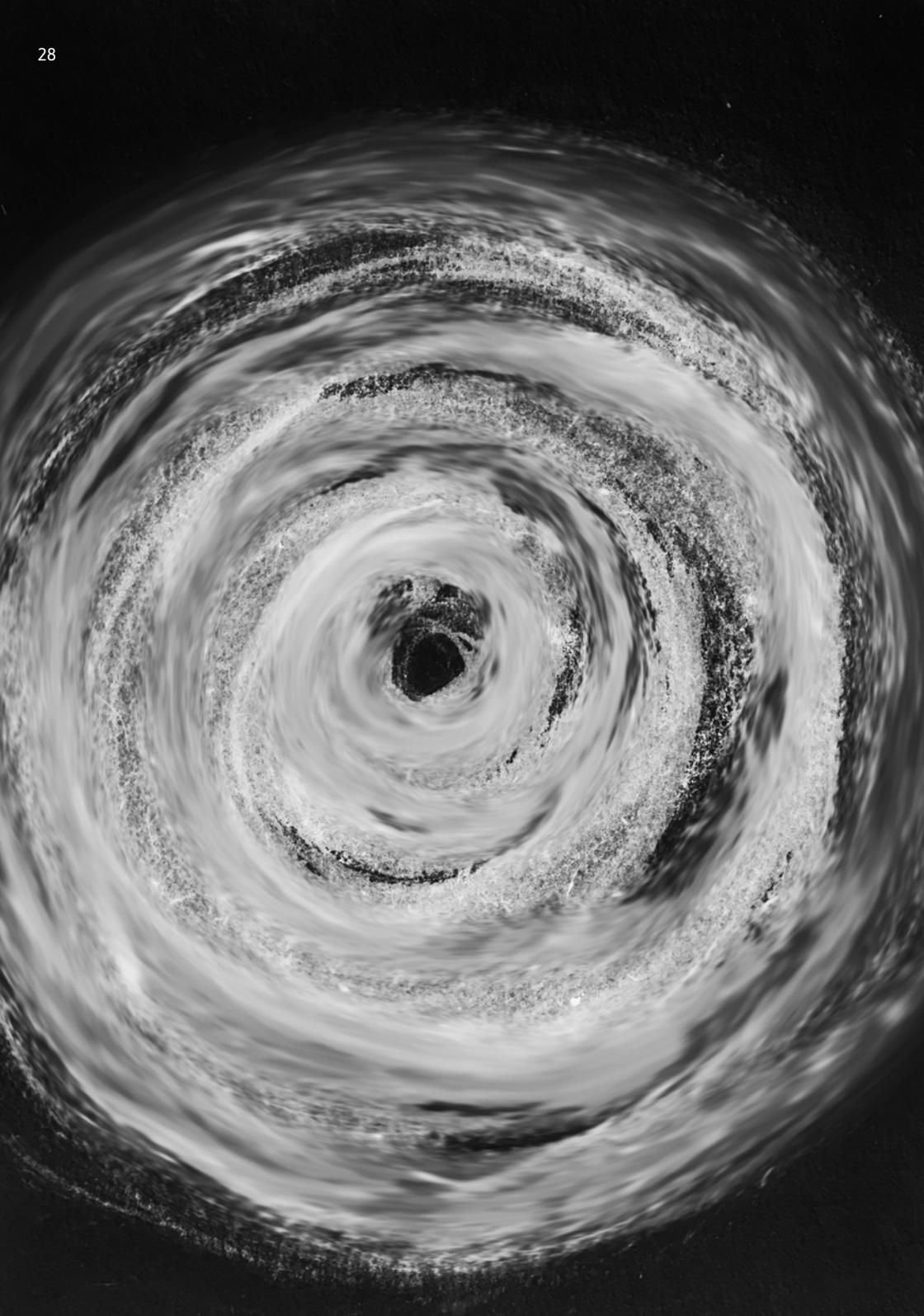
6.4 Making Nothing

Creating a visual narrative for the script of the first chapter "God is nothing" was quite a challenge. Verbal mode of explaining the concept was possible, but representing nothingness in visual terms, was interesting to approach. I first began with the illustrations of the origins of zero. Of the ancient city of Bhillamalla and of its prodigal mathematician Brahmagupta and his discoveries. From there the invention of zero, its applications and how the mystics and scholars from the Advaita Vedanta contemplated over the divine consciousness of Nirguna Brahman. Expressing the value of space through mythological references and historic art from India. I explored the visual using paint, sketches, photographs and digital illustrations, as a sort of merger within the visual modes itself. The text had to be simplified to be precise and informative wherever the image wasn't able to convey complete information. Furthermore to add on to it, I realised paper the 3 dimensional aspect of paper that could be explored. The nature of paper being a two dimensional surface for art and three dimensional object which can be cut through to represent voids, proved to help depict representations with more clarity. Added sense of touch and maybe scent, over the paper also gives a possibility for me to try multiple textures to represent ideas in certain contexts when required.

The following are excerpts of my working drawings, paintings, photographs and illustrations in the development of the final outcome.

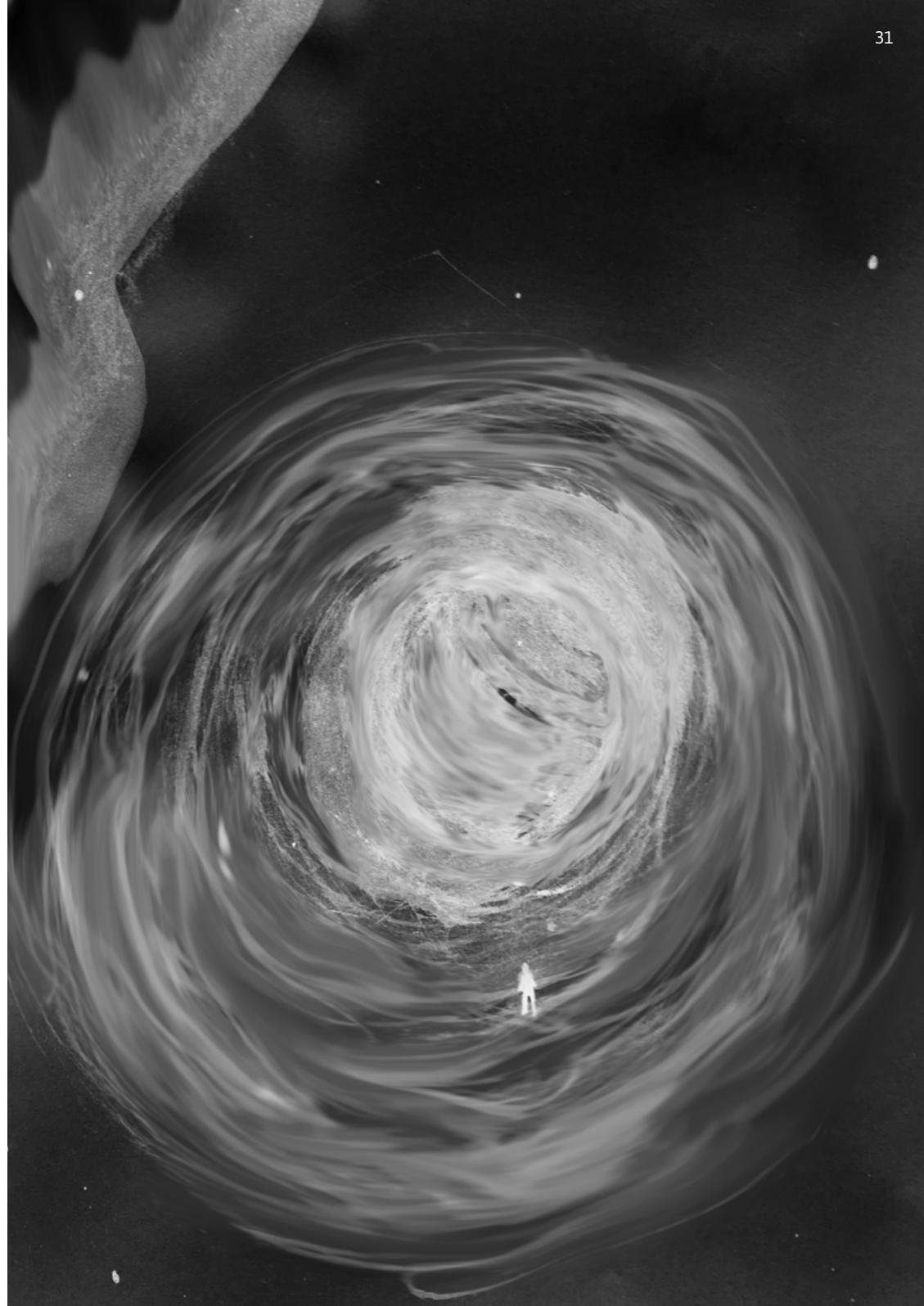








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7. OUTCOME & FURTHER POSSIBILITIES

7.1 Realisation

After multiple trials of drawings, illustrations and writings, I fixed upon the sequence for the first chapter of the book. An introductory chapter where I do not primarily focus on the aspects of Space but rather a derivation and eventual lead to explain the significance of Space through a narrative which takes one through history, mythology, philosophy and science. The following is a short sample sequence of the first chapter.



YEAR 628 AD
BHILLAMALA, INDIA



AT A TIME WHEN IN MOST OF THE WORLD, SCIENCE AND RELIGION WERE AT ODDS WITH EACH OTHER THE TWO MINGLED HAND IN HAND, IN INDIA. AND THE CITY OF BHILLMALA HAD BECOME A CENTRE FOR ALL KNOWLEDGE...

ज्ञान

MEDICINE

ASTRONOMY

SCIENCE

ART

PHILOSOPHY

MATHEMATICS

BUT OF ALL THE SCHOLARS THERE WERE IN BHILLAMALA, THERE WAS ONE WHOSE DISCOVERIES SHAPED THE VERY FUNDAMENTAL PERCEPTION OF MAN'S VIEW OF THE WORLD AND BEYOND.

HIS NAME WAS "BRAHMAGUPTA", AN ASTRONOMER AND MATHEMATICIAN EXTRAORDINAIRE. THIS INGENIOUS MIND COMTEPLATED ON SUBJECTS WHICH LED TO HIS DISCOVERIES OF...



BUT OF ALL HIS DISCOVERIES, THE MOST PHENOMENAL ONE, WAS WRITTEN IN A BOOK NAMED *ब्रह्मस्फुटसिद्धान्त*

WRITTEN IT AT THE AGE OF 30, THIS WAS A REVELATION OF A UNIVERSAL SIGNIFICANCE. THE DISCOVERY WAS INCREDIBLY SIMPLE, YET SO POWERFUL THAT OUR WORLD WOULDN'T HAVE BEEN THE SAME WITHOUT IT.

AND SIMPLY PUT THE DISCOVERY WAS THE REVELATION OF ...

ZERO.

THE ABSOLUTE RELEASE OF EVERYTHING.

A STRANGE AND MYSTERIOUS CONCEPT, ONE OF THE
GREATEST PARADOXES OF HUMAN THOUGHT.

NOTHING

IT MEANS BOTH EVERYTHING AND NOTHING, IT IS BOTH A NUMBER AND A NUMERICAL DIGIT.
THE MOST SIGNIFICANT MATHEMATICAL INVENTION ON WHICH EVERY CALCULATION DEPENDS ON.





ZERO FULFILLS A CENTRAL ROLE IN THE CORE OF MATHEMATICS.

AS A DIGIT, "0" IS USED AS A PLACE HOLDER IN PLACE VALUE SYSTEMS. THIS AIDED IN SIMPLIFYING CALCULATION TECHNIQUES.

THE ADDITIVE IDENTITY OF INTEGERS, REAL NUMBERS, ALGEBRAIC STRUCTURES AND DECIMAL SYSTEMS...

WITHOUT ZERO, NOT JUST MATHEMATICS BUT ALL BRANCHES OF SCIENCE WOULD HAVE STRUGGLED FOR CLEARER DEFINITIONS.

WITHOUT THE INVENTION OF ZERO, THE VERY BASIS OF MODERN DAY COMPUTERS AND DIGITAL TECHNOLOGY - THE BINARY SYSTEMS, WOULDN'T EXIST.

BUT THE APPLICATIONS OF ZERO DIDN'T END AT THAT...

FIRST MILLENA B.C

SCHOLARS FROM THE ANCIENT HINDU SCHOOL OF THOUGHT AND PHILOSOPHY-

CALLED "THE ADVAITHA VEDANTHA"

CONTEMPLATED OVER THE CONCEPT OF REALISING THE PENULTIMATE LEVEL OF DIVINITY.

TO COMPREHEND THE IDEA OF AN ALL SUPREME ENTITY WHOSE CONCIOSNESS TRANSCENDS BEYOND EVERY OTHER...

THEY CONSUMED A POTION OF SACRED HERBS KNOWN AS SOMA-RAS

SOME CALLED IT - THE DRINK OF THE GODS

IT CLEARED THEIR THOUGHTS... HEIGHTENED THEIR SENSES

AND THEY DOVE DEEP INTO THEIR MINDS

IN A THOUGHT CONTEMPLATED MEDITATION.

TO SEEK ANSWERS



7.2 Prospects

I would like to consider possibilities of evolving it further through the book. Using links (like QR code scans) from the book to take the reader from the book to a digital realm when and if necessary. I would also like to consider this book to have a potential to aid classrooms and literary reading if reached out to students. I would like to explore paper textures as a material to evoke the sense of touch, a mode to further exemplify how one perceives and senses touch. An understanding of how I can possibly make further use of the nature of paper being a surface and a 3 dimensional object could help me explore concepts with more ease, it is something that conventional comics has not yet explored, how can voids and folds in paper be used as a part of the story telling narrative.

7.3 Conclusion

The project started with an intent to create an awareness among the masses about the significance of space. I realised the factor at fault due to which people are unaware about the subject is due to lack of education and sheer negligence.

From there on I studied methodologies of professional and artists who deal with the subject of space and work around it. I looked into psychologists, artists and architects and their mediums used in communicating spatial ideas and expressions. This led me to realise that there were two primary modes that they used in expressing: theoretic discourse and visual imagery. This intrigued me to study further on the union of image and text which led me to Nick Sousanis's work (Unflattening) which gave me deep insight into the modes of constructing knowledge. Researching on how the human mind absorbs information when presented with such a medium, reinforced my clarifications on using this as a primary mode to reach out to the masses. While further studying on how to make sequential art, I was enlightened by Scot McCloud's book (Understanding Comics) to a great extent. This helped me to deconstruct aspects of comic making and the creative processes involved in it. I looked into other alternative modes and compared it with Sequential art, to clarify if it was the

favourable medium to go ahead with, and indeed I was convinced that I was on the right track. As the next step I decided to create parameters and guidelines to make a book dedicated to explain spatial concept, using sequential art as my mode of choice. After defining the parameters, I wrote a script and sketched for the first chapter. Then carried on with multiple prototypes and trials to figure out the best possible representation of ideas I had perceived. Using mixed media of text, paint, sketches and digital illustrations I was able to produce an introductory chapter for the book.

I had referred multiple books and articles during my course of research. It took me ranging on subjects from architecture, psychology, art, philosophy, science, mythology and comics. Furthermore my travels to architectural and spatial wonders in India, Berlin, Paris, Czech Republic etc had left a strong influence over my work. Starting from the 6,000 year old cave dwellings in Kerala (India) to Daniel Libeskind's Jewish Holocaust museum in Berlin, had shown and taught me a lot in this subject as case studies. This has thus far been my journey in this knowledge hungry adventure called Thesis.

I understand the medium I use has the potential to be an added tool to all existing modes of education in the subject of space. And although researching, analysing, writing and illustrating for each topic under space may take a considerable amount of time, my intent to spread awareness on spatial matters will keep me motivated to pursue and finish the book in the near future. I consider this thesis only a beginning of an envisioned intent of helping society to be aware of something that influences them in ways beyond our comprehension.

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Fig.1. Continuum, Author 2016

Fig.2. Relics & Questions, Author 2017

Fig.3. Casa Sperimentale, Oliver Astrologo 2015, <http://www.architezer.com>

Fig.4. Eulogy, Author 2016

Fig.4.1. Realms, Author 2016

Fig.5. Flight, Author 2017

Fig.6. Bollingen tower, CG. Jung Institute Los Angeles, CG. Jung Institute Los Angeles, <http://www.junginla.org>

Fig.7. Starry night, MoMA learning archive 1889, <https://www.moma.org>

Fig.8. Bahai temple at Santiago, Hariri and Pontarini Architects 2016, <https://www.siamakhaririarchitects.com>

Fig.9. Still Life, Le Corbusier, 1920, <https://www.moma.org>

Fig.10. Villa Stein-de-Monzie, Vaucrsson Garches, 1927, <https://www.fondationlecorbusier.fr>

Fig.11. 18.36.54 residence sketches, Daniel Libeskind, 2013, <http://libeskind.com/>

Fig.12, Unflattening, Nick Sousanis, Printed 2012

Fig. 13, Unflattening, Nick Sousanis, Printed 2012

Fig. 14, Understanding Comics, Scott McCloud, Printed 1993

Fig. 15, Understanding Comics, Scott McCloud, Printed 1993

Fig. 16, Unflattening, Nick Sousanis, Printed 2012

Fig. 17, Unflattening, Nick Sousanis, Printed 2012

Fig. 18, Unflattening, Nick Sousanis, Printed 2012

Fig. 19, le reflet du rêve, Marc Antoine Mathieu

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Fig. 22, Watchmen, Alan Moore, Printed 1986

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Fig. 24, Arkham Asylum, Grant Morrison, Printed 1989

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Fig. 26 to Fig. 36 Process & Prototypes, Author 2017

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Confirmation of Authorship

I hereby formally declare that the work submitted is entirely my own and does not involve any additional human assistance. I also confirm that it has not been submitted for credit before, neither as a whole nor in part and neither by myself nor by any other person.

All quotations and paraphrases but also information and ideas that have been taken from sources used are cited appropriately with the corresponding bibliographical references provided. The same is true of all drawings, sketches, pictures and the like that appear in the text, as well as of all Internet resources used.

Violation of these terms will result in failure of the seminar and no credits will be awarded. I am aware that plagiarism is serious academic misconduct, which can lead to further sanctions on reoccurrence.

29 June 2017

DATE

A handwritten signature in black ink, appearing to be 'D. W.', written over a light grey rectangular background.

SIGNATURE

