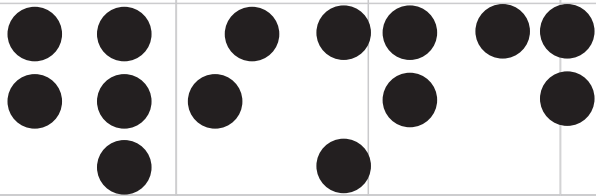
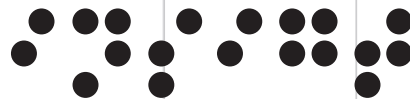


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Blind



Insight



Claudia Pfeil
2010





Massey University

COLLEGE OF CREATIVE ARTS

Toi Rauwharangi

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A thesis presented in partial fulfillment of the requirements for the degree of Masters in Design
at Massey University, Wellington, New Zealand

By Claudia Pfeil, 2010

This thesis is dedicated to the memory of my aunt Uti-Ruth Hampel (1932-1988).

Special thanks to Mara Kelland (a blind student at Auckland University) who became a friend during the project and who inspired me to achieve this. Markus (my guide at *Dialogue in the Dark*) and David Piper (former staff member at *NZRFB*) for sharing their knowledge and for their encouragement. Thanks to the *BSVS* (Blinden- und-Sehbehinderten-Verband Sachsen e.V., Germany), staff members of *Dialogue in the Dark* (Frankfurt/Main) and the *RNZFB* (The Royal New Zealand Foundation of the Blind).

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Abstract

The loss of sight is usually associated with the loss of the visual outer world. Traditionally, total blindness has been defined by sighted people in a negative way. The stereotypical belief is that the totally blind inhabit a dark world in which mental images of the outer world no longer exist. However, gaining insight into an experience of blindness may help the sighted to understand more accurately what Michael Monbeck (1973) terms 'the true meaning of blindness'. (Monbeck, 1973, p. 157)

Blind Insight provides an insight into what is named 'imagined blind seeing' by exploring the systematic processes of sensing, selecting and perceiving.

Through tracing and mapping two auditory experiences photographically, the resulting work, ***Blind Insight***, seeks to give a visual voice to moments of perception and imagined images as described by the blind author and scholar John Hull who describes sound as equating with light: "This is my way of turning on the light. Sound is the equation to light. Rain has turned the light on." (Hull, 2001, p. 10)

Abstract black and white photography has been employed to convey a sensory experience and photo collage to make visible the dimensional complexity of imagined blind seeing.

The design work argues for a fresh insight into the sensory and imagined world of the blind. By fostering a dialogue between the blind and the sighted, the research project aims at celebrating the many rich and diverse ways the senses, and in particular the sense of sound, are used in experiencing the phenomena of the physical world.

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1. Central Proposition

Contemporary literature on the subject of blindness indicates that sighted people often disregard the unique issues and challenges that blind people face and are therefore unable to comprehend what it is like to be totally blind. Reasons for this are outlined in what Monbeck describes as “the desire to avoid contact with blind people, which often becomes a general rejection of them (by the sighted) in many areas of daily life.” (Monbeck, 1973, p. 5) In addition, studies show that blind people are a marginal group within society and therefore contact with them is rather infrequent (Monbeck, 1973; Heinicke, 2000).

Because the sighted lack fundamental knowledge about the conditions of blindness and the blind person, they tend to base their concepts of blindness on assumptions as to what this state may be like (Jernigan, 1995; McHugh, 1994). The creation of these concepts is first and foremost based on a set of associations that the sighted person may experience when turning off the light, namely darkness and emptiness. It is no wonder then that “the vast majority of people fear losing their sight more than any other sense, because they think blindness means darkness, isolation, incapacity, and an end to normal life.” (McHugh, 1994, p. 1) Not only are such concepts based on uninformed assumptions they are also influenced by what Barraga calls emotional laden attitudes (Barraga, 1976). Barraga argues that the sighted person’s ability to instantly see his/her environment inhibits him/her from imagining what it is like to be blind from a different perspective. This inability to switch from being sighted to a state of imagined blindness often causes misconceptions and leads to blind people feeling misunderstood.

There is a growing interest in the consciousness of the blind person among researchers and scholars. Recent research in the field of neuroscience, psychology, and special education has opened up new fields of exploration. Neuroscientists have investigated the visual imagery of blind people by using electronic devices that measure brain functioning and the ability to visualise. As a result it is “now generally accepted that visual imagery activates the cortex in a similar way, and with almost the same intensity, as visual perception itself” (Sacks, 2003, p. 14). This finding suggests that it is possible for the blind to maintain or (re)create their visual imagery to a degree. Empirical research has also resulted in a change in public perception towards the condition of blindness and the blind person. There is a perceptible shift from avoidance reactions towards an increasing interest in learning about blindness that challenges old beliefs. However, promoting a major attitude change seems hard to achieve as “many of these myths and half-truths are now so widespread that they are taken as hard facts.” (McHugh, 1994, p. 1)

Scientific evidence has proven that it is important to re-evaluate commonly held misconceptions about blindness. The creation of educational programmes which inform and educate the sighted are required to help blind people feel better understood and equally regarded in society. The Royal New Zealand Foundation of the Blind notes that “the attitudes of society towards people experiencing disability need to change” (Statistics New Zealand, 2000). Empathy, awareness, open-mindedness and knowledge are fundamental keys for re-ordering clichéd

The Reconquest of Vision

...a blind person see only darkness?
...asked. I find it illogical. If some
...he or she can't see anything, no

...person who can see, ever so subtle
...and shadow and is not enveloped
...officially blind, I never had the fe
...I should add, at the risk of sou
...myself a very visual person. I

...ally settled the image. Now i
...y held as if I had actually see
...using intuition and logic and
...and over I kept doing this, a

...me. The rounded o
...ghting and the blon
...nd hundreds of plac
...a rich visual world
...ably as good as yo
...ve worked actively
...through work.

...description of it. From th
...ind of composite image.
...oximation whose outlin
...led, remaining incomple
...hen the scale model of th

...eved in the process of trying to s
...e empty darkness is a continuo
...a narrative picture sequence,
...sly and by now automatica

‘the visual blind.’

...Living without sight is a pote
...one gets the hang of it and lea
...order and system are important, th
...lurks. Too much organisation tur
...life into a ritual of strict observ

...linked to my being
...my mental readjustment
...important the demarcation
...something and knowing
...checked and doubt

...ne components of
...with sensations of shape, col
...id texture – in fact, the wh
...provides us with sight.

...n Welt Wir glauben das nur auf
...usion. Das Licht ist da, wo auch d
...selbst.

...self-constructed ‘virtual’ reality in
...right or wrong, but as hypothese
...vel of confidence. This also
...nce between me

...ave visual imaginations or the ability to process
...either. (I'm not sure people who can see are all so gifted
...Images are not the only elements imprinted in t
...memory. Noises and smells play an important role. I
...are principally what blind people register. Olfactory
...auditory perceptions, as well as the sense of hot or
...wind or calm, are translated by me into images, co
...with infinite precision.
...I am sure that there are st

...er four senses working. To descriptions heard
...I add in many instances my own imagination.
...n effect what you describe is not real!” is their

...s the definition of real? Does it mean that, for
...ple, reality is limited to what their eyes see? Is
...orded to visual impressions, which overwhelm
...sensory perceptions? Most of us possess five

2.3. Sensing: What it's Like to be Blind

Coping with the loss of sight is an enormous challenge. Reordering life by adapting to the new situation, and by acquiring different skill sets is crucial for the newly blind to function again (Neu, 1995). The accounts of John Hull, Jaques Lusseyran, Sabriye Tenberken and Zoltan Torey on how they experienced the transformation from being sighted to becoming totally blind sheds fresh light onto the stereotypical assumption regarding what it is like to be blind. Comparing these personal accounts offers an insight into

“It is not easy to describe what blindness is.” (Hull, cited in Heinicke, 2001, p. 35)

blindness as a one way street; arriving in total darkness and being alienated from society. Their accounts also suggest that they managed the challenge by finding unique ways of seeing and ‘entering’ a world which is not only full of pictures but which is rich and complex in sensation.

how these authors have coped and their different ways of adapting. All of the authors confirmed stereotypical attitudes towards blindness such as waiting for the darkness to come;

Fig. 1 key sentences taken from the four autobiographies

Many sighted people believe that the sensory system¹ depends on the sense of sight and that with the loss of sight it dissolves (Hull, 1992). However, a blind person is able to adapt by focusing attention on the

“Be aware of the senses of touch, of what you hear and smell.” (Tenberken, 2009)

remaining traditional four senses: hearing, touch, smell and taste, as well as other senses such as movement and temperature. The sum of these

senses makes up what Hull terms ‘being a whole body seer’ (Hull, 1992). For the blind authors surveyed for this thesis paying attention and being totally leads them to a state of intense concentration (Hull, 1992; Tenberken, 2003).

¹ Sensory information is processed by the sensory system. The sensory system is that part of the nervous system which detects and transmits stimuli. Separate systems exist for vision, hearing, somatic sensation (touch and proprioception), smell (olfaction) and taste (gustation).

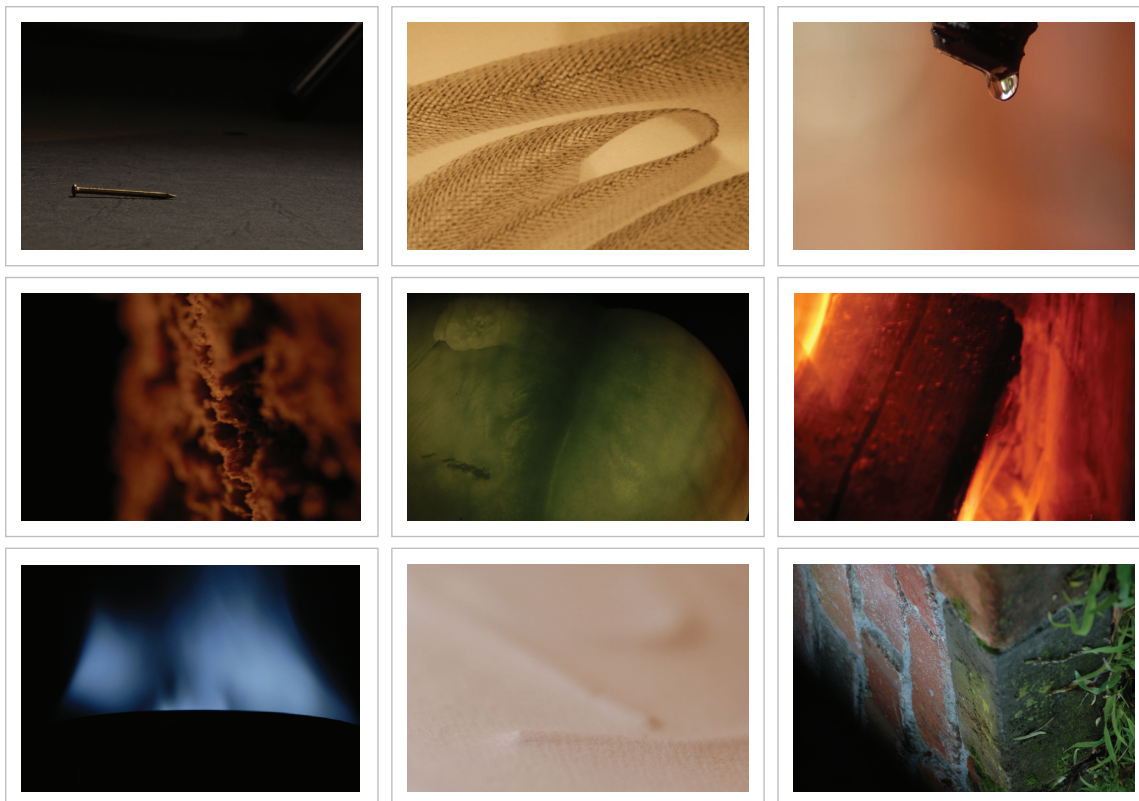


Fig. 2 *Blind Insight*: experimental processes, the senses

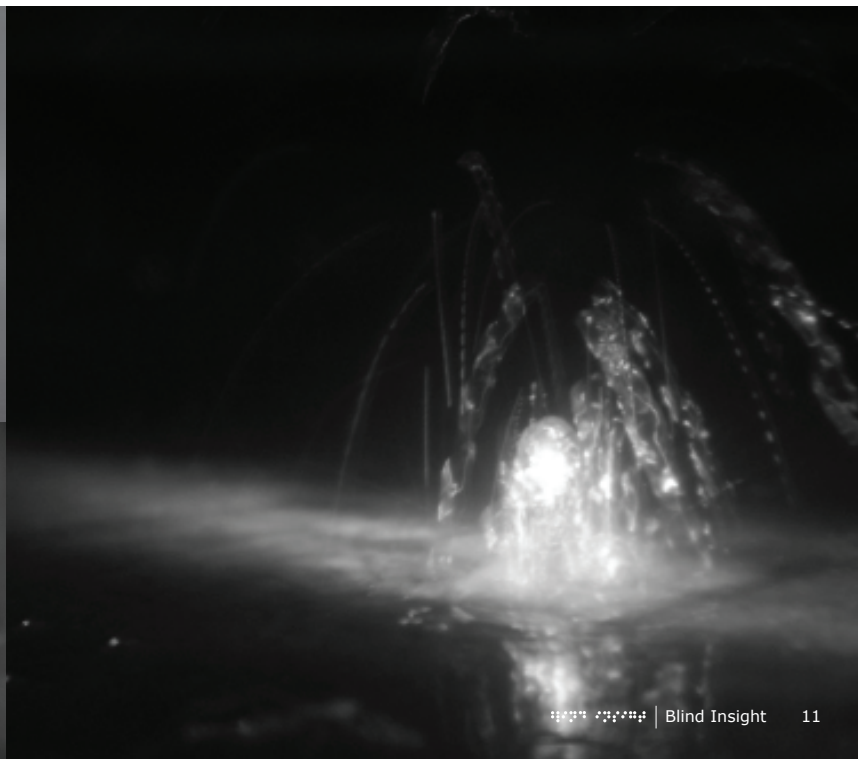


Fig. 3 *Blind Insight*: experimental processes, the sense of hearing and environmental sound

For some blind people, the sense of hearing is one of the most crucial senses for engaging with the environment. Immersion in the auditory environment helps the blind person to make sense of the clues

“What sound does is to create an environment.” (Hull, 2001, p. 23)

provided by the physical world. The process of selecting and focusing attention on one piece of information at a time enables such a person to orientate themselves within their surroundings.



Not only do the remaining senses add up to new ways of seeing, they also assist in the creation of visual mental imagery. It is here that the faculties of memory and imagination are crucial in constructing a visual

“A continuous inner visual production, a narrative picture sequence.” (Torey, 2003, p. 158)

reality (Torey, 2003). Seeing through the mind’s eye is, for some blind people, an alternative way of seeing and therefore considered

equivalent to sight. Moreover, the storage of pictorial memories functions as a reference system which enables the blind to update and generate new pictures analogous to experienced situations (Torey 2003). Through constantly updating and restoring mental images a comprehensive visual reality is maintained.

The processes of sensing, selecting and perceiving reside in seeing. In order to gain insight into and to emphasise the way blind people see I propose an investigation that traces and maps these processes more closely.

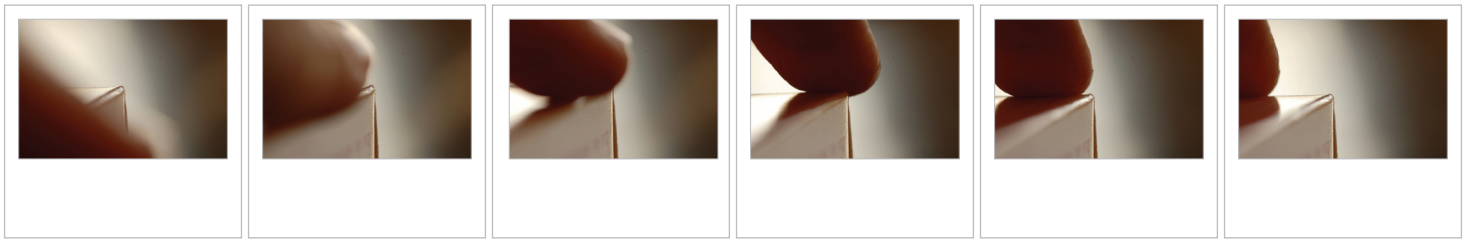


Fig. 4 *Blind Insight* Photo sequence that traces and maps a sensory experience; identifying an object’s shape through touch

Fig. 5 *Blind Insight* Drawing blindfolded while tracing the object’s shape through touch

mehr zu sehen. Noch
e neue Struktur zu ge-
man muß aufmerksam
könnte alles erkennen
undenen Voraussetzung
Licht noch Ton noch d
Objekt würde sich il
darbieten, das heiß

Fig. 6 Jaques Lusseyran, translation of underlined part: 'you need to be aware'

2.4. Selecting: Attentive and Associative Listening

Listening is one of the sensory modes that people employ in order to make contact with their environment and to engage with the differing aspects of the world. The outer world provides us with an acoustic complexity caused by vibrating objects which we perceive as environmental sounds or noises (Bregman, 1990). These sounds and noises vary in quality and properties, resulting in specific sound patterns. Because of the complex nature of sound (Barraga, 1976) we may experience these sound patterns as a blurred unified whole rather than as separate parts. Moreover, it is suggested that sight, as the unifier of the sensory system (Barraga, 1976; Hull, 1992), often impedes (Lusseyran, 1993; Tenberken, 2000; Torey, 2009) the perception of the complex information of the physical world and causes the blending of the other senses (Hull, 1992). However the loss of sight means that the sense of hearing can evolve to become more acute.

This hypothesis was tested by the Neuropsychologist Patrice Voss. Voss (2004) discovered that there are distinct differences when comparing the effectiveness of hearing among the sighted and the blind. In his experimental study involving early and late-onset blind people and blindfolded sighted people, Voss tested how the three groups oriented and navigated themselves through their environment. His findings show that blind people “perform normally or even supra-normally in tasks involving spatial hearing in near space” (Voss, 2004 p. 1734). This research demonstrates that some blind people are more aware of their sense of hearing and with constant attentive listening are able to distinguish sounds more effectively and precisely than the sighted. Being more aurally acute is not so much a compensation for the loss of sight or a state of heightened power, rather it is linked to “being in one of the concentrated human conditions” that results in a new dimension of seeing (Hull, 1992, p. 83).

This new dimension or immersion in the environment is argued to be the key to efficient usage of the sense of hearing (Voss, 2004; Barraga, 1976; Hull, 1992; Tenberken, 2000). By being totally aware of one stimulus at any given time, and by isolating a particular sound pattern from the blurred unified whole, the blind person is able to decode, to interpret and to associate the perceived sound pattern, and is therefore “free to load it up with whatever theoretical properties seem appropriate” (Bregman, 1990, p. 10). Thus the blind listener is able to hypothesise “what might be out there” (Gregory, 1997, p. 5).

piece I was given well-intentioned 'good'
experienced people in the Royal Blind Society
ged me to rebuild my mental representation
on the basis of hearing and touch and to for-
ght and visualising altogether. My wife, too,
was the way to go, but at the time I did not
understand what they meant or how I might

Fig. 7 Torey Zoltan, *Out of Darkness*

2.5. Perceiving: The Correlation of Environmental Sounds and Analogous Visual Mental Imagery

When it comes to the process of selecting, how does the blind listener give meaning to and organise the perceived sound pattern? Is there a certain schema¹ upon which the blind listener may construct a mental model? One answer can be found in Bregman's proposed schema-based auditory scene analysis. Bregman investigated how an auditory scene can be analysed and conceptualised. He suggests that this can be done two ways: through primitive analysis² or through schema based analysis³.

Both methods of perceptual organisation are crucial for this thesis. Gestalt theory is the principle for schema-based auditory scene analysis, and for determining sound source identification through a learned organisational structure. This structure is made up of the systematic processes of segregation, categorisation and characterisation of different sound patterns. These processes form the basis for what Bregman terms 'integration', that is, the grouping of similar sounds to form a unified whole. It is a structured process involving the dynamic organisation of isolated elements that share similar properties.

This briefly outlines the basic principles of perceptual organisation in audition. The way the perceiver first segregates and later integrates or groups sound patterns, depends on the blind listener's knowledge and voluntary attention. Bregman puts it thus:

"When the listeners create a mental representation of the auditory input, they must employ rules about what goes with what." (Bregman, 1990, p. 11)

The conscious process of segregating, ordering and categorising sound patterns is crucial for the blind listener to make sense of the world. The experienced reality coupled with visual memory and imagination are key parameters to forming analogous mental visual images, and thus core in constructing a complete picture.

The correlation between the sense of hearing and visual imagery in the blind has been scientifically confirmed by Collignon et al. (2008). This study analysed existing research on how blind people process sounds and how they subsequently visualise their environment based on those sounds. The researchers argue that, because part of their brain is able to use cross-modality, blind people possess exceptional abilities in auditory spatial processing (Collignon et al., 2008; Sacks, 2003). Moreover the neuroscientists confirm that the absence of visual input has the capacity to improve the way blind perceive and therefore see sound patterns.

1 "A schema is a mental representation of some regularity in our experience." (Bregman, 1990, p. 43)

2 "The primitive analysis refers to unlearned or innate ability of segregation." (Bregman, 1990, p. 40)

3 The schema-based analysis refers to learned constraints.

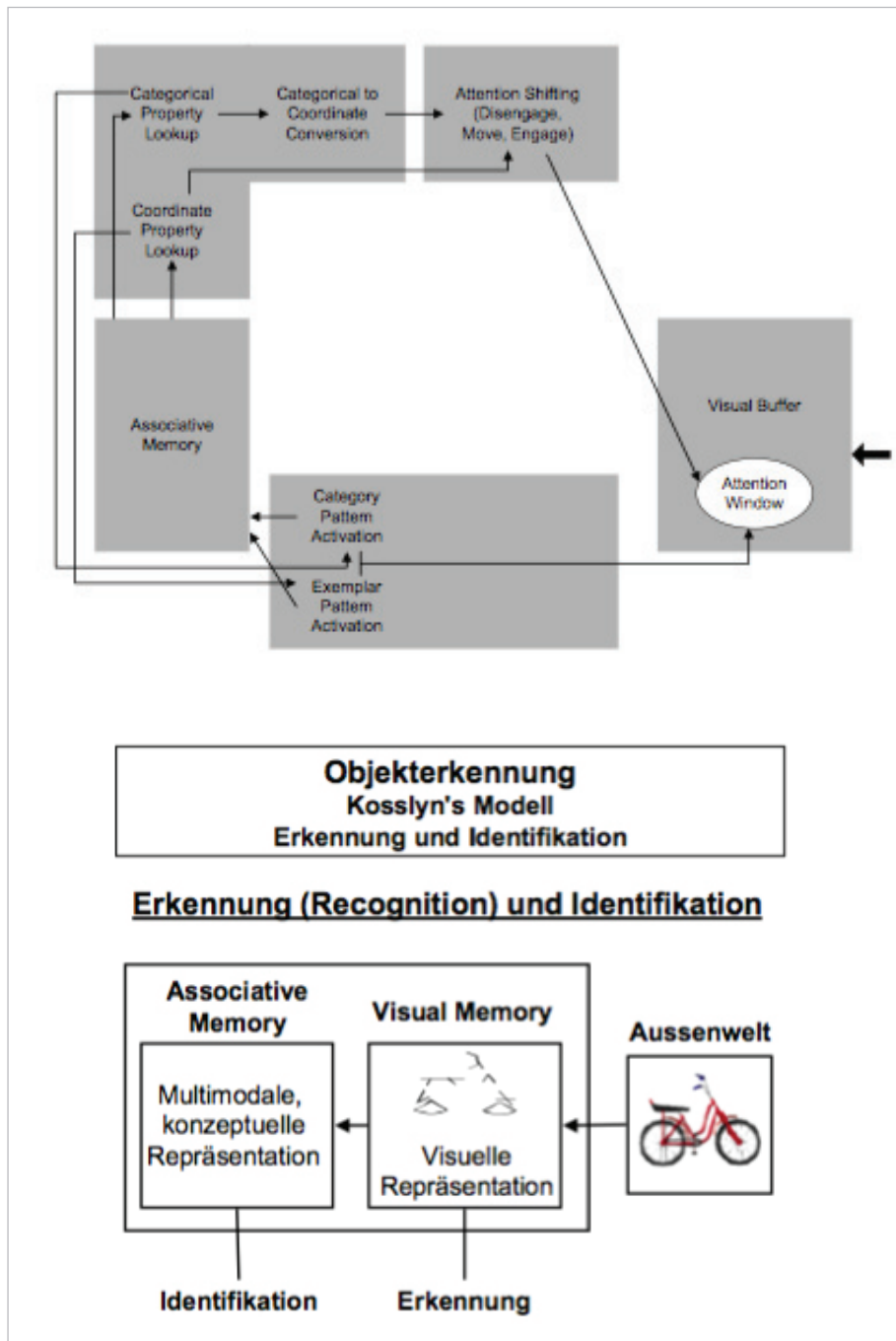


Fig. 8 S. Kosslyn's model of object recognition and identification. *Image and Brain*

person who can see, ever as well
and shadow and is not enveloping
ficially blind, I never had the
I should add, at the risk of so
myself a very visual person.

Fig. 9 Sabriye Tenberken, *My Path leads to Tibet*

in something and knowing it for
ened, checked and double-checked
degree of reliance I could place on
tal processes, but also on those
t self-constructed 'virtual' reality in
right or wrong, but as hypotheses
vel of confidence. This also helped
nce between me and my interlo
not overdo things or be

Fig. 10 Torey Zoltan, *Out of Darkness*

But how do we piece together parts of an object or scene to form a complete picture of reality? Is it a conscious process which requires system and order or do images just 'pop up' on our inner mind like images on a screen? Kosslyn (1980) states that the perceiver consciously builds up mental images by putting together parts of a scene to form a whole scenario. A visual mental image is created in the same way as a mosaic. He further claims that imagination uses the same system and processes as visual perception. Similar to the way that mental visual images are constructed the same can be said when reading, that is looking at and comprehending, a picture. For instance when a viewer looks at a particular scene they are presented with an instant picture. However, when scanning the scene the viewer focuses on one particular part of the entire complex. This segregation enables the viewer to fully concentrate on and consequently give meaning to that part of the scene. Reading the complete scene is a sequential and temporal process and the more complex the scene the longer it takes to be read (Kosslyn, 1980).

Comparing the blind people's personal accounts with Kosslyn's hypothesis of mental visual imagery in the sighted suggest similarities among these groups in generating sensory stimuli into pictures. Having framed the overall picture by getting a sense of what it is like to be blind, by selecting the sense of hearing as the focus and by analysing the systematic processes of consciously generating mental visual imagery in the blind and the sighted, this thesis will now turn to the aim and motivation.

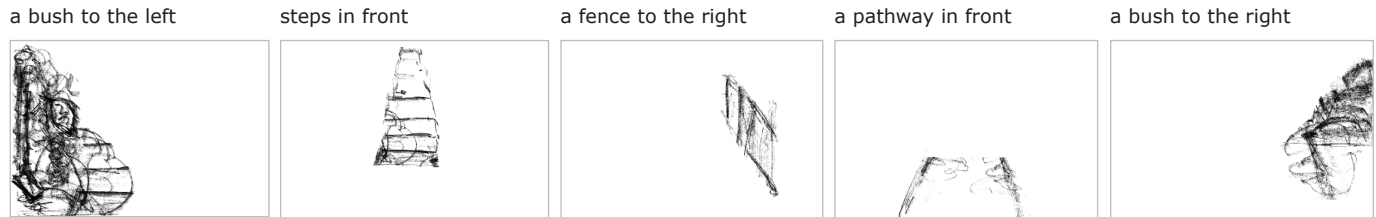


Fig. 11 *Blind Insight*: Conceptualising and visualizing a scenario while reading the key text for this thesis: *Rain* is an excerpt from *Touching the Rock*—an autobiography of the blind author John Hull; metaphorically speaking the frames can be thought of as an inner screen onto which visual mental imagery is 'projected'. The generation of one image/object or part of an object at a time is a sequential process.

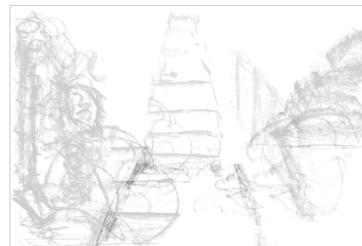


Fig. 12 *Blind Insight*: Piecing together parts of a scene to form a complete picture



3. Aim and Motivation

"The difficult task of helping the sighted person to overcome his negative attitude requires that he be encouraged to reflect upon the meaning of blindness" (Monbeck, 1973, p. 157).

Blind Insight aims to:

- Gain a solid understanding of how blind people conceptualise their environment through attentive and associative listening
- Produce a set of photographs that trace and map a blind person's sensory experience
- Apply the analogy of auditory and visual tone in order to transform the sensory into the conceptual
- Employ the principles of Gestalt theory to photography in order to transform the conceptual into the pictorial (the perceived soundscape into an imagined landscape)
- Construct a photo collage that represents a schematic insight into imagined blind seeing

For me the desire to learn more, and to better understand the issues blind people face gradually evolved over a number of years. The starting point was in my childhood, listening to my aunt tell me what it was like to be blind from birth. As a child I found her recollections hard to comprehend and her sudden passing meant that I grew up without the chance to gain deeper insight into her way of life. Since then my attitude towards blindness has been somewhat split between darkness, fear, emptiness and happiness, balance and self-confidence. Picturing my aunt's personality and recalling her ability to adapt to living without sight are in total contrast to my initial assumptions.

Andreas Heinicke's primary motivation for the creation of the *Dialogue in the Dark* exhibition was to investigate a different way of seeing and to challenge society's prejudices as well as his own "trepidation about blindness" (Heinicke, 2009). Similar to Heinicke, my motivation was to challenge my initial attitude towards blindness, firstly by overcoming my fear of darkness. Secondly, I made the attempt to go beyond my imagination by trying to picture blindness from a different perspective.

4. Method and Processes

4.1. Sensing Methodology

4.1.1. Dialogue in the Dark

To date, the exhibition Dialogue in the Dark remains one of the most influential international platforms offering sighted people the opportunity to encounter the world of the visually impaired. By allowing the sighted audience to discover the unseen, the visually impaired become mediators of their culture (Heinicke, 2001) and the true meaning of blindness (Monbeck 1973). The exhibition employs a range of sensory experiments to show how everyday situations can be perceived other than through the sense of sight. The concept behind the displays is simple. Blind people guide sighted people (Fig. 13) through invisible scenarios simulated in complete darkness.

The result involves a role reversal enabling sighted people to engage in scenarios which differ from their everyday lives. Blind people aim to secure orientation and mobility for the visitors in a 'land without images'. The journey (Fig. 14) includes a walk through a park, a downtown part of a city, a fruit market, a cruise on a ship, a journey into consciously listening to different kinds of music, and an exploration of familiar objects through touch.

The journey's end is a stop at a café, offering the opportunity for the group to share their impressions. My first Dialogue in the Dark exhibition visit was in 2003, followed by a second in June 2008. My personal descriptions of these exhibition experiences will now be explored. My first visit was motivated by pure curiosity. Due to a lack of knowledge about the conditions of blindness, and the way in which blind people perceive and conceptualise the world, I believed blindness to be a form of sensory deprivation.



Fig. 13 Entrance to the Dialogue in the Dark exhibition, Frankfurt / Main, Germany

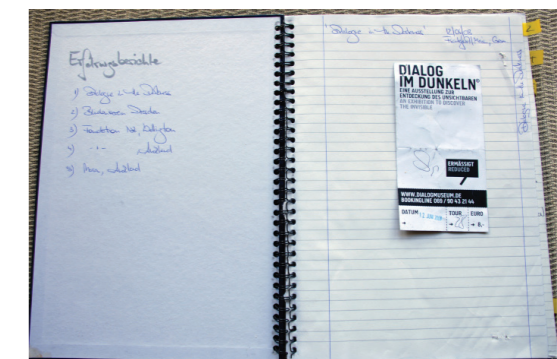


Fig. 15 Photographer's Notebook: Field report: Dialogue in the Dark visit

Fig. 14 Footprint of Dialogue in the Dark exhibition, 2001

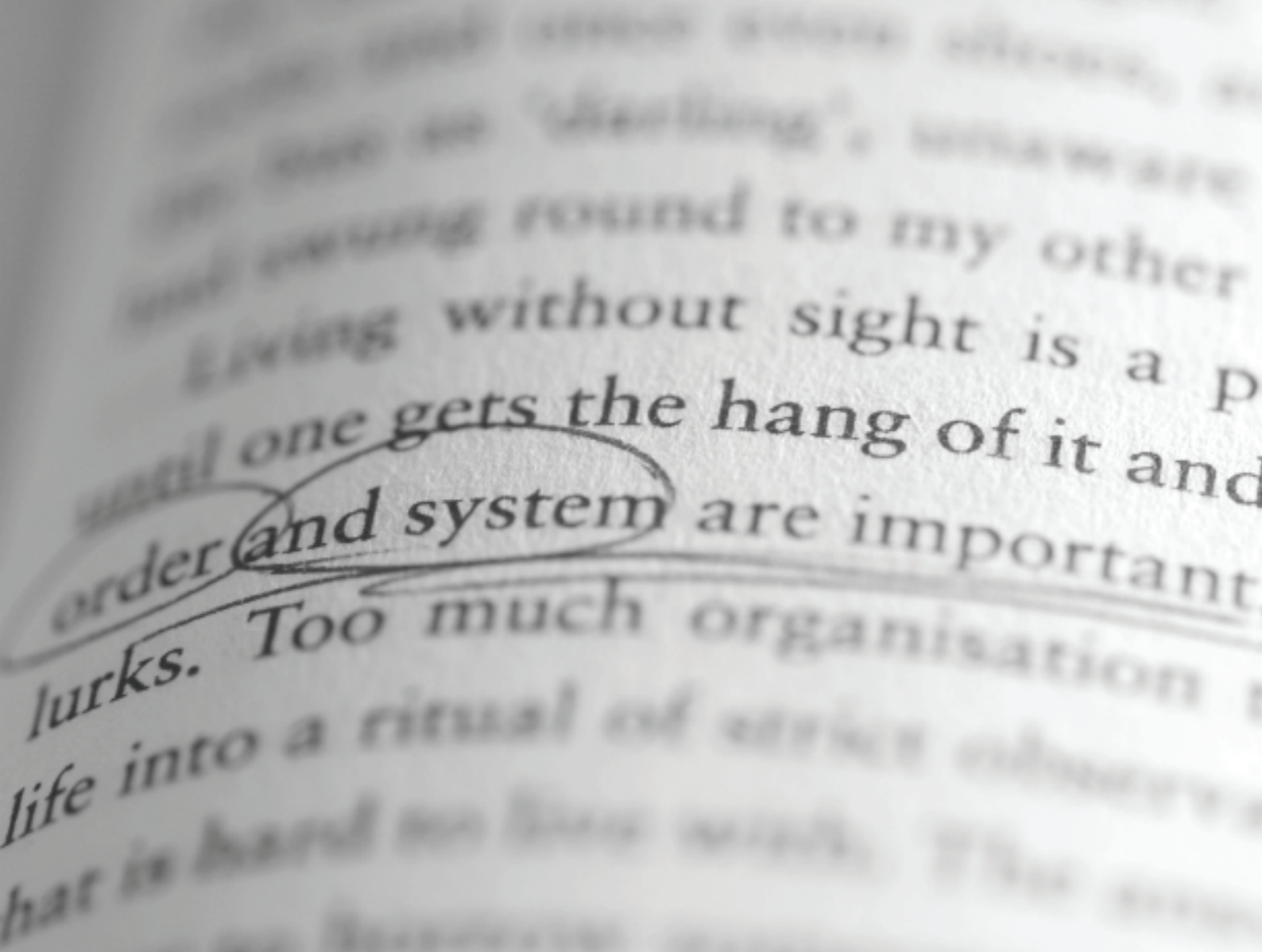


Fig. 16 Torey Zoltan, *Out of Darkness*

4.1.2. The Grid Technique

The usage of the grid technique found popular demand among contemporary artists. The grid is a geometrical construct of a particular number of same sized rectangles or squares which divides an area into segments. In the fields of art and design, the grid system can be a helpful tool for breaking down complex subject matter. This organisational system allows the artist or designer to effectively manage the creative process by paying attention to one part of the whole at a time. Generally speaking, the grid is a schema and is often associated with order.

For the contemporary American painter and photographer, Chuck Close, the grid is the fundamental tool for the creation of his giant photorealistic portrait paintings (Fig. 17). This method allows him to work systematically and also enables him to pay careful attention to detail (Fig. 18).

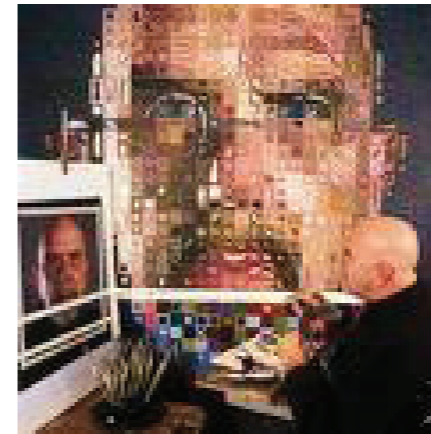


Fig. 17 C. Close at work with the original photograph and the large format painting



Fig. 18 Process of translating the gridded photograph into a painting using abstract pattern.



As a departure point, Close takes several Polaroid photographs of his object in order to find the most appropriate photograph for the segmentation (Fig. 19). For this artist analysing the best match is similar to an experiment in which one uses a constant to test out the effect of the variables (Close, 2007). The best fit is then employed.

Blind Insight follows a similar path by investigating a range of scenarios and by selecting the best fit. The segmented two key photographs of my thesis are the basis for the creation of two imagined landscape.

Close's aim is to make the process of sight visible in the transformation and reconstruction of a photograph into a painting. In a way Close sheds light on Kosslyn's hypothesis as to how a mental picture is built up, by adding piece after piece (Kosslyn, 1980). In a similar manner, **Blind Insight** utilises the grid to convey the organisational structure the blind listener employs when conceptualising the physical world through attentive and associative listening, and consequently transforms the perceived soundscape into an imagined landscape.

For Close, both the creative process and the final work are equally important. By applying the grid system to a set of data, Close creates compositions using abstract forms and a complex set of colours. But how does he use solely abstract forms and a set of tones to convey an object in photorealistic style? Close's method of working appears to support Kosslyn's theory that the creation of mental images is based on the dynamic process of left- and right-brain thinking (Kosslyn, 1995). Close points out that it is crucial to analyse what the object is made up of before starting the translation. Segmenting the qualities of an object helps him to interpret and to project his response onto canvas. Another feature evident in his notes is his associative skills. By isolating a particular part at a time, Close is able to fully concentrate on this particular unit in order to find the most appropriate interpretation of form. Each segment of the picture has different qualities and therefore contains different information and meaning. He further states that the creation of one pattern is not only based on taste but also need. This need is determined through the principles of Gestalt. One aspect of this relationship is the use of a specific combination of colours. By employing these he is able to convey the specific qualities of objects using abstract form. For example, the unique brush marks that make any segment of a painting distinct from the others, enable each segment to be considered an abstract painting in its own right (Fig. 20).

The design process of **Blind Insight** involves taking a set of abstract black and white photographs, which, like Close's square segments, each represent a sense of the scene and can be thought of as a 'stand alone' picture by itself.

When viewing Close's work from a distance, the viewer may perceive a whole and clear detailed copy of the key photograph. Gestalt theory helps to explain this phenomena. The eyes of the perceiver piece together the segments to form a complete picture through grouping by proximity, similarity, closure and continuity. Unlike Close's work, **Blind Insight** does not aim to represent an accurate copy of the key photograph. Instead it aims at making an imagined landscape visible by creating a set of photographs that directly respond to and are an interpretation of the descriptive account of the blind.

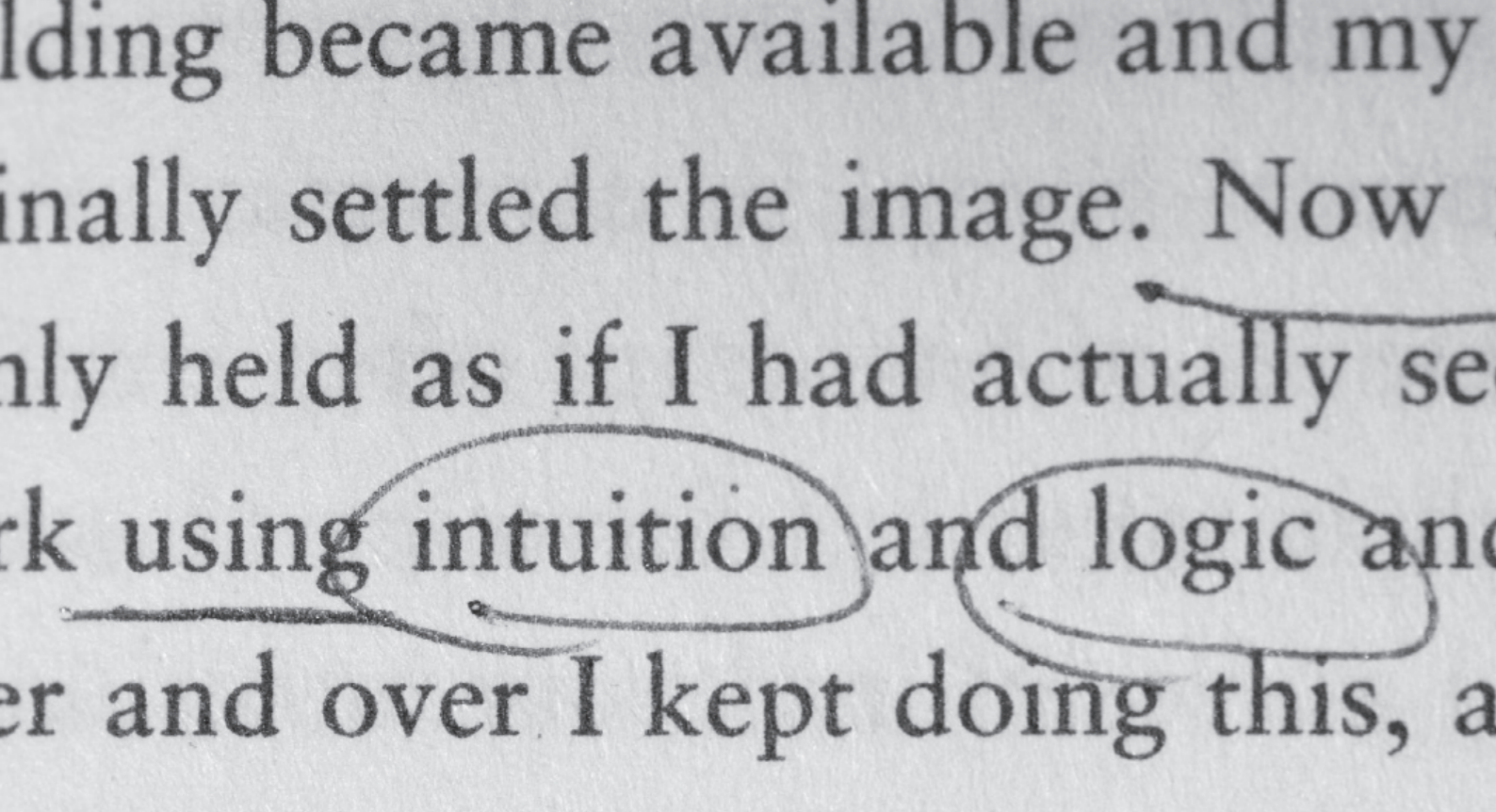


Fig. 21 Torey Zoltan, *Out of Darkness*

Another objective of this artist is to make the journey visible to the viewer by representing a “situation you had in your life experience in the most interactive way possible. Not a way that takes you by the hand and leads you directly in a simplistic way but one that requires you to use your associative skills.” (Close, 2007)

Allowing the viewer to take part in the journey, to retrace and sense the artist’s steps enables the viewer to better understand the process and, eventually, the meaning of the complete picture. I hope to achieve a similar effect through the compositional arrangement of the photographs that comprise my photo-collage.

4.1.3. *The Photographer: Listener, Interpreter and Mediator*

Design is a thoughtful process that involves both modes of left- and right-brain thinking. The designer can form a solid concept as a solution for problem solving through rational and logical left-sided thinking. He or she can then transform the concept into pictorial reality through creative and intuitive decision-making, or thinking on the right side of the brain. However, designers are not only thinkers and creators, they are also mediators between cultures. Therefore, understanding the differences and possible similarities among cultures is key to effectively communicating a particular concept to a specific audience.

In addition to gaining insight into how blind people conceptualise their environment through attentive and associative listening, identifying how an analogous imagined world of the blind may look is a challenging task. For some the medium of photography might be an inappropriate approach. However photographic images can be a useful vehicle for helping us make sense of the world. In addition to shaping our perception, photographs “signify something out there and are meant to render that thing imaginable for us. It is the photographer’s task to put out his concept to society” (Flusser, 2000, p. 18). **Blind Insight** is one interpretation of how the world may look to a blind person. It is targeted especially at family members of the blind as well as the general public who wish to learn more about blindness. I propose that using photography to communicate my concept may help the sighted to imagine blindness from a different perspective and better understand the experienced reality of the blind. In looking back on the journey and the learning undertaken so far, I have witnessed an attitude change towards blindness that conforms to the picture which my aunt painted years ago.

By applying attentive listening to the descriptive words of four blind people, and by applying the processes of tracing and mapping to two sensory experiences, I gained the following: empathy, a deep awareness of my sense of hearing, and an increased power of imagination or visual thinking. I thus discovered that experiential learning can also be considered as a vibrant and deep dialogue with oneself. Research through design is an effective means of making the imagined visible. By employing left and right brain photography as my tool of communication I seek to illuminate two perspectives: that of a sighted person, who would perceive a ‘normal’ visual reality; and that of a blind person, who would perceive the same scene through the sense of hearing. Through the shared principles of perceptual organisation in audition and sight, I have attempted to translate the sensory into the conceptual and, in turn, create a pictorial reality. The analogy of auditory and visual perceptual dimensions, as well as the principles of Gestalt theory, are the basis for this translation.

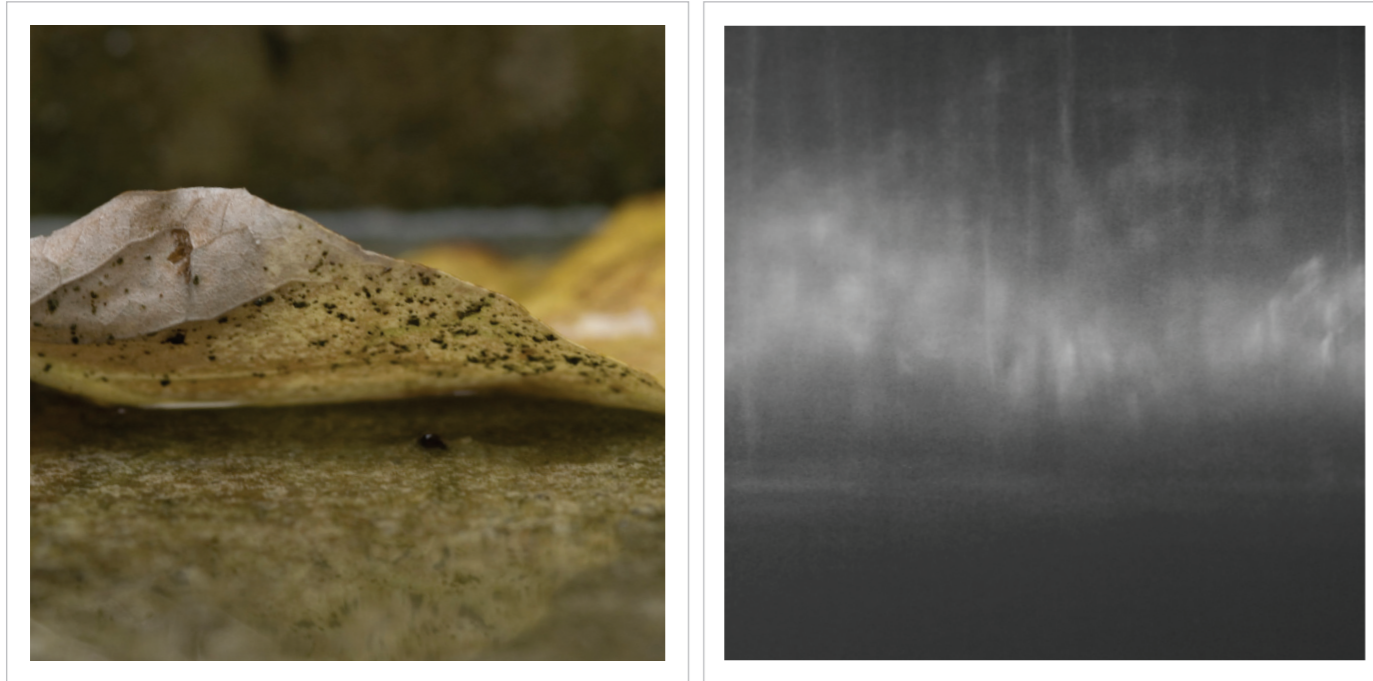


Fig. 22 *Blind Insight*: Left-right brain photography, fragment 2D, original and interpretation

4.1.4. Left- and Right-Brain Photography

The medium of photography is a way of communicating aspects of the physical world. The way in which the photographer engages with the 'real' world in order to communicate aspects of it is generally described as personal expression. The approach and technologies the photographer uses to reflect his/her concept primarily depends on what the photograph is intended to communicate to society. Therefore the meaning of photography for photographers varies. For some, the aim is to convey and document unmediated moments to validate an occurrence and so to give evidence of its existence. For others the objective is the creation of an alternate reality by expressing uniquely imagined views of the world. Left- and right-brain photography (Fig. 22) communicates both of these approaches and when synthesised can shed light on the inner dialogue of the photographer, or as Barraga calls it 'switching perspectives'. Contemporary author and photographer Kathryn Marx puts it thus:

"What prompted my interest in the difference between right-brain and left-brain photography was seeing two photographs of the same place that reflected two completely different approaches to the subject, both of which the artist considered to be equally representative of the location. I recognize that the impulses for the two photographic perspectives came from two different 'places' within the artist." (Marx, 1994, p. 8)

In a sense, the photographer rationally analyses and documents 'real' aspects in front of the camera and expresses these through what is termed left brain photography. Conversely, the photographer transforms the same aspect according to his/her 'feelings' or intuition, namely their inner experienced reality, through right brain photography. The juxtapositioning of the two types of photography "makes you aware of the differences in physicality, in touch" (Close, 2007) inviting the viewer to switch their perspective and think laterally.

While there is increased opportunity for image editing with contemporary digital technologies, I believe it is important to maintain a sense of authenticity within the photographs. My engagement with and perception of the environment leads to my intuitive choices of specific photographic techniques. The maintenance of an authentic photographic response is significant for this research project as it conveys a true reflection of the perceived moment at the time of shooting. Therefore all photographs created for the research project remain digital raw files.

In comparison to analogue photography, digital photography allows the photographer to instantly view the image and immediately adjust the camera settings in order to achieve the desired result. This is especially crucial when the photographer's objective is to create pictures that equate to his/her immediate sensation and vision. The advantage of taking numerous shoots without costs being a concern also played a role in deciding to use digital photography. This is important when capturing a particular moment in time that is more likely to be achieved through sequence and high shutter speed photography (Fig. 23).

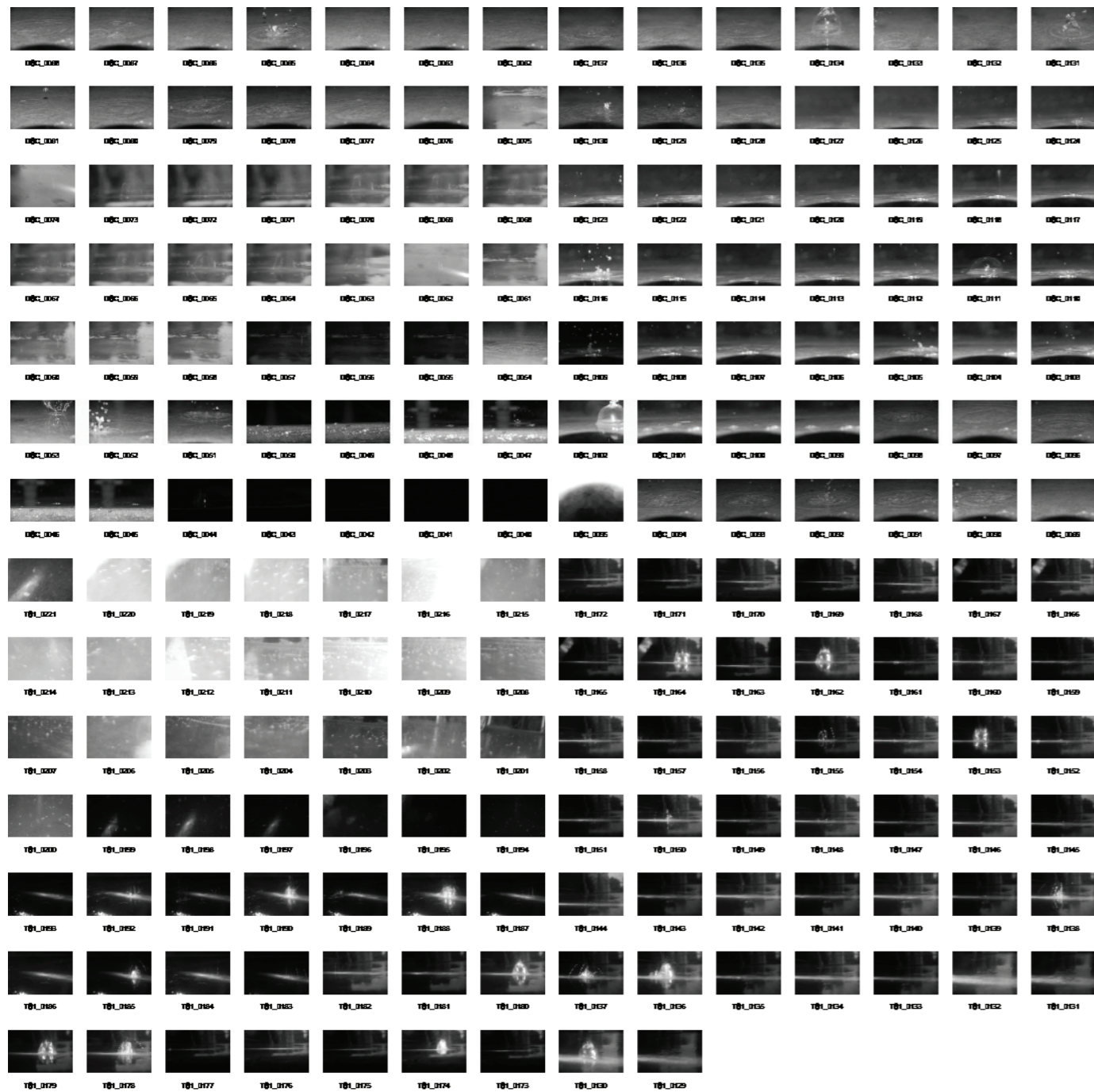


Fig. 23 *Blind Insight: Sequence Photography, capturing a specific moment*

4.1.5. The Camera: Mechanical Metaphor for the Eye

Metaphorically speaking, the functioning of a camera can be compared with the functioning of the eyes as similar processes occur. The essential element in the creation of pictures is light. In human vision, outer light enters through the eyes and reaches a light sensitive surface—the retina. In a very simplistic way, the perceived stimuli are transmitted to the perceiver’s brain where information is interpreted—thus forming a picture. In digital photography, light enters the camera and reaches an image sensor that ‘interprets’ and transforms the different light waves into a photograph. Different exposure settings determine how much light enters, thus defining the tonal range of a photograph.

If picture formation depends on light how are inner pictures created? I often close my eyes in order to visualise something. Regardless of whether you are blind or sighted, an inner light often philosophically explains the formation of visual mental imagery. In the case of blindness, investigations into the skin sensitivity towards light have been undertaken with the hypothesis that light may enter through the skin. Be that as it may, it is the symbolic meaning which is crucial for this thesis and which is evident in Lusseyran’s account: “Light is there where life is: In the inner in ourselves.” (Lusseyran, 1972, p. 27).

What is the meaning of light in photography and how can it be used in order to convey an ‘inner’ light? To answer these questions it seems reasonable to examine the nature of photography. The word photography derives from a Greek word meaning ‘writing with light’. There are two types of lighting conditions—natural and artificial lighting and each has its own unique characteristics. Natural lighting means daylight whereas artificial lighting can be created through flashes, spotlights, and other sources such as torches or candles. Each of these lighting sources can convey a certain mood or atmosphere (Fig. 25).



Fig. 24 *Blind Insight*: experimental process; photography = 'writing with light'

Moreover, the type of light whether warm or cold can enhance the meaning of the intended message. Therefore, careful consideration of the lighting source and type of light is vital and, if used effectively, can add another dimension to the intended message. Through my experimental black and white photography I found that different types of light impacted on contrast. While cold light produces an intense brightness and harsher contrast, warm light produces a subtle and softer contrast (Fig. 26). In this respect, photographs are utterances and can convey meaning in two ways: the intended message (what is depicted) and how it is depicted through creating a mood and atmosphere. In a sense, photographs can be read in two ways—what is seen and what is felt.

Similar to the way words describe an occurrence, set a scene, evoke mood and give insight into a way of thinking, so do photographs. ***Blind Insight*** uses photography in order to illuminate and 're-write' the accounts of the blind through the use of light.

The photographic camera is a mechanical tool through which the photographer captures aspects of the physical world. The coupling of photographic technologies with photographic vision and skill means that these aspects can be transformed and mediated accordingly. Metaphorically speaking, the camera and the chosen lenses become the photographer's mind's eye.



natural / daylight

Fig. 25 *Blind Insight*: experimental process; testing out the types of lighting

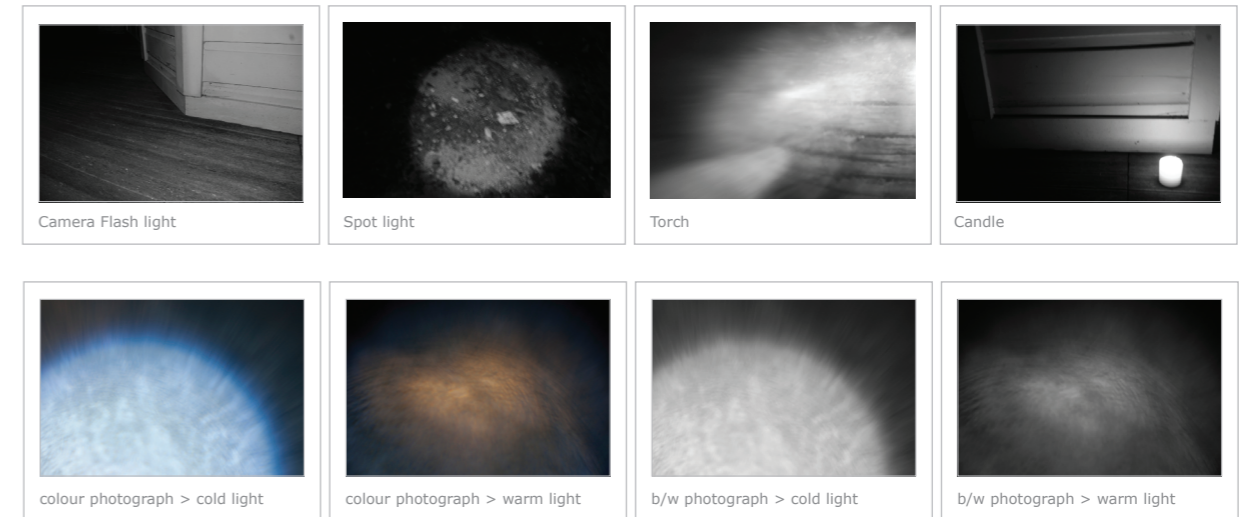


Fig. 26 *Blind Insight*: experimental process, lighting techniques, light sources and type of light

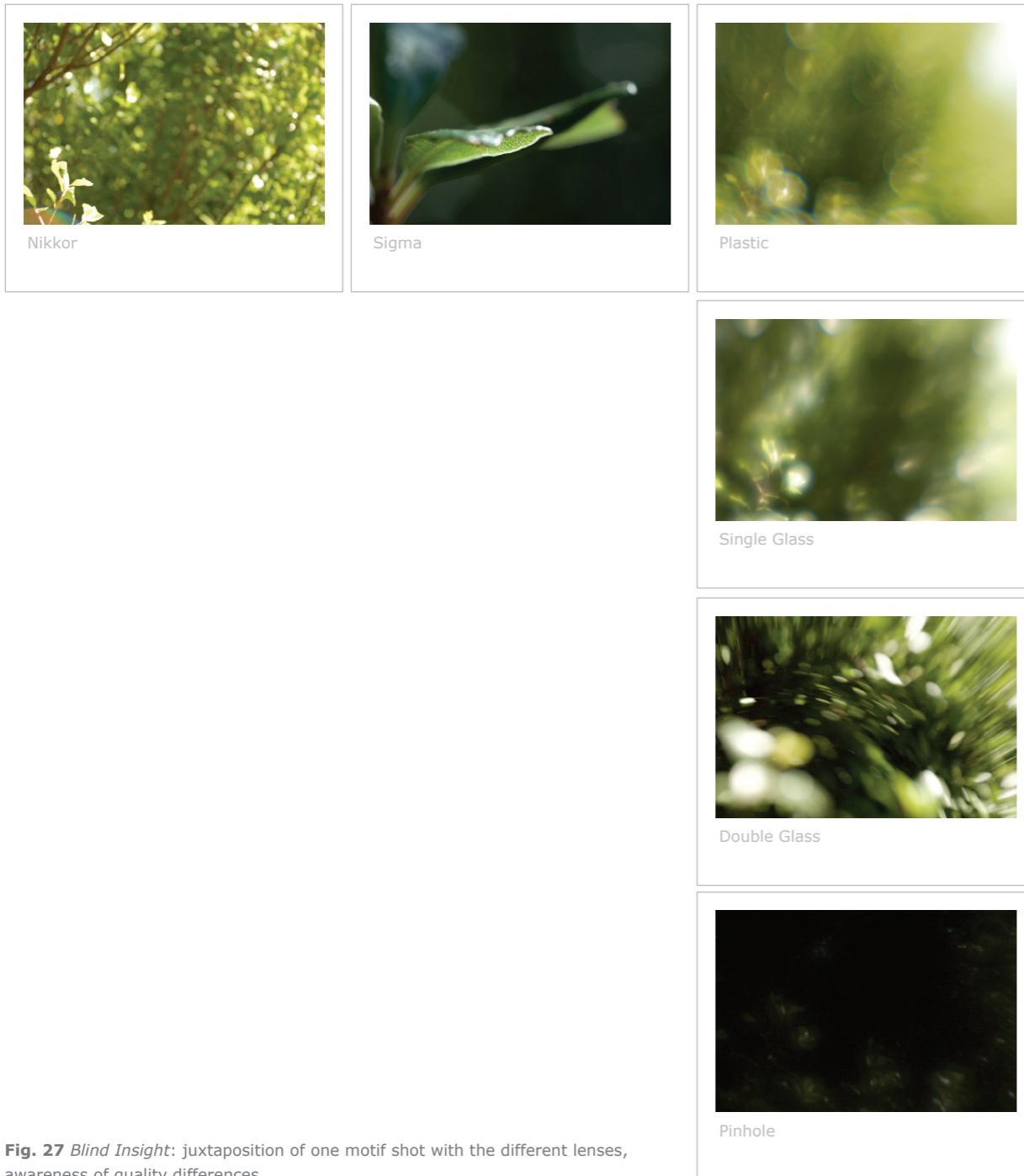


Fig. 27 *Blind Insight*: juxtaposition of one motif shot with the different lenses, awareness of quality differences

4.1.6. The Lenses: Windows to the World

In photographic terms the lens is thought of as the window to the world. Different lenses are crucial tools in expressing the photographer's unique vision and conveying his or her intended message. For the creative process, I have chosen four types of lenses to convey my inner dialogue. Each lens is employed to express the concept of seeing from a different perspective.

Nikon 50mm f/1.8 AF Nikkor

The key photograph was shot with a Nikon 50mm lens. The 50mm lens is considered to be equivalent to human vision and was used to convey the concept of looking.

Sigma - Macro 105mm f.2.8 EX DG

The photographs I have taken with the Sigma lens signify left brain photography and rationally analysing. The photographs aim to convey the idea of looking very closely at something, to investigate the subject matter and to bring its properties in focus. I have used the Boké-h-effect to express selective and attentive looking.

"The 'Lensbaby' pushes me to think outside all the boxes." **Dennis Keeley**, Photographer

Lensbaby Composer, Optic Swap System (pinhole, double, single glass and plastic optic) and set of aperture discs, Lensbaby Macro

The Lensbaby Composer, a selective-focus SLR with a focal lens of 50mm, and the Lensbaby Macro are used in the field of creative photography. I have chosen these lenses and their optics to visually communicate creative right brain thinking. These technologies enable me to express my inner reality hence to make the imagined visible. The Optic Swap system is crucial to communicating the perceived qualities of sound patterns.

Nikon Zoom lens 18-135mm f/5.6 AF Nikkor

During the experimental phase the Zoom lens has proven best in communicating the feel of vibrating energy and to visually convey the physical characteristics of sound.

4.1.7. Additional Equipment

I started off the photographic exploration of the scenario by shooting out of a tent. I soon realised the fixed vantage point limited my experimental work and my investigation of the physical world. I therefore created a moveable tent made by a large umbrella with plastic curtain around it. I also created a gridded lens which I placed in front of the camera to test out its effect. I wanted to see whether or not it would be an appropriate method to convey an other worldly quality while inviting the viewer to empathise with the photographer's experience, as if looking through the camera (Fig. 28 and 29).

Through critical evaluation I finally decided to do without the gridded lens as its photographic effect was not convincing.

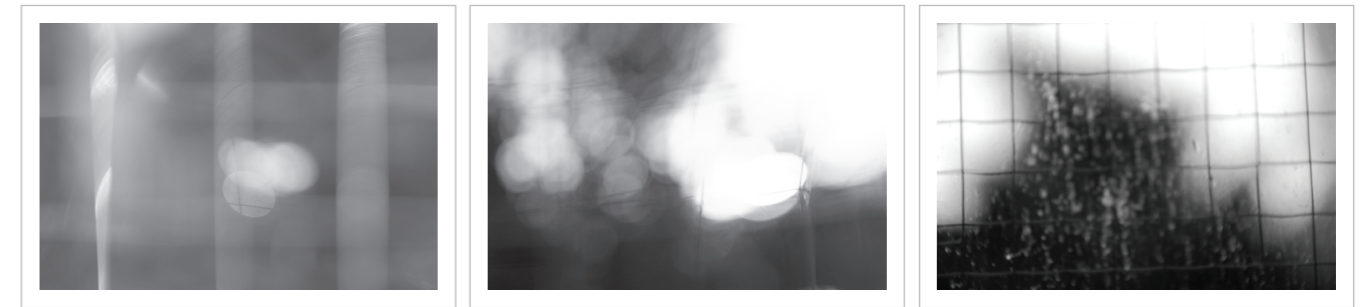


Fig. 28 *Blind Insight*: experimental process; lens grid

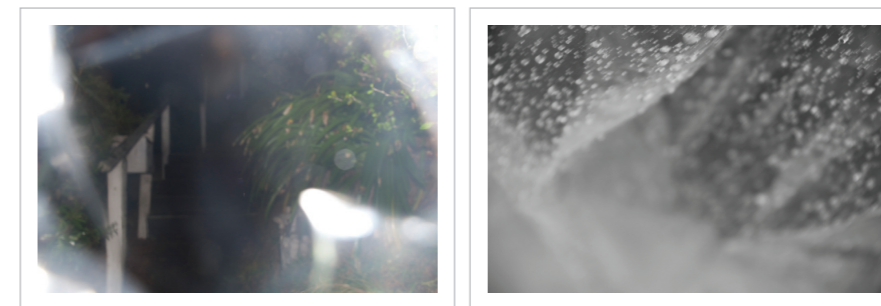


Fig. 29 *Blind Insight*: experimental process; view from behind the umbrella cape; left: focus on the scene; right: focus on the cape

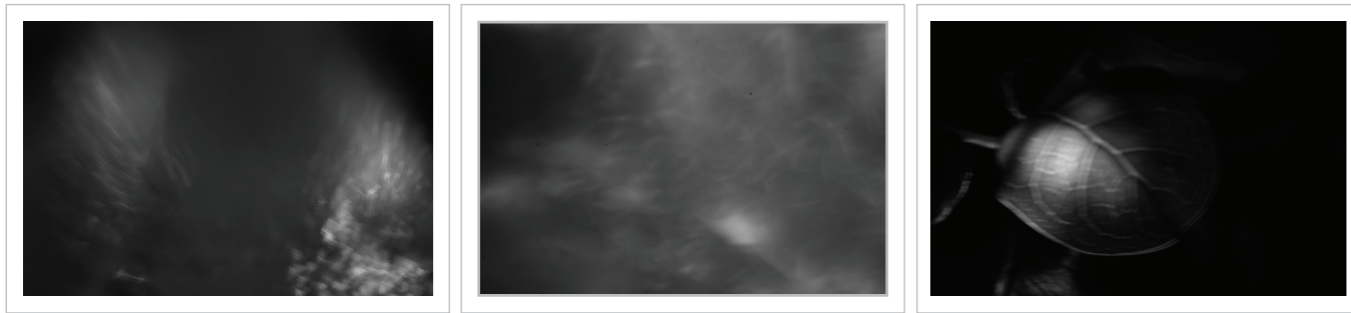


Fig. 31 *Blind Insight*: experimental process, testing out Night photography

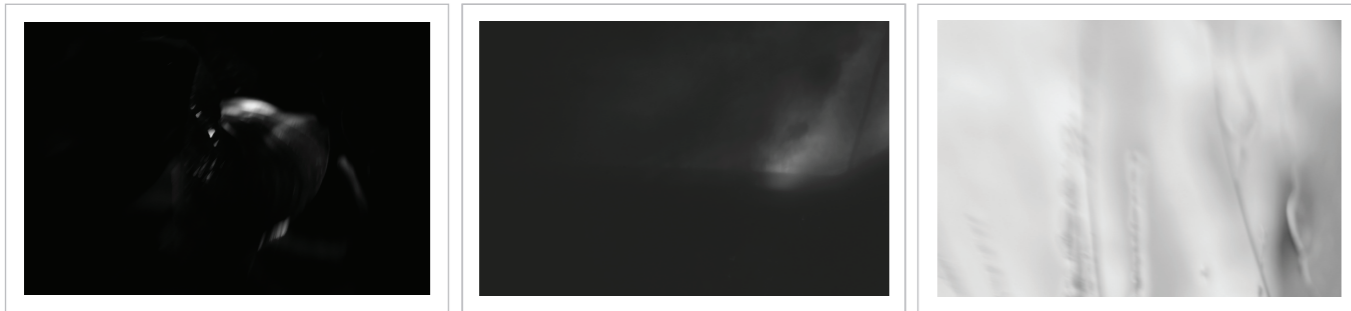


Fig. 32 *Blind Insight*: experimental process, testing out spot grid flash, snoots and the effects of dry ice

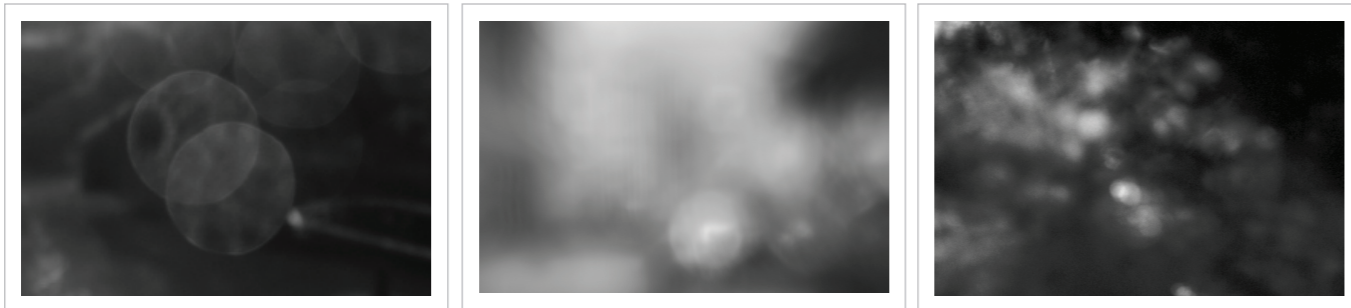
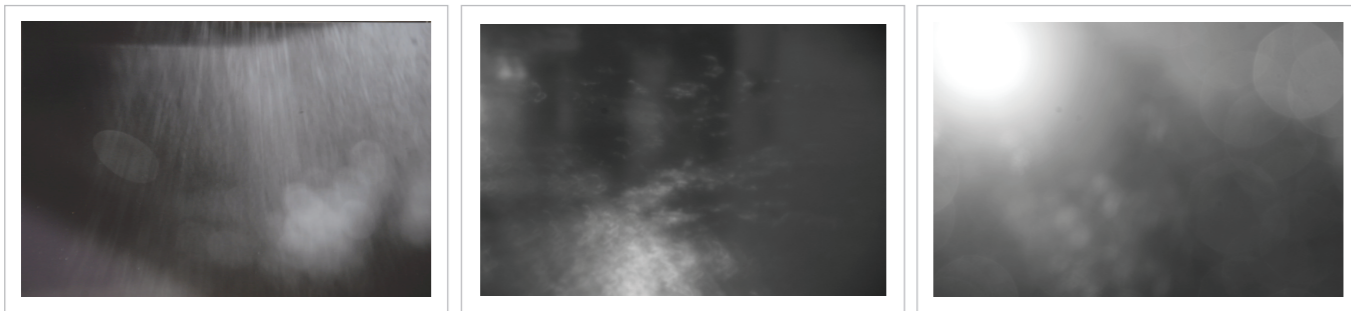


Fig. 33 *Blind Insight*: experimental process, testing out Night photography, rainy night

With the association between light and sound as the underlying basis for the creative work I commenced shooting on rainy days. I hoped to capture a certain authenticity when shooting under natural light conditions. But due to the absence of sunlight I found that all the images turned out somewhat flat and lacked tonal contrast. Night photography on the other hand enabled me to achieve the desired effects (Fig. 30). Shooting under artificial light I was able to create high contrast photographs. Moreover I found that this technique captured a unique liveliness of objects (Fig. 31). I have used up to three different torches, constructed a spot grid flash and used snoots which allow spot focus thus isolating figure from the ground (Fig. 32). I employed the spot grid flash for distanced yet quite prominent sound pattern as, for example, the wooden letterbox. As a result of the experimental shooting under natural and artificial light conditions I favoured artificial lighting over natural light. To visually enhance the softness of quite and gentle sound patterns I used dry ice. Rainy nights and low light conditions proved to be the best time for shooting as I was able to best communicate the analogy between sound and light that resulted from the light refraction of the falling rain (Fig. 33).

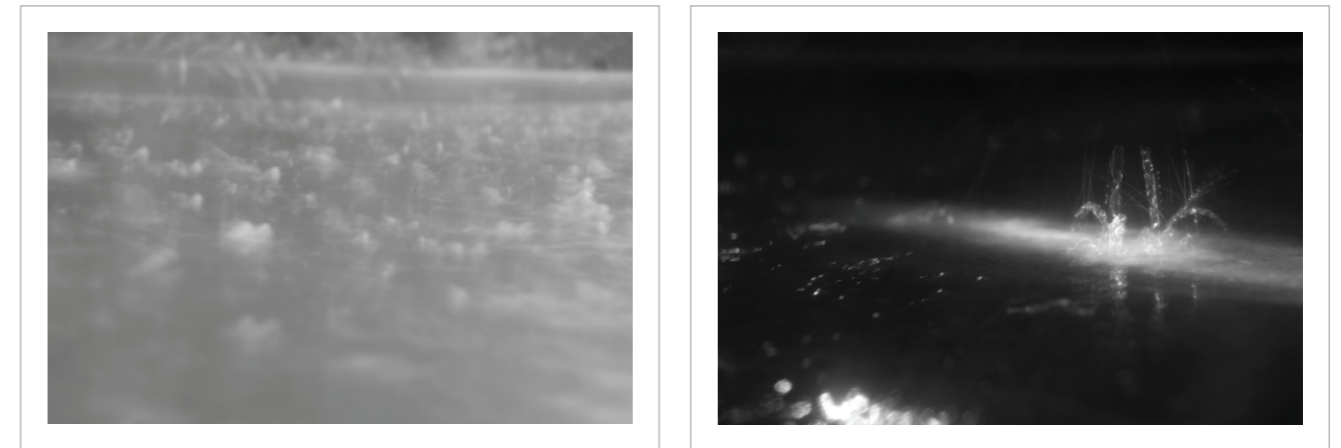


Fig. 30 *Blind Insight*: experimental process; left > shooting under natural light; right > shooting the same scene under artificial light

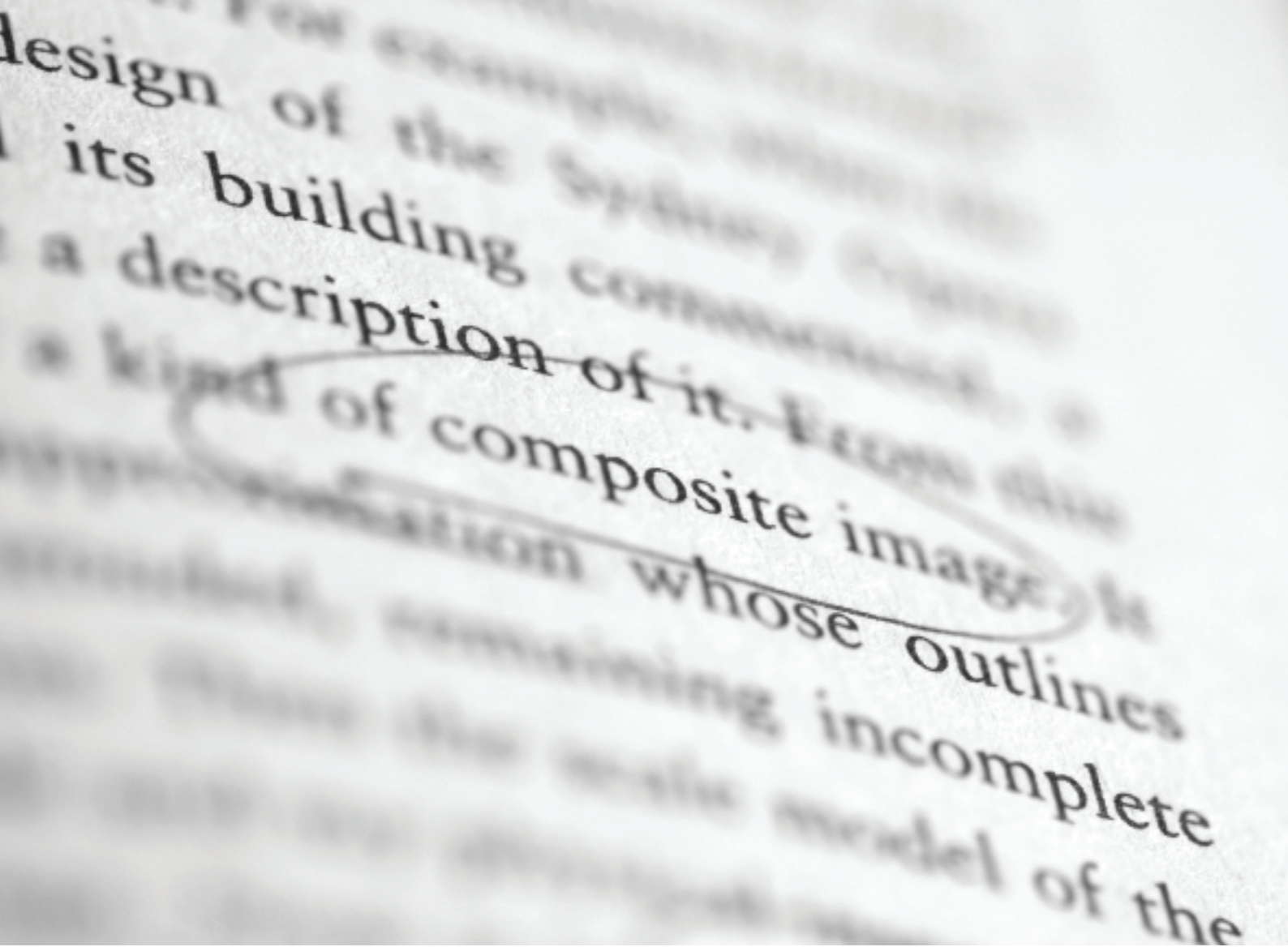


Fig. 34 Torey Zoltan, *Out of Darkness*

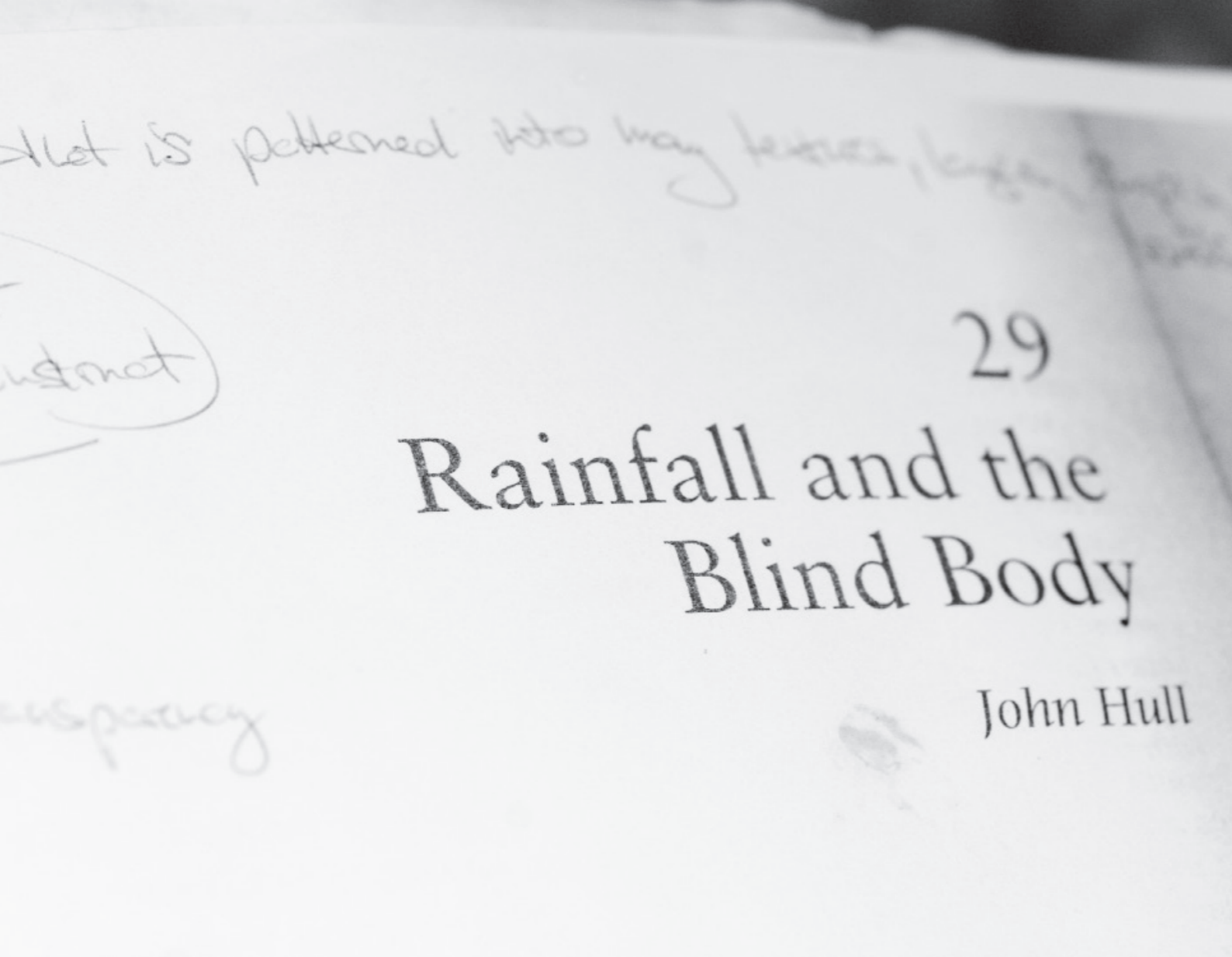
4.1.8. Photo Collage: Making Imagined Blind Seeing Visible

"It makes all the difference whether in an 'abstract' painting we see an arrangement of mere shapes, i.e., visual objects that can be completely described by their area, outline, color, location, etc., or see instead the organised action of expressive visual forces. In the latter case, the shapes vanish in the dynamic play; and it is only this dynamic play that conveys the meaning of the work". (Arnheim, 1974, p. 139)

It can be said that a photo collage is similar to an abstract painting as it is a composition of a number of pattern (photographs) which are arranged in a particular order. Photo collage is used in **Blind Insight** as a technique of making imagined blind seeing visible. By communicating a holistic experience, photo collage aims to make visible the complexity of the sensory experience. It visually communicates the systematic processes of sensing, selecting, perceiving and seeing. Each sequence photograph is a visual translation of one particular sound pattern and together they form a visual translation of the perceived soundscape. Each photograph when read in isolation conveys a specific meaning. However a new meaning can emerge once the photograph is viewed as one part of the whole. The sum of the photographs creates a new picture and is determined through the principles of perceptual organisation—the basis for understanding imagined blind seeing.



Fig. 35 *Blind Insight*: 'Integrating' = constructing the photo collage after Schema based analysis



4.1.9. Key Text: John Hull, *Touching the Rock: An Experience of Blindness*; Excerpt: *Rain*

Close (2000) claims that the process of painting combined with constantly reading the photographic portraits of his subjects enables him to build up a more intensive relationship with the people he is painting. Throughout this research project I encountered similar experiences through a close reading of the autobiographies of Hull, Lusseyran, Tenberken and Torey, I was able to establish some sort of personal relationship and systematically form a picture of their unique ways of seeing. After reading and comparing the four biographies I selected three excerpts which struck me the most. My recollection of *Dialogue in Dark*, reaffirmed the importance of my sense of hearing in best triggering my visual thoughts. My experiences also confirmed that the sense of hearing best enabled me to empathise with the way blind people conceptualise their environment and how the auditory can trigger the mind's eye. One case study that is evocative in describing how a blind person translates the sensual into the conceptual through attentive and associative listening, is John Hull's account of rain. In this account Hull constructs a mental scenario made by conscious attentive listening to the different sounds that rain makes when hitting different objects.

The description of the myriad of sound patterns not only evokes ideas about the objects' physical presence in space—that there is something out there—but also ideas concerning the objects' qualities. Thus the sound of rain tells the blind listener about places as "rain brings out the contours of everything". (Hull, 1992, p. 29)

The excerpt from Hull's autobiography *Touching the Rock: An Experience of Blindness* (see appendix, p. 135) affirms the hypothesis of neuroscientists and scholars of blindness that some blind people are able to create visual imagery through the sense of hearing, and that total awareness, attentive and associative listening are keys to doing so.

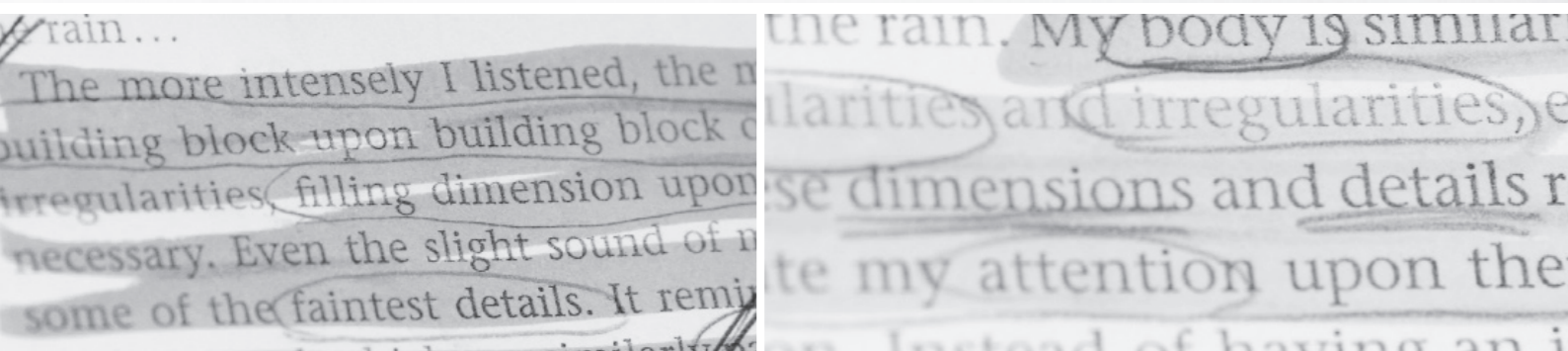


Fig. 36 John Hull, textual analysis

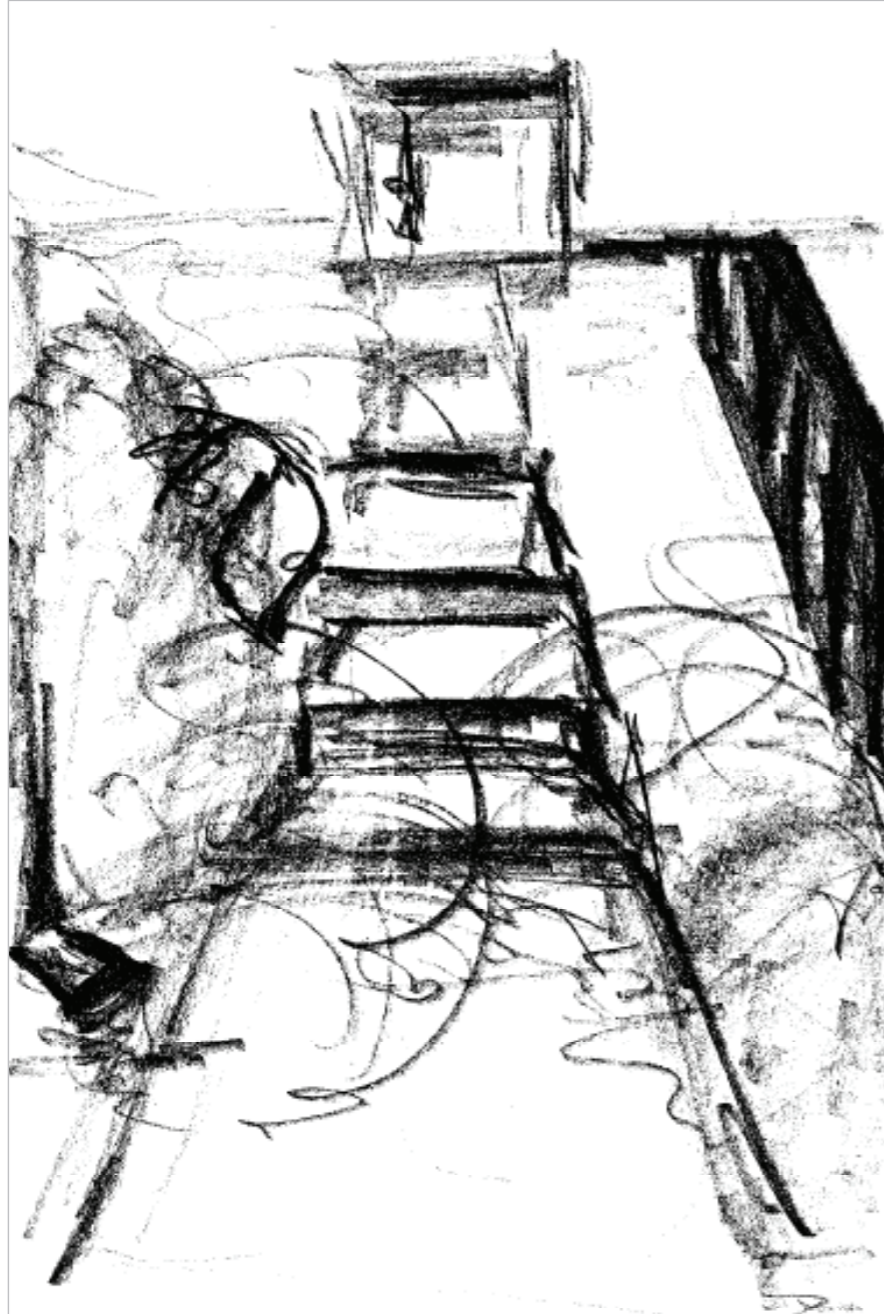


Fig. 37 *Blind Insight*: sketch of the imagined scenario, *Rain*

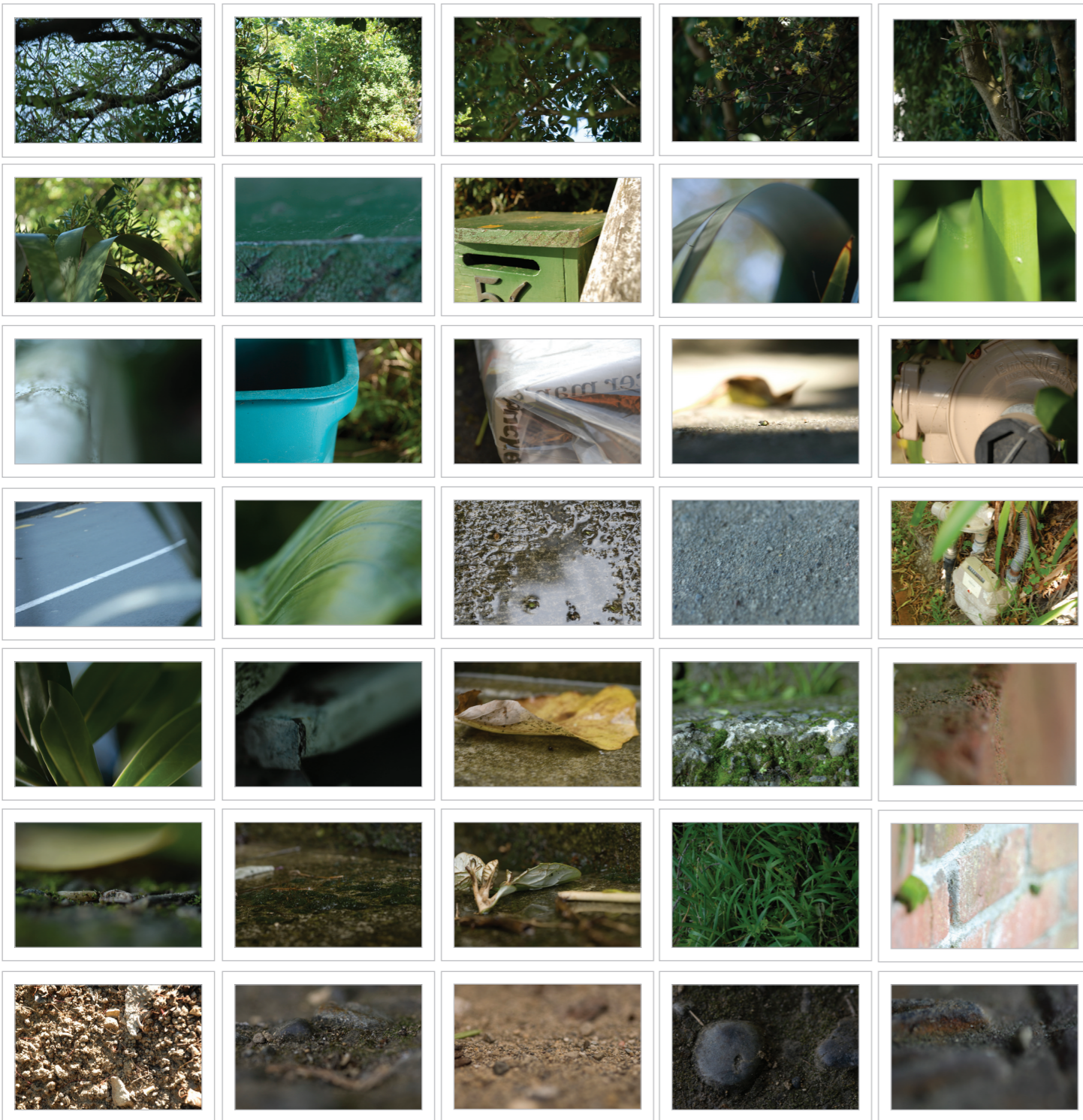
4.4. Selecting: The 'Entrance' Scenario

4.4.1. Imagining the Soundscape

"Sound gives you that sort of horizon in which you can situate yourself." (Hull, 2001, p. 23)

Because Hull describes an everyday scenario, a private place one can encounter and empathise easily with, his text left a deep impression on me. His text is essential to providing an insight into the sensory experience of the blind, and that the relationship between a blind person and his environment is pivotal to how the blind are able to 'see'. The text provides a detailed account of how the blind listener systematically conceptualises perceived cues and how visual thoughts can form a complete picture. Moreover I found the way in which Hull wrote about his experience to be captivating. I felt like I was instantly there imaginatively experiencing the scenario at the moment of reading. I could hear the different sounds rain makes when hitting different objects with my inner ear.

I was thus able to create an imagined scenario based on Hull's descriptive words due to my knowledge of the sound of rain and through my associations, which were evoked through my visual memory. In addition to instantly triggering my mind's eye and my inner ear his text also provided me with a first impression of a true meaning of blindness (Monbeck, 1973). Just as Hull apparently creates a mental model of a scenario so did I create a mental visual image based on Hull's description. But why did I create mental visual imagery at all? What is its purpose? Kosslyn finds that the purpose of mental visual imagery is for reasoning and to better understand descriptions of objects and scenes. In my case, to consciously picture the scenario, and so to project it inside, certainly enabled me to better understand Hull's descriptions. Figure 37 shows a sketch of the scenario I had in mind when reading his text. Two aspects were vital for the choice of the scenario for the photographic translation. The chosen scene needed to show similarities to Hull's description to enhance empathy in the viewer/reader. A translatable soundscape of the scene was also crucial.



4.4.2. Picturing the Landscape

“Imagination is the remarkable power our minds to form mental images of something not present and to invent new images and ideas. We can see a strong link between image and imagination—imagination exists in our mind while the image is tangible and visual.” (Berger, 1998, p. 2)

Mentally holding on to a concrete picture of Hull’s description I explored different parts of Wellington to find the most appropriate scenario corresponding to his account. In the end, the selected scene was informed by another factor as well. It was essential that the location of the scenario was easily accessible because specific weather conditions were crucial for the creation of the photographs, so I limited my search to my immediate neighborhood area. I compared several potential scenarios taking into account the different objects that comprised each scenario, the visual composition and the rain soundscape. The chosen scenario was identified as the ‘best fit’ when evaluated on these criteria. Figure 38 shows a scenario similar to the one I imagined when reading Hull’s text. Hull speaks of listening to the rain in his garden while leaving the house, then going down the path and hearing cars on the street. Figure 39 depicts an inverted view and is the key photograph for my photographic interpretation.

The reason for inverting the view is to signify the difference in perspectives and the imaginative dialogue taking place between the blind and the sighted. The attempt of a sighted person gaining an insight into a blind person’s way of seeing is communicated through the depictive level as the key photograph represents an entrance to someone’s home. On a compositional level the scenario employs pictorial perspective to convey order and hierarchy.



Fig. 38 (left)
Blind Insight: visual equivalent to imagined scenario

Fig. 39 (right)
Blind Insight: inverted view and key photograph for visual translation of imagined blind seeing



Fig. 40 (opposite page) *Blind Insight*: parts of the scene

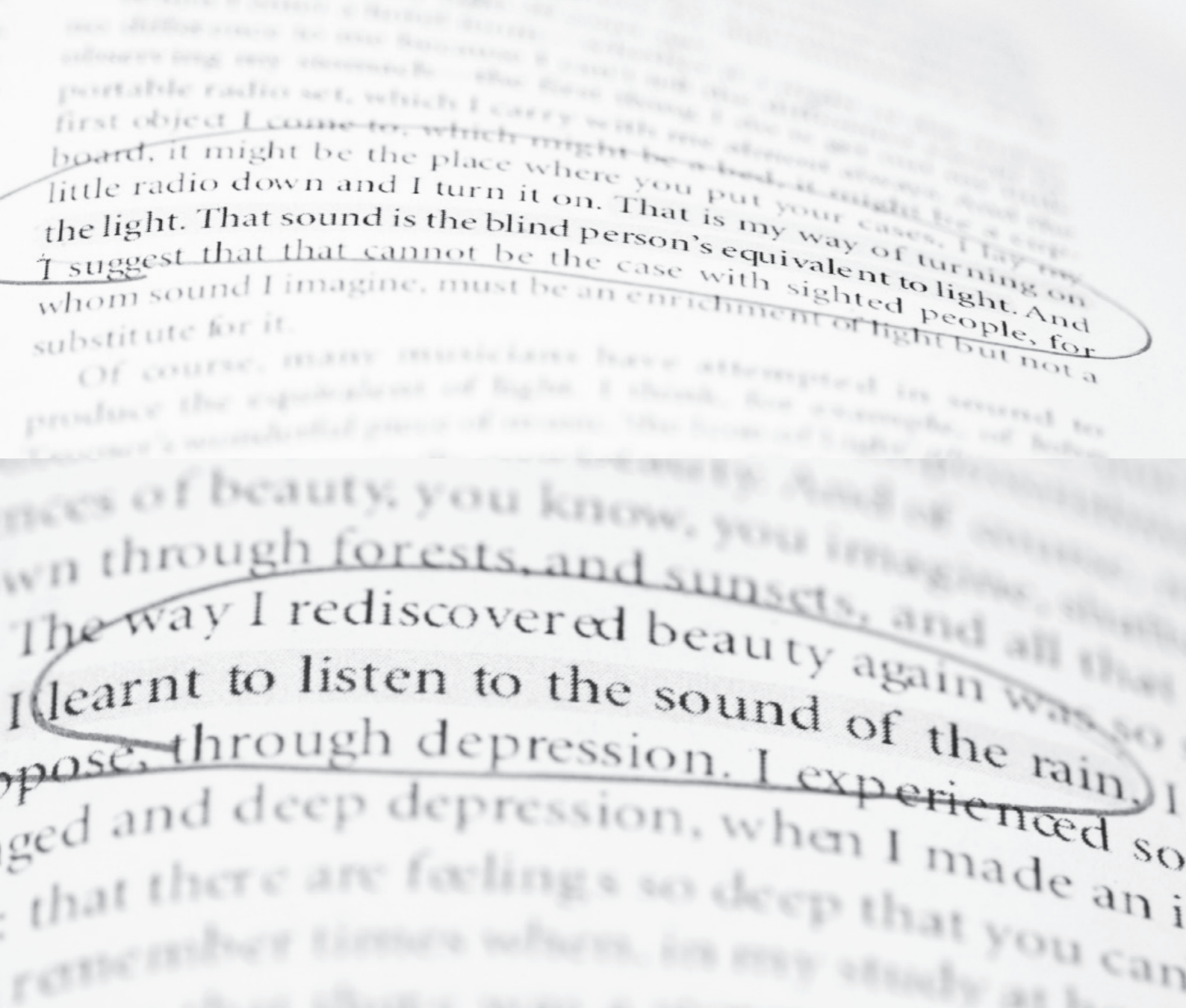


Fig. 41 John Hull, key sentences stated in *Soundscape*

In addition it conforms to the western cultural method of reading text from left to right. Therefore it is the diagonal line of the handrail that catches the perceiver's attention first, leading the eye to the gate and so signalling journey and arrival. The bushes to the left and right of the steps and the handrail frame the photograph. The gate positioned at eye-level, becomes the centre of attention. The illusion of diagonal lines is evoked through the particular arrangement of objects giving the scene a sense of perspective. In the context of picture analysis, diagonal lines from bottom left to top right indicate an upward movement which is often perceived as a positive feature. The pathway divides the scene into two halves thereby creating a balanced order. In these photographs the idea of looking is conveyed through the 50mm lens, the shooting mode and the eye-level. Both are still-life photographs representing a part of a landscape under natural light.

4.4.3. Analysing the Soundscape

The approach I employed to analyse the soundscape is based on what Bregman terms 'primitive auditory scene analysis' (Bregman, 1990). This method can also be understood as a bottom-up approach. What does primitive mean and how does the bottom-up approach set out a systematic way of working? Solely conceptualising my environment through the sense of hearing was a new field of exploration for me. The first step I undertook was the segmentation of the complex soundscape according to each different sound pattern I perceived. In this respect, my resulting actions can be considered as natural or innate as my attention was caused and directed by the incoming sound patterns. At this stage I did not make any associations and thus give meaning to the perceived sound pattern. What was important here was to decompose the complex soundscape and to find out how many sound patterns I was able to distinguish. This part of the scene analysis involved five experiments.

In order to get an overall impression of the soundscape caused by rain, I began listening to and recording different types of rain on windless nights.¹ I discovered that as night-time is quieter than the daytime it allowed me to fully concentrate on the sound of rain. I investigated the classic types of rain: soft, moderate and heavy rain. I initially wanted to find out which type of rain brings out the most distinguishable sound pattern. I found that moderate rain creates the most varied and nuanced sounds.

¹ The original rain recordings are not included in this thesis. Due to high costs and limited availability of advanced/professional field recording equipment I used basic/primitive field recording equipment. Therefore the recordings are not of good quality and include many side noises. The attempts of extracting these were unsuccessful.

The second step involved attentive listening from one vantage point while blindfolded and not moving my head. I listened blindfolded and without head movement from one position (Fig. 42). I defined the vantage point according to the loudest sounds to my left and right side and so framed the soundscape on a vertical scale. Similar to how depicted objects can frame a photograph, so can sound patterns frame a part of the soundscape and function as reference points. According to Bregman, the loudest sounds are first to attract the perceiver's attention. Moreover high sounds and low sounds are most likely to be first recognised as opposed to medium sounds, which are often captured through second time hearing. I recorded my findings according to which sounds attracted my attention first, thus establishing a sequential order. Bregman further observes that the personal significance of the perceiver to certain sound patterns also plays a role in perceptual organisation. Sound patterns familiar to the perceiver are also those most likely to attract the attention of the perceiver. I found that the most distinct and dominant sound patterns were the raindrops falling on the left side of the steps and on to a leaf, the drumming of the rain on the flax bush, and the dripping from the flax bush's leaves on to the service meter. I then counted the sound patterns within this soundscape. From this position I was able to distinguish 24 different sound patterns. In the second part of this experiment and from the same position, I numbered, sketched and made notes on the perceived sound pattern, recording their approximate positions in space on a square piece of paper.

1

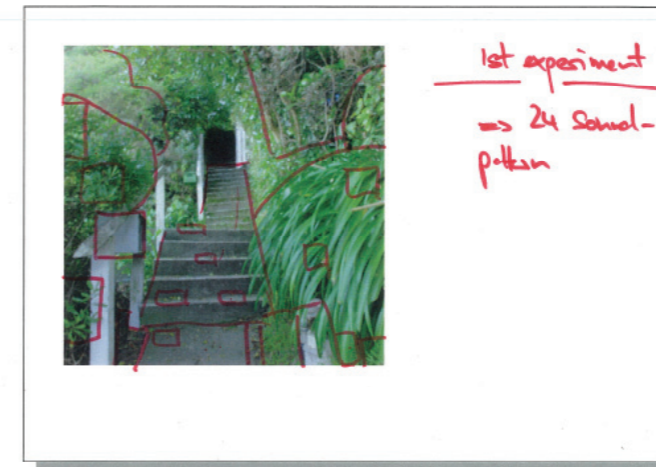


Fig. 42 *Blind Insight*: 1st experiment
> Attentive listening - mapping the 24 sound sources, one vantage point, no head movement; May 08

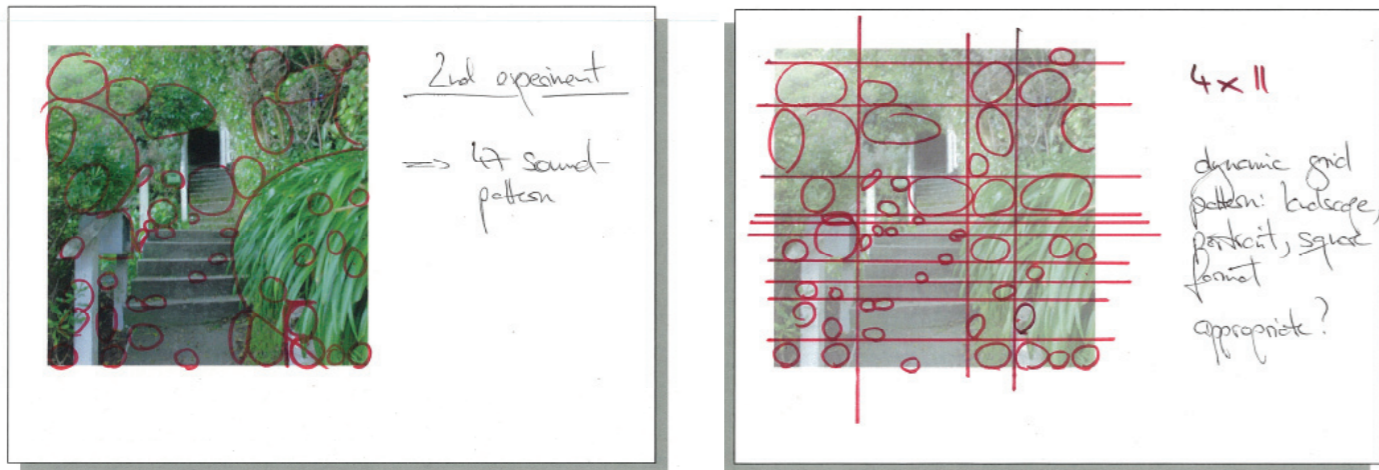


Fig. 43 *Blind Insight*: 2nd experiment > Attentive listening - mapping the 47 sound sources, moving through space, no head movement; May 08

The next experiment followed the same structure: listening and recording the findings in sequential order and counting the sounds pattern while slowly moving through space from the original position up to the gate. I counted 47 sound patterns altogether. Figure 43 represents the sound source identification during this experiment.

The fourth experiment involved systematically moving up close to each object depicted in the defined frame so that I could concentrate solely on that one object, as for example the flax bush on the right side of the steps. The closer I came to the object the more I began to notice irregularities in the sound patterns. Even though rain falling on the flax bush was one sound pattern, it varied in loudness and pitch due to the size of the bush, the density of its leaves and shape, as well as the irregular raindrops dripping from the trees above, and the continuous falling rain. I grouped 9 sound patterns sharing similar properties, that is, the same shape (timbre), but differing in pitch and loudness. Such nuances of one particular sound pattern were common among large objects such as the range of plants and the pathway. The sound patterns of concrete objects such as the letter boxes, recycling bin and the newspaper, on the other hand, appeared regular. Only the sound pattern of the service meter was irregular due to the rain drops dripping at irregular intervals from the flax bush. This experiment made me more aware of the complex and detailed nature of the soundscape. However due to the scope and methodology of the thesis I am unable to provide an exact number of the myriad sound patterns that I perceived.

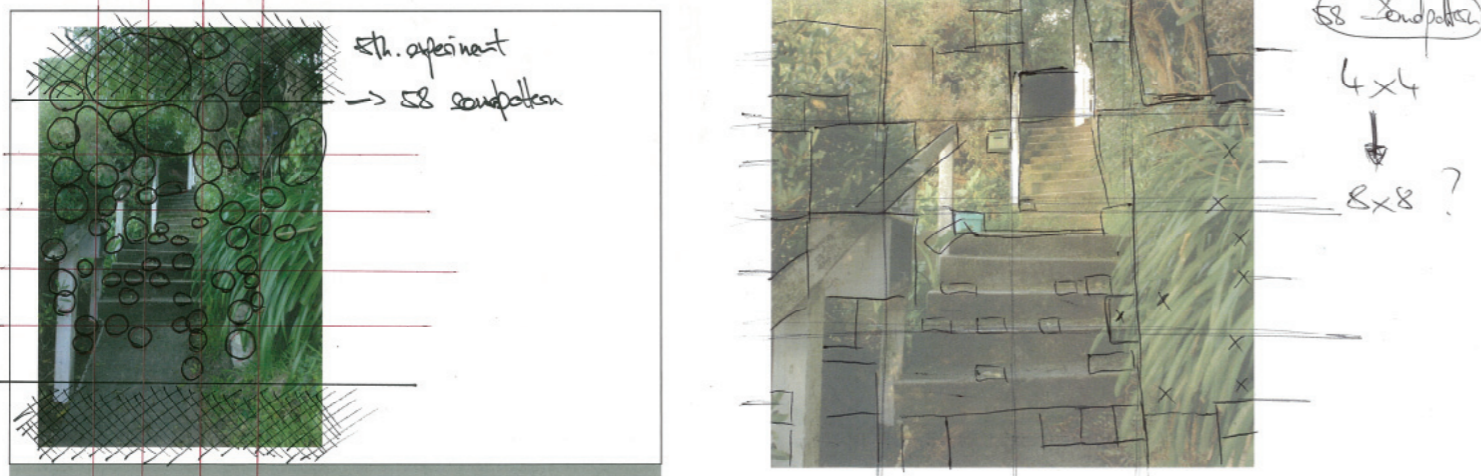


Fig. 44 *Blind Insight*: 5th experiment > Attentive listening - mapping the 58 sound sources, one (initial) vantage point, no head movement, August 08

The process of auditory scene analysis took place over a period of two months over which time I found my sense of hearing becoming more sensitive. Despite my familiarity with the scene, I also discovered that I could empathise with Hull's observation that "dimensions and details reveal themselves more and more as I concentrate my attention upon them" (Hull, 2000, p. 23). These experiments also confirm the empirical findings of Voss and the claim that the blind use their sense of hearing more efficiently due to constant training. As a result of consciously listening to the soundscape for two months I was able to distinguish 58 different sound patterns from the original fixed vantage point (Fig. 44).

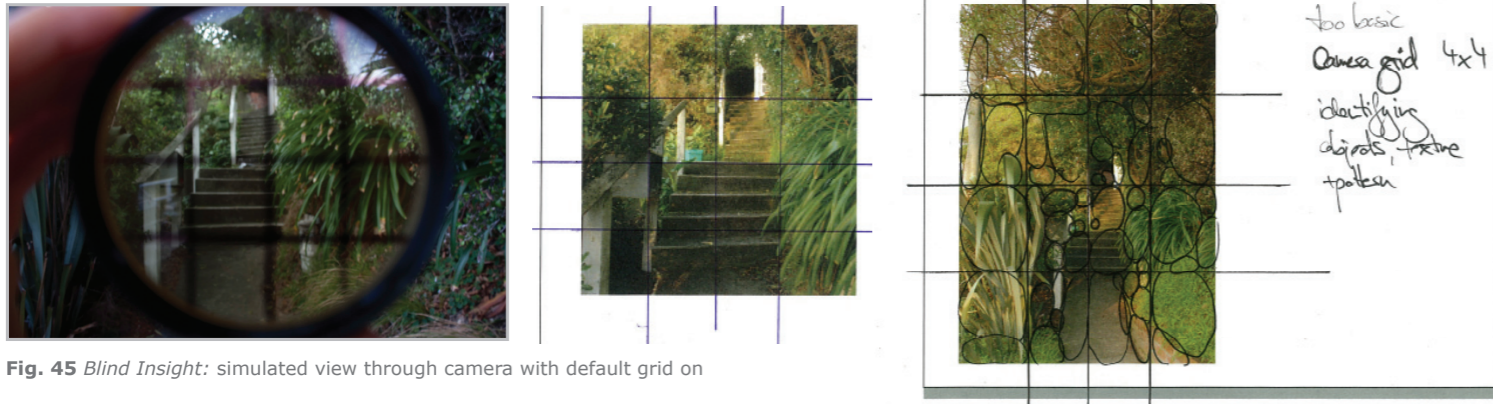


Fig. 45 *Blind Insight*: simulated view through camera with default grid on

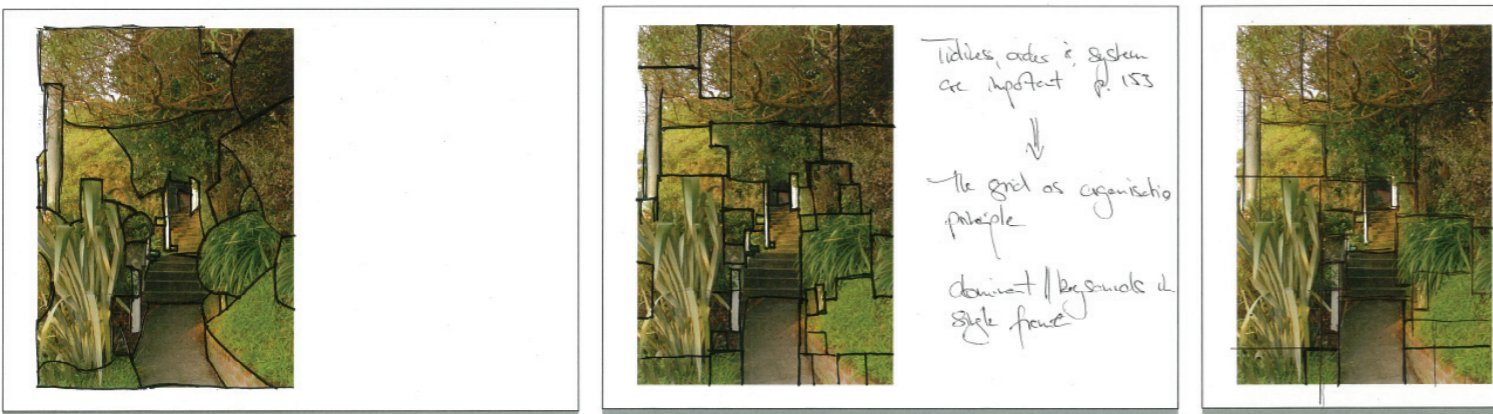


Fig. 46 *Blind Insight*: Tracing objects

Fig. 47 *Blind Insight*: Object framing using geometric forms

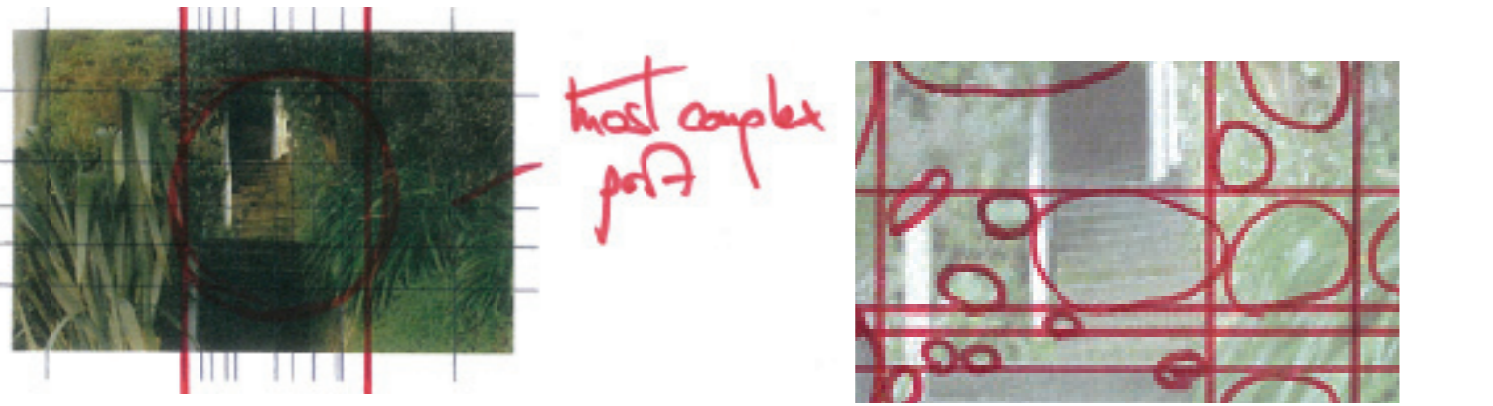


Fig. 48 *Blind Insight*: Object identification on horizontal and vertical scale

Fig. 49 *Blind Insight*: correlating sound source and landscape segment

4.4.4. Segmenting the Landscape

After having conducted the auditory scene analysis, the problem became one of translating the findings into a landscape image. To make the segmentation of the scene easier I decided to apply a simple compositional system based on the camera lens with a default grid. Figure 45 represents a simulated view as seen through a default grid of four by four. However I soon discovered that this arrangement was too basic. The next steps I undertook were tracing the objects' natural (Fig. 46) contours and framing the objects to rectangular or square shapes (Fig. 47). I then went on to segment the landscape according to its objects on a horizontal and vertical scale (Fig. 48).

The outcomes of these experiments were that, firstly I was able to define the most complex and interesting part of the scene, secondly I was able to get a better idea of the landscape's segmentation. Due to the auditory scene analysis and the framing of the soundscape I cropped the photograph to a corresponding square format. This deliberate cropping also suggests continuity beyond the frame, thus providing a sense of being enveloped by the scene.

The segmentation of the landscape into different sized rectangles and squares created a dynamic play between the geometric forms and their sizes. When comparing this segmentation with my auditory scene analysis I found that it was inappropriate. In most instances the qualities of the sound patterns did not correlate with the assigned segments. It appeared rather confusing that, for example, a bigger segment was assigned to a very distant and soft sound (Fig. 49).

From an organisational perspective, I needed to find out if this type of grid suggested order, system and the processes of perceptual organisation in order to give a visual representation to Torey' statement that for a blind person "tidiness, order and system are important" (Torey, 2003, p. 153). For me it did not, and I searched for other solutions. I reconsidered my departure point—the basic 4x4 grid of the camera. I decided to correlate the system with the 58 recorded sound patterns and divided each of the eight segments into another four squares.



Fig. 50 *Blind Insight: key photograph, gridded scenario after auditory scene analysis, numbered segments from left to right and bottom to top*

In doing so, I found that the solution of sixty-four squares (or dimensions) was similar to the segmentation I had established through attentive listening and hence a good number to work with. While I acknowledge the fact that the number sixty-four is a crucial measurement in computer vision algorithms the number in this context is not relevant to this project. 64 squares proved to be an ideal number for representing the complexity of the soundscape thorough photographic interpretation. To manage this complexity I numbered the squares (Fig. 50) from left to right and from bottom to top.

Symbolically, this order indicates the bottom-up information processing theory of reducing the complexity of a whole to its parts. The landscape is made up of the following parts: trees, bushes, flowers, single leaves, mulch ground, part of the path, steps, handrail, a metal letter box, a wooden letter box, a recycling bin, a newspaper, the gate and the service meter. I began analysing, like Close, the qualities that belonged to each of the objects. I then categorised the objects according to their surface or material into concrete, metal, plastic, wood and plant leaves. Understanding the objects' qualities (form, size, material and position in space) and the qualities of sound (loudness, pitch, timbre, direction) rain makes when falling onto these objects is pivotal to assigning associations.

4.4.5. Correlating Auditory and Visual Texture

"Similarly, when listeners create a mental representation of the auditory input, they too must employ rules about what goes with what." (Bregman, 1990, p. 11)

Having framed the particular soundscape, I went on to design a simple overall picture that equated sound with tone, and which was informed by my research into auditory and visual texture. In 1974, Marks conducted two experiments in which he investigated how people associate light with sound and whether or not the associations made were intrinsic and natural to the perceiver. Marks played a range of pure tones to the research participants who were then asked to correlate certain sounds with paper cards ranging from black to white. Despite the fact that there was no unanimous agreement among all respondents, the research findings clearly demonstrated a correlation between pitch and tone. The outcome of Marks' empirical studies is confirmed by Bregman (1990). Bregman points out that while auditory texture is equivalent to visual texture, the associations of dark with distance and light with nearness, that is grouping distance and lowness as one property and nearness and brightness as another, is a natural rule. He also suggests that this rule is dependent on the perceiver's knowledge of similar experiences and creativity.

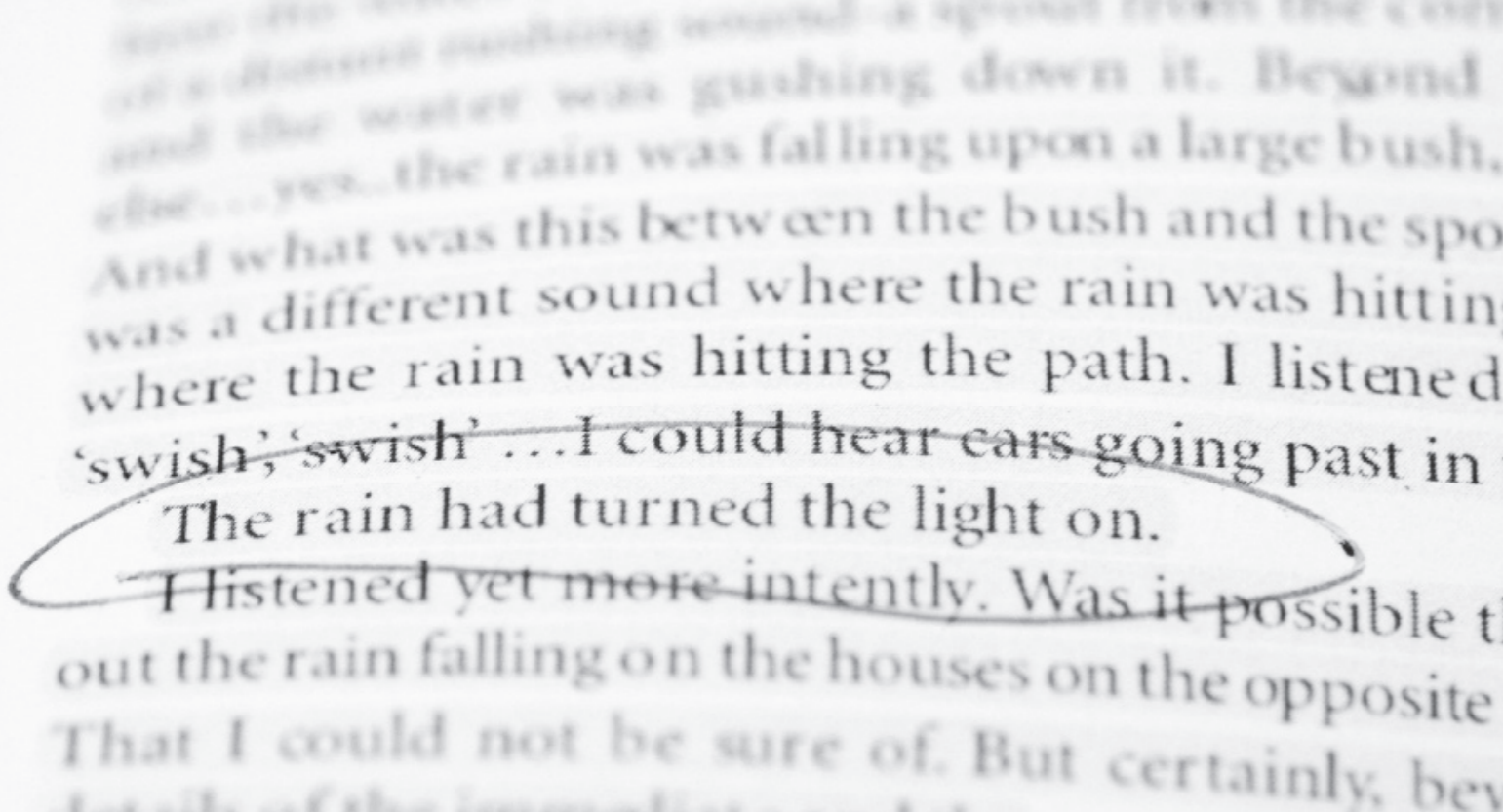


Fig. 51 John Hull, *Soundscape*

loud	soft	soft	soft	soft	moderate	moderate	moderate
loud	loud	soft	soft	soft	soft	moderate	moderate
loud	loud	soft/mod.	soft/mod.	soft/mod.	soft	moderate	loud
loud	loud	loud	moderate	soft/mod.	moderate	loud	loud
moderate	moderate	moderate	soft/moderate	soft/mod.	soft/mod.	loud	loud
loud	moderate	loud	moderate	moderate	loud	loud	loud
loud	loud	loud	loud	loud	loud	loud	loud
loud	loud	loud	loud	loud	loud	loud	loud

soothing	pale	gentle	moderate	moderate	gentle	dynamic	gentle
soothing	soothing	gentle	moderate	moderate	moderate	dynamic	dynamic
soothing	soothing	dull	distinct	distinct	moderate	dynamic	hush
soothing	soothing	tingy	moderate	distinct	dynamic	moderate	hush
blurg	irregular	distinct	soft	soft	soft	hush	hush
abrupt		subtle	dynamic	prominent	loud	hush	hush
vibrant	subtle	soft	dynamic	soft	soft	hush	tingy
vibrant	subtle	dull	dull	dull	dynamic	dynamic	tingy

Fig. 54 *Blind Insight*: semantic schemata, sketch

Marks' method gave me a good sense of this analogous relationship and provided me with a useful reference system for creating photographs using approximate exposure settings. In digital photography there are 256 shades of grey. Figure 52 represents this tonal range in the form of a gradient. In order to apply Marks' method I required a range of grey cards. I decided to break up the gradient into separate parts, enabling me to choose a selection of different grey squares. I found that 256 grey cards were not manageable, but by picking every fourth shade of grey of the total range of 256 I gained a good complex set of different tones. I then segmented the squares into dark, medium-dark, medium-light and light tones, which made collating the gathered information easier to manage. The schema (Fig. 53) I created later functioned as a guideline for the exposure settings used in taking the photographs, to identify contrast and the formation of a gestalt. This is further elaborated on in chapter 4.5.

Additionally, this schema helped as a reference system with the constructing of the photo-collage. In addition to the tonal schema I also created a semantic schema using adjectives to describe the qualities of each perceived sound pattern (for example: rough, smooth, dominant, soft, harsh, dull, vibrant, continuous, broken) and a sketch using graphic elements (Fig. 54). Due to the processes of auditory scene analysis and experiential learning I was able to establish a solid concept for my photographic interpretation. The following chapters discuss how the research findings were employed in transforming the conceptual into the pictorial.

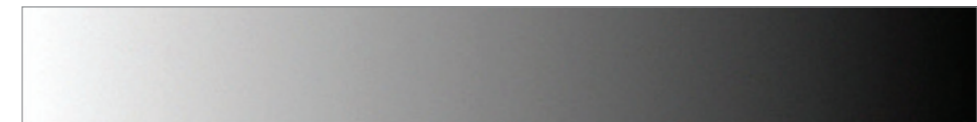


Fig. 52 Gradient from white to black

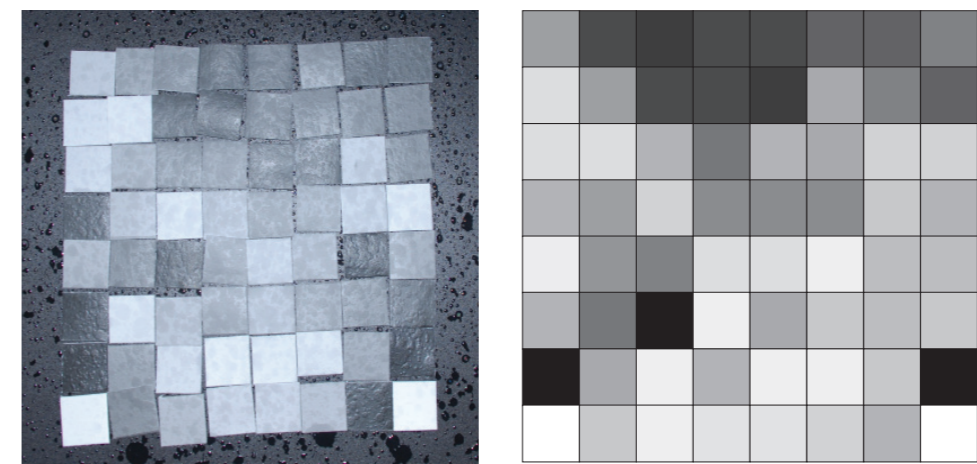


Fig. 53 *Blind Insight*: schema of correlating sound and light (left: original created at scene; right: digital recreation for better visibility)



4.5. Perceiving: Framing Visual Thought

Generally speaking, the phrase 'thinking outside a box' is often associated with creative thinking. In most cases, boundaries need to be crossed in order to come up with new solutions. From what seems an impossible task at a first glance, solutions slowly emerge in the process of creative thinking. This phase aptly describes my feelings in undertaking the vital stages of this research project. To understand the way blind people conceptualise through hearing and how they create images with their mind's eye felt like an impossible task at times. Many attempts at approaching this topic and in conveying my findings have failed. However, it is the learning process, as well as the process of creative work, that eventually enables one to see a solution to the question: How can a blind person's imagined world, evoked through audio perception, be visualized through photography?

The segmentation of the soundscape and the correlation between sound and tone provided me with an overall formula for the design response to the research problem. However, in order to translate the perceived soundscape into a landscape, other techniques were crucial. The belief that visual and aural textures are analogous informs my decision to use black and white photography. From a philosophical point of view, the colours black and white are regarded by thinkers like Villem Flusser as the "colours of a concept" (Flusser, 2000, p. 18). But what exactly is a concept and how does it sit within this research project? On a philosophical note, a concept is a formulated thinking model, which is used for reasoning or the realisation of a given issue. It is built up through dynamic and explorative action(s), reasoning and visual thought and as a whole it can be considered to be the sum of these parts. In reference to visual communication, a concept is a sketch or a schematic representation of a given aspect. On this note, the final design is the visual pendant to the thinking model thus the schematic representation of all (visual) thoughts. **Blind Insight** formulates a concept from the perspective of the blind listener and visually articulates this concept from the sighted person's perspective.

Fig. 55 *Blind Insight*: photograph that represents concept and photographic approach: sound = light; abstract black and white photography; movement

Abstract photography was employed to convey a sensory experience. The levels of expressiveness (depicted in the photographs) communicate the perceived sound pattern and the idea of a highly visual imagery of the blind listener. Figure 56 represents the steps involved in the creative processes and demonstrates the levels of abstraction up to the final photograph. In vision, the landscape format is used in reference to the visual field. To create contrast and to accentuate the uniqueness inherent in a blind person's way of seeing, the square format is utilised. In photography the square format not only implies uniqueness, but also represents a modern approach. The appreciation of the sensory is mentioned in all four case studies and is particularly evident in Hull's assertion that "this is an experience of great beauty". (Hull, 1990, p. 49)

In order to create empathy and to photographically convey a celebration of a sensory experience, research in the field of the perception of photography was conducted. In 2007 the Swedish scholar Östen Axelsson undertook an experiment with 150 participants in which he wanted to identify the factors contributing to the appreciation of photographic images. Axelsson provided the participants with a range of photographs of different genres, styles and formats. They were then encouraged to categorise them according to what they thought was most aesthetically appealing. The findings of the experiment indicated that black and white photographs were favoured over colour and that dynamic photographs were preferred over still shots. The experiment clearly showed that what makes photographs appealing is that they "evoke strong positive feelings or to communicate otherwise with the viewer. To create photographs with high appeal, photographers must elaborate on their hedonic tone and expressiveness via their familiarity, clarity and expressiveness". (Axelsson, 2007, p. 433)

The following chapters evaluate each technique that was employed in the design process and in the photographic interpretation of the soundscape. This evaluation is supported by the photographic response.

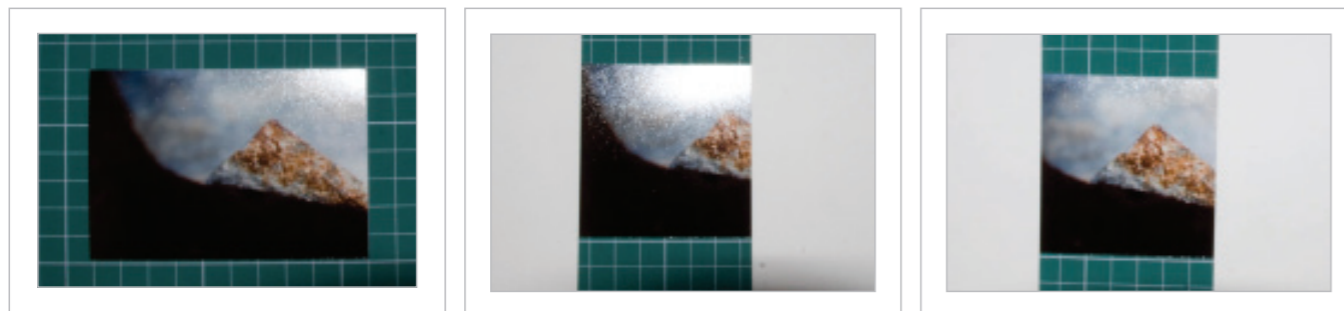


Fig. 56 *Blind Insight*: Photosequence > processes involved in transforming the 'real' to the imagined
1st sequence: documenting and analysing the objects' qualities; 2nd sequence: black and white photograph; 3rd sequence: capturing rain falling



onto the object; 4th sequence: associating aural and visual texture; 5th sequence: correlating tone and movement

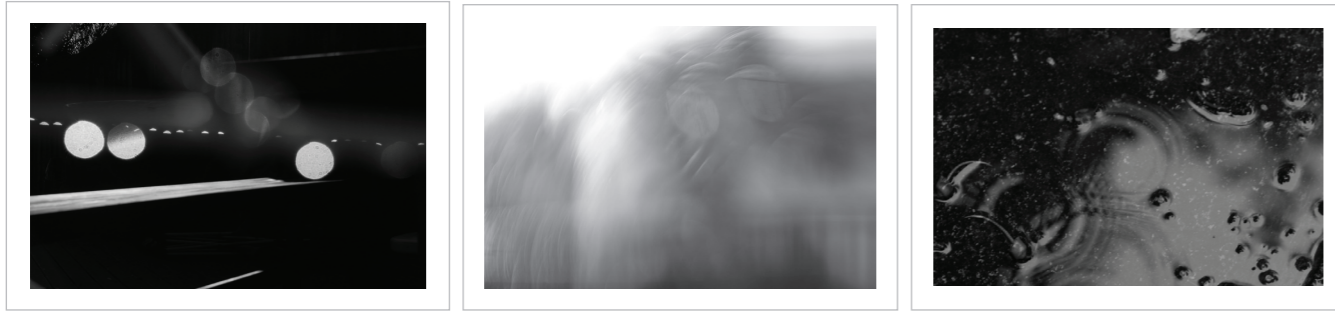


Fig. 57 *Blind Insight*: experimental process, form, shape, texture

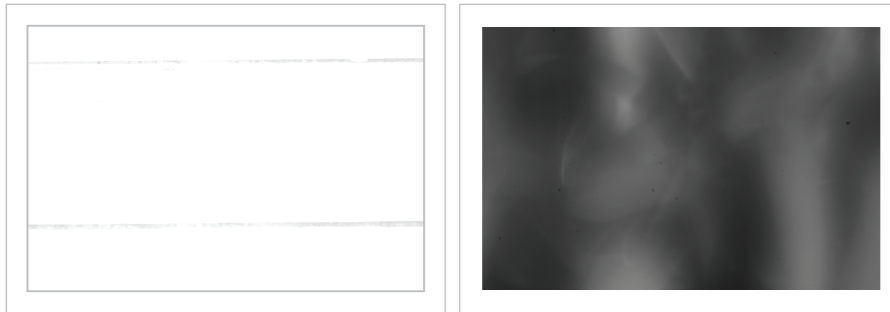


Fig. 58 *Blind Insight*: experimental process, over- and underexposure



Fig. 59 *Blind Insight*: experimental process, multiple exposures, close-ups

4.5.1. *There is something that is like*

“The more abstract the truth you wish to teach, the more you need to seduce the senses to it.”

Friedrich Nietzsche

Hull’s concept of blindness, namely “the less the information the more you see” (Hull, 1992, p. 171) and Bregman’s hypothesis that the perceiver is “free to load it up with whatever seems appropriate” (Bregman, 1990, p. 10) informed my choice of abstract photography.

Generally speaking, contemporary photography is not only a mediator of realistic aspects of the physical world but is also a mediator of the phenomenal world. Abstract photography is a powerful, engaging and challenging medium of expression that engages in capturing non-figurative aspects of the physical world. German scholar and photographer Gottfried Jäger (2005) defines abstract photography as the transformation from matter to mind.

The basis for the photographic interpretation is the idea embedded in Hull’s statement that “rain has a way of bringing out the contours of everything” (Hull, p. 46). Abstract photography can convey contours through the reduction of either form, shape or texture. This can be achieved through stylistic features such as extreme over- or underexposure, multiple exposure as well as close-ups (Fig. 57-59).

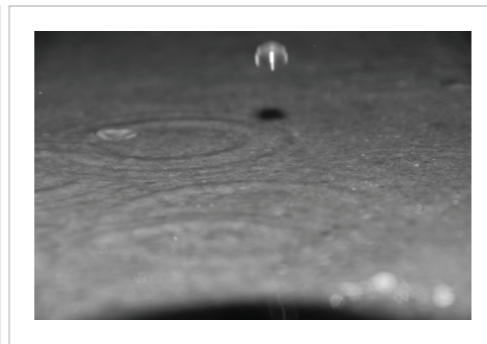
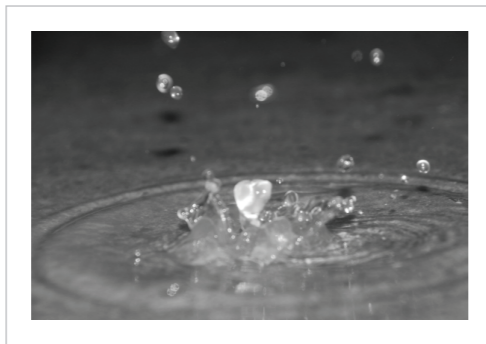
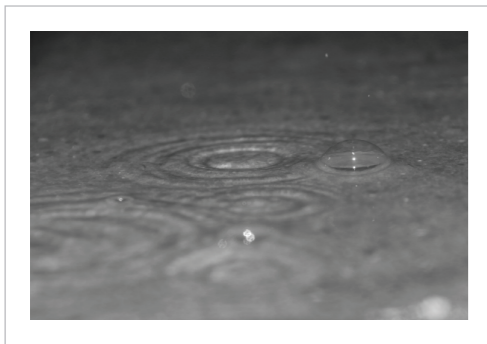
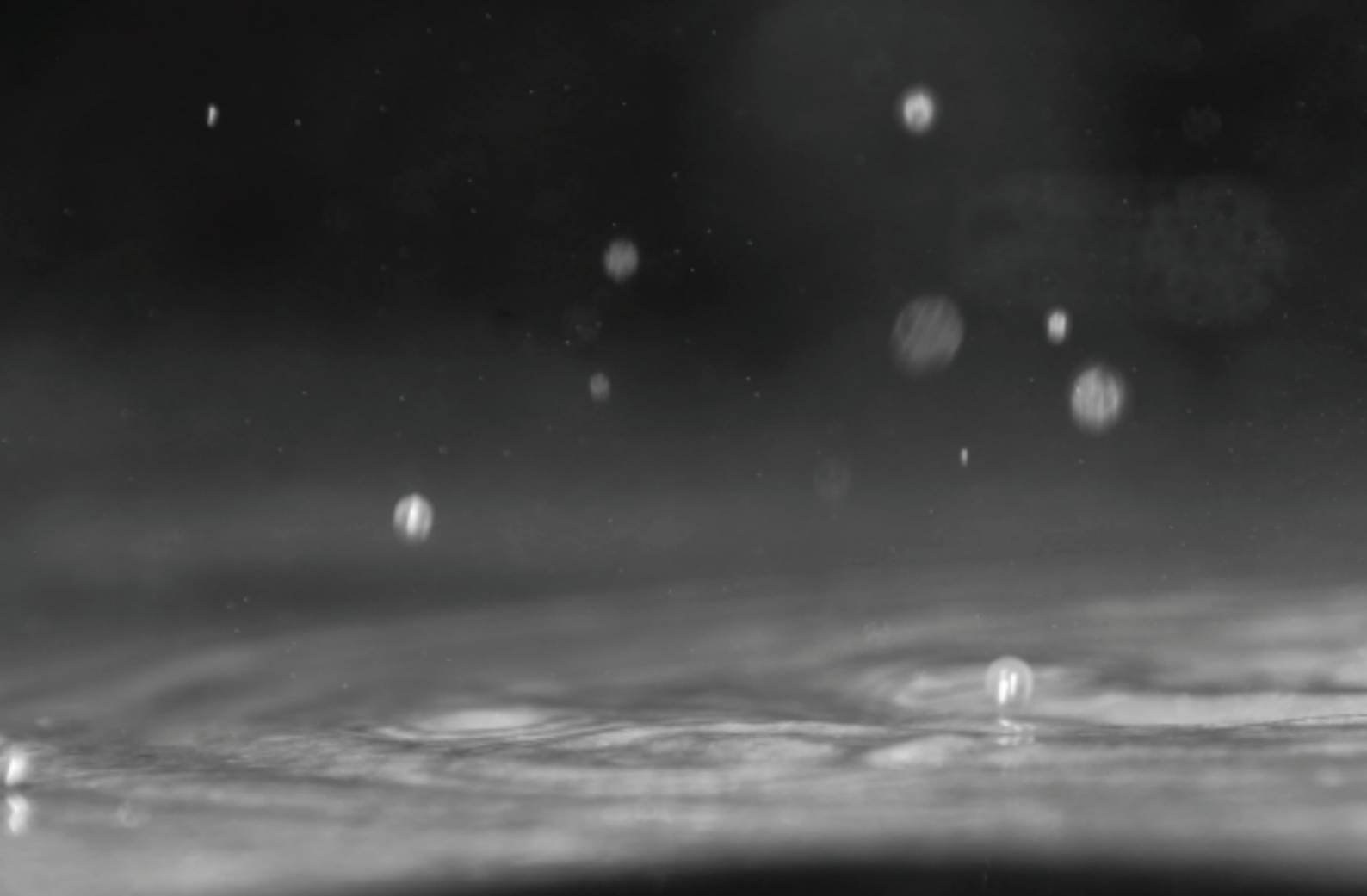


Fig. 60 *Blind Insight*: experimental process > capturing sound, making visible the physical concept of sound

By isolating and focusing on what the photographer considers to be the essence of a subject matter (or the 'leitmotif'), he/she captures and conveys concepts and ideas particular to his or her inner vision. Figure 61 aims to represent the idea of feeling sound, feeling movement, imagining objects and sensing space.

But how can abstract photography capture and communicate the sensory experiences of the blind so that we, the sighted, can gain an insight into their world? And what is the essence—the core meaning of the photographs which aims to shed light on how imagined blind seeing is understood?

It is useful to contemplate once more a brief recollection on the concept of sound and its meaning to a blind person. Similar to light, sound is a type of energy in the form of waves travelling through space. Sound can also be thought of as action that is triggered by forces. Different forces create different sound patterns thus forming soundscapes of "different regularities and irregularities, extended in space, from down here to up there" (Hull, 1992, pg. 203-204). These forces and the resulting movements are cues to perceiving the environment and constitute to what Gestalt theorist Wolfgang Metzger describes as a "totality of one's experience, the phenomenal world" (Metzger, 1969).

Another core component is the use of black and white photography which resulted from research into the analogy of sound and light. The following chapters evaluate the choice of the depiction of movement and black and white photography in more depth.

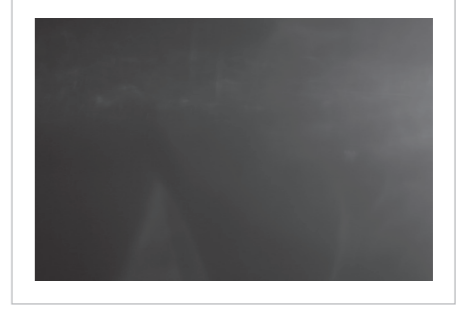
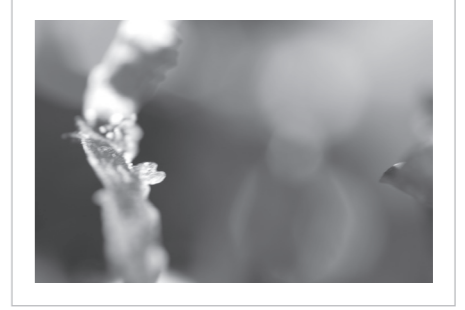
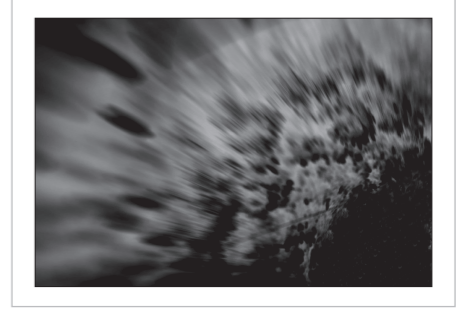
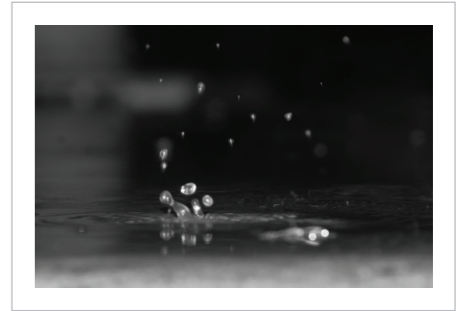


Fig. 61 *Blind Insight*: feeling sound and movement, imagining objects, sensing space



Fig. 67 *Blind Insight*: experimental process, zooming in/out during exposure

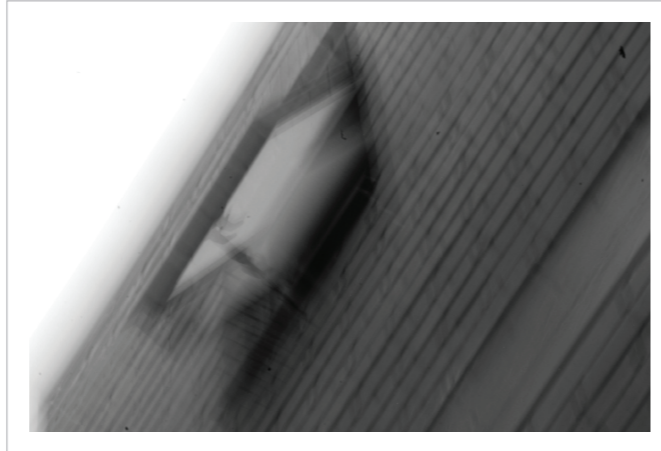


Fig. 64 *Blind Insight*: experimental process, multiple exposure

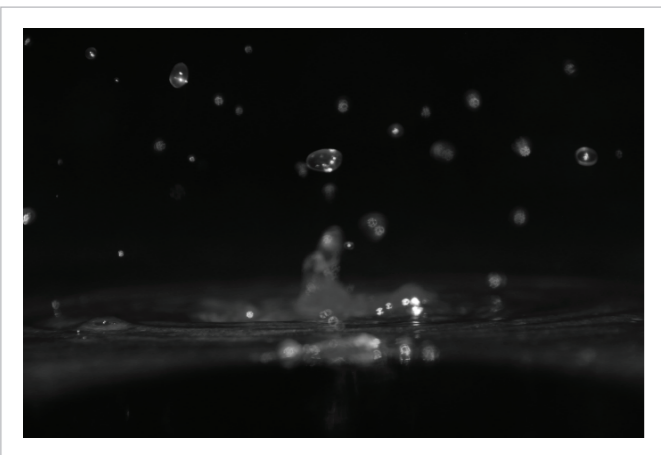


Fig. 63 *Blind Insight*: experimental process, 'freezing a moment'

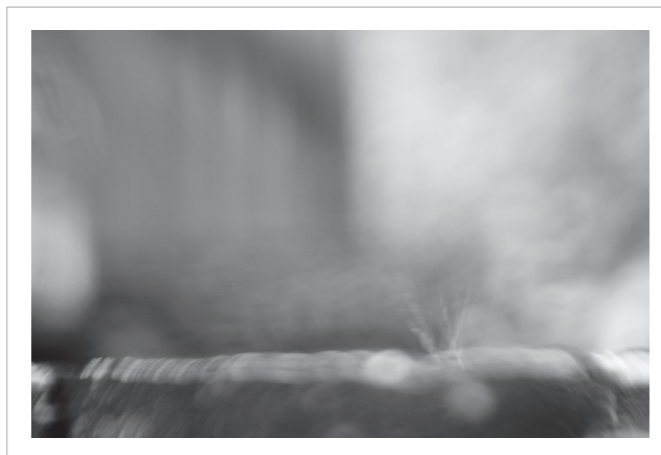


Fig. 62 *Blind Insight*: experimental process, motion blur



Fig. 65 and 66 *Blind Insight*: experimental process, angle of view



4.5.2. Feeling Sound, Feeling Movement

"Blind people compose their image of a particular place on the basis of connecting a series of isolated acoustic (and other non-visual) experiences. Something happens—it seizes attention—and a new feature is added to the overall impression." (Copeland, 2000, p. 23)

Photographs are a visual evidence of the photographer's phenomenal world. Through this method of self-expression the photographer not only tells a story but also communicates his viewpoint, and more importantly his feelings.

Hull's vivid description of the falling rain affirms the significance of sound for the blind. Consequently it is easy to gain an appreciation of how he (visually) thinks. As a starting point for my photographic interpretation of Hull's account, it is worth revisiting the overall concept provided by the author. For Hull sound is action hence "in a blind person's world nothing stand still, everything moves, everything is dynamic" (Hull, 2000, p. 24).

But how can photography be used to express movement when the camera only captures one moment at a time? One way of depicting the illusion of movement is the use of blur. Motion blur is employed in photography to suggest action even though long exposure is used in achieving the image (Fig. 62).

Another technique that is used to convey movement is what in photographic terminology is termed 'freezing a moment'. The images created are the result of high speed high speed photography or very short exposure (Fig. 63).

A third technique is the use of multiple exposures (Fig. 64). In addition to these techniques the angle or vantage point from which the photograph is taken may also enhance the illusion of movement (Fig. 65 and 66).

A fourth technique in conveying movement is the action of zooming in and/or out during exposure. Different levels of movement can be created according to the movement of the camera and the extent to which the zoom is used (Fig. 67).

However these techniques are not the only way movement or force can be created. Tone also play a vital role in communicating this idea. Tonal contrast can enhance the perception of the depicted movement and the level of loudness heard in the inner ear. The correlation of perceived movement (that is the action of sound) and tone is another core feature and are discussed in the following chapter.

4.5.3. Recalling Associations

“In vision, brightness differences create strong edges between surfaces and are one of the most important features by which the boundaries are discovered.” (Bregman, 1990, p. 121)

The same principle used in analysing the levels of dynamics associated with sound can be applied to levels of tone (Fig. 68).

Barraga states that for a blind person, sound equates with light. For sighted people, the presence of light enables them to see. In the case of blind people, the presence of sound can have the same effect as in contained in the claim that “the ears of a blind person are comparable to the eyes of a sighted person for providing information” (Barraga, 1976, p. 48). Moreover Bregman (1990) suggests that there might be an analogy between auditory and visual properties. **Blind Insight** argues for visually communicating a sensory experience of the blind through the analogy of visual and auditory texture.

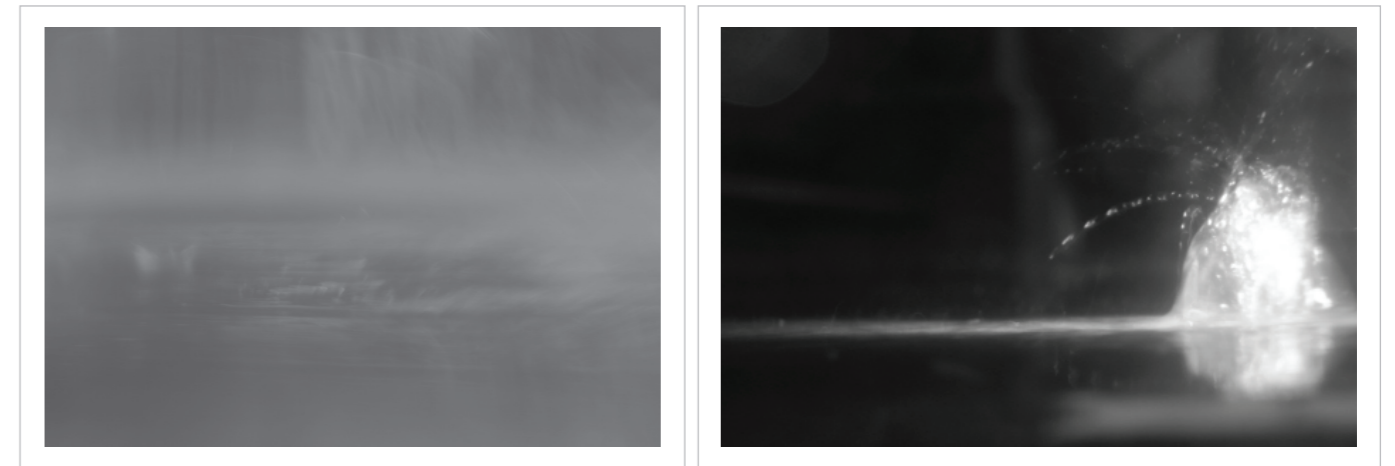


Fig. 68 *Blind Insight*: correlating levels of dynamics and levels of tone

Digital photographs comprising 256 grey tones and representing values ranging from complete darkness (value 0), or black, to total whiteness (value 255), are the means by which this will be conveyed. Figures 69 are examples of this.

In between these extremes lie a range of tones that may be selected and arranged so as to create multiple variations in tonal contrast. For example juxtaposing black and white creates the strongest contrast whereas the adjacent placing of two similar greys results in a soft contrast. This perceptual dimension is argued as analogous to the different sound patterns occurring within a defined soundscape (Marks, 1974; Bregman, 1990). Marks' empirical experiment on the analogy of light and sound indicates that people make associations between a particular sound and visual brightness. Figure 70 aims to illustrate this 'natural' association of low and high sounds and visual brightness. In reference to black and white photography, an understanding of the perception of low and high key photographs as well as under- and overexposed photographs is crucial. These terms are used in context to the tonal range of a photograph and can convey a certain mood or atmosphere.

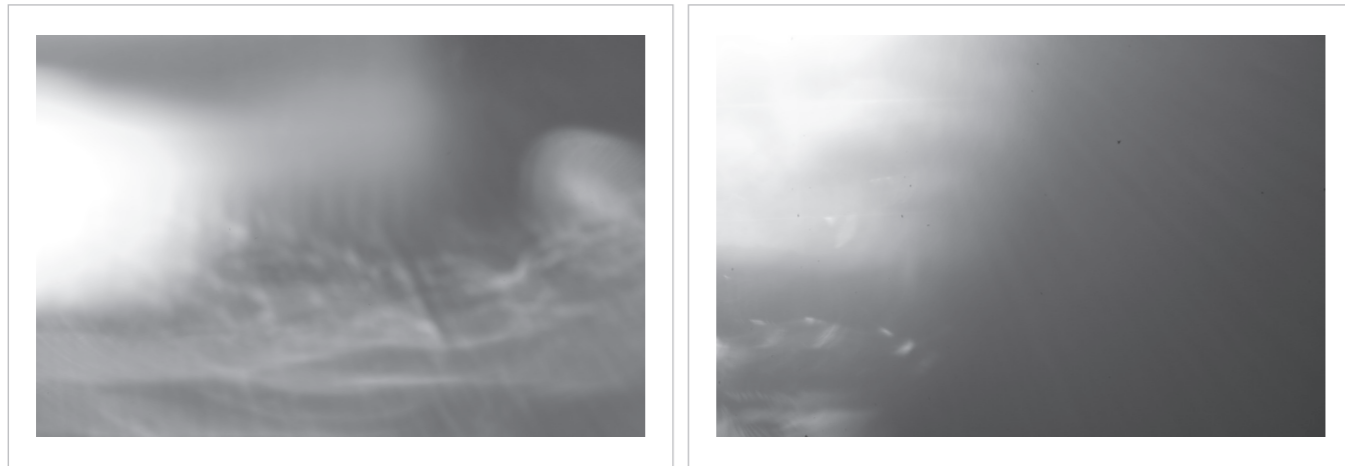


Fig. 69 *Blind Insight*: full tonal range

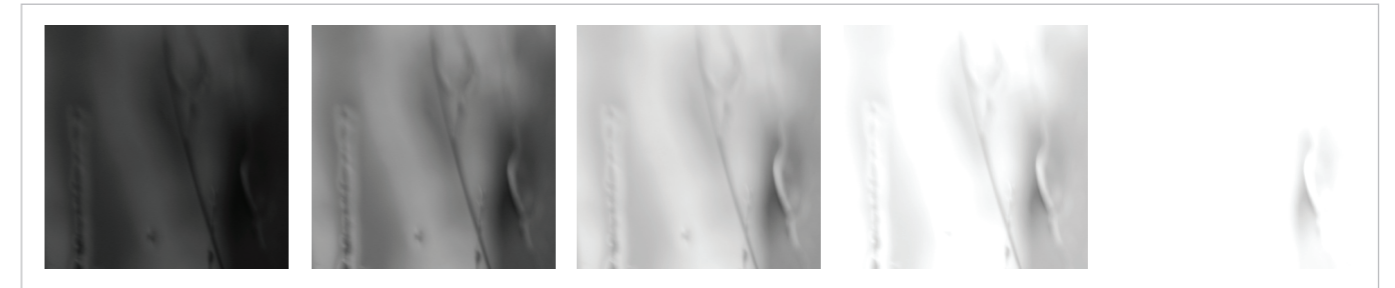


Fig. 70 *Blind Insight* Sequence Photography of five soundpattern varying in tonal expression

A high key photograph (Fig. 71) is characterised by the dominance of white and medium tones whereas in a low-key photograph (Fig. 72) dark or black tones are typical. Both high and low key photographs can have stark contrast to enhance meaning and to create tension.

Underexposed photographs (Fig. 73) lack stark contrast and are therefore often perceived as dull, flat or monotone. In contrast, overexposed photographs (Fig. 74) have areas which are 'washed out' and have 'an unnatural whiteness', almost to the point of glowing. Therefore they are said to convey an intense brightness, loudness or shrillness. This stylistic feature is used to accentuate, emphasise or to highlight a certain object in the photograph. In a contextual sense, this technique can be employed to emphasise or stress the intended message thus making it immediately understood to the reader.

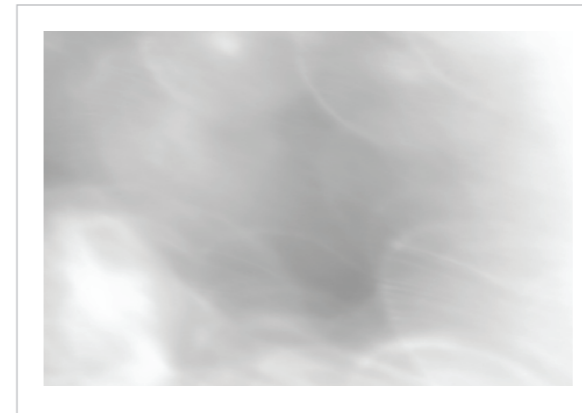


Fig. 71 high key

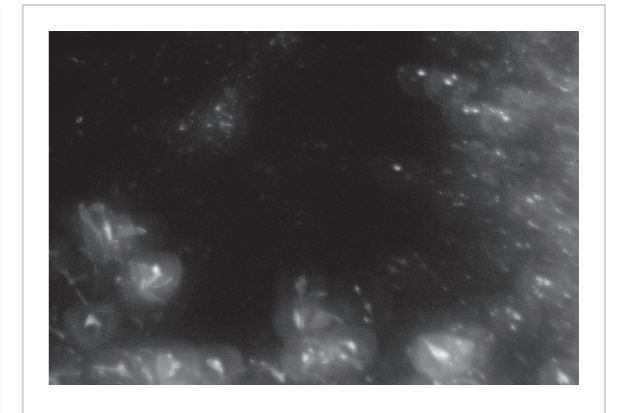


Fig. 72 low key

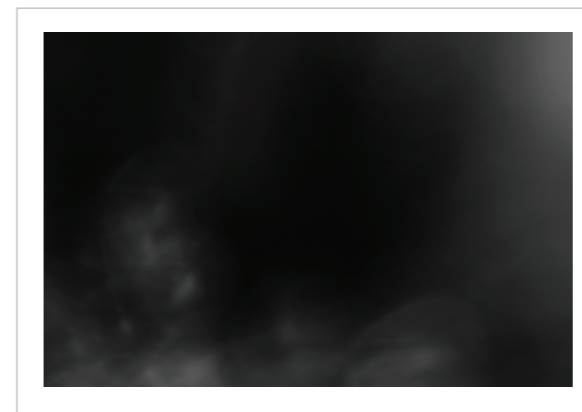


Fig. 73 underexposure

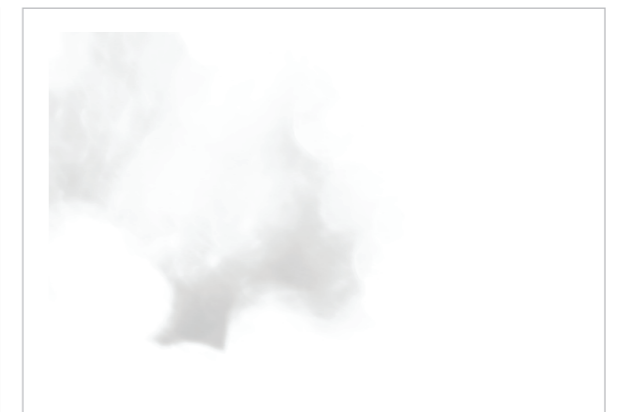


Fig. 74 overexposure



Although high key photographs are bright, they lack the harsh, screaming brightness which is typical to overexposed photographs. This stylistic feature is used to express softness, gentleness, happiness, cheerfulness and purity and are often said to evoke positive feelings in the perceiver.

Fig. 75 *Blind Insight*: experimental process, juxtapositioning high key and overexposed photographs



Low key and underexposed photographs are often read in a negative context as they can communicate tension, somberness, mystery or melodramatic effects. Given this brief evaluation on the perception of the tonal qualities of photographs how can these stylistic features be used in communicating an auditory experience? In order to make imagined blind seeing visible I created a translation formula based on the analogy of sound and light qualities. Sounds vary and how a particular sound is categorised depends on how it is perceived. For example, a sound can be pleasant or unpleasant, cheerful or somber, gentle or shrill, vivid or dull, it can be harmonious or irregular, obvious or mysterious, dark or bright.

Fig. 76 *Blind Insight*: experimental process, juxtapositioning underexposed and low key photographs

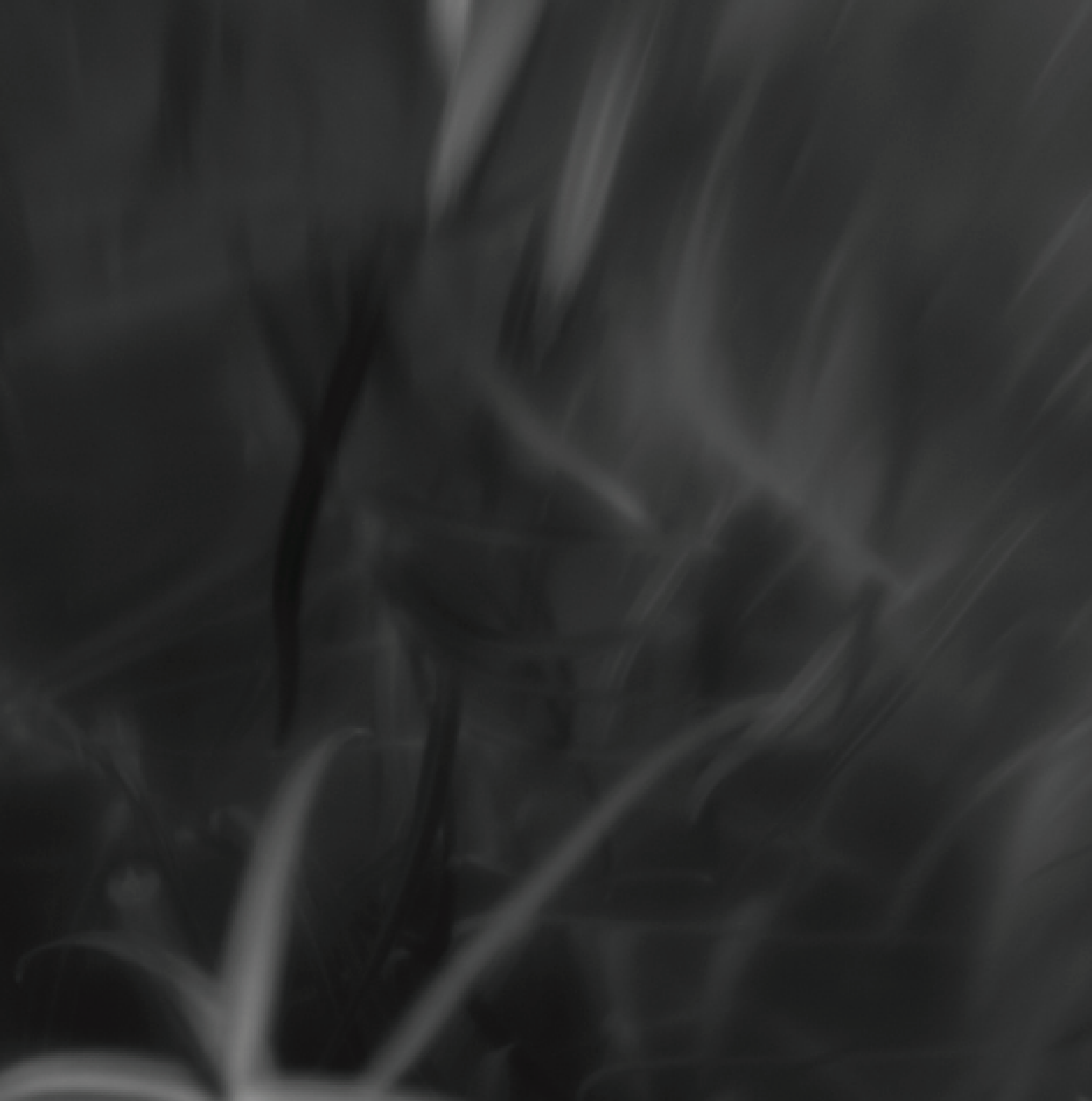


Figure 77 shows a range of photographs, which share the same subject matter but differ in their tonal range. It aims to demonstrate an experiment on the connectedness of subject matter (rain falling onto a cluster of dry leaves), movement and force, the tonal range and a respective interpretation of each photograph.

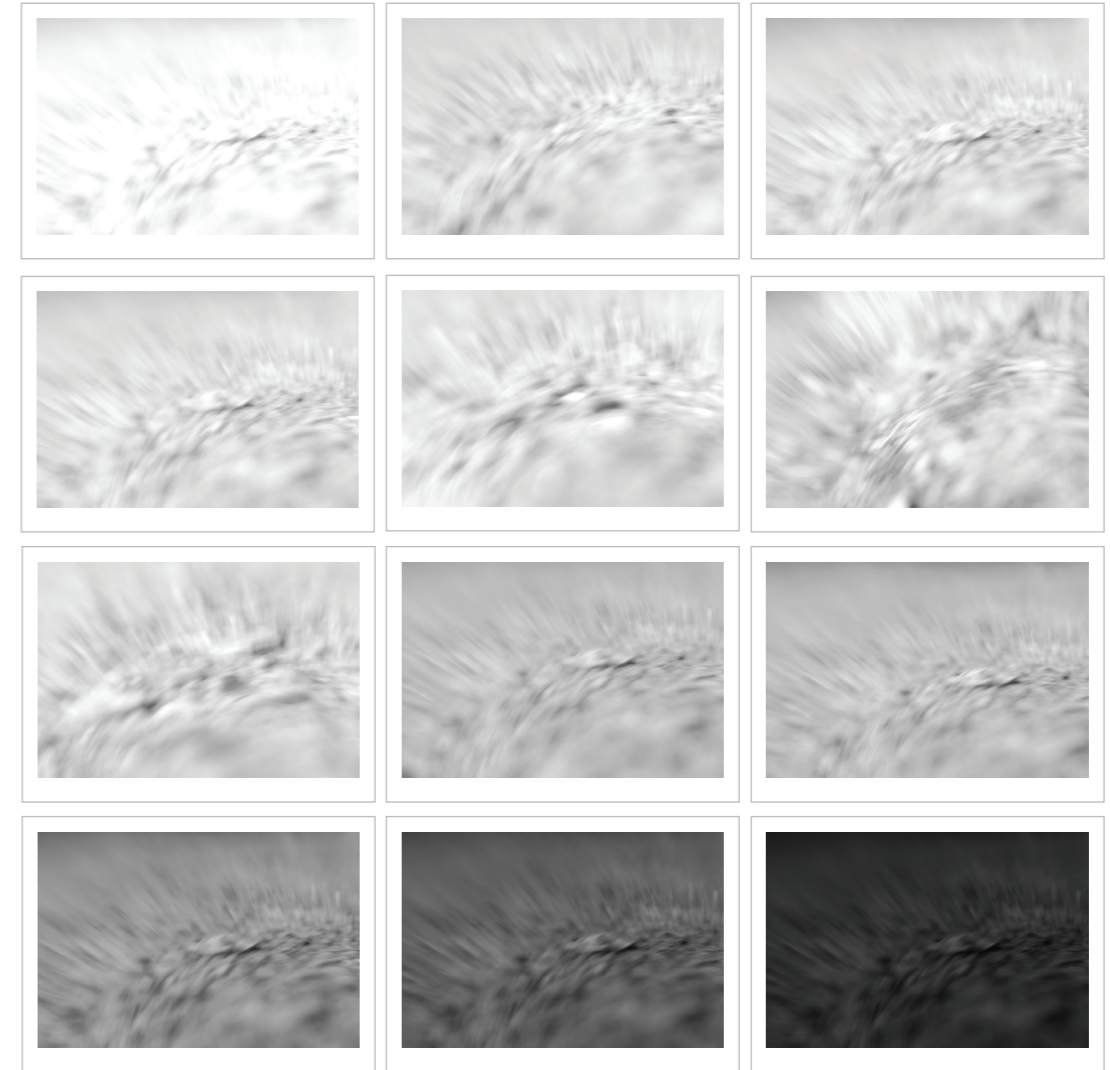
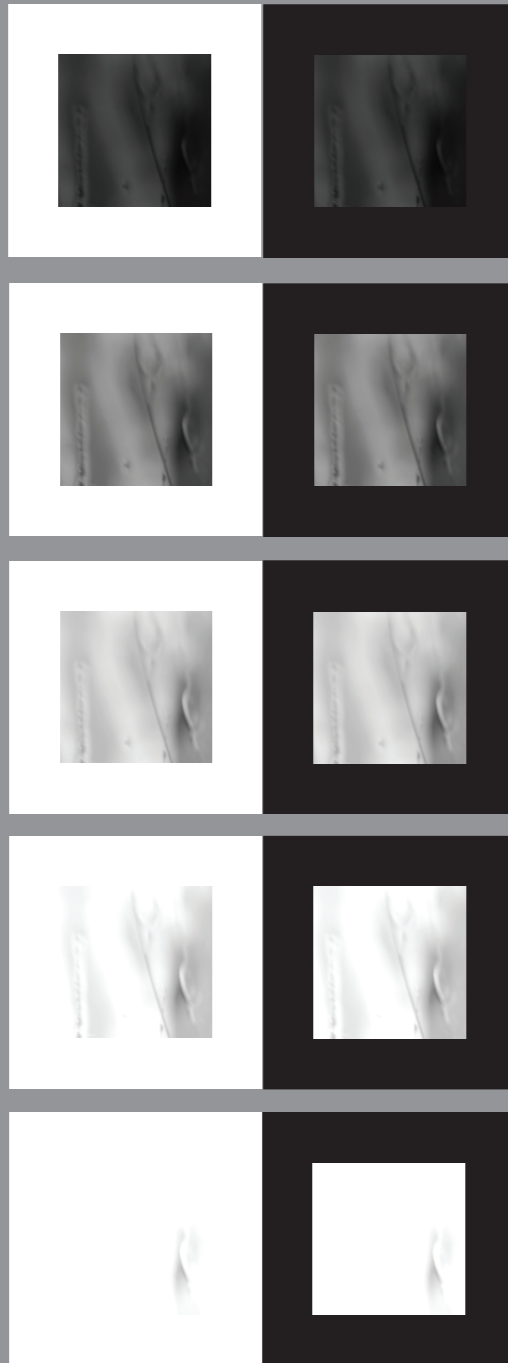


Fig. 77 *Blind Insight*: experimental process, tonal range



However the way in which we perceive a particular value of brightness or the luminosity of an object may change when it is placed in different surroundings. Max Wertheimer (1924) queries whether specific stimuli produce the same set of sensations.

“Is it really true that a specific stimulus always gives rise to the same sensation? Perhaps the prevailing whole-conditions will themselves determine the effect of stimulation? This kind of formulation leads to experimentation, and experiments show, for example, that when I see two colours the sensations I have are determined by the whole-conditions of the entire stimulus situation” (Wertheimer, 1924).

Figure 78 demonstrates the optical effect resulting from placing the same image against a white background and a black background. This demonstrates that the way the human eye perceives contrast is not only determined within an entity but also by its environment which is, in turn, made up of the other entities that surround it.

In photography, the lighting and exposure settings are keys in creating photographs of specific tonal ranges. Being aware of this optical illusion in brightness I created a set of photographs for each segment (object) that differed minimally in their tonal expression.

The construction of the photocollage was, in a sense, akin to playing with these variables and appeared to conform to the observation that “a well analysed idea still includes moments of blind instinct” (Marx, 1994 p. 9).

Blind Insight not only argues for an insight into the sensory experience of the blind but also for making visible a possible imagined world. Therefore creating a sense of a landscape is also vital to the creative response.

Fig. 78 *Blind Insight*: photosequence 8H

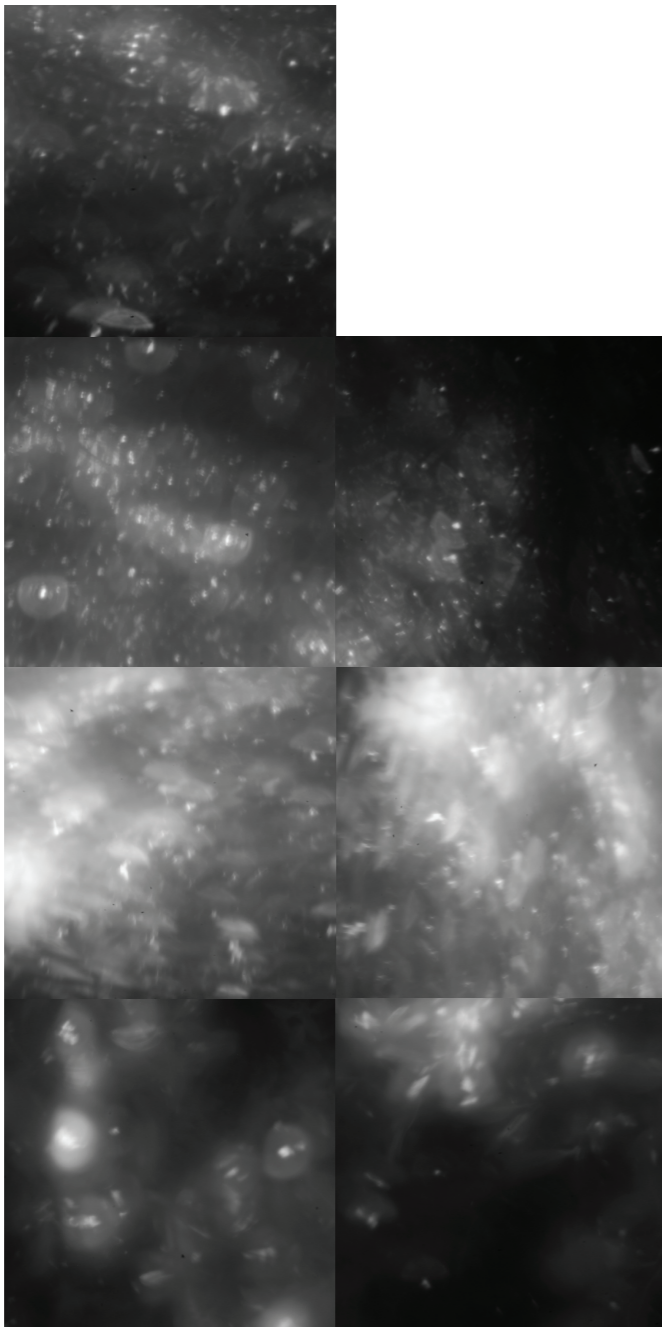


Fig. 79 *Blind Insight*: photosequences 5A-8A; 5B-7B, final

4.5.4. Imagining Objects

"Failing to see with your eyes does not mean you enter a world in which light ceases to exist."
(Lusseyran, 1972, p. 3)

For Close, modeling colours, forms and shapes, creates abstract patterns. In abstract black and white photography it is the modeling with light and shade that creates a gestalt or a likeliness of the objects.

I also discovered that chiaroscuro imparted the objects with a three-dimensionality (on a two-dimensional plane). One finding of my auditory experience was that I was able to clearly sense the shape of close objects as their sound pattern was very detailed and varied in pitch and loudness. Figure 79 is made up of seven parts. Together they form a group as they share the same pattern. However, they differ in brightness and distance and, as a whole, they can evoke a sense of three-dimensionality. This gestalt is equivalent to the number of sound patterns I perceived in my fifth experiment. On the other hand, the sound pattern of more distant objects was less detailed and therefore very difficult to decode, and hence to get an overall impression of the object's shape.

4.5.5. Sensing Space by Making Loudness Visible

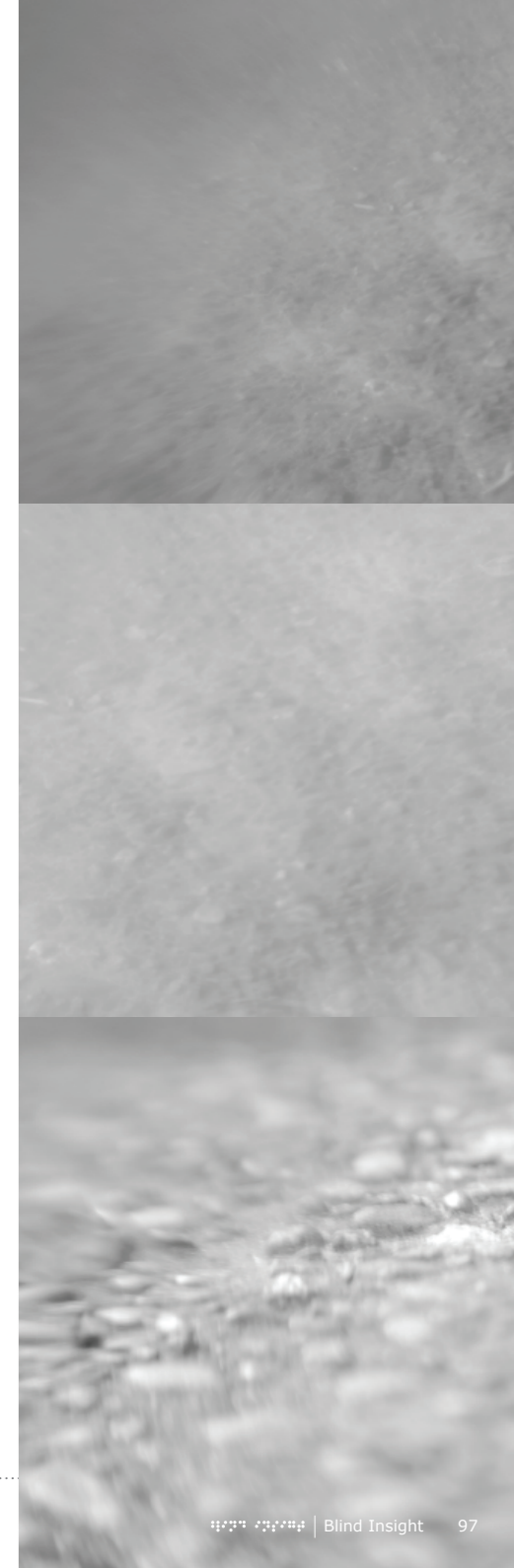
"Grouping by proximity seems to hold as validly for sounds as for visual objects." (Bregman, 1990, p. 173)

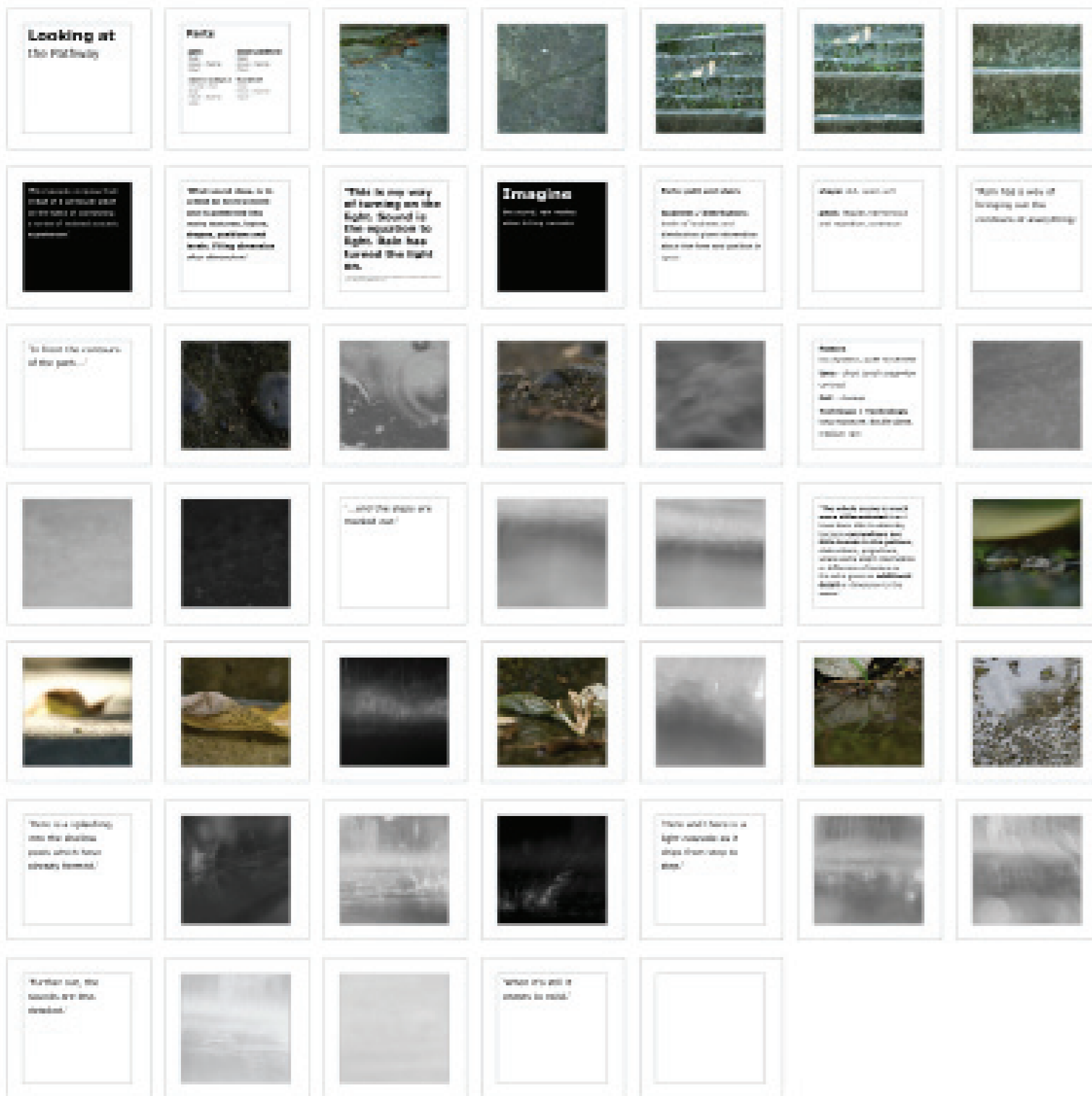
In photography, the depth of field is crucial in conveying distance, and in photographic terms distance often equates with loudness. Generally speaking, the closer the object to the camera the more detailed it is. In contrast, the further away the object the softer and less detailed it is. This systematic way of thinking can equally be applied to audio as well as visual perception (Fig. 80).

Additionally, the angle from which the object is photographed can allude to the spatial relationship between the perceiver and the object's size and position in space. In this research project, depth of field equates with varying levels of loudness and the position of the sound pattern in space.

The visual effects of chiaroscuro when combined with different depths of field has the capacity of communicating an object's form, size and position in space thus forming a whole picture and a sense of the object's dimensions.

Fig. 80 *Blind Insight: experimental process, depth of field*



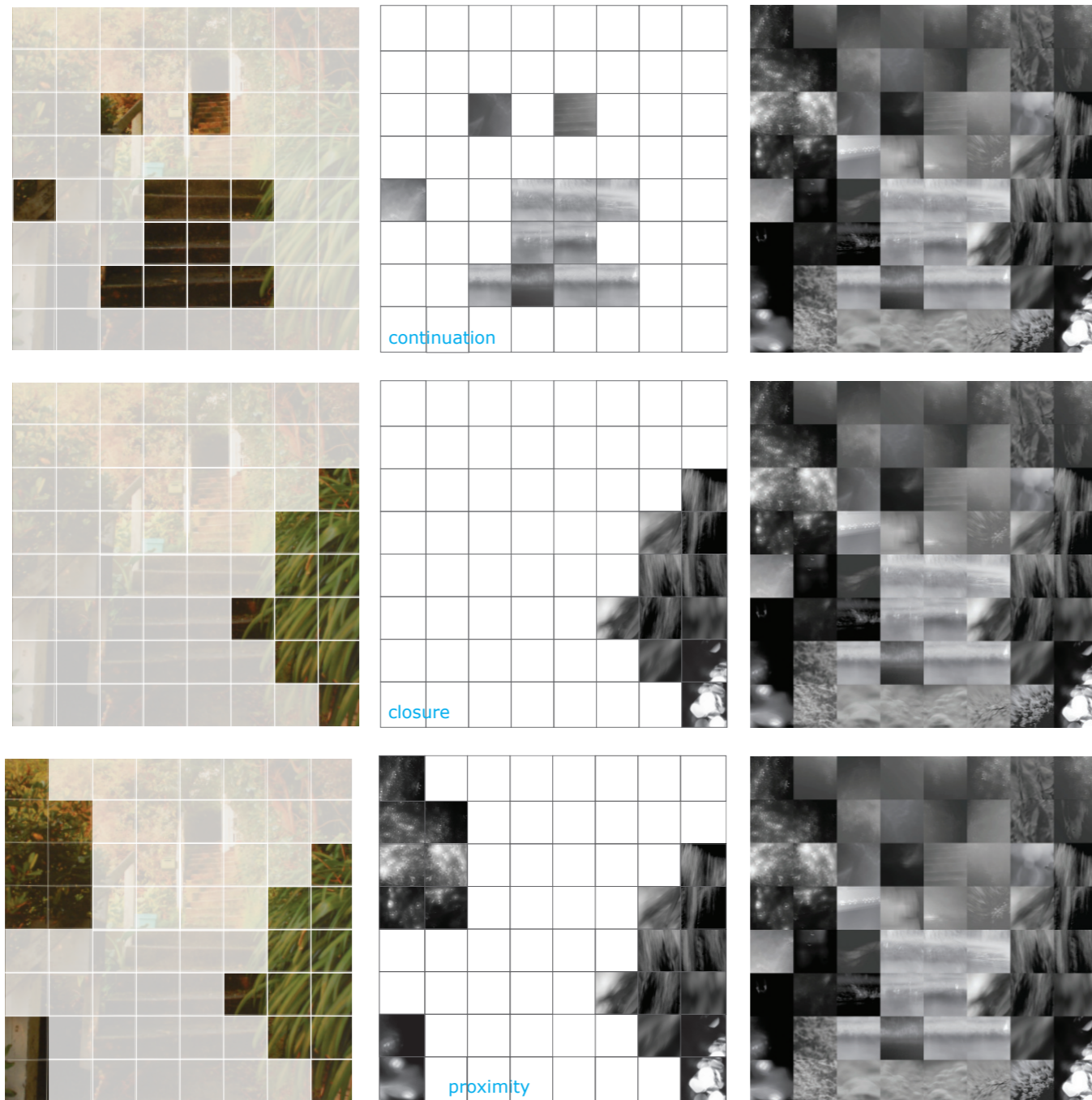


4.6. Seeing: Making Imagined Blind Seeing Visible

4.6.1. Transforming the Soundscape into Pictorial Landscape

Different sound patterns not only indicate different objects located differently in space but also trigger the perceiver's memory—the faculty for making associations. Hence difference in sound is one of the sensory ways for determining the associations between divergent things. These associations are further determined by the perceiver's stored knowledge regarding an object's qualities gained from experiences in the past. Imagination is then used to transform the sensory into the conceptual and in turn to create a pictorial reality. Isolating one sound, and interpreting this sound as having specific properties, which are then linked to assigned visual qualities, are the processes involved in blind seeing. In my attempt to provide an insight into imagined blind seeing I also invite the reader to empathise with my attitude change and my understanding of a true meaning of blindness. The text *Rain as a Communicator* is a poetic response to Hull's text and provides an insight into my own sensory experience. The text is part of the final design and therefore included in the appendix (p. 139).

Fig. 81 *Blind Insight*: Photosequence - Left and right brain photography > processes involved in transforming the 'real' to the imagined > *Rain* text and visual response



4.6.2. Piecing Together

"Once realizing all of this, it is thought, the sighted person will no longer entertain the mistaken notion that blind people live in a depressing 'world of darkness'. And actually he may accept the evidence and cease to hold such a belief." (Monbeck, 1973, p. 152)

Projecting something inside, Tenberken (2009) points out, is a slow process. She begins the creation of her visual mental imagery "at an edge of an open space." (Tenberken, 2003, p.39). The construction of the photo collages can be considered a similar process. To project something outside that equates to the concept in mind is a slow and conscious process. Starting off with one part, that is, one detail of the scene, and sequentially adding the other parts is subject to the schema-based theory. The knowledge of perceptual organisation is crucial to creating meaning out of the myriad of patterns. Grouping according to continuity and closure can trigger the idea of an object, whereas grouping according to proximity and similarity (Fig. 82) can evoke a sense of space, triggering an imagined landscape. Through thoughtfully piecing together one photographic sequence after another the picture slowly becomes complete and makes the imagined real. The visibility of a possible imagined world of the blind shows, at a glance, that this world is not only rich in sensation and full of pictures but also filled with light.

Fig. 82 *Blind Insight*: illustrating the Principles of Gestalt Theory: Grouping according to continuity and closure; Grouping according to Proximity and Similarity

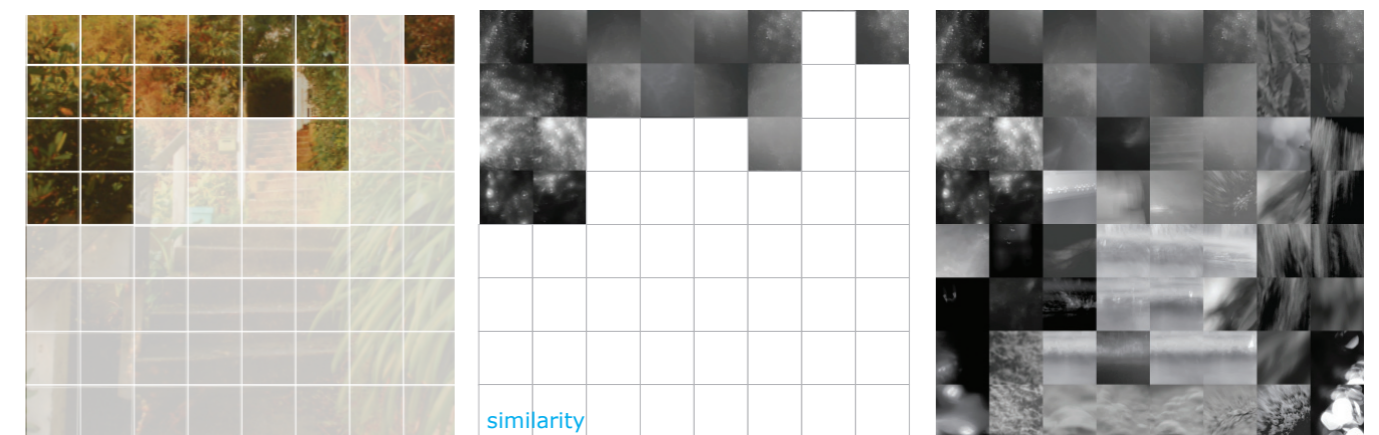




Fig. 85 *Blind Insight*: courtyard scenario from different perspectives



Fig. 84 *Blind Insight*: courtyard scenario, key photograph

4.7. Learning: Applying the 'Imagined Blind Seeing' Concept to a Second Scenario

To complete my learning experience by internalising this new knowledge, I wanted to find out whether or not my 'imagined blind seeing' concept—based on the idea that rain tells the blind listener about places—can be applied to different scenarios as well. If so, what are the differences and/or similarities? I was also intrigued as to whether some places might be easier to conceptualise than others, and if the characteristics of my visual mental imagery would change. Given the scope of this thesis, a comparative analysis is limited to two scenarios.

4.7.1. The Courtyard Scenario

Tenberken's account on how she finds her way around in a new city and how she conceptualises different places such as streets, squares and courtyards inspired me to choose the courtyard scenario. Her description of how she distinguishes between being in a town square or in a courtyard was most particularly captivating.

"The reason I know it's a square is from the different voices I hear—some close, some far away, and at times separated by long windows of silence. Also, the constant gurgle of a fountain, which does not give off any echoes, tells me it is not enclosed by buildings or walls." (Tenberken, 2003, p. 39)

Figure 83 represents my mental image while reading Tenberken's account. I searched for such a similar place in Wellington. Despite my unsuccessful search, I noticed that the idea of exploring the soundscape of enclosed places was more suitable for my comparative analysis. The courtyard scenario (Fig. 84) is an enclosed nature area with a tree and a number of bushes. Buildings and walls surround the scene. I could imagine that rain might have the same effects as the sounds of a fountain. I was interested in finding out the overall soundpattern and comparing it to the one of the entrance scenario. Furthermore, I was interested to see whether or not familiar sound pattern from the entrance scenario such as the ones of the trees, might change when heard in different surroundings.



Fig. 83 *Blind Insight*: sketch of the imagined scenario according to Tenberken's account

The courtyard scenario is shot with the 50mm Nikon lens and the vantage point suggests the moment of stepping out of a building and entering a new space. The courtyard's dimensions and a sense of perspective are conveyed. Three stone buildings enclose the courtyard, one to the left and two to the right. Two background buildings are visible but do not belong to the courtyard. The entire ground is paved with Belgian blocks. The place is characterised by two nature-enclosed areas, one to the left and the second in front of the perceiver.

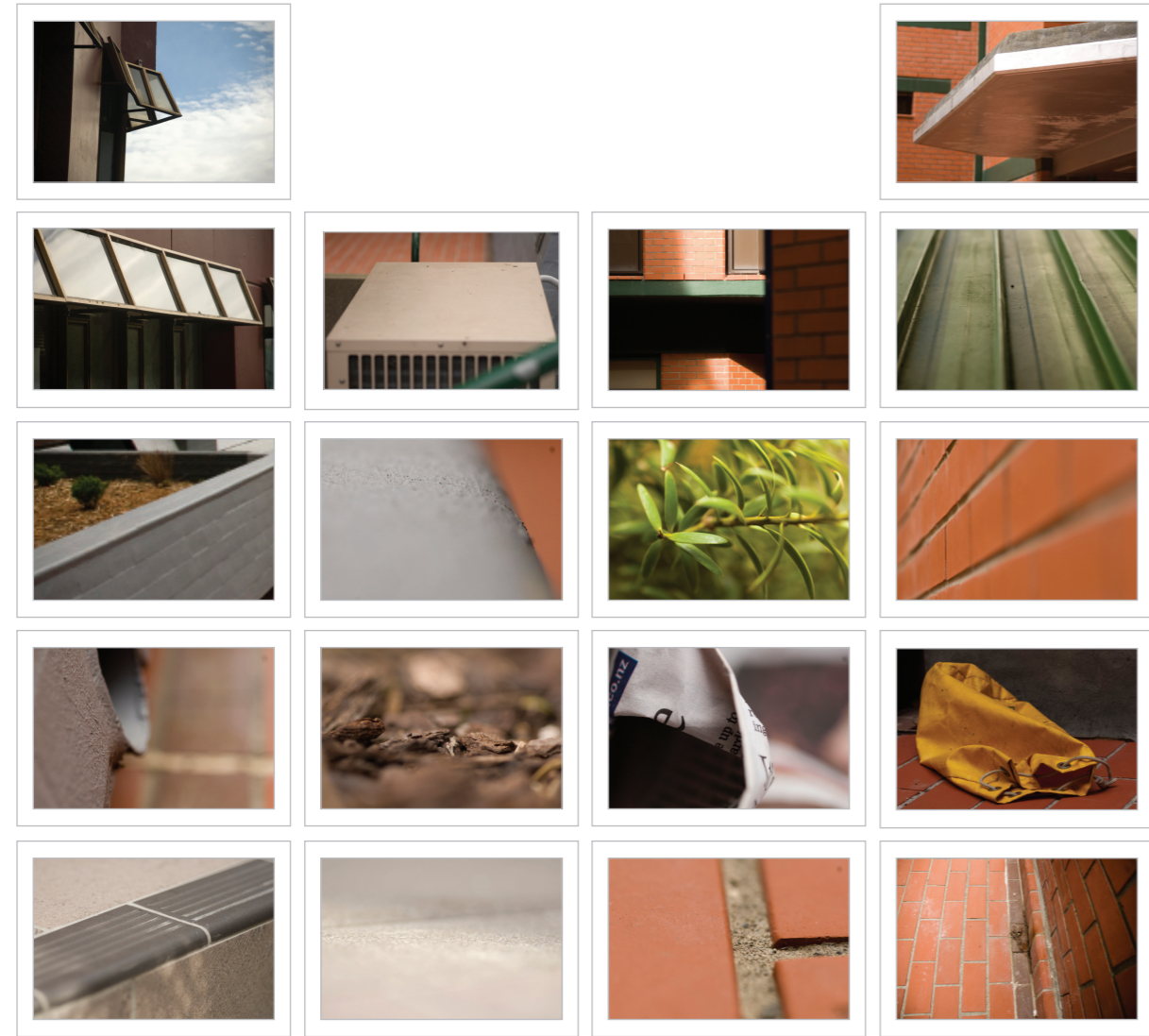


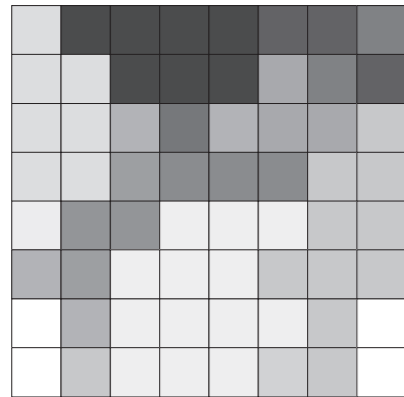
Fig. 86 *Blind Insight*: close-ups shots of objects and surfaces of the courtyard

The parts that make up this particular courtyard are the steps, a transformer, a street lamp, stonewalls, a handrail, a plastic bag and a used newspaper. Figures 85-86 represent the scenario from different perspectives and its parts. I investigated the courtyard from various vantage points in order to explore possible differences in resonance as well as the best compositional depiction. The final choice was based on these criteria.

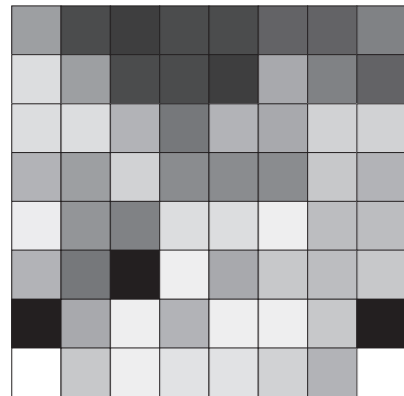
The systematic processes of the auditory scene analysis, the segmentation of the landscape and the correlation of auditory and visual texture remain the same, yet the findings differ and will be discussed in the next chapters.

Entrance scenario

simplified = overall sound pattern, first-time hearing



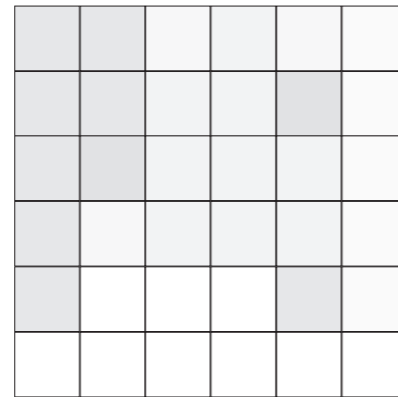
detailed = second-time, consciously listening



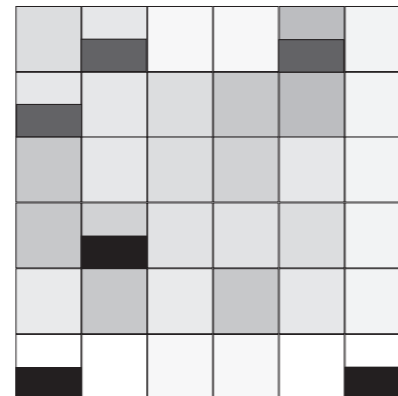
black/white = loudest/closest = highest contrast

Courtyard scenario

simplified = overall sound pattern



detailed = consciously listening / sound source identification



black/white = loudest/closest = highest contrast

Fig. 87 *Blind Insight:*
Auditory Scene Analysis
> correlating sound and tone > tonal impression of the soundscape of the entrance and courtyard scenarios > first-time hearing

Fig. 88 *Blind Insight:*
Auditory Scene Analysis
> correlating sound and tone > tonal impression of the soundscape of the entrance and courtyard scenarios > second-time hearing

4.7.2. Analysing and comparing the soundscapes

At first hearing, I instantly recognised a hollowness that enfolds the entire scene. It almost feels like one dominant sound pattern with many different nuances. The constant echoing indicated that I was in an enclosed space. Upon listening more closely, I could clearly recognise a few sound patterns that stood out from the overall hollow soundscape. The reference points for framing the soundscape on a vertical scale were the constant deep gurgles to the left and a close dripping to the right.

Overall, the courtyard's soundscape considerably differs from the one of the entrance scenario in its complexity and the overall sound pattern. Whereas the soundscape of the entrance scenario is rich in detail and contrasting sound patterns, the soundscape of the courtyard scenario is primarily characterised by an overall hollowness. Moreover, during my auditory analysis of the entrance scenario, I recognised distinct levels of loudness such as very loud/bright sounds and low/dark sounds. This is different to the courtyard's soundscape. Here, the different levels of loudness are minimal, almost like nuances, with only a few sound patterns standing out.

The schematic representations that I established according to Marks' method (as discussed in chapter 4.4.5.) aim to show these findings. The numbers of segments for each schema indicate the complexity, whereas the tonal range gives an impression of the perceived overall soundscape. Figure 87 represents the simplified schemata and aims to illustrate the soundscapes at first hearing, whereas Figure 88 represents the more detailed schemata according to second-time, conscious listening hence identifying each sound source.

How can these phenomena be explained and why is there such a difference in perception? The entrance scenario is an open field space so sound waves do not bounce back from walls or buildings but are absorbed and reflected to a greater or lesser extent by its objects. This means that sound waves gradually lose their energy over distance. The level of energy a sound wave has when it reaches the perceiver determines the level of loudness. In the open field scenario, I perceived the various sound patterns as 'stand alone' sound patterns which contrast and stand out from each other. This creates a tense, veiled and almost melancholy soundscape of various different sound patterns.

The courtyard scenario on the other hand, is comparable to an enclosed space in which sound waves bounce off of walls and are therefore reflected. In a sense, the parameters of this place almost function as a container into which the rain falls, and the intensity of the reflection creates a specific resonance. The quality of hollowness is how I describe this tension or constant echoing opposing the veiled feel of the entrance soundscape. Because of the short distance between the buildings, there is less space for the sound waves to travel in. The shorter the distance they travel, the shorter their energy loss. This creates a state in which forces compete—an energy bouncing back and forth, coming and going from various positions in space.

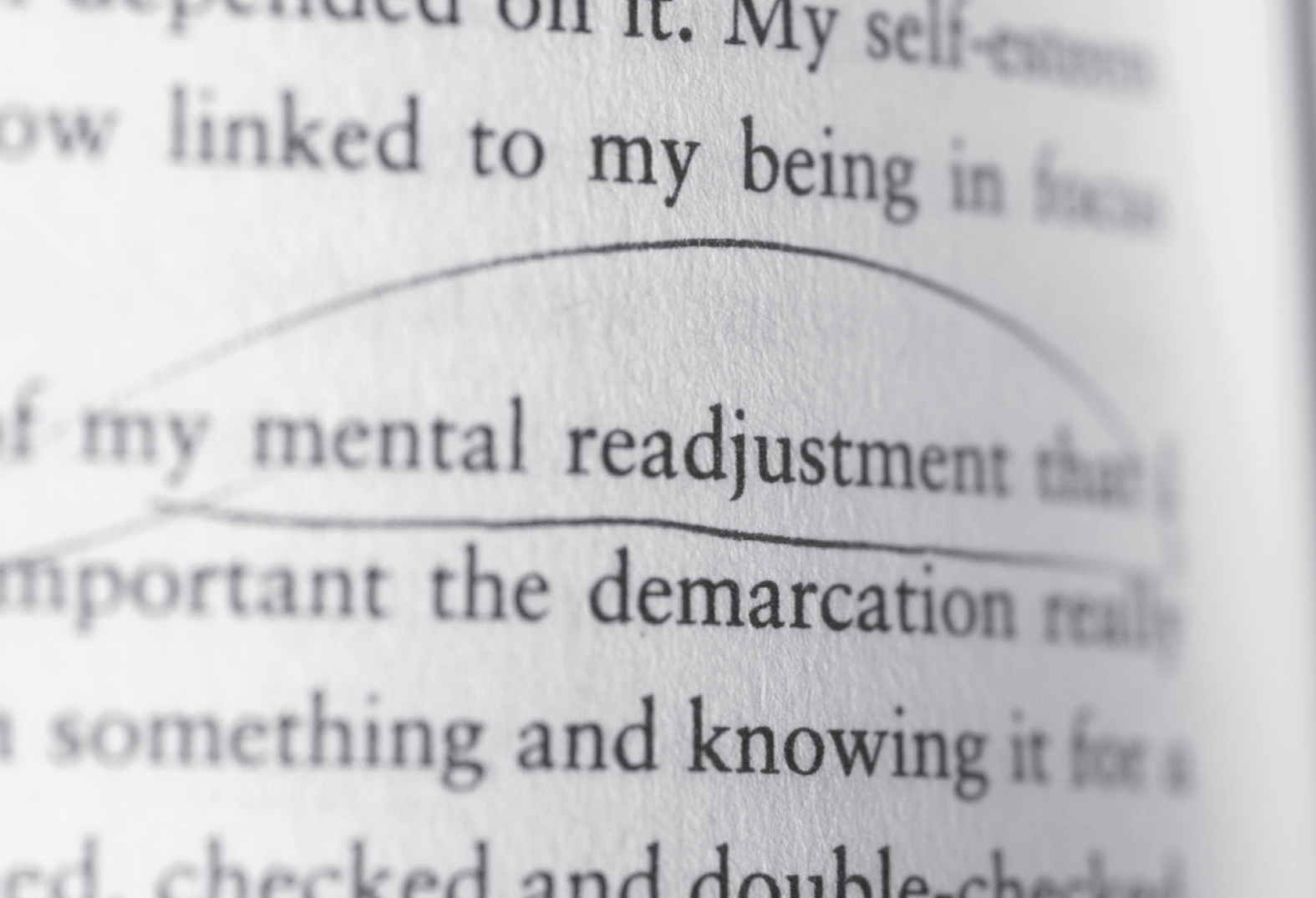


Fig. 89 Torey Zoltan, *Out of Darkness*

Another interesting observation was the difference in audio perception of similar objects when heard in different surroundings and the consequential adjustments to my visual mental imagery. For example, the sound pattern of a tree is distinct and easy for me to recognise. I perceived the tree sound pattern of the entrance scenario as bright, pleasant, round and full-toned. According to this categorisation I had a clear picture in mind (Fig. 90). During the auditory analysis of the courtyard scenario, I clearly recognised the same sound pattern (that of the tree) but very different in tone—reedy and hollow. Consciously I recalled the visual memory from my previous experience but noticed that my Mind’s Eye had already (and obviously unconsciously) generated quite a different picture.

In a sense, the phrase ‘to pop up on the inner screen’ seems to appropriately describe my auditory experience and the analogous creation of an inner picture.

This experience reaffirmed the idea of the analogy of aural and visual brightness, hence the adjustment of visual mental imagery according to auditory stimuli. It appears that the phenomenon of an altered perception of an object’s brightness values when placed in a different surrounding seems to be relevant not only in vision (as discussed in chapter 4.5.3.) but also in audition. Following this discovery I continued the segmentation of the scene and the photographic interpretation.

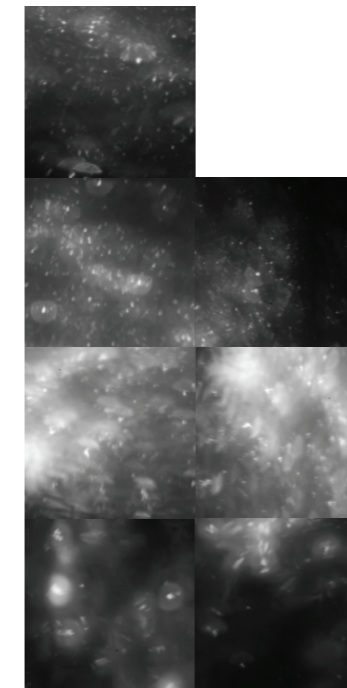


Fig. 90 *Blind Insight*: photosequences 5A-8A; 5B-7B, final

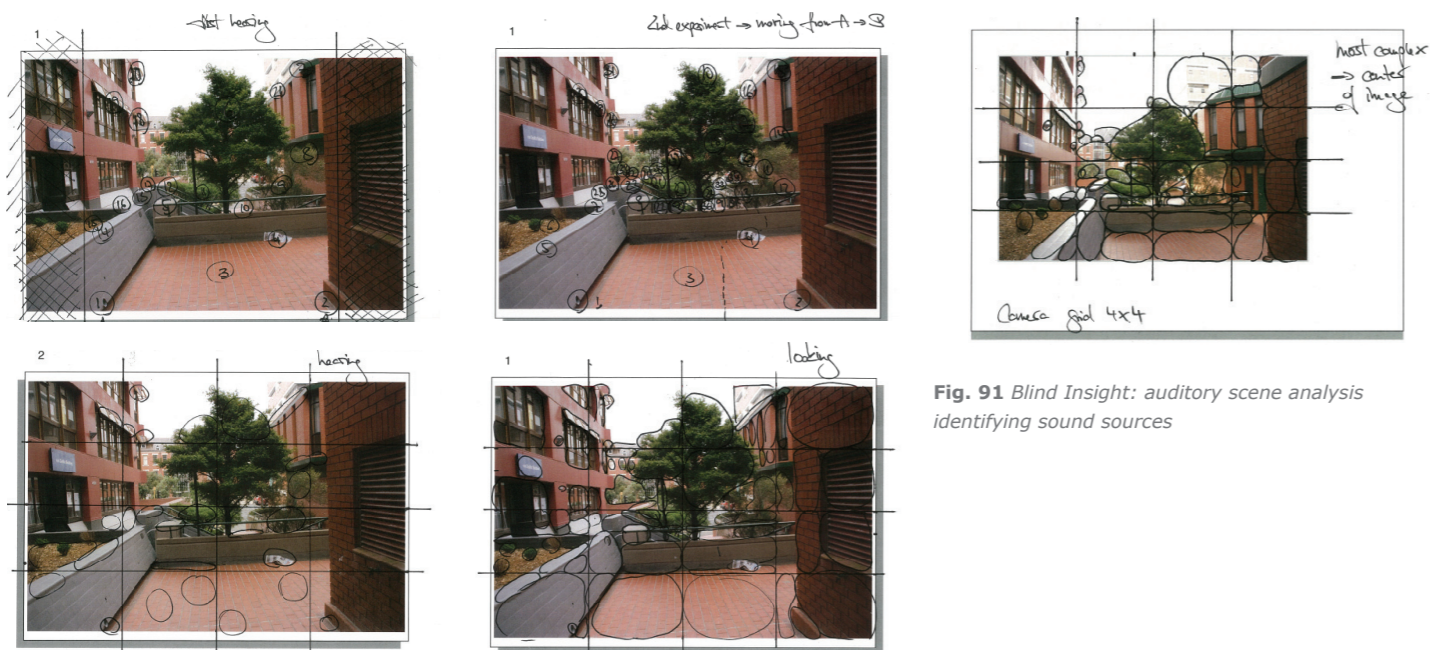


Fig. 91 *Blind Insight: auditory scene analysis identifying sound sources*

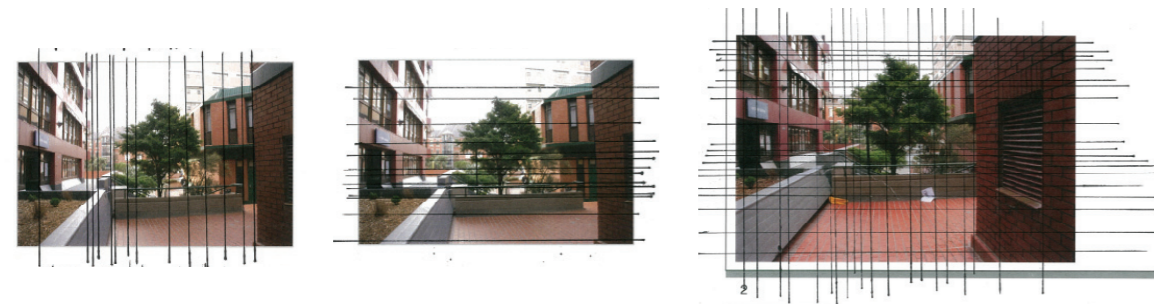


Fig. 92 *Blind Insight: key photograph: framing objects on horizontal and vertical scale*



Fig. 93 *Blind Insight: mapping soundsources in photograph, steps involved in segmenting the landscape > creation of the grid*

4.7.2. Segmenting and interpreting the landscape

The courtyard scenario is easier to conceptualise than the entrance scenario, as it is less complex. During my experiments involving 'listening blindfolded and without head movement', I counted 21 sound patterns from the vantage point as shown in Figure 91. While moving through space from the original vantage point to the opposite site I counted 43 soundpatterns. Within a month and due to constant conscious listening and familiarisation with this particular soundscape, I counted 32 sound patterns from the original vantage point.

To accurately represent the soundscape in my key photograph, it was necessary to segment the landscape according to each different sound pattern I had counted. In all, 32 sound patterns could be translated into either a 5x5 or 6x6 segment grid. In order to get an indication of how to crop the landscape into a square format I framed the objects on a horizontal and vertical scale (Fig. 92). This allowed me to identify the most complex part of the scene and the correlation between the soundscape and the landscape.

I then refined the position of the grid to match each particular part of the soundscape by slightly altering the vantage point and focal length. This enabled me to get the closest fit between each sound pattern and its correlating grid segment. The final decision of 6x6 was the best match (Fig. 93).

The greatest challenge with the interpretation of the entrance scenario was to manage the complexity thus transforming the myriad of distinct sound patterns into a picture. The courtyard scenario, while not as complex, was challenging in terms of how to visually express an overall hollow soundscape.



As night photography and artificial lighting was most appropriate in conveying the richness of different sound patterns and an overall dark tensional feel of the entrance soundscape, I finally decided on using both artificial as well as natural light for the interpretation of the courtyard. As an outcome of careful reevaluation of the lighting techniques I found that the visual effects of high key and extreme overexposure best communicate the concept of hollowness by conveying a tinny or reedy feel. In order to set contrast and to accentuate the sound pattern which stood out most, I used the technique of low light condition and light painting.

I further reiterated my initial technologies in conveying contours and movement. After critical evaluation on my existing set of lenses and further experimental photography I finally decided on using a zoom lens besides the lensbaby. The zoom lens and the technique of zooming in and out during exposure captures movement and can, in a sense, be associated with the physical concept of energy waves (Fig. 94). I found that these visual effects adequately describe the scene pictured in my mind and correlate with my perception of the soundscape.

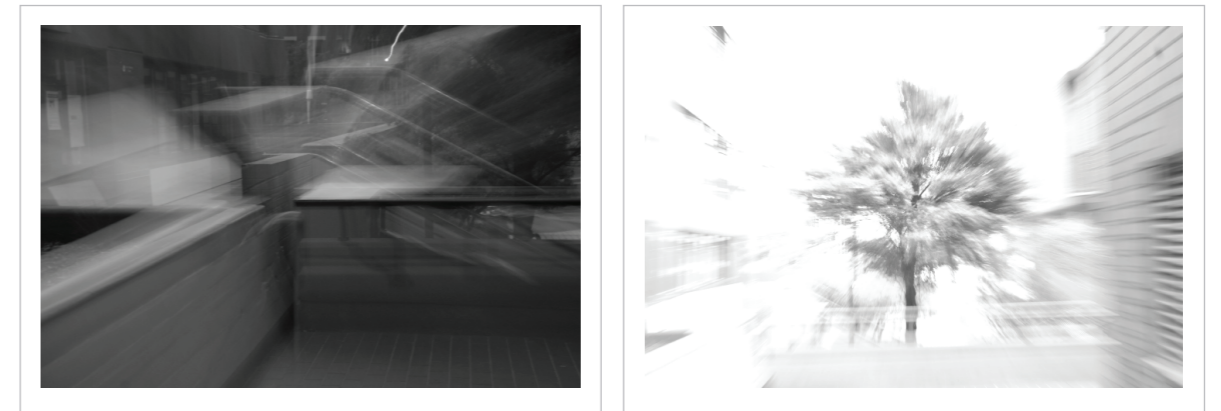


Fig. 94 *Blind Insight*: two examples of the visual effects of zooming in/out during exposure

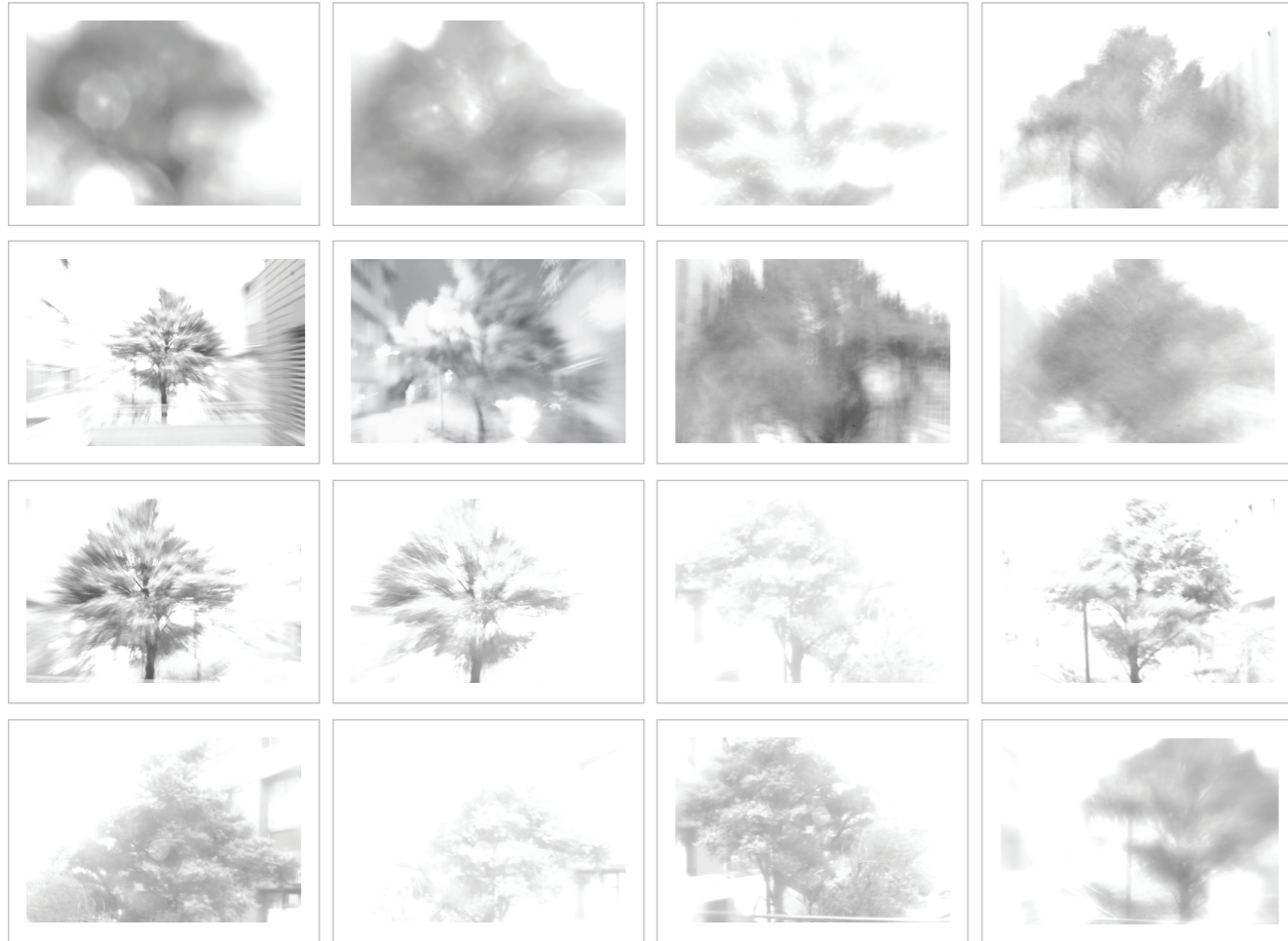


Fig. 96 *Blind Insight*: interpretations of the tree (Courtyard scenario)

Even though I pictured quite a different tree in my mind during the auditory scene analysis, I started off my photographic interpretation with the same techniques I used for the entrance scenario. I thought this would be a good starting point for my comparative analysis. Figure 95 shows the tree interpretation from the entrance scenario and represents a similar interpretation of the tree from the courtyard scenario. The four segments of the tree are analogous to the four perceived nuances. The tree is further away then the one in the entrance scenario and therefore softer in texture and shot with a longer focal length. Looking at it, I instantly felt that this visual translation neither correlates with my perceived sound pattern (hollow and reedy) nor with my readjusted inner picture. This test confirmed my assumption that I needed to adjust my lighting techniques and perhaps even my technologies. The shape and form of the tree was consistent in my memory and recognisable among other objects, or when perceived in a different environment. However, other qualities of the tree such as the brightness, texture and size changed and, as I experienced it, this is where imagination 'kicks in' and transforms visual memory into a new picture depending on the immediate perceived stimuli. I think this is comparable to Torey's account of the ongoing processes of 'updating' visual mental imagery or as Tenberken describes it "I often add my own imagination" (Tenberken, 2003, p. 43). Figure 96 shows a range of interpretations in order to test out their visual effects and to find the best match.

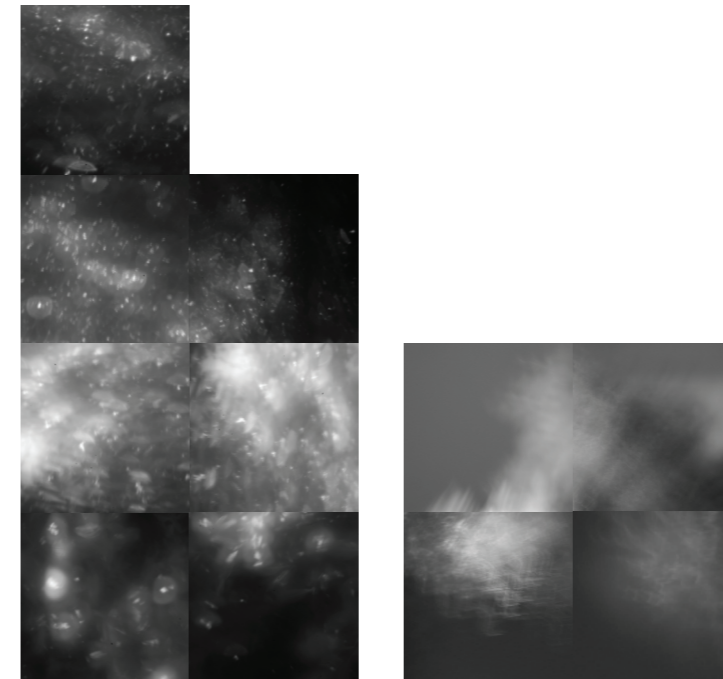


Fig. 95 *Blind Insight*: Juxtapositioning the final photographs of the tree (open field environment (Entrance scenario) and similar interpretation of the tree in the Courtyard scenario)

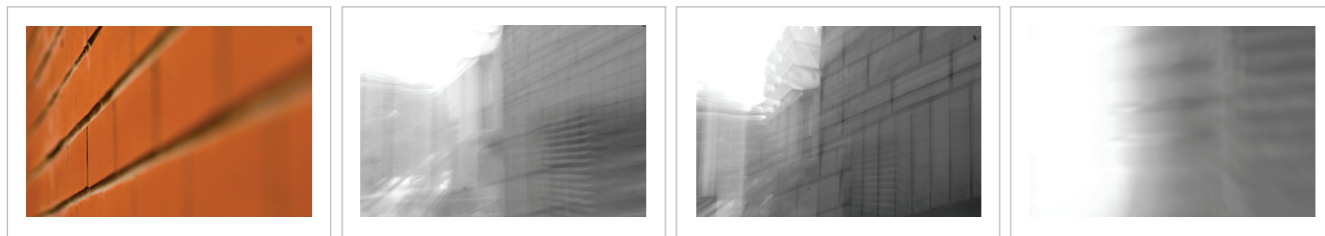
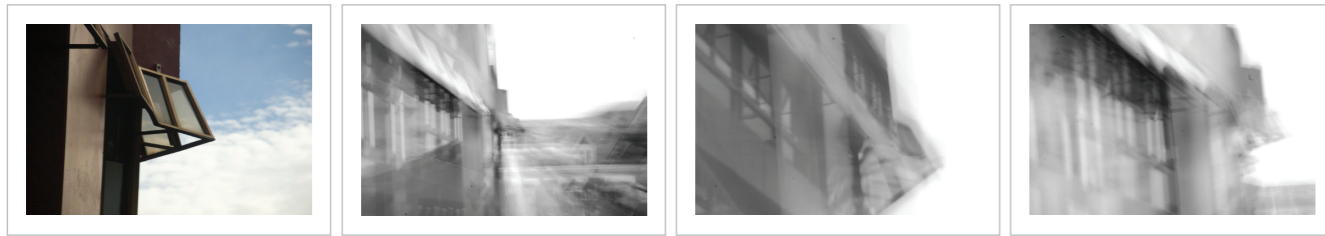


Fig. 99 *Blind Insight*: Left and right-brain photography - what is seen versus what is heard and felt

The interpretation and depiction of the buildings was also challenging. The rain falling onto the canned windows on the left and the rain falling onto the copper roof of the far right building were the only auditory clues for the buildings' immediate presence. However, from the hollowness of the overall soundscape and its echo I was able to rationalise that the courtyard was surrounded by buildings. As well as being able to make these logical deductions, I also strongly 'sensed' the presence of the closer building to my right, despite a lack of any direct auditory clues. As I experienced it, this sensing of an object or 'feeling' its presence helped me to map its dimensions and build a more comprehensive inner picture (Fig. 97).

The question now was how to translate these findings into the visual. Given the correlation of the sound pattern and the segments of the scene how could I justify segmenting the wall into six different parts? I reconsidered the idea of a dynamic grid (Fig. 98). But again I found that a dynamic grid does not convey order, neither does it convey the concept of the formation of mental visual imagery that is constructing a picture from parts. On a compositional and formal analysis level, by merging the six segments, a large segment is created which dominates the rest of the scene. As I did not want this segment to be interpreted as the most important part of the picture. This observation and reasoning reconfirmed my decision to use the symmetric grid. I applied the zooming technique and camera movement throughout the entire interpretation in order to capture the overall resonance. In using different modes of zooming as well as different tones, I attempted to convey the different sound nuances.



Fig. 98 *Blind Insight*: Reconsidering the segmentation of the landscape into a dynamic grid

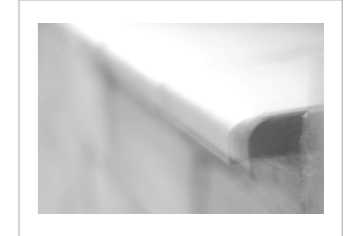


Fig. 97 *Blind Insight*: Sensing the dimensions of a building



5. Conclusion

Engagement with the physical world and communication with others is the primary means through which we are able to understand and become part of the world around us. Our senses shape our experiences and as a result of this, knowledge is gained, personalities shaped and attitudes formed. We consider our experiences to be truths. And, in a way, they are. Consequently, we apply our knowledge to explain unknown phenomena by making associations with what we already know. This results, rightly or wrongly, in the formation of a specific attitude towards unfamiliar aspects of the world. What is often overlooked is the fact that experiences are only true to the perceiver. Because of this, we tend to generalise and often conclude that our reality is also the reality of others.

Every person experiences the physical world in their own unique way, thus creating his or her reality. To do so, every one of us, whether blind or sighted, consciously or unconsciously undergoes the systematic processes of sensing, selecting, perceiving and seeing. In these processes, we use to a greater or lesser extent mental visual imagery in order to better comprehend the information we perceive.

Similar to Heinicke, my motivation was to challenge my initial attitude towards blindness, firstly by overcoming my fear of darkness. Secondly, I attempted to go beyond my imagination by trying to picture blindness from a different perspective. However, shared experiences have proven the key to better understanding blindness. It is only through these that a dialogue is able to take place, helping to gain perspective on what another person's experience may be like. This enables one to empathise with a blind person's reality—the formula to forming a more accurate concept of blindness, termed imagined blind seeing.

Blind Insight challenges the misconception that blind people live in a world of darkness by tracing and mapping two auditory experiences. In a sense, the research project is a journey of attitude change which evolved through putting myself into the position of the blind listener.

Listing intently to the sound of rain is a phenomenal experience that not only opens up the awareness to the many possible ways we can engage with the physical world, but also helps us comprehend aspects of it which otherwise would lie only beyond imagination. Experiential learning has led me to understand the systematic processes of sensing, selecting, perceiving and finally seeing.

Blind Insight formulates one possible concept of how an imagined world can be created analogous to the sounds of rain. The final design represents two schemata of how such an imagined world may look and how imagined blind seeing is experienced and understood. It is the synthesis of an interpretation of and direct response to the personal accounts of the blind, expressed according to the experienced reality of the photographer.



This stage was critical to the evaluation of my findings and my objective(s). It was at this point that I found that experimental learning is the key to better understanding hence the creation of a design response as a true meaning of blindness. Consequently, my design concept 'imagined blind seeing' became a response to, and interpretation of, blind people's accounts with the key idea that "rain brings out the contours of everything". I started off shooting under natural lighting conditions, covered objects of a scene in foil and sprayed or painted over them with different tones of grey to test out if this method would be suitable for translation based on the analogy of sound and light. In a way, this approach was similar to staged photography and its effects did not convince me. I then decided to go with the concept of 'untouched nature'.

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