The Urban Ecology of Gentrification:

An experimental study of Brixton that uses a novel framework to study a delicate urban ecology undergoing gentrification.

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Outline / Contents

Introduction

London has had a long history of gentrification and as this thesis addresses, in my lifetime, it has been argued that slowly our multicultural capital is being diluted by homogenous and bland forces that are coming to define London's culture. This includes architecture, shaped by what the social theorist Felix Guattari refers to as an Integrated World Capitalism (1989), or globalisation, that in many ways is shaping super-gentrification (Okuyenda, 2020).

Gentrification was first defined by sociologist Ruth Glass, as 'the process whereby the character of a poor urban area is changed by wealthier people moving in, improving housing, and attracting new businesses, often displacing current inhabitants in the process' (Glass, 1964). Whilst this definition summarises an impact that was originally framed in terms of class, it is the social impact of lives of the individual and families across other subjectivities at a local level that are of interest in this thesis. This paper will attempt to evaluate those affected, and consider how gentrification is a force altering the delicate cultural ecology of a community as it reshapes social relations.

This analysis positions gentrification as a social pressure on resources and culture, and therefore explores parallels between this urban political idea and concerns and language used to describe natural processes in ecology. In this respect, the case study will show that there are multiple aspects in which similarities and distinctions can be drawn between the two. Environmental and ecological language are used to both serve and defend architectural development in our urban city centres.

For example, Michael Batty and Stephen Marshall argue in the paper 'The evolution of cities: Geddes, Abercrombie and the new physicalism' (2009) that the use of the organic to explain or determine the development of cities has been situated in amongst other areas, a movement described as 'new physicalism'. In this definition, the organic is used to describe and apply these ideas to a city, even when it is clear that there are limits.

They state; "*the organic analogy is sufficiently superficial that it is barely more than a figure of speech, without any direct practical application. While one may say that a city's parks are its 'lungs', the metaphor does not provide the planner with any specific 'lung-like' direction for the form or location of green space*." As a method of thinking with cultural and social ecology development of a city, it can therefore be argued that new physicalism with its top down order based on organic principles, is highly deterministic.

Nonetheless, in examining gentrification in relation to ecological markers, the aim is to understand how natural ecologies are studied and examined to identify changes which can be framed by a quantifiable scientific measurement – as used to model climate change. This does not mean measuring existing environmental markers; pollution, green urban space or wildlife in the city, or to measure urban development as an organism. Instead ecological markers underpin the key research questions: Is it possible to develop cultural and social markers of change that might allow architects to think through new positions on architectural practice? If so, how might architects develop projects with citizens in the neighbourhoods of a city, whilst integrating the delicate balance of a localised ecology?

As Batty and Marshall go onto argue, this thesis avoids '*The assumptions which underpinned early town planning … based on a superficial, immediate, largely non-scientific view of human decision-making born of a science or rather ideology that did not yet acknowledge or even attempt to understand the mechanisms that might link spatial form to social process.*"(Batty, Marshall, 2009)

Here the role of Félix Guattari and his seminal paper 'The Three Ecologies' (Guattari, 1989) provided a useful framework by which to create 'new productive assemblages' for my question. In this paper, Guattari refers to three ecological registers - environment, social relations and human subjectivity, that underpin his 'Ecosophy'. Criticising existing scientific methods and the "relation between capital and human activity"(1989) Guattari explores how new approaches may target 'the modes of production of subjectivity' as referenced by the author.

Notably Guattari notes; '*Ecology must stop being associated with the image of a small-nature loving minority or with qualified specialists. Ecology in my sense questions the whole of subjectivity and capitalistic power formations*' (1989). In this respect, environmental science should not be used as a metaphor, but as a method. My approach is not pseudo-scientific either, but an attempt to bring together and synthesise different kinds of thinking about ecology. Rather not as natural phenomena, but as a register of subjectivity, the 'socius' of an environment, and applied in a study of a specific urban context.

The next section will introduce a synoptic analysis of key texts that aim to explore in order to understand how ecological science is used and whether when applied to gentrification, reveals a lack of sensitivity to local 'cultural' ecologies and the ways in which we chose to measure impacts on it.

Synoptic Analysis

Ecological case on invasive species

Philip Ball in 'Gentrification is a natural evolution'(Ball, 2014) makes the claim that the changes we experience in cities, if regarded as a 'natural organism', would be a normal evolutionary progression. Philip Ball argues that "urban gentrification is a natural force underpinning the evolution of cities" (Ball, 2014) and describes the views people have as to why gentrification takes place referring to artists moving into cheap housing, or developers buying cheap property to sell for a profit. Using Sergio Porta's work on the environment, Ball describes a more physical process.

Starting with different areas in London, such as "Brixton, Battersea, Telegraph Hill, Barnsbury and Dalston" (Ball, 2014), he describes their similar attributes, such as distance from the city centre and dense housing. These features typify "how the local street network is arranged, and how it is plugged into the rest of the city"(Ball 2014). Most have one local main street with areas branching from it. Citing social theorist Lewis Mumford, he highlights the 'amoeboid' nature of cities.

To compare the sprawling city to an amoeba-like growth to create a marker of gentrification might even be feasible using organic material, slime mould. Slime moulds are "enormous single cells with thousands of nuclei. They are formed when individual flagellated cells swarm together and fuse" (Ucmp.berkeley.edu. 2021). The amoeba-based life form has actually been applied as a method of improving travel links in certain cities. Through placing the mould into a small replica of Japan, with food sources placed where cities would be located, the mould grew to create optimum travel links. Figure 1 shows how the analogy becomes a process that addresses some of the issues of resources, markers, spread, speed of spread, if not displacement of communities.
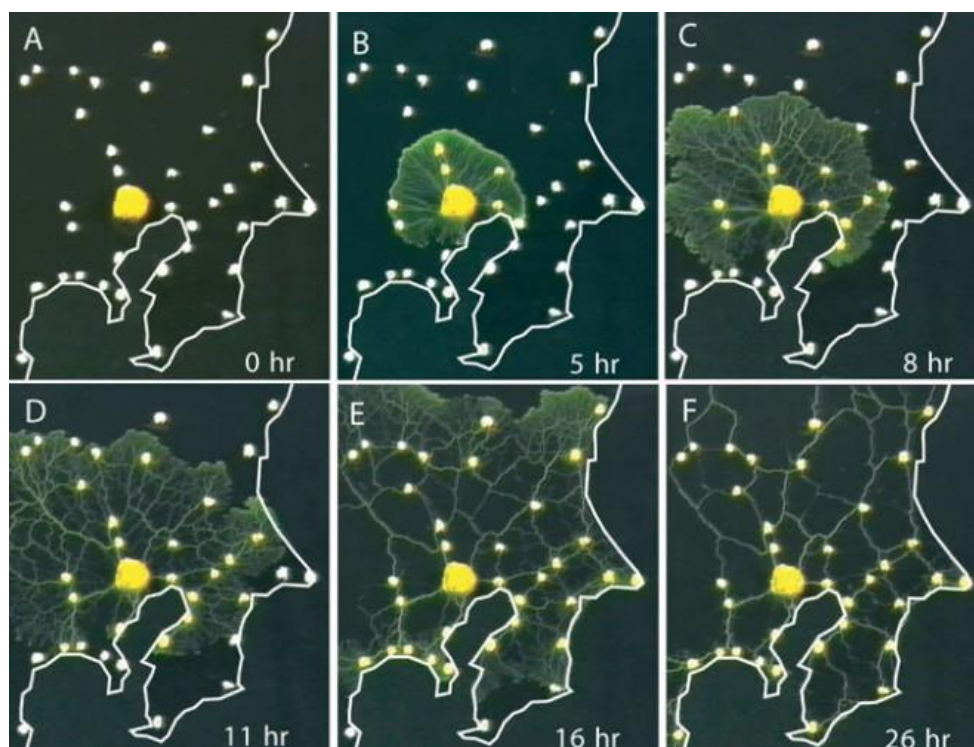

Figure. 1 Slime mould (Sanders, 2010)

Serried Yuppiedromes

In the paper for the LRB, Serried Yuppiedromes (2013), Owen Hatherley critically reflects on the then current changes happening in London which underpin the value of social housing and estates in the development of cities. In Hatherley's journalistic work he has studied London in depth and applies his knowledge of a variety of communities and history, to critique Edward Jones and Christopher Woodward's 'Guide to the Architecture of London' (1983)

Hatherley highlights their reductive approach and states that it should be titled 'A Guide to the Architecture of NW1'. Jones' and Woodwards' nihilistic and privileged attitude towards parts of London is clear through their description of 'Grid P'; "The urban picture is sad – at best a piecemeal catalogue of local authority housing fashions. The most unfortunate developments can be found south of the Elephant and Castle: The Heygate estate and the Aylesbury estate, north of Peckham Road." (Jones, Woodward 1983)

Hatherley argues that this approach to much of London is very traditional yet is told with a scientific confidence that implies an empirical truth. This regressive attitude he argues, highlights architectural writing used to critique London estates. Hatherley gives many examples of buildings that are not written about, from Kate Mackintosh's Dawson Heights to George Finch's buildings in Lambeth. He argues 'the real problem there was surely that a social fabric which, to a degree, 'worked' for its inhabitants was being demonised for aesthetic, pecuniary and pseudo-scientific reasons'.

Biomimicry

'Biomimicry and Gentrification' (2013) by Janine Farnsworth discusses the comparison which can be made between gentrification and evolving ecosystems. The article begins by highlighting how organisms in nature overcome hardships by "adapting, cooperating, competing and forming communities of greater genus" (Farnsworth 2013, p1). The author suggests that one could compare the external pressures of gentrification with rising property values resulting in rising rent prices, leading to the marginalisation of a local community, with key environmental markers, such as 'invasive species'.

In terms of resource pressures, Farnsworth (2013) identifies and praises organisms that consume as much as they need, as compared to humans' instinct of maximisation of resource use. She argues that humans should look at examples of success and suggests that we should learn from organisms such as fungi and animals who have been adapting for a longer time than humans, inflicting less long term damage on local ecologies.

The main argument of Farnsworth's article however is that biomimicry, normally used to describe the imitation of nature, can play a role in evaluating the gentrification of neighbourhoods. The author describes three steps of biomimicry: 1) Defining what needs to be achieved in each community. Farnsworth discusses the issue of invasive species in nature, how they at first increase the biodiversity but quickly compete for resources which leaves the original residents lacking in access to these resources without. The author somewhat simplistically compares invasive species to new residents in gentrified areas. Moreover, Farnsworth goes on to argue 2) that the second step of biomimicry is defining the context of the area. For example, when looking at an area that is being gentrified it is important to evaluate existing businesses and how they can remain rather than shutting them down. This shift of use looks to be more easily measured, and is discussed later in the case study of Brixton. Finally, 3) species must select good organisms to be introduced that will help rather than hinder. This step ties in with the previous step of introducing people, businesses and markets that will boost the existing economy rather than destroying it. However, the assumption that we can plan and manage

nature leaves little room for the reality by which organisms adapt to their context. In the context of the thesis, can we address gentrification as architects only through opposing newly planned urban projects? Or can we pay closer attention to utilising neglected buildings. Does this then lead to a form of value creation and ownership that itself leads to gentrification?

As we can see in the next text, this tension of introducing new elements is as politically contentious as the writing about architecture.

Invasive Species Case

'Stress in biological invasions: Introduced Invasive Grey Squirrels increase Physiological Stress in native Eurasian Red Squirrels' (Santicchia,et al. 2018) looks at the effect of invasive species. This study looks at Eurasian red squirrels in the British Isles and parts of North Italy examining the stress that native red squirrels are under following the introduction of American grey squirrels into their ecology. Physiological stress is identified by the presence of glucocorticoid metabolites in faecal samples. This evaluation also showed that these glucocorticoids, if sustained at high levels, would cause the red squirrels to have a greatly reduced body growth and reproductive rate. This study also experimented with removal studies in which the grey invasive species would be removed from the ecology in order to see the effect it had on the native species. It was unsurprisingly found that the native species' stress level would greatly reduce.

Whilst comparisons could be made between the stresses of an invasive process and gentrification, it is not extinction which is of most interest but the 'interspecific competition for resources', something that can be seen in post-gentrification areas. A key example of this is the gradual removal of local community-based businesses in areas being replaced with national chains or non-independent and corporate businesses. I would argue that this undoubtedly impacts on the health and wellbeing of the local population.

Ecotoxicology and biomarkers

Taking a scientific standpoint on biomarkers as a means of measuring change in ecology, 'Animal Biomarkers as Pollution Indicators' examines ecotoxicology. This paper was groundbreaking in 1992, as it was one of the first incidences of scientists being forced to consider human impact on the environment. The report details the ways in which animals and other parts of nature can be used as pollution indicators - that is picking up on micro changes, not visible otherwise. The report also indicates the criteria for selection of indicator species; easily available, analysis can come from one sample, samples that are often 'contaminated' and samples should remain in a certain area in order to be recorded again. In this respect, a biomarker is a "xenobiotically-induced variation in cellular or biochemical components or processes structures or functions that is measurable in a biological system or sample" (Peakall, 2009). This breakdown shows that specificity of a sample is needed to make measurements, yet the criteria could be altered. In gentrification, can this process be used in order to evaluate a socio-cultural change through something that is physical or material - a quasi organic 'marker', that is measurable in society, and that indicates a gradual shift or change in relation to architecture? I have addressed many of these points in the following section.

Analytical framework

Gentrification as natural evolution

Ball (2014) runs through a series of points surrounding the attributes of places affected by gentrification. Taking a more generalised approach offers a summary as to how many areas have very similar physical features, and these links could be understood as a constant between the examples. One can, therefore, go on to use the examples Ball sets out to see if this fits with the case study and if gentrification has the same attributes. Ball then goes on to use the metaphor of the city as a natural organism to better understand its amoebid-like spreading qualities. We can test this idea to identify and perhaps rationalise why gentrification as a process spreads the way it does.

Serried Yuppiedromes

Owen Hatherley's piece is a clear breakdown and criticism of the more traditional views of the city. Hatherley's criticism of Edward Jones and Christopher Woodward's writing challenges their positions that excuses gentrification as a form of architectural and social improvement. As a method for drawing parallels between the case study of Brixton, whose identity is shaped by large estates that surround it, as described by Okuyenda in his paper on the 'P5 Bus' that runs to Brixton from these estates, there is an emphasis on questions of aesthetic and social improvements used in the service of gentrification. This has been developed as part of the ecological marker that I have used, invasive or local, that looks at how social fabric of existing buildings are left to deteriorate, whilst generic new developments are considered positive forms of invasive architecture.

Biomimicry

'Biomimicry' (2013) by Farnsworth details processes within nature where there are clear comparisons between our society and nature's. It details the ways in which nature reacts to similar processes such as invasive species within ecologies and goes on to describe how certain cultures can adapt to this change. This begs the question of how communities can also adjust to respond to these changes, and in some cases how maybe they can benefit. This analysis, whilst very literal, starts to bridge a gap between ecological change and social change. This paper also highlights the drastic changes that take place in both urban and natural ecologies that lead to these reactions. From obvious changes in the environment such as coastal erosion from the sea, an external 'uncontrollable' source, we can compare this to large influxes of international funding – another external 'uncontrollable' source.

Invasive Species Case

The response nature has to ecological change as seen through Eurasian Red Squirrels' reaction to an influx of the invasive Grey Squirrel (Santicchia,et al. 2018) shows the various reactions that the 'native' species have to the change. This includes physiological stress and how competition leads to a greater stress on resources. These two areas of research could also be applied to human reaction to social change. We can translate the physiological stress into an architectural stress, by highlighting areas of architectural neglect. This neglect is often planned by developers in order to later demolish existing area. As part of the research a visual means of data collection has been defined in order to document this neglect.

Ecotoxicology

'Animal Biomarkers as Pollution Indicators' (1992) by David Peakall, whilst an early call for awareness of climate change, establishes key rules when it comes to the use of ecological markers for data collection as it attempts to measure and detail the effect humans have on their own environment. The paper's analysis provides general criteria used for the definition of an environmental marker and for considering how it can be used for measuring urban ecology and social change. This is important to understand as it makes clear that markers are indicative of two ends of a spectrum and their presences signifies a measurable change, for example freshwater shrimp in non-polluted bodies of water and sludge worms in polluted areas.

Developing a Visual and Spatial Framework for the Photographic Essay

The research for this thesis uses both primary and secondary methods, drawing on the practices of architects as well as standard academic methods. As part of my primary research, I wanted to take an explorative and aesthetic approach through photography. I first created an ecological marker framework through. The documentation as a visual approach is based on the use of visual evidence evolved from ecological markers used to measure climate change, invasive species etc.

Visual markers derived from ecological markers

Ecological markers used in natural sciences	
Landscape.	Example: Coastal Erosion - global change evident at a local scale By measuring the spatial and material damage of shorelines, you can see the impact a global event has at a local level. The intensity and increased frequency of storm damage and rising sea levels are accelerated by Global Warming. Conducted over annual cycles of measurement.
Invasive Species	Example: Non-native flora such as shrubs and trees - slow change at a local level. New species, flora and fauna, not historically in evidence in site of interest now common and or displacing other native populations
Physiological Stress	Example: Squirrel faeces - impact on local populations health and well-being. Materials / organic matter analysis of samples to evaluate the impact on health of an individual species or local ecology. Eg. Examining squirrel faeces for levels of chemicals associated with emotional stress
Translation or speculative approach to potential use of ecological markers in architectural context	
Landscape	Example; Super-gentrification associated with offshore investment in property development. Visual analysis of global changes impacting architectural development associated with noticeable changes to local community as a result of fast gentrification and other external factors affected by change at geo-political levels. Map Key O: New Building, New Development, Offshore Investment
Invasive / Local	Example: Standard gentrification associated with slow changes to population, slow cultural and class shifts associated with a community or neighbourhood. Visual and ethnographic analysis of changes to use of local resources, including displacement of spaces of cultural value (Nour etc) to local communities. Evidence of new non-local and new local initiatives in

	architecture and use. Eg. new small retail (Five Guys V Other Side Fried), as well as existing retail Nour V Sainsbury (?) Map Key <mark>O</mark>: Corporate Ownership, External Ownership, Local Ownership, Black Community Ownership.
Architectural Stress	Example; Measuring local stress on architecture used by local populations to access culturally important resources. Visual and material analysis (material measurements out of scope of thesis) of the fabric of buildings including intentional degradation of assets in advance of future developments - eg. Brixton Arches, Health Clinic on Railton Road. Map Key <mark>O</mark>: Neglected Site, Unused Site, Closed Site, Poorly Maintained Site.

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Case Study; Brixton

Legend:
- **Electric Avenue** (dark blue line)
- **Atlantic Road** (cyan line)
- **Landscape** (yellow)
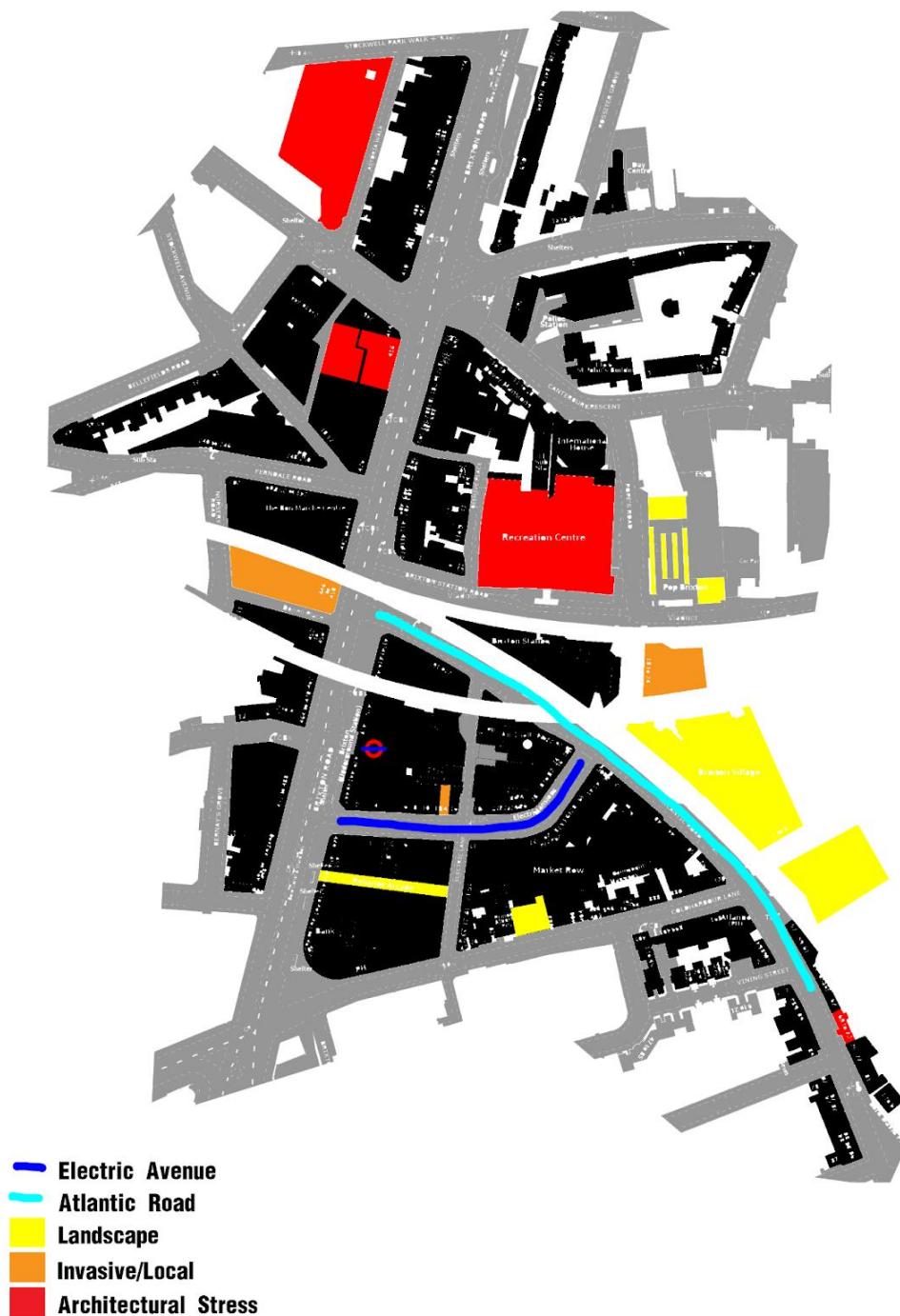- **Invasive/Local** (orange)
- **Architectural Stress** (red)

Figure 2. Mapping of Brixton with locations of Photographic Essay and key areas

Brixton has long been noted as a centre of multicultural society in London. Throughout its social history, the people of Brixton have been subject to radical change. Widely recognised as a key area for Windrush migrants Jason Okundaye (2020) writes;

'*Brixton was built as a middle-class suburb for white Britons in the 19th century, and following the bombing campaigns of the Luftwaffe during Second World War, Brixtonians began to leave for pastures new in overspill towns. In their absence, Windrush migrants began to revitalise the homes and commercial sites they had abandoned*.' (2020)

Brixton's history has been shaped by tensions between the state in the form of the police, and the local communities, including the uprisings of 1981, 1985 and 1995. These uprisings took place due to many reasons, however, one of the most noted were the stop and search 'sus' laws introduced in the 1980s that would later be found to be 'institutionally racist'. In 'From Ethnic Community to Black Community' (Ebke, 2020), states that conflicting opinions between all parties provoked 'a contentious public debate about their short-term causes and long-term origins'. Later spun by the media into 'Riots' and highlighted exclusively and unfairly on the violence of the local Afro-Caribbean community it is now considered by Ebke and others as a racially motivated police regime that led to social resistance violently erupting.

Figure 3. Rioters overturning a van in Riots (BBC/ROGAN, 1981)

Brixton is today facing external forces that are once again brought to bear on its communities as gentrification. Brixton market, a very important part of Brixton's identity and heritage has been at the epicentre of this change. Built in the 1920s, it evolved with its community and environment and stood the test of time serving the populations from different ethnic groups that constitute the population, including Afro-Caribbean, African and South American.

However, Brixton market was sold in 2007 (BBC, 2010) to private owners who a year later were proposing to redevelop the famous market. As part of their proposal, they suggested the demolition of one of the buildings for a private residential tower block. After a survey of the local opinion and a campaign called Friends of Brixton Market, this proposal was swiftly declined. After being listed as Grade II Buildings this heritage protection meant that Brixton Village would go on physically unaltered for a few years. Nonetheless, in 2018, Brixton Market was acquired by Texan DJ named Taylor McWilliams under the Hondo Enterprises Company.

This acquisition took place shortly after the eviction of many businesses under the railway arches on Atlantic Road. These arches are an important part of Brixton's cultural history. In his writing on this struggle, Okundaye (2020) states the railway arches 'typically had been used as light industrial units or storage' were now being used by the locals who pioneered 'a new way for making use of transportation infrastructure'.

This action taken by Network Rail caused outrage in the local community and has since fueled an anti-gentrification movement. Most evicted traders have never returned after the price increased by 350%. The anti-gentrification movement emerged at this point to take a stand and in a protest on Windrush Square proclaimed that this eviction meant the 'Death of Brixton' (Hill, 2015).

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Case Study Findings

As set out earlier by the analytical framework, I will be using the texts of the analysis outlined as a means to better understand the 'gentrification' of Brixton in the last 20 years. In the last section of the analysis of this case study, I will be using the medium of a photographic essay to highlight the points being made in the analysis.

Brixton is a constantly changing and rapidly growing community that has many attributes that can be associated with Ball's understanding of the city as an amoeboid-like growth. This is important in establishing a connection between natural ecologies and its urban counterpart. Using other examples such as 'Battersea, Telegraph Hill, Barnsbury and Dalston' Ball uses their similarities to comprehend and rationalise their linking issue of gentrification. Some of the key features Ball mentions relate to Brixton. These include 'local main' streets in which much of the area is connected to, in the case of Brixton this would be Brixton Road where many of the major connections stem from, such as Atlantic Road and Electric Avenue (See Fig. 2). Ball also discusses connectivity as key to growth, and the need to be 'plugged into the rest of the city'. With both an underground and national rail station, Brixton prides itself in its ease of access to central London. Having an easy connection like the Victoria line, especially in South London where tube stations are sparse, makes visiting convenient for most. This is an attractive quality not only for corporations but also for those who work in the city. As housing prices and ease of access to the city are directly correlated it is no surprise that 'the cost of homes in Brixton has risen 76 per cent' (Knowles, 2017). As housing and general living costs rise, we can see the important role that scarcity and competition for resources plays in this process of gentrification, in the same way these two attributes also massively impact ecological processes.

Using Ball's analogy of the city as an organism, we can see the parallels in desperation for resources highlighted by both slime moulds and the organic spread of gentrification. In the slime moulds amoeboid process, as resources deplete it is forced to spread further out to find more nutrients. In this same way we can try to understand the spread of gentrification, whilst bearing in mind that resources in this case might be generated by those who do not benefit from this spread. The organism is exclusionary.

Brixton has long had a multicultural and diverse identity, but it has not always been viewed in such a positive light, as Owen Hatherley points out when discussing 'Guide to the Architecture of London' (Jones, Woodward 1983), the descriptions of the area are massively generalised as consisting of large swathes of social or welfare housing, and the authors seem to group all areas of South London into this one category, whilst spending great amounts of detail looking at specific areas of individual architectural feats in North and West London. As Hatherley acerbically comments, it should instead be called '*A Guide to the Architecture of NW1*'. A critical part of Hatherley's criticism nonetheless is pointing out the lack of interest in some of the key pieces of architecture in south London, more specifically George Finch's contribution to what Hatherley describes as some of Lambeth's most iconic buildings. One example of Finch's work is the Brixton Recreation centre, a central part of the community. Offering a swimming pool and a multitude of facilities, this space provided much needed active space for health and wellbeing for the local populations of the surrounding area. This is sensitive local development, derided for its aesthetic language.

The direct correlations between Brixton's social change and that of a natural ecology can also be emphasised using Margo Farnsworth's article 'Biomimicry and Gentrification' that compares the ecological process of 'invasive species' to the gradual social change that gentrification brings. As we saw earlier the rising house prices in Brixton, not only create a new community that could be seen as this 'invasive' process, but it also gradually displaces and marginalises the

'native' community. Farnsworth (2013) proposes that we should learn from nature's adaptation to changes such as these, for example, how we should introduce a means for boosting local economies as opposed to simply destroying existing ones.

A key example is the attempted eviction of Nour Cash & Carry (Slingsby, 2020). This local business that provides hard to source international produce, was given an eviction notice by Hondo Enterprises but was quickly met with backlash, leading to Nour being given a long-term lease. Nour is a key example of where a business provides for its community and is an integral part of Brixton's multicultural identity.

Another example of invasive behaviours or processes are the large internationally funded businesses establishing themselves into the area through new developments displacing and impacting the local economy. These larger businesses deteriorate local economies by adding unnecessary competition to resources. However this is not a natural environment, and so we should reconsider the conditions that create negative impacts. So, when looking at biodiversity we see how 'each creature exists in the niche to which it is best suited' (Farnsworth 2013). With this in mind, we should aim for 'invasive' processes to provide a function that works in harmony with the existing 'native' conditions. Be that through understanding the needs of the area and identifying businesses that work in concord with others.

One example of this positive and aware change is the Black Cultural Archives opened in 2014 (See Fig. 4). Their mission is to document, preserve, and commemorate the history of individuals of African heritage in the United Kingdom. The Archives' awareness of the diversity of the local area, grown from many local sources and community memories meant that it has been welcomed by the community and has provided a positive and unproblematic integration into Brixton's identity.

Figure 4. Black Cultural Archives

'Stress in biological invasions: Introduced Invasive Grey Squirrels increase Physiological Stress in native Eurasian Red Squirrels' (Santicchia,et al. 2018) provides an understanding of how stress is identified and measured in environmental context. The stress in the Eurasian red squirrels is driven by the 'interspecific competition for resources'. As pointed out in the previous analysis, this competition for resources is also present in the development for Brixton. The architectural stress that we see in Brixton is highlighted in the areas of neglect that are often intentional, so as to provide reason for new development. Stresses can be created through increased rent prices and so-called redevelopment initiatives. One example of this development is the Brixton Arches. As stated these arches hosted community-driven shops and services that supported the local culture through stores providing international produce. Since these stores' closure, many of these spaces remain empty and with a proportionally extortionate rent increase, the only businesses that can stay are documented in the evidence provided, as major retail brands and corporate chains enter the area.

One of the key methods of creating parallels between natural and urban ecologies is to identify key areas that can be measured and act as 'markers' for analysis. In the text 'Animal Biomarkers as Pollution Indicators' written by David Peakall (1991), the research utilises 'environmental markers' in the form of indicator species. Peakall details the criteria used to identify these biomarkers. Using the criteria stated, one can translate how to identify the urban ecology equivalent. This states that to be eligible the item must be abundant, stationary, affected by process being measured and the age should be able to be measured. This formula is easily transferable to architecture and therefore we can identify the corresponding 'indicator' when looking at chronological changes.

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In the following section, I have used the ecological markers and observations with my own first hand knowledge of Brixton to map the evidence of gentrification.
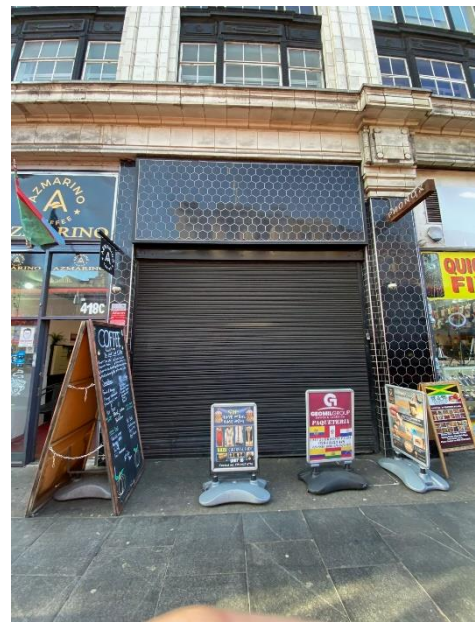

Brixton Recreation Centre

Brixton Academy

Brixton Fitness First

Phonox

Landscape Ecological Markers

These images detail the newer properties associated with offshore investment in property development. The top layer of images shows integral pieces of Brixtons historical architecture, with its amalgamation of styles, from the brutalist redbrick of the Recreation Centre to the classical dome of the O2 Brixton Academy. On the bottom layer we see details of corporate aesthetics and how this changes and arguably occupies the formally eclectic and International

visual language of Brixton. Contrasting this visual evidence of Brixton is key in understanding how to capture and measure a fast forming gentrification often associated with external global capital.

Marks & Spencer Brixton Road

Sports Direct Popes Road

Nour Cash and Carry

African Queen Fabrics

Invasive / Local

This section details another form of external influence, but in this case looks at retail spaces. With larger scale brands competing with more local, community-based ones, vast retail outlets of 'size?', M&S and Sports Direct (soon to be the site of Hondo Tower), are in constant competition and compete for customers with much smaller businesses. Whilst the bigger brands may provide a larger selection with their budget, it is often the case that the local businesses are more tailored to their customers. From the authentic patterns of African Queen Fabrics to the unmatched international produce of Nour, it is evident why these stores have remained a key part of Brixton's history and their simplified and unproblematic aesthetics

Pop Brixton

Brixton Village

Brixton Arches

Reliance Arcade

Architectural Stress

These images aim to visually represent the gradual neglect that many areas of Brixton have undergone, often intentionally by developers or the local council. On the top layer we see the two largest developments in the area Pop Brixton and Brixton Village. Both being owned by non-local businesses their sites have pushed out previous occupiers through rent increases and have brought in a new wealthier economy. On the bottom layer we see how this same method has been attempted but resulted in a loss of business and are now seen as areas of neglect. The Brixton Arches, whilst some are occupied, a majority of them have been closed for the foreseeable future with nobody willing to rent these spaces. On the right we see Reliance Arcade, a once bustling market row similar to that of Brixton Village, right next to the tube station. The local ownership of this space means that it sees nowhere near the same care as that of Brixton Village.

Concluding synthesis and analysis

Through the synthesis of theoretical insights and a novel analytical framework I developed visual research methods that were applied to a case study based in Brixton, London. This has led to some key insights that can be described in terms of what Guattari (1989) describes as the '*three ecological registers (the environment, social relations and human subjectivity)*'.

So, whilst my key aim is summarised by the first part of my research question that asks: Is it is possible to develop cultural and social markers of change that might allow architects to think through new positions on architectural practice, the use of these three registers helps me to reflect on the success of this approach when addressing the second part of the question; can architects develop projects with citizens in the neighbourhoods of a city, whilst integrating with the delicate balance of a localised ecology?

So to summarise, I have used six separate methods for understanding the Brixton case study. These were; 1) conceptualising the city as a metaphor of a natural organism in itself; 2) understanding how neglect affects communities; 3) learning from nature and understanding how to adapt to processes; 4) identifying how to measure change; 5) defining these 'markers' of change; and, 6) analysing how to visually recognize these developments.

Throughout the connection between natural and urban ecology has been challenged. This has been done through various means and the analysis of the case study makes this clear through examples which not only draw on the works of others, but indicate that there are issues with the use of language when applying for example, species to communities of people.

Clearly, using an environmental register as outlined by Guattari, when studying the natural world does not account for changes to landscape in the urban environment. However, I have built a framework that accounts for measuring changes to the urban environment as an ecological approach, an ecosophy. This approach supports the observation that super-gentrification, as Okuyande calls it in his article about Brixton (2020), is a change at a scale that a local ecology finds hard to adapt to. It has a particular impact on social relations.

In the second definition of Guattaris ecologies, we can see how social relations are shaped by the stress and competition for resources faced by local communities, including those who are invasive to these existing populations in terms of class, race and identity. I have learned and observed that changes to communities are not necessarily planned by architects, or exclusively shaped by external actors, but in combination drive change. In some cases, neglect is a strategy for change, and the ongoing issue of local value generation is exploited by predatory forms of capitalism.

Lastly, I would argue that considering architecture as a response to human subjectivity is key to a future of an aware urban development that is embedded within a local ecology. As a resident of Brixton most of my adult life, my own research has an 'auto-ethnographic' dimension and I am aware that in thinking of solutions to these problems, my own cultural identity shapes that.

In summary, the three ecologies are useful in categorising experiences of stress, as was developed out of a paper concerning invasive populations of squirrels, does not point to a misapprehension that we are animals, but in my case, explains and gives meaning to responding to change as a future architect of place. This can be stated for other areas such as

understanding and measuring urban change through the use of 'markers' to using nature's adaptation to change and implementing through a process of sensitive evaluation of an ecology, prior to any development planning.

As Felix Guattari writes, '*It is to be hoped that the development of the three types of eco-logical praxis outlined here will lead to a reframing and recomposition of the goals of an emancipatory struggle.*' I am not sure if I see architectural practice as part of the assemblage of an emancipatory struggle, but plan to continue my research through my own architectural endeavours, so that I might one day positively contribute to the improvement and change of my home, Brixton, as well as other urban areas undergoing rapid development as a result of super-gentrification.

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Figures

Fig. 1 Sanders, L., 2010. *Slime Mold Grows Network Just Like Tokyo Rail System*. [image] Available at: <https://www.wired.com/2010/01/slime-mold-grows-network-just-like-tokyo-rail-system/> [Accessed 11 March 2022].

Fig. 3 BBC/ROGAN, 1981, Randall, D., 2021. Sounds of the Brixton Uprising 1981. [image] Available at: <https://brixtonblog.com/2021/04/sounds-of-the-brixton-uprising/> [Accessed 11 March 2022].