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## **Capitalist Structures of Production**

In the age of digital reproduction, how closely does the digitally generated photograph mirror global economics?

An investigation into the globalised nature of commodity production through practice-led research and the author's own lived experience as a Nestlé/Rowntree employee.

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David John Lake

A thesis submitted to the University of Huddersfield in partial fulfilment of the requirements for the degree of Doctor of Philosophy

March 2022



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## **Abstract**

It is the intention of this thesis to investigate the comparative means of production and mirroring of manufacturing processes that exist between the photographic image as advertisement and the manufactured commodity. It serves as a means to critique and reveal global capitalism, framed through the critical lens of contemporary photographic practice. The research takes the form of an in-depth study of capital economic structures and commodity production. The method of inquiry incorporates the author's commercial involvement as a professional advertising photographer, communicated through an auto-ethnographic first-person narration of lived experiences as a Nestlé/Rowntree employee. The Nestlé case study provides insight into the commercial labour and production practices that exist between the photographic image and manufactured commodity. The inquiry method also employs aspects of Marxist dialectical materialism (method of descent). It involves a semiotic reading of the photographic image to reveal what lies beneath the surface of its commercially framed appearance, and this is made possible by the extraction and revealing of data structures contained within the photograph's means of production. When made visible, data structures allow for new insights into capital production and allow the dormant aspects of labour to be revealed. These are insights that critically explore how photographic images may be viewed, analysed and read. They are interpreted and critiqued not on the external appearance of the commodities they represent, but through the physical revealing of the photograph's own internal means of capital production. This doctoral study is practice-led and includes elements of art practice in addition to the academic text.

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## Glossary

**American Standard Code for Information Interchange ASCII:** Pronounced ask-ee this is a code for representing English characters as numbers, with each letter assigned a number from 0 to 127. For example, the ASCII code for uppercase M is 77. Most computers use ASCII codes to represent text, which makes it possible to transfer data from one computer to another

**Data abstraction:** The reduction of a particular body of data to a simplified representation of the whole. Abstraction, in general, is the process of taking away or removing characteristics from something in order to reduce it to set of essential characteristics. As in abstract art, the representation is likely to be one potential abstraction of a number of possibilities.

**Cymatics:** The science of wave phenomena. The study of visualising audio frequencies (visible effects of sound and vibration). The term was coined by Hans Jenny (1904-1972).

**HTML and XML:** Programs can use markup with a stylesheet to transform the document into output for screen, print, audio, video, Braille, or re-processable data formats.

**Layer:** In graphics software, a layer is the term used to describe the different levels at which an object or image file can be placed/stacked on top of another to create a composite digital image.

**Layer masks:** Layer masking allows the combination of image layers by revealing or hiding information contained in the image layer below. Layer masks are used to perform tasks such as compositing multiple images into a single image, adding text to an image, or adding vector graphic shapes.

**Markup language:** A computer language that uses tags to define, process and present text (for example 'this is a paragraph', 'this is a heading'). It is human-readable; it uses ASCII codes, meaning markup files contain standard words rather than typical programming syntax. The two most popular markup languages are **HTML** and **XML**. Programs can use markup with a stylesheet to transform document into output for screen, print, audio, video, Braille, or re-processable data formats.

**Metadata:** Describes a resource for purposes such as discovery and identification. It can include elements such as title, abstract, author and keywords. Computers need metadata to know the size of an image before the computer can re-create the image to its correct defined correct shape and size.



**Pixel:** Every photograph in digital form is made up of pixels (a word invented from "picture element"). A pixel is a unit of programmable color on a computer display or in a computer image. It is the smallest unit of information that makes up a digital picture.

**Prepress:** The term used in the printing and publishing industries for the processes and procedures that occur between the creation of a print layout and the final printing.

**Rasterizing:** The method of converting vector-based graphic/text layers using mathematically generated computer drawn lines and curves to pixels.

**Sine wave:** Describes a smooth periodic waveform. It is defined in mathematical terms by the function  $y = \sin x$ . Sine waves are typically produced when sound frequencies oscillate over time to produce a continuous geometric harmonic motion.

**Text:** Is a human-readable sequence of characters and the words they form that can be encoded into computer-readable formats. There is no standard definition of a text file, although there are several common formats, including ASCII (a cross-platform format), and ANSI (used on DOS and Windows platforms)

**TXT:** Is file is a standard text document that contains unformatted text. It is recognised by any text editing or word processing program and can also be processed by most other software programs.

**Unicode Standard:** The Unicode Standard is the specification of an encoding scheme for written characters and text. It is a universal standard that enables consistent encoding of multilingual text and allows text data to be interchanged internationally without conflict (IBM, 2021).

**Vector path or Clipping path:** A closed vector (computer-generated non-pixel or raster dots, smooth drawn outline) path or shape used to cut out a 2D image using editing software. Anything within the path will be included after the clipping path is applied (made active); anything outside the path will be omitted from the output.

## **Introduction**

### **Context and the issue**

This project originated from my experience as a professional photographer working for Nestle UK, and the writing locates the reader in the wider field of commercial photography. The contribution to new knowledge is made through art-based practice, with the research critically exploring how commercial images may be analysed, interpreted, and critiqued through their internal modes of production. It is concerned with the mapping, mirroring, and exposing of the capitalist methods of production and labour that exist between the manufactured commodity and the photographic images made to represent them. Thus, the work offers an insight into the globalised nature of production that is invisible to consumers. It provides a visual gateway into the normally unseen interconnecting capitalist layers of manufacture that are concealed behind the external representations of commodity images.

### **Research question**

How can certain advertising images be investigated to reveal the historical traces of labour that lie dormant in their production?

### **Research aims and objectives**

To map, explore and critique the globalised nature of capitalist modes of production and labour that exist between the manufactured products and the photographic images created to represent them by analysing advertising images.

## **Research methodology**

The method of inquiry comprises practice-led research involving contextual exploration, and the extraction of information through time-based media, as a means to document and re-visualise for research purposes the image data structures contained within photographic imagery. It involves a semiotic reading of the images to reveal what lies beneath the surface. The inquiry method employs aspects of Marxist dialectical method in conjunction with an auto-ethnographic approach, the rationale being that the Marxist dialectical method provides a logical approach to the material through the creation of a dialogue between two perspectives to establish the truth. The auto-ethnographic style is used to express the subjective, personal and professional nature of the work. Considerable personal experience, drawn from the field of commercial photography, is used to explore how companies build profits globally. Therefore, the overall approach seeks to reveal industry insights into commercial labour practices and the modes of production that exist between the manufactured commodity and the photographic images made to represent them.

## **Research production process**

In this doctoral study the processes of production provide a systematic research framework (tool kit) of transformative production techniques and processes, which facilitates critical reflection and analysis of the manufacture of images. The photographic imagery is critiqued through the assembly and extraction of data sources contained within the image's original method of production.

## **Uniqueness and contribution to new knowledge**

The uniqueness of this research project and its contribution to new knowledge is that it sets out to present a semiotic and linguistic examination of a commercial image's external appearance. The project strives to critically explore how commercial images may be analysed, interpreted, and critiqued through their internal modes of production, thus offering consumer insight into the globalised nature of commodity production and labour. It provides a visual opening into previously unseen capitalist layers of production, unpacking the metadata to reveal the presence of the human labour concealed behind the external representations of commodity images.

## **Status of practice-led research**

This practice-led study comprises empirical and contextual research data sourced through an auto-ethnographic and Marxist dialectical approach to capital production of goods. It is a method of inquiry that involves the factual and objective recording of lived events, historical truths that provide industry insight into the commercial means of production and labour in material form. It employs a research methodology that gives a means of reasoning based on a set of logical, objective, and measurable standards. What this research study does not address is subjective thought; the external philosophical reading of research findings is based solely on the individual's own perspective, feelings, and personal thoughts towards the material appearance of things. Incorporating critical thought and artist interpretation within the research methodology would, in the view of the author, distort and takeaway from the neutrality and factual status of the research practice as a process of objective truth. The visual documentation of the research findings is made evident via a series of practice-led photographic research outputs. The intention of these objective digital artworks, entitled *Dataworks*, is to provide the viewer with a close reading of image

data in an ocular form. It is a visual medium that allows the reader to experience supplementary connections between production and labour.

### **A case in point**

Portrait photographer August Sanders taxonomy portraits entitled *People of the 20th century*, was produced during the 1920s and 1950s. These were a series of photographs intended to record social class and professional division in German society. For this project Sanders developed a standardised scientific approach to photographing his subjects (Mona, 2021). It comprised an observational, and detached photographic methodology that Benjamin described as 'comparative photography' (Benjamin, 1931, p.520). Benjamin commenting on Sanders methodical and objective approach to portrait photography stated,

... scientific standpoint superior to that of the photographer of detail [...] whether one is of the Left or the Right, one will have to get used to being looked at in terms of one's provenance. And one will have to look at others the same way. Sander's work is more than a picture book. It is a training manual (Benjamin, 1931, p.520).

What Benjamin is saying here, is that when photographic process is first detached, and then recontextualised through a scientific approach, 'it frees itself from physiognomic, political, and scientific interest. It becomes creative' (p.520). The factual and scientific nature of photographic process and representation, shifts the social order of things. Where the power of authorship and authenticity in society is unmasked, social order is revealed, and juxtapositions in societal norms are made visible. Benjamin's reference to creative photography is made in his essay *Little*

*History of Photography* (1931), where he attributes the process of creativity to the photographic advertisement.

But because the true face of this kind of photographic creativity is the advertisement or association, its logical counterpart is the act of unmasking or construction (Benjamin, 1931, p.526).

Here, Benjamin in acknowledging the value of Sanders observational, and detached approached to social portrait photography, and its ability to unmask social order and shift human perspective in societal norms. Benjamin also recognises the inability of the photographic image to reveal its inner human relations of creative process. According to Benjamin, only in the 'act of unmasking or construction' (p.526) can the 'true face' of creativity, human relations, and process be seen.

This inability of the photographic image to acknowledge the human connections in which it exists as a process of being, is addressed within my research practice (chapters 7 & 9). The research uses a research methodology of internal photographic production that objectively records and documents through an impartial scientific process of lived events made visible through photographic representation. Commercial images are recontextualised in digital form and presented for public consumption as photographic artworks entitled *Dataworks*.

### **Status of artworks**

Practice-led research outputs produced within this doctoral study have two opposing functions in ocular form. The first function is as an objective document that faithfully records and reveals the thesis research methodology; a series of production

processes that allow the reader to experience additional connections between production and labour, not necessarily visible in text form. The second function is that of cultural and political artworks that invite subjective comment and theoretical discourse into their means of manufacture, as products of capitalism.

### **Artworks in the domain of public consciousness**

Research literature provides the objective and theoretical close reading that underpins the productive processes and structural methodology behind the research practice. However, I feel it important within this introduction to broaden the scope of inquiry to include and examine the critical, cultural, and technological landscape in which my research outputs, in the form of digital artworks, reside. This helps the reader to establish an understanding of the technical, subjective, and cultural discourse encountered in negotiation of the practice-based research produced. These are research artworks that when placed into the domain of public consciousness, become artefacts of the culture industry; artworks that take on new cultural significance, as products of capitalism as they become subject to public examination, and critique. Critical evaluation that according to Fuchs, is shaped and theorised by political world views. Understandings and observations made, depended on a person's own interests and certain school of thought.

Critical theory rejects the argument that academia and science should and can be value-free. It rather argues that all thought and theories are shaped by political worldviews. The reasons why a person is interested in a certain topic, aligns himself/herself with a certain school of thought, develops a particular theory and not another one, refers to certain authors

and not others, are deeply political because modern society is shaped by conflicts of interests and therefore, for surviving and asserting themselves, scholars have to make choices, enter strategic alliances, and defend their positions against others (Fuchs, 2016, p.8).

Critique, in the form of personalised thought 'shaped by political world views' towards my own research outputs, becomes problematic when applied within the neutrality of the research methodology. However, as works of art within the public domain of consciousness, this neutrality of process is lost. In this cultural sphere all artworks become products of capitalism, dependant on the political economy, subject to the economic relations of production and profit. Their means of production is made visible for public scrutiny and debate. It is at this stage that the research outputs take on new meaning as optical conduits between the domain of capital production and that of cultural and global signifiers of capitalism's domination and exploitation of society at large. As previously stated, the research aims and objectives of this doctoral study is to reveal and critique capitalist modes of production (production and labour) that exist between the photographic image and advertisement. The method of inquiry employs dialectical reasoning based on Marx's conceptual theory of Base and Superstructure, to analyse, make visible, and critique capital domination, class division, and exploitation within political economy. The artworks produced within this doctoral research are necessarily critiqued through a Marxist theoretical framework.



## Marxist critical framework

The origins of Critical Theory from a Marxist perspective can be found within the early works of The Frankfurt School, Germany, under the leadership of institute director Max Horkheimer during the 1930s. The term *Critical Theory* first appeared in Horkheimer's 1937 essay entitled *Traditional and Critical Theory*, a theoretical concept based on Marx's theory of capitalism and Weber's theory of rationalisations. Here, Horkheimer argued that to fully understand the true significance of how capitalism works, the public need to look beyond the traditional economic measurements of political capital to embrace psychological, sociological, and cultural insight, alongside critical thought to forefront, question, and make visible capitalism's political dominance on cultural relations within society.

Two notable Frankfurt theorists, whose work explores the significance of technology processes and art practice on societal change, are Walter Benjamin and Theodor W. Adorno. Benjamin's seminal text, *The Work of Art in the age of Mechanical Reproduction* (1935), is a major theoretical text for film theory, influenced in part by Bertolt Brecht's concept of *epic theatre* and Marx's theory of *historical materialism*. Benjamin's writings on film and art practice examine the *aura* and transformative nature of the art world through the collective experience of mass mechanical reproduction within society. Adorno's *The Culture Industry; Selected essays on mass culture* (1991) is a collection of written works in which he proclaims that the culture industry commodified and standardised all artforms. The term *culture industry* was first introduced by Adorno and Horkheimer through their essay *The Dialectic of Enlightenment* (1947), to describe how mass culture functions in the aftermath of capitalism - and how products of the culture industry, such as, radio, film, and

television are not dissimilar in function and culture to other consumer products, such as washing machines or automobiles.

Products that according to Adorno,

...are tailored for consumption by the masses, and which to a great extent determine the nature of that consumption, are manufactured more or less according to plan (Adorno, 1991, p.98).

This plan is shaped by capitalist ideology; an economic system of capital production that intentionally suffocates individualism and encourages conformity by the working class. In the case of my own Tesco images, it is a strategy intended to transform the unsuspecting consumer of culture into a passive reader of capitalism through the commercially produced photographic image (Figure1.)

On products tailored for consumption through advertisement, Lash and Lury (2007) assert that Adorno and Horkheimer's critical theory towards the cultural industry, based on the standardised economic system of factory production and goods, has evolved. The cultural industry has advanced and with the emergence of globalism and international trade, Lash and Lury argue that the economic structure adhered to by Adorno and Horkheimer has been replaced by a more aggressive form of global capitalism, where products and services of capitalism are everywhere. In a global society, goods are valued not solely by their means of production and distribution but also by their cultural identity, as objects of difference, rather than objects of mass-production. In the cultural industry of Adorno and Horkheimer, production takes place in the labour-intensive industrialised factory. In the global cultural industry of Lash and

Lury, production takes place in the marketing and design studios of difference (p.5); a procedure of predetermined difference and capital dominance that imbues objects with new cultural meaning. Moreover, it is a production process where manufactured commodities are transformed in design and function into today's super brands. As branded objects of culture, they become subjected to cultural mediation. Connotations determined from outside the mechanics of production (p.6) , an indeterminate process of abstract operational interpretation singularly expressed and navigated through media representation (p.8). This ideological and evolutionary shift away from prioritising of production and manufacturing, towards marketing and promotion within the emergence of globalism and international trade, is explored in Chapter 1: A world in shadow.

### **Products of capitalism: photographic innovation and societal change**

Since its invention during the 1830s and 40s, photography has always been a medium in technological flux, as new chemical processes, camera types, and optical lens systems have been established. The origins of digital photography can be traced back to the seventeenth-century German philosopher and mathematician Gottfried Wilhelm Leibniz who in his essay entitled *De Arte Combinatoria* (On the Art of Combination) published in 1666, proposed a theoretical model for reducing all logic to precise statements using binary expression. This was a mathematical model based on universal characteristics and logical calculus that would eventually lead to twentieth century software engineers developing computing technologies that would enable elements (visual or not), to be described and recorded in a combination of binary digits 0 and 1. Ground-breaking technological advancements saw the first experimental digital camera developed by Kodak employee Steve Sasson in 1975. The *Logitech Fotoman* (one of the first commercially available cameras) launched in 1991, boasted

a full 1MB of internal storage, enough for approximately 32 photographs to be taken at a resolution of 376x240 pixels. Notwithstanding its obvious limitations, the *Fotoman* was acclaimed by technology journalists at the time as the future of photography (Science and media museum, 2021). As the potential for digital photography combined with the Adobe Photoshop 1.0, an image-processing and photo-editing programme became clear. The digital camera marked a technological shift in photographic process and medium that was unrecognisable from Englishman William Henry Fox Talbot's original photographic process, developed during the 1830s. This was a methodology whereby latent images in negative form were captured on light sensitised paper. When treated with chemicals the resulting fixed negatives could then be used to produce multiple photographs via the means of contact printing. Today, digital photography in the era of Artificial Intelligence (AI), the internet, and digital streaming services such as Instagram, Facebook, and Netflix, has move far beyond the capabilities of Fox Talbot's negative/positive paper prints. Continual innovation and enhancement in digital technologies such as image capture, printing, scanning, projection, and connectivity via mobile devices, have combined to elevate the digital image to become a media phenomenon. It has become a cultural icon of necessity, increasingly integrated into daily human routines and cultural existence. In short, the digital image has undamentally changed the way society acts and communicates both socially and in the workplace. If we take the written word for example, historically this would have been produced by handwritten manuscript, subsequently via the innovation of the printing press, then digital printing, and more recently via the Internet of Things (IoT). The written word has been transformed in form and style; it has changed society's collective experience of how the written word is encountered. Cultural change through technological innovation is not new.

Media critic and philosopher Vilém Flusser, on the medium of photography suggests that as humanity moves away from text-based to an image-based society, the photographic image as an aesthetic and scientific tool becomes more culturally and politically significant in affecting societal change. In a post-industrial world dominated by apparatus, Flusser argues that photography takes on a new form of programmed automated social existence.

If the photograph is becoming a model, then it is no longer a matter of replacing a tool with another tool as a model, but of replacing a type of model with a completely new type of model (Flusser, 2007, pp. 78 - 79).

Flusser reminds us that the relationship between man and machine has reversed, and that photography has become a model of machines subject to the systems of mechanical process and automation. It is a process of alienation where human intention and critical thought is replaced by universal automation in the production of images that according to Flusser, requires us to rethink how we respond to, analyse and critique images (p.74). A new photographic model is necessitated that through critical thought acknowledges the automation of cultural artefacts within society.

Cultural theorist Marshall McLuhan, famous for his 1964 declaration '*the medium is the message*', argues that throughout history cultural change is driven by advancements in technology. He declares that the medium through which content is communicated, such as radio and television, is far more culturally significant in societal change than the actual message itself. McLuhan was not saying that content was not important – but that we should not ignore the power of the medium in

shaping our cultural and lived experiences. Technology led media has its own dynamics, that is to say, the ability to create new cultural dimensions, to influence how as individuals in society, we think, feel, and act under capitalism.

McLuhan in a lecture recorded for Australian TV station ABC (Radio National Network) on 27<sup>th</sup> June 1979, recalled an interview with an American footballer. When asked about live action, instant replay TV screens, and their impact on the professional game, the quarterback affirmed that the game had changed to accommodate the new media.

We have now to play the game in such a way that the audience can watch the actual process that we're performing. They're not any longer interested just in the effect of the play. They want to see the nature of the play. So, they've had to open-up the play on the field, to enable the audience to participate more fully in the process of football (McLuhan, 1979, part 2. 8:09)

In responding to how American football had adapted to accommodate advancements in TV media, McLuhan informs us that this new media phenomenon of the instant replay, based on pattern recognition was a process of visual consciousness that had not been seen before on TV. It is a visual technological development that effects our cognition and extreme self-awareness on how technology facilitates change and how change shapes how we live in the world (8:05).

Today media and technology are major players in shaping the sporting landscape, with the arrival of digital pay for view TV, and online streaming services, alongside more traditional media outlets. This shaping of sporting events can clearly be seen in the UK. English county cricket continues to undergo rule change in recent years, rule change and innovation that has led to new shorter versions of the game. Internationally, World Athletics, *Diamond League* series has also changed its competition rules and event format to accommodate the power of TV scheduling and media coverage. These are organisational changes in sporting governance and play, that have been made in recognition of the media's growing ability to dictate, and stimulate audience participation in sport.

### **Linear progression of artworks**

When placing my research outputs entitled *Dataworks* into historical and contemporary context, a photographic timeline of societal change and technological innovation has been created to show the theoretical evolution of these photographic outputs. These outputs can be tracked through the historical works of Lewis Hind, Allan Sekula, Christopher Williams, and Idris Khan as examples of photographic works that transcend both analogue, digital, and binary data technology in contemporary art practice.

## **Lewis Hind**

Activist and social reformer Lewis Hind, photographed child labour and poor working conditions within American factories during the 1900s. These are photographs that provide material insight into the appalling conditions and inhuman working practices associated with capital production at the time. His images courted public opinion for social and political debate and were photographs that invited a form of social activism. Societal change that would eventually lead to new labour laws was being introduced in the United States. In relation to this study Hind's social reform images provide an historical cornerstone for social and political debate towards labour and capitalism, the exploitation of the working class by the political elite (Figure 44).

## **Allan Sekula**

Situated within a Marxist framework of capital production and consumption, Sekula's contribution towards this doctoral study can be found embedded within the social referentiality of his photographic practice. He rejected the concept of documentary photography as high social status hegemonic artworks on gallery walls within an economic system that converts everything it touches to that of commodity. Sekula's photographic and multimedia artworks sought '... to argue passionately for a [new] collective model of progress' (Mack, 2022); a process of documentary expression that critiqued social bias, and explored the notion that art, society and politics can co-exist within art/photography. A form of contemporary critical realism, Sekula's artworks track the manufacturing trade routes of capital production. They capture global capitalism, not as hegemonic and conformist products of capital, but as critical representations, visual statements that chart the connections between globalisation, capital production, and conditions of human labour; social and political documents that Sekula argued actively went beyond '...capitalism's inability to



deliver the conditions of a fully human life' (Sekula, 1978, p.883). These were cultural artworks that renewed political interest in world events via a new form of photographic critical realism. Sekula's photographic series *Fish Story*, first exhibited in Rotterdam in 1995 (later published as a book) is a far-reaching series of photo-essays that document and make visible globalisation on the world's oceans. Sekula's camera acts as a maritime telescope on the seafaring economy, a spy glass that gazes out from large cargo ships, towards the freeports and world cities on which capital trade depends. His artworks show the hardworking ship builders, dock workers and container ships that help transport cargo destined for world markets and capital consumption. These are products of capital that provide the accumulation of wealth for the captains of business, through the exploitation of labour (Figure 45).

In referencing my own work, it is through this exploitation of labour and the inability of the photograph, as a product of capitalism, to reveal the lived human experiences contained within its own production and cultural consumption as artefact, that Sekula's and my own photographic practice converge in solidarity and purpose. This has been explored through my own lived experience as a Nestlé employee, and the commercially produced Tesco images that I critique.

### **Christopher Williams**

In acknowledgement of influential artists whose work has directly influenced my own research practice, it would be remiss of me not to mention the work of Christopher Williams. In particular, his 2014 retrospective exhibition *The Production Line of Happiness*. Williams' subject of study is the manufacturing of images. His work appropriates images from mass culture through the commercial medium of advertisement and photographic process. His creations reproduce and subvert commercial imagery. Images whose sole purpose is to promote cultural products for

public consumption and profit, and artworks that adhere to industry standards and commercial practice, whilst at the same time interrogating the mechanics of image production. At first sight, Williams' glossy non-retouched images give the impression of perfection. They engage the viewer with their colourful high production values and commercially framed aesthetics. Once hooked, the unsuspecting spectator is confronted with the imperfections of manufacture, the flaws of assembly hidden within the production process of images. What I like about Williams' work, is his use of commercial language and Brechtian theatre techniques to break down, explore and make visible the mechanics of image production and objectivity of objects, see Figure 46. This is a means of photographic production that make audiences conscious of the fact that they are viewing a fabricated image - subject to social and political bias, a method of investigative research that informs and lends itself to my own exploration and unpacking of commercial imagery through production process and language.

### **Idris Khan**

From the standpoint of practice led research, Khan's work bridges the medium of materiality between analogue and digital photography. His work explores and interrogates cultural artefacts through a methodology of image repetition, composite layering, and superimposition of digital process. Khan's contribution to this study lies in his expansive approach to interdisciplinary and technological photographic/art. His 2004 – 2009 photographic series, *Every... Bernd and Hilla Becher...*, is a seminal body of work that pays homage to the life works of Bernd and Hilla Becher. These typologies of buildings act as technological and physical links between Hind and Sekula's analogue based social reform photographs and that of the data artist explored in chapter 8 (Figure 47) where humanities lived experience is

not investigated through pictorial documentation of lived events, but rather through accumulated datasets, as consumers of capitalism.

## **Summary**

The aim and objective of this practice-led research is to make visible the capital means of production contained within the assembly process of photographic image for public scrutiny and debate. A factual and objective interrogation of the labour processes that exist within the manufacturing of goods. This internal revealing of human relations and capital production is achieved through a Marxist dialectical framework (Chapter 5). Research outputs produced have a dual purpose as:

- i) objective documents that reveal the research methodology; cultural artifacts that represent an objective truth of lived events,
- ii) artworks that on entering the public domain, as products of capitalism, take on new cultural meaning.

They become commodities of the culture industry subject to public examination, which in the view of the author should be read from the Marxist point of view; a standpoint that aligns the research principals of discovery and comprehension within the overarching social and political framework of this practice-led doctoral study.

## Chapter plan

**Chapter 1:** introduces the literature review. The chapter provides commentary on political and socioeconomic theories underpinning the scope of enquiry. This chapter includes a brief reading of historical and contemporary visual artists who work with lens-based media and digital data technologies to investigate commercial and economic phenomena within their artwork.

**Chapter 2:** explores the contextual shift from manual to automated labour practices, framed through Karl Marx's theory of modes of production. The chapter examines the complexity of production and invisibility of labour. It reveals the digital reshaping and exploitative labour practices of global business and manufacturing; automated technologies that have the potential to disrupt labour.

**Chapter 3:** presents an auto-ethnographic study of my lived experience as a professional photographer working for Nestlé UK. This chapter provides a comprehensive personal journey of discovery that offers commercial insight into the corporate world of international business and manufacturing.

**Chapter 4:** introduces Marx concept of dialectical materialism and theoretical model of base and superstructure. The chapter examines ownership of means of production and the paradigm of inequality that exists between corporate power and class labour in society.

**Chapter 5:** provides a photographic and technological timeline that plots the emergence of the photomontage as a political and artistic medium. The chapter describes the developmental stages of photomontage from Victorian combination printing, post-war, anti-capitalist artworks of Dadaism, towards the appropriation of photomontage as a capitalist tool of persuasion within the graphic arts and advertising media.

**Chapter 6:** exploring the term metadata, this chapter investigates and reveals the photographic structures contained within the digital photograph. The binary code of photographic production allows the photographic image to be viewed in data form, a process of data abstraction that offers new insight into image production and assembly. It is a systematic method of image process that provides methodology for the unpacking of archival Tesco research images in data form.

**Chapter 7:** Dataworks (Part 1) presents a series of experimental research outputs. Aspects of Marx dialectical materialism are employed to break apart the photographic image through the process of data abstraction to investigate and reveal the historical presence of human labour and global assembly contained unseen within the Tesco photograph's commercial method of production.

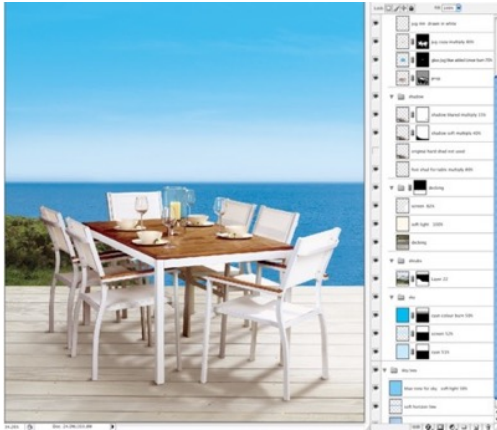
**Chapter 8:** investigates the rise of the data artist. The science of correlating, analysing, and visualising data for commercial and artistic purposes. This chapter discusses a new breed of pioneering artist; artists whose work explores and makes visible data patterns of human behaviour, through graphic representation of text, image, and sound.

**Chapter 9:** Dataworks (Part 2) is a continuation of research undertaken in chapter 7. Research outputs produced within this chapter explore the representation of active labour, human labour and production explored through the transformative process of capital in motion and expressed visually through abstracted digital text, image, and sound.

## Rationale

### The external reading of an image and its face value appearance

Figure 1



What I don't see, I don't question. I accept the image as truth about the commodity. At first glance, see Figure 1, I see a wooden table surrounded by six white chairs, situated on light oak terrace decking overlooking an unidentified and decontextualized blue Mediterranean style seascape. The table is dressed with four place settings, consisting of a range of classic white bowls and plates adorned with small delicate white and yellow flowers that add a subtle touch of casual elegance and relaxed sophistication to the overall photographic narrative. A set of tall empty wine glasses stand nearby, waiting to be filled. A single glass candleholder is placed just off centre, to be illuminated as the sun disappears over the distant horizon. One chair is angled invitingly outwards, opening a place at the table for the spectator to occupy; it is presented in the familiar 'catalogue' style. There is an underlying and unspoken claim to represent a present and future reality. I recognise its nature, its attempt to promote, influence and persuade through the use of photographic realism. I know this image is a fantasy, a photographic construct that is not real. It is a representation of a man-made commodity. The fact that the image is characterised

in the form of a photographic image, has no interest for me. I care not for the technical challenges and photographic processes that have accumulated during its production.

For me the photograph as 'artefact' does not exist. Its value as object is of no interest. It is the image itself that I respond to - not the photograph. The photograph is invisible to me - acting only as a transparent and unseen window through which I unwittingly and unconsciously, project my own thoughts and desires. It is a fantasy image born out of a capitalist view of the world, driven by global markets and profit. I read the image passively. I am programmed by predominant social norms and I find myself responding to the subtle (and often not so subtle), intricate nuances and visual playfulness of the image surface. I am transported by the idyllic and picturesque, into the seductive realm of the global commodity. I bathe in its realism, responding positively to the preconstructed lifestyle that the image projects. I do not question the image's veracity, the authenticity and legitimacy behind the constructed lifestyle it promotes. I accept the image as a truthful representation of a commodity. It is an image I have seen many times before. They surround me every day, confronting me in the street and demanding my attention, my gaze. From bus stop hoardings to lofty, oversized advertising billboards they shout out at me, attacking my visual senses. They project themselves uninvited from computer screens and mobile devices; they jump out of glossy magazines. They adorn the fabricated interior walls of the high street; there is no escaping them. As a professional in the world of image making, I pride myself that I am informed. I recognise these images for what they are - a manufactured product, their only purpose is to influence and persuade, to construct an artificial state of desire, to create a demand (a market place) in which to sell the commodity goods they promote. However, the more I look into these images, the more uncertain I become. I question their honesty and

reliability in projecting an informed representation of the truth of these commodities, and I realise I have allowed myself to become the lazy consumer. The realisation that I do not have a voice shocks me; I am a follower in a crowd of many. My determination is set. No longer will I allow myself to be impassive and unthinking. The question I ask myself now, in the process of researching the PhD, is how to reveal the real conditions of production of such seductive images. Actually, this is *my* image. I helped to produce it in 2007 whilst working for an American graphic design company, having recently been put through the TUPE regulatory process. TUPE is an acronym for Transfer of Undertakings Protection and Employment (1981) whereby employees of a business move automatically from one employer to another on the same terms and conditions. The realisation that as part of this process I was also a casualty of neo-liberal economics, has led to the self-reflexive auto-ethnographic approach to my research project.



## **Chapter 1: Literature Review**

This literature review includes brief commentary on the work of Naomi Klein, Karl Marx, Georg W.F. Hegel and David Harvey. The work of these writers is important because they broaden understanding of the political and socioeconomic theories underpinning the scope of the enquiry. The literature review also includes an appraisal of historical and contemporary visual artists who employ lens-based media, digital data and computer technologies to explore and make visible the patterns of commercial and economic phenomena within their artwork. This referencing of art practice is helpful in positioning and identifying the uniqueness of this research project, both within current commercial imaging and art-based practice.

### **1.1 State versus capital**

Capitalist production in its purest form can be referred to as an economic system based on market forces of supply and demand. It involves the manufacture and distribution of goods and services for the accumulation of private wealth and profit. Within this system economic trade is controlled by private enterprise and industry, rather than being administered by the state. However, in order for capitalism to dominate and emerge as a stable and effective economic system for capital production and economic growth, various specific political, cultural and technological interactions and economic developments within a capitalist society need to be aligned.

Capitalist trade has two distinct political conflicting ideologies. The first is based on the natural rights and freedoms of the individual to self-regulate their lives, at any cost. The second is the collective nature and responsibility of the state towards the

safety and wellbeing of its citizens. In an essay entitled *The Two Treatises of Government* (1690), the natural law theorist John Locke, championed the securing of individual freedoms and civil liberties through the theory of natural rights. Earlier, in his book *Leviathan*, published in 1651, Thomas Hobbes argued that the individual should automatically consent to surrender their individual rights to the absolutism of the sovereign state in the form of a binding social contract. In return for this surrender of rights they would benefit from the provision of a civil society, created and enforced by the state. Hobbes was, for his part, an advocate of the importance of nationhood and the power of the state.

In his book *The Wealth of Nations* published in 1776, speaking from a standpoint of classical liberal ideology, the Scottish economist Adam Smith advocated for an unregulated market economy. He argued for the abolition of government intervention in economic matters and the removal of all state enforcement barriers and government tariffs on manufacturing and commerce. Smith's 'invisible hand' theory (*The Wealth of Nations*, 1776) argued that when self-interested individuals are allowed to operate through a system of mutual unregulated interdependence, market-forces would automatically self-regulate for the mutual benefit of business, shareholders and society at large. Opponents of capitalism questioned the ability of these unregulated and self-interested markets to deliver sustainable social benefits, as powerful employers and the privileged elite looked to exploit natural resources and waged labour in their pursuit of capital accumulation and individual wealth. Liberal economists, such as John Maynard Keynes, argued that government reliance on unregulated market forces as a self-correcting mechanism to deliver a stable national economy, was fundamentally flawed. He advocated that state intervention was necessary for the statutory regulation of capitalist markets. In his book *The*

*General Theory of Employment, Interest, and Money* (1936) Keynes argued that full employment was necessary for capitalism to grow. He maintained that this could only be achieved through government intervention policies, arguing that the foundation stones underpinning classical liberalism no longer existed.

Friedman addresses these two distinct and conflicting ideologies - one advocating unregulated market forces, the other state intervention and regulated markets. In his seminal essay *The Social Responsibility of Business is to Increase its Profits*, published in the New York Times Magazine, September 13<sup>th</sup>, 1970, Friedman explores the dichotomy of interests between business and state, between shareholder profit and social responsibility. According to Friedman, it is not the responsibility of business to determine, regulate and enforce these, but the responsibility of society in establishing a social and ethical framework of norms, embedded within both state and common law. Concluding in this seminal article he states,

There is one and only one social responsibility of business - to use its resources and engage in activities designed to increase its profits so long as it stays within the rules of the game, which is to say, engages in open and free competition without deception or fraud (Friedman, 1970, para 34).

## 1.2 A world in shadow

Hidden behind the unreality, the fantasy of the advertising image creates another world, a world in shadow. In search of my own approach to this topic, I first turn my attention to the writings of Naomi Klein (2010). Klein's research explores global consumerism, exposing and revealing the hidden and often unseen global, social and economic realities behind today's manufactured commodities. Klein's research clearly highlights a dichotomy between the realities of the manufactured commodities as product, and the photographic constructs that represent these products as fantasy objects and super brands. Behind this dichotomy of realities, Klein reveals a major shift in corporate governance, with corporations prioritising and implementing a policy of marketing and promotion over traditional manufacturing and production. Klein refers to these companies as "hollow corporations" (2010, p. xvii), companies that have repositioned themselves away from the traditional notion of home-based commodity production that once employed large stable workforces within single geographic centres of domestic production. Instead, they choose to restructure their corporate business models, implementing a more expansive neoliberal model of global economic reforms. Here multinational corporations look to the geographical cost benefits of outsourcing production as a means of destabilising and driving down labour costs under the banner of neoliberal reforms, creating an environment of fragility and uncertainty within the workforce. Transient third-party factories constantly move and relocate to where the cheapest labour and economic conditions can be found, thus creating a global marketplace whereby third world countries compete against each other to offer low cost, tax and labour incentives within their emerging economic manufacturing zones.

### 1.3 Export Processing Zones

The origins of the Economic Manufacturing Zones (EPZs) that Klein refers to can be traced back to pre-Roman times, where goods in transit could be stored without paying tax. In colonial times, the British government designated ports such as Hong Kong, Singapore and Gibraltar as free ports from where colonial merchants could safely ship their produce back to England (Klein, 2010). Historically known as safe harbours, today these free ports have become geographical customs territories. They exist for legal considerations outside the physical boundary of a country for customs and tax purposes, allowing normal customs regulations (import and export tariffs) to be removed completely or replaced by more favourable tax breaks and labour laws designed to incite and grow global trade. According to Klein, the real difference between free ports and today's EPZs is that they are:

Less holding tank than sovereign territory, the EPZ is an area where goods don't just pass through but are actually manufactured, an area, furthermore, where there are no import and export duties and often no income or property tax either (Klein, 2010, p. 204/5).

Keller Easterling, in her book *Extrastatecraft - The Power of Infrastructure Space*, published in 2016, describes EPZs as free ports that have been formalised to become administrative instruments for the advancement of global free trade. They attract foreign investment "with incentives like tax holidays and cheap labour" (Easterling, 2016, p. 25). They were endorsed by the United Nations and World Bank in 1964 as an economic tool for Third World economies and developing nations to gain valuable trade opportunities. According to Easterling, intended as a temporary experiment, EPZs increased exponentially during the 1970s with unexpected

consequences. They spread “new waves of labour exploitation... rather than dissolving into the domestic economy as was originally intended, the EPZ absorbed more and more of that economy into the enclave” (Easterling, 2016, p. 25). They multiplied and upgraded their urban infrastructure to include industrial campuses, office parks and residential areas, developing as corporate areas that consumed entire cities, districts and regional economies into their network.

#### **1.4 The rise of Neoliberalism**

In his book ‘*A Brief History of Neoliberalism*’ 2007, David Harvey states,

Neoliberalism is in the first instance a theory of political economic practices that proposes that human well-being can best be advanced by liberating individual entrepreneurial freedoms and skills within an institutional framework characterised by strong private property rights, free markets, and free trade (Harvey, 2007, p.2).

Harvey attributes the emergence of early neo liberal thought to the Mont Pelerin Society. Independent from any political party, the Mont Pelerin Society was founded in 1947, when economist Fredrich Hayek invited thirty-nine fellow economists, including historians and philosophers, to discuss the fate of classical liberalism. Eamonn Butler, in his 2012 book entitled ‘*A short History of the Mont Pelerin Society*’ based on the 1995 writings of historian Max Hartwell, writes,

The Society arose as a response to the social, political, intellectual and moral ruin that had gripped Europe before and during World War II. It aimed to keep alight the intellectual flame of liberalism (the word is used in the European sense) in the dark

post-war days and to critique the centralizing interventionist notions that then prevailed (Butler & Hartwell, 2012, para. 5).

The society were in opposition to John Maynard Keynes state interventionist theories of the 1930's and rejected the classical theories of David Ricardo and Karl Marx. Their main aim was to "facilitate an exchange of ideas between like-minded scholars in the hope of strengthening the principles and practice of a free society and to study the workings, virtues and defects of market-oriented economic systems" (Mont Pelerin Society, 2019, para.2). Notable society members included the economists Ludwig von Mises and Milton Friedman. Harvey defines Neoliberal theory as "a potential antidote to threats to the capitalist social order and as a solution to capitalism's ills..." (Harvey, 2007, p.19). Furthermore, it has been viewed as a political project "devised by the corporate capitalist class ... to consolidate class power" (Harvey, 2007, as cited in Sliker et al., 2018, 0:12). Neoliberalism emerged in the late 1960's and early 70's as a counter argument to the political and economic problems at a time when the capitalist class was losing power, influence and wealth. The counter argument, according to Harvey, focussed on the idea of workers having too much power; if the faltering world economies were to rally, the workers somehow had to be disciplined, but the big question was how?

According to Harvey, initial attempts to curb working class power by the corporate capitalist class can be evidenced through the Immigration and Naturalization act of 1965, known as the Hart-Celler Act. This act saw America abolish its immigration quota system based on national origin, in favour of a more open immigration policy based on attracting skilled labour to the United States. As competition for American jobs increased along with a willingness of immigrants to work for lower wages, so did anti-immigrant feelings amongst America's hard-working middle and

lower-income families. Data from History.com states that “All told, in the three decades following passage of the Immigration and Naturalization Act of 1965, more than 18 million legal immigrants entered the United States, more than three times the number admitted over the preceding 30 years” (History.com, 2010, para.5).

According to the Washington DC based Pew Research Centre’s *Hispanic Trends Project*, the number of foreign-born nationals in the United States has risen from 9.6 million in 1965, to a record high of 45 million in 2015, dramatically altering the racial and ethnic makeup of the United States. Commentating on the 50<sup>th</sup> anniversary of the Immigration and Nationality Act of 1965, in an article for the Migration Policy Institute, dated 15<sup>th</sup> October, 2015, Muzaffar Chishti, Faye Hipsman, and Isabel Ball, using Pew Research Center’s statistical projections into American Hispanic diversity and future populous trends within the United States writes,

In 1965, whites of European descent comprised 84 percent of the U.S. population, while Hispanics accounted for 4 percent and Asians for less than 1 percent. Fifty years on, 62 percent of the U.S. population is white, 18 percent is Hispanic, and 6 percent is Asian. By 2065, just 46 percent of the U.S. population will be white, the Hispanic share will rise to 24 percent, Asians will comprise 14 percent—and the country will be home to 78 million foreign born (Muzaffar, et al., 2013, para. 7).



More recent reports, published in 2020 by the Pew Research Center, suggest that the foreign-born population residing in the United States is projected to almost double by 2065 (Budiman et al., 2020, para.2).

According to Harvey, legal immigration as a political project to undermine and attack working class power did not work. Speaking on the LEFT-OUT podcast in 2018, for Democracy at Work, a non-profit organisation founded to promote worker cooperatives and democratic workplaces, Harvey concludes that “if you couldn’t bring in the workers you took capital out to where the labour was, and so you start to get this shift pushing towards globalisation” (Sliker et al., 2018, 2:32). According to Harvey, this was facilitated by advances in production technology and transportation. In referencing the advancements in transportation, Harvey is keen to point out the role of the containerships in the development of global trade routes, providing the economic backbone for large scale transference and outsourcing of manufacturing and labour abroad.

The relevance of referencing Harvey within this research project is that Harvey reads Neoliberalism through the optical lens of class struggle, a class perspective that resonates within my own auto-ethnographic experiences as a waged worker. When responding to the question ‘Is Neoliberalism dead?’ Harvey replied,

When people ask if Neoliberalism died with the crisis in 2007/8. My answer to that is No, the project is still alive and well. In fact, if you look at who has benefited from the crisis 2007 – 2008 it’s been the top one percent. The ideology has taken some hits, but what you see is the project, which is about concentrating and accumulating

more wealth and power with a very small fraction of the capitalist class and corporate world. That project is as alive as it's ever been (Harvey, 2018, cited in Sliker, et al., 2018, 5:11).

### **1.5 Nike as a case in point**

Klein cites Nike as an ultimate example of the corporate endorsement of neoliberal economics. Originally an import/export retailer in the 1980s, today it is a world leading sports clothing manufacturer, retailer and sports super brand icon. It was one of the first companies to actively contract out all non-core manufacturing activities to third party suppliers in Japan. They channelled their money directly into high profile sporting endorsements and advertising campaigns, rather than invest in their own manufacturing home base, facilities and factories. Nike CEO Phil Knight stated openly, "There is no value in making things anymore" (Knight n.d., cited by Klein, 2010, p. xxi). Companies that had once manufactured their own products in their own factories, employing large stable workforces soon followed the Nike model, choosing to contract out all non-essential corporate activities, closing down their home factories in favour of scouring the globe for third party contractors that could produce their products at ever cheaper costs. But at what overall cost? In her book *No Logo* (2010) Klein exposes the unseen world of corporate exploitation hidden deep within these global supply chains harbouring poor human rights records and child labour abuse. These were business production practices that saw many American owned companies move production of their iconic American brands to cheaper manufacturing facilities abroad. Brands such as Mattel Inc., Converse, Levi Strauss & Co., Dell Computers and Apple (Lubin & Anand, 2010). Louise Storey reveals the story behind Mattel's decision to offshore its manufacturing to China.

Mattel closed its last American factory, originally part of the Fisher-Price division, in 2002. The bulk of its products have long been made in Asia. In the 1980s, Mattel decided to take more control of its core products, like Barbie and Hot Wheels cars, and built and purchased several factories. About 65 percent of Mattel products are made in China now. Or, as a Mattel executive rephrased it, more than a third of Mattel toys are made outside of China. Many Barbie dolls, for example, are produced in Indonesia (Story, 2007, para. 31).

## **1.6 Corporate exploitation**

From Klein I began to gain an insight into the corporate truths behind the glossy photo-construct I was encountering every day. The fabricated realisms and fantasy lifestyles they projected masked the socio-economic realities often associated with the commodities they promoted. As a passive reader of images, this knowledge although disturbing to me, did not have an impact on how I read an image, submissively and unable to make the connection between fantasy and reality. This disconnect in my inability to distinguish between the commodity as image and commodity as manufactured goods all changed in April, 2013. This happened just a few short weeks into my doctoral studies, when the Dhaka Rana Plaza building collapsed, killing more than 1100 factory workers and injuring a further 2500. Caught up in the everyday events of my own photographic practice as a Nestlé employee, I was somewhat blinkered to the disturbing realities behind global manufacturing. Built on marshy wasteland on the outskirts of Sava, in the Upazila district of Bangladesh, the eight-story Rana Plaza building contained numerous commercial businesses, including garment factories spread out over six floors (Chandran, 2016);

these garment factories produced clothing for 23 global brands (BBC News, 2013). The largest of the garment factories, "*New Wave Style*, listed retailers such as Primark, Matalan and Bonmarche among its customers" (Strydom et al., 2013, para. 3). On reporting the Rana Plaza collapse, the BBC raised concerns over poor safety and working conditions within Bangladesh's garment industry - an industry that employs more than four million workers with a worth of an estimated £13bn to the Bangladesh fledgling economy. The report stated, "Last November, 112 workers were killed in a fire at another clothes factory in the same area, and nine died in a blaze earlier this month at a garment manufacturer, again near the Bangladeshi capital Dhaka" (BBC, 2013, para. 10). "The minimum wage for a worker in such a factory is currently around 3,000 Bangladeshi taka a month [about £24, \$40]" (BBC, 2013, para. 21). In September, the BBC's Panorama programme reported that Bangladeshi garment workers had been 'locked-in' on shifts lasting over 25 hours (BBC Media, 2013).

Furthermore, the programme found there had been more than 50 factory fires in the preceding ten months. Many workers died because factory gates were locked and they were unable to escape. Despite this danger, the programme secretly filmed a security guard locking the front gate at the factory making clothes for the German global discount supermarket chain, *Lidl*. One worker who had earned around £2 for his 19-hour day, told the programme that he had to be back at the factory in four hours. He stated, "My feelings are bad and my health is too. In the last two weeks, approximately, it has been like this for eight nights" (BBC Media, 2013, para.7). The programme raised issues of corporate greed and neglect. It highlighted the need for a change in legislation to protect the poor against capitalist practices that serve to make the rich richer, and to trap the underprivileged as modern-day slaves in a system that serves to keep them in poverty. Change must take place.

Corporate exploitation of workers' rights and poor conditions of labour were not isolated simply to the manufacturing of garments. William Wan (2012), writing for the Washington Post, reveals the growing economic pressure and impatience with poor working conditions among China's vast pool of migrant workers. This exposed the economic turmoil that brought about factory riots and employee suicides in the Foxconn Technology Group's Chinese manufacturing plants.

Foxconn, in particular, has drawn attention in recent years because of its connection to Apple and the increasingly viable signs of unhappiness among its workers. A string of employee suicides in 2010 pushed the company to install netting to catch jumpers and take other steps. Pressure from its clients – especially Apple, which found itself under fire – also led it to raise wages and take other minor steps (Wan, 2012, para.9).

Foxconn is a Taiwanese based, multinational electronics company trading as the world's largest contract manufacturer of consumer electronic goods. The organisation employs 1.2 million people in 15 factories worldwide; most of the company's manufacturing plants are located in China with Foxconn's first manufacturing facility in the People's Republic of China opening in Longhua, Shenzhen, in 1988. Kan (2012), describes Foxconn as a secretive organisation unwilling to divulge its extensive client inventory of well-known international brands. Turning to consumer analysts, who closely follow Foxconn corporate activities, Kan seeks insight into the electronic giant's client list. He reveals that Foxconn's non-publicity seeking customers include the likes of: Android smartphones for Motorola, Sony and Huawei, gaming consoles for Microsoft Xbox, Sony PlayStation and Nintendo Wii U, Amazon Kindles, computers and equipment for Acer, Dell, HP,

Levono, Cisco, IBM, Intel, Ericsson and Phillips, and televisions for Sony, Sharp and Toshiba (Kan, 2012). Kan (2012) cites analyst Helen Chiang regarding allegations of abusive labour practices constantly being levelled at Foxconn in recent years.

Chiang, points towards Foxconn's long-standing relationship with Apple, an extensive and demanding partnership that has led to the Taiwanese firm building Apple exclusive factories to accommodate their 'demand for secrecy' in the assemblage of their products. Apple is Foxconn's biggest client with estimates ranging from 40% to 50% of the company's revenue and Chiang puts forward the view that because of this they merit condemnation: "In the eyes of labour protection groups, Apple deserves to be singled out for criticism because of its powerful position in the market" (Chiang, n.d. cited in Kan, 2012, paras. 8-10). According to Kan "The name Foxconn has become shorthand for the human costs of building the iPhone in China, linking Apple to bad publicity about worker suicides, deaths from a plant explosion and rioting factory workers" (Kan, 2012, para.1).

In an article for the Guardian newspaper, June 2017, entitled *Life and death in Apple's forbidden city*, Brian Merchant citing his new book *The One Device: The Secret History of the iPhone* published by Bantam Press reveals how he gained access to Foxconn's Longhua factory in Shenzhen, China, describing the production plant as a vast complex where iPhones are made and where in 2010 unhappy workers started taking their own lives. Merchant reports,

If you know of Foxconn, there is a good chance it is because you have heard of the suicides. In 2010, Longhua assembly-line workers began killing themselves. Worker after worker threw themselves off the towering dorm buildings, sometimes in broad daylight, in tragic displays of desperation – and in protest

at the work conditions inside. There were 18 reported suicide attempts that year alone and 14 confirmed deaths. Twenty more workers were talked down by Foxconn officials (Merchant, 2017, para. 4).

Suicide notes and survivors told of immense stress, long workdays and harsh managers who humiliated workers for mistakes, issued unfair fines and failed to honour the promise of benefits (Merchant, 2017). The physical exploitation of the factory workforce through third part outsourcing, introduced to support the globalised production of commodity goods in pursuit of greater profits, is also identifiable amongst the growing digital labour force within the field of information and communication technologies. This will now be discussed as it relates to the case study.

## Chapter 2: Labour

### 2.1 Digital labour

Klein (2010) explores the physical production practices, outsourcing and exploitation of corporate labour within the global sweatshops of the super brands through a series of factual case studies. Christian Fuchs, professor of Media and Communication Studies at the University of Westminster, in *Digital Labour and Karl Marx* (2014), attempts to shed light on exploitative labour practices within digital technologies and production. He explores the impact of human “labour exploitation on live bodies, and minds of workers” (Fuchs, 2014, p.156) theorised and framed through Karl Marx’s theory of modes of production as applied to the information and communications technology (ICT) industries. Fuchs sites Dallas Smythe’s contribution to Marxist theory within the critical political economy of media and communication, crediting Smythe for introducing the “notions of audience labour and audience communication. Theoretical concepts that show how commercial advertising and mass media work” (Fuchs, 2014, p.74). On the production of ICT products Fuchs, asks the question, “Where does your computer/phone come from? Who has produced it?” (p.156) stating that,

A computer or mobile phone consists of application programmes, an operating system, cables, a physical case, a display, a battery, a central processing unit, random-access memory (RAM) data storage chips, read only memory data storage chips, internal storage devices (hard disk, flashcard), a keyboard or other input device and a cooler (Fuchs, 2014, p.156).



Here, Fuchs argues, it is in the complexity of production and invisibility of labour processes present in the assemblage of ICT goods that the consumer is prevented from seeing beyond the corporate logos printed on their digital devices.

...these companies are only those actors that sell these devices and own the profits from these sales. The production process itself consists of multiple forms of labour that are invisible to the user. Yet without this labour ICTs would not exist because they are objectifications of complex human labour processes (Fuchs, 2014, p.156).

This is a complex process of production that according to Fuchs, “is based on geography and social reality of equality” (p. 231). In distinguishing between multiple forms of labour in ICT production, Fuchs is highly critical of ICT companies in their treatment of workers. He makes a distinction between the relatively well-paid knowledge workers (managers, administrators and IT professionals) of Silicon Valley, and poorly paid product assembly workers, geographically located within economically challenged and developing countries. Fuchs, asserts that although the disparity in working conditions and take-home pay between these workers is clear to see, both knowledge and assembly worker are subjected to forms of exploited labour.

As has been previously explored through Klein and Harvey (2010), Fuchs also makes graphic comment on exploitative practices behind corporate outsourcing, especially women and immigrant workers in low-paid manufacturing jobs (Fuchs,

2014). This is important to the project because it relates directly to the presence and use of digital labour technologies and software programmes embedded unseen within the production processes of images. According to Fuchs ICT companies such as Google, Apple, Facebook, and the knowledge industry at large [including institutions of learning] implement neo-liberal management strategies that “use soft and social forms of coercion: where there is no formal contractual requirement to work overtime” (Fuchs, 2014, p.228). This has created an all-inclusive company culture of work and recreation based on performance and internal competition between colleagues. It is sustained through on campus incentives, such as cafes, restaurants, sporting and social event spaces, work related inducements intended to help blur the boundaries between employees work and play (p.228). This results in longer working hours, high stress, poor work-life balance and a high turnover of labour in the software industry (p.230). An imposed work-life balance that makes it increasingly difficult to separate out personal from professional life as corporates continually look to restructure their working practices in gain of surplus value, transferring and reallocating work traditionally undertaken by managers, administrators, secretaries and marketing departments into one single job. Here knowledge workers employed within ICT companies are progressively expected to respond voluntarily to employers’ demands to take on more job-related responsibilities as the employer looks to extract maximum unpaid labour time in exchange for wages paid. This relates to this particular case study as the production process of images has now changed considerably from the days of analogue capture; the advancements in technology have made it possible for the digital worker to carry out the multiple forms of labour associated with image production. Labour that was historically undertaken by different disciplines within the field, such as

chemical processing, image re-touching and artwork/ prints, can now be carried out by individuals through digital applications.

## **2.2 Automated labour**

Manufacturing and global business continue to embrace the innovative technologies of today's digital economy. There has been a seismic shift towards an automated society based on artificial intelligence and machine learning; a digital reshaping of capital in motion, where traditional waged labour is progressively replaced by a new breed of robotic labour. Automated machines are capable of working 24/7 without need for rest or sustenance. According to Frank et al. (2019) this rapid advancement towards automation technologies and artificial intelligence (AI) in the workplace has the potential to significantly disrupt labour markets. Whilst automation can be used to augment the productivity of some workers, it can also be used to replace the work done by others, with increased automation giving rise to fears of mass technological unemployment and economic inequality (Frank et al., 2019, para.1). Journalist, and sub-editor at the Guardian newspaper, Adam McCulloch (2019), in accepting that automation had the potential to make significant economic gains for the UK economy, also states that without government intervention into how automation transforms work, "workers will lose out" (paras. 6-7). This echoes union fears that unregulated automation in the workplace could lead to a big rise in the gig economy, as employers move to a more flexible self-employed model of employment (para.9). In adopting this automated technology McCulloch points out that not all UK sectors have fully embraced these changes, with a number of manufacturing companies still preferring to "use cheaper labour from EU countries, rather than invest in robot technology" (para 10).

Mike Wilson, Chairman of the British Automation and Robot Association, cited by McCulloch (2019), argues that following a reduction of European workers, and the on-going uncertainty over the value of the pound post Brexit UK, companies may no longer have an option to opt for human labour over automation. Attributing lack of productivity and an over-reliance on physical labour in the workplace as key factors behind current low production levels within UK manufacturing in comparison to global competitors, Wilson references Germany as an example, stating that “outside the automotive industry Germany has 191 robots per 10,000 workers, while the UK has only 42” (Wilson, 2019, para.12). He concludes that if UK businesses are to compete successfully on world markets post Brexit, they have no other choice but to invest in robotic automation over traditional waged labour (para.14-15). On levels of increased automation in manufacturing, Wilson sets an optimistic tone acknowledging that whilst there is an occasional job loss as human labour is replaced by machines this is off-set by increased productivity, which ultimately leads to business growth and the employment of more people (Wilson, 2019, para.17). In conversation with McCulloch (para.19) Nello Cristianini, professor of artificial intelligence at the University of Bristol, believes equally that we should all be concerned about job losses as companies look to invest and benefit from automation in the workplace. Nello warns us to be mindful that “whatever anyone says – the key goal of automation is to replace people” (Nello, n.d., cited by Wilson, 2019, para.19).

Frey and Rahbari (2016) writing on the subject of machine learning, automation and robotics, argue that continued advancements in digital machinery “is making technology more labour saving and potentially less job creating” (p.1). Furthermore, they state that today’s technology driven revolution [Industry 4.0] may “not provide the same opportunities, particularly for less-educated workers, as the industries

that preceded them” (Frey & Rahbari, 2016, p.1). Citing the work of economist David Autor, professor of economics at the Massachusetts Institute of Technology, they comment,

...in the early 1980s that computers had displaced workers in a wide range of routine work, including many clerking and manufacturing jobs - work that is typically concentrated at the middle of the income distribution (Frey & Rahbari, 2016, p.2).

Pointing towards the expanding scope of job automation, and the potential this might have on displacing workers over time, Frey & Rahbari argue that according to World Bank data the benefits and challenges of digital technologies and automation is not limited to the industrial world alone. They maintain that there is good reason to believe developing economies may face far greater challenges than more advanced industrial economies. As routine employment declines it is being replaced by non-routine jobs involving cognitive skills such as problem solving and analysis, developed with higher levels of education. According to Frey & Rahbari, this “hollowing out” (2016, p.2) of routine employment “was more noticeable across a large number of developing countries, including Macedonia, Turkey, Mexico, and Malaysia” (p.2), the noticeable exception to this trend being China. Here they contend that China might be one of the last countries to benefit from the offshoring of labour-intensive manufacturing in advanced economies as technology continues to develop.

Technological breakthroughs of the 20th century - such as the container ship and the computer - significantly contributed to the rise of global supply chains, enabling companies to locate

production where labour is cheap. Yet, recent developments in robotics and additive manufacturing, or “3D printing,” have made it increasingly economical for companies in advanced countries to “reshore” production to mostly automated factories (p.2).

Harvard economist Dani Rodrik (2015) documenting the shifting trends of global deindustrialisation in his paper *Premature Deindustrialization*, argues that as global and labour-saving technology advance “The decline in the relative price of manufacturing in the advanced countries puts a squeeze on manufacturing everywhere, including the countries that may not have experienced much technological progress” (Rodrik, 2015, p.5). This technological squeeze within manufacturing has given rise to a potential shift in global production. The low- cost economies that rely heavily on cheap low skilled labour have started to lose their competitive advantage as industrialised nations look to employ advanced automated technologies within their data driven factories. This has resulted in factories powered by labour-saving machines with AI capabilities linked to the “Internet of Things” (IoT)<sup>1</sup>.

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<sup>1</sup> See Oracle.com. (n.d). *What is IoT?* <https://www.oracle.com/internet-of-things/what-is-iot/>

## 2.3 Automation and the loss of routine jobs

In 2016, Marina Bisello and Enrique Fernández-Macías wrote about the potential loss of routine jobs due to automation. In their paper, *Fewer routine jobs but more routine work*, they use data retrieved from numerous international labour and technological surveys to examine future European employment trends. In citing the work of Enrique Fernández-Macías (2015) and Autor et al. (2013) on the subject of labour skills and job polarisation it can be seen that Bisello and Fernández-Macías conclude that

... there are both routinisation and de-routinisation tendencies in European labour markets. While routine jobs are shrinking in relative terms, work is generally becoming more routine over time. In fact, the increase in the reported levels of routine at work seem to be concentrated in occupations that have not traditionally been associated with such a kind of work. In our recent report: *What do Europeans do at work? A task-based analysis: European Jobs Monitor*, 2016 (p. 68-70) we found that managers, professionals and clerical occupations are among the occupational groups that report the largest increases in the levels of routine (Bisello & Fernández-Macías, 2016. para.7).

What Bisello & Fernández-Macías' findings highlight, is the rise of job polarisation within labour markets, and the exploitation of the "knowledge worker" (Fuchs, 2014, p.230). Low skilled routine jobs disappear from the factory, and the knowledge worker, through the computerisation of the workplace, is expected to take on

additional routine and non-routine activities as companies progressively look to reallocate and converge jobs in pursuit of surplus.

## **2.4 Job polarisation**

Job polarisation is an economic term that refers to a disproportionate shift in employment of labour. Within the economy there is a greater demand for high-skilled (high-wage) workers and low-skilled (low-wage) workers at the expense and decline of routine middle-class (middle-wage) jobs requiring moderate levels of skill (Autor, 2010, p.2). Within factories computerised machines changed the relationship between labour and production. These data driven factories with their labour-saving technologies are witnessed in my Nestlé case study as an alienation of the labour force.



## Chapter 3: Nestlé Rowntree Case Study

### 3.1 From Darius to Nestlé

My route into photography was a traditional one. I spent three years studying photography and film at Plymouth College of Art. This was followed by a further two years of photographic education working in London as a freelance photographic assistant. In 1986 I was employed fulltime by Darius photography, an established Croydon based photographic company. Whilst working at Darius, I was employed to photograph a wide range of consumable commodities for advertising purposes. These were Fast Moving Consumer Goods (FMCG): household brands such as Crosse & Blackwell, Findus foods and Nescafé, producing branded goods such as *Branston Pickle*, *Gales Honey*, *Sun Pat Peanut Butter* and *Gold Blend Coffee*. During my time at Darius, it became apparent to me that Nestlé was constantly growing its traditional businesses through a series of high-profile acquisitions and company mergers, and a continuous flow of newly acquired consumable product ranges arrived daily at my studio door. Products that included British confectionary iconic brands such as *Kit Kat*, *After Eight*, *Quality Street* and *Smarties* as a direct result of Nestlé's acquisition of the York based British confectionary company Rowntree in 1988. This was a strategic acquisition that enabled Nestlé UK to diversify and expand its growing confectionary business interests into new markets, both nationally and worldwide. Here it would be fair to point out that my knowledge of Rowntree and the events that led up to its acquisition by Nestlé in 1988, was limited. This all changed in 1995, when I was offered the position of photographer within Nestlé UK's design studios *Group Creative Services*, based at the old Rowntree factory site in York, North Yorkshire. Making this move in January 1996 from Darius,

a small family run photographic company, to Nestlé, the world's largest multinational food and beverage company, involved a major change of personal circumstances.

### **3.2 Working for Nestlé**

At that time, Nestlé was a global conglomerate employing 323,000 people worldwide, producing more than 2,000 product ranges, spread over six continents. After an initial settling in period, I soon became accustomed to the daily routine of photographing an array of seemingly random and unconnected branded product ranges from across all facets of Nestlé's operational divisions; a collective assortment of consumable goods that varied in type from breakfast cereals to pet food sachets, coffee jars to chilled dessert pots, bottled water to confectionary bars. Outside of the Nestlé studio, I travelled the UK with occasional trips to Nestlé's global headquarters in Vevey, Switzerland to photograph administrative and factory personnel, senior management teams and company directors for a range of corporate publications and shareholder reports.

As a newly initiated Nestlé employee, one such assignment was to photograph Nestlé's Black Magic production line at the Rowntree confectionery site in York. On arrival inside the plant I was met by a long singular table with two rows of women sat opposite each other, placing individual flavoured chocolates (two at a time) into a black moulded confectionery tray. Behind these seated women stood more female workers holding large confectionery trays; their job was to keep the seated person constantly supplied with chocolate, as they continued to fill the confectionery shaped trays that passed in front of them on a slow-moving conveyor belt. The women swapped places at the break to relieve boredom and undertake new tasks. At the far end of the assembly belt one woman sat alone, her sole task being to weigh the

Black Magic boxes as they passed, adding a pre-weighed singular rectangular chocolate block to the trays, depending on the weight displayed. This ensured that the customer always got the correct amount of chocolate promised in every box purchased. During the photographic shoot I was struck by the repetitive nature of the jobs that these workers were being asked to perform, and by the strong community spirit and social bonding that existed between them as they carried out these unchanging, monotonous tasks.

The following anonymous quotes, taken from The Rowntree Society archives, gives a real sense of what it was like to work on Black Magic at the time.

I originally started working as a “Sweet Server” for Black Magic packing. Although it was back breaking work at times I started to realise that – hey I like doing this. But although this was repetitive work – as I thought it would be – there was never a dull moment as all us “ladies” would chatter away to each other and time would seem to fly by. I also learned to be a “Sweet Setter” which was sitting at the conveyer packing the chocolates into the plastic moulds. There were 12 sweet setters in all and four sweet servers. Each sweet server was assigned to three setters and we had to keep those chocolates coming to make sure the setters didn’t run out while setting (Anonymous, 2020, para.3)

I would calculate that it took about five to six seconds for the setter to reach and pick up two chocolates (of the same kind) in each hand and deftly set them in the appropriate spot in the moulds (Anonymous, 2020, para.3)

Some evenings one or two of us would switch jobs after our half time break to break the monotony of doing just one job for the entire shift. I must admit I liked sweet setting better than serving as I got to sit down on the job which after being on my feet most of the day was much appreciated. As a team we were all on “piece work” so the faster the conveyer belt was going the more money we made (Anonymous, 2020, para.4)

Previously unseen historical film footage showing the conditions of labour as described by these women at the Rowntree Black Magic plant, entitled *Black Magic production line 1987*, can now be viewed online in video format on YouTube (Nestlé UKI archive video, 2014, 16:35).

This very human encounter with this ‘routine’, that is to say employed labour undertaking repetitive and intensive tasks, was in sharp contrast with a commission to photograph Nestlé’s 1992 automated Polo (mint with the hole) factory. This factory was situated only a few hundred metres from the Black Magic production line. In appearance, the physical dimensions and burnished looking exterior of the newly constructed Polo plant had more in common with a large out of town retail superstore than Rowntree’s traditional multi-story Victorian buildings. On entering the building my initial experience was the unavoidable shock of the powerful aromas of glucose

syrup and mint oils that attacked my senses. However, I then became aware that this factory was eerily devoid of humanity. Built at a cost of 15 million pounds and standing silent except for the hum of machines, the purpose-built plant was in stark contrast to the labour-intensive assembly methods employed in the making of Black Magic. On reflection, at that precise moment I was experiencing the future of the automated factory and its impact on routine labour; technology driven production lines, operated from a distance by computerised control panels situated in offices far away from the drone of machines on the factory floor. These production lines were watched over by a handful of highly skilled engineers, standing ready to deploy at any moment should the automated system fail. The only remaining routine, repetitive jobs were those limited to the nourishing of the machines. In the warehouse, men fed large sacks of sugary ingredients into vast industrial hoppers. These hoppers are large storage containers that collect, hold, agitate and dispense granular materials during the production process. On the production line, floor-walkers invisible to the human eye roamed the factory on the lookout for potential blockages in production, stopping occasionally to replace packing material (Polo branded wrappers) into the all-consuming machines (Nestlé media, 2018).

On reflection, these two conflicting experiences between labour and automation has always stayed with me. The warmth of community as experienced through the collective humanity of the Black Magic production line was in stark contrast to the absence of labour and community found within the automated machinery of the Polo plant. Marx would have referred to the latter as “alienation of labour”: the removal of humanity from the production and activity of labour (Marx cited by Harvey, 2019, 13:55).

During my tenure as a Nestlé photographer, my photographic lens was not purely directed towards confectionery factories. As has already been stated, in my position as senior photographer within Nestlé's in-house design agency *Group Creative*, my job was to photograph Nestlé products across all their operational divisions. This included photographing the factories in which these products were made. Factories that varied in type from coffee to confectionery, ice-cream to bottled water, milk crumb to cocoa-processing plants. The significance of this lived factory experience was that it gave witness to the changing relations between labour and production. Nestlé continued to invest heavily in plant automation and labour-saving digital technologies, modernising its production facilities through a systematic process of company acquisitions, mergers and factory disposals. Initially, I was unaware of the impact this would have on me and unable to make the correlation between what I was witnessing through the scrutiny of the camera lens, and the future potential impact these changes would have on my own labour as a Nestlé employee.

### **3.3 Acquisitions, mergers and disposals**

On joining Nestlé, I was surprised to discover the extent to which conglomerates rely on corporate acquisitions, mergers and disposals, using them to help grow economies of scale and diversify into non-traditional, expanding global markets to increase their market share. At first, I was only aware of this anecdotally, however, I later felt prompted to carry out my own investigative research into the historical background of Rowntree's Confectionery in York and its subsequent acquisition by Nestlé in 1988.

Originally founded in 1862 in Castlegate, York, by Henry Isaac Rowntree and formally established in 1869 when his brother Joseph Rowntree joined the family

firm, the company was responsible for the development and production of a wide range of confectionery products. In 1969, they merged with fellow Yorkshire based confectionery company Mackintosh, to become Rowntree Mackintosh, adding *Rolo*, *Munchies*, *Caramac* and *Quality Street* to Rowntree's confectionery portfolio. The company went public in 1987 and was the subject of a two-month protracted takeover battle between Nestlé and Jacobs Suchard in 1988, with Nestlé eventually taking ownership of Rowntree's on 25<sup>th</sup> June 1988.

### **3.4 Outsourcing and public response to foreign ownership**

Nestlé's resulting acquisition of Rowntree's caused fierce public debate regarding foreign ownership of British companies. Critics at the time argued that foreign ownership of Rowntree would lead to mass factory closures and redundancies in Britain (Hydd et al. 1991). Production of Rowntree's famous confectionery brands being relocated to more modern and lower cost production facilities abroad by their new overseas owners, would inevitably result in British job losses as Nestlé attempted to maximize profits (AP, 1988). Rowntree's themselves joined in the public debate, attacking Nestlé's record as an employer in Britain, where the number of jobs for the company fell from 13,000 to 9,500 over a period of six years, concerns that saw 2,500 Mackintosh workers in Halifax, South Yorkshire express fears for their jobs (Toffeetown, 2013). In York, 13,000 local residents protested the proposed Nestlé takeover by signing the Yorkshire Evening Press 'Hands Off Rowntree' campaign (Aitchison & Laycock, 2013). The resulting decision by Lord Young, the then secretary for trade and industry not to refer the Nestlé - Rowntree merger to the Monopolies and Mergers Commission, paved the way for Nestlé to acquire Rowntree's in a bid worth £2.55 billion – with Nestlé shares trading on the London

Stock Exchange at £10.75 (Timberlake, 1988). This provided Rowntree's shareholders with a substantial financial return on their capital investment.

Specific concerns levelled against Nestlé included the following:

- Employment at the Rowntree's site would be slashed, and worker's benefits reduced, as Nestlé looked to reduce costs.
- Manufacture would be moved away from York as Nestlé sought to outsource production and invest in more modern and lower cost facilities abroad, in a drive to increase profitability for its multi-national shareholders.
- Corporate and management functions would move from York to Vevey in Switzerland, with strategic capital investment decisions made by Nestlé being of detriment to York employees and national interests.

In addressing these issues Peter Wilsher's article '*Nestlé Rowntree a bittersweet tale*' first published in *Management Today*, in March 1993 and updated in July 2016, considered the extent to which public concerns regarding Nestlé's foreign ownership of Rowntree's were justified.

### **3.5 Employment, reduced benefits, and concerns over mass factory closures**

In his report, Wilsher acknowledges that whilst Rowntree's employees had indeed benefited from Nestlé's generous company pension provision, and the continuation of Rowntree's comprehensive staff benefit scheme, real public concern over job losses were justified as Nestlé took a sharp knife to its labour costs. With an initial 160 jobs lost at the Rowntree York site, Nestlé started their programme of productivity and efficiency saving at the site, closing down the old card box packaging plant with production transferred away from York to the Lawson Marden group in Canada.



General Municipal and Boilermakers APEX wing representative Neil Moore, who represented Nestlé's office and administrative workers, also voiced his concerns on changes made to working practices as Nestlé looked to contract out all non-core chocolate production activities from the York site, reducing union membership from 1,400 employees in 1988 to 1,000 in 1993. In the six years following the takeover the Nestlé Rowntree workforce was slashed by 2,000 jobs (Wilsher, 2003). Wilsher's report also highlighted growing union concerns over Nestlé's corporate governance and strategic reforms policies at the Nestlé-Rowntree site. Whilst jobs at the York site had remained relatively stable, that could not be said for Nestlé's confectionery plants outside of York as Nestlé continued to implement greater business efficiency, slashing production costs and maximizing its profits at the expense of British jobs.

### **3.6 Competitive advantage and economic growth**

There was a corporate drive to create competitive advantage and economic growth through company mergers, acquisitions and programmes of strategic capital investment, where-by all capital assets such as production facilities and administrative posts alike are continually under financial review, threat of closure and loss of jobs. The lucky ones received valuable capital investment on infrastructure and production facilities, with the provision of cutting-edge technology and intellectual property rights to enable them to stay competitive in the global market. The unfortunate ones were left to stagnate and slowly decline in ageing production facilities, operating outdated machinery that would be replaced in time by more modern and cost-effective facilities both home and abroad. The strategic decision making that informs corporate investment and capital growth is a key aspect that relates to this thesis since investment decisions impact directly on the cost effectiveness of production and ultimately the status of the workforce.

### 3.7 Evidence of corporate governance through the historical production of Nestlé Blue Riband

Production of *Blue Riband* began in Glasgow in 1936 by Scottish biscuit manufacturer Gray Dunn, a subsidiary business of Rowntree's. In 1993, only a few short years after Nestlé's takeover of Rowntree's, production of the famous chocolate wafer biscuit ended abruptly as Nestlé came to the decision to relocate production of *Blue Riband* and *Breakaway* bars away from Gray Dunn's ageing Scottish factory to its more up to date production facilities in Newcastle. This was a move that cost 550 confectionery jobs to go in Northern England as Nestlé looked to replace lost capacity at the Newcastle factory following their decision to transfer production of *Lion Bar* from Newcastle to a its new production line in Dijon, France (Herald, 1993). A Nestlé spokeswoman, reporting in the Independent newspaper on 5<sup>th</sup> February 1993, was quoted as saying that as *Lion* sold well in France it was logical to make it there. Furthermore, she stated that the production costs at Gray Dunn in Glasgow, which dated from before 1923, were higher than in Newcastle and Dijon (Dobie, 1993). More recently, journalist Angela Monaghan, writing in the Guardian newspaper in April 2017, revealed Nestlé's intention to move *Blue Riband* production yet again, this time away from the Newcastle factory to more modern facilities in Poland at the loss of up to 300 UK jobs. The company said,

These proposals are being made by Nestlé UK to ensure that these sites operate more efficiently and remain competitive in a rapidly changing external environment. Our factory in Kargowa, Poland is a centre of excellence for this type of wafer-based product and is the logical place for us to propose *Blue Riband*

production takes place [there] in the future (Monaghan, 2017, para. 7).

This was a move that ended 81 years of *Blue Riband* production in Britain.

### 3.8 Capital investment

On the subject of capital investment, Wilsher informs us that capital spending under Nestlé at the York site had in fact increased from £9 million in 1987 to £19 million by 1989. He reported that Nestlé had identified and earmarked capital investment for a new £20 million *KitKat* 5 production facility, a £7 million *Aero* line, and a £15 million *Polo* plant on the York site. This was good news indeed for Nestlé workers employed within these proposed new production facilities. However, this initial investment by Nestlé into the York plant has to be viewed in its global context. Questions needed to be asked as to why *KitKat*, *Aero* and *Polo* were singled out and identified for investment, as opposed to other famous and iconic Rowntree brands produced at the York site such as *Smarties*, *Black Magic* and *Dairy Box*. The answer came in September 2006, when Nestlé announced a major restructuring of the York factory.

The statement outlined Nestlé's intention to shut down its outdated Victorian buildings at the York plant as part of a strategic restructuring programme designed to increase the group's European confectionery business. In order to safeguard the future of Nestlé-Rowntree, 645 Nestlé employees, a quarter of the York workforce, were to be made redundant. This strategic decision saw many famous British chocolate brands transferred away from the York site, ending 70 years of *Smarties* production in the UK. *Smarties* production was relocated to Hamburg in Germany, *Kit Kat Big Break* was transferred to Sofia, Bulgaria, *Black Magic* to Zora in the

Czech Republic, *Dairy Box* to La Penilla, Spain, and *White Crunch* to San Sisto, Italy.

Commenting on Nestlé's lack of investment at the York site the GMB union said it was "a bleak day for York" and that it would fight the job losses (GMB cited in Kundnani & Wainwright, 2006, para.7). John Kirk, organiser for members in York said, "Nestlé failed to invest adequately in the plant and building in York. To use this neglect as the reason to move heritage brands to plants overseas, where [it] did invest, is not acceptable" (Kundnani & Wainwright, 2006, para.7). However, a spokesman responding to the union criticism regarding Nestlé's capital investment in the York plant said, "Nestlé has invested £150 million in the York factory since it acquired Rowntree" (Kundnani & Wainwright, 2006, para.10). Hugh Bayley, Labour MP for City of York, in accepting that Nestlé's decision to move production away from the York site was necessary, stated, "Manufacturing has to change to survive, if it doesn't change, more jobs would be lost" (Kundnani & Wainwright, 2006, para.11).

### **3.9 Nestlé in the e-world**

One of the major factors in joining Nestlé was their on-going investment in new technologies, and in my particular case digital imaging technologies. Anecdotally, I was informed by my Nestlé colleagues that Nestlé was one of the first companies in the UK to invest in high-end digital cameras, photographic cameras specifically designed to be tethered (digitally connected) via an external cable to a computer. This enabled the Nestlé products to be photographically captured and displayed instantly onto calibrated studio monitors, before being digitally transferred in real-time to Nestlé marketing and design services for instant approval and distribution to Nestlé partners and stakeholders worldwide. This created a modern fast moving hi-tech and hi-volume digital production environment that was far removed from my

days at Darius photography. There I had worked with analogue cameras and traditional film-based photographic processes, developing my own film using C41 and E6 chemistry, often personally delivering my own photographic images to clients by recorded delivery or by hand. Of course, unsurprisingly, Nestlé's investment in digital technology did not stop at digital cameras. In fact, Nestlé had been actively investing in digital technologies well before digital cameras had been invented.

As with many other global businesses in the 1980s, Nestlé had started to explore and invest in what we today call 'The Digital Revolution', also referred to as the 'Third Industrial Revolution'. They invested considerable time and capital into advanced digital technologies, which when harnessed would go on to radically transform how today's businesses operate.<sup>2</sup>

In Nestlé's case, its own *Digital Revolution* came in the form of GLOBE, Nestlé's Global Business Excellence Programme 2000 - 2005.<sup>3</sup> Essentially GLOBE allowed Nestlé to standardise and connect its regional and geographically based management centres (communication, procurement, production and distribution) into one single centralised

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<sup>2</sup> The Digital Revolution, also known as the Third Industrial Revolution, began during the late 1900s. and is characterised by innovations in digital technology, telecommunications, and automation in the workplace. This Third stage of Industrial Revolution could be compared with the mechanical advancements [inventions] of the first Industrial Revolution, such as James Hargraves *Spinning Jenny* in 1764, and Edmund Cartwright's *Power Loom* in 1785, which transformed Britain's Industry during the 1800's.

<sup>3</sup> The following statement is taken from Nestlé's Management Report 2000, entitled *Nestlé in the e-world*. The Global Business Excellence Programme (GLOBE) is the most important project underway to prepare Nestlé for the e-world; it seeks to improve the performance and operational efficiency of our businesses around the world. This project will revisit all aspects of our business practices with the goal not only to harmonise and standardise them but also to shape new ways to manage Nestlé in order to be more focused on customers, channels and consumers. GLOBE will create a common business process architecture and standardise internal and external master data as well as the information systems infrastructure in order to leverage the size of Nestlé, unite and align Nestlé internally to be more competitive externally and unlock the benefits of harnessing the power of the e-world through increased speed and flexibility. This project will be completed by the end of 2005 and will cost around CHF 3 billion, with benefits realised from 2003 (FAME, 2000)

business unit, generating universal compatibility and data transparency between Nestlé's business divisions and workforce worldwide.

In Europe, GLOBE data between confectionery factories pitted one Nestlé factory against another as Nestlé looked to make efficiency savings and drastically reduce its fixed operating costs in Europe.

Union reaction to GLOBE was mixed, with concerns over:

- Centralisation - use of data collected and new working practices
- Internal Market - factories forced to compete against each other
- Internal Competition - relocation threat to production and jobs
- Outsourcing - employment, security and pressures placed on its members

(Greenfield, 2006)

GLOBE's implementation effectively allowed Nestlé to manage both its internal and external global markets, providing a strategic business platform for worldwide economic reforms, reforms that saw Nestlé embark on a series of high-profile European acquisitions, mergers and disposals. This activity saw British factories closing down, famous household British brands being relocated at home and abroad, and loss of British jobs.

In 2001, Nestlé closed down its UK ice cream manufacturing division, preferring to outsource production of its ice-cream portfolio of brands under license to Richmond Frozen Confectionery Ltd. A divestment decision that also saw Nestlé dispose of its grocery division, an ambient food business, to Premier Foods in 2002. In the same year, Nestlé acquired Eden Vale, the chilled dairy product division of Northern Foods. This was a business acquisition that saw Nestlé look to focus its commercial strategy for chilled dairy, confectionery, beverages, milks and nutritional products in the UK. Commenting on Richmond's acquisition of Nestlé Ice Cream production

rights, regional newspaper The Northern Echo reported, “Bosses at Richmond have warned that the takeover could result in ‘substantial redundancies’ among the 230 Nestlé staff in York and Telford [and confirmed that] the move would give Richmond Foods, at Leeming Bar near Northallerton, North Yorkshire, the right to manufacture, import, distribute and sell Nestlé’s ice-cream range in the UK” (The Northern Echo, 2001, paras.3-4).

Under the terms of the licensing agreement Nestlé UK retained control of all ice cream promotional advertising and corporate media content, including photography that was managed through Nestlé’s Ice Cream marketing department in York. Alongside its Nestlé Product Technology Centre comprising teams of: technologists, scientists, engineers, food chemists, confectioners, nutritionists and packaging specialists, they continued to work on confectionery, chocolate products, coatings and chocolate ingredients for ice cream products.

In 2006, Richmond Ice Cream merged with German Ice Cream maker Roncadin (founded in Germany in 1932). Rebranded as Richmond & Roncadin (R&R) Ice Cream, this company was subsequently bought by private equity group PAI partners in 2013 (BBC News, 2013). In an ironic twist of fate, PAI partners merged with Nestlé’s European ice cream business in 2016 to create *Froneri*, a UK based global ice cream and frozen food venture (Pendrous, 2016).

Little did I know at that time that within eight years of joining I would find myself being sold off and outsourced by Nestlé UK to the American design agency Anthem Worldwide, as Nestlé started to implement its long-term, centralised strategic business programme in the UK.

### **3.10 Corporate governance, business model and record of company**

#### **acquisitions, mergers and disposals.**

If I had been looking for job security and a long-term career with Nestlé, then perhaps I should have paid more attention to their corporate governance business model and record of company acquisitions, mergers and disposals. As it turned out, like so many other conglomerates, Nestlé's economic business model was based solely on global spreadsheets and data analysis rather than on any concerns relating to social responsibility for its employees or society at large. The disposal and outsourcing of non-core administrative duties and non-critical production activities was part of a drive for efficiency and cost savings worldwide. Fifty other Nestlé in-house design employees were sold off by Nestlé UK, as they started to implement their long-term strategic reform programme. It also became very apparent that as well as acquiring new companies Nestlé was active in the selling off and disposing of poorly performing or non-strategic company assets, as it sought to make efficiency savings and grow its business interests nationally and globally.

### **3.11 Off the Payroll, the Nestlé- Anthem TUPE Agreement**

Anthem, a subsidiary of Schawk Inc., one of North America's leading providers of digital prepress and graphic services, operated out of 18 countries worldwide, including offices in the US, Canada, Singapore, Japan, Australia and China. David Hudson, Nestlé's UK corporate affairs and communications director, described the Anthem deal as a great opportunity for the company's designers to work on other brands outside of the Nestlé portfolio, allowing Nestlé to concentrate on the manufacturing, marketing and selling of its products, which Hudson described as the company's core activity. In January 2006, under the terms of a TUPE agreement, the *Group Creative* and fifty members of staff were to be transferred, seemingly



overnight, from Nestlé employment to Anthem Worldwide, along with an initial five-year contract guaranteeing them Nestlé design work. TUPE would not safeguard employees existing contracts indefinitely; Anthem aggressively sought to change former Nestlé employee contracts to their own less favourable ones, with the company's reduced working terms and conditions once the signed TUPE agreement had expired. In reality, on becoming an Anthem employee nothing much actually changed from my point of view, or for the fifty-strong *Group Creative* team. We left our Nestlé offices and design studios for the Christmas holidays to return two weeks later to the same offices and design studios but now employed by Anthem UK; we were still working on the same Nestlé creative accounts and design projects we had worked on as Nestlé employees. The only visible difference that informed us that we were no longer employees of Nestlé was the Anthem corporate branding material that decorated the reception walls. Initial claims by both Nestlé and Anthem that there would be no redundancies as a direct result of Anthem ownership of *Group Creative* was unfounded, as Anthem looked to implement its own internal management and production systems. In this way they adopted the same core competency theory (Prahalad & Hamel, 1990) that Nestlé had employed in selling off *Group Creative*. This provides evidence of my experience of being outsourced as a non-core activity but still being employed. The research outputs are a physical manifestation of the processes of production. They offer a lived insight into the conditions of employment and the labour relations behind the physical creation of the work.

### **3.12 Working as an Anthem employee**

Following Group Creative's transfer from Nestlé to Anthem UK, Anthem's parent company SGK (formerly Schawk Inc.) won a prestigious design, photography and prepress contract for Tesco's 2007 summer seasonal furniture. Under the terms of the Tesco contract, Anthem UK were required to photograph a range of Chinese sourced, outdoor furniture products for Tesco's online and printed catalogue media platforms in the UK. Items to be photographed included everything from traditional garden furniture, family BBQ's to outdoor camping equipment and sleeping bags. All the products were to be photographed in Anthem's Shenzhen photographic facility in China, as both single product images and animated pictures showing the product in use within a lifestyle environment. The Chinese photographic files produced were then sent, via internal server, to Anthem UK's photographic and design studios in York, to be embedded into stylised lifestyle images, represented within traditional English garden settings, as outlined in Tesco's guideline statement as follows:

Traditional Garden is stylistically positioned to emulate the classic gardens of yesteryear. The style is reminiscent of traditional Victorian elegance, the resulting mood is the familiar feeling of the iconic English Country Garden, the home of cream teas & scones, cucumber sandwiches, croquet and long summer evenings with an ice-cold glass of home-made lemonade. You can imagine the poet Dylan Thomas or author Francis Hodgson Burnett sitting in a garden like this back in 1909 whilst penning his classic novel 'The Secret Garden'. The Furniture in this garden would sit perfectly alongside beautiful flowerbeds of

Daffodils, Foxgloves, Roses and Lupine, Bees humming and buzzing from flower to flower. The ornamental metal works and craftsman attention to detail is a fashion that is intrinsically linked to the era of reference, a throwback to the artistry of the cottage industry. A garden like this is a world of its own; unwind in your very own “Secret Garden”. Far removed from the fast-paced and bustle of this digital age (Tesco, photography guideline statement, version 1, 10.1., July 2007).

As an Anthem employee working on the Tesco account, my initial reading of Tesco’s 2007 photographic statement was a factual one, based on client objectives, key words and informed metaphoric phrases contained within the client brief. On revisiting this document for research purposes, it became abundantly clear how incongruous this statement had become. It was full of contradictions between Tesco’s portrayal of archetypical English country gardens and their corporate principles of capital and surplus. A dichotomy of visual tropes figuratively expressed as a promotional pitch to lure in the unknowing consumer. A statement of intent distantly removed from Tesco’s own fast-moving automated world of high-volume, low-cost product assembly lines. Here the reality of products and conditions of their manufacture is a far cry from the classical English values of the traditional cottage industry and hand-made crafted garden furniture that they visually reference within their seductive and poetic use of scripted language. In the case of Tesco’s own ‘crafted’ seasonal garden furniture and associated photographic images made to represent them, this quintessential Englishness owed more to the low-cost and high-volume production lines of Chinese manufacturing companies. Evidenced here, within Anthem’s ‘global one-stop’ solution to Tesco’s seasonal furniture photographic

requirements. A composite method of image assembly, that included in its production photographs component parts made in China.

### **3.13 Anthem's 'global one-stop' solution to Tesco's high-volume image production requirements**

Operating out of its York, London, Shenzhen and Singapore Anthem offices, SGK (Anthem's parent company) presented Tesco with a unique global 'one-stop' solution to its Chinese manufacturing and supply networks within Asia and Europe. It provided Tesco with a fully integrated global design, photographic and pre-press service administrated through SGK's own centralised business-to-business, global supply chain asset management system - Blue. This was real-time design photography and on-pack visual merchandising material. Under the terms of the Tesco agreement, initial product photography was to be generated within Anthem's high-volume photographic output facility in Shenzhen, located within the manufacturing Province of Guangdong, China. This allowed Tesco's Chinese manufactured goods to be photographed locally, thus eliminating the need and expenditure to ship products to other regions for photography. In 1980 Shenzhen had famously become China's first 'Special Economic Zone', following Deng Xiaoping's 1979 Reform and Openness Policies. Foreign firms were offered preferential, capitalist style tax exemptions to invest and relocate their manufacturing operations to China. This transformed Shenzhen from a small Chinese provincial village, into the busiest container port in China and one of the fastest-growing cities in the world.

Anthem's decision to digitally construct Tesco's garden lifestyle images, using digital composite imaging technologies, allowed for Chinese generated product photography to be exported back to Anthem's Nestlé UK, York based design studios. Here it would be digitally embedded into traditional stylistic English garden landscapes by UK based photographers and designers in a continuous loop of photography and assemblage that equated to a prolonged 17 hour working day as national time differences were taken into consideration, see Figures 2 and 3.

**Figure 2**



**Figure 3**



During the implementation of Anthem's global 'one-stop' image production workflow, it quickly became apparent to Tesco brand managers that the product lifestyle images that included people, were produced in China using Western talent sourced locally from Hong Kong and the expatriate community in Shenzhen. This did not fully capture and reflect the classic elegance and mood required to communicate

and convey the quintessential English garden experience to its UK customers. This necessitated an alteration to Anthem's original image production workflow - with Anthem's Shenzhen studio having to ship selected Tesco products to its UK photographic studios, to be re-photographed with British-sourced models before they could be digitally composited into English gardens, see Figure 4.

Listed here for clarity is the amended Tesco's 'one-stop' assemblage and image production workflow:-

1. Tesco products photographed in Shenzhen by Anthem China to pre-agreed angle and perspective.
2. Products cut out in Shenzhen with product clipping path and drop shadow layer added to image files produced.
3. Tesco product files transferred digitally by internal server to Anthem UK.
4. Lifestyle locations (traditional English gardens) sourced and photographed by Anthem UK.
5. All lifestyle talent/models and accessories/props photographed at Anthem UK's photographic studios, York.
6. All post-production, digital montaging (composite) and image retouching carried out by Anthem UK, York.
7. Digital prepress and graphic services carried out in the UK by SGK's Manchester, Leeds and Newcastle offices.

Using Anthem's 'global one-stop' photographic solution as a practical, lived example of how digitally composited commercial images are produced, the reality of the capitalist manufacturing processes of global commodities start to be seen as embedded within their means of production. These included the following:

- Centralised business model and integration of global data management systems (Blue).
- Standardisation of core competencies, supply networks (outsourcing) and production processes.
- Internal markets - factories/design studio forced to compete against each other creating a de-stabilised workforce, preoccupied with production levels, cost efficiencies and loss of jobs.
- Use of technological advancements to drive efficiency costs and improve levels of production.
- The prioritising of marketing activities over manufacturing. In this case Tesco are not the producer of the goods photographed – preferring to market and advertise goods for sale rather than actually manufacture the commodities themselves.

Here, Anthem looked to create a ‘core nucleus’ of in-house designers, referred to as brand guardians. These designers could oversee and champion their client’s precious brands, preferring to contract out where possible, design and photographic work to agency workers and third-party companies rather than continuing to employ creatives on fulltime contracts. This was evidenced in the shutting down of *Group Creatives* ‘spatial’ department in 2007, and closure of their photographic studio in 2008 in favour of outsourcing photographic work through their new London offices and photographic studios abroad. This was a decision that led to me being made redundant by Anthem in March 2008, ending my twenty-two-year association with Nestlé both as an employee and third-party contractor.

### 3.14 Out of the shadows and out of the darkroom – reframing my practice

At the time of my redundancy in January 2008, the UK economy was heading full speed towards a global recession<sup>4</sup>. The impact of poor regulatory governance and irrational risk-taking (lending and borrowing) within America's subprime mortgage market <sup>5</sup> had spread worldwide, and during the second quarter of 2008 the UK economy, along with a multitude of developed countries, was officially going into meltdown. All countries were experiencing some form of economic instability and decline in their national Gross Domestic Product (GDP) followed by a sharp increase in domestic unemployment rates as global infrastructures and financial systems collapsed. This forced government agencies to step in to support and reassure fragile world markets, bailing out ailing financial institutions deemed too big to collapse<sup>6</sup>. Against this global backdrop of great national economic uncertainty, and fueled by the unjust treatment I perceived I had experienced at the capitalist hands of Nestlé and Anthem, I started to become politically and socially active. I listened intently to continuous T.V., radio and social media feeds delivering political and economic insights and social debate on how as a nation we had allowed ourselves to be caught-up in a global recession<sup>7</sup>.

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<sup>4</sup> See Elliott (2011) *Global financial crisis: five key stages 2007-2011*, for additional information on the global recession. <https://www.theguardian.com/business/2011/aug/07/global-financial-crisis-key-stages>

<sup>5</sup> See John V. Duca (2013) *Subprime Mortgage Crisis, Federal Reserve History*, for more information on America's subprime mortgage market. <https://www.federalreservehistory.org/essays/subprime-mortgage-crisis>

<sup>6</sup> See Julie Young (2020) *What is Too Big to Fail?* For more information on the bailout of banks and other financial institutions during the global financial crisis. <https://www.investopedia.com/terms/t/too-big-to-fail.asp>

<sup>7</sup> See Eric Helleiner (2011) *Understanding the 2007–2008 Global Financial Crisis: Lessons for Scholars of International Political Economy*, for a more in depth understanding of the global financial crisis. <https://www.annualreviews.org/doi/pdf/10.1146/annurev-polisci-050409-112539>



On joining the University of Huddersfield in 2010, I found opportunities to talk to colleagues regarding my commercial practice and related interest in globalism and capitalist modes of production. It then became apparent to me that there existed a comparison between the norms of commodity production and the advertising images created to represent them. The 2008 crash caused me to give very careful consideration to the corporate business model, economics, profit and shareholders, and the associated issues of exploited labour.

To address the logic and processes of capital ideology that led to my Anthem 2008 redundancy, here I turn to a Marxist analysis of capital in motion. I aligned my professional practice and commercial insights as a corporate photographer with Marx's theoretical productive forces of Base and Superstructure, a conceptual and historical framework that affords me a more balanced and objective approach to my investigations.

## Chapter 4 Marx

### 4.1 Marx Base and Superstructure: commodity production and the accumulation of profit

For Marx, the rise and fall of society and its organisational development through history, is the result of material conditions rather than philosophical ideals. He argues that society's historical 'mode of production' (social constructs such as, primitive communism, feudalism and capitalism) control the productive forces on which the base and superstructures of societies are determined. In the Preface to *A Contribution to the Critique of Political Economy* (1859) Marx wrote,

I examine the system of bourgeois economy in the following order; *Capital, landed property, waged labour, the State, foreign trade, world market ...* The totality of these relations of production constitutes the economic structure of society, the real foundation, on which arises a legal and political superstructure (Marx, 1993, para.1 - 5).

Central to Marx's philosophy is the question of how ownership of the means of production controls society, how it organises labour and how the benefits derived from active labour are distributed for the advancement of society. Writing for *Global Research* in 2017, McMurtry discusses the productive forces required by men to produce their means of subsistence beyond that of 'Nature's provisions' (para.3). Commenting on Marx's base and superstructure foundational principle of 'the productive base' McMurtry states,

Their “definite relations” [labour-power] are materially determined by the employer who must achieve the lowest costs with ‘no choice in the matter’. And behind this “wage slavery”, Marx emphasises in *Capital*, lies the further unacknowledged horrific historical fact of the “great expropriation of the people from the soil, from the means of subsistence, and from the means of labour – [by] violent and painful methods”. They must sell their labour into servitude, or they do not survive. This servitude, Marx documents, is enforced by mass hangings, mutilations, floggings, pillories, and deprivation of children. (para.5).

A social conflict paradigm exists that questions power and inequality in society. There is a conflict between those who own the means of production and those who do not - a struggle between corporate power and class labour. This is often played out behind the closed factory doors and security fences of today’s global ‘Superbrands’, economic compounds of unobserved mass production that look to fragment and exploit the world’s labour-power, whilst declaring the highest moral standards towards its employees. This is a social and ethical conflict that Klein addresses head on in her chapter *The Discarded Factory: Degraded Production in the Age of the Superbrand* (Klein, 2010, p.195-229). It is a ground-breaking chapter that reveals the genuine global nature of the commodity, exposing the true stories and lived-human conditions behind today’s Superbrands. Klein highlights the corporate dichotomy between lived conditions of labour present in the production of goods, and the promised lifestyles that the consumer identifies within the purchasing of goods.

Marx's emphasis on labour relations is a concept rooted in Marx & Engels theory of historical materialism. Engels, in *Socialism: Utopian and Scientific* first published in 1880 states,

The materialist conception of history starts from the proposition that the production of the means to support human life and, next to production, the exchange of things produced, is the basis of all social structure; that in every society that has appeared in history, the manner in which wealth is distributed and society divided into classes or orders is dependent on what is produced, how it is produced, and how the products are exchanged. From this point of view the final causes of all social changes and political revolutions are to be sought, not in men's brains, not in man's better insight into eternal truth and justice, but in changes in the mode of production and exchange. They are to be sought not in the philosophy, but in the economics of each particular epoch (Engels, 2008, para.1).

Integral to an understanding of Marx labour relations and power structures within the base superstructure model, is Marx value theory. This is a theory derived from Ricardo's original '*Labour Theory of Value*' (1817) based on price formation within capitalist markets. David Harvey, in explaining how Marx value theory differed from Ricardo's labour theory of value, confessed "The answer is (as usual) complicated" (Harvey, 2018, para.2). Essentially according to Harvey, Marx interest in value is expressed through the "examination of the surface appearance of use value and exchange value in the material act of commodity exchange [...] This value is initially taken to be a reflection of the social (abstract) labour congealed in commodities" (Harvey, 2018, para.3). Physical labour is contained in commodities and expressed

and normalised within capitalist markets in its monetary form as a material representation of value exchange. A social act of commodity production and exchange that gives rise to circulation and accumulation of money as capital, where goods of labour exchange hands, not at their value of production, but at inflated rates of value, so-called 'prices of production'. These inflated prices allow the capitalist to make surplus value and are seen as profit.

Our capitalist has two objectives: in the first place, he wants to produce a use value which has exchange value, i.e., an article destined to be sold, a commodity; and secondly, he wants to produce a commodity greater in value than the sum of the values of the commodities used to produce it, namely the means of production and the labour-power he purchased with his good money on the open market. His aim is to produce not only a use-value, but a commodity; not only use-value, but value; and not just value, but also surplus-value (Marx, 1990, p.293).

According to Marx, surplus value is driven by the coercive forces of free market competition, which saw employers maximise profits at the expense of their workers through the continual division of labour and lengthening of the working day.

Capital asks no questions about the length of the life of labour-power. What interests it is purely and simply the maximum of labour-power that can be set in motion in a working day. It attains this objective by shortening the life of labour-power, in the same way as a greedy farmer snatches more produce from the soil by robbing it of its fertility (Marx, 1990, p. 376).

These are organisational and technological innovations that according to Harvey, put the internal relations between the pursuit of relative surplus value and market values, at the centre of Marx value theory (Harvey, 2018, para. 8).

#### **4.2 Marx dialectical materialism**

The concept of dialectical materialism emerges from statements made by Marx in the second edition preface to *Capital, Volume 1*, where he introduces his intention to use Hegelian dialectics in revised form. Marx rejects Hegel's method of dialectical idealism as flawed. Hegel postulates that mankind lives in a material world of external appearances outwardly expressed, critiqued and understood through a series of informed psychological considerations; these are made in the receptive minds of the reader. For Marx, Hegel's dialectical method of enquiry, based solely on the external reading of the material world, seemed only to "transfigure and glorify the bourgeois doctrine of capitalism" (Marx, 1990, p.103). It did nothing to address the historical reality or the political and socio-economic phenomena behind the material world and the world of capitalist production. In reframing Hegel's philosophical approach Marx writes,

My dialectical method is, in its foundations not only different from the Hegelian, but exactly opposite to it. For Hegel, the process of thinking, which he even transforms into an independent subject, under the name of "the real", is the creator of the real world, and the world is only the external appearance of the idea. With me the reverse is true: the ideal is nothing but the material world reflected in the minds of man, and translated into forms of thought (Marx, 1990, p.102).

In his introduction to the Penguin Classics edition of Marx *Capital, Volume 1* reprinted in 1990, Ernest Mandel notes,

When the dialectical method is applied to the study of economic problems, economic phenomena are not viewed separately from each other, by bits and pieces, but in their inner connection as an integrated totality, structured around, and by, a basic predominant mode of production. This totality is analysed in all its aspects and manifestations, as determined by certain given laws of motion, which relate also to its origins and its inevitable disappearance (Mandel, 1990, p.18).

When referring to Marx's dialectical materialism in '*A Companion to Marx's Capital*' Harvey (2010) introduces the dialectical model as an inner relationship of transformative activities, not a causative static external relation. He suggests that Marx made use of these internal relationships within his dialectical schema, in order to connect scientific thought and capital economic processes to fully understand the operational structures and social contradictions of the capitalist mode of production within a bourgeois society; dialectic reasoning, is applied as a process of seeing everything in motion. For Marx, capital is not a thing, it is a process in perpetual motion. Value capital does not exist unless it is in motion, when value stops, capital falls apart, motion stops. When things stop, value disappears, and everything comes tumbling down.

### **4.3 Method of descent**

Harvey refers to Marx dialectical materialism as the 'method of descent' (Harvey, 2010, p. 8). In this model Harvey presents this as a metaphor. He puts forward the concept of digging down from the surface to the core to find out how an object grows and comes into being. He then suggests a peeling away to reveal layers that on returning to the surface facilitate a new understanding and enriched knowledge (Harvey, 2010). Harvey's understanding of Marx method in this quotation is analogous to my investigation of the layers beneath the smooth and glossy surface of the images I have chosen to analyse in my thesis. In order to investigate this further, I embarked on an auto-ethnographic approach to this research based on my own experience as a commercial photographer at Nestlé. In the account I have narrated how corporate companies build profits globally through mergers, acquisitions and disposals, making strategic business decisions in order to maximise profits for shareholders, negating consideration of the local impact.



## Chapter 5: The digital composite [Photomontage]

### 5.1 Photomontage

The term photomontage first emerged in the mid-1850s and was commonly referred to in Victorian times (1837 – 1901) as composite photography or combination printing. It involved assembling multiple images onto a single page and is a process of making that is credited to British, Swedish born photographer Oscar Rejlander (Getty Museum, 2020). Combination printing essentially involved the act of combining multiple photographic negatives (wet collodion glass plates) printed onto a single waxed coated sheet of paper. This was subsequently re-photographed as a whole, to create a unified seamless image. Rejlander is best known for his 1857 combination print *The Two Ways of Life*, consisting of thirty-two separate images, with each model and background section individually photographed and meticulously combined into photographic print. Pioneering photographers, who also worked within the field of composite photography, included the English photographer Henry Peach Robinson and Scottish born, Canadian photographer William Notman.<sup>8</sup> Henry Peach Robinson was best known for his 1858 sombre tableau *Fading Away*, a combination print that combined five separate negatives in the depicting of an intimate family narrative - that of a young woman dying of consumption. Essentially, these early photographic pioneers, who were portrait photographers by trade, explored composite printing as a means to overcome the camera and chemistry limitations of mid-19th century practice. They explored practical composite methods of photographic production as a means to circumnavigate and negate the long exposure times and slow emulsion speeds of the day.

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<sup>8</sup> William Notman, was a successful commercial photographer and businessman who employed a workforce of fifty-five photographers and assistants during the 1870s within fourteen studios throughout eastern Canada and the United States. He is best remembered for his composite group portrait of Canadian gentlemen's snowshoeing and curling clubs (Trigs, 2013, paras. 4-5).

Static methods of production often led to austere and ridged looking images with the portraits produced frequently containing displeasing and blurred expressions as people moved and blinked in front of the camera. Combination printing, enabled these early pioneers to physically deconstruct portraits into their component parts, permitting individual elements such as people, background scenery and staged objects, to be photographed separately within the consistency of the studio environment. Thus, the photographer could assert full control over subject pose, expression and light, allowing the composite photographer to create progressively more animated looking and technically robust large-scale portraiture groups. In more recent times the photographic composite, as a preferred method of artistic expression, can be found within the influential post war (1918-1939) photo-collages of the avant-garde Dada movement. Founded in 1916, by Zurich based night club owner, satirist and writer Hugo Ball, the Dada movement is best recognised for making political anti-capitalist artworks that confronted post war bourgeois society. In an essay entitled, *Photomontage and the Visual Language of Advertising*, published in *Advertising & Society Review* (2014), Paul Messaris, professor of communications at The University of Pennsylvania plots the beginnings of the photomontage. He proposes that initially it was an artistic vehicle for political dissent and social unrest. Subsequently, as the photomontage became commercialised by the bourgeois and adapted to the needs of commercial advertising within the graphic arts, it was utilised as a key marketing tool by the advertising industry. In acknowledging the significance of post war Dada inspired compositions of the 1920s and 30s, Messaris points us towards an ironic twist of fate that many of today's persuasive advertising techniques were actually born out of the anti-bourgeois artworks of the political left. Recognised artists working at this time included Russian born Aleksander Rodchenko (1891-1956), founder member of the Constructivist Group (1921)

acknowledged for his influential and experimental approach towards image composition and design. Rodchenko embraced photography as a tool for social comment and change. His photographic photomontages produced during the early 1930s, made critical comment on the disparity between official Soviet channels of communication (Socialist Realism) and the actual lived experiences of the Soviet people. Commercial artist John Heartfield (born Helmut Hertfeld) is best known for his critically acclaimed yet provocative, anti-capitalist photomontages made during the 1930s. He produced a series of anti-fascist artworks and illustrations that attacked and often satirised the political views of the emerging Nazi party.

Political activist and artist Peter Kennard's photographic photomontages produced during the 1970s, 80s and 90s, continued to echo the anti-establishment political sentiment of post-war Dadaism. Kennard is best known for his satirical anti-war images created for the Campaign for Nuclear Disarmament (CND) in the 1970s and 80s. In particular for his 1980 version of John Constable's painting *The Hay Wain* entitled *Hay Wain with Cruise Missiles*, he appropriated the idyllic image of a horse and cart crossing a tranquil stream and montaged loaded cruise missiles into the farmers waggon. In response to the invasion of Iraq (2003), Kennard joined forces with fellow artist Cat Philipps to produce what is now widely regarded as the definitive artwork on the Iraq war. Entitled *Photo Op*, the picture, a digital composite, depicts former British Prime Minister Tony Blair posing for a selfie in front of a blazing oilfield in Iraq. Guardian columnist Johnathan Jones, in his 2013 article entitled *The Tony Blair 'selfie' Photo Op will have a place in history* recalls,

Political artists Peter Kennard and Cat Phillipps were combing through scores of pictures from the Guardian when they came across this slightly bonkers-looking portrait of a politician on campaign and realised it was just what they needed in their quest for a picture that told the truth about the Iraq war. "It was born out of two years of hard work to pull down the propaganda machine," say the artists. Using Photoshop, they replaced the innocuous cadets with an apocalypse of fire. A satirical icon was born (Jones, 2013, para.3).

More recent projects explored by Kennard and Phillipps have included: Climate change, Donald Trump, the European migrant crisis, the 2017 General election featuring Theresa May, London's proposed third runway at Heathrow Airport, and the 2007-08 financial crisis (Kennard & Phillipps, 2020).

While acknowledging the significance of these anti-bourgeois artists, and their use of the photomontage as a preferred medium for political and artistic expression, for the purpose of my research, it is the work of the British pop artist Richard Hamilton that is of greatest interest to me. A founder member of the 1950s influential Independent Group, Hamilton also employed photomontage as a base method for creating his photographic collages. Perhaps the most famous of these is his 1956 iconic artwork, *Just what is it that makes today's homes so different, so appealing?* (1956). A commentator on consumer culture, Hamilton famously made the artwork from assorted American magazines brought back from America by fellow Independent Group member John McHale.

What is of particular interest to me as a researcher, regarding Hamilton's photomontages, is his 1992 digital upgraded version of the 1956 original. Entitled *Just what is it that makes today's homes so different?* (1992). Hamilton, having scanned his 1956 collage, used a Quantel Paintbox (dedicated computer graphics workstation launched in 1981) to recreate his previous artwork as a 'digital montage'. Made in response to a BBC programme entitled QED, Hamilton's digital remaking of his 1956 collage highlighted the advancements in computer technology and the emergence of the digital composite as a creative platform for political and social comment.

## **5.2 Below the line advertising**

In more recent years the photomontage, rebranded as digital composite photography, has become a staple and powerful visual communication tool within the advertising industry, helping to create a string of innovative if not slightly hyperrealist, even surrealist looking imagery for consumer entertainment and consumption. However, if we look beyond the highly visible and stylised mainstream imagery of advertising and the images that confront us every day, we start to see the often overlooked but no less important images of the commonplace. These not so glamorous images of the everyday do not exist in the esteemed world of advertising hoardings and hi-end glossy consumer magazines. They live within the closed, silent pages of the company catalogue, as reloadable documents on company websites, and are often given away to commercial organisations and trade magazines for free. These disposable mass-produced everyday photographs are the mainstay bread and butter images of the advertising industry. It is to these 'below-the-line' factory mass-produced images of the commonplace that the Tesco composite images belong.

## Chapter 6: Photographic metadata

### 6.1 Metadata

The practice-based research outputs produced in response to the research question: *How can certain advertising images be investigated to reveal the historical traces of labour that lie dormant in their production?* are titled Dataworks, a term derived from Metadata<sup>9</sup>. When applied to digital images, photographic metadata is normally categorised into three main types of data: technical, descriptive and administrative. This metadata allows pictorial digital information to be transported within a single image file, in a format that can be understood and decoded by other software, hardware and end users. Metadata of this type tends to deal solely with an image's technical make-up and descriptive attributes associated with its physical reproduction - such as camera settings, image resolution, size, and colour. These functional usages of image metadata are essential in the reproduction and reimaging of an image pictorially. My interest in metadata goes beyond the faithful pictorial reproduction of images, as pre-defined mathematical blocks of colour and light, to interrogate and reveal within the artwork produced, the physical binary data codes, digital structures of production and labour processes embedded within my TESCO photographic images.

### 6.2 Industrial secrets exposed

In choosing an auto-ethnographic framework for my research, it provides an investigative approach to access personal experiences and commercial insights within the dual corporate domains of manufacturing and advertising. It has enabled me as a researcher to adopt the position of an industrial detective, a person who has

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<sup>9</sup> Metadata, can be defined as 'data that is used to describe other data'. It provides a basic summary, description and context of data. Metadata can be created manually or automated through the use of digital programming. It is used to assist humans and computers in the organisation and interpretation of data.

insider knowledge about a company and access to corporate data that is not in the public domain. Privileged knowledge provides an opportunity for the informed artist to physically unpack and analyse advertising imagery in relation to their specific capitalist modes of production. Globalised manufacturing processes that are traditionally invisible to the general public are made accessible. Advertising imagery, unpacked as artworks, offers insight into commercial practices (corporate truths and injustices) normally closed off from public scrutiny. Artworks that allow the interested observer to visually explore beyond the external appearance of commodities into the fabricated realm of commodity production.

### **6.3 Artmaking as a method of research**

What interested me most about revisiting my commercially produced Tesco photographs was the archaeological analysis, and the physical unpacking of the type of labour involved in constructing these images of commodities and historical metadata contained within the original layered image files. I wanted to equate the metadata with the layers of “phantom-like objectivity” that according to Marx (1990, p.128) creates a visible representation of human labour encapsulated in the images. As Harvey has explained, “When you go to the supermarket you can find out the exchange-values, but you can’t see or measure the human labour embodied in the commodities directly. It is that embodiment of human labour that has a phantom-like presence on the supermarket shelves” (Harvey, 2010 p.18).

As stated on page 71, Harvey refers to Marx dialectical materialism as the “method of descent” (Harvey, 2010, p. 8). A process whereby Marx digs down below the surface of things, into the unseen interconnecting layers and internal relationships of dialectical motion and transformation. And it is to this “method of descent”, an inward-looking process of digging down and peeling away the surface layers of

capital in motion, that I turn to research and reveal the traces of historical production and labour embedded unseen within my own Tesco images.

## 6.4 Tesco images revealed

Originally photographed in Shenzhen, China for Tesco UK, Figure 4 *Ornamental garden table and chairs*, is a digitally composite image produced from two photographic elements, photographed by myself in 2007 whilst employed as a senior creative photographer at the global design agency Anthem UK.

Figure 4

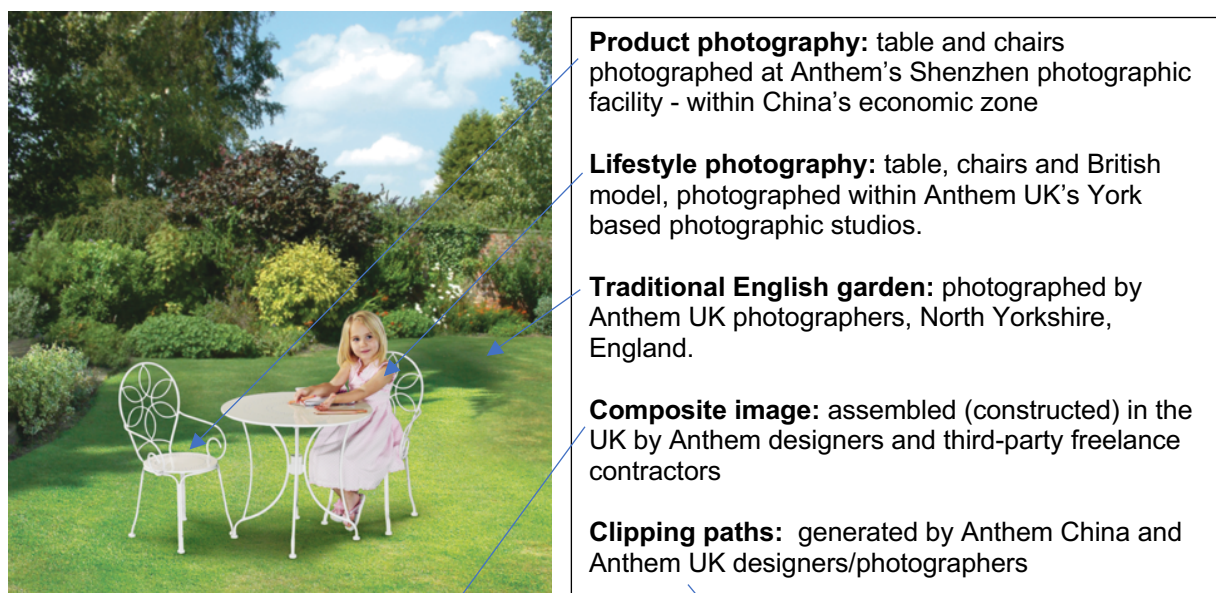


Figure 5

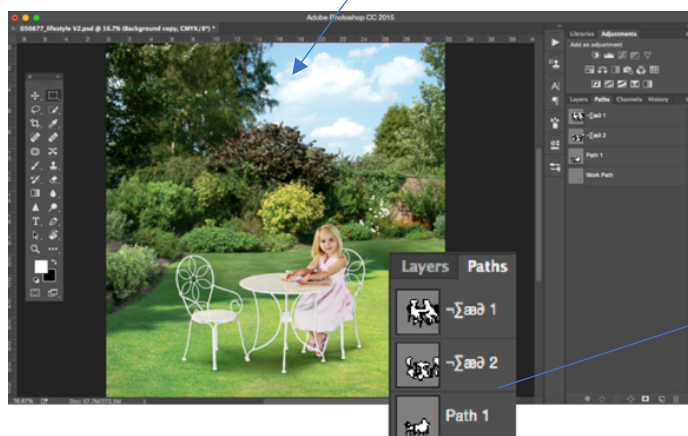


Figure 5a





As stated in the text above this image was initially photographed in Shenzhen, however, the original Chinese model sourced from the expatriate community in China and nearby Hong Kong, did not fully capture the iconic and archetypal Englishness that Tesco were looking for. Therefore, after due consideration by Tesco's marketing team, I was tasked with re-photographing the composite image in Anthem's newly acquired York based photographic studios and on location in the North of England. Here the products (table and chairs) were shipped to the UK and photographed against a simple white background to match the prevailing lighting conditions, angle and perspective of the pre-selected garden composite backdrop. The young English model was sourced from Nemesis Modelling Agency in Manchester, England. The walled-garden landscape image (shot separately) was also taken by me in 2007, during a family visit to my father-in-law's home in Sutton-under-Whitestone Cliff, a picturesque North Yorkshire village situated on the edge of the North Yorkshire Moors National Park. The final composite image was assembled and constructed by Anthem's creative designers in their new design studios in York before being sent to Tesco offices for final brand approval and delivery to Schawk, Leeds and Manchester, for prepress media-ready files to be produced.

On revisiting my Tesco lifestyle photographic images, I noticed that all the UK produced lifestyle images and re-photographed Chinese animated lifestyle images, still contained their original Shenzhen generated vector clipping paths, embedded unseen within the metadata of their Photoshop composite files. Here my attention was drawn to the annotated text of the clipping paths see Figures 5 and 5a. When considering why these Chinese vector paths had been embedded within my own re-photographed and digitally assembled UK lifestyle image, I can only assume this had more to do with Anthem-Tesco's globally implemented digital asset management

systems, rather than any photographic-related production process or digital workflow. On exploring my lifestyle images, I found that, despite the existence of the original Shenzhen generated clipping paths, all the original associated photographs had been lost to me, deleted or simply not copied across into the new UK-generated image files. This left the Chinese clipping paths redundant, unseen and without purpose or function within the advertising images. It is at this point that my research practice started to take shape as I began to explore and make visible the structures and commercially redundant clipping paths within my artwork. This enabled me to engage in the dialectical process of descent or “digging down” to reveal the capital structures of production in motion that were lying dormant, making visible the historic traces of human labour contained within the image’s own internal architecture and preserved metadata. Unseen inner relationships of capital, both human and machine that hide behind the external surfaces of material things; metadata in the form of capital production that according to Marx show the real workings of capital in motion. “Let us therefore, in company with the owner of money and the owner of labour-power, leave this noisy sphere, where everything takes place on the surface, and in full view of everyone, and follow them into the hidden abode of production” (Marx, 1990, p.279).

## Chapter 7: Dataworks (Part 1)

### Still and time-based media

#### 7.1 Tesco artworks

Unlike the anti-bourgeois photomontages of Dadaism, the Tesco images investigated here are products of advertising. They look to benefit and reinforce the dominance of the capitalist markets they represent and promote. Here, I argue that it is in the act of physically breaking apart the closed visual text of these commercially made images into their composite parts that new methods of reading imagery are enabled. These parts of production and labour are uncovered by the process of digging down and fracturing the external world of surfaces. Dataworks (Part 1) visually investigates the process of systematic fragmentation. This is the act of breaking apart and revealing of the composite Tesco images' internal means of production. Division of production and labour made possible by insider knowledge. This visually puts into the public domain for scrutiny and debate, an example of the workings of Marxist capitalist modes of production explored in Chapter 5.

#### 7.2 Tesco composites - masked layers

In representation of factual data, Figures 6 and 7 characterise my initial practice-based research findings for my archival 2007 Tesco images. These are research outputs produced through the physical pulling apart of the internal assembly layers of the Photoshop production files. Figure 6 shows a sequence of extracted artworks taken from *Ornamental garden table and chairs*, see Figure 4. They provided a series of variant abstract outcomes that trace and make visible my own auto-ethnographic experiences and insider knowledge discussed in chapter 6.

**Figure 6**



For additional research and development outputs (artworks) produced for the Tesco composite (Photoshop), layered research series (see Appendix A).

### **7.3 Tesco composite research finding**

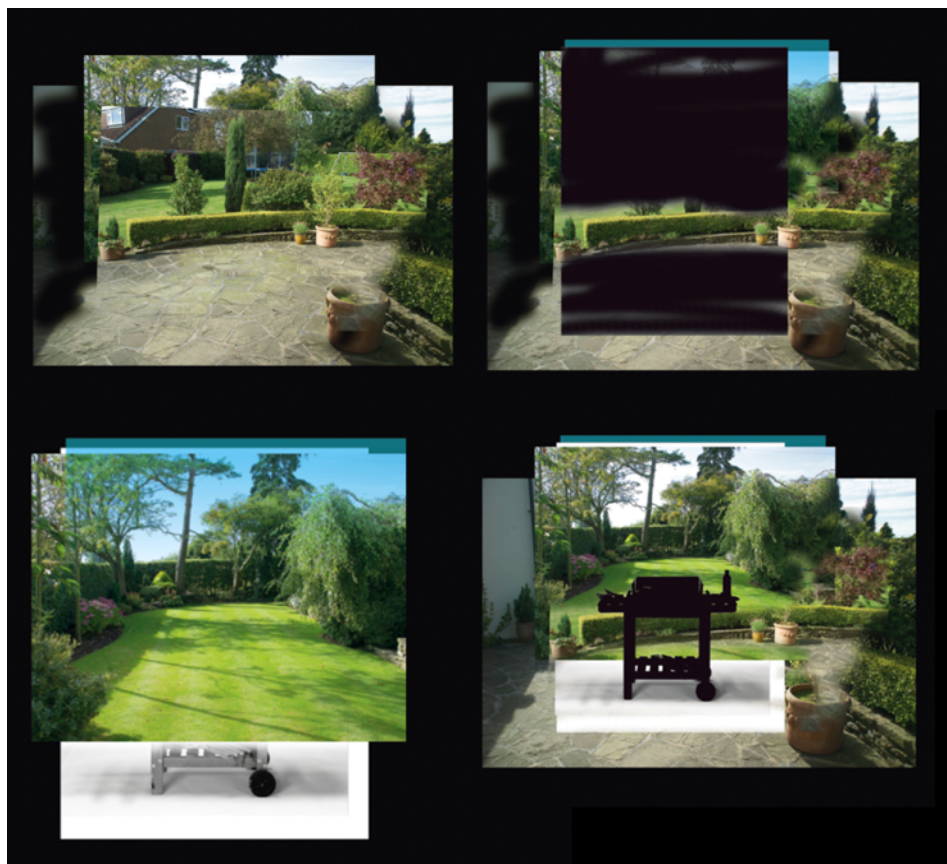
Whilst actively offering up for public scrutiny factual traces of productive labour contained within the inner workings of the Tesco images, see Figure 6, initial research outputs failed to penetrate the external appearance of things. That is to say, the commercially framed Tesco images did not allow the casual observer to access beyond the physical boundaries of their making. The glossy man-made façade of their assembly acted as an optical barrier to the capitalist structures rooted unseen within their means of production; the legal, economic and political productive forces on which Marx base and superstructures are determined, explored in Chapter 4. What was absent from the initial artworks was a critical pathway. A systematic method of enquiry actively peeled away the commercial constraints of advertising imagery, a transformative process that would permit the reader to circumnavigate beyond the physical surface of images. This required an optical intervention that would allow closed off capital layers of production contained within the photographic image to be revealed.

At this point in my research, I am reminded of Harvey's use of an onion as metaphor, when referring to Marx concept of dialectical materialism, studied in chapter 4. In introducing Marx dialectical model of the inner relationship of transformative activities as a "method of descent", Harvey explains that "Marx starts from the outside of the onion, moving through layers of external reality to reach its center, the conceptual core. Then he grows the argument outward again, coming back to the surface through the various layers of theory" (Harvey, 2010, p. 8). This physical act of digging down through the external layers of objects to their conceptual core, and the inability of my initial research outputs to visually penetrate beyond the glossy surface of advertising imagery, is explored in 7.4.

#### 7.4. Extended canvas - beyond the frame

The extended canvas series, see Figure 7, attempts to provide a systematic method of intervention within the photographic frame that would permit new insight and reading of the photographic image. To enable access to the hidden internal workings of the image the commercial frame was removed. By extending the canvas the raw materials and full production that went into the making of the work, are revealed; physical labour deemed not suitable for public consumption. This provides the viewer with insight and the subsequent opportunity to reflect on the fabricated internal relationships and social contradictions expressed in Marx concept of dialectical materialism (Marx, 1990, p.103).

**Figure 7**



For additional research outputs (artworks) produced for Tesco Extended canvas research series (see p.111-112, and Appendix B).

## Chapter 8: Rise of the data artist

### 8.1 Art and big data

At this juncture it is important to acknowledge the rise of the data artist along-side the emergence of “big data”<sup>10</sup>. The term big data is commonly used to describe the collecting and analysis of large amounts of data, harvested information that is too big or too complex for traditional data software tools to process. According to Oliver Meyer (director of product management at Zoomdata a data visualisation and analytic company) this type of data requires organisations to invest in specialist data recovery platforms and new data personnel, referred to by Meyer as data artists (Meyer, 2016, 8:37). These implementations are necessary if businesses are to extrapolate real time value from data collected. The goal of big data in business is predictive, that is to say it involves the science of correlating and analysing relationships between information data sets, in order to reveal patterns related to human behavior. It provides commercial insights that allow businesses to pre-empt consumer trends, in pursuit of market share and profit. Meyer and Haber (2016), through charting the growth of big data within business decision making, introduce us to the emerging role of the commercial data artist. Meyer explains that as data sources and information streams expand, the knowledge void between business analyst and technology widens. Datasets historically presented in two-dimensional programmes such as, Excel and PowerPoint in the early 2000’s, have given way to new methods of display and analysis as new multi-dimensional computer and analytic tools come on stream. These tools make it no longer feasible for people to connect directly to data but require somebody skilled in visualising data systems to

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<sup>10</sup> See Segal (2021) *Big Data*, Investopedia <https://www.investopedia.com/terms/b/big-data.asp>

bridge the data business gap - and that is where the data artist comes in (8:37). In describing the role and responsibilities of the data artist, Meyer is keen to differentiate between the data scientist, “someone who lives in the data” (7:07) and the data artist, a person who needs to be familiar with data, how to access it, and how to leverage it, but not necessarily at the algorithm level of a data scientist. According to Meyer, the starting point for the data artist is a blank canvas with no real idea what the outcome might be. It is about exploring and adding value and communication to create the data story (18.20).

TED Talks on the other hand refer to art made of data, informing us that data visualisation has become an art form with a new breed of pioneering artists using spreadsheets, archives and digital data as their paints and canvas (TED Conferences, 2020). In a series of seminal data talks, hosted by TED Talks, we are introduced to the data sculptures of Nathalie Miebach see Figures 22 and 23, who turns storm data into complex physical sculptures, which in turn become musical scores to be played by a string quartet. The complex mind spinning data visualisations of David McCandless, turn complex datasets, such as Facebook status updates, into graphic diagrams that according to McCandless tease out unseen patterns and connections. Digital artist Aaron Koblin explores patterns of human behaviour that emerge visually from the processing of large datasets. His works include the use of airline flight data, which when combined recreate web like patterns of human activity visualised through a series of single coloured flight lines, see Figure 24.



In addition to these database artists, I would draw attention to the works of Martin Klimas, Daniel Palacios, and Ryoji Ikeda. The German based artist Klimas in his photographic series entitled *Sonic Sculptures* (2011- 2012) attempts to visualise recorded sound. Influenced by Hans Jenny, the father of cymatics (study of sound wave phenomena) Klimas in response to the question 'What does music look like?' employed sound vibration techniques and high-speed photographic production processes to construct and capture sound through acoustic motion. The acoustic motion is captured as visual data patterns of music production otherwise invisible to the human eye and made observable within Klimas artwork through the material medium of coloured paint and frequency vibration, see Figure 25.

Daniel Palacios is an artist whose work is inspired by natural phenomena and the science behind it. Palacios interactive artworks examine the limits of human perception through alternative use of materials, production processes and technology (Palacios, 2020). What is of particular interest to my own research is Palacios 2006 artwork entitled *Waves*. An installation that visualised the movement of sound through an oscillating length of rope. An elastic piece of string that when introduced to acoustic sounds vibrated in time and space to create a floating tide of sine waves in graphic form, see Figure 26. This kinetic motion in turn produced a whipping noise as the oscillating rope cut through the air. It is comprised of movement within a sonic landscape that according to Palacios "...connects with our most visceral side, combining the intangible beauty of the represented graphic with the brutality of the sound it produces, creating a hypnotic environment of audible results and unique visual stimulations" (Palacios, 2020, para. 6). Palacios' process of visualising noise and human movement through the graphic representation of kinetic

sound in motion, is further explored in relation to my own Tesco data artworks in chapter 9.

Ryoji Ikeda is a data practitioner whose artwork combines two-dimensional binary numbers and data structures with four-dimensional mathematical processing software, to create immersive soundscapes and moving image installations. Ikeda is one of Japan's leading visual artists and composers and his 2006 project *Datamatics* employs hard drive errors and computer code as a data source to produce a series of digitised landscapes. These are digital artworks that offer the spectator an insight into the domain of data programming, computer processing and binary code in its original raw state of being. Ikeda, commenting on his artwork informs us that *Datamatics* is “an art project that explores the potential to perceive the invisible multi-substance of data that permeates our world. It is a series of experiments in various forms [...] that seek to materialise pure data” (Ikeda, 2010, para.1). Ikeda’s *Data,scape (DNA)* artwork, see Figure 27, produced in 2016 (a continuation of his long standing *Datamatics* series) can be viewed as a permanent audio-visual installation in Darling Harbour, Sydney, Australia.

In progressing my own research practice, what I find useful about Ikeda’s work is the notion that two-dimensional structures, such as my Tesco images, when acted upon by mathematical data processing, can themselves become objects of productive labour; material objects transformed through mathematical calculation into a form of living labour expressed in digital form. Marx describes this as a transformative process stating “whenever products enter into new labour processes as means of production, they lose their character of being products and function only as objective factors contributing to living labour” (Marx, 1990, p.289).

It is at this point in my research that I start to investigate and unpack my Tesco images, not as static photographic artefacts that contain embedded within their modes of production historical traces of labour, but as containers of living labour expressed in binary code. They are operational structures made visible through the process of computer data processing and the physical production of things. This process, according to Marx, undergoes many transformations continually changing its shape and appearance during the production until it emerges in finished form, “either as means of subsistence or as instrument of labour” (Marx, 1990, p.289).

## Chapter 9: Dataworks (Part 2)

### Capitalism in perpetual motion

#### 9.1 Digital labour in motion

According to Harvey

Marx wants to recover the intuitive power of the dialectical method and put it to work in understanding how everything is in process, everything is in motion. He doesn't simply talk about labour *process*. Capital is not a thing, but rather a process that exists only in motion (Harvey, 2010, p.12).

Dataworks (Part 2) investigates capital as a process that exists in perpetual motion. They are artworks produced exploring the representation of active labour, expressed in digital form, converting binary image data embedded within the production layers of the photographic image into machine and human-readable code. This is digital code that is made visible through a series of automated text-based computer programming languages.

#### 9.2 Human-readable and machine-readable code

In order to gain access to a photographic image's digital code in a useful and meaningful way, I considered it necessary to abstract the image's data in a format that was both human-readable and machine-readable. This was achieved through the use of ASCII and Unicode programming language, universal text-based languages that use standard text characters, numbers, symbols and spaces to represent and visualise binary data.

### **9.3 Text formatted files from a photographic image**

Research into how best to convert and visually represent layered Photoshop files in ASCII and Unicode text formatted digital code, resulted in extensive investigations into computer Markup languages such as XML and TXT, computer data languages specifically designed for the processing, definition and presentation of text formatted code. The added advantage of using TXT formatted files was that they could also be opened in a range of text-editing and word-processing programmes, such as TextEdit, Notepad and Microsoft Word.

### **9.4 Text-based research findings**

Research into text-based computer languages revealed that XML and TXT formatted files displayed differently in text character length and page layout, depending on the programming ability of text-editing and word-processing programmes to read, define, reprocess and display pixel-based data in text formatted digital code. The 049845-hammock video's original layered Photoshop (PSD) file, see Figure 8, was converted to a Unicode TXT file and opened in Microsoft Word, in Unicode programming language, see Figure 9. The image's data (digital code) was processed and displayed in ASCII formatted text transformed into more than 5000 Microsoft Word document pages, each page being represented and interspersed by a series of programme pages and line breaks, creating a visually repetitive stream of readable text, see Figure 10. It is worth noting here that on opening the Tesco hammock (docx) file, Microsoft Word continually repaginated the numbers on the status bar. This made calculating word count and total number of text pages (digital generated code) difficult to determine precisely as the page count data displayed, constantly fluctuated between 5000 and 24000 pages.

Figure 8



Figure 9

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Δλ'[]-Δλ'[]Adobe Photoshop CS2 Macintosh2007:12:18 12:50:36<?xpacket begin="Ôaø"
id="W5M0MpCehiHzreSzNTczkc9d"?>
<x:xmpmeta xmlns:x="adobe:ns:meta/" x:xmptk="3.1.1-112">
  <rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
    <rdf:Description rdf:about=""
      xmlns:xapMM="http://ns.adobe.com/xap/1.0/mm/"
      xmlns:stRef="http://ns.adobe.com/xap/1.0/sType/ResourceRef#">

    <xapMM:DocumentID>uuid:FA1459A9AEF911DCAA42DC100418132F</xapMM:DocumentID>

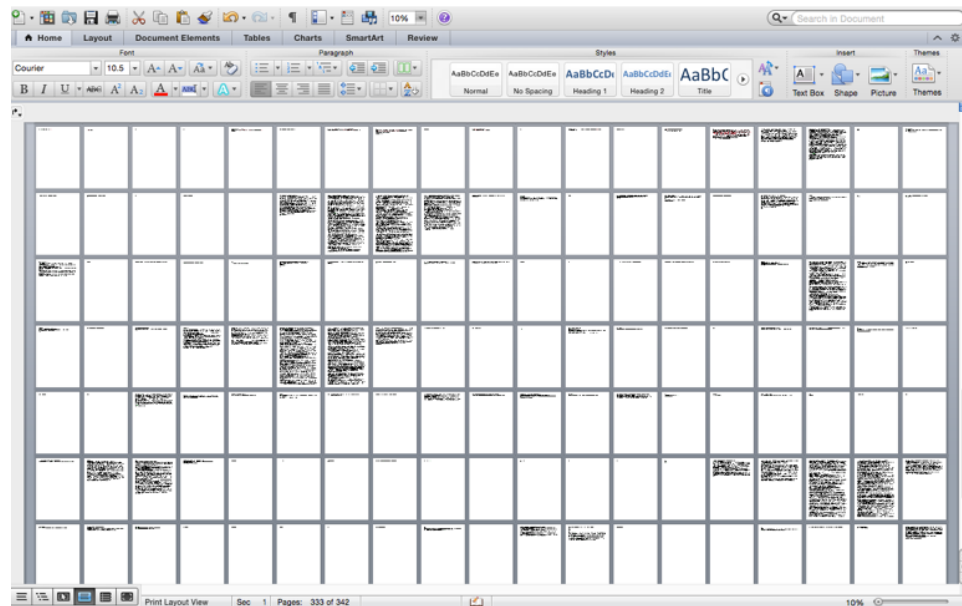
    <xapMM:InstanceID>uuid:FA1459AAAEF911DCAA42DC100418132F</xapMM:InstanceID>
    <xapMM:DerivedFrom rdf:parseType="Resource">

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    <stRef:documentID>uuid:E6C2E528D4A4DC118FCBB9FB476093C4</stRef:documentID>
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    xmlns:tiff="http://ns.adobe.com/tiff/1.0/">

```

**Figure 10**



## **9.5 Image colour space**

049845: Garden hammock CMYK media-ready Photoshop file was converted back into RGB colour space; this was done in order that the image could eventually be imported into Adobe's Premier video editing programme.

## **9.6 Generating ASCII and Unicode text formatted digital code from RGB Photoshop file**

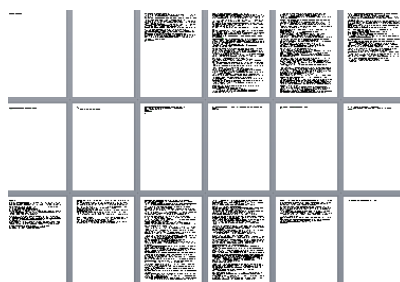
The garden hammock Photoshop file was converted to a Unicode TXT file and opened in Microsoft Word, see Figure 10, using Unicode programming language. It was felt that converting, processing and outputting the image data in this way - revealing and separating the image's digital code in a continuous flowing series of automated Word document pages - created an opportunity for the image's digital code to be reintroduced and mirrored seamlessly back into the original Photoshop file, creating a series of individual text layers. These are abstracted layers of digital code that when animated in time, revealed and at the same time erased from view,

the image's pictorial function as a photographic commodity, see Figures 18,19 and 20.

## 9.7 Importing Microsoft Word text formatted pages into Photoshop

With over 5000 pages of digital text formatted code represented within the Microsoft Word document, it quickly became impractical to copy and paste all the pages of text as active working layers back into the original Photoshop image. Here it was decided to visually reference the image's digital code through the sequential mirroring and repetition of data patterns displayed, see Figures 11, 12 & 13. In total, 34 words of text formatted digital code were copied and pasted sequentially into 34 individual (separated) Photoshop layers, see Figures 14 and 15. It is worth noting here that Photoshop supports a maximum of 800 layers, however the maximum number of video tracks (working video layers) supported by Adobe Premier is 103.

**Figure 11**



**Figure 12**



**Figure 13**





Figure 14

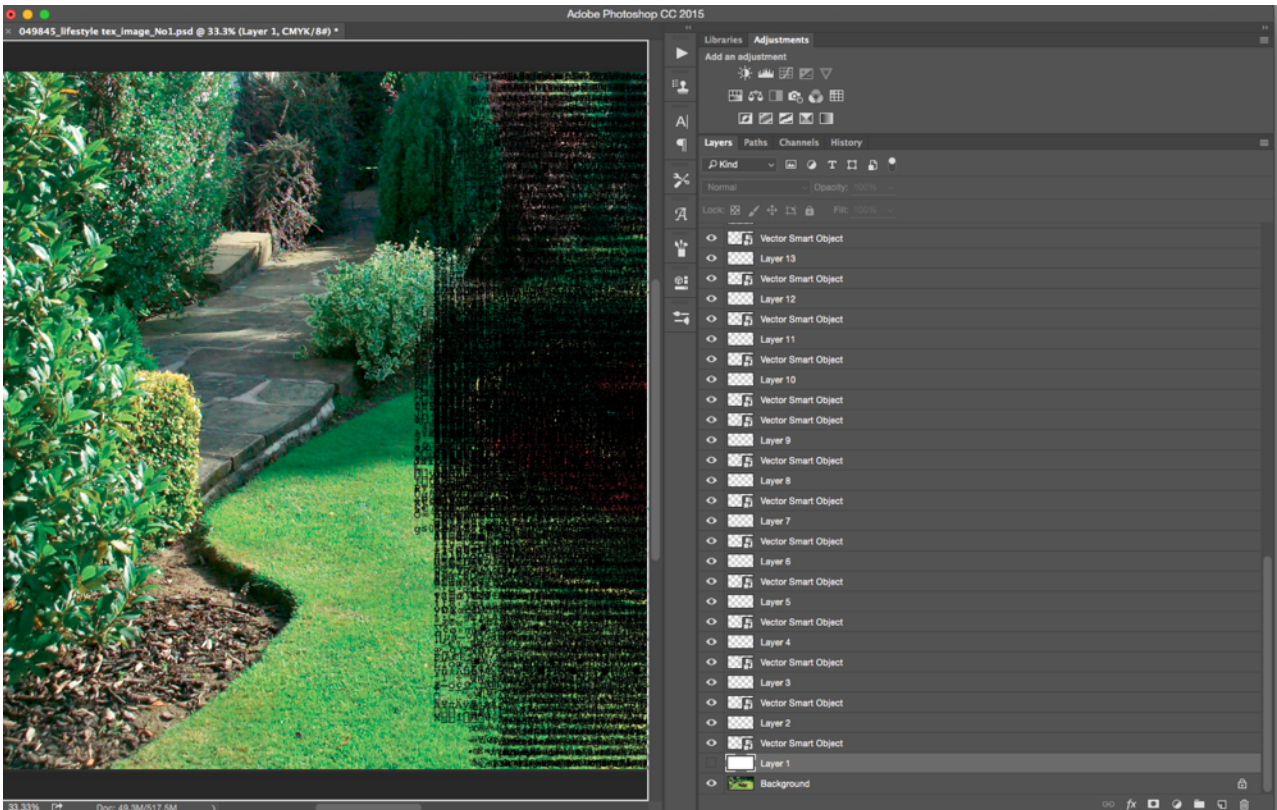
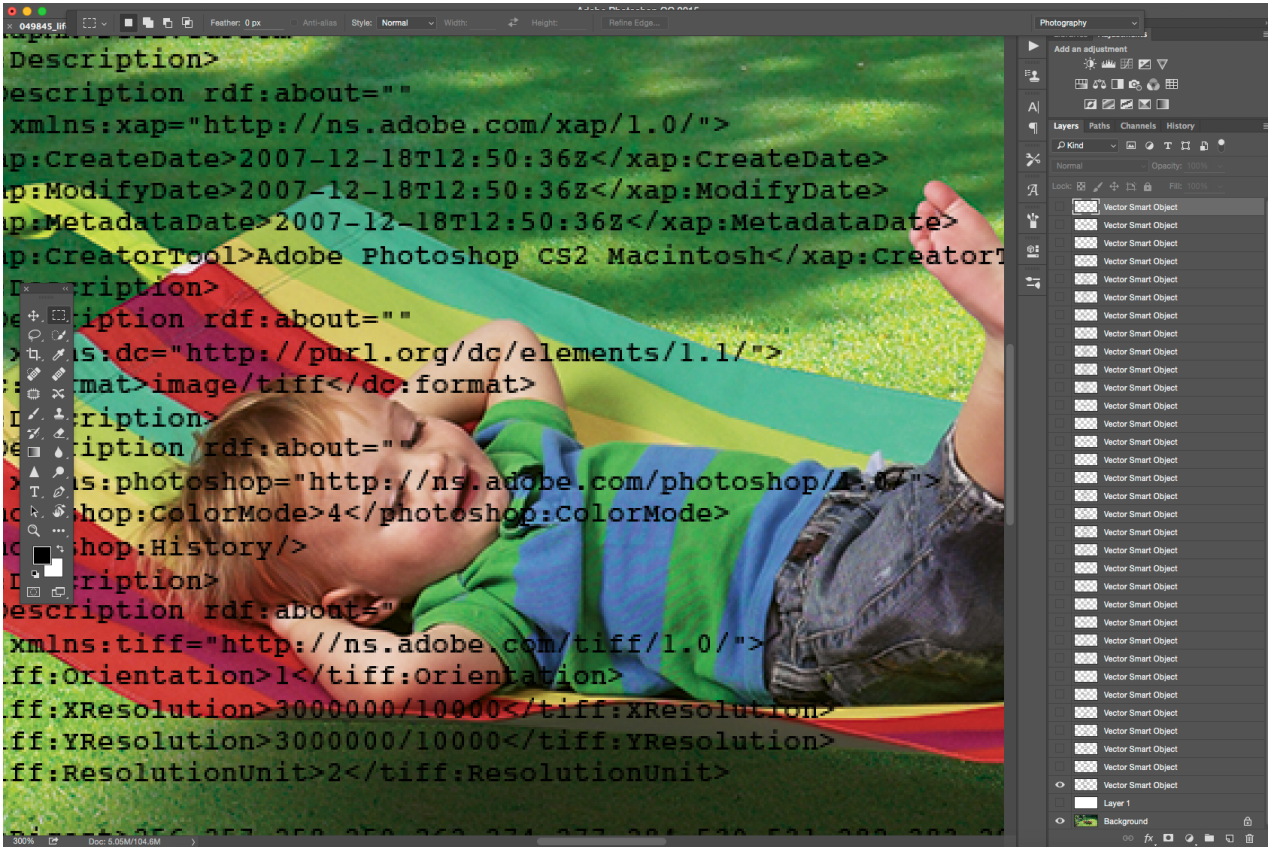


Figure 15



## 9.8 Importing Photoshop (PSD) image & text layers into Adobe Premier

In order to import the Photoshop image and text layers into Adobe Premier, it was necessary to save, copy, then resize the layered (PSD) file to 1080px HD video resolution. All Photoshop layers were then imported into Adobe Premier as individual photographic stills and placed sequentially onto separate video tracks within the project timeline, see Figure 17. Premier automatically assigned a time duration of five seconds to each still image. This automation and defining of visual time by Adobe Premier during the video's production, remained unchanged. By extending the duration, each individual text image was made visible; it was then possible to overlay through time (five-second intervals) the revealing of the images text formatted, and abstracted digital code, see Figures 16.

Figure 16

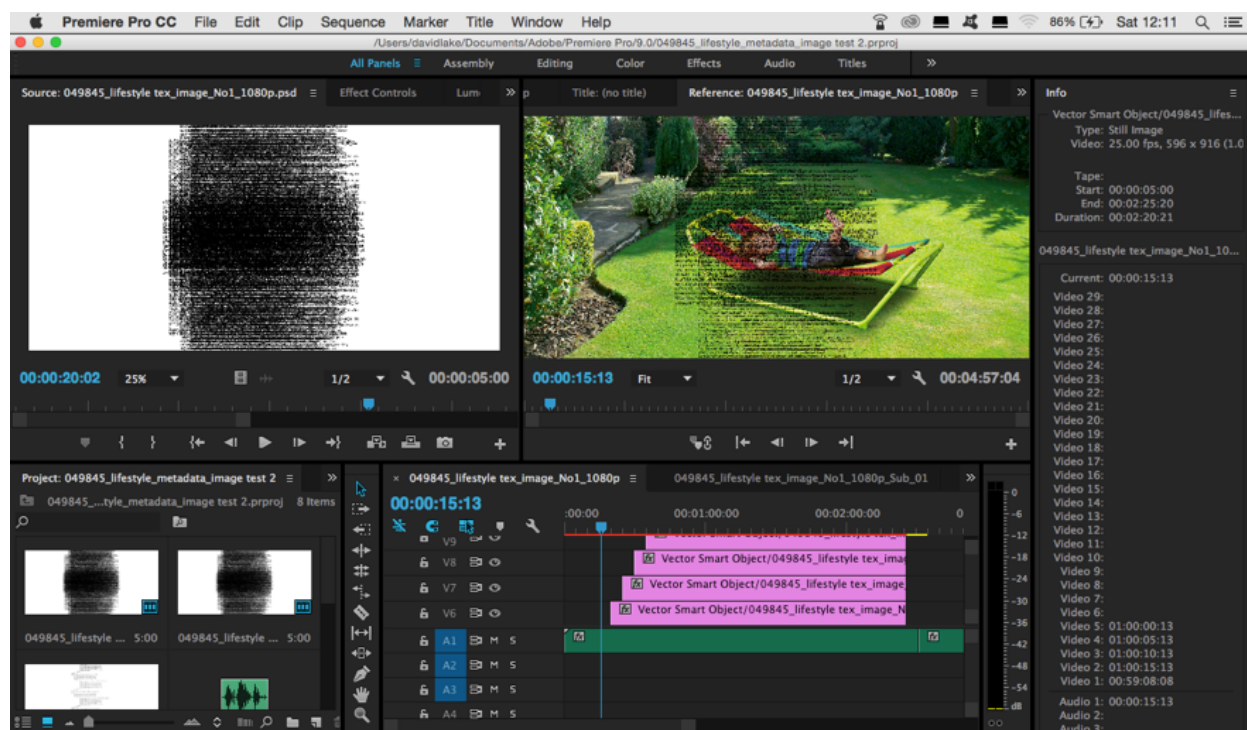
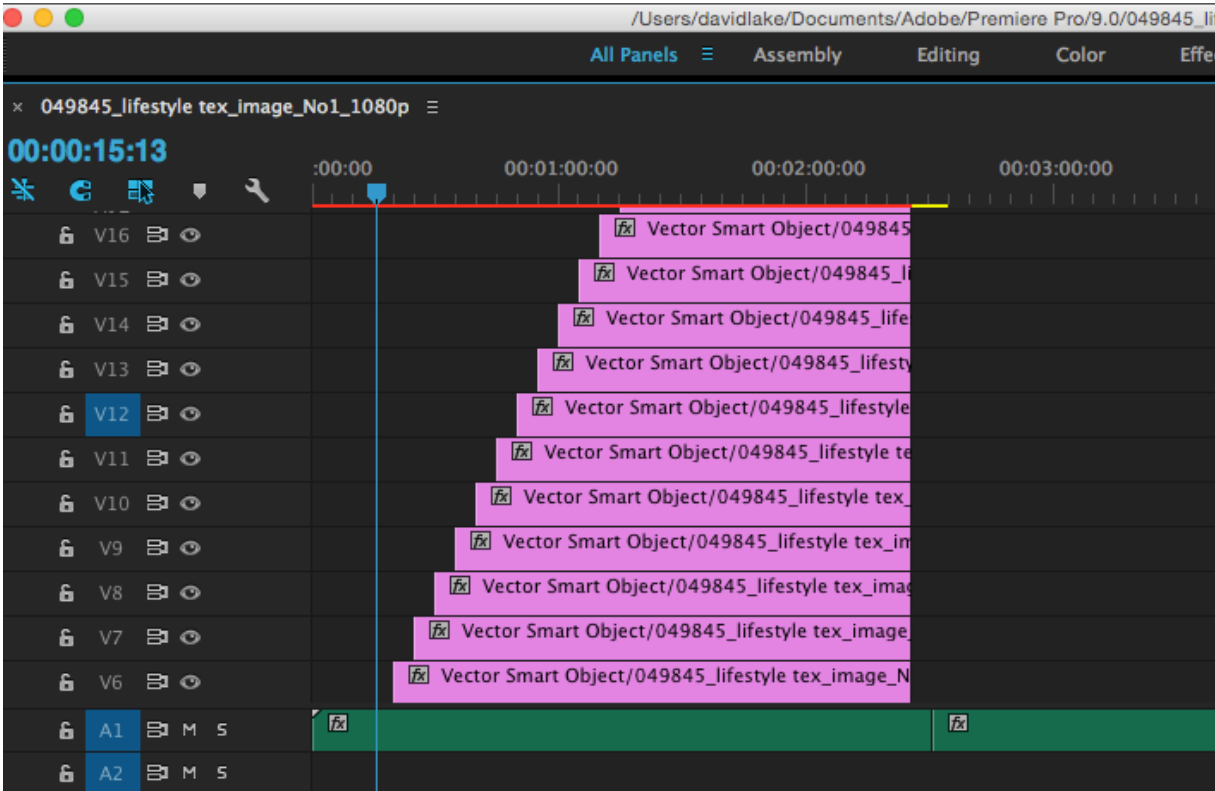
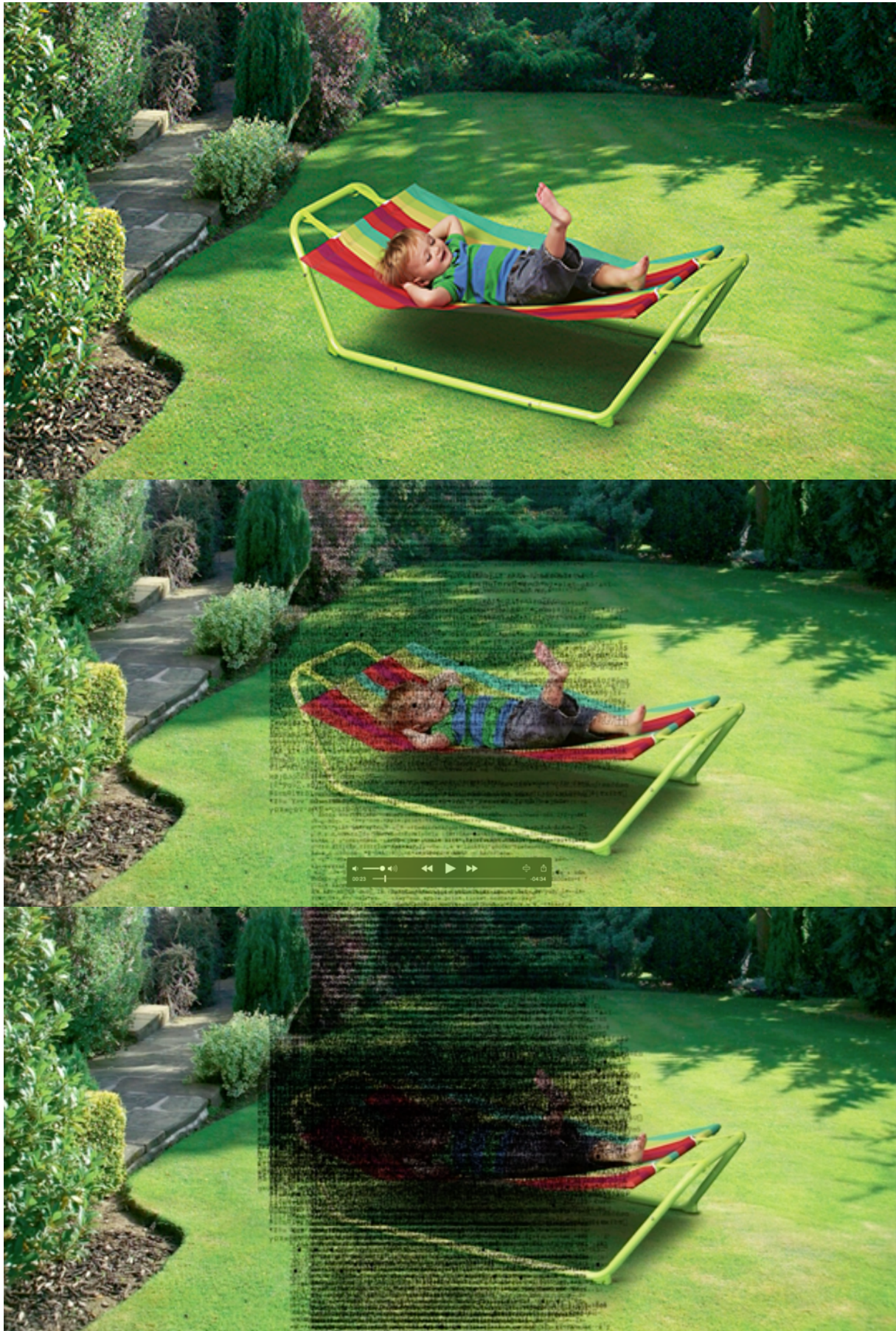


Figure 17





Figures 18, 19 & 20



## **9.9 Sound files, converting Photoshop (PSD) image to sound**

Converting the pixel-based Photoshop (PSD) image file into sound was achieved using Audacity 2.1.1 open-source cross-platform software for recording and editing sound. Audacity can be downloaded free from the Internet (Audacity, n.d.). The 049845: hammock Photoshop (PSD) file was imported into Audacity as raw data file before being processed, outputted and saved in two channels (Stereo) as a 41-minute duration Wav formatted sound file. When using Audacity software to convert 049845 hammock Photoshop (PSD) file into audio, the digitally abstracted sound produced something that echoed a repetitive industrial noise, reminiscent of a 19<sup>th</sup> Century factory loom. On hearing the sound, it triggered a subconscious presence and bodily connection between the hammock's own means of production and conditions of historic labour found within the cotton mills and factories of 19<sup>th</sup> Century Britain. When played as the soundtrack for the hammock moving image, this creates an historical, visual and auditory juxtaposition within the artwork, making a chronological digital sound bridge that evoked the mechanical world of labour that Marx was analysing.

## **9.10 Transition of image and sound**

Adobe Premier supports a maximum of 99 additional sound and video tracks to be added to the video timeline. This constitutes a total of 103 tracks/ layers available to build up, overlay and make visible the image's digital code. As previously stated, Premier automatically assigns a time duration of five seconds to each still image and text layer that is placed on its timeline, restricting the duration that images can be displayed to a maximum of eight minutes and 58 seconds should all 103 video tracks be used in the video's production. This automation of the process cannot be changed if the integrity of the video's production as artwork is to be maintained. The duration of the video is controlled by the soundtrack. In the case of the 049845:

Garden hammock data video, the Images Photoshop (PSD) file, when converted into sound, produced a sound track of 41 minutes' duration, producing a visual time disconnect between the video's image length (determined by the number of imported Photoshop text and image layers) and the length of sound for the digital code that makes up the Photoshop image as a whole.

In the act of data transition between image and sound, the process of breaking apart the appearance of commodities into their component structures of production, creates a visual void in their appearance. In the case of the Tesco garden hammock it is a transformation in appearance between image and sound. This is made measurable for research purposes through the use of computer processing programmes into new forms of digital labour, a physical transformation in appearance that reveals a time disconnect between image and sound (38 minutes to be exact). This presents a tangible time gap made calculable through the transitional audio data contained within the image's production. It is represented in digital time and space as a wall of acoustic sound that penetrates in duration far beyond the pictorial data of the Tesco image itself. The visual vacuum created between image and sound confronts the spectator in physical form, requiring them to actively reflect on the repetitive nature of labour production in all its transitional data forms (image, text and sound). In the case of the Tesco hammock, this is the hidden productive labour of the hammock's means of production, and that of the photographic image made to represent it.

### 9.11 Sound visualisation: making sound visible through cymatics

As touched upon in chapter 8, there are a number of data artists whose work explores the visualisation of sound. Artists who employ within their own practice a wide range of kinetic and data driven methodologies in pursuit of making sound visible. Although these artists all have very different approaches to sound visualisation, they all explore and embrace the discipline of cymatics study; the science of visualising wave phenomena through the vibration of sound. In an attempt to summarise cymatics for the purposes of my research, I would like to bring to the reader's attention the work of New Zealand composer, programmer and conceptual digital artist, Nigel Stanford. In particular, Stanford's seminal video *Cymatics: Science Vs. Music* (2014), a film that according to Stanford attempts "to describe to you the effects of cymatics frequencies on matter" (Stanford, 2014, 0.20.) The movie features a range of mediums through which sound is vibrated (water, electricity, fire etc.). The subsequent wave forms produced from these scientific experimental processes are captured on film, to soundtracks from Stanford's 2014 album *Solar Echoes*. *Cymatics: Science Vs. Music* can be viewed via Stanford's YouTube channel (Stanford, 2014).

With respect to my own research study, whilst recognising the work of cymatics artists, such as Klimas, Stanford and Palacios, the disruptive and intrusive nature of their research methods, I find problematic, open to artistic interpolation and chance. If the integrity of my own research data is to be maintained in digital form, then this openness to artistic self-interpolation and the unknown has to be managed and accounted for in any data transition in appearance between image and sound.



Whilst acknowledging the work of the data artist in relation to cymatics, the data practitioner becomes a subjective partner, a raw ingredient in the production and decision-making process of sound image visualisation. It is argued that for the integrity of this research project to be preserved, subjectivity and artistic influence in the appearance of things by the owner of the means of production must be removed. For the purpose of this study it is reasoned here that cymatics is best expressed independently of artistic guidance or sway. This is facilitated through the introduction and use of autonomous third-party audio-visual software, to provide a more objective appearance (visual render) of historical labour and production concealed within the photographic image digital code.

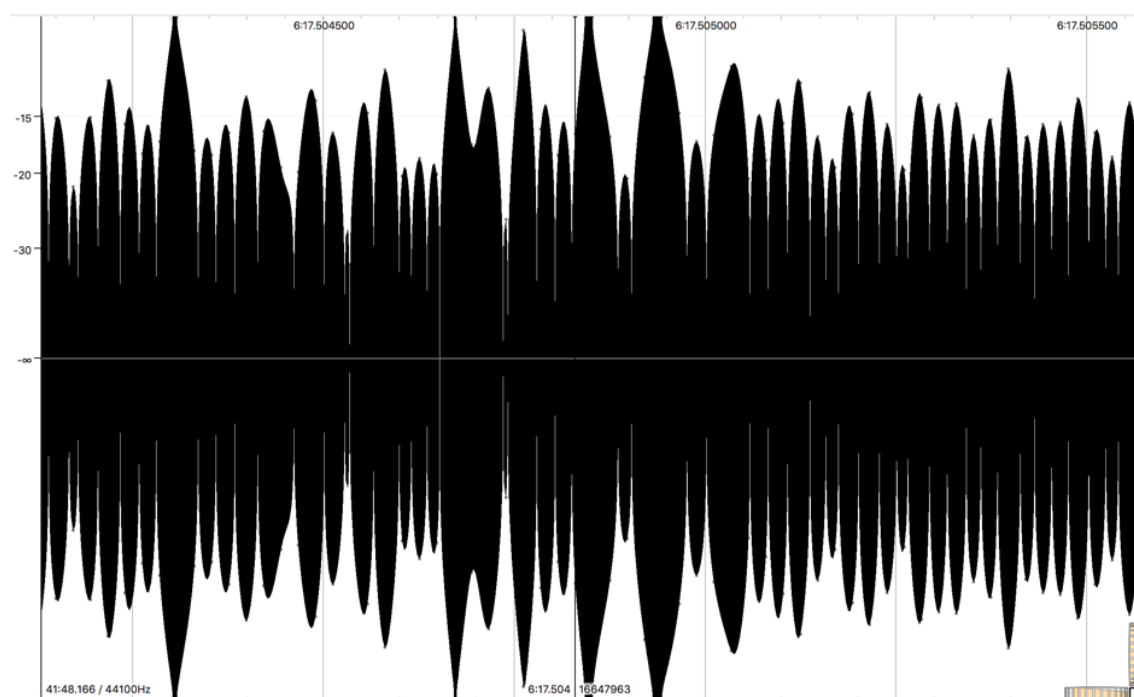
### **9.12 Music visualisers**

The internet is awash with free music visualisers and media player software programmes to generate animated imagery synchronised to the sound of played music. These sound visualisers work through a process of slicing up audio data into small slivers of digital code. From these short-time segments, frequency data is extracted and transferred to the programme's visual display. Most sound visualisers of this type offer pre-programmed motion graphic imagery that creates automated computerised spectrum patterns and audio waves in response to sound frequency. The most common graphic representation of sound being that of the sine wave, a continuous geometric waveform that oscillates in a wave pattern depending on pitch and frequency of audio over time. The Sonic Visualiser is one such open-source music visualisation platform. It was developed by The Centre for Digital Music at Queen Mary College, University of London, a multidisciplinary research group in the field of Music & Audio Technology, for the purpose of academic research. The Sonic Visualiser is a free to download family of audio software programmes that uses



automated computerised data systems to convert sound into text and image form. A process of automation that in the case of the Tesco acoustic data removes any intentional or subconscious interpreting of the sound track by the researcher in its transitional form, from sound data to visualised graphic imagery. Figure 21 shows a video still taken from Tesco 049845 hammock audio file, converted into waveform using The Sonic Visualiser pre-set menu, rendered in binary black and white.

**Figure 21**



### **9.13 Transformative processes of capital in motion**

Audio data extracted from the digital code of the Tesco photographic image, made visible via computerised graphic imagery, has two research purposes. In the first instance, it provides a phantom-like presence, an objectification of capital production for sound to exist as observed living labour encapsulated in the material world of photographic production. Secondly, the transformative process of audio-visual production functions as an instrument of labour. It acts as a continuum to Marx

capital in motion, where capital exists not as a thing, but as a process of perpetual motion. The sound imagery by its means of production generates new forces of productive labour that is in turn consumed and concealed within the material appearance of things. It provides the raw material and transformative data processes that create capital motion. Raw material that when, according to Marx, is re-entered into the process of capital production repeatedly undergoes numerous transformations in shape and appearance (p.289). Johan Hartle (2010) affirmed that “capital is haunted by two kinds of phantoms: by periodical crises and by class contradictions” (p.62). This relates to the core paradox of Marx capital made measurable through the commodification of labour and the production of surplus value. To describe the embodied human labour Marx (1990) uses the term “phantom-like objectivity” (p.128), which according to Hartle (2010) is concealed from public sight behind the masked appearance of commodities bound in “the hidden logics of exploitation and of crisis...” (p.61). In the case of my own research and contribution to new knowledge, these hidden phantoms contained within the capitalist mode of production, are made measurable as abstracted labour in digital form embodied within historical operational data structures and digital codes of the photographic image. For additional research outputs (artworks) derived from text formatted digital data code and video production, see p.111-112 and Appendix C.

## Conclusion

In response to the research question: 'How can certain advertising images be investigated to reveal the historical traces of labour that lie dormant in their production?' this auto-ethnographic practice-led project has researched the productive forces of capital in motion contained within the commercially produced photographic image. It has been concerned with making visible for public scrutiny the political, cultural and economic factors of capital production that exist between the manufactured product and the photographic images created to represent them.

The theory underpinning practice in this research is based on the work of Marx. According to Marx, what commodities have in common is that they all have human labour embodied in their production (Marx, 1990, p.28). The process of capital in motion has constantly transformed historical labour into new forms of objectified labour. For Marx, the capital means of production required to produce commodities arise out of the political, legal, and cultural dimensions of society. This is expressed through his conceptual theory of Base and Superstructure. Here Marx advocates that to fully understand and make visible the political and socio-economic phenomena behind the material world of capitalist production, observers must look to the internal relationships of production and labour within capital itself. This provides a dialectical method of inner connections and transformative relations contained within the commodities' modes of production.

The literature review provides context and commentary on capitalist production wherein capitalism is expressed as an economic system based on market forces of supply and demand, the manufacturing and distribution of goods and services for the

accumulation of private wealth and profit. It delivers two historical perspectives on the dominant yet conflicting ideologies associated with capital production and trade. One is from Locke (1690) based on the natural rights and freedoms of the individual, the other is from Hobbes (1951) based on nationhood and the responsibility of the state to provide for its citizens by enforcement. The inclusion of economists Friedman, Harvey, Keynes and Smith has offered a political and economic perspective to the debate on market economy. Their work addresses two distinct and conflicting liberal ideologies - one advocating unregulated market forces, the other promoting state intervention in regulated markets. Milton Friedman's seminal essay *The Social Responsibility of Business is to Increase its Profits* (1970), has introduced the concept of corporate and social responsibility to the discussion and considered whether businesses should or should not be held socially and ethically responsible for corporate governance towards production of goods and services.

Klein's (2010) contribution to the literature review bridges the theoretical gap and dichotomy of interests between state and business. Her empirical research into multinational corporations and the rise of Export Processing Zones (EPZs) gives accounts of poor working conditions and exploitative labour practices within these emerging economic enclaves, which are state sponsored, geographically located, tax incentivised, low waged production zones. Klein's research provides forceful insight into the economic and social realities behind today's globally manufactured goods. Her reported first-person accounts have further substantiated and informed the working hypothesis for this practice led research. The reporting of the Dhaka Rana Plaza building collapse in 2013, and the Apple iPhone Foxconn factory scandal from 2012 to 2017 contribute to the backdrop and understanding of the global and exploitative nature of capital production and abuse of labour that exists in the

production of goods. This is important as the study seeks to provide a physical connection between the labour involved in the manufacture of goods, the fantasy life style promoted to sell them, and their consumption. The research has sought to pursue and highlight the global nature of the manufactured product such as the iPhone in the consumer's pocket and the branded clothes on their back, making real-life comparisons with the production processes of the photographic image. The auto-ethnographic Nestlé case study has served as a conduit between the research findings identified within the literature and practice. It provides insight into Nestlé's corporate governance, acquisitions, mergers and disposals through historical reporting of factual events, and the lived experiences of a Nestlé employee.

### **Evaluation of practice-based research**

The intent of this ethnographic practice-led study has been to critically explore how the photographic image may be analysed, interpreted and critiqued through the internal modes of their production. It has applied aspects of Marx dialectical materialism, described by Harvey as the act of digging down and peeling away the surface layers of capital in motion as an empirical research methodology to examine and reveal the historical traces of production and labour contained within the photographic image, experimental research methods that provided two distinct areas of study. The first involved the removal of the photographs commercial frame - a process that breaks into the physical appearance of images. The second explored and went beyond the physical appearance of images, to investigate the existence of hidden labour within the digital metadata of the commercial image. This was made possible through the conversion of binary data and computer programming languages contained within commercial images into machine-readable and human-readable code.

## **Contribution of practice-based research**

This research project has sought to provide new insight into the mirroring of capitalist modes of production by employing Marx dialectical research method of inner connections and transformative relations contained within the commodities mode of production. This approach has enabled a comparison and critique of similarities in production between the manufactured commodity and the commercially produced photographic image. Essentially, it has allowed comparisons to be made, not by the material world of external appearances where-by everything is externally critiqued and understood through cultural phenomenon and psychological thought, but rather by the interconnecting relationships of production and labour contained within the capitalist layers of production. These globalised productive forces have been made evident within this study through the interrogation and breaking apart of the author's own commercially produced Tesco images. The contribution to knowledge made by this research is the application of a Marx methodology to read the photographic image from an internal perspective. This approach has enabled an examination of the photographic image through the productive forces of labour contained within the digital datasets and coding of its assembly, rather than viewing it from a more traditional external perspective. It moves away from an external critique of visual imagery towards a closer scientific examination of production that allows for a more insightful reading of the photographic image as a whole.

## **Limitations of research**

The limitations of this research have been in relation to access to production metadata contained within the digital photograph. Limitations were encountered relating to the expanded canvas series, as to retrieve the internal metadata of the photographs examined access to the original Tesco composite production files was required. These files had been outsourced by Anthem UK to a third-party data storage company, which subsequently ceased to trade. This caused a reduction in the number of original Tesco image samples being available to this study.

## **Public engagement and dissemination of research outputs as cultural artwork**

As previously stated, research outputs produced within this practice-led study have two opposing functions in ocular form. The first, as objective documents that faithfully record and reveal the thesis research methodology; the second, as cultural artefacts. These are artworks that when entered into the public domain of consciousness become products of capitalism; cultural photographs that according to Fuchs (2016) become subject to public examination shaped and theorised by world views, understandings and observations fashioned by a person's cultural interests and political alliances (p.8). This distinction in status between research document and that of cultural artefact is important to recognise when contemplating how research findings should be circulated for public scrutiny and debate. As the author and practitioner responsible for the dissemination of research documents for public engagement, I question the cultural significance and societal exchange values attached to the photograph when presented for public consumption as high-status artworks on gallery walls; pictorial representations that according to Sekula (1978) elevate the prominence of the photographer/artist to that of 'gifted with uncommon unity of self and labor' (Sekula, 1978, p.859). In the case of my own research outputs, when considering their

status as artworks, and how they might be perceived and interpreted within society when represented through the confines and capital connotations of the gallery wall, I'm drawn to the concept of site-specificity. This relates to the idea that artworks are best encountered and negotiated by society outside of the cultural and political subtext of the architecturally designed white walls of the art gallery. An art ecosystem that perpetuates exclusively an elitist capitalist attitude towards what is considered culturally significant as art in society, and what is not.

### **Site-specificity**

In the representation of artworks, beyond the staged formality and cultural bias of the art gallery, the author stresses the importance of site-specificity to this research project. The term site-specific refers to the occupation of explicit topographic locations that have a meaningful connection with artwork and presentation; an integral space that provides the audience with a perceptual experience of juxtaposition between artwork and locality. Jennifer Bolande's artwork installation series entitled *Visible Distance / Second Sight* (2017), situated in the Coachella Valley in Southern California, is a prime example of site-specificity at work (Figure 48). Here, Bolande appropriates a succession of advertising hoardings, replacing their normal commercial content with a sequenced series of large formatted photographic landscapes. These are photographic artworks that when viewed from a distance perfectly align the photographic image to the unseen mountain scenery the billboards block from view. This physical intervention visually re-connects the missing landscape back into the environment from which it had previously been removed.

Bolande's artwork publicly acknowledges the invasive dominance and disruptive presence of advertising hoardings on the landscape. They offer a visceral space for



the public to consider and explore the formal and social boundaries that exist between public art and that of the advertisement within a capitalist society. In reference to this doctoral study, Bolande's work acts as an important indexical point of interest. Her site-specific installations offer geographical and topographical insights into my own archival Tesco images. They inform my approach towards the fabrication and placement of research outputs, as physical representations for public consumption and re-examination. A method of situational representation that provides a geopolitical and cultural bridge between the global enclaves of capital production as identified by Klein (2010), Easterling (2016), and that of the commercially produced photographic image. These products of capitalism are contextually joined, juxtaposed, and figuratively expressed as cultural artworks; critiqued and surveyed through the social conditions and political landscape of their place of dissemination.

As for my own research images, I turn my attention not to the sun-dried desert landscape of Bolande's California advertising hoardings, but to urban and global city landscapes of capital production and commerce. I remind myself of my commercial heritage working for Darius photography, the global conglomerate that is Nestlé, and my time employed by international design agency Anthem Worldwide. I start to consider the highly visible and not so obvious images of the commonplace. The physical and virtual touch points where image and people collide. It is to this material space of the everyday, where culture and capitalism reside side by side in constant juxtaposition and social flux, that I look to place my Tesco images. I will return to site-specific locations where, it is argued, the interested onlooker is provided with an opportunity to confront and contemplate the inter-working relationships that exist between the photographic image, the culture industry, and products of capitalism (Figures 49 & 54).

## **Dialectical Montage: Juxtaposing and sequencing of images**

When considering how best to present practice-led artworks to an audience the author advocates a dialectal method of representation in the form of sequenced imagery. The arrangement of research images located side-by-side in an optical sphere of contrast, presented for public examination and critique through print and digital medium. This will provide a method of dialectal photomontage that can be linked back to Hartfield's pioneering Marxist and Dadaist inspired political artworks of the 1930s, and that of the montage work of the Moscow film school produced during the 1920s and 30s (Figures 35 to 39); a method of representation that provides theoretical and artistic correlation between the political anti-capitalist photomontage artworks of post war bourgeois society, and that of my commercially produced Tesco photo-composite images of capitalism.

## **Further Research**

This practice-led research project offers an objective schema into the internal relationships and transformative conditions of the photographic image as artefact, inner connections of capital production that help facilitate new knowledge and insight. It provides a working methodology that makes visible the human and automated processes of manufacturing and product assembly in a capitalist society. These automated ontological observed processes of assembly continually challenge and reshape cultural, political, and social relations between the man-made artefact and labour.

In progression of this doctoral study the author is keen to extend his research practice to include algorithmic computation and biotechnology imaging systems within the evolving world of quantum computing, artificial intelligence, and the internet of things. This offers revolutionary new technologies that according to Schwab (2016), blur the lines between the physical, digital, and biological spheres. Of particular interest to the author for further study are the state-of-the-art hyperspectral imaging devices that penetrate the internal structure of objects. This involves scientific non-destructive imaging methods that include photogrammetry (the science of extracting 3D information from photographs) X-ray spectroscopy (a technique that measures light particles and photons within the electromagnetic spectrum), and Transmission Electron Microscopy (TEM). The distinguishing features of these macroscopic imaging tools is in their ability to capture beyond the spectrum of visible light, and below the substructure of things to access the material data of objects at the atomic level. In pursuit of a theoretical framework to underpin the exploration of technical advancements in macroscopic imaging systems, the author offers up - the notion of *disclosure* (Heidegger, 1962), the concept of *Reflective disclosure* (Kompridis, 2006), and theoretical work on algorithmic computation and machine learning (Parisi, 2013). These cultural theories provide this doctoral study with a series of alternative working methodologies and innovative insights concerning the global artefact. They also provide critical observations made through structural examination of the ontological and ethical processes of an object's material manifestation. The visual appearance of artefacts that is derived from the collective revealing and re-working of an objects inherent structural processes of production and labour.

## Research data outputs

To accompany this doctoral thesis the author has provided a series of visual data research outputs entitled 'Dataworks', which document and reveal how transformative labour exists as a state of being within the digitally generated photograph (see appendices A-C). All moving image outputs for this research study can be accessed via the researcher's YouTube channel (listed below).

### 1. Composite masked layers

Tesco Cat 049826, (2006), umbrella, table and chairs, *composite masked layers*, reimaged 2021. [https://youtu.be/OHo4vt9g\\_1I](https://youtu.be/OHo4vt9g_1I)

This involves the factual rendering of productive labour embedded within the commercially produced photographic composite. This representation is made possible through the physical pulling apart and revealing of internal assembly layers and transformative processes contained within the photograph's means of production.

### 2. Extended canvas

Tesco Cat 049233 (2006), BBQ Graham's garden, *extended canvas*, reimaged 2021. <https://youtu.be/8GOqj6qwQWA>

An examination of the photographic image through the productive forces of labour contained within its mode of production. The extended canvas is artwork that provides the viewer with a visual gateway into the hidden world of industrial secrets (production and labour). Through a process of expansion that breaks into the physical appearance of images, it makes visible the human labour deemed unsuitable for public consumption and generates surface fractures and visual openings wherein the viewer can descend into the unseen world of capital production.

### 3. Capital in motion

Tesco Cat 049845 (2006), garden hammock, *capitalism in motion*, reimaged 2021.  
<https://youtu.be/lorUyAG2Vjk>

Capital in motion involves the human labour that is embodied within the images' own production, revealed in its data form, reimaged into alphanumeric data code and audio sound waves through the process of automated computer programming. Data, that when made visible, gradually starts to obscure and then completely hides the photograph's function as commodity. Consumed by its own instruments of labour the photograph is physically transformed into a new form of material representation. A transformative process that allows visual insight into the photograph's mode of production as a man-made artefact of labour.

### 4. Sound data

Tesco Cat 049845 (2006), garden hammock, *Sound data*, audio visual render, reimaged 2021 <https://youtu.be/6SIs9rQo1w8>

Audio-visual render of historical labour and production contained within the photographs digital code. Artwork produced provides a physical space for sound data retrieved to exist as observed living labour, labour translated and made visible through the process of cymatics visualisation in sine wave form.

### 5. Data pages

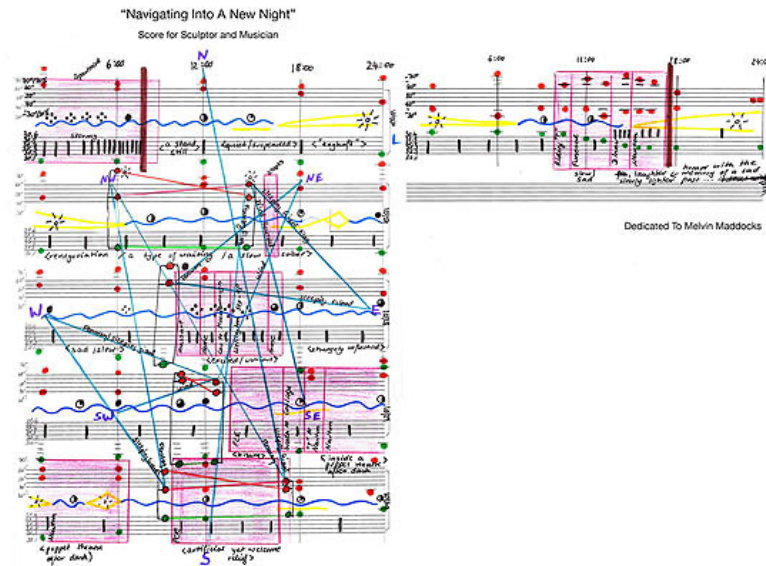
Tesco Cat 049845 (2006), garden hammock, *data pages*, reimaged 2021.  
<https://youtu.be/0HSxNeLJ8>

Data pages are made up of photographic digital code, represented in text format, displayed and sequenced through the processing and mirroring of repeating data patterns (pages) when opened in Microsoft Word.

## Artist plates

**Figure 22**

*Navigating into A New Night*



*Note.* From *weather data translate into musical scores* [artwork], by N. Miebach, 2009, (<https://nathaliemiebach.com/musical05.html>). CC BY-NC.

**Figure 23**

*Hurricane Noel IV, 14"hx16"x16", Reed, wood, rope, data*



*Note.* From *3D musical score of the passing of Hurricane Noel through New England, Nov 2 - 5, 2007, using two weather stations and an ocean buoy as data sources* [sculpture], by N. Miebach, 2015, (<https://nathaliemiebach.com/gulf31.html>). CC BY-NC.

## Figure 24

### *Flight Patterns*



*Note.* From data paths of air traffic over North America visualised in colour and form [photograph], by A. Koblin, 2011 (<http://www.aaronkoblin.com/project/flight-patterns/>). CC BY-NC.

## Figure 25

### *Steve Reich and Musicians, Drumming, Ed of 5, 100m cm x 135cm*

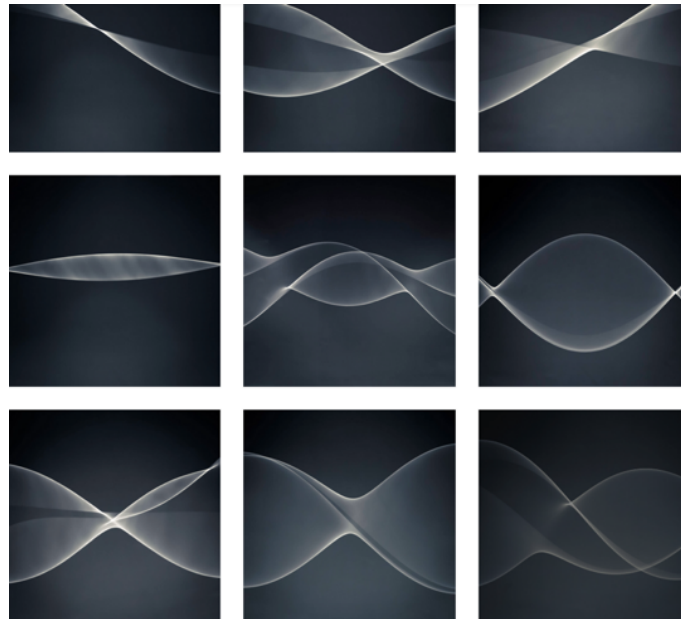


*Note.* From *Sonic Sculpture series, paint vibrated by speaker* [photograph], by M. Klimas, 2011 (<http://www.martin-klimas.de/en/index.html>). CC BY-NC.



**Figure 26**

*Waves, How Does Sound Move? [audiovisual installation]*



*Note.* From *movements of the rope, generating visual and acoustic waves* [Installation], by D. Palacios, 2020 (<https://danielpalacios.studio/portfolio/waves/>). CC BY-NC.

**Figure 27**

*Data scape (DNA)*



*Note.* From *Ryoji Ikeda's datascape installation, Darling Harbour, Sydney, AU* [YouTube video], by A. Buriburi, 2020, (<https://www.youtube.com/watch?v=U7FpR9Wcz4w>). CC BY-NC.



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## Appendices

### Appendix A

Photographic research outputs derived from Tesco's Composite masked layer series

**Figure 28**

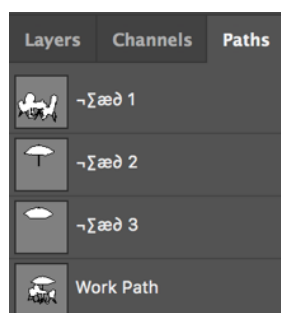
*Tesco Cat. 050877 (2006) Brook house garden, Image 03, digital composite, clipping paths revealed, reimaged 2018*





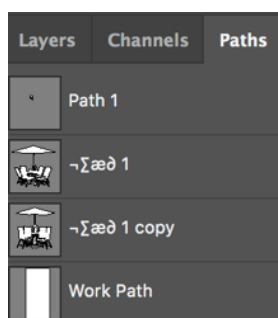
**Figure 29**

*Tesco Cat 050877 (2006), Crescent garden, image 05, digital composite, clipping paths revealed, reimaged 2018*



**Figure 30**

*Tesco Cat (2006), 049602 beach hammock, Image 01, digital composite, layers and masks revealed, reimaged 2018*



## Appendix B

Photographic outputs derived from Tesco's extended canvas research series

### Figure 31

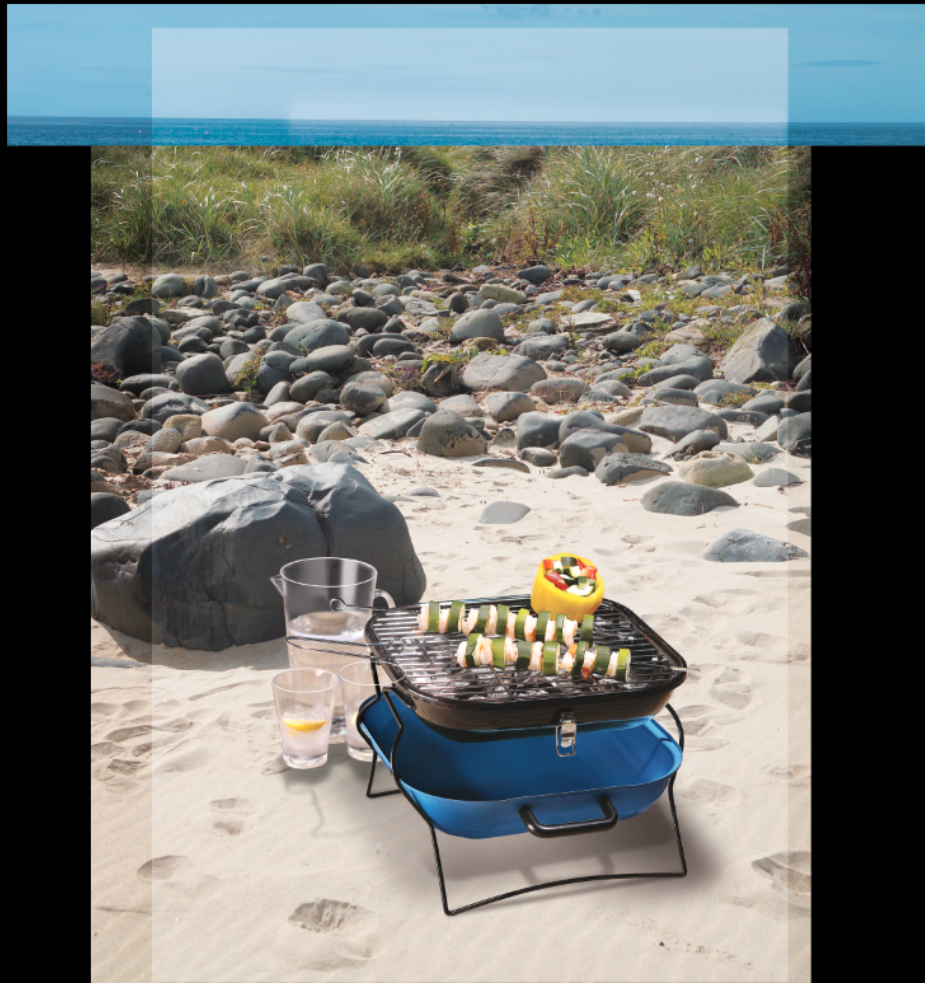
*Tesco Cat 049652 (2006), hammock on Embleton sand dunes, Northumberland, Image 01, extended canvas, digital photomontage, reimaged 2018*





**Figure 32**

*Tesco Cat 049232 (2006), BBQ on Embleton sands, Northumberland, Image 01, extended canvas, digital photomontage, reimaged 2018*



**Figure 33**

*Tesco Cat 049241 (2006), three-legged BBQ on decking, Image01, extended canvas, digital photomontage, reimaged 2018*



**Figure 34**

*Tesco Cat 049233 (2006), BBQ Graham's Garden, Image 01, extended canvas, digital photomontage, reimaged 2018*



**Figures 35 – 39.** Photographic outputs derived from Tesco's extended canvas research series juxtaposed and sequenced side-by-side in dialectical form<sup>11</sup>

<sup>11</sup> See Kuleshov effect. Oxford University Press. A Dictionary of Media and Communication (1 ed.) <https://www.oxfordreference.com/view/10.1093/oi/authority.20110803100044819>



**Figure 35**

*Tesco Cat 049233 (2006), BBQ Graham's garden, Image 01, extended canvas, digital photomontage, Juxtaposing and sequencing of images, #1 reimaged 2021*



**Figure 36**

*Tesco Cat 049233 (2006), BBQ Graham's garden, Image 01, extended canvas, digital photomontage, Juxtaposing and sequencing of images, #2 reimaged 2021*



**Figure 37**

*Tesco Cat 049233 (2006), BBQ Graham's Garden, Image 01, extended canvas, digital photomontage, Juxtaposing and sequencing of images, #3 reimaged 2021*



**Figure 38**

*Tesco Cat 049233 (2006), BBQ Graham's garden, Image 01, extended canvas, digital photomontage, Juxtaposing and sequencing of images, #4 reimaged 2021*





## Figure 39

*Tesco Cat 049233 (2006), BBQ Graham's Garden, Image 01, extended canvas, digital photomontage, Juxtaposing and sequencing of images, #5 reimaged 2021*



## Appendix C

Video stills derived from text formatted digital image data codes and video production

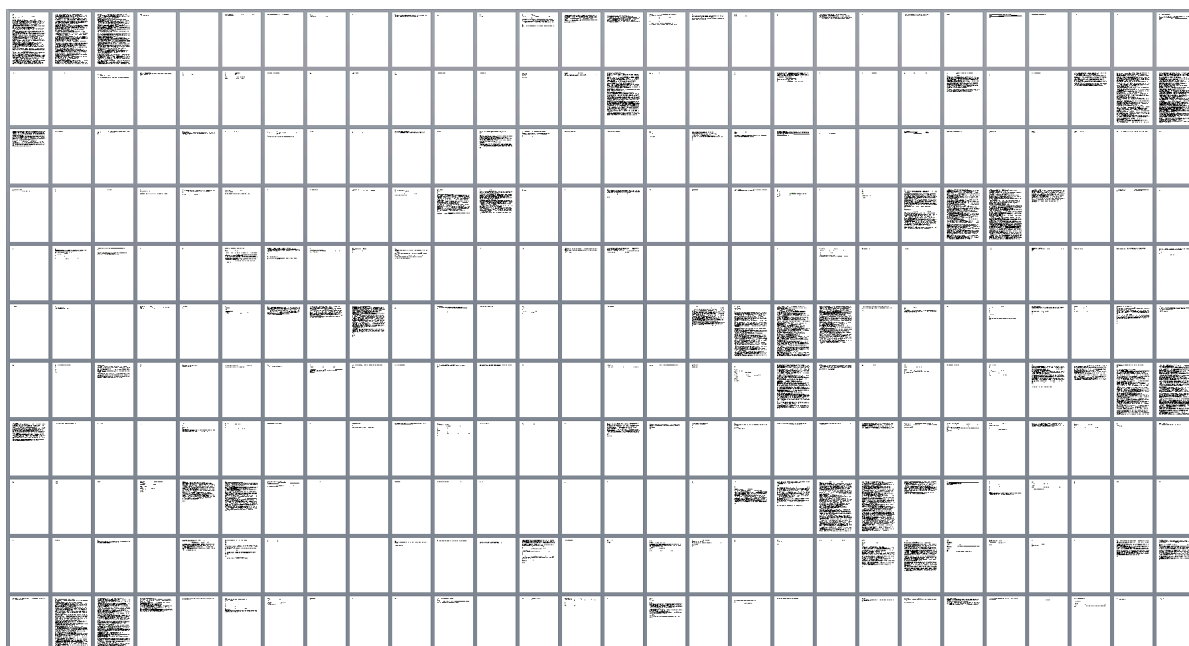
**Figure 40**

*Tesco Cat 049845 (2006), hammock data pages, rasterized photo-construct, video still 01, reimaged 2019*

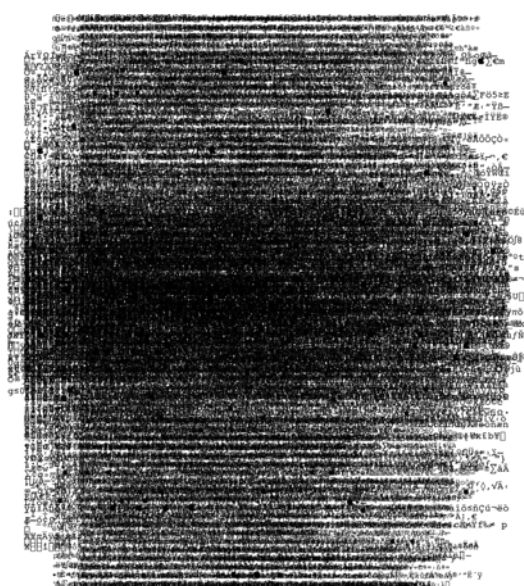
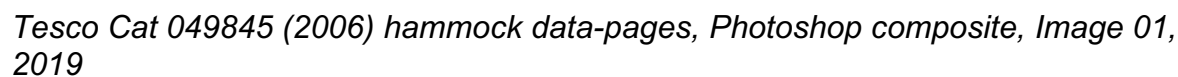


**Figure 41**

*Tesco Cat 049845 (2006) hammock data-pages (112 to 420) Unicode text formatted digital code, 2019*



*Tesco Cat 049845 (2006) hammock data-pages, rasterized Photoshop layers, Image 01, 2019*





## Appendix D

Historical artists that inform research practice

### Figure. 44

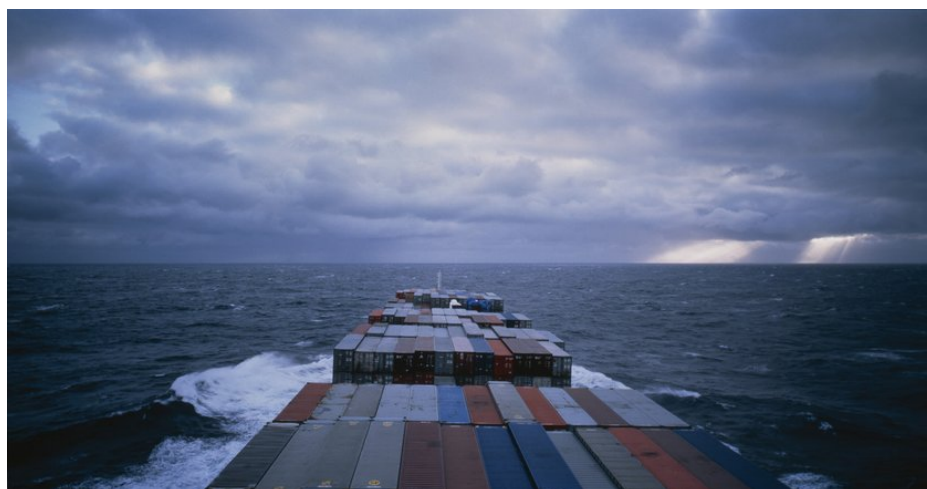
*Sadie Pfeiffer, Spinner in Cotton Mill*



Note. Photograph of child labour by Lewis W. Hine (1908).  
(<https://www.moma.org/collection/works/48220>). CC BY-NC.

### Figure. 45

*Panorama. Mid-Atlantic*



Note. From Fish Story 1989–95. Mid-Atlantic containership [photograph],  
by A. Sekula (1993).  
([https://www.getty.edu/research/special\\_collections/notable/sekula.html](https://www.getty.edu/research/special_collections/notable/sekula.html)). CC BY-NC.

**Figure. 46**

*Kodak Three Point Reflection Guide / © 1968, Eastman Kodak Company, 1968 / (Meiko laughing) / Vancouver, B.C. / April 6, 2005 (2005).*

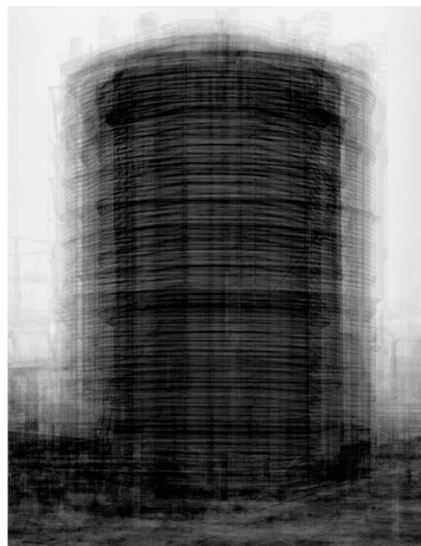


Note. From The Production Line of Happiness exhibition 2014. [photograph], by C. Williams. (2005).

(<https://www.moma.org/calendar/exhibitions/1376>) .CC BY-NC.

**Figure. 47**

*Every... Bernd And Hilla Becher Prison Type Gasholders*



Note. From Bernd and Hilla artwork series [photograph], by I, Khan (2004). ([https://www.saatchigallery.com/artist/idris\\_khan](https://www.saatchigallery.com/artist/idris_khan)). CC BY-NC



**Figure. 48**

*Visible Distance / Second Sight (2017)*



Note; From site specific project, produced by Desert X, in Palm Springs, CA. [photograph], by J, Bolande (2017). (<https://jbolande.com/portfolio/visible-distance-second-sight-2017/>). CC BY-NC

**Figure. 49**

*Dataworks (2022) site-specific photomontage, Hartington Road, Middlesbrough*





**Figure. 50**

*Dataworks (2022) site-specific photomontage, Borough Road, Middlesbrough*



**Figure. 51**

*Dataworks (2022) site-specific photomontage, Linthorpe Road, Middlesbrough #1*





**Figure. 52**

*Dataworks (2022) site-specific photomontage, Linthorpe Road, Middlesbrough #2*



**Figure. 53**

*Dataworks (2022) site-specific photomontage, Linthorpe Road, Middlesbrough #3*





**Figure. 54**

*Dataworks (2022) site-specific photomontage, The Halyard, Middlesbrough*

