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Elaborate Strategies of (In)Direction Science Fictioning in Architectural Education

Joel P.W. Letkemann



ARKITEKTSKOLEN AARHUS

**Elaborate Strategies of (In)Direction:
Science Fictioning in Architectural Education**

PhD dissertation submitted in partial fulfilment of the
requirement of the degree of Doctor of Philosophy by:

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0.2.0 Project Description

The project entitled “Elaborate Strategies of (In)Direction: Science Fictioning Architectural Pedagogy” is a practice-based project developing a critical perspective and methodological framework for teaching in the architectural studio. It is attentive to the ways in which architectural education is a speculative storytelling media, the ways in which it constructs stories and stories built upon stories: the future fictions of specific sites, but also of the architect- and discipline-to-come. Building upon an interdisciplinary perspective supplied by science fiction and utopian scholarship, and speculative feminist practices and epistemologies, the project begins with building an analytical framework for looking at how what we already do as teachers of architecture is already science fictional. By bringing in discussions from SF scholarship, we can consider how practices in architecture align with other discourses of futurity within cultural production.

As well as being an analytical perspective, the special strength of science fictioning is in the verbal force of the gerundial ‘-ing’ ending. That is, the perspective proposed in the first speculative alignment between SF and architectural education is unfolded and developed in an experimental practice in the architectural studio. These experiments bring strategies of science fictional storytelling to evaluate how these might challenge contemporary pedagogical practices in architecture, especially in maintaining a stature which is resistant to the closure of terms defining architectural pedagogy and in developing students’ own agency in telling the story of prospective futures.

In understanding the dimensions of futurity in architectural education in a subjunctive mood—in possibility, hope, and even desire—science fictioning introduces a stature of perpetual refusal, resistance, and wildness, which refuses to take the terms now defining the architectural discipline as totalizing and immutable. Science fictioning does not supplant one future with another, but rather asks all present and future architects to become active and conscientious storytellers fully aware that, in Donna Haraway’s memorable invocation, these “stories make worlds.”

0.2.1 Projektbeskrivelse

Projektet “Elaborate Strategies of (In)Direction: Science Fictioning in Architectural Education” (DK: “Udførlige Operationelle Strategier for (in)direktion: Science Fictioning af Arkitektonisk uddannelse”) er et praksisbaseret projekt der udvikler et analytisk perspektiv og en metodisk ramme for arkitekturpædagogik.

Det fokuserer på hvordan arkitekturpædagogiken er et spekulativt og fortællende medie, hvordan den konstruerer fortællinger og hvordan fortællinger bygger på eksisterende fortællinger: Fremtidsfiktioner for specifikke steder men også for den kommende arkitekt og disciplin.

Projektet bygger på et tværdisciplinært perspektiv der udgøres af science fiction (SF), utopiske videnskaber og spekulative feministiske praksisser og -epistemologier. Det etablerer indledningsvis en analytisk ramme for at undersøge hvordan det, vi allerede gør som arkitekturundervisere kan forstås som science fiktivt. Ved at inddrage diskussioner fra SF-forskningen kan vi overveje, hvordan arkitektonisk praksis er i overensstemmelse med andre fremtidsdiskurser indenfor kulturel produktion.

Udover et analytisk perspektiv har science fictioning også en styrke i den verbale kraft som ligger i den relationelle ’-ing’-endelse. Det vil sige, at det perspektiv, der foreslås i den første spekulative tilpasning mellem SF og arkitektonisk pædagogik, udfoldes og udvikles i en eksperimentel arkitekturpædagogisk praksis. Eksperimenterne udvikler science fiktive-fortællingsstrategier med henblik på at evaluere, hvordan de kan udfordre arkitektfagets nuværende pædagogiske praksis. Det gælder især strategiernes modstandsdygtighed overfor at lukke arkitekturpædagogiske definerende begreber og deres evne til at udvikle de studerendes egen handlekraft som fortællere af mulige fremtider.

For at forstå arkitekturpædagogikkens fremtidsaspekt i et konjunktivt modus - som mulighed, håb og endda begær - repræsenterer science fictioning et format for bestandig afvisning, modstand og vildskab, som nægter at acceptere de vilkår, der nu definerer den arkitektoniske disciplin som totaliserende og uforanderlige. Et format, som søger at forblive åbent for nye fremtidsvisioner og for en pædagogisk praksis, der til stadighed stadfæster arkitekturens sociale og miljømæssige forpligtelser.

Science fictioning erstatter ikke en fremtid med en anden, men ansporer i stedet alle nuværende og fremtidige arkitekter til at blive aktive og samvittighedsfulde fortællere, med en bevidsthed om, at disse ”fortællinger skaber verdener” som Donna Haraway mindeværdigt har skrevet.

translation: Stine Dalager Nielsen and Claus Peder Pedersen

0.3 Preface

This project grows out of my several years' experience in teaching architecture. Among the topics that I was teaching was digital design and fabrication tools, one area of emphasis at my institution, and one area in which I'd accumulated a level of expertise. My PhD fellowship was awarded on the basis of a call for research in digital fabrication. And indeed, the initial formulation of this project proposed to use science fiction (SF) literature to inspire teaching digital practices in architecture. Specifically, I aimed to use SF literature to ask how the supposed futurity of technical practices in architecture actually aligns with the potential futures described in SF. The question I wrote in my application:

“how does teaching in relation to digital tools depart from an exclusively technical approach, and begin to assimilate the disciplinary and interdisciplinary perspective appropriate to the practice of architecture including cultural, social, environmental and ethical considerations?”

Although much about the project has changed, that question is still at the heart of the present project. Thus, there were three poles in that first articulation: architectural pedagogy, SF, and digital tools. Of course, with the benefit of experience, I can see that the original formulation of the project was quite broad, and as my reader will no doubt find, the project's earlier emphasis on digital technology has become less important. This choice happened for several reasons, though the principle motivation was a desire to prioritize the discussion around architectural pedagogy and the contributions from SF discourse.

I acknowledge from the outset that a certain longing animates this practice in architectural research and pedagogy. I still ask myself what my practice as an architect and educator can do in the face of catastrophic climate change, extreme inequality and injustice, and other troubles that humankind will have to face in the coming decades. The longing that animates this practice is, for lack of a better word, utopian. I say this word with the full acknowledgement that it has been much disparaged in architectural discourse, and yet, I use the word intentionally and without apology. A more thorough discourse around that word is woven through the rest of this text, but here at the beginning, it is worth talking about the motivations that drove this practice.

Simply put, I wanted to understand how architectural pedagogy prioritizes a commitment to ethical, responsible, and radically inclusive practice, which affirms, above any other obligation, the discipline's social and environmental duty of care. I also want my pedagogical practice to be one which trains students to become thoughtful and conscientious actors within democratic society, even to the extent of a continued re-evaluation if not dissolution of the practices now constituting the discipline we find ourselves in.

The motivation for the project also grew out of my appreciation for SF literature and for the possibilities contained therein. While I was already an enthusiast, the chance to delve deeply into the scholarship around SF led me to some fundamental questions about my project and its attitude towards futurity. It has also led to a way of looking at architectural practice and pedagogy that I could not have foreseen earlier.

When I started this project in 2018, I could not have anticipated how the last years would unfold. There were many unforeseen challenges, to be sure, and more than once, I was forced to reevaluate the project I had set out upon. Nevertheless, I have also met many new opportunities, and encountered people and ideas that will continue to shape my own practice long into the future. I sincerely hope that my reader will find something in the following pages which can inspire them and which helps them see new potentials in their own practice—no matter where their practice takes them in the future.

0.3.1 Preface to the Second Edition

The second edition of the present work includes some changes and additions to the material in the first edition. Primarily, these developments are a response to the comments I have received from the PhD committee who evaluated the first submission, and who will evaluate this re-submission. The committee suggested that the resubmission focus on three areas, and a time frame of three months in which to answer their comments.

The first request from the committee is for a greater integration of the two parts of my thesis. The first part of this thesis is a theoretical investigation trying to define what a practice of science fictioning in architectural education might be. The second part of this thesis also aims to arrive at what ‘science fictioning’ might be, but in this case through several practice-based experiments in teaching architecture. While I have written that these two parts of the research are tightly woven together, I have not been as explicit about how this is the case. I have attempted to rectify this in a re-written Chapter 1.5, in which I have surveyed how the frameworks adapted from SF and related scholarship have influenced my experimental practice in teaching architecture, and in relation, how the preliminary experiences and results from the experiments helped guide the theoretical practice as well.

The second request from the committee is for a more clear contextualization of the present work in relation to other work in the field of architecture which depends upon a relation to science fiction. The previous submission had a small section in Chapter 1.0 which briefly outlined that other work in the field. The present submission greatly expands this section in the same chapter. That section is still called “Situating the Research and Research Gap.” In it, I survey the range of architectural and design scholarship which combines science fiction with architecture and other design fields. Along the way, I describe how the present research addresses some pretty significant oversights in that meeting, particularly on the part of architectural commentators.

Finally, the committee recommended a change in the name of the book in order to underline that the present project is not a comprehensive theory of architectural pedagogy generally, and rather an exploration mostly oriented towards design studio education. For this reason, I have changed the title from “Science Fictioning Architectural Pedagogy,” to “Science Fictioning in Architectural Education.” I hope

that the change, while subtle, de-emphasizes what might seem a potential link to a more comprehensive pedagogical theory, while still maintaining an emphasis on the practice I have named ‘science fictioning.’

Thus all major changes between the previous submission and the present one are contained in chapters 1.0 and 1.5, as well as on the title page. I have taken the opportunity of resubmitting to make minor corrections through the rest of the book—these are largely corrections in spelling, orthography, or grammar which escaped my earlier proof-reading. Where I couldn’t help myself, small changes and refinements have also been added, but in such a way as to clarify rather than change the meaning. The substance of these other chapters remains entirely unchanged.



Part 1

1.0 Introduction

The project titled “Elaborate Strategies of (In)Direction: Science Fictioning in Architectural Education” is a practice-based project developing a critical perspective and methodological framework for use in the educational context of the architectural design studio. As well as learning from works of science fiction (SF), this project is attentive to the ways in which architectural education is its own speculative storytelling media in the ways in which it constructs stories and stories built upon stories: the future fictions of specific sites, but also of the architect- and discipline-to-come. Building upon an interdisciplinary perspective supplied by science fiction and utopian scholarship, and speculative feminist practices and epistemologies, the project begins with building a critical framework for looking at how what we do as teachers of architecture is already science fictional. By bringing in discussions from SF scholarship, we can consider how practices in architecture align with or even contradict other discourses of futurity within cultural production.

In more than one place in this book, I draw attention to the verbal force of the gerundal ‘-ing’ suffix in science fiction-ing. The neologism¹ suggests something like an act of attaching or imposing some quality of science fiction (SF) onto something else. So my project begins by proposing a speculative correspondence between architecture and SF, and the rest of the project is to understand how seeing architecture from/with/as SF might be true or at least productive for thinking about architecture and architectural education. So the project starts with the question, what would it mean to say that architecture *is* science fiction, and what are the consequences for teaching in architecture? Even this first thought experiment opens up a critical perspective to look at what is, in effect, a future-oriented practice such as architecture.

Of course, I do not make any absolute claim in equating SF and architecture, but rather ask what such an alignment makes thinkable about how we conceive and communicate the discipline. This project looks to this alignment to see what it might reveal about how we imagine the future within the discipline, especially as we stack it up against the popular discourse about futurity—both hopes and fears—that we see in SF. As well as looking at what we might learn from SF, as the project progressed, I

1 I am not the first to have arrived at this usage; as I develop more in chapter 1.4, art critics David Burrows and Simon O’Sullivan and educational theorist Jessie Beier have all found the invented word useful.

also began to ask what science fictions we were already constructing. In particular, I considered how the discipline and the figure of the architect are constructed as their own fictions, not least inside pedagogy, where it becomes clear that ‘architecture’ and ‘architect’ do not pre-exist their emergence in discourse—that is, as stories.

Science fictioning does not presume to be an entirely new methodology. As I will come to discuss, architecture has always been a speculative practice, and much of what we already do in teaching architecture can be talked about in the terms and perspectives supplied by SF. We’ve always been science fictioning, although we haven’t always talked about it as such. By this I mean both that making architecture produces SF-adjacent imaginations of a specific future, but also constructs fictions around who makes architecture, how, and for whom. Therefore, one of the contributions of this research is to develop how SF scholarship can supply a critical framework to look at what we already do in the discipline of architecture.

As a verb, science fictioning also suggests that what might be happening is not a conceptual alignment so much as an active practice, and I would like to emphasize this point. In as much as this project is a theoretical investigation, it is pursued in practice-based mode that has included teaching, making, speaking, listening, and collaborating alongside a writing practice that is also—to a degree—speculative. Therefore, the second half of this book documents seven practice-based experiments that have tested, expanded, and even challenged the theoretical perspectives outlined in Part One. While on one hand this project relies on knowledge and methods from the humanities, I have pursued this project as a practice-based exercise in order to open up different possibilities implied by science fictioning—the practices I have collected under the term science fictioning are partially developments from existing practices and perspectives and also new developments and accommodations to the specific circumstances of the project. What I hope I have accomplished in this project is to set out some initial parameters and considerations for a science fictioning practice, not to exhaust the term, but to open up a thinkable space in a way that is productive for a future-oriented practice in architectural pedagogy.

The project is resolutely interdisciplinary project, the first half of the book writes architecture and architectural pedagogy together with SF and utopian scholarship, and with speculative currents in philosophy and pedagogy, each a different perspective to look at architectural production, while the second half of the book turns these perspectives upon the practice-based experiments that constitute the practice-based research of the project. The project’s interrogations and findings are uncovered

and described in the oscillation between these two modes of inquiry, and this strict bifurcation might not reveal how deeply entwined these two parallel research practices have been. The first half, after this introduction, is comprised of 4 chapters, each describing a perspective with which to look at the alignment of architecture and SF. These chapters could be further teased apart. The first two, entitled *Novum* and *Estrangement*, are about reading SF and about reading architecture *as* and *from* SF. The next two are about how to engage in a speculative practice, making architecture and architectural pedagogy as SF. So, in a rough analogy, chapters 1.1 and 1.2 are about *reading*—the critical framework, while 1.3 and 1.4 are about *making* SF—the projective component. Chapter 1.5 closes the first half of this book, and describes how the concepts I have identified as a part of a science fictioning practice are activated, and even challenged in the experimental practice.

The second half of the book describes a practice-based research, which depends upon the work produced within the practice as the ‘text’ for discussion and criticism. While they are presented here as discrete, the project relies upon a speculative method in which the practice-based and theoretical research are twinned strategies that significantly and mutually influence and support the other, supplying questions and challenging assumptions.

Science Fiction

Before we go further, it might be appropriate to consider what ‘science fiction’ is, especially, as Carl Freedman reminds us “no definitional consensus exists” for this heterogeneous phenomenon of cultural expression,² nor, it seems, can anyone agree on a single point of origin for the genre. Ray Bradbury would put the origin in the first flicker of imagination—he would make the cave paintings in Lascaux the first known SF text.³ While speculative dimension have existed throughout literary history, Mary Shelly’s *Frankenstein* (1818) is often singled out as an ur-text containing all the widely accepted hallmarks of the genre, and so too are the works of H.G. Wells and Jules Verne in the later half of the 19th century. The term itself was not used until the 20th century, when editor Hugo Gernsback called the stories

2 Carl Freedman, *Critical Theory and Science Fiction* (Middletown, Connecticut: Wesleyan University Press, 2000), 13.

3 Ray Bradbury, “Dusk in the Robot Museums: The Rebirth of Imagination,” in *Zen in the Art of Writing: Essays on Creativity* (Santa Barbara, Calif: Joshua Odell Editions, 1994), 99–108.

in the pulp magazines he published ‘scientifiction’—a marketing strategy to argue for educational value of the work given the inclusion of technological ephemera or the character of the scientist hero.⁴

In the later half of the 20th century, the term gained prominence if not definitional specificity, as it came to refer to an ever growing and mutating body of trans-medial entertainment—literature, graphic novels, films, games, and more. Although the term is popularly imagined to refer to works which proceed from some scientific or futuristic premise, something to do with spaceships and laser weapons, any substantive survey of SF literature would quickly disabuse one of that notion. Moreover, works named science fiction only have the vaguest relation to another—the Star Wars films, for example, largely rely on tropes established in fantasy and myth,⁵ while a film like *The Martian* (dir. Ridley Scott, 2015) makes the pretense of proceeding upon scientific accuracy.⁶

Early SF scholarship, in a bid to legitimate its object of study, was preoccupied with establishing a formal definition of the genre and a canon of texts. Yugoslav-born scholar Darko Suvin’s influential definition of the genre, first published in 1972, defines SF as a “literature of cognitive estrangement,” predicated on the “hegemony of a fictional *novum*.”⁷ Or, in a slightly longer form, but which captures the interaction of estrangement and the *novum*, Suvin writes:

*“SF is, then, a literary genre whose necessary and sufficient conditions are the presence and interaction of estrangement and cognition, and whose main formal device is an imaginative framework alternative to the author’s empirical environment”*⁸

4 Arthur B. Evans, “The Beginnings: Early Forms of Science Fiction,” in *Science Fiction: A Literary History*, ed. Roger Luckhurst (London: The British Library, 2017), 11–43.

5 Star Wars creator George Lucas was quite open about his debt to Joseph Campbell’s study of mythology. See: <https://www.starwars.com/news/mythic-discovery-within-the-inner-reaches-of-outer-space-joseph-campbell-meets-george-lucas-part-i> (retrieved 13. January, 2022)

6 The author of the novel, Andy Weir, took pains to make the story scientifically accurate, but does admit to taking some liberties for dramatic effect. <https://web.archive.org/web/20150904010414/http://www.forbes.com/sites/brucedorminey/2015/08/31/rethinking-the-martian-why-dust-storms-wouldnt-sabotage-a-real-mars-mission/> (retrieved 13. January, 2022)

7 Darko Suvin, *Metamorphoses of Science Fiction: On the Poetics and History of a Literary Genre*, ed. Gerry Canavan, *Ralahine Utopian Studies*, volume 18 (Oxford: Peter Lang, 2016), 15, 79.

8 Suvin, 20.

This ‘imaginative framework’ is a rather more open way to capture magnitudes of difference from the author’s real world experience, and captures everything from a new gadget, agent (*eg.* an alien), or new environment removed in space or time, and by this definition a work of SF is any fiction which has such a *novum* as its central concern, and which can be ‘cognitively’ validated.

As the terms ‘novum’ and ‘estrangement’ are the starting points for the first two chapters in this work, and are the subject of much discussion within this project, I will not further discuss them here.

While Suvin’s definition continues to be much discussed, refined, and contested, it still laid the groundwork for the study of SF in an academic context, which not only shapes the field, but also, as Tom Moylan argues, continues to frame the discourse according to Suvin and his contemporaries’ affinity for Marxist literary analysis which continues to influence the field to this day.⁹ Needless to say, Suvin’s work was so influential to the study of SF that it would be impossible for me to ignore,¹⁰ and as I anticipate that most of my readers will have a background in architecture rather than SF studies, I use Suvin’s work as an appropriate way to introduce my readers to the field of SF scholarship.

As well as an attention to the formal qualities of SF in these early studies, there was much attention directed towards determining which works were aesthetically significant. In effect, these scholars attempted to define a canon of SF literature in order to legitimate the field in relation to the aesthetic predilections of their contemporaries in the academy; theirs was a defense of SF literature as big-L Literature, which resulted in a narrow field of candidates for study. To be sure, this coterie is still widely read and celebrated, and Suvin includes Brian Aldiss, J.G. Ballard, Samuel Delany, Philip K. Dick, Ursula K. Le Guin, and Stanislaw Lem among others, while the ‘Big Three’—Isaac Asimov, Arthur C. Clarke, and Robert Heinlein—feature quite significantly. However, on the difficulty of preserving such canonization, Carl Freedman, following Eagleton, writes:

“those works are literature which are called literature by the minority of readers who, in a given time and place, possess the social and institutional

9 Tom Moylan, *Scraps of the Untainted Sky: Science Fiction, Utopia, Dystopia* (Boulder, Colo: Westview Press, 2000), 45.

10 Gerry Canavan, “The Suvin Event,” in *Metamorphoses of Science Fiction: On the Poetics and History of a Literary Genre*, ed. Gerry Canavan, *Ralahine Utopian Studies*, volume 18 (Oxford: Peter Lang, 2016), xi–xxxvi.

*power which allows their views on the matter to prevail. In our present historical situation, these authoritative readers include academic critics and teachers, publishing executives, librarians, editors of journals and reviews, and others.*¹¹

These critics, reading and writing from limited historical and cultural perspectives, found ways to legitimate certain authors and ways of writing while denigrating others. It meant that they could dismiss most literature called SF as “sheer confectionery,”¹² while still preserving the literary significance of a small group of authors according to their own judgment. These critics, however, were not choosing from a predetermined field of SF literature, they were constructing the field itself.¹³ Their object was to differentiate a distinct field from other non-naturalistic literature, such as fantasy, and to include SF as a part of ‘respectable’ literature, while never questioning the power structures inherent in such critical distinctions. However, I follow more recent scholarship in welcoming a more expansive definition of the genre.

I have been using the acronym SF from the beginning of this introduction, and not for mere expediency. Rather, as critics have long observed, the ‘science’ in science fiction has never really aligned with actual developments in science and technology. Science proposes a boundary that was never really there, and draws a cognitive horizon seemingly constrained by positivist scientific practices. But this is not where the borders of SF lie. In more recent scholarship, ‘SF’ is more prevalent, where the S refers rather to ‘speculative’ than to ‘science.’ The acronym is used as a large umbrella term to collect the wide, intersecting fields of speculative literature, including fiction with an interest in science and technology and their repercussions, but also fantasy, and other speculative tendencies, such as gothic, horror, or ‘weird’ fiction. Using the acronym SF signals the non-closure of the term, and makes a more inclusive space for a wide spectrum of non-realistic literature. As Haraway reminds us, the deliberate ellipsis of the acronym can be a pregnant void filled many ways, which signal not only a specific narrative convention but also ways that convention effects reality—alongside science or speculative fiction, Haraway proposes speculative feminism, string figures, and science fact alongside other possible referents for the acronym.¹⁴

11 Freedman, *Critical Theory and Science Fiction*, 228.

12 Suvin, *Metamorphoses of Science Fiction*, 49.

13 Freedman, *Critical Theory and Science Fiction*, 229.

14 Donna J. Haraway, *Staying with the Trouble: Making Kin in the Chthulucene* (Durham: Duke University Press Books, 2016).

Furthermore, as John Rieder points out, works emerging from the western tradition of more closely hewing to ‘science fiction’ have an unfortunate legacy of entanglements with colonialism and western imperialism.¹⁵ He writes that many of the tropes and conventions of the genre are structured around 19th century discourses around science and progress—discourses that, for all their claims to Enlightenment rationalism, rather transparently emerge from explicitly racist and exclusionary rhetoric. Even the denomination of the genre as science fiction, as Bodhisattva Chattopadhyay writes, is a colonial appropriation. It is an imperial designation for a form of speculative literature that long precedes its codification as SF.¹⁶ Chattopadhyay’s ambition to ‘recenter’ SF away from western, largely Anglo sources is not to propose some other origin myth for the genre, but to recognize that the recent emergence of the term ‘science fiction’ makes a claim to storytelling devices that had been around for much longer, and likely emerged independently of each other.¹⁷ In reclaiming speculative literature from its entanglements in colonial, racist, and problematically techno-optimistic history, Chattopadhyay advocates for an attention to futures emerging from the whole range of global futurism—including Afro-, Indo-, Sino- and Indigenous futurisms. Along with this range of global futurisms, recent explorations in SF and futurism have also included perspectives from other non-hegemonic perspectives such as feminist and queer futurisms.

The recent discourse on the genre acknowledges that there is no pre-existing category by which one text or another might be included or excluded. SF, like other genres, is a fluid category constructed by those who use the term. John Rieder, referencing Deleuze and Guattari’s ‘rhizome,’ reminds us that any genre is the “collective enunciation” of several overlapping communities of practice. Definitions of SF are therefore “working definitions, provisional conceptualizations suited to the purposes of a particular community of practice and, within that community, to the needs and goals of a specific project.” SF then is a field in progress, an ongoing project,

15 John Rieder, *Colonialism and the Emergence of Science Fiction* (Middletown, Conn: Wesleyan University Press, 2008).

16 Bodhisattva Chattopadhyay, “On the Mythologerm: Kalpavigyan and the Question of Imperial Science,” *Science Fiction Studies* 43, no. 3 (November 2016): 435–58, <https://doi.org/10.5621/scieficstud.43.3.0435>.

17 Bodhisattva Chattopadhyay, “Recentering Science Fiction and the Fantastic: What Would a Non-Anglocentric Understanding of Science Fiction and Fantasy Look Like?,” in *Speculative Fiction 2013: The Best Online Reviews, Essays and Commentary*, ed. Ana Grilo and Thea James (London: Jurassic, 2014), 213–28, <http://strangehorizons.com/non-fiction/articles/recentering-science-fiction-and-the-fantastic-what-would-a-non-anglocentric-understanding-of-science-fiction-and-fantasy-look-like/>.

and the delimitations which constrain it are more often the preserve of publishers, booksellers, or fan communities than something that might be found in the works themselves.¹⁸ I have not concluded this section with a definition of SF, but rather pointed out the difficulty of defining the genre. If Rieder is correct, then as SF author and critic Damon Knight writes, “science fiction is what we point to when we say it”—it is a shorthand for a certain community of readers.¹⁹

By now, my reader might ask why I use the term in the title of my project, even while fully accepting that ‘science fiction’ as a term is problematic at best. The answer is that I maintain science fiction in the title of this project because of the popular appreciation of these works as being ‘about’ the future—even if it is not a definition I would accept. While any claim to science fictional extrapolation or, worse, prediction is largely disavowed in the chapters that follow, the terms science fiction, sci-fi, or SF hold a place in the popular imagination of futurity, and the concern for mapping out and describing possibilities and paths towards multiple futures is central to this work. Therefore, in the experiments relying on SF literature, I rely on SF that has a significant difference from the reader’s experience of everyday reality, and which suggests possible (however unlikely) futures. The concern with futurity in the project is, more than anything, mindful of the anemic futures imagined within the horizon of contemporary neoliberal capitalism, and the necessity of imaginaries which synthesizes the concrete spatial and technical demands of a future architecture with the social, environmental, and affective imaginations from many futures as they are revealed, discussed, critiqued and developed within the popular discourse usually called SF.

As Carl Freedman writes, SF “ought to be understood not as a pigeon-hole into which certain texts may be filed and certain others may not, but rather an element or still better, a tendency, which is active to a greater or lesser degree within a literary text.”²⁰ This echoes other theorists such as Seo Young Chu, who argues for a science fictionality in all language in its degrees of cognitively estranging mimesis and

18 John Rieder, “On Defining SF, or Not: Genre Theory, SF, and History,” *Science Fiction Studies* 37, no. 2 (July 2010): 196, 206.

19 Knight, quoted in: Rieder, 203.

20 Carl Freedman, “Science Fiction and Critical Theory [1987],” in *Science Fiction Criticism: An Anthology of Essential Writings*, ed. Rob Latham (London ; New York: Bloomsbury Academic, 2017), 227.

lyricism.²¹ As I will come to describe in due time, I have also come to understand SF as much as a way of reading as for a set of qualities that might be observed in any single text. Following Samuel Delany's discussion of SF subjunction, my appreciation for science fictionality is largely referring to the degrees of possibility and contingency that this mode of reading communicates, particularly in provoking the reader's attitude towards the non-closure of the present, and the possibility of change.

Situating the Research and Research Gap

The present project weaves between several different fields of intellectual inquiry. As transdisciplinary research inevitably does, it does not capture any single field, but rather sets up an encounter between multiple fields. But even as this project is positioned between several fields, teaching architecture is the central organizing thread, and the encounter is between architecture and SF, especially focusing on SF and utopian scholarship. This meeting is the point of departure for the project, and also the site of its most significant contributions both to architectural practice and theory, and also to SF scholarship. As the present work intends to speak to architects and architectural educators, both those that already do use SF in some capacity as a part of their teaching and practice, and those who will consider the present work within the context of their own practice, the immediate context of the research is architects who have written about SF.

The project of contextualizing a work of research is to describe one's interlocutors, who one is speaking to, learning from, and even disagreeing with. While the field of architecture has drawn upon SF in the past, the nuances of that exchange, and therefore what exactly it is that SF offers to thinking about architecture and architectural education has not always been described. My argument is that a closer attention to SF scholarship asks architects and educators to be more deliberate about what futures are imagined and how they are reproduced and promulgated in their practice. The seemingly wide-spread enthusiasm for SF within architectural practice betrays the paucity of work which deals with SF critically, or with SF scholarship directly. This widespread enthusiasm also hides wildly different ideas about what SF is, and therefore how it relates to architectural production.

21 Seo-Young Chu. *Do Metaphors Dream of Literal Sleep? A Science-Fictional Theory of Representation*. Cambridge, Mass: Harvard University Press, 2010.

One popular understanding of the genre might be that it is about space travel, and so popular discourse might be tempted to include a project such as Rachel Armstrong's Project Persephone²² as a science fictional project. This project invites a multi-disciplinary group to work through the many interrelated challenges, technical and otherwise, that would need to be met in order to make a generation ship possible, but also uses these to reconsider the epistemological assumptions which structure contemporary ideas about the world and the world's place in the cosmos. While this project includes significant speculative dimensions, makes reference to works of SF, and while the generation ship is still a popular trope in the genre,²³ the level of detail within the project suggests that the aims of such a project are to illustrate the conditions for how a generation ship might work *in reality*, and to set the ground work for its construction in the future. That is, all indications suggest that while we might read the project as a work of speculative technology, its authors are keen we *not* read Project Persephone as a work of fiction.

It should be said that the present project does not aim to define its science fictionality as an expression of speculative technology. Nevertheless, the boundaries between fact and fiction are ever so porous, and even projects such as Armstrong's Project Persephone illustrate how technological speculation, even while realism might be its intended outcome, still exists to some degree as fiction as well. That is to say, there is an intention or ambition towards futurity in the project, towards a world that doesn't yet exist, and with implications for architecture and design.

In a similar example, *Moving To Mars*, edited by Justin McGuirk *et al.* for the Design Museum in London,²⁴ takes a premise that has long been science fictional—the colonization of Mars—and delves into the processes by which it can become real. Seeing potential Mars exploration and colonization missions as a design exercise skirts between very real innovations from existing and planned missions from the likes of NASA, to more speculative proposals from architecture and design firms who propose habitats to protect and sustain the future colonists.

22 Rachel Armstrong, ed. *Star Ark: A Living, Self-Sustaining Spaceship* (Cham: Springer International Publishing : Imprint: Springer, 2017) <https://doi.org/10.1007/978-3-319-31042-8>.

23 See, for example: Kim Stanley Robinson, *Aurora* (New York: Orbit, 2015); Becky Chambers, *Record of a Spaceborn Few* (London: Hodder & Stoughton, 2019).

24 Justin McGuirk et al., eds., *Moving to Mars: Design for the Red Planet* (London: Design Museum Publishing, 2019).

Figure 1.0.0 - Cover of Archigram Issue 4



While all these projects are very clearly intended as real proposals for future habitation on Mars, the respective authors' and designers' indebtedness to SF cannot be overstated. One chapter surveys the way Mars has occupied human imagination over time, from first recorded observations in ancient Babylon to the works of SF in the 20th century, showing how these have inspired not only the interest in Mars, but also had a very real impact on the potential technological, social, and environmental conditions that might exist in a future colonization of the red planet.

The discussion of the SF literature which has long inspired interest in the planet also includes an interview with SF writer Kim Stanley Robinson, well known for his Mars Trilogy (1992-96). Interestingly, in contrast to the seeming realism of the rest of the work, Robinson argues that, in spite of the rather sincere explorations of the designers, we might best understand their work as design fiction—that is, while the design projects are 'real,' and might even 'really' work, the imaginative colonization of Mars is rather more importantly a kind of SF estrangement: "its there to make our own life on Earth seem as strange and tenuous to us as it really is. Once we get that angle of vision, we might be more careful with Earth. I hope so."²⁵ Such a position reveals the difficulty of maintaining a distinction between seemingly realistic and speculative practices in design, technology, and SF.

In what follows, I look at how architects have understood SF, and how they might understand architectural practice as SF. Even though SF has been a persistent cultural phenomenon for over a century, within architectural circles it is sometimes derided as juvenile or at best, merely a source of curiosity for those interested in technological novelty or in the pop aesthetic of SF film and comics—the most notable being Warren Chalk's cover for Archigram 4, featuring a helmeted hero in tights flying over a futuristic city, complete with jetpack and raygun [fig. 1.0.0]. For David Fortin, this cover, along with sustained interest from figures such as Reyner Banham,²⁶ exemplifies the naïve techno-optimism that formerly characterized the perceived engagement of architects with SF; for this reason, Forten writes, eagerness for SF and its representations of technology continues to be enthusiastically derided

25 Justin McGuirk, "An Interview with Kim Stanley Robinson," in *Moving to Mars: Design for the Red Planet*, ed. Justin McGuirk, Andrew Nahum, and Eleanor Watson (London: Design Museum Publishing, 2019), 185.

26 See his essays on Star Wars and Barbarella in: Reyner Banham, *Design by Choice: Ideas in Architecture*, ed. Penny Sparke (London: Academy Ed, 1981).

as socially irresponsible or juvenile.²⁷ In order to overcome this persistent derision, Fortin chooses to argue for one specific SF author's relevance to thinking about architecture, pointing out that SF author Philip K. Dick's work is rather more about epistemology than technology: "The significance of Dick for design thinking is not in technological extrapolation but in how that technology and the characters relate to one another in their selected environs."²⁸

In her essay, "Endless Forms, Vistas, and Hues: Why Architects Should Read Science Fiction," Amy Butt launches a rather more forceful defence of architects reading SF.²⁹ While acknowledging that using SF as a source of imagination, inspiration, and even prediction does have a place, she argues that the import of SF to architectural readers is in the way it opens up a field of possibility beyond reality, makes our own practices seem contingent, but also opens up a space to critique 'reality' with the other perspectives. Also important, she writes, is how SF reveals different ways that architecture can work: as symbolic of a new society, and even as a plot device in describing how imagined architectures and cities can impact upon characters' lives and by implication upon the lives of real people. She also notes how SF can work upon the reader themselves, in its capacity to stimulate empathy with others—especially those we might consider 'alien,' and to empower self-reflection. She ends her essay by noting that for an architect invested in improving the human condition, "reading SF offers a space of exhilarating exploration, of the self, of the city, and of the infinite wealth of imaginable alternatives."³⁰

In order to contextualize the present research, this section will focus on the various intersections of architecture and SF. However, SF and a practice in speculation are also important points of reference for the epistemological frameworks that I have brought into the project as a challenge to the futures that are often reproduced in architectural culture. This literature is more explicitly reviewed in the chapters that follow, but it is worth noting that this project also bears significant debts to ongoing work in relation to critical feminist and philosophical scholarship, especially as 'fiction'

27 David T Fortin, "Philip K. Dick's Disturbanism: Towards Psychospacial Readings of Science Fiction," in *Writing the Modern City: Literature, Architecture, Modernity*, ed. Sarah Edwards and Jonathan Charley (London ; New York, NY: Routledge, 2012), 129–30

28 Fortin, 130.

29 Amy Butt, "'Endless Forms, Vistas and Hues': Why Architects Should Read Science Fiction," *Architectural Research Quarterly* 22, no. 2 (June 2018): 151–60, <https://doi.org/10.1017/S1359135518000374>.

30 Butt, 158.

and ‘science fiction’ are activated in concepts within such scholarship. Nevertheless, my immediate interlocutors are those involved in architectural education, and so the immediate context of this research is those who have considered architectural production and education within the context of SF in its various dimensions, from technological futures and aesthetic novelty to those who engage more closely with SF and utopian literature and scholarship.

Speculative Practices in Architecture

Architecture is by nature implicitly future-oriented, and a cursory search of my institution’s adequate but not extravagant architecture library catalogue finds the word future in the title or description of over 1000 works. The word is used to describe everything from explorations in material to several studies which purport to describe coming urbanity using increasingly baroque combinations of ‘future’ and ‘city’.³¹ This shows, at least, a strong acknowledgement of the rhetorical weight of the concept of the future to the architectural consciousness, and perhaps even a sub-conscious affirmation of architecture’s participation within a narrative of progress.

Along with using a word like ‘future,’ an unfortunate consequence of using a word such as ‘speculative’ is that all architecture is also to some degree speculative in nature; while I explore this claim to a greater degree in the chapters that follow, the practice of architecture is, in a much simplified form, to imagine the world differently than it is. It is in this way that statements such as “every architectural proposition is a speculative fiction before it is a built fact” are accepted as relatively un-contentious—although I am not convinced that sufficient attention has been paid to what ‘speculative fiction’ is in this formulation.³² If we were to propose that *all* architecture is futuristic and speculative, then I would face the daunting task of positioning the present work in relation to the entire history of architecture.³³

31 Recent examples include: Robert Klanten et al., eds., *The Ideal City: Exploring Urban Futures* (Berlin: gestalten, 2021); Nick Dunn and Paul Cureton, *Future Cities: A Visual Guide* (London New York Oxford New Delhi Sydney: Bloomsbury Visual Arts, 2020).

32 Hélène Frichot and Naomi Stead, “Waking Ideas from Their Sleep: An Introduction to Ficto-Critical Writing in Architecture,” in *Writing Architectures Ficto-Critical Approaches*, ed. Hélène Frichot and Naomi Stead (London ; New York: Bloomsbury Visual Arts, 2020), 11.

33 As the title of Cohen’s history suggests, the future is very much upon architects’ minds. His history of modern architecture is predicated on the modern emergence of the idea of progress and the corresponding idea that architects could construct the “future.” He traces moments of transition through history—for example, new material, spatial, political innovation—and uncovers the consequent architectural “futures”: Jean-Louis Cohen, *The Future of Architecture Since 1889: A Worldwide History* (Phaidon Press, 2016).

While all architectural practice is to some degree speculative, it would be unworkable to set the scope of the present research within such a large territory. To this end, turning to the acronym SF, perhaps it is better to probe speculation and fictionality together as a way to further delimit the present research. That is to say, a smaller group of architects and designers are working with speculative practice in a way where it can be understood to operate between reality and fictionality—it is work that is more self-consciously a kind of speculative fiction. A rough outline of such a practice could be understood to be intentionally understanding the future as something other than an extended present, and as such is making propositions for such a future. In the parlance of SF studies, this practice would be oriented around a *novum*, some significant difference from the present the author or designer finds themselves in, whether a new material, technology, or form of social organization.

One subset of architectural practice which may perhaps be understood as a form of speculative fiction may be the tradition of practice variously called experimental,^{34,35} visionary,³⁶ or paper³⁷ architecture. Notwithstanding the use of the term ‘experimental’ here in a sense which has very little to do with the scientific method, these somewhat loosely affiliated terms identify a quality of architectural production which loosely accords to a popularly understood science fictionality. That is, this work is rather intentionally other-worldly either in that it could not be built in the present socio-economic or cultural moment, or is intended as discursive rather than as a proposal for a built object. It is in this sense that they might be understood as architectural

34 Peter Cook, *Experimental Architecture* (New York: Universe Books, 1970).

35 A similar idea about experimental architecture might be observed in the founding of the Research Institute of Experimental Architecture (RIEA): *RIEA: The First Conference* (Conference on Experimental Architecture, Berlin: New York, NY: Aedes: Princeton Architectural Press, 1990); Lebbeus Woods, “RIEA: The Back Story,” LEBBEUS WOODS (blog), June 25, 2011, <https://lebbeuswoods.wordpress.com/2011/06/25/riea-the-back-story/>; Rachel Armstrong’s discussion of Experimental Architecture is at least partially related to this lineage, but also has different epistemological foundations. That is to say, Armstrong’s ‘experimental’ architecture has stronger affinities with the experimental sciences than the less rigorous use of the word in Cook. see: Rachel Armstrong, *Experimental Architecture: Designing the Unknown* (London ; New York: Routledge, 2020).

36 Neil Spiller, *Visionary Architecture: Blueprints of the Modern Imagination* (Thames & Hudson, 2008).

37 This last coined by Yuri Avvakumov, referring to a young group of graduates from the Moscow Architectural Institute in the 1980s who drew fantastic propositions that they expected would never be built, see: Vladimir Aleksandrovič Frolov, Andres Kurg, and Nadejda Bartels, *Zentrifugale Tendenzen: Tallinn – Moskau – Nowosibirsk = Centrifugal tendencies: Tallinn – Moscow – Novosibirsk*, ed. Yuri Avvakumov (Berlin: Tchoban Foundation, Museum für Architekturzeichnung, 2017).

fictions. Although I earlier mentioned the difficulty of differentiating fact and fiction, and indeed, the present research argues quite forcefully that storytelling—fictioning—has very real consequences, in this case, understanding these works as architectural fictions is to understand their contribution to a discussion about what architecture could be as much as what architecture is.

As one example of this branch of architectural commentary, *Future City: Experiment and Utopia in Architecture*,³⁸ is a publication accompanying an exhibition at the Barbican Art Gallery in 2007. In this case, the publication collects a range of work over the latter half of the 20th century, celebrated for its ‘experimental’ quality. These fall under diverse topics. The authors identify regional movements such as the Japanese metabolists and radical architecture from Italy in the 70s. The authors also identify other commonalities: explorations in architectural technology from inflatables to megastructures, or perceived conceptual affinity, as those collected under the title ‘deconstruction’ or the digital explorations of ‘non-standard architecture.’ While Utopia also figures in the title, this seems to refer more to the totalizing scale of some interventions than for any specific social convictions on the part of the architects—the word is used in an offhand, rather than in any critical way, and so bears little connection to its more rigorous use in SF or utopian scholarship. In fact, Marie-Ange Brayer’s essay to open the volume argues that “there is no longer any emancipatory task for architecture,” and so it would seem that ‘future’ here refers to aesthetic or technological novelty more than anything else, and ‘utopia’ might be intended to signify non-reality rather than any sociopolitical commitment.³⁹

Neil Spiller is one of the editors of *Future City*, and his long engagements with SF in different capacities mean he is discussed at more than one point in this section. He also celebrates speculative dimensions of architectural practice in *Visionary Architecture: Blueprints of the Modern Imagination*.⁴⁰ While SF isn’t explicitly referenced, the work constructs a history of speculative or ‘visionary’ architecture. Spiller starts by tracing a genealogy as far as the fantasy landscapes described in Francesco Colonna’s *Hypnerotomachia Poliphili* in 1499, although if one were

38 Jane Alison et al., eds., *Future City: Experiment and Utopia in Architecture* (New York: Thames & Hudson, 2007).

39 Alison et al., 14.

40 Spiller, *Visionary Architecture*.

anxious about beginnings, one might begin to look earlier.⁴¹ Spiller describes speculative architectural antecedents in the intervening centuries before identifying some of the concerns which have informed architectural experimentation in the latter half of the 20th century, with a significant focus on themes that emerged in the 1980s. Visionary, for Spiller, is not explicitly defined, although he seems to suggest the quality for certain architects or projects to challenge the preconceived notions of architectural practice. He identifies a few sites of such experimentation—cybernetics and systems theory, pop art and the emergence of consumer culture, arcadian dreams, detournement and deconstruction, and architecture as memory, before discussing emergent computational paradigms.

Spiller's history, like *Future City*, is rather more idiosyncratic than authoritative—despite the cover blurb; the qualities that make these works futuristic, visionary, or experimental seem to hinge upon the authors' predilections. While these two works focus on technological or aesthetic innovation, the latter half of the 20th century also contained radically different concerns and lineages with an equal claim to a speculative practice in architecture. For example, Felicity D. Scott's discussion of the same period looks at Ant Farm and 1960s and 70s communes as possible courses architecture could have taken,⁴² while Johanna Diehl and Niklas Maak describe contemporaneous experimental practices in Europe, some, such as Renée Gailhouset or Yona Freedman with quite a substantial, ongoing impact on architectural culture.⁴³ These practices are no less radical or visionary than those described by Spiller, but are more heavily invested in new forms of living; architectural futurity, in these examples, is a response to social experimentation rather than technical innovation. However, all of these different avenues illustrate architecture as an active site of speculation and experimentation, and suggest that these architectures also contain a vision of architecture becoming different, whether that difference is predicated on new technologies, on aesthetic experimentation, or on the desire for different social relations.

The present research builds upon the speculative capacity identified by these authors—among many others—but in this case, I'm not interested in describing *if*

41 For example, the ideal city in Plato's *Republic* (c. 375 BCE) or New Jerusalem in Christian scriptures (Revelation 21:9-27).

42 Felicity D. Scott, *Architecture or Techno-Utopia: Politics after Modernism* (Cambridge, MA: The MIT Press, 2010).

43 Johanna Diehl and Niklas Maak, *Eurotopians: Fragments of a Different Future* (München: Hirmer, 2017).

some architecture is speculative. Instead, I aim to describe how all architecture is speculative, and I'm interested in how that comes to be. This line of thought takes us closer to the field of SF scholarship, and to the critical feminist and philosophical perspectives which are discussed in the remainder of this book. Before delving more deeply into already existing engagements, first between architecture and SF, and then to the more limited dialogue between architecture and SF scholarship, I first discuss an adjacent field which similarly has ties to SF and to the design fields.

Design Fictions

In a parallel to the discussion of speculative futures in architecture, the design fields are also invested in exploring possibilities for the future, and often draw more explicitly upon the field of future studies. This specific strain has had more of an impact upon the design fields, for example industrial or interaction design, rather than in architecture, but is nevertheless notable for its adjacencies to SF speculation and therefore to the present research.

This branch of design speculation is closely affiliated with the discipline of futurology or future studies. While arising from SF, the discipline of future studies is an attempt to instrumentalize the tools of SF speculation in observing emerging cultural, social, environmental, and technological trends and anticipating their outcome. It is quite literally a field defining tools and procedures for anticipating the future. This has implications for so-called trend forecasting—being able to predict social movements and tastes, but also for other forms of extrapolation, whether emerging technologies or environmental forecasting.⁴⁴ As one might imagine, to be able predict the future to whatever small degree is very attractive to large businesses—Intel, Nike, and Boeing are a few who have futurists on staff⁴⁵—and also, quite significantly, by national military forces invested in predicting and preparing for the future of warfare.⁴⁶ The

44 The predictions of climate science, for example, form a part of such futurological prediction.

45 See the white paper by Price Waterhouse Cooper: <https://www.pwc.com.au/digitalpulse/science-fiction-explore-business-innovation.html>

46 In just one example, SF writer Karl Schroeder consulted with the Canadian Defense Force's Future Force (<https://www.canada.ca/en/department-national-defence/corporate/reports-publications/departmental-plans/departmental-plan-2021-22/planned-results/future-force-design.html>), publishing a novella which synthesizes their imaginations of future urban warfare and how advanced technologies can be deployed, see: <https://www.kschroeder.com/foresight-consulting/crisis-in-zefra/Crisis-in-Zefra-e.pdf>. Similar initiatives exist across the world, such as France's 'Red Team' of SF writers, see: <https://www.bbc.com/news/world-europe-49044892>.

discipline of futurology has a long history as a trans-disciplinary field in academia, and has spawned several programs of study since its emergence in the latter half of the 20th century.⁴⁷

While the chapter on the *novum* develops my discussion of futures more fully, and with due respect to the discipline of future studies, my interest in this project is not in predicting the future. Rather, my interest is in what futures are imagined, and what these futures reveal about how we can or will work in the present. Nevertheless, it is worth exploring this particular alignment of design and SF storytelling in looking at the work of SF author Bruce Sterling and Julian Bleecker's Design Fiction. In both cases, the authors use the word 'design' in a general way, Sterling refers to objects and systems, while Bleecker refers to technological objects and interfaces. Although neither is talking about architecture specifically, both authors try to generalize from these subfields to argue for the relevance of futurology to design as a whole. As we will also see, both writers have a specific view of what constitutes 'future' too, taking a western epistemology and advancements in science and technology for granted in their construction of *the* future.⁴⁸

Bruce Sterling is mostly known as an SF writer and partisan for the cyberpunk subgenre, but has also broached the topics of design and futurology. 2005's *Shaping Things* is both an exercise in trying to describe the future of design practice and also an argument for designers to engage more fully with SF.⁴⁹ In the book, after constructing a lineage of design 'ages,' Sterling imagines a new design paradigm which combines informational networks with the designed object. He dubs this object the 'spime.' Similar to what has also been called the Internet of Things (IoT), the spime is an attempt to describe the designed object in the age of ubiquitous and pervasive computing, but also to address the inefficiencies and environmental sins of the prior class of designed object, the 'machine.' As much as it is a discussion of a specific vision for design, the book also defines a practice of "design fiction,"

47 A few examples among many, the Department of Political Science at the University of Hawai'i Manoa has offered an M.Sc. and PhD in Future Studies since the 1970s (<http://www.futures.hawaii.edu/academic-offerings.html>), while, related to design, OCAD in Toronto, Canada offers an MDes in Strategic Foresight and Innovation (<https://www.ocadu.ca/academics/graduate-studies/strategic-foresight-and-innovation>)

48 As I discuss in the next chapter, there are significant problems with the definite article 'the' in the construction 'the future,' especially as it precludes other futures from being imagined and enacted.

49 Bruce Sterling, *Shaping Things* (Cambridge, Mass: MIT Press, 2005).

which he compares with his own work as an author of SF, but which he describes as closer to the ‘techno-social’ moment and therefore more plausible.⁵⁰ He goes on to suggest that it is a “love of gadgetry” that unites the SF writer with the designer,⁵¹ thereby identifying both design and SF with an emphasis on material culture and technological systems at the expense of other interventions in possible futures. Nevertheless, Sterling’s book is a clear argument for designers to engage more fully with SF and future studies.

Taking up Sterling’s call, Julian Bleecker argues for a paradigm he also calls design fiction.⁵² In a version of futurology for design, he imagines design fiction as a storytelling practice somewhere between SF and “science-fact,” which works as a kind of extrapolation in describing the future from observations of the present. He writes about SF film as a testbed for design, with a special attention to the kinds of props and speculative technologies represented with film as inspirational for design. For example, he points to the handheld computer (“tricorder”) in *Star Trek* (CBS, 1966-69) and several technologies imagined for *Minority Report* (dir. Steven Spielberg, 2002) as fictions that may (or have) become ‘fact.’ Bleecker’s design fiction closely follows a method of design forecasting and extrapolation that we see in future studies, but which is most expressly concerned technological innovation and how that will impact the design fields. Bleecker’s concern seems to be in how design might change in the future with advancing technology, but does not submit the implications of this future design to any serious critical reflection. Moreover, design, in this scheme, is reactionary, passively awaiting advances in technology which can then be ‘designed.’

In a parallel to Bleecker’s Design Fiction, Brian David Johnson also argues that SF is useful as a method of prototyping future technologies. Formerly Chief Futurist at Intel, Johnson continues in the practice of futurology while teaching at Arizona State University’s Centre for Science and the Imagination.⁵³ If not strict prognostication, Johnson articulates an interest in how SF can describe emerging tendencies and develop new scientific paradigms. While not a designer as such, his method of “science fiction prototyping” is to develop an SF story together with an

50 Sterling, 30.

51 Sterling, 29.

52 Julian Bleecker, “Design Fiction: A Short Essay on Design, Science, Fact and Fiction” (Near Future Laboratory, 2009).

53 ASU’s Center for Science and the Imagination also hosts Project Hieroglyph, which I discuss in chapter 1.1.

SF prototype; the story is a way to articulate the design brief for a gadget in order “to foster innovation and explore the boundaries of modern science.”⁵⁴ Johnson’s method makes SF about the ‘gadget,’ and about ‘science,’ which, as describe more in depth in the next chapter, does a disservice to SF and to the practices it should inform; Johnson misses that science has never been neutral, and that innovation under the strictures of existing hegemony only re-inscribes these sociopolitical structures.

The three cases of Design Fiction I have discussed share an enthusiasm for SF storytelling and for technological speculation. Certainly, SF offers the possibility to imagine technologies that don’t yet exist, and that architectural speculation also touches upon technological speculation should be no surprise. Architecture is, after all, its own amalgam of technological innovation. While Sterling argues for the designer’s responsibility in relation to social and sustainable concerns, and thus implicates the designer in shaping the future as much as in shaping things, neither Bleecker nor Johnson seem interested in shaping the future so much as responding to whatever future emerges. Where and who this future emerges from, however, is not discussed, although their examples look at technology emerging from technological practices within existing hegemonic structures. They are, perhaps unwittingly, imagining the future as a continuation of and under the strictures of the present.

In contrast to the technology focused and apolitical futures imagined in Design Fiction, Ramia Mazé calls out these practices for their implicit and largely unexamined ideas of newness and progress.⁵⁵ Like Wanuri Kahiu’s discussion of the opposition between western idea of progress and African time as circular and cyclical,⁵⁶ Mazé writes that feminist and post-colonial positions counter these universal conceptions of time and of linear progress. Instead, she reminds us that futures are imagined and emerge out of the negotiation of unique subjects positions, and therefore have a political dimension. While the futures imagined within design discourse describe a

54 Brian David Johnson, “Science Fiction Prototypes Or: How I Learned to Stop Worrying about the Future and Love Science Fiction,” in *Intelligent Environments 2009: Proceedings of the 5th International Conference on Intelligent Environments*, Barcelona 2009, ed. Victor Callaghan, Ambient Intelligence and Smart Environments, v. 2 (IET International Conference on Intelligent Environments, Amsterdam ; Washington, DC: IOS Press, 2009).

55 Ramia Mazé, “Politics of Designing Visions of the Future,” *Journal of Futures Studies* 23, no. 3 (March 31, 2019), [https://doi.org/10.6531/JFS.201903_23\(3\).0003](https://doi.org/10.6531/JFS.201903_23(3).0003).

56 Wanuri Kahiu, “Ancestors of the Future,” in *Science Fiction*, ed. Dan Byrne-Smith, Whitechapel: Documents of Contemporary Art (London : Cambridge, Massachusetts: Whitechapel Gallery ; The MIT Press, 2020), 100–104.

desire for ‘preferable’ futures—as Dunne and Raby describe it—they often elide the political dimensions of such futures, who is able to act in the future, and how. She writes:

*“I can question the politics of what, or who, is present in the future, and which, or whose social norms, practices and structures are (re)produced or countered, and I can speculate on ‘What difference does it make?’”*⁵⁷

Mazé and Josephine Wangel, following work by Ruth Levitas and Frederic Jameson though strangely loath to use the word ‘utopia,’ also warn against the singular imaginations that ‘the’ future might suppose, and cautions that the many phenomena at work in the world—such as social and cultural practices, biophysical and ecological forces—are not amenable to prediction or to a singular teleology. They therefore argue for an attention to plurality, and participation of diverse subjects in the futures imagined in design.⁵⁸

As I have written, my interest in the future is not in being visionary, nor is it in prognostication. I make no assertions about the future, and I do not intend to with this project. As I describe in more detail in chapter 1.1, futures that are imagined from the contemporary worldview have the danger of reproducing that worldview, and as someone whose constellation of identities places herself squarely within dominant power structures, I am hardly best positioned to do that imagining. While my own interest is not in telling the future, I do follow Mazé in arguing that any imagination of the future is inherently political, and such imaginations need to be the subject of intense interrogation. After all, the future does not just happen without human agency—the future is shaped by how we work in the present; it will not arrive unawares. That we cannot *know* the future doesn’t mean that we should not be thinking about the future. Rather, we should be increasingly aware of what and how futures are imagined, from where these imaginations come and the responsibility they carry, and their potential worlding consequences. And so, my interest is in what stories we tell about the future in architectural practice and education, what those stories might mean, and how they might (re-)shape our actions in the present.

57 Mazé, 28.

58 Ramia Mazé and Josefin Wangel, “Future (Im)Perfect: Exploring Time, Becoming, and Difference in Design and Future Studies,” in *Feminist Futures of Spatial Practice: Materialisms, Activisms, Dialogues, Pedagogies, Projections*, ed. Meike Schalk, Thérèse Kristiansson, and Ramia Mazé (Baunach: AADR, Art Architecture Design Research : imprint of Spurbuchverlag, 2017), 286.

Therefore, while the present project shares some perspectives and concepts with ‘visionary’ architecture, as well as works of design fiction, these are peripheral to the present project, where my primary interest is in the *stories* of the future within architecture. The more immediate context of the project is those works which develop the relationship between architecture and SF more explicitly, especially those with an expanded view of SF beyond technological or scientific extrapolation. These can be further ordered into those which engage directly with SF media as an impetus to thought, those that also engage with SF scholarship (an addendum to this is those that engage with utopian scholarship), those that partake of SF storytelling more explicitly, and those who have used SF within architectural education.

Learning from SF

Another category of architectural scholarship’s engagement with SF leans more fully into an expanded view of what SF is, seeing the genre as not strictly about prognostication or extrapolation, nor about aesthetic novelty. The works in this category are more interested the perspective afforded by the fictive component of SF, and what that offers to thinking about architecture. To put it another way, these works are also interested in learning from close readings of SF, but the works in this category do not demand that SF be real or even possible so much as for what the estranging perspective offers as a way to think about architecture.

Therefore, the works in this category do not rely upon an abstract visionary quality, nor upon an abstract science fictionality, they rely upon a closer reading of specific works of SF for the perspective they offer on the present. Indeed, while Neil Spiller’s *Visionary Architecture* doesn’t make any reference to SF, Spiller’s own work is rather more indebted to SF, a connection made much more explicitly in his *Digital Dreams*.⁵⁹ In this book, Spiller uses several works of SF to illustrate emerging technological paradigms which, he argues, will have a bearing upon architectural practice in the future. He later enumerates 7 ‘continua’ of emerging technologies.⁶⁰ What is interesting about this practice is not necessarily the categories themselves, after all reading different works of SF or having different expectations for the future would produce very different ideas about future technology. What is interesting is

59 Neil Spiller, *Digital Dreams: Architecture and the New Alchemical Technologies* (London: Ellipsis London Pr Ltd, 1998).

60 Spiller’s seven continua are: Space, Technology, Narrative/Semiotics, Cyborgian Geography, Scopic Regimes, Sensitivity, and Time. See: Neil Spiller, “The Architectural Mixing Desk of the Surrealist City,” in *Educating Architects: How Tomorrow’s Practitioners Will Learn Today*, ed. Neil Spiller and Nic Clear (London New York: Thames & Hudson, 2014), 84.

that Spiller is not strictly interested in prognostication, but rather with the emergence of future technological paradigms and how they are described in and synthesized from fictional, even surreal, discourse as much as in fact.

Carl Abbott's *Imagining Urban Futures*,⁶¹ subtitled "Cities in Science Fiction and What We might Learn from Them" surveys a broad range of SF literature and to a lesser extent television and film. Abbott's book starts by noting the centrality of the city to imaginations of the future in SF, suggesting that SF is a natural testbed for understanding urban futures. He also notes how SF writers also borrow considerably from urban futures imagined by architects and designers, from Howard's Garden City to Buckminster Fuller's geodesic domes, suggesting that the encounter between SF and architecture is already well established and flows both ways. Thus, for Abbott, SF is a document of collective imaginations of the city, which he groups into 8 common and widely reproduced tropes—he calls them parabolas after SF critics Brian Attebery and Veronica Hollinger. He reads these SF cities not only for technological innovation—potential transportation infrastructure or images of a self-contained city we see in fictional space stations—but also for potential social innovations and even for the kinds of misfortune that might befall these cities of the future. Abbott's interest is not only in describing these future cities, but also in discussing how they change the way we think about contemporary urbanism in developing comparison with existing cities.

Paul Dobraszczyk's *Future Cities: Architecture and the Imagination*⁶² is similarly motivated to discuss speculative representations of cities. Dobraszczyk's contribution is to identify speculative tendencies in architectural production as much as in other media, and begin to make connections between these tendencies and a range of SF media. In collapsing the distinction between real and imagined spaces, he is developing an idea of the urban imaginary as something that happens *between* architecture and SF. Dobraszczyk also argues against an understanding of SF as instrumental futurism—something he accuses architects of doing, and which also aligns closely with my reading of Design Fiction above. Dobraszczyk has a less encyclopedic knowledge of SF than Abbott, and the range and diversity of authors cited is narrower in scope, which is disappointing in that it was published a few

61 Carl Abbott, *Imagining Urban Futures: Cities in Science Fiction and What We Might Learn from Them* (Middletown, Connecticut: Wesleyan, 2016).

62 Paul Dobraszczyk, *Future Cities: Architecture and the Imagination* (London: Reaktion Books, 2019).

years later. However, given the many thousands of speculative cities across different SF media, any study of this type must necessarily be rather more idiosyncratic than systematic.

What is rather less satisfying is that Dobraszcyk does not engage critically with SF scholarship, nor with the works of SF he is citing, and nor does he use SF to engage critically with architectural production. That is to say, he notes similarities between speculative architecture and other forms of speculative fiction, but does not critically discuss why such similarities might be interesting or important. For example, the final section of the book, *Unmade Cities*, describes ruined cities as well as representations of salvage. This section contains an unfortunate valorization of precarity in informal housing, continuing a decades' long fascination within architectural culture for the new spatial forms, material compositions, and innovative organizational structures within slums and informal housing, but without a discussion of the lives that might be inside. Dobraszcyk's discussions seem driven by the possibilities for spatial, compositional, aesthetic, or material novelty in SF, and while ignoring the consequent worldings that emerge from such novelty. As I write in my review for *Science Fiction Studies*,⁶³ "while it does offer a framework for investigating futurity, suggesting that newness is the only or even primary concern of SF or architecture does a disservice to those who would learn from or practice either."

Both of these books are devoted to the urban imaginations in SF, and the ongoing conversation between SF creators on one hand and designers, architects, and urban planners on the other. As such, they acknowledge the importance of imaginative inhabitation of cities in SF as a part of cultural imagination of how cities already work now and might work in the future.

Another book-length discussion which brings architecture together with SF, though in a very different way is David Fortin's *Architecture and Science-fiction Film: Philip K. Dick and the Spectacle of Home*.⁶⁴ Fortin's work looks at SF film, and particularly representations of domesticity in filmic interpretations of works by SF writer Philip K. Dick—*Blade Runner* (dir. Ridley Scott, 1982, *Director's Cut* 1992, *The Final Cut*, 2007), *Total Recall* (dir. Paul Verhoeven, 1990), and *A Scanner Darkly* (dir. Richard Linklater, 2006). Fortin's aim is to discover the tension in

63 Joel P.W. Letkemann, "A Spectacle of Speculative Architecture," *Science Fiction Studies* 47, no. 1 (March 2020): 125–28, <https://doi.org/10.5621/sciefictstud.47.1.0125>.

64 David T Fortin, *Architecture and Science-Fiction Film: Philip K. Dick and the Spectacle of Home*, Ashgate Studies in Architecture Series (Farnham, Surrey, UK ; Burlington, VT: Ashgate, 2011).

architectural discourse between emerging technologies and domesticity. SF film, he argues, reveals dialectical tensions between—among other things—home and away, and how the very possibility of feeling at home is challenged by technological determinism as it precludes human becoming. Positioning ‘science’ and ‘fiction’ as the first dialectical encounter, Fortin probes how Dick’s stories are able to balance other dialectical tensions with both “awe and suspicion.” Thus for Fortin, SF is valuable to architectural discourse, not for “its spectacle of novelty” but for its capacity to open up critical encounters with both technological and human becoming.

Beyond the book-length works above, there are several others who delve into specific works of SF as a vantage point from where to analyze topics in architecture. David Fortin also writes about Dick’s “Disturbanism”—the paranoid psychogeographies of late-capitalist (sub-)urbanism amplified in Dick’s work as a warning beyond the gloss of newness at least popularly associated with SF.⁶⁵ Fortin has also explored the spaces of Indigenous SF in a reading which argues that as much as technology might seem ambivalent, “there remains the far greater problem of who has access to, expertise in, and power over, its implementation”—a reproach to those who might deploy architectural technology without a thought as to who might have agency over such technology.⁶⁶

In other readings of architecture and SF together, Nic Clear supplements his reading of Constant Nieuwenhuys’ New Babylon with reference to Iain Banks’ Culture series—The post-scarcity society of Banks’ Culture both suggesting how Constant’s *homo ludens* might spend their time in New Babylon and in the process lending credence to the possibility of such a post-scarcity society on earth.⁶⁷ Zeynep Tuna Ultav argues that reading SF is an architectural research method; in a reading of J.G. Ballard’s High Rise (1975), she argues that the novel produces socio-spatial knowledge that amplifies “unreliable, isolating, classifying and rationalizing” spaces

65 Fortin, “Philip K. Dick’s Disturbanism: Towards Psychospatial Readings of Science Fiction.”

66 David T Fortin, “Indigenous Architectural Futures: Potentials for Post-Apocalyptic Spatial Speculation,” in *Beyond Architecture: New Intersections & Connections* (ARCC/EAAE 2014 International Conference on Architectural Research, University of Hawai’i, Honolulu, United States: University of Hawai’i at Manoa, 2014), 475–83.

67 Nic Clear, “Refreshingly Unconcerned with the Vulgar Exigencies of Veracity and Value Judgement: The Utopian Visions of Iain M. Banks’ The Culture and Constant’s New Babylon,” *Design Ecologies* 3, no. 1 (June 1, 2013): 34–63, https://doi.org/10.1386/des.3.1.34_1.

of modernity.⁶⁸ Stephen Graham also uses SF to form a critical relationship with the built environment. He describes how vertical structures were central to the fictions of several SF authors and filmmakers before, in an intriguing turn, discussing how such visions have fed into the cultural urban imaginary, which continues to inform development across the world—he mentions the ‘retro’ futurism which valorizes the supertalls in the Gulf states and the forest of high rises in the Pudong district of Shanghai. He closes the essay by arguing that the works of SF which might have inspired the vision of vertical cities can also be deployed to contest those visions. These works, he argues, re-imagine the present “as apocalypse,” but also writes that “efforts to mobilize against it can themselves learn from the political strategies deployed in science fiction.”⁶⁹

The present thesis does make reference to works of SF occasionally, and trying to understand the affordances of reading architecture *from* and *with* works of SF does enter into the experimental practice to a certain degree. As I will come to argue, reading SF enables a co-creative encounter which estranges the reader from their experience of the world, and suggests the possibility of the world being different. Therefore, SF literature is often an invaluable source of inspiration.

However, there remains a question about whether or how much architectural innovation is happening in SF. As I started, I had assumed that reading architectural innovation in SF would form a greater portion of the project. While it has continued to contribute to the present project, I have begun to question whether this stature is always the appropriate way for an architect to approach SF. After all, SF authors are not architects, and the cities imagined within SF are, as Abbott also argues, already significantly inspired by work that has already been accomplished by architects and engineers. That is, while SF authors are able to describe things that don’t yet exist in the world, more often than not, in dialogue with other technologists, they are rather more interested in exploring the consequences of a thing imagined by someone else. To give a pithy example, the preponderance of domed cities in SF happened after the popularization of the geodesic dome by Buckminster Fuller in the middle of the 20th century. In addition, the significant speculative dimensions of architectural

68 Zeynep Tuna Ultav, “Reading Science Fiction Novels As An Architectural Research Method: The Case Study Of J. G. Ballard’s High Rise,” in *DRS2006 - Wonderground* (Design Research Society International Conference in Lisbon, Lisbon, 2006), <https://dl.designresearchsociety.org/cgi/viewcontent.cgi?article=2548&context=drs-conference-papers>.

69 Stephen Graham, “Vertical Noir: Histories of the Future in Urban Science Fiction,” *City* 20, no. 3 (May 3, 2016): 389–406, <https://doi.org/10.1080/13604813.2016.1170489>.

practice already lend themselves to a reading of architecture as SF. So the question raised by this engagement of architecture with SF is whether we should read such SF for inspiration or whether there is a more nuanced discussion happening in SF texts.

Architecture and SF scholarship

As well as those authors working with works of SF for the perspective they afford on contemporary architecture and urbanism, some commentators on architecture and design have engaged with SF scholarship, although not always to great effect. Given its centrality to the emergence of SF scholarship, it makes sense that Darko Suvin's *Metamorphoses of Science Fiction: on the Poetics and History of a Literary Genre* figures largely. So too does Frederic Jameson's *Archaeologies of the Future: The Desire Called Utopia and Other Science Fictions*. Both of these works, among others, figure largely in the pages that follow, and so I will not launch into an extended discussion here.

Anthony Dunne and Fiona Raby cite Suvin's *Metamorphosis of Science Fiction* and Carl Freedman's *Critical Theory and Science Fiction* as a part of their defence of a speculative practice. However, the level of Dunne and Raby's engagement with these thinkers is quite shallow. Both are mentioned in the same paragraph, where Dunne and Raby suggest that some SF dystopias might be understood as "critical," that is, forming a critique of "our own world," therefore severely reducing the scope and import of both Suvin's and Freedman's arguments.⁷⁰ The defence of such 'critical' work and its importance to SF and design is more thoroughly explored in the remainder of this project, including an extended discussion of Dunne and Raby's own speculative project. It might suffice to say here that, while their larger discussion reflects an understanding of Suvinian estrangement—even if Suvin is not cited in this regard, Dunne and Raby's own engagements with SF scholarship might miss some of the nuances and affordances of this scholarship.

In a similar vein, on the value of understanding architecture as a form of SF, Nic Clear has written a chapter on "Architecture" for *Oxford Handbook of Science Fiction*,⁷¹ a chapter which has also formed the bases for several lectures all titled "A

70 Anthony Dunne and Fiona Raby. *Speculative Everything: Design, Fiction, and Social Dreaming*. (Cambridge, Massachusetts ; London: The MIT Press, 2013).

71 Nic Clear, "Architecture," in *The Oxford Handbook of Science Fiction*, ed. Rob Latham (Oxford University Press, 2014), 277–90, <https://doi.org/10.1093/oxfordhb/9780199838844.013.0022>;

Strange Newness: Architecture as Science Fiction.”⁷² While the title of these talks is lifted from Suvin’s discussion of the genre, it misrepresents Suvin in that neither strangeness or newness are of principle concern to Suvin’s *novum*. Rather, as I argue in the next chapter, SF *nova* are important for their worlding potential—their capacity to produce an image of the world that is not (or not only) strange nor new, but rather contains utopian or socially liberating intimations. Clear’s insistence on newness and strangeness as the central concern of SF means that the architectural projects which he discusses as examples of architectural SF also privilege technological or aesthetic newness over any suggestion of a social *novum*—he includes a familiar litany of well-known *avant garde* movements through the 20th century: Italian Futurism, the International Style, Buckminster Fuller, the speculative practices of the 70s such as Archigram and Superstudio, and others are all cited as examples of architecture as SF. Nevertheless, what might be science fictional about these practices is somewhat opaque from Clear’s argument, he seems to suggest that they are science fictional because they are “representations of technology,” re-inscribing the popular supposition that SF is about science or technology—a position that becomes increasingly difficult to maintain as one delves into any more than cursory reading of SF scholarship since Suvin.⁷³

As to how Clear chooses which projects to include, it seems to reiterate a familiar story of a 20th century architectural *avant garde*, with projects given value in as much as they are opposed to the “banality of mainstream architecture,” but we might wonder whether an opposition to banality is mere spectacle, or whether architects might speculate about things other than technology or aesthetics.⁷⁴ Moreover, in constructing a duality between architecture that is science fictional and architecture that is ‘banal’, Clear is constructing an arbitrary border which limits the kinds of newness which might be thought or expected of architectural production, a position which is also discussed at length in the next chapter.

Like Clear, Dunne and Raby’s argument for a critical, speculative quality in some works of design constructs an arbitrary border around works of design might be engaged with critically, and which are merely everyday or mundane. As I develop more fully in the remainder of this work, considering the science fictionality of

72 Nic Clear, “A Strange Newness: Architecture as Science Fiction” (Building Brave New Worlds: The Architectural Visions of Sci-Fi Cinema, BFI Southbank, London, November 1, 2014), https://www.youtube.com/watch?v=pGtKPTgRzuE&tab_channel=HyunJunPARK.

73 Clear, “Architecture,” 278.

74 Clear, “Architecture,” 285.

all design practices, their futuring and worlding potentials, is an essential part of SF's contribution to architectural discourse. As I also discuss in chapter 1.1, the parameters that we use to define SF also align with what we choose to define as 'futuristic.' In contrast to an idea of technological futurity, the scope of possible architectural futures is much enlarged when one reads beyond the futures of Western SF, and includes perspectives from global futurisms and other marginalized groups such as feminist and queer futurisms.

Jonathan Charley's idiosyncratic survey of ideal cities and their utopian or dystopian legacies takes the form of a fictional narrative using the device of a time-traveling pod.⁷⁵ In contrast to Clear's invocation of Suvin's *novum*, Charley draws upon a more careful reading of Suvin and Jameson to argue that "such [SF] literature should never be confused with futurology or reduced to Boys Own comic book tales of fabulous new technologies and gizmos."⁷⁶ Instead, Charley's survey reveals not only the significant critical attention that can be brought to works of literary utopia, but also how such critical attention can be leveraged against the ideal cities produced by architects such as Le Corbusier or Ludwig Hilbersheimer as well. Sadly, Charley ends his historical survey with the literary dystopian tradition that has prevailed during the last half of the 20th century, leading him to conclude that the "fuel rods that drive the utopian impulse seem spent."⁷⁷

By far the most sustained and thoughtful engagement with SF scholarship in architecture is in the work of Amy Butt, whose essay "Endless Forms, Vistas, and Hues: Why Architects Should Read Science Fiction" I mentioned earlier. As well as an impassioned defence of the value of SF for architectural thinking, this essay also introduces the architectural reader to several major figures in SF scholarship, including several which are influential in defining the field: Suvin and Jameson are joined by Samuel Delany, Tom Moylan, Raffaella Baccolini, Ruth Levitas, and Ursula K. Le Guin—my reader will soon be acquainted with all these and more. She also introduces her reader to ongoing scholarship between SF and architecture, much of which is recounted in this section.

This essay is only one of several by Amy Butt—many of which are cited again the present thesis—which develop perspectives on architecture using the lens of SF,

75 Jonathan Charley, "Scares and Squares II: A Literary Journey into the Architectural Imaginary," in *Memories of Cities: Trips and Manifestoes*. (Farnham, Surrey, UK: Ashgate, 2017), 163–95.

76 Charley, 163.

77 Charley, 195.

and specifically the feminist SF of the 1970s. One essay,⁷⁸ for example, describes the interrelation between urban forms and anarcho-syndicalist social structures in Ursula K. Le Guin's *The Dispossessed* (1974). Bemoaning the fact that architectural commentators on SF are often restricted to a relatively narrow canon of work, she notes "everyday spaces of feminist sf are often lost in the shadows cast by the dystopian high-rise or the strip-lit cyberpunk city."⁷⁹ Instead, she writes, in a warning against the totalizing tendencies of both SF world-builders and heavy-handed architects alike, Le Guin's Abbenay on the planet Annares reflects a more restrained, thoughtful "utopianism of process."⁸⁰ This is accomplished in its ongoing balance of mutual aid and individual self-determination in its elaboration of utilitarian everyday spaces—the school, workshop, dining hall, or dormitory—rather than space of power. As a research practice, this type of research depends both upon Butt's training and practice as an architect in order to understand and describe the consequences of that space, but also depends upon her familiarity with textual analysis and a wide range of SF scholarship. As such, as much as her contributions are valued for their specific argumentation, Butt's scholarship also prefigures some aspects of the present research and methodology.

For many SF scholars, the tradition of literary utopia is a subset of SF, and Suvin, Jameson, Moylan, and Baccolini have all devoted considerable attention to the idea of utopia. Utopia, however, is a multidimensional concept, and includes literary works among representations and expressions across many different fields and modalities.⁸¹ As utopian scholarship is closely adjacent to SF scholarship, one more architectural scholar who works closely with fictional and architectural expressions of utopia, as well as critical theory related to the topic, is Nathaniel Coleman. In fact, Coleman and Butt have worked together, and together have edited one volume describing their teaching practice.⁸² Coleman draws upon the interdisciplinary field of utopian studies, and upon several scholars who have also worked with the concept closely, from Karl Mannheim and Ernst Bloch to contemporary scholars such as

78 Amy Butt, "As Plain as Spilt Salt: The City as Social Structure in *The Dispossessed*," *Textual Practice* 0, no. 0 (September 14, 2021): 1–16, <https://doi.org/10.1080/0950236X.2021.1974536>.

79 Butt, "As Plain as Spilt Salt," 2.

80 Butt, "As Plain as Spilt Salt," 3.

81 The history and breadth of this concept is insightfully captured in: Ruth Levitas, *The Concept of Utopia* (Bern: Peter Lang AG, Internationaler Verlag der Wissenschaften, 2011).

82 Amy Butt and Nathaniel Coleman, eds., *Concrete Utopias: An Education of Desire* (Imagineries of the Future, 2017), <https://issuu.com/amybutt/docs/concreteutopias>.

Ruth Levitas. Coleman’s work is largely aimed at resuscitating the concept of utopia within architectural discourse arguing that “without Utopia, architecture and urban design have no vocation other than to adorn capital and its processes.”⁸³ While the concept is much abused within architectural discourse, Coleman reminds us that utopia is not about totalizing schemes, but rather about the project of imagining the world better than it is, going on to describe the consequences for architectural practice and education. He has made several contributions to the topic including the book *Utopias and Architecture*⁸⁴ and the edited volume *Imagining and Making the World: Reconsidering Architecture and Utopia*⁸⁵ among several essays, many of which are discussed at greater length in the pages that follow.

This aspect of architecture’s engagement with SF scholarship is less developed in architectural discourse. While, as I have mentioned, there are notable exceptions to this lacuna, one of the more significant contributions of the present thesis is to continue to develop this engagement. The present work develops the engagement with SF scholarship, on one hand in how the interpretive or analytical framework of SF scholarship is invaluable to reading the the science fictions implied by any architectural practice. On the other hand, I have also looked to SF scholarship, and also to thinkers who find inspiration in SF, to develop how a practice in architecture is its own type of speculative practice, and to pursue the implications of this for teaching.

Architecture and SF storytelling

The relation of architectural practice to speculative storytelling is, perhaps, as Emmons and Phinney argue, an essential though woefully unacknowledged skill of the architect. They write that the practice of architectural drawing, the core practice of doing architecture, “exists across the ambiguous dimension of reality and fiction...[architectural drawings] are confabulist pre-enactments—that is, they tell the story of a world that may be, that could be, that might or even ought to be; but is not, and will never be. (The conditional is a part of their configuration)

83 Nathaniel Coleman, “Utopic Pedagogies:: Alternatives to Degenerate Architecture,” *Utopian Studies* 23, no. 2 (2012): 315, <https://doi.org/10.5325/utopianstudies.23.2.0314>.

84 Nathaniel Coleman, *Utopias and Architecture* (Abingdon [England] ; New York: Routledge, 2005).

85 Nathaniel Coleman, ed., *Imagining and Making the World: Reconsidering Architecture and Utopia*, (Oxford England ; New York: Peter Lang AG, Internationaler Verlag der Wissenschaften, 2011).

[parenthesis in quote].”⁸⁶ Some architects are more keenly aware of the storytelling capacity of their drawings, and leverage speculative elements within their practices, and those that do signal another adjacency to the present project. Architects’ SF storytelling may even include *writing* SF, as editors Edwina Attlee, Maria Smith, and Phineas Harper recently invited architects, along with other SF storytellers, to do in relation to the 2019 Oslo Architecture Triennale; *Gross Ideas: Tales of Tomorrows Architecture* brings together architects and SF writers on the triennale’s theme of degrowth through diverse explorations of, among other things, materiality, different architectural typologies, radical reuse, or even biotechnology.⁸⁷ Similarly, a team from Seattle-based Olson Kundig Architects used the SF premise of an architect waking from cryogenic sleep to a future in order to describe a future Seattle in which the “5th facade”—the rooftops of the city—are utilized for a “vast pastoral landscape” of farms and leisure activities. The 5th facade, however, is rather more incidental to the narrative, which turns upon the ethics and desirability of endlessly waking from a cryogenic sleep, and ends with the suicidal fall of the narrator from the rooftop.

As well as writing SF, there are other practices within architecture who draw heavily on storytelling practices. As well as a long speculative architectural practice explored through drawing, discussed in chapter 1.2, Lebbeus Woods also had closer adjacencies to the world of SF storytelling. He produced a screenplay based on his *Underground Berlin* drawings in which subversive German scientists occupy hidden architectural structures underneath a still-divided Berlin.⁸⁸ Woods was also employed as a conceptual designer for an unreleased version of *Alien 3*,⁸⁹ and won a 6-figure settlement after Terry Gilliam admitted to copying Woods’ 1987 drawing, *Neomechanical Tower (Upper) Chamber*, in his 1995 movie *12 Monkeys*.⁹⁰

86 Paul Emmons and Luc Phinney, “Introduction: Homo Fabula,” in *Confabulations : Storytelling in Architecture*, ed. Paul Emmons, Marcia F. Feuerstein, and Carolina Dayer, (London ; New York: Routledge, 2017), 9.

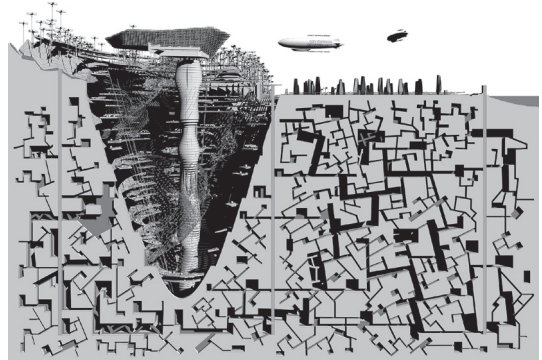
87 Edwina Attlee, Phineas Harper, and Maria Smith, eds., *Gross Ideas: Tales of Tomorrow’s Architecture* (Oslo Architecture Triennale, London : Oslo: Architecture Foundation ; Oslo Architecture Triennale, 2019).

88 Lebbeus Woods, “UNDERGROUND BERLIN: The Film Treatment,” LEBBEUS WOODS (blog), September 15, 2009, <https://lebbeuswoods.wordpress.com/2009/09/15/underground-berlin-the-film-treatment/>.

89 Lebbeus Woods, “ALIEN PAST,” LEBBEUS WOODS (blog), February 3, 2009, <https://lebbeuswoods.wordpress.com/2009/02/03/alien-past/>.

90 Lebbeus Woods, “Re: THE SYSTEM,” LEBBEUS WOODS (blog), January 20, 2009, <https://lebbeuswoods.wordpress.com/2009/01/20/re-the-system/>.

Figure 1.0.1 - Nic Clear, *Chthonopolis Section*, 2017.



In addition to his reading of architecture as a mode of SF, Nic Clear also produces several projects which would also fall into his own designation of architectural SF. His *Chthonopolis*⁹¹ imagines a subterranean post-singularity city for a million inhabitants formed on ‘ludic’ principles in a way that is similar to Constant’s New Babylon. Clear’s SF is predicated on a *novum* of technological singularity, an event predicted by some futurologists in which, given the accelerating advances of computing power, human consciousness would be merged with artificial intelligence, having in turn drastic consequences for human subjectivity. The idea of a technological singularity is predicted by technologists and futurists,⁹² and also a popular theme in some science fiction.⁹³

Clear imagines *Chthonopolis* as a hybrid between an underground server farm and an augmented reality (AR) game space. The most dramatic spatial move is to situate the city underground, with a kilometer-deep, cone-shaped space in the centre [fig. 1.0.1]. To some degree, the proposal’s augmented reality implicates a user’s physical body within a hybrid physical/digital space and in this way is somewhat novel as opposed to the mind-body dualism of Snow Crash’s Metaverse,⁹⁴ Ready Player One’s Oasis,⁹⁵ or the Matrix movies (dir. Wachowskis, 1999-2003, Lana Wachowski, 2021). That his ludic principle implicates the body mirrors Constant’s own imagination of New Babylon, and thus from some perspectives, Clear might seem only to re-make New Babylon underground, and with an invisible digital veneer. While such technological innovation would surely reshape human subjectivity, there is no exploration of what subjectivities might emerge, nor what new bodies, nor of the diversity of human subjectivities that would have to inhabit this machine-space, not all of whom would be able or willing to leap into the void of his city’s central space. Moreover, Clear writes that being in the city involves solving “complex spatial

91 Nic Clear, “Chthonopolis 2017,” <http://nicclear.com/Chthonopolis-2017>

92 See, for example: Ray Kurzweil, *The Singularity is Near: When Humans Transcend Biology* (New York: Viking, 2005)

93 Charles Stross, *Accelerando*, (New York: Ace Books, 2005).

94 Neal Stephenson, *Snow Crash* (New York: Bantam Books, 1992).

95 Ernest Cline, *Ready Player One* (New York: Crown Publishing Group, 2011). Also see Steven Spielberg’s movie of the same name (2018).

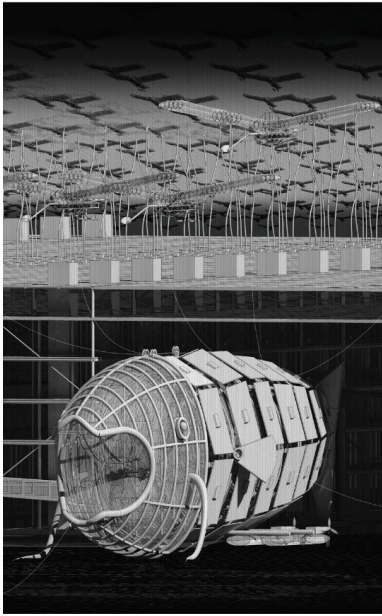


Figure 1.0.2 - CJ Lim, "Humanitarian relief infrastructures," 2017

problems," which to this reader at least sounds like a unique form of torture.⁹⁶ While undoubtedly a form of SF, Clear's proposal is at best an anti-utopia; given the static representational techniques and emphasis on urban form over the experience of the inhabitants, the project does not have the oppositional potentials that, according to Tom Moylan, it would need in order to characterize a dystopia.⁹⁷ That is to say, Clear seems to have drawn a torture chamber with no possibility of escape, and if this is the case, its contribution to architectural discourse is at best only a warning.

CJ Lim's practice and pedagogy both make a substantial claim to a level of science fictionality, with explicit reference to works of SF and related themes.⁹⁸ His work in his own publications and within

his educational practice at the Bartlett School of Architecture aims to animate the imaginative spatial and phenomenological potential of environmental and social sustainability. Lim argues that restricting the discourse of sustainability to individual buildings misses the potential for urban scale, systemic, or infrastructural adaptation, a position that challenges not only contemporary building practices, but political and infrastructural agencies in shaping our cities.

Lim's *Inhabitable Infrastructures: Science Fiction or Urban Future?* begins with an extended defence of SF as a "sourcebook" for architectural thinking.⁹⁹ The nature of this defence is predicated upon SF's supposed 'prophetic' capacity, and the argument largely depends upon Lim's own reading of well-known SF texts and films such as Orwell's 1984, Calvino's *Invisible Cities*, and curiously, the rather forgettable 2011 Justin Timberlake vehicle *In Time* (dir. Andrew Niccol). What Lim seems to take from these works is not any specific future scenarios but rather an appreciation for

96 We might well remember the unfortunate fate of the gerbils who inhabited the continuously manipulated space of the MIT Architecture Machine Group's 1970 experiment entitled 'Seek.' see: Thomas, Hess, "Gerbils ex Machina," *Art News* (December, 1970) p. 23.

97 On the distinction between the anti-utopia and dystopia, see: Tom Moylan, *Scraps of the Untainted Sky: Science Fiction, Utopia, Dystopia*, (Boulder, Colo: Westview Press, 2000). In short, the anti-utopia suggests the impossibility of utopia, while the dystopia operates more critically, in revealing gaps, fissures, and the potential for opposition in the anti-utopia.

98 CJ Lim, "The Imaginarium of Urban Futures," in *Educating Architects: How Tomorrow's Practitioners Will Learn Today*, ed. Neil Spiller and Nic Clear (London New York: Thames & Hudson, 2014), 145.

99 C. J. Lim, *Inhabitable Infrastructures: Science Fiction or Urban Future?* (New York, NY: Routledge, 2017), 19.

architecture as a vehicle for SF storytelling. As well as citing influences from across science fiction culture, including literature, film, illustration, and animation, Lim also expresses his admiration for the “fantastic propositions” of figures such as R. Buckminster Fuller, Archigram, and the Metabolists, and his educational point-of-view can be read as an attempt to rehabilitate that mode of speculative practice.¹⁰⁰

Lim proposes large-scale urban infrastructures to address a variety of issues around urban sustainability—massive kites will shield glaciers from melting while producing solar energy, and floating ‘fish’ islands supplying humanitarian infrastructure are imagined for nations such as the Maldives now facing rising sea levels [fig. 1.0.2]. There is some level of ambiguity however in that while invoking science fiction, Lim is intent on arguing for the realism of the proposals; in each case, their plausibility is illustrated by examples of built and proposed architectural works and existing technologies. As such, while they might be science fictional in terms of the scale of their deployment, they are answers to the world that is more than implying the world that could be.

There is a similar rhetorical ambiguity in Lim’s *Smartcities + Ecowarriors*, together with Ed Liu, and with a new edition in 2019 titled *Smartcities, Resilient Landscapes + Ecowarriors*.¹⁰¹ This book contains plans for urban districts with an emphasis on several strategies to make each more sustainable. These are self-described utopian “smart cities”—though smart city here is different from usual use of that term referring to cities with a digital infrastructure to supplement and streamline the physical infrastructure. Instead, Lim’s emphasis is on sustainable urban systems: food cultivation, local energy production and conservation, closed resource cycles all feature as a part of his city plans.

That Lim’s project is to some degree science fictional is not in dispute, these are clearly inspired by SF, and take on a degree of fantasy in themselves. But it is worth investigating how these are science fictional. Lim’s proposals largely make use of existing technology, and his innovation is in increasing the scale of such technological intervention. In his drawings, we are treated with an image of what such an increase might be like, though we are not afforded a glimpse of how that might change society. Lim’s science fictionality is firmly rooted in technological novelty, not in a more discursive, not to say difficult, worlding potential of such technologies. Given the

100 CJ Lim, “The Imaginarium of Urban Futures,” 146.

101 CJ Lim and Ed Liu. *Smartcities, Resilient Landscapes + Eco-Warriors*. (Abingdon, Oxon ; New York, NY: Routledge, an imprint of Taylor Francis Group, 2019).



Figure 1.0.3 - Liam Young, “Where the City Can’t See” Still, 2016.

scale of his work, one also might read Lim’s own utopias as technocratic or overly determined—one can imagine that the proposals could only be accomplished by totalitarian rule. Although their position as exaggerated or as paper architecture absolves them for the responsibility for ‘real’ scenarios in the future, one hopes that Lim proposes such futures with the knowing wink of the dystopian author as much as the utopian futurist.

Liam Young is a self-described “speculative architect” working with speculative storytelling in architecture and film, and is currently coordinator of Masters of Science in Fiction and Entertainment at SciArc in Los Angeles. He has completed several projects which explore speculative storytelling scenarios and their architectural implications. While he is clearly interested in the city and spatial environments, Young explores the topic through “co-opting” popular media, in particular film.¹⁰²

One film project, entitled “Where the City can’t See,” is told through device of an optical scanner’s point cloud, and of the negative spaces produced by moving the viewers perspective around in this point cloud [fig. 1.0.3]. This film, with a story by SF author Tim Maughan, tells the story of digital representations of space in the “scanners of an all seeing city” of a Chinese-owned Detroit Economic Zone (DEZ), and of the gaps in this space where other narratives unfold as a “production line worker hacks a driverless taxi... to search for the wilds beyond the machine.”¹⁰³ That is to say, the technology is not uncritically adopted or celebrated, but actually becomes a point of contention in the story—as the viewer catches glimpses of a life only captured obliquely in the noise of the city’s scanners. In this case, Young is using architectural tools to tell an SF story. While the implications for scanning technology are clear, the future city that haunts the edge of this optical device is only, although tantalizingly, hinted at. As such, as better befits an SF story rather than architectural proposition, the consequences for architectural and urban design are left to the viewer to decipher.

102 Liam Young and Stuart Candy, “I Design Worlds: Interview with Liam Young,” in *Design and Futures*, ed. Stuart Candy and Cher Potter (Taipei: Tamkang University Press, 2019), 114.

103 “Where the City Can’t See,” Liam Young, accessed May 16, 2022, <https://liamyong.org/projects/where-the-city-can-t-see>.

Figure 1.0.4 - Liam Young, “Planet City,” Still, 2019.



Young has also recently completed a film project entitled *Planet City*.¹⁰⁴ Although a fully designed city, it is very explicit about its fictionality, a “thought experiment,” rather than a concrete proposal. In this way, as critical fiction, Young avoids the revival of Buckminster Fuller-esque hubris that we seen in such unfortunate projects as Bjarke Ingels’ Master Planet scheme to design the planet.¹⁰⁵ Building upon biologist Edward O. Wilson’s ‘Half-Earth’ proposal to leave 50% of the planet to non-human uses, Young goes further, proposing to concentrate a population of 10 billion people, including all its life-sustaining elements, on only 0.2% of the planet—roughly the population density of the world’s most intensely inhabited cities. Such architectural speculation, according to Young, lets us imagine radical avenues to avoid climate change. Young also enlists costume designer Ane Crabtree to supply costumes reflecting the ‘new myths’ and new urban subjects of this future city: Drone Shepards (*sic*), Code Talkers, and Zero Waste Weavers, among others. In both cases, Young shows a commitment to storytelling that is in marked contrast to the static representations of Clear or Lim, and an understanding of SF as more than technological novelty.

After constructing their own paradigm of speculative design, Dunne and Raby place their own works within this paradigm. In understanding design, including their own work, as speculative or critical, their work does not propose prototypes for the future. Instead, they lean into SF estrangement, proposing design as a vehicle for SF storytelling, with the result that the designed object be read as SF, not for its newness, but for its capacity to open up reflection upon the present. Dunne and Raby close *Speculative Everything* with their own project “United Micro Kingdoms.” My next chapter features a longer discussion of this project, but suffice it to say, they make use of SF storytelling conventions within the project, starting from imagined scenarios in order to describe alien design cultures very different from our own. This is, for Dunne and Raby, much more than an exercise in extrapolation, an exercise in provoking a critical deliberation on the part of their reader with regard to what futures the reader might want to see.

104 “Planet City,” Liam Young, accessed May 16, 2022, <https://liamyong.org/projects/planet-city>.

105 Time. ‘The Climate Is Breaking Down. Architect Bjarke Ingels Has a Masterplan for That’. Accessed 27 July 2022. <https://time.com/collection/great-reset/5900743/bjarke-ingels-climate-change-architecture/>.

Another strain of storytelling that is also concerned with the future arises from self-consciously feminist practices in architecture and design, and as such pays more deliberate attention to the political implications of their practices. From a more design oriented field, Ramia Mazé's Switch! Energy Futures project together with Aude Messager, Thomas Thwaites, Başar Önal, proposed five speculative design interventions, each of which propose different immediate responses to energy usage, from the "Bionova Cord" which turns one's own excess fat to energy, to the "Socket Bomb" to overload and shut down local circuits. What is innovative in this project, and a development from other design fictions, is how the authors translate the designed artifact—itsself a kind of SF artifact—to a "superfiction" in order to draw out the social and political implications of each design intervention, from the obscene rationalization of excessive consumption of the first example, to the civil disobedience of the second.¹⁰⁶ Taken together, these superfictions are a call for designers to consider the predispositions and biases embedded in their own imaginations of the future.

Also proceeding from a feminist perspective, Karin Bradley, Ulrika Gunnarsson-Östling, Meike Schalk and Jenny Andreasson take a feminist approach in political ecology to imagining the future of Stockholm. Taking their starting point in the official vision for the city, called Vision 2030, they rewrote this vision in a mode which prioritized a radical vision for sustainability, but which at its core was about stimulating a dialogue with a large group of stakeholders in the city through participatory processes. In challenging the official position which advocated for the inherently contradictory position of 'sustainable development,' and with reference to feminist postcapitalist economics and ecological positions, the team advocated for greater attention to social equity both within the city and with more distant geographies, highlighting resource production and consumption, and advocating for a greater responsibility in civil society.¹⁰⁷

While there are other projects that might also be understood as an exercise in SF storytelling, the authors of the projects I have discussed have made a more explicit claim to futuring or science fictionality. Nevertheless, we must be wary of how

106 Mazé, "Politics of Designing Visions of the Future," 32.

107 Karin Bradley, Ulrika Gunnarsson-Östling, and Meike Schalk, "Future Feminist Political Ecology - Rewriting Stockholm's Vision 2030," in *Feminist Futures of Spatial Practice: Materialisms, Activisms, Dialogues, Pedagogies, Projections*, ed. Meike Schalk, Thérèse Kristiansson, and Ramia Mazé (Baunach: AADR, Art Architecture Design Research : imprint of Spurbuchverlag, 2017), 301–28.

science fictionality is defined within these practices, and how we engage with them critically. These projects run the gamut from technological gadgetry and a tired reworking of old SF tropes to radical social future imaginaries. The present project also includes elements of SF storytelling with architectural media, and so I appreciate and learn from each of these practices' methods. However, because SF is so tied up with our collective discourse around futurity, we need to be careful about what futures we imagine, and how we define futurity for the discipline and for the discipline's contribution to the cultural dialogue around futures.

SF and Architectural Education

The last category of scholarship working between architecture and SF that I will discuss is work bridging SF with architectural education. Using speculative storytelling in architectural education may seem ubiquitous; indeed, in writing the present work, I have heard many anecdotal accounts of SF being used in teaching architecture. One person, for example, recalled to me how she had assigned Ballard's *Vermilion Sands* to inspire the design of a villa in a studio design project, while another described how, during his exchange semester in China, the instructors had the studio read Hao Jingfang's 2012 short story *Folding Beijing*.¹⁰⁸ Neil Spiller's indebtedness to SF is quite explicitly documented in his 1998 *Digital Dreams*, which makes reference to several works of SF as exemplary of a new attitude to technologies after the digital,¹⁰⁹ but while his teaching makes explicit reference to conditions defining emerging technology,¹¹⁰ this is not presented as an explicitly science fictional practice. However, despite these and many more anecdotes, there are somewhat fewer writers who have written about teaching architecture with SF or in a science fictional mode.

In one rather mundane example of SF media in the architecture studio, the bachelor's studio *Spaceship Architecture* at the University of Innsbruck's Institute for Experimental Architecture, led by Pavlos Fereos, Marios Tsiliakos, and Clara Jaschke, found design inspiration in the aesthetic qualities of SF film, looking specifically at the conceptual design of a variety of spaceships and other artefacts from SF film as the impetus for architectural design. The motivation for the studio is to

108 Hao Jingfang, "Folding Beijing" *Uncanny Magazine* (2012) <https://www.uncannymagazine.com/article/folding-beijing-2/>

109 Spiller, *Digital Dreams*.

110 Neil Spiller, "The Architectural Mixing Desk of the Surrealist City," in *Educating Architects: How Tomorrow's Practitioners Will Learn Today*, ed. Neil Spiller and Nic Clear (London New York: Thames & Hudson, 2014), 78–85.

fully integrate knowledge of computational design and fabrication methods into a design studio project directly, rather than, as so often happens, treating CAD/CAM methods as a peripheral or purely technical subject. Although the visual effects of SF are often compelling, the tutors remark that the objects and spaces of SF film, especially those rendered digitally but also physical models, are often only a surface treatment, and therefore lack the “spatial depth” or complexity of architecture.¹¹¹ Nevertheless, beginning with SF artefacts rather than more familiar architectural objects offers a kind of estrangement from received architectural aesthetics, forcing students, through a process of defamiliarization, to move from familiar aesthetic tendencies. In the studio, they assign students an artefact from SF film to analyze, the published work of the studio points at several designs from the original Star Wars trilogy (1977-83)—the Death Star, Millennium Falcon, and the Nebulon B freighter—as well as the headquarters of the Tyrell Corporation from *Blade Runner* (1982), and the eponymous spaceship from the re-imagined *Battlestar Galactica* TV series (2004-9). These initial inspirations are analyzed, and aesthetic and spatial parameters and articulations are derived from surface patterns, which then inform the students’ own design work in the next semester. In this example, SF is understood merely as aesthetic novelty, and so architecture is similarly represented as an exercise in adorning a facade. If the tutor’s critique SF conceptual design as lacking spatial depth, the published student work also only seems skin deep.

Alongside studios based on refinement of the geodesic dome—in geometry, material and size,¹¹² Buckminster Fuller also based design projects on “eschatological musings” such as describing the need for decentralized populations in an imagined event in which every American population centre over 50,000 needs to be evacuated, or in the need a fallout shelter for the whole of New York in the event of nuclear.¹¹³ These speculative scenarios emerge from a post-apocalyptic imaginary that is also

111 Pavlos Fereos, Marios Tsiliakos, and Clara Jaschke, “Spaceship Architecture: A Sci-Fi Pedagogical Approach to Design Computation,” in *Learning, Adapting, and Prototyping, Proceedings of the 23rd International Conference of the Association for Computer-Aided Architectural Design Research in Asia (CAADRRIA) 2018*, ed. T Fukuda et al., vol. 1, 2 vols. (Hong Kong, CN: CAADRRIA, 2018), 81–90.

112 Jamie Snyder, “Introduction” in Fuller, R. Buckminster. *Education Automation: Comprehensive Learning for Emergent Humanity* (Baden: Lars Müller Publishers, 2009), 16.

113 Eva Díaz, *The Experimenters: Chance and Design at Black Mountain College* (Chicago ; London: University of Chicago Press, 2014), 145.

the precondition for Fuller's own work; his proposal for a dome over Manhattan is imagined not in the need for climate control, but in the far darker imagination of nuclear apocalypse with considerable resonance in time of Cold War.

Sophia Brueckner has taught a course in 'Sci-FI' prototyping in several different institutions since 2011, including at the MIT Media Lab. The outline of her course with Dan Novy is still online at time of writing,¹¹⁴ and Dan Novy is still on the teaching team, with Joost Bonsen, in the course's most recent incarnation at MIT.¹¹⁵ In general, these courses are very much invested in pursuing the Design Futures that I describe above, reading SF film and comics, watching SF movies, and investigating the methods of notable SF designers such as Syd Mead. The most recent course at MIT is invested in "envisioning" and "futurecrafting," a rather more naively technopositivist approach to reading technological futures, with the end goal directed towards physical and digital prototyping of speculative technology. Brueckner, to her credit, is invested in a more critical reading of SF. Even while still maintaining the centrality of technology to SF, she notes that SF is also valuable for how it unfolds the consequences of technology, not just for the technology itself. "Reading science fiction," she writes on her website, "is like ethics class for inventors, designers, and engineers."¹¹⁶

As well as his own practice, CJ Lim also leads the post graduate Unit 10 at the Bartlett, UCL. The briefs provided to Unit 10 at the Bartlett are often composed around a single central proposition. This proposition is often predicated on SF or utopian themes,¹¹⁷ though explicit reference to SF only appears in the brief for the 2011-12 academic year, where the brief entitled "SF Cities" referenced various examples of spatial and technological innovation from SF. Recent studio projects, however, have examined various contemporary or near-future problems such as relocation (2016-17), the resilient city (2015-16), utopia (2014-15), urban fauna

114 "Syllabus | MAS S65: Science Fiction to Science Fabrication," accessed June 11, 2022, <https://courses.media.mit.edu/2013fall/mass65/syllabus-3/>.

115 Daniel Novy, "Sci Fab - Science Fiction-Inspired Envisioning & Futurecrafting," MIT Media Lab, accessed June 11, 2022, <https://www.media.mit.edu/courses/sci-fab-science-fiction-inspired-envisioning-futurecrafting/>.

116 Sophia Brueckner. 'Sci Fi'. SOPHIA BRUECKNER. Accessed 11 June 2022. <http://www.sophiabruckner.com/scifi.html>.

117 CJ Lim, "The Imaginarium of Urban Futures," in *Educating Architects: How Tomorrow's Practitioners Will Learn Today*, ed. Neil Spiller and Nic Clear (London New York: Thames & Hudson, 2014), 145.

and ecologies (2012-14), or urban food production (2009-10).¹¹⁸ In spite of the compelling topics, these propositions are quite bare instigations, and the short unit briefs contain no suggestion of program, site, type, or style.

In the language of the present project, the briefs' instigations are often a singular *novum* in order to initiate students own worlding. As an example, the brief for the 2013-14 academic year, called 'Fauna City,' asked students to consider the historical and contemporary place of animals in the city.¹¹⁹ The projects that resulted ranged from Nick Elias' 'PoohTown,' with the figure of Winnie-the-Pooh as the protagonist for a nostalgic theme-park in a re-imagined 1920s Slough, to an infrastructure for a perpetual spring for Tokyo in Anja Leigh Kempa's 'Remembering Spring in Tokyo,' to fracking as an instigator of sustainable urban regeneration in Blackpool in Jason Lamb's 'Frackpool: The Legacy of Hydraulic Fracturing.' Clearly, the brief functions as a starting point, but the evolving narratives of each student's work soon dominate the project so much that any trace of the initial consideration of fauna disappears, but very interesting stories do begin to emerge.

The visual language of Lim's unit is also worth remarking upon, as most published projects seem to rely on brightly coloured perspectival illustration very similar to the visual language of graphic novels, and in this way further underline their affinity to storytelling media. Somewhat strangely, however, as the projects tip over from narrative into what we might call paper architecture, the architectural and technical features which are drawn into the proposals often fall to established or entrenched convention. Structural and spatial solutions are often in a modernist or even pre-modern idiom—the drawings are filled with steel truss work, rectangular box frames, sometimes a trace of the British High Tech architects or their antecedents—Archigram or Cedric Price. References to pre-20th century architecture also abound, including Victorian ironwork and industrial architecture, Japanese wood architecture, and various historical European styles. That is to say, the drawings seem to relish in their capacity to tell stories, more than these stories' capacity to inspire future architectures.

In their adoption of speculative and SF modes of storytelling, it becomes clear that, in the work of Unit 10, the widespread and tumultuous changes largely centred around climate change are met with an architectural toolset that is relatively stable and static. That is, while the programmatic content is significantly more

118 "Bartlett Design Anthology | Unit 10." Issuu. Accessed August 8, 2018. https://issuu.com/bartlettarchucl/docs/design_anthology_unit10.

119 Co-taught with Bernd Felsing, "Bartlett Design Anthology | Unit 10," 152.

speculative—involving wide-ranging and often playful flights of narrative fantasy, the physical or ‘built’ content of the proposal rests on an appropriation of existing technologies, forms, symbolic regimes, material expressions, and building practices. If there is an SF analogue to the Unit’s production, it may have less to do with technological extrapolation than with SFs of an alternative present. Rather than extrapolations of the present day into the future, we have the opposite effect in Lim’s production—something like the reimaginings of the Victorian era in Steampunk. While this does not disparage the quality of the narrative fiction, nor the delight one takes in its fantasy, it does undermine the projective qualities, the cognitive frame which suggests the future plausibility of the scenarios they so carefully draw.

As the most explicitly science fictional project within architectural education, Nic Clear also tries to uncover architectural potentials through storytelling in close proximity to methods, approaches, and themes in SF film. Nic Clear has been leading an architectural design unit entitled Unit 15 since 1997, first at the Bartlett School of Architecture at University College London, then moving to the University of Greenwich in 2011, and now continues at the University of Huddersfield from 2018. A survey of the lesson plans from the period 1999-2018 shows a remarkable methodological continuity, an engagement with speculative practice and with the possibilities of digital animation tools and film to communicate dynamic visions of architecture, while the thematic framework has evolved through several permutations with increasingly specific reference both to SF authors, SF themes, and a critical engagement with utopian ideas.¹²⁰

Clear argues that the disciplinary boundaries of architecture, and the professional avenues his students will pursue, are blurring such that the skills of an architect are now appropriate to other disciplines at the same time as the domain of the architect is also overtaken by other professional practices such as the various engineers, construction managers and other consultants now implicated in building. The future spatial practitioner, in Clear’s point of view, should have the ability to generate, represent, and execute spatial and temporal ideas whether designing and supervising the construction of buildings, or operating outside of the normative domain of architectural practice. The implicit challenge to the accepted view of an architectural practitioner will also, in Clear’s point of view, prepare students for a

120 All project briefs from 1999 to the present are published at: <http://unitfifteen-archive.com/>. (accessed August 15, 2018). Along with Clear, the briefs are co-authored by: Simon Kennedy (2007-2010), Mike Aling (2011-2016), Simon Withers(2013-2016), Hyun Jun Park (2013-present).

wider, more critical engagement with the wider social challenges that threaten contemporary culture—climate change, expanding populations, resource scarcity, or the distribution of wealth.¹²¹

The specific educational methodology of Unit 15, and a phrase that appears on every brief from 1999 until 2018 is captured in the phrase: Unit 15 is “an architectural unit that uses film to generate, develop, and represent architectural and spatial projects.” The film as the project is a consistent theme throughout the unit’s production. The reliance on the moving image as representative of architectural spatial and temporal engagement carries an explicit critique of the orthographic projection so common to architectural representation—though the unit seems to retreat from the deliberate absence of 2-dimensional projective drawing with the later introduction of the “chronogram” from the 2002-3 academic year.¹²² Also important to the argument for a time-based mode of engagement with architectural representation is the seeming relativity of spatial and temporal experience in the contemporary age, a theme drawn out by the quote from Paul Virillio that appears at the top of Clear’s article describing the unit’s work, and reappears in the unit brief for the year 2002-3: “After the age of architecture/sculpture we are now in the time of cinematographic factitiousness... from now on architecture is only a movie.”¹²³

While the concern with the representation and communication of the temporal dimension of architecture has persisted, and while this has included, in one way or another, what one might identify as speculative strain, the last decade of Unit 15’s production has shown an increasingly specific reference to science fiction as an inspiration, to an extent that “architecture as science fiction” is now a key descriptor of the unit’s production.¹²⁴ The unit’s intentional engagement with specific SF themes seems to begin with the project brief for the 2007-08 academic year, entitled “Crash:

121 Nic Clear, “Convergence: Architecture as Integrated Spatial Design,” in *Educating Architects: How Tomorrow’s Practitioners Will Learn Today*, ed. Neil Spiller and Nic Clear (London New York: Thames & Hudson, 2014), 92–101.

122 These “chronograms” function as a kind of hybrid representation mixing orthographic, perspectival, and durational modes of drawing with an attention to atmospheric or aesthetic affect, narrative dimensions of the drawing, as well as construction techniques and spatial articulation. see: Nic Clear “Timeline.” Accessed August 8, 2018. <http://unitfifteen-archive.com/2002-2003-The-Bartlett-UCL/2002-2003-1>.

123 Paul Virillio, quoted from “The Aesthetics of Disappearance” (1991) Nic Clear, “Design Animated: Unit 15,” in *Educating Architects: How Tomorrow’s Practitioners Will Learn Today*, ed. Neil Spiller and Nic Clear (London New York: Thames & Hudson, 2014), 102.

124 Clear, “Design Animated.” 106.

Architectures of the Near Future.” The title of the brief is derived from the novel by J.G. Ballard, and does not specify which narrative thread to follow, but looks at aspects of culture which are classed “ballardian”—loosely defined as narratives that explore psychological and social conflicts that arise from modern technologies, or which might be extrapolated from the author’s present.¹²⁵

The theme ‘Near Futures’ continued in the next academic year, followed by the project brief entitled “Year of the Depend Adult Undergarment” in the 2009-10 academic year, largely informed by David Foster Wallace’s 1996 novel *An Infinite Jest*, and exploring the “psychopathologies of late capitalism” as they impact the built environment. The 2011-12 academic year, marking Clear’s move to the University of Greenwich, also includes a specific literary SF reference, China Mieville’s *The City and the City* (2009), which also gave the brief its name. This project, like the novel, extrapolated from the contemporary condition of exclusion and division in a kind of “experiential editing,” that challenged the neo-liberal myth of the inclusive city, especially in the geographic frame of East London, with its extremes of wealth and poverty.

In each of the above cases, a literary universe was derived from an existing text or body of texts, and the SF references were largely determined by those authors’ initial suppositions. While this did not necessarily limit students’ imaginative engagements with these worlds, more recently, the speculative frame proposed in each academic year’s brief becomes an SF world created by the teaching team. During this time, beginning perhaps with the 2010-11 brief entitled “Uncertainty,” and beginning in earnest with 2013-14’s “Post-Scarcity Architecture” the brief still draws a theoretical frame for the project with certain key texts recurring,¹²⁶ but without a specific literary precedent. Instead, the frame begins from a specific *novum* identified by the brief’s authors, in effect, the brief becomes a piece of science fiction itself, using the tools of cognitive estrangement and a careful attention to contemporary cultural currents to derive a *novum*, which is open for the more elaborate researches of the students. By implication, the students are also insinuated into the project of world-building.

125 Clear’s issue of AD with the same title came out shortly afterwards. Nic Clear, ed., *Architectures of the Near Future*, (London: Academy Press, 2009).

126 The texts that recur include: Fredric Jameson’s *Archaeologies of the Future* (2005), and *The Geo-Political Aesthetic: Cinema and Space in the World System* (2009), Henri Lefebvre’s *The Production of Space* (1991), Richard Martin’s *The Architecture of David Lynch* (2014), and Slavoj Žižek’s *Documentary The Pervert’s Guide to Cinema* (2007) [Dir. Sophie Fiennes].

This worldbuilding becomes increasingly necessary as the unit begins a more critical encounter with expressions of utopianism, a project that necessitates the diversity of viewpoints beyond the tutor's.

“Post-Scarcity Architecture” (2013-14) introduces Constant Nieuwenhuys' New Babylon as a model of a post-scarcity society, as well as emphasizing speculations in near-future technology under the acronym NBIC (nano-bio-info-cogno). This project also marks an intersection with the culture of science fiction, introducing the unit as SF creators in their participation at the 72nd World Science Fiction Convention, also known as Loncon 3. “The Early Days of a Better Future” (2014-15) used SF themes to consider the erosion of the welfare state under neoliberal capitalism, considering employment, education, and health care, while critiquing the hegemony of capitalism and the state as arbiter of social relations. “Collabocracy: Towards Open Source Architecture” (2015-16) explored new forms of subjectivity, individual and collective agency, and economics. “Post-Continuity Architectures: 21st Century Follies and Fun Palaces” (2016-17) issued a challenge to Koolhaas' notion of Junkspace, reading it as an SF text critiquing how physical space is subsumed into neoliberal information and economic networks, and responding with ‘disjunctions’ in the form of follies and fun palaces. The project brief for “FUN: Future Urban Networks” (2017-2018) contains the most explicit description of a methodology that Unit 15 has evolved since at least 2013. This brief contains both the most deliberate disavowal of the “Corporate Architecture Complex,” and the affirmation of alternative modes of practice outlined above. This brief also contains the most deliberate declaration of the unit's relationship to science fiction, appropriating methods from SF creators in order to ask “what if?”. Far from undermining Unit 15's work as SF, partaking of the full nuance of SF expression enlivens the worlds that students may explore, and allows for a greater range of architectural and spatial expression.

Both Lim and Clear articulate deliberate affinities to practices in SF, going so far as to call the production of their teaching practices SF, and so are most closely aligned to some of the aims of the present project. In truth, the quality of student work they produce is a forceful argument for the necessity of a speculative dimension to architectural education. However, one can also discern other implicit fictions in the work. While the production indicates a concern with the impact of future technologies and the great dilemma of our time—sustainable cohabitation with

the environment, the work of both Lim's and Clear's units of study betray a deep uncertainty about the role of architecture and the place of the architect in these future imaginaries.

In the case of Lim's unit, while the narrative dimensions of the work are well developed and imaginative, the architects of these fictions are largely working within existing disciplinary logics—building technology, formal and spatial typologies, and materials where they can be ascertained—that would be familiar to any architect in the past century. In contrast to the static understanding of the disciplinary toolkit in Lim's unit, Unit 15's anti-disciplinarity reveals a rather wide perspective of what could be considered architectural production, in some cases students produce a building, but just as often, understand their role as spatial practitioners to propose something else entirely, perhaps abdicating responsibility for the more directly architectural implications of emerging technologies. The question that is more relevant to the present project is how SF is defined and used within these practices. Lim celebrates the speculative dimensions of architectural practice, but science fictionality in this teaching practice is rather abstractly defined, and thus Lim's most significant contributions is rather in bringing SF storytelling to architectural education, especially using representational techniques that implicate the viewer as part of the story. Clear's project, in referencing future technologies and in dialogue with themes drawn from works of popular SF is more closely aligned with what might be understood as SF.

Students in each course are surely skilled and thoughtful, and the work does reveal a degree of other-worldliness as a provocation to the “corporate architectural complex” driving neoliberal educational policies, perhaps the nearest adjacencies to the present project are in this speculative disposition, and in how students develop their own authorship of the process from the rather sparse clues offered in each brief. Given that the actual work of educating the students is hidden between the brief and the finished work in as published, the present project tries to be more explicit over how such speculation and authorship might unfold in the architecture studio. For example, the experiment recounted in chapter 2.6, the only master's studio in the present project, is most closely aligned with this practice, as at this stage students are more capable of taking up a speculative practice. Nevertheless, my project argues that such an exercise of authority is essential to learning to practice architecture, and I have tried to expand upon how this might happen in each of the experiments I describe.

Other work discussed at greater length in the present thesis also shows how working from SF media directly can inspire design education. In one design studio, Igea Troiani assigns “Edalia, or make of it what you will,” a fictional appendix to urban geographer David Harvey’s *Spaces of Hope* as the impetus to a studio design exercise. The resulting studio project to illustrate the assignment turns on the relationship between nature and urbanism in Iceland.¹²⁷ In another studio assignment, Troiani lists several works of literature which might inspire students’ design of a “Survival Research Laboratory” in London. In interviews with two students in the studio, Troiani finds that they were just as much inspired by works of SF—literature, film, or games—from their own experience of the genre rather than from the supplied list. One student’s laboratory for extracting water from the dead is inspired by Frank Herbert’s *Dune* (1965), another’s laboratory, inspired by Godard’s *Alphaville*, extracts biofuel from a plague of insects.¹²⁸ In both cases from Troiani, she uses SF to invite students into a speculative practice, but developing that perspective with a broader study of how SF is working and how it might be important to understanding sustainability. In one brief she takes the first step in worldbuilding for the student project:

“This studio will evaluate, in a critical way, the problem of the future of the planet earth by looking at precedent examples by visionaries (architects, film-makers, science fiction novelists, comic writers) who have tried to fantasise and envision how our cities, architecture, social and governmental systems will change. Students will produce their own apocalyptic visions of the world we will live in. All studio projects will be set in 2048 in London or New York. By embracing science fiction as an architectural tool, the studio deliberately sets the environmental agenda as a creative one, extending beyond our current solutions of wind turbines, insulated cavities etc. into a world of unknown architectures, urbanism and new social systems. Students will be encouraged to design ‘futurist-primitive’ architecture”¹²⁹

Amy Butt brings works of feminist SF into a spatial experiment at a conference called *Utopian Acts*, reading these works in order to translate their spatial implications to a

127 Igea Troiani, “Eco-Topia: ‘Living With Nature’ in Edilia, Iceland,” *Journal of Architectural Education* 67, no. 1 (March 7, 2013): 96–105, <https://doi.org/10.1080/10464883.2013.767129>.

128 Igea Troiani, “Sci-Fi Eco-Architecture: Science Fiction, Sustainability and Design Studio,” *Architectural Research Quarterly* 16, no. 4 (December 2012): 313–24, <https://doi.org/10.1017/S1359135513000201>.

129 Igea Troiani, “Sci-Fi Eco-Architecture,” 313.

real world classroom space in a short design exercise.¹³⁰ The works she is referencing are: Ursula Le Guin’s *The Dispossessed: An Ambiguous Utopia*, Marge Piercy’s *Woman on the Edge of Time*, and Sally Miller Gearhart’s *The Wanderground: Stories of the Hill Women*. In this case, Butt makes the argument that the societies represented in the works she references have spatial implications in the text, and describing these implications prefigures the possibility of “alternative ways of being in the world.”¹³¹ Although she is only reading a small portion of each text, they are read quite closely and carefully in order to learn from the authors intention in order to enrich the architectural experiment. Given her attention to SF scholarship and to close reading of SF texts, the affordance of SF for architecture is, for Butt, much less in an abstract ‘what if?’ than in SF’s potential to describe whole new worlds, and its capacity to form a critical dialogue with what is in the world. In this way, Butt is also probing one of the tensions of the present project’s experiments with literature, namely, how much authority to give to students, and how much to insist on a close critical reading of the works provided.

It is also worth noting that both Troiani and Butt have a rather different idea of the genre than Clear. Rather than as representative of technological innovation, Troiani and Butt read SF for its “postapocalyptic” representations of ecological collapse and for its utopian figurations of urban forms respectively. As my introduction of SF illustrated, and as will become more clear in the remainder of this thesis, SF is uniquely able to synthesize many aspects of an imaginary world, and it is worth exploring the many dimensions of these worldings, not only for technological futures, but for new ways of imagining spatial environments that support human and more than human flourishing.

In conclusion, the fields of architecture and SF have met before in many different ways, and quite in fact, none of these different aspects of the relation between architecture and SF can be entirely excluded from the present work. To be sure, if I have presented them here as discrete modes of architecture’s engagement with SF, there are many projects which weave between several of these affordances of SF for architecture. In short, there is a long-standing tendency within architectural commentary to propose at the very least that SF is a productive source of inspiration for architects, and even a useful tool within architectural pedagogy. A smaller but

130 Amy Butt, “‘Only One Way in and One Way out’: Staging Utopian Spaces,” *Studies in Arts and Humanities* 5, no. 1 (May 1, 2019): 5–23, <https://doi.org/10.18193/sah.v5i1.155>.

131 Butt, 6.

still significant number of architects have engaged in a more critical encounter with SF, and fewer still have broached SF scholarship in any significant way. One of the contributions of the present research is to continue to develop this interdisciplinary connection. As I have noted, while there are some architectural educators who have used works of SF to inspire student production, the limited engagement with SF scholarship means that the contours of what SF might offer architectural thinking and pedagogy have not been explored. I build upon each of these engagements, and try to draw out several more connections to SF to unfold different dimensions of what these connections offer to thinking about architecture. I do this in three ways: first, by developing the engagement with SF scholarship further—in particular taking up and transforming the vocabulary of SF to inspire, describe, and critique architectural production, second, I develop how making architecture is like making SF using a speculative practice-based research methodology, and third, in explicitly exploring the pedagogical potentials of such an alignment.

The Novum

“Without the idea of Utopia, the future has no shape”¹³²

Suvin writes that SF literature is predicated on the “hegemony of a fictional *novum*.”¹³³ In short, the *novum*, the topic of the first chapter, refers to the central idea dominating an SF text; it is what SF is about. The popular impression of the genre is of SF’s relationship to futurity and innovation, and so the study of how architecture might be productively thought as a kind of SF first needs to address this popular impression of the genre. The first chapter tries to address the discourse around technological futurity that often accompanies conversations around newness in SF as much as in architecture.

When describing my project to fellow architects and educators, the first response, almost unfailingly, has been to talk about SF as an inspiration for aesthetic novelty or technological innovation. SF imagery has long inspired architects, and is often seen as a site of aesthetic experimentation outside the immediate demands of the market. Likewise, some will comment on supposed technological innovation in SF. But SF has a poor track record as a stimulus to technical invention, and for every ‘prediction’ that leads to technical innovation, hundreds are proven false or impossible. So SF has never really been about new technology or scientific advances.

132 Nathaniel Coleman, *Lefebvre for Architects* (Abingdon, Oxon; New York: Routledge, 2015), 19.

133 Suvin, *Metamorphoses of Science Fiction*, 79.

Similarly, while newness in architecture is usually imagined in terms of aesthetic or technological novelty, I suggest that a reading of the SF *novum* rather asks us to account for architecture's own worlding. Suvin's distinction between the *novum* and the novelty of capitalist acceleration introduces how the SF *novum* produces an image of a different world, and thus how architecture might be understood and critiqued within this distinction.

Rather than telling the future, the SF *novum* is rather the element of a fiction which sets the fiction apart in time and space from the reader. In short, it presents the world of the work as different from the reader's experience, and by its presence, makes the reader imagine a new world—sometimes, but not always, helped along by the author. The chapter continues by introducing worlding by analogy to SF world-building, before discussing the relationship of architecture to SF and utopian fictions.

Utopian scholarship has a long history within, and is by some estimations a subset of SF scholarship. These perspectives from SF studies suggest how we can think of architecture as a utopian practice, starting with one of Ruth Levitas' several formulations from *Utopia as Method* with the copulative force of the proposition 'as'—utopia as architecture.¹³⁴ Levitas' method includes a reading of utopia as archeology, as ontology, and as architecture, each at work simultaneously in cultural expressions of utopia. Reading utopia as architecture, Levitas argues, is the most familiar mode, and describes the way that a utopian text makes new possibilities available to the reader's consideration, such as the *novum* of a society without money in Thomas More's *Utopia* (1516).

And so this chapter considers the utopian method as a part of a pedagogical practice. After the aftermath of the discipline's retreat from overt ideological positions in the late 20th century, there is a recent return to the idea of utopia in some architectural scholars. I'd argue that this comes at a time when we have become aware of the many ways in which an ideologically unexamined position has made architecture complicit in some of the major crises of our time: the Trump administration suddenly reminded us of the political, rhetorical, and ideological power of a wall, cities face an epidemic of isolation and alienation, the building industry is the world's primary contributor to climate change, the public infrastructure of our cities is eroding, and increasingly

134 Ruth Levitas, *Utopia as Method: The Imaginary Reconstruction of Society* (Houndmills, Basingstoke, Hampshire ; New York: Palgrave Macmillan, 2013).

precarious housing or homelessness is endemic even in the world's richest economies. A position which repudiates any ideological position—as if such neutrality were possible—merely re-inscribes architecture's irrelevance in the face of these challenges.

The other possibility is to lean into the expectations and imaginations for the future that students will bring to their studies, and then to propose that an architectural education is the appropriate place for students to constantly develop and question their own ideological position, especially as it influences the built environment. In combination with the SF concept of the *novum*, utopian studies offers the framework to critique these implicit ideological assumptions. In fact, far from threatening architectural discourse, Nathaniel Coleman argues that the absence of utopian thinking cripples architectural practices, “explaining the failure of architecture to reach beyond the limitations of aestheticized form or image or stultifying technique, leaving it almost always restricted to either a replication or an adornment of the given (neoliberal) condition.”¹³⁵ On the other hand, the concept of utopia, especially as it is expressed in the resurgence of thinking following Ernst Bloch, becomes an analytical and heuristic method to imagine the ‘better’ futures so common to the rhetorical tradition of architecture, but also to interrogate those positions, and to translate them into ethical imaginations and modes of practice for the future.

I use the word future a lot. This is of course, intentional. By now, it is almost banal to say practice is in a constant state of change, even to suppose that the change is accelerating. By necessity, those who are becoming architects now will not practice in a world they trained in, and I as a teacher could not in good conscience train students in the way I was trained, now over a decade ago. In a very real sense, the world—at least as we know it—is ending. In truth, it always has been.

The attention to futures has started to reach a fever pitch within architectural discourse—the multiple crises of our time have forced us, along with those from many other disciplines, to recognize that a practice predicated only upon the practices of the past will only reproduce the failures of the past. And so, there is much concern with what comes next, and rightly so. We do need new ways of designing our buildings and cities to address the many changes that we will be expecting over the next decades. Here, however, I depart from those who are trying to be fortune tellers. This project does not turn upon the discipline of futurology, which is the practice of extrapolating from present circumstances to try to predict the future. As

135 Nathaniel Coleman, “Utopic Pedagogies: Alternatives to Degenerate Architecture,” *Utopian Studies* 23, no. 2 (2012): 319, <https://doi.org/10.5325/utopianstudies.23.2.0314>.

a teacher, my interest is not in telling the future. What the *novum* teaches us that we never arrive at the future, but that the way we imagine futures makes them available to our collective consciousness, and shapes the way we work in the present. It is also a reminder that the *nova* we imagine, in SF as much as in architecture, are never innocent; each is an act of worlding that makes one future or another thinkable. In this way, the chapter closes by looking at multiple discourses of global futurism in SF and seeing how they align with practices in architecture today.

On Estrangement

If the *novum* can be said to be what SF is about, then estrangement, the title of chapter 1.2 is something like how SF works upon its readers. While SF is often *about* the future, SF can never be understood as simple prognostication—in short, SF cannot tell the future. Therefore, according to Suvin and those who follow him, the import of the genre is not to inform its readers about the future, but rather to estrange the reader’s experience of their own present. Building upon Berthold Brecht’s alienation effect in theatre, Suvin argues that the strength of SF is not just to present a different world to the reader, but also to make the reader aware of the ways in which their own world could be different. This chapter introduces SF estrangement as it is described in SF scholarship, as well as several modalities it might take. These are explored with reference to literary and architectural works, as well as experiments from the practice-based explorations in the project.

Suvin’s term is never merely estrangement, but rather always described with a modifier: *cognitive* estrangement; in order to meet Suvin’s criteria for aesthetic significance, an SF text should provoke active, intellectual engagement, rather than passive acceptance of the text’s *nova*. The importance of cognition to Suvin’s schema gives us ample opportunity to discuss how SF—and architecture understood as SF—can introduce a critical relation to the reader’s contemporary experiences and practices. By far the most important contribution of such estrangements is to reveal the impermanence and contingency of the reader’s experience of the world, and thus the very real possibility of how the reader’s world might be different.

The terms *novum* and estrangement, in Suvin at least, are not in any kind of opposition, but they do describe different concepts that persist in SF scholarship and in popular understandings of the genre. They are useful for describing how SF can be simultaneously both critical and projective—how SF can both reshape the reader’s relation to their present while also exploring a space of possible futures. Again, Ruth Levitas’ *Utopia as Method* is a useful companion, with a second utopian mode, utopia

as archeology, joining utopia as architecture.¹³⁶ This second mode is about how reading utopian works can reveal the inadequacy or lack of the reader's own present.¹³⁷ It is this simultaneity between critical and projective that is interesting for the present work: "The proper nature of the utopian method, from archeology to architecture and back" Levitas reminds us, "expos[es] contradictions, silences, inadequacies, and interrogat[es] both overt and hidden assumptions about the potentialities and limits of human nature"¹³⁸ As noted SF author Kim Stanley Robinson writes:

"... science fiction works by a kind of double action, like the glasses people wear when watching 3D movies. One lens of science fiction's aesthetic machinery portrays some future that might actually come to pass; it's a kind of proleptic realism. The other lens presents a metaphorical vision of our current moment, like a symbol in a poem. Together the two views combine and pop into a vision of history, extending magically into the future."¹³⁹

The estrangements of SF or of architecture are here understood for the ways they can reveal present-day practices and attitudes anew to the reader. Reading SF in an archaeological mode presents the reader with range of possible scenarios that differ from their empirical experience of the world. Not all of these scenarios will be desirable but they still offer a discursive space to interrogate possible futures, and to reveal tendencies in present practices that either cultivate or prohibit one future or another. Thus, Suvin writes about SF as an educational literature,¹⁴⁰ but not in the sense of a communication of specific knowledge so much as the for its revelatory potential; an SF text forces the reader into a critical encounter with the world as it is.

A Speculative Practice

Chapter 1.3 entitled Speculative Practice, or Toward a Carrier Bag Theory of Making Architecture, describes a speculative architectural practice, constructing an analogy

136 Levitas also identifies a third mode—utopia as ontology—where she is arriving at some of the discussion occupying the last chapters in the book.

137 For example, the utopia for a starving society might be one with an abundance of food.

138 Levitas, *Utopia as Method*, 217.

139 Kim Stanley Robinson, "Dystopia Now," in *Journey through Utopia: A Critical Examination of Imagined Worlds in Western Literature*, ed. Marie Louise Berneri (Oakland, California: PM Press, 2019), 393.

140 As Suvin writes, SF is "an educational literature, shaped by preaching the good word of human curiosity, fear, and hope." Suvin, *Metamorphoses of Science Fiction*, 50.

between the figure of the author of feminist SF and of the prospective architect. Starting with Ursula K. Le Guin's essay entitled "The Carrier Bag Theory of Fiction," I argue for architectural practice as an ecology of diverse, open, and indeterminate practices; rather than a prescriptive or normative model of practice, the carrier bag acknowledges that each will approach the discipline with different aspirations, motivations, perspectives and capabilities.

The chapter discusses understanding architecture as a post-discipline, following Nina Lykke's discussion of the field of feminist studies. As a post-discipline, the field maintains a "double stance" where on one foot, where we might acknowledge that most practices occupy a disciplinary 'middle ground,' but on the other foot, each practice is bounded differently, if at all. This difficulty in defining architecture opens up the practice of architecture and architectural pedagogy to new interdisciplinary affiliations, and lets us speak of a plurality of architectural practices now and in the future. Far from being an impediment to pedagogy, the wild diversity of future practices in architecture opens up exciting potential of a rejuvenation of architectural practice through the continued in-definition of the discipline.

In short, the chapter argues that making architecture is a speculative practice akin to SF storytelling, and this is not only true about the futures worlds implied by each project, but a mode of practice which actively (re-)constructs the discipline as its own science fiction. Such a move asks us to reframe architectural pedagogy away from an inculcation of disciplinary protocols and towards a pedagogy which takes the continued reappraisal and redefinition of the discipline as its foundational imperative.

If an architectural practice is akin to storytelling, then perhaps imagining the architect as the author of SF is not so far flung. But if this is the case, what does it mean to be speculative, and what does it mean to speculate about the 'real' world? This chapter continues with reference to work in speculative inquiry. From Eve Sedgwick's reparative critique, to Donna Haraway's situated knowledges and string figures, to Deleuze and Guattari's concepts, this chapter describes how describing or critiquing the world is a speculative encounter with the world, and is an act of utopian worlding. This being the case, the question is not if architectural practice is speculative, but rather what this might mean for the future of practice.

As a speculative practice, then, 'architecture' is in a state of perpetual (re-)construal of the discipline, it is worlding itself as it is construing the world. The question for

pedagogy is how to present architecture as such a practice to students, not risking the closure of the discipline and remembering how porous the borders of ‘architecture’ are. The metaphor of the carrier bag, however, reminds us that no student is alone in such a worlding practice. The architect with their carrier bag is polyvocal, attentive to their own situated perspectives and how these might be augmented by listening to other stories, and to the possibility of sympoiesis—of telling stories together. Such a practice is critical, but in such a way as to build new knowledge, to open up new possibilities, and to find new ethical operations within the continued practice of architecture.

As well as becoming a lens with which the reader might look upon their own reality as if estranged, SF writer and critic Samuel Delany reminds us that there is a degree of estrangement at work in the language of SF itself. For Delany, SF is better understood less as a group of texts and more as “a reading protocol complex.”¹⁴¹ That is, SF is a form of reading which implicates the reader, and indeed imparts a certain aesthetic pleasure in the reader, in decoding the language and world of the work. For Delany, the representations of SF language force the reader to engage with non-reality in a way where the reader actively produces meaning in the sematic slippage of the text;¹⁴² the SF text refers to things that don’t really exist in the world but which might be an impetus for the reader’s co-creation of the world of the text. One example of such a linguistic device is a metaphor that might be taken literally such as “he turned on his right side,” or “her world exploded.” Another device is the unusual combination of familiar words such as “The red sun is high, the blue low.”¹⁴³

What this means is that SF is not in the text, it is rather a capacity awakened in the reader where the reader becomes significantly implicated in ‘finishing’ the representations started by the text. No reader will produce exactly the same reading, and no reader will ‘complete’ the text in the same way, but each reader will confront, to some degree, things that were previously unthinkable in an SF text. In the end, an SF text is incomplete on its own, its special capacity is to invite the reader to complete the world of the text as a co-creator.

141 Delany, quoted in: Moylan, *Scraps of the Untainted Sky*, 8.

142 Chu calls this quality of SF language the capacity for non-representational mimesis, SF language making things that do not exist available for representation. Seo-Young Chu, *Do Metaphors Dream of Literal Sleep? A Science-Fictional Theory of Representation* (Cambridge, Mass: Harvard University Press, 2010).

143 Samuel R. Delany, “About 5,750 Words,” in *The Jewel-Hinged Jaw: Notes on the Language of Science Fiction* (Middletown, Conn: Wesleyan University Press, 2009), 50–74.

This chapter looks to the ways that the estrangements provoked by SF *and* architecture can reveal the potentials and blind spots of contemporary practice. It also looks to the ways SF can contribute to thinking architecture differently; within architecture, and for the architecture student, SF estrangements can reshape ones expectations for ones own or another's practice, can introduce different ways of look at architecture, and can challenge ones own habitus, and even invite the reader to become a co-creator in and with the authors' worlding.

Finally, this chapter explains how the present project also partakes of this speculative method. That is, it describes how the present project is itself already a speculative fiction—but in the manner of such fiction, no less truthful for being fictional. It outlines how the project uses methodologies such as auto-writing and ficto-criticism as an exemplar of a speculative practice, and how this affords me as the researcher the possibility to construct unique perspectives and conceptual alignments, and to move back and forth from critical to practice-based encounters.

On Science Fictioning

Chapter 1.4, *Science Fictioning Architectural Pedagogy*, describes a situated practice in science fictioning an architectural pedagogy, both contextualizing the experiments in the second half of this book and also distilling what I have learned from these experiments into a preliminary 'science fictioning' methodology for architectural pedagogy. To this end, I describe science fictioning as doing several things—captured in the chapters of *Novum*, *Estrangement*, and *Speculation*, respectively. Each of these operations or perspectives is happening simultaneously within a science fictioning practice, and moreover, each is happening on different levels of narrative. Each project can be understood as its own storytelling, its own future fiction, but at the same time as working on the level of the project, this chapter argues, architectural pedagogy is at work at constructing other fictions—the discipline-, studio-, and architect-to-come. Building upon the formulation of the people-to-come in Deleuze and Guattari's *What is Philosophy?*, the chapter considers how these fictions are constructed in the experiments in this project, and how even as fictions they may form an image of thought, a way of imagining the future for pedagogy.

On top of the fictions that are constructed within pedagogy, the chapter also considers how science fictioning might be turned upon pedagogy itself. Taking cues from Emma Cocker on “not knowing” and Jack Halberstam on “wildness,” as well as Jessie Beier's formulation of science fictioning in pedagogical theory, the

chapter tries to understand the role of pedagogy in relation to unthinkable futures. If architectural pedagogy is to prepare students to define their own future practice, it is in the context of a future that I as a teacher cannot imagine, which may even include the unthinkable—here in the sense not only of something that cannot be thought, but also in the sense of something about which thinking becomes undesirable or disturbing.

Inspired by critical and feminist pedagogical traditions, this practice is mindful of the extent to which an architectural education involves the subjective becoming of a student, not in a predefined mold, but in a way which is built upon mutual collaboration between tutor and student. The future of practice will by necessity be different than the way I was trained, and any curriculum that proceeds upon the presumption of an extended present becomes complicit in ways of thinking that, if we look to the preponderance of SF dystopias that now dominate our imaginations, lead only to apocalypse. However, I argue that in leaning into unknowing and into wildness, even to the point of ‘heresy,’ architectural pedagogy can inspire students’ discovery of their own practice of futurity in a mode which has repercussions for how we might imagine ‘architecture’ and even the world differently.

On Experimental Practice

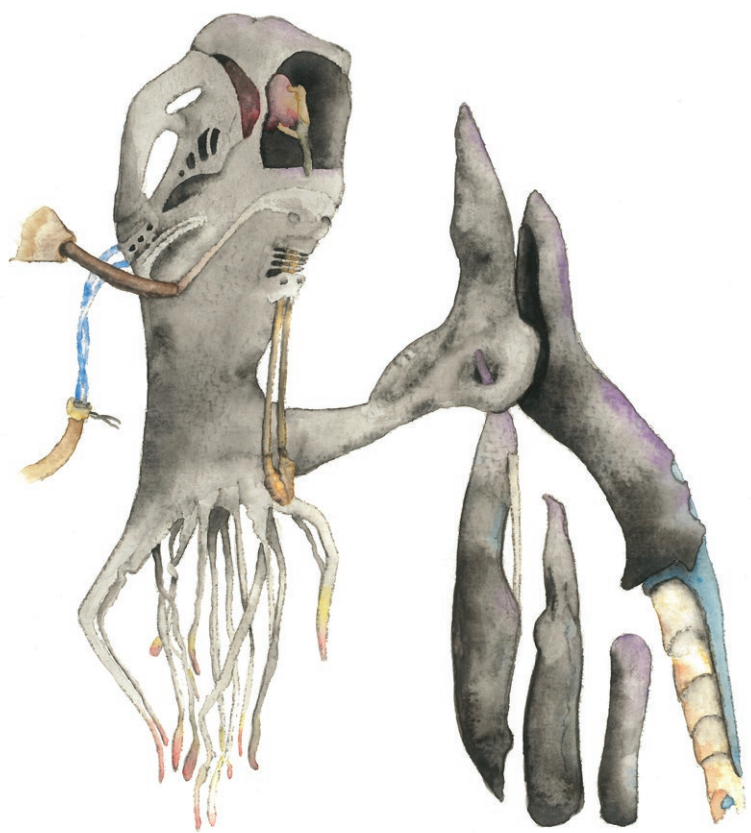
Chapter 1.5, “Elaborate Strategies of (In)direction,” discusses how the theoretical investigations that constitute the first part of this work are brought into discussion with an experimental practice in teaching architecture. In this chapter, I describe how I have translated the concepts of estrangement, the novum, and speculative practice into strategies for teaching architecture in the context of the design studio. I also describe how these concepts are elaborated and challenged by the experimental practice, and how the findings from the experimental practice refine the theoretical findings.

In this chapter, after outlining my considerations as I designed each experiment, I return again to the theoretical instruments that I develop in the book. I start by describing how the primary methodology at work in the experiments is to introduce modes of estrangement as a way to implicate students (and teachers) within the speculative storytelling of architectural education, to introduce critical encounters and creative friction always with an eye towards the radical possibilities lying dormant within each practice. I account for different sources, modes, and affects of estrangement, and for how the critical encounter in estrangement is already a mode of co-creation.

Second, I develop how the novum as a concept becomes a useful critical framework for understanding how the various experiments in the project construct an image of the future. With the novum as a conceptual framework, the experiments began to account for the worlding potential of each experiment more explicitly, with a greater attention not only to how the experiments led to the construction of a new thing, but also to how I could encourage a thoughtful consideration of the implications of such a new thing. That is, if earlier architectural commentators wrote that SF could help architects ask ‘what if?’ I argue that an attention to worlding also helps us explore the follow up conditional questions: ‘if x then...’ and to align any potential new things with the worlds imagined across SF media.

I continue by noting how the language of Suvinian critique, which supplied the impetus for the concepts of the novum and estrangement, was inadequate for describing some of what I observed within the experiments, and how this led me to explore different figures in the experiments. In particular, I began to test how to imagine the architect as an author of speculative fiction, and how the experiments themselves were also SF stories, constructing an image of the architect- and discipline-to-come.

The second half of this book includes an account of each experiment individually. These are presented in such a way as to describe how I have conducted each teaching activity. Each is given its own chapter in which I outline the learning objectives and framework of each experiment, but in which I also critically evaluate the results of the experiment, and subject them to a reading which attempts to read them both as architectural propositions and as SF stories. Reading across these different modes is another affordance of the term “Science Fictioning”—that is, reading the work as if it were SF places it in conversation with other imaginations of the future, and with the subjunctive mood of SF.



1.1 Novum

That architecture is invested in the future should be not controversial. The practice of architecture is, in one drastic oversimplification, to produce the possibility for things that do not yet exist in the world—largely but not exclusively buildings and environments. Sometimes practice even proceeds from an explicit motivation to affect the world larger than the project itself; the discourse around sustainability, for example, is a project in architecture imagining how the world might be different. This project often seems focused on material efficiency or energy, but there are significant implications for politics, economy, and society—a whole new world just under the surface. All this is to say, when we practice architecture, we are working to some extent in a world that doesn't (yet) exist. Our minds stretch out beyond the time we happen to inhabit, and we begin making determinations beyond our capability to see them.

The attention to futures is recently reaching a fever pitch,¹ and there is a growing awareness about the untenability of the systems that structure our contemporary ways of living and organizing our species. The future seems to be on everyone's mind. But which future? Why, how, and for whom?

And so this chapter, like this whole study, is about the future. This first chapter is about how imaginations of the future come to the discipline, how they are represented, and how they can be imagined within architectural discourse and pedagogy. This has a consequence for how we imagine, how we think of possibilities, and how the discipline aligns with other imaginations of futurity. Architecture, of course, is not alone as a cultural discourse of imagining the future, and if our partial definition above is true—that the practice of architecture produces the possibility for things that do not exist in the world, then it bears a strong resemblance to some definitions of science fiction (SF). This chapter takes its name from one such definition of the genre at the emergence of scholarship focused exclusively on SF;

1 The word 'future' keeps making an appearance. In just one example, the next World Congress of Architects, hosted in Copenhagen in 2023, is called "Sustainable Futures – Leave No One Behind," <https://uia2023cph.org/>

one influential formulation of the genre from SF critic Darko Suvin is of a literature “whose main formal device is an imaginative framework alternative to the author’s empirical environment,” what he calls a *novum*.²

The question of futurity or newness is one that occupies architecture, not only in its attachments to fashionable novelty, but also in the sense in which architectural practice produces possibilities for and acts upon a world that does not yet exist. First, this chapter explores how the *novum* within SF scholarship becomes a useful device to probe architecture’s commitment to futurity in an abstract sense, and also further unfold the proposition that architecture might be read productively as a kind of SF. Then, I develop the concept of the SF *novum* to discuss the science fictional quality of selected projects in architecture and design as a way to describe how we might evaluate the worlds and utopian impulses latent within these projects. I turn to the question of worlding, using self-consciously utopian or science fictional projects to discuss how imaginations of the future within architecture (and SF) contain an imagination of the world differently, which I develop with reference to Donna Haraway’s discussion of worlding and in relation to utopian scholarship. Finally, the chapter finishes with possible futures imagined in architecture which find allies in recent movements in global SF.

Which Futures?

In so many words, the process of making architecture already contains a core of a world imagined differently. In this way, it already shares one of the principle qualities of other SF media, namely, it represents non-existent things to our experience, staging an encounter with non-reality. The first encounter bridging non-reality and reality is in the work of any project as it proceeds through stages of development before the construction of the building; a building is imagined and re-imagined before it exists. Therefore, we might assert that designing architecture is a commitment to a world that does not yet exist, but might sometime in the future.

Even as a building or environment is constructed, we might argue that some dimension of it continues to exist as fiction to whatever extent it still exists as an artifact of discourse in media representations of the building, or in the imaginative inhabitation of its users. Because architecture always works in some dimension of futurity and fictionality, before probing what Suvin’s *novum* can offer a discussion

2 Darko Suvin, *Metamorphoses of Science Fiction: On the Poetics and History of a Literary Genre*, ed. Gerry Canavan, *Ralahine Utopian Studies*, volume 18 (Oxford: Peter Lang, 2016), 20.



Figure 1.1.0 - “The Future,” Samsung Advertisement, 2019



Figure 1.1.1 - promotional image for Tesla Solar Roof

of architecture, we examine how futures are already thought and represented within architectural and popular discourse. This is important because imagining the future is never innocent; how we imagine the future shapes how we arrive at the future.

Although it is purely anecdotal, I have often observed that, when mentioning to another architect that my research concerns SF, the first response is some enthusiasm for the aesthetic or technological novelty supposedly contained within SF. Much to my chagrin, we might come around to that horrible adjective ‘futuristic,’ presuming to describe something already known to us as if we might know what the future will look like, or worse, describing a pre-existing style. However, we might be forgiven for such hubris because the ‘big-F’ Future has occupied our imaginations for some time, forming a collective, though by no means stable, image.

This shared imagination of what the future will be like is only partially supplied by SF. In fact, this future is just as likely to come to us through any number of avenues, including media, advertising, politics, or even finance. If we believe advertising, for example, the future will be much like the present. Companies that trade upon their futurity, including but not limited to technology companies—for all their talk of disruption—are rather more invested in perpetuating the present socio-economic framework, and are thus invested in presenting a future to us that is very like the present. One recent Samsung advertisement, for example, presented the future as a thoroughly mediated environment with each device bearing the Samsung logo. All indications, however, are that the future is otherwise unchanged. In one scene, seemingly orchestrated to make prospective viewers sentimental for their own childhood, a child rides a children’s trike—familiar to me from my North American childhood at least—past a window which also functions as an augmented reality screen [fig. 1.1.0].



Figure 1.1.2 - Promotional Images of the Monsanto House of the Future, Published in Life Magazine, 1957

In some cases, we can even observe that these advertisements more thoroughly conflate nostalgia and futurity.³ In one recent advertisement for their Solar Roof product, Tesla is less intent on presenting the product so much as the aspiration for an already existing suburban lifestyle [fig. 1.1.1]. The advertisement suggests that the product is the only possible way not only to achieve an aspirational lifestyle, but rather more forcefully, to preserve the present from an uncertain futurity—a private infrastructure to shield the owner from climate anxiety. It is only a short leap to imagine that Tesla’s solar roof project is presented as part of a technical infrastructure for a gated community not only walled off from the plebeian horde, but also protected against a public infrastructure’s fragility—energy security to supplement the armed guards at the gates. It is a promise, even a reassurance, of things remaining very much the same, at least to those few who can already afford the suburban lifestyle.

Where architects might take the risk of making the future available for representation, architecture is not innocent of a kind of bland futurism. In 1957, in an historical example, the chemical company Monsanto commissioned Richard Hamilton to design a house using their plastic composites [fig. 1.1.2]. It was installed at Disneyland, an advertisement for Monsanto visited by hundreds of thousands. Its rhetorical intent, however, is not only to remind visitors that Monsanto exists the present, but also that the company is in some way necessary for the future. If we look at this house, we see the same rhetorical twists that we see today happening 65 years ago—a future represented through technological or aesthetic innovation, even while the advertising narratives place an emphasis on normative values and the centrality of existing ways of life; as much as the plastic was new, the Monsanto house is also heavily invested in prescribed gender roles, family structures, and given the tasteful décor (Eames Chairs!), the centrality of capitalist consumption.

3 See Maak’s discussion of particular nostalgia of developer’s futures in Berlin. Niklas Maak, *Living Complex: From Zombie City to the New Communal* (München: Hirmer, 2015), 42–47.

Figure 1.1.3 - Harbour re-developments like Aarhus Ø are only justifiable in the scope of a narrow futurism which expects sea levels to remain as they are.



Futurist Scott Smith calls these “flat-pack futures.”⁴ In coining this term, Smith is describing futures that are easily imagined within the cognitive horizon of the time in which they are imagined. These representations of the future do not challenge our intellectual faculties because they proceed upon the assumption that things will remain much the same—the future is represented as a kind of prolonged present. Moreover, he argues, the proliferation of these futures actually restricts imaginations of the future being otherwise because they present the future as already decided. These flat-pack futures infect not only advertising, but also the narrow futurisms of corporate strategy, actuarial prediction, or financial speculation, and if we are honest, much architectural speculation as well; one pithy example may be that the redevelopment of urban harbor districts worldwide is only justifiable on the expectation that sea levels remain as they were through the 20th century.

What does the future mean to architecture? Architecture is still used as an icon for futurity in plenty of SF television and film. For example, Santiago Calatrava’s *Ciutat de les Arts I les Ciències* in Valencia (1998-2009) stands in for the home of the Delos Corporation in a future Los Angeles in the third season of HBO’s *Westworld* [fig. 1.1.4]. Vancouver’s modernist steel and glass even has the trace of futurity still clinging to it, as we see in patriarch of Canadian west-coast modernism Arthur Erickson’s oeuvre, which among many other appearances played a star turn in the *Battlestar Galactica* series (SYFY, 2003-2009) [fig. 1.1.5]. Both examples are icons of futurity based on a limited aesthetic novelty while relying to some degree on a material and formal rhetoric of futurity; they meet cultural expectations of what the future will look like. The expectation this constructs for architecture is that the discipline’s only role is to produce such novelty, rather than present any challenge to contemporary ways of living. As their own kind of flat-pack futures, these architectural futures do not ask us to think about what changes will occur in the future—whether from climate change, demographic shifts, ecological collapse, or global pandemics, nor to think critically about how architecture structures contemporary psychological,

4 Scott Smith, ‘Beware of Flat-Pack Futures’ (Media Future Week, Almere, Netherlands, 4 July 2013), <https://vimeo.com/66314529>.



Figure 1.1.4 - Santiago Calatrava's Ciutat de les Arts i les Ciències as a Future Los Angeles, in *Westworld* (HBO, 2020)

Figure 1.1.5 - Arthur Erickson's Waterfall Building as an oncologist's office on "Caprica," in the *Battlestar Galactica* miniseries (SYFY, 2003)



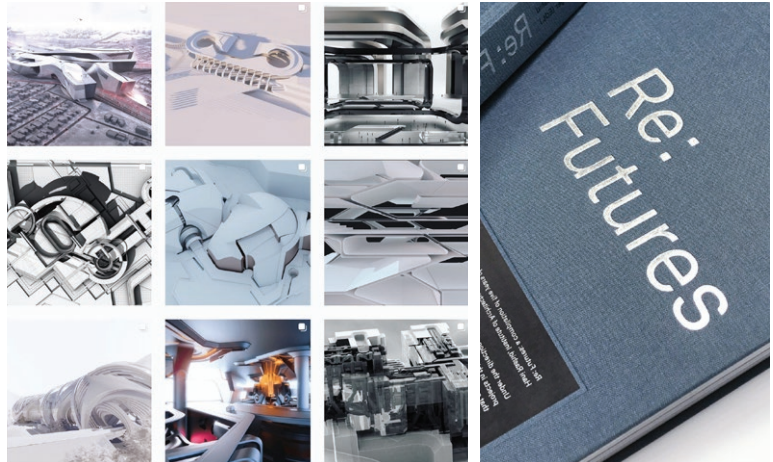
social, or environmental relations. Even now, some practices in architectural pedagogy, inspired by the formal acrobatics enabled by digital technology, continue to make claims to relevance upon the supposed futurity of aesthetic or formal novelty [fig. 1.1.6].

Just as the discipline of architecture is often only afforded a small role in describing potential futures, SF is often deputized to legitimate a narrow 'predictive' tendency in technological practices. The job of SF, according to this point of view, is to describe technologically-minded instrumental futures easily assimilated into the contemporary imagination—futures very like the present apparently, with all the attendant problems and prejudices, but with cooler gadgets.

In a lecture titled "Innovation Starvation," SF author Neal Stephenson bemoaned the failure of science fiction authors to provide the "big picture" for an army of operators in the STEM field⁵—a field presumably ready and willing to tackle tasks on the scale of the great pyramids of Egypt or NASA's Apollo moon landings, but merely lacking the imaginative spark. Stephenson was speaking to a crowd of futurists, scientists, engineers, and designers at a conference called Future Tense in 2011. Noting the turn towards darker fictions and imaginations in the genre, he was lamenting the seeming incapacity of SF creators to provide overarching, optimistic visions of the future. He argued that SF would formerly provide 'hieroglyphs' to the imagination—widely shared signs that are circulated and elaborated through their multiple interpretations by SF creators and which act as signposts for those involved in designing and building future technologies; he points towards Isaac Asimov's elaboration of robotics, Robert Heinlein's rockets, or William Gibson's first visions of 'cyberspace.' These early visions provided a framework around which scientists and engineers—those working on only a small slice of the pie—could orient their work. Gibson's 'cyberspace,' for example, originates in his 1982 short story "Burning Chrome," before being further explored by his *Sprawl* Trilogy, and further elaborated by other authors, including Stephenson's own novel *Snow Crash*. The early hieroglyph, represented by Gibson's neologism, was an imagination of the internet as a three-dimensional space. It

5 Neal Stephenson, 'Innovation Starvation', in *Hieroglyph: Stories and Visions for a Better Future*, ed. Ed Finn and Kathryn Cramer, Reprint edition (New York: William Morrow Paperbacks, 2015), xv–xxi.

Figure 1.1.6 - Claims to futurity based upon the aesthetic novelty enabled by the formal acrobatics of digital media.



stood as a signpost for those working on the development of the public internet as well as virtual and augmented reality devices.⁶ However, those who are inspired by the hieroglyph are, apparently, free to dismantle the fiction piecemeal, preserving the image of a 3D interface for the internet while ignoring how, as a narrative device, cyberspace so often compensation for a degraded physical environment for each of the characters, not least in Stephenson's *Snow Crash*,⁷ among others.⁸

The examples both from architecture and the hieroglyphs of SF capture the popular idea of SF futurity, in which case the criterion seems to be an aura of aesthetic novelty or at best a kind of technological novelty predicated on 'invention' within a strictly instrumental reading of SF. Such a predictive or instrumental role has been thrown upon SF by innumerable bored tech journalists,⁹ and indeed, been claimed by architects as well.¹⁰ However, the aesthetic novelty of some practices in architecture, or a strictly instrumental reading of SF both provides a vision of the future which takes the foundational premises of contemporary life as given, rather

6 Facebook has recently asserted that it will become a "Metaverse" company, using Stephenson's neologism from *Snow Crash*, for an internet experienced as a 3D environment. see: Miranda Bryant, 'Is Facebook Leading Us on a Journey to the Metaverse?', *The Observer*, 26 September 2021, sec. Technology, <https://www.theguardian.com/technology/2021/sep/26/is-facebook-leading-us-on-a-journey-to-the-metaverse>.

7 Stephenson's hacker 'Hiro Protagonist,' is poor, and thus living in a community within a former storage facility. Neal Stephenson, *Snow Crash* (New York: Bantam Books, 1992).

8 See also the difference between the "stacks" and OASIS in Cline's novel, and the film of the same name: Cline, Ernest. *Ready Player One: A Novel*. New York: Broadway Books, 2017.

9 One example of a frequent topic sure to earn some clicks: '10 Ways Science Fiction Predicted the Future', BBC Live Lessons, accessed 29 September 2021, <https://www.bbc.co.uk/teach/live-lessons/10-ways-science-fiction-predicted-future/z6dynrd>.

10 CJ Lim, 'The Imaginarium of Urban Futures', in *Educating Architects: How Tomorrow's Practitioners Will Learn Today*, ed. Neil Spiller and Nic Clear (London New York: Thames & Hudson, 2014), 145–53.

than challenging them. In these first examples, these images merely seem to dress the world as we know it in new clothes. If this were the extent of SF's contribution to architectural discourse, we would not achieve much.

However, SF scholarship asks us to take a different position on SF's relation to the future and contribution to architectural discourse: first in acknowledging that we cannot know the future; as a genre, SF is not a crystal ball, and has no better claim to future knowledge than a tarot card. Second, that suggesting that these images are *the* future can be construed as a project to “colonize the future” according to a fixed idea of futurity based on the dominant perspectives and privileges of the time in which such a future is described.¹¹ Instead, my interest in SF is not about predicting the future, but rather to describe the possibility of the future and the world being—and not just looking—different.

The SF *Novum*

Suvin's landmark study of the SF genre includes several attempts at a definition of the genre. One of these argues that the distinguishing characteristic of SF is what he calls a *novum*, Latin for ‘new thing’. He writes:

“SF is distinguished by the narrative dominance or hegemony of a fictional novum (novelty, innovation) validated by cognitive logic.”¹²

In short, in order to qualify as SF, the fiction must turn upon some thing that distinguishes the fiction from the reader or author's experience of reality. This thing might take the form of everything from a new gadget to vastly different socio-cultural, biological, or even temporal formulations. In addition to the technological *nova* described in Stephenson's hieroglyphs, some examples of SF *nova* that have a singular influence on the story might be a humanoid species' androgyny in Ursula K. Le Guin's *The Left Hand of Darkness* (1969) or, closer to home, a government that listens to its scientists about climate change in Kim Stanley Robinson's *Green Earth* trilogy (2004-7).

However, in contrast to the discussion of singular technological hieroglyphs from Stephenson, these *nova* are not intended as a new addition to a world that is otherwise the same; the *novum* is a “totalizing phenomena,” and as a consequence

11 Fredric Jameson, *Archaeologies of the Future: The Desire Called Utopia and Other Science Fictions* (London: Verso, 2007), 228.

12 Darko Suvin, *Metamorphoses of Science Fiction: On the Poetics and History of a Literary Genre*, ed. Gerry Canavan, *Ralahine Utopian Studies*, volume 18 (Oxford: Peter Lang, 2016), 79.

of its postulation “entails a change in the universe of the tale.”¹³ In short, having observed the *novum*’s presence, the reader recognizes that the world of the work is necessarily different than their empirical reality, and the proceeds to reconstruct in their imagination a world in which the *novum*’s presence makes sense. Sometimes this is done explicitly in the authorial process of world-building, as in the constructed languages, histories, and mythologies in J.R.R. Tolkien’s Middle Earth, or the planetary ecologies, imagined technologies, and interstellar politics in Frank Herbert’s *Dune* (1965).

Sometimes the *novum* is communicated in subtler, but no less significant ways. For example, Carl Freedman points out the strains of creative thought that proliferate as Philip K. Dick introduces his reader to the device of the ‘mood organ’ in the first page of *Do Androids Dream of Electric Sleep?* (1968). The mere mention of this device to instantaneously alter the user’s mood prompts the reader to imagine both the technical and psychological imperatives which would find such a device in every home.¹⁴

Suvin is concerned that this *novum* is not just any departure from reality, and in fact reserves significant disdain for fantasy or fairy-tales. The SF *novum* is one that is possible according to a “methodologically systematic cognition,” by which he means that the *novum* should be possible according to what the reader knows of the world.¹⁵ For Suvin, such cognition is important both for the validation of SF as an object of study in the academy by differentiating it with the ‘non-cognitive’ genres,¹⁶ but also for the political import of the *novum*. That is to say, Suvin is explicitly Marxist, and so judges the “authenticity” of an SF *novum* in its capacity to allow the reader to reimagine the whole world and in particular, he values the *novum* for its capacity to describe human social relations differently. This is not to say that the *novum* should be social, but it must both seem possible according to the reader’s understanding of historical progress—or at least “not impossible”—but its “relevance” hinges upon

13 Suvin, 80.

14 Carl Freedman, ‘Science Fiction and Critical Theory [1987]’, in *Science Fiction Criticism: An Anthology of Essential Writings*, ed. Rob Latham (London ; New York: Bloomsbury Academic, 2017), 232.

15 Suvin, *Metamorphoses of Science Fiction*, 81.

16 Suvin makes the now oft contended assertion that fantasy and myth are non-cognitive genres. Myth, because it develops from consensus explanations of reality, is a conservative force, while fantasy actually disdains advances of scientific cognition in favour of ‘anti-cognitive’ magic. Each therefore reinforces rather than challenges consensus worldviews. Suvin, 37–40, 48.

describing human relationships—with one’s self, with one another, and with the world around them—differently.¹⁷ This is in contradistinction to the pseudo-*novum* or “novelty” we observe in the accelerations of capitalism.¹⁸

As discussed above, flat-pack futures from advertising and from the imagination of architectural futures on the condition of aesthetic novelty, are rather more in the category of a pseudo-*novum*. Such novelty is what Suvin, citing Walter Benjamin, calls “das immerweidergleiche,”¹⁹ an ‘always-already-the-same’ in the artefacts of capitalist production—where products or technologies are meant to signal newness, but only a newness within the very fixed frame of existing socio-economic structures. Their danger is not only that they are anemic imaginations of the future, but also that capitalist novelty actually precludes the potential of more radical nova by defining the horizon of the possible according to existing knowledge.

Suvin is emphatic, however, that visions of the future within SF do not describe the future. His poetics of the genre introduces the question as to whether SF functions as *extrapolation* or as *analogy*. The question this distinction raises is whether SF’s vocation is to imagine the future, or whether it forms a collective document of the preoccupations and anxieties of the present.²⁰

In the extrapolative mode, the work of SF observes currents in the author’s present, and imagines the future implications proceeding from those currents. Suvin primarily sees this with regard to both “utopian and anti-utopian” social modeling, but also argues that so-called ‘hard’ SF might use the author’s understanding of the scientific theories of their time to model future scientific advances. Aldous Huxley’s *Brave New World*, for example, imagines the social consequence of eugenics among other things,²¹ while Kurt Vonnegut’s *Galapagos* proceeds from an understanding of the

17 Suvin, 98–99.

18 Tom Moylan, “‘Look into the Dark’: On Dystopia and the Novum”, in *Learning from Other Worlds: Estrangement, Cognition, and the Politics of Science Fiction and Utopia*, ed. Patrick Parrinder (Durham: Duke University Press Books, 2001), 56.

19 quoted in: Tom Moylan, *Scraps of the Untainted Sky: Science Fiction, Utopia, Dystopia*, Cultural Studies Series (Boulder, Colo: Westview Press, 2000), 47.

20 Darko Suvin, *Metamorphoses of Science Fiction: On the Poetics and History of a Literary Genre*, ed. Gerry Canavan, *Ralahine Utopian Studies*, volume 18 (Oxford: Peter Lang, 2016), 40–43.

21 Aldous Huxley, *Brave New World* (London: Chatto & Windus, 1932).

theory of evolution to imagine the biological implications of a million years' natural selection on the Earth's last remaining humans as they evolve into aquatic animals.²²

By contrast, the analogous function of SF constructs an analogous relation between the SF *novum* and the author's own present. In this mode, the fiction is not intended to be understood as prognostication, and only an estranged position with which to critically evaluate the author's present.

For Suvin, to ask SF to predict the future is to misunderstand what SF is trying to do, as the point of SF is never to describe developments in science or technology, but far more radically, to describe a world entirely remade. Therefore, what the science fictional *novum* produces is not expressly or intentionally futurological. Suvin argues that extrapolation is strictly a secondary function of the genre,²³ and later he argues that extrapolation is not even possible within SF.²⁴ Forgetting that any speculations in SF are not prognostication, Suvin argues, would see the SF *novum* as a “handmaiden of futurological foresight,” which would produce technological novelty within the frame and under the strictures of existing scientific/political knowledge. Such a *novum* is “in danger of being confined to a straightjacket, slave to the reigning theology of the day.”²⁵ Rather the value of SF for Suvin is in its analogical function, its ability to “reflect the shortcomings of the workaday world,” in order, as I discuss in the next chapter, to activate the reader's critical engagement with their present.²⁶ Although some have occasionally tried,²⁷ it is indeed useless to assign any prophetic capacity to SF—for every single ‘right’ prediction—rocket ships and robots, for example—hundreds end up ‘wrong.’

Still, if SF will not tell us the future directly, what do we want from it, and of understanding architecture as SF? Certainly, SF can make non-existent things available for representation to the spatial imagination. Even a single work might offer a range of possibilities to the architects imagination; Kim Stanley Robinson's *New York 2140* is a paradigmatic example. It is set in that city after it has been flooded

22 Kurt Vonnegut, *Galápagos* (New York: Delacorte Press/Seymour Lawrence, 1985).

23 Suvin, *Metamorphoses of Science Fiction*, 41.

24 Darko Suvin, “Goodbye to Extrapolation,” *Science Fiction Studies* 22, no. 2 (1995): 301–3.

25 Suvin, *Metamorphoses of Science Fiction*, 41.

26 Suvin, 43.

27 C. J. Lim, *Inhabitable Infrastructures: Science Fiction or Urban Future?* (New York, NY: Routledge, 2017), 19.

by rising sea levels caused by climate change.²⁸ Robinson imagines New York as a kind of “super Venice” with much of the 5 boroughs flooded, including the island of Manhattan below 46th Street.²⁹ However, this has not kept the city from being densely populated, celebrating the resilience of New Yorkers and their attachment to the city. While the elite of the city have moved to newly constructed skyscrapers in uptown Manhattan, the story largely describes a permutation of present day New York mapped onto a future with the canyons between skyscrapers filled with water. Each of these buildings is largely self-sufficient or communal with its own sewage treatment, energy, and even some agriculture.

There are many specifically architectural technologies in Robinson’s novel. The spaces of the novel’s protagonists can largely be characterized by a kind of parasitism on the existing built environment of New York. The protagonists live in the real-world MetLife tower, constructed in 1909, supplemented in the novel with a number of parasitic infrastructures and spaces: internal sewage treatment for rooftop farms, photovoltaic paints, “hotellos”—temporary internal structures, as well as docks inside the building where the 3rd floor used to be. The citizens of flooded New York move around the city with walkways attached to towers or spanning over the water in a 3-dimensional pedestrian network that takes them through buildings and up internal flights of stairs. The building technology of Robinson’s New York is described as largely composed of graphinated compounds made “carbon-negative” by sucking carbon out of the atmosphere. These are projected in both the large towers of the city’s elite, but also in more prosaic solutions, such as a demi-rigid dirigible for one protagonist or the newly-imagined “eelgrass” housing, which would form flexible city blocks anchored underwater, allowing them to float with the tides.

As the brief example of Robinson’s novel demonstrates, there are an incredible number of *nova* represented in SF, available for thinking from and with. This has, of course, not escaped the attention of other commentators on SF’s contribution to architectural discourse, as I have noted in my introduction. I have also utilized SF *nova* in this project, as one aspect of science fictioning is to explore possibilities beyond the immediately apparent. Within this project, various *nova* supplied by SF literature have informed several different experiments: the different material and

28 Kim Stanley Robinson, *New York 2140*, E-Book (Orbit, 2018).

29 Kim Stanley Robinson and Usman Haque, ‘Raising Sea Levels- Kim Stanley Robinson’ (Science Fiction meets Architecture: London in 2080, Arthur C. Clarke Center for Human Imagination, San Diego and The Bartlett School of Architecture, London, 4 May 2016), https://www.youtube.com/watch?time_continue=1364&v=fVt3_rnSmas.

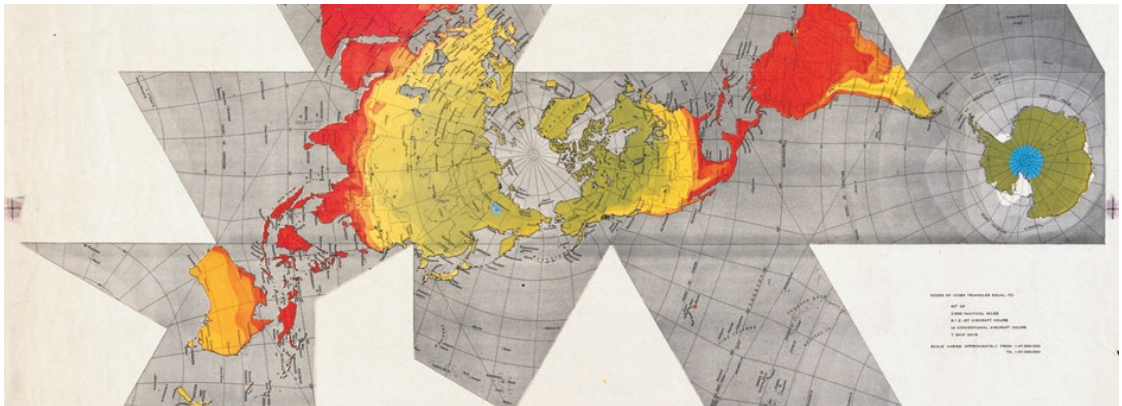


Figure 1.1.7 - R. Buckminster Fuller, *Dymaxion Map*, 1954

fabrication cultures within William Gibson's oeuvre form a potent *novum* or site for exploration in my self-directed experiment titled *Making Worlds with Patchers, Bridge People, and 'Funny' Fabbers*.³⁰ In teaching, the strange psychological and relational mechanisms of J.G. Ballard's short stories inform the architectural instruments in *Playing Innocent*,³¹ while short stories from a variety of authors inform modes of future living in *There and Back Again*.³²

Technological Nova in Architecture

As a way both to describe how architecture might contain its own science fictional *nova*, and also to argue for architecture as a form of science fictional discourse, we investigate one of the more consistent and long-lasting projects in architectural technology in the technical nova of R. Buckminster Fuller's project. It is not a stretch to suggest that Fuller's architectural project contained an imagination of the world differently, his project is self-identified as utopian at the same time as a somewhat self-congratulatory prediction of technological progress. In this way, Fuller's project contains several *nova*, but each is interlinked and it is for that reason that it is possible to talk about a singular project, although it unfolded in different ways across Fuller's career.

The specific utopian imaginary around which Fuller's project is predicated is the desire for efficiency, and therefore a condition of material surfeit for all humanity.³³ This resulted in several technical *nova* which, as well as existing as 'real' technologies, also existed as artifacts of discourse. The desire for efficiency is predicated on discourse

30 Chapter 2.3

31 Chapter 2.2

32 Chapter 2.4

33 Fuller defining utopia here as a condition of material surfeit for all humanity, see: R. Buckminster Fuller, *Utopia or Oblivion: The Prospects for Humanity* (London: Allen Lane, 1970), 324.



Figure 1.1.8 - Buckminster Fuller & Shoji Sadao, *Cloud Nine airborne spheres*, c. 1960

of scarcity in the limited resources of “spaceship earth,”³⁴ and manifest in several ways: energy efficiency in optimized transport routes, for example, and spatial and material efficiencies in design. The consequences of this imagination in architecture were the development of material and tectonic systems such as the geodesic dome, or the lightness, easy transportation, and efficient manufacture of the Dymaxion and 4D houses. In short, the utopian *novum* of a material surfeit for humanity has consequent spatial, material, systemic, even aesthetic *nova* following naturally. However, as I argue in more detail elsewhere, in spite of a continued enthusiasm for Fuller within architectural and technological circles, perhaps the most charitable reading of Fuller’s work and other projects in architectural technology is as a critical dystopia.³⁵

As an example of how we might read Fuller’s technological project, I would argue that the design of the geodesic dome cannot be read in isolation. It is more appropriate to read the technology as explicitly part of a new technical infrastructure for Fuller’s imagined post-political society. Fuller aimed at a world where resources were equitably and efficiently distributed, and the physical needs of Earth’s human inhabitants could be met. This new infrastructure, from housing, to energy and communication networks, and worldwide resource distribution would, Fuller argued, replace ineffective organizational political processes with an electronic, “cybernetically” determined management model, a total system to meet the world’s needs realized with “design competence” rather than political reform.³⁶ Fuller’s “world-around” vision is administered by the benevolent dictatorship of “comprehensive design scientists,” and their “cybernetic” machines, while the population stimulates their intellects with lifelong education.³⁷ With their absence of recognizable political divisions and reconfiguration of land masses, his *Dymaxion* maps were resolutely globalist in orientation—describing the world as a single system and not according

34 R. Buckminster Fuller, *Operating Manual for Spaceship Earth*, ed. Jaime Snyder (Baden: Müller, 2013).

35 Joel P.W. Letkemann, ‘Critical Dystopias in the Digital Project’, *In Folio*, no. 36 (2021): 90–97.

36 R. Buckminster Fuller, *Education Automation: Comprehensive Learning for Emergent Humanity*, (Baden: Lars Müller Publishers, 2009), 67, 180.

37 Eva Díaz, *The Experimenters: Chance and Design at Black Mountain College*, 1st Printing edition (Chicago ; London: University of Chicago Press, 2014), 111.

Figure 1.1.9 - The supposed material efficiencies of the geodesic dome only work in the context of individual property and free-standing buildings. They become faintly ridiculous when imagined fitting into existing cities.



to regional, cultural, or social specificity [fig. 1.1.7]. As the full expression of this infrastructure, the Cloud Nine spheres would roam the atmosphere indifferent to the political allegiances of the earth below [fig. 1.1.8]. Within Fuller's project, the speculations in architectural technology—the design of the dome, for example—are fragments of his synthetic vision for utopia. As such, this social imagination is the proper site from which to evaluate the project as a whole, as well as the resulting technological artefacts.

The question, however, is not whether Fuller saw his project as utopian—he certainly did—so much as whether we might be able to read it as such. That the geodesic dome operates as a kind of technical *novum* is evinced by the fact that its efficiencies must exist in a world whose civil society is organized differently than the one we experience empirically. That is to say, its efficiencies do not work in the way we currently organize our cities; while on its own, a sphere may have the highest ratio of volume to surface, as a form it only works in isolation from other buildings, and becomes faintly ridiculous when proposed in the communal forms of many contemporary cities [fig. 1.1.9]. That is, as a technical *novum*, it already presupposes a worlding different than the one we experience, and which may be predicated on a naïve individualism rather than upon a more explicitly-thought sociopolitical *novum*.

Fuller argues that the sociopolitical aims of his project could be accomplished with the technological means he proposed—a raft of technological nova, which, if realized on the scale of Fuller's ambition, would have not only profoundly reshaped the discipline, but also the world. It is the implied socio-political worlding however, which supplies the contemporary reader with a rather more ominous reading, especially in the context of technology companies now intervening in the real space of architecture and urbanism.³⁸ While Fuller's scientist-hero featured largely in pulp-age SF, the dictatorship of a technocratic elite administered with information technology was already a feature of the by-then well-established genre of dystopian satire. Fuller's project has unfortunate resonances with, for example, E.M. Forster's "The Machine Stops" (1909), Yevgenij Zamyatin's 1921 novel *We* and Kurt Vonnegut's *Player Piano* (1952), all of which feature an automation of work and administration by technical

³⁸ While their project for Toronto was shelved in 2020, Sidewalk Labs, whose parent company Alphabet Inc. also owns Google, is a going concern with the intention to provide technological solutions to urban problems. See: sidewalklabs.com.

oligarchy, the erasure of the citizenry's diverse subjectivity, and end in the alienation and resulting rebellion of their respective protagonists. These all pre-date or are contemporary with Fuller's project, and the society from which each protagonist is rebelling bears a too striking resemblance to Fuller's utopia. While Fuller's ambitions are synthetic to a certain degree, if it has a social agenda, it is expressed along the lines of a individual libertarianism. While it is a technical *novum*, the world contained within Fuller's *novum* makes the mistake of trying to present social innovation as an inevitable consequence of technical innovation, or even to present the latter as a replacement for the former. While there's continued enthusiasm from some circles,³⁹ given continued anxieties about technology and of a technocratic elite, perhaps now Fuller's project is more properly—not to say charitably—read as dystopian.

By extension from Fuller's project, the category of the *novum* shows how the horizon of futurity drawn by practices in architecture is too often constrained by a relatively anemic vision of futurity—sometimes featuring aesthetic or technological novelty, but largely preserving a socioeconomic or environmental status quo.⁴⁰ Nevertheless, there's a rhetorical twist whereby 'the futuristic,' the visionary, the science fictional, and the technological are all conflated, becoming a self-congratulatory affirmation of relevance and poignancy for these practices while suggesting we can imagine the future without any of the messiness of, for example, catastrophic climate change, or global pandemics. This being the case, the SF *novum* supplies a way to evaluate architectural projects, to ask not only what might be new about them, but also why it should matter and what world they are building for.

Utopia

Earlier, I argued that architecture contains the core of a world imagined differently. As we've seen, Fuller's project is predicated upon several *nova*, at the root of which seems to be a desire for material abundance. Fuller's answer for this desire is to redesign the entire world, achieving the efficient distribution of scarce resources through the means of a universally applied technological infrastructure. Fuller's

39 Sarah Fallon, 'Hey Silicon Valley—Buckminster Fuller Has a Lot to Teach You', *Wired*, accessed 13 October 2021, <https://www.wired.com/2016/03/buckminster-fuller-brilliant-crank-lot-teach-silicon-valley/>.

40 This is true of works who have been interpreted as 'futuristic' for SF film and television, but also a rhetorical strategy on the part of architecture commentators, see, for example: Neil Spiller, *Visionary Architecture: Blueprints of the Modern Imagination*, Reprint edition (Thames & Hudson, 2008); C. J. Lim, *Inhabitable Infrastructures: Science Fiction or Urban Future?*, 1 edition (New York, NY: Routledge, 2017).

project is an extreme example of a tendency that is often rather more modest. Nevertheless, any architectural project contains an image of the world different from that which we experience in our senses, and as such, contains a world inside of it. It is in uncovering and describing this world that the *novum* becomes especially useful to an architectural commentator. That is to say, in looking at any piece of architecture we might ask: what is the implied or fictional world in the work, and what can it tell us about possibilities or pitfalls for the future? It might be taken as a given that architects should wish for and work towards a ‘better’ world, but it is important to recover what that might mean, and so we turn to recent scholarship around utopia—what it is and what function it might serve.

There is considerable difficulty in defining what utopia is. As Ruth Levitas points out, we cannot make claims to utopian universality,⁴¹ different human societies across history have identified very different needs and desires and so a definition of utopia that tries to account for common traits is necessarily lacking. Nor can we describe any specific formal criteria or necessary constituent parts. Rather than attempting a formal definition, I will follow Levitas in defining utopian articulations as simply an “imaginary reconstruction of society,” based upon the authors expression of desire for a “better way of living.”⁴² This definition allows the analyst to recognize that the utopian impulse is much more common across different cultures, even if the specifics of the utopian expression are quite different.

In this way, she writes that utopia is better understood as a method than a goal; a way for societies to reveal the lack or absences in their present circumstance and hope for an improved future condition, rather than describing an ideal society. The content of these expressions of desire is thus differently determined in each circumstance, but might include hopes for material sufficiency—as the desire that drove Fuller’s utopia, more just social relations, increased security, or even an improved environmental condition.⁴³

41 Ruth Levitas, *The Concept of Utopia* (Bern: Peter Lang AG, Internationaler Verlag der Wissenschaften, 2011), 214.

42 Ruth Levitas, *Utopia as Method: The Imaginary Reconstruction of Society* (Houndmills, Basingstoke, Hampshire ; New York: Palgrave Macmillan, 2013), xi, 4.

43 Ernest Callenbach’s novel *Ecotopia* was published in 1975, although even beyond the biblical dream of Eden, an attention to an improved environmental condition may be widely noted including the American transcendentalist tradition or in the English Romantics’ raging against “Dark Satanic Mills” (William Blake, 1804). The tendency is still present in more recent SF, such as so-called Cli-Fi—standing for climate-fiction, or the emerging SF subgenre, Solarpunk.

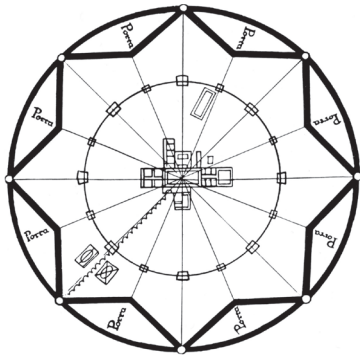


Figure 1.1.10 - Plan of Sforzinda, Filarete

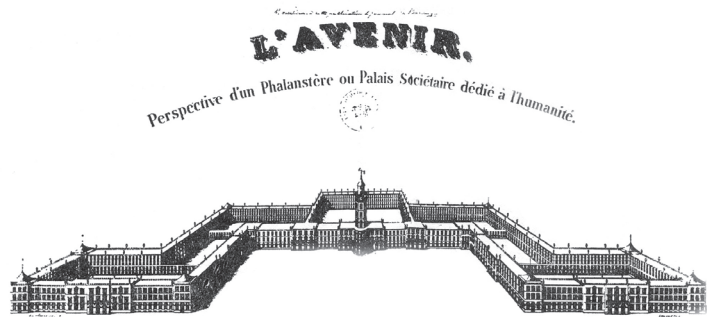


Figure 1.1.11 - Perspective of Charles Fourier's Phalanstère

Nevertheless, the word utopia in popular discourse is often taken to refer to totalizing or ‘formal’ utopias—representations of a society ordered upon the author’s ideal form, whatever that might be. There are a great number of authors who have tried to describe an ideal society, and architectural history too is full of examples architects who have tried the same: Even before the word utopia was coined by Thomas More, Filarete designed the ideal city Sforzinda, named after the Duke of Milan, Francesco Sforza. During the Enlightenment period, Charles Fourier designed the utopian community called the Phalanstère, housing a utopian community based on early socialist principles including liberated gender roles. Each of these utopias is in a defined form and in a fixed spatial and social organization that author takes to represent the ideal.

In fact, it is the interpretation of utopia as fixed and static that has prevailed in architecture, but it is also the source of the most vehement criticisms levelled against the concept. While the last half of the 20th century saw a continued fascination with imagined and even realized ideal cities, at the same time, it also saw a growing apprehension about the idea of utopia. With the emergence of post-modern skepticism—for example, the publication Tafuri’s *Architecture and Utopia* and the demolition of Pruitt-Igoe housing estate in St. Louis in the 1970s—architects stopped looking for Utopia. Utopias seemed impossible or dangerous, and the hubris of modernist architects’ grand schemes seemed doomed not only to fail, but also to result in a kind of dystopian totalitarianism.⁴⁴ Nevertheless, more recent scholarship

44 On whether utopia as concept might have been unfairly maligned, see several publications by Nathaniel Coleman, including: Nathaniel Coleman, ‘Utopia on Trial’, in *Imagining and Making the World: Reconsidering Architecture and Utopia*, ed. Nathaniel Coleman (Oxford; New York: Peter Lang AG, Internationaler Verlag der Wissenschaften, 2011); Nathaniel Coleman, ‘Recovering Utopia’, *Journal of Architectural Education* 67, no. 1 (7 March 2013): 24–26, <https://doi.org/10.1080/10464883.2013.767117>; Nathaniel Coleman, ‘The Problematic of Architecture and Utopia’, *Utopian Studies* 25, no. 1 (2014): 1, <https://doi.org/10.5325/utopianstudies.25.1.0001>; Nathaniel Coleman, *Utopias and Architecture* (Abingdon [England]; New York: Routledge, 2005).

has pointed at other ways that utopian discourse can be helpful and productive to the architectural imagination, regaining a commitment to social and environmental wellbeing without the hubris of prior generations.

Even the genre's founding text, Thomas More's *Utopia* (1512), is rather more nuanced than we read at face value. While the text describes a specific plan for a post-property society located somewhere in 'the new world,' More wasn't necessarily trying to outline an ideal society. More's invention of the word Utopia is derived from two Greek prefixes: both from *eu-topia*—the good place, and *ou-topia*—no place. Ruth Levitas suggests that the title is a "joke," its deliberate ambiguity indicating that More didn't intend his book to be read as a definitive plan,⁴⁵ but instead as a way both to reveal his own society's deficiencies and to suggest that alternatives might exist. Thus, even this first utopia is already balancing between satire and the expression of a desire for a more equitable distribution of resources.

Levitas argues that a more nuanced and pragmatic way to read utopian speculation is as "exploratory and provisional...the misreading as wholly didactic is an ideological device to stifle the politics of alterity."⁴⁶ That is to say, of course any formal utopia is problematic, and the closure represented by such a plan would likely lead to totalitarian ends. However, to then suggest that utopian ideas as a whole are dangerous is to silence voices that might offer ways of being that differ from the author's present. But, if we are not to read utopias, whether architectural, literary, or otherwise as definite plans or 'blueprints,' how are we to read them? Levitas rather argues that utopias be read across several registers, which she describes in *Utopia as Method*. In her book, she argues for three registers of a utopian method: utopia as archeology, as ontology, and as architecture. These strata of utopian analysis are a constant companion in the present study, each in turn supplementing discussions from SF theory.

In this chapter, I take the reading of utopia as architecture first, as it is most similar to the popular idea of utopia, but also to the SF *novum*. Utopia as architecture is a projective mode of speculation, in essence a kind of worldbuilding in that it develops social and environmental relations that differ from the author's own space and time.

45 Levitas, *The Concept of Utopia*, 2.

46 Nathaniel Coleman, Ruth Levitas, and Lymon Tower Sargent, 'Triologue', in *Imagining and Making the World: Reconsidering Architecture and Utopia* (Oxford England ; New York: Peter Lang AG, Internationaler Verlag der Wissenschaften, 2011), 306.

Utopia interpreted as architecture identifies the absence or wanting that a particular society might feel, and then supplies a “provisional hypothesis” to respond to that absence while inviting the reader into the project of imagining the world differently.⁴⁷

That utopia as architecture be understood as a metaphor might strike my audience as odd, given the tendency of architects to propose determined and fixed forms. Here, it is important to draw a distinction between literal act of building and a metaphorical drawing out of provisional possibilities. As Coleman argues, it is necessary to think of utopia and architecture both as “unfinished.” In citing Harvey’s dialectical utopianism, Coleman recognizes that the closure of the so-called blueprint utopias is dangerous. He argues that while architects work with “spatial closure” by necessity, there is a simultaneous imperative to maintain “social openness”—the ability for a populace to develop an appropriate inhabitation of the utopian space for themselves.⁴⁸

Nevertheless, it is still important that the author or architect accept responsibility for the content of utopias, as I wrote above, every project contains a world, a gloss of futurity—in short, each project contains its own image of utopia. It is this image of utopia that inspires the reader to ethical commitment, and creates the education of desire—it creates the sense of what is possible and how it might be achieved. Each architect is therefore responsible to design not the perfect society, but to understand what each work might suggest of the future, and how it might supplement or indeed detract from the possibility of an improved human condition. As Levitas writes,

“content, not just process, remains essential. it is, of course also essential that utopia embraces provisionality, reflexivity, and pluralism, and that utopians recognize the contingency of their hopes and desires. This is not incompatible with commitment, with taking responsibility in conditions where there can be no epistemological, moral or historical certainty. The effective synthesis of provisionality and responsibility may be the condition of keeping utopia open as a space in which to reach out to the real possibility of a transformed future.”⁴⁹

47 Levitas, *Utopia as Method*, 198.

48 Nathaniel Coleman, ‘Utopic Pedagogies: Alternatives to Degenerate Architecture’, *Utopian Studies* 23, no. 2 (2012): 338, <https://doi.org/10.5325/utopianstudies.23.2.0314>.

49 Ruth Levitas, ‘For Utopia: The (Limits of the) Utopian Function in Late Capitalist Society’, *Critical Review of International Social and Political Philosophy* 3, no. 2–3 (June 2000): 40, <https://doi.org/10.1080/13698230008403311>.

For Suvin, the genre of utopia is a subset of speculative fiction, but it is nevertheless an important part of what SF is doing; as Patrick Parrinder points out, Suvin chooses the Latin term *novum* to signal an alliance with the philosopher of utopia, Ernst Bloch.⁵⁰ Bloch was concerned with the anticipatory potentials nested within all cultural expressions, that each artifact of human culture, from a poem to a building, carried some aspiration for a world that was better than the artist found it. For Bloch, this utopian consciousness is directed by the “not yet.” As an expression of temporality, ‘not yet’ implies more than mere possibility, it rather contains expression of the insufficiency of the present, but also of the *potential* of the unfinished or dynamic material world—a sense of how historical progress could unfold towards this utopian potential from the ‘real’ world. So, this anticipatory consciousness includes the creative development of utopian content, but also a sense of their becoming in the world. Suvin follows Bloch in reading the *novum* as that which does not reveal the world as it is, but as a very real possibility that unfolds out of the historical reality of the reader’s present.⁵¹ Therefore, he is also concerned with the ‘authenticity’ of a *novum*: “in brief, a *novum* is fake unless it participates in and partakes of what Bloch called the ‘front-line of historical process’.” In a deliberate allusion to Marxist political praxis, the SF *novum* must have some ethico-political liberating quality to inspire political action, a utopian figuration of the “dealienation of men (*sic*) and their social life.”⁵²

While SF is no crystal ball, and no individual work of SF will be able to tell the future, to borrow Freedman’s phrase, SF contains “fractional pre-illuminations” of a world to come, a future only visible “obliquely,” but which nevertheless has a bearing on how we can imagine and project the future.⁵³ SF author Kim Stanley Robinson rather more succinctly calls SF a future “modeling exercise,” an exploration of possibilities.⁵⁴ It is in this sense that SF is an open system, not to describe the future,

50 Patrick Parrinder, “Revisiting Suvin’s Poetics of Science Fiction,” in *Learning from Other Worlds: Estrangement, Cognition, and the Politics of Science Fiction and Utopia*, ed. Patrick Parrinder (Durham: Duke University Press Books, 2001), 37.

51 The distinction between abstract wishing and concrete utopian speculation is also considerably derived from the work of Bloch, see: Ruth Levitas, ‘Educated Hope: Ernst Bloch on Abstract and Concrete Utopia’, *Utopian Studies* 1, no. 2 (1990): 13–26.

52 Suvin, *Metamorphoses of Science Fiction*, 99,100.

53 Carl Freedman, *Critical Theory and Science Fiction* (Middletown, Connecticut: Wesleyan University Press, 2000), 80.

54 India Bourke, ‘Kim Stanley Robinson: “What the Hell Do We Write Now?”’, accessed 4 February 2021, <https://www.newstatesman.com/kim-stanley-robinson-interview>.

but to describe multiple alternatives as they might unfold from the present. As Tom Moylan writes, the *novum* “is the dialectical force that mediates the material, historical possibilities and the subjective awareness and action engaged with those possibilities.”⁵⁵ That is to say, it is a newness that is verified by the reader’s own sense of what is or can be possible given what they know about the world, and possibly enlarges that sense of the “radical new directions in the latencies of [the reader’s] moment.”⁵⁶

What we learn from this discussion of utopia is that it might be possible to ask the same things of architectural representation as we do of other future-oriented fictions. As I have argued, it is very possible to read Fuller’s technological project as a work of SF, not least because the project very explicitly contains Fuller’s utopian ambitions. With this in mind, it seems appropriate to ask the same of other architectural representations: what is the *novum* implied in each, what is the world that is implied, and what does it tell us about our present and the possibilities for the future?

Despite my discussion of utopia and its potentials, I have based the present study on SF rather than on strictly utopian literature. The reason is clearly articulated by Carl Freedman:

*“...the science-fiction novel involves a much higher level of dialectical complexity (than the literary utopia). It is thus precluded from any comprehensive of absolute representation of utopia, and so is all the more capable of construing utopia truly—that is, in the kind of fractional preilluminations theorized (and practiced) by Ernst Bloch” (parenthesis in original)*⁵⁷

That is, while we do not know the future, maintaining a level of discursive possibility is important for the project of imagining the future. Suvin agrees; rather than the closure of the classical literary utopia, SF is more “relevant the more it eschews final solutions.”⁵⁸ However, Tom Moylan points out that since the 1970s, literary utopias have increasingly become “critical” and make use of SF conventions to

55 Moylan, “Look into the Dark”, 56.

56 Moylan, *Scraps of the Untainted Sky*, 45.

57 Freedman, *Critical Theory and Science Fiction*, 80.

58 Suvin, *Metamorphoses of Science Fiction*, 100.

explore socio-political possibility.⁵⁹ As Moylan convincingly argues, the four texts he identifies as ‘critical utopias,’ maintain this level of dialectical complexity—the works he cites do propose social innovations that improve upon the author’s time, but at the same time, the authors do not shy away from acknowledging and wrestling with the new problems that their utopias bring up. In one of Moylan’s examples, Ursula K. Le Guin’s *The Dispossessed: An Ambiguous Utopia* (1974) describes an anarcho-syndicalist commune on a resource-poor planet called Annares. While the description of this planet contains all the hallmarks of a classical utopia, it is challenged both by the nearby “phallogocratic-capitalist” planet Urras but also by the difficulty of the scientist Shevek to assimilate to the communal society. That Le Guin does not find a way to escape the formal closure of the system she is critiquing, means that Moylan diagnoses her “ambiguous” utopia as “important, if flawed.”⁶⁰

What do we learn from this understanding of the utopian novum? I wrote above that each project contains a world, and as a project is put into the world, it shapes our sense of what is possible: the fiction of the work becomes a part of the way we imagine the future of the real world. If this is true, then the architect has considerable responsibility for understanding the consequences of the world they are proposing. We must also understand that this does not mean that architects should propose formal or ‘blueprint’ utopias, but rather understand the dialectical operations of the fictional worlds nested in each project.

As Moylan later writes, it is not strictly necessary for works of SF to have utopian aspirations, and even works of critical dystopia can have a revelatory effect for the reader, having the potential to form critical positions inside of utopian systems as well, resisting both “hegemonic and oppositional orthodoxies.”⁶¹ This does not mean that every work of SF is equally productive when it comes to imagining futures. The next section discusses a project which might reveal some of the difficulties of the SF mode in design, before turning to projects which, from my contemporary standpoint, offer more possible imaginations to for the future.

59 Tom Moylan, *Demand the Impossible: Science Fiction and the Utopian Imagination*, Classics edition, Ralahine Utopian Studies (Oxford: Peter Lang, 2014).

60 Moylan, *Demand the Impossible*, 87–114.

61 Moylan, *Scraps of the Untainted Sky*, 190.

On United Micro Kingdoms

Anthony Dunne and Fiona Raby's survey of speculative design, *Speculative Everything*,⁶² is one of the most self-conscious articulations of the design field's science fictionality. They argue that their paradigm of speculative design is closely aligned with SF, asking the question "what if?" and using design as a media to speculate about how things could be in the future. One of their contributions is about how design as a media can move from the declarative sentence: 'the future is like this' to an interrogative: 'what if the future is like this?' The value of exploring a range of possibility is, according to Dunne and Raby, that speculative design can act as a "catalyst for social dreaming."⁶³ Works in speculative design, they argue, suggest a difference from the empirical experience of the author or reader, from which the reader consider if this how they might want imagine the future.⁶⁴ While elsewhere they describe the job of design to articulate "preferable" futures,⁶⁵ I introduce Dunne and Raby here precisely because, while they do produce work that is explicitly science fictional, their contribution to imagined futures is rather more difficult to accept precisely because they abdicate responsibility for the content of their imagined futures—they do not seem willing to articulate what preferable might mean.

In their project "United Micro Kingdoms," Dunne and Raby imagine that four different nations, each with their own ideology split the UK.⁶⁶ Each of these nations is intended as a response to a fossil fuel dependant world, and as such, Dunne and Raby explore how design and material culture would be different in each respective 'kingdom's' transportation infrastructure. The "Digitarians," for example, produce a landscape of machines for optimized traffic in "Digicars," while the "Bioliberals" are libertarians who produce lightweight cars from bioplastics. These two ideological positions are joined by the "communo-nuclearists," and the "anarcho-evolutionists."

United Micro Kingdoms is very much, and very self-consciously, a work of SF with the intention to explore what design cultures would emerge from their imagined socio-political positions. As it is a work of SF, we can thus explore what the tools of SF scholarship might contribute to a reading of the work. One of the challenges

62 Anthony Dunne and Fiona Raby, *Speculative Everything: Design, Fiction, and Social Dreaming* (Cambridge, Massachusetts ; London: The MIT Press, 2013).

63 Dunne and Raby, 189.

64 What they are describing is SF estrangement, discussed in the next chapter.

65 Dunne and Raby, 5.

66 Dunne and Raby, *Speculative Everything*, 173–88. See also: <http://unitedmicrokingdoms.org/>



Figure 1.1.12, 13 - Anthony Dunne and Fiona Raby, *United Micro Kingdoms*, *Digicars & Biocar*, 2013

that the medium of design may face is the relatively static representation of each ‘kingdom’s’ technical *nova*. While these nations are presumably in some intermediate stage of their development, they are presented as static and determined, instead of in a historico-materialist continuity with the reader’s present. To this end, and in contradiction to Suvin’s demand for cognitively validated *nova*, we cannot construct a history for the fictions Dunne and Raby are proposing. That is, they might serve as an icon of certain ideological impulses, but not as a fully fleshed exploration of how these might arrive. Therefore, we can certainly accept the production as a fiction, but the *novum* around which each of these speculations is centred does not account for a world, but rather a cartoon of a world. In this sense, they might be speculative proposals, but the weakness of the *nova* and lack of historical development makes them disappointing as SF.

The question which *United Micro Kingdoms* brings to the table is not if and how design might be speculative—Dunne and Raby’s is one of many works which argue for the importance of speculative currents in design and architecture. What this project does offer is a suggestion of how we might read this kind of project, and what it might offer to a discourse of futures. What Dunne and Raby suggest is that it is enough for design to offer up a range of possibilities, to create a space for discussion which might be taken up outside of the project, rather than a dialectic carried by the project itself. All four design outcomes within the project are presented without judgement, and seem to be valued equally for their capacity to promote discussion, rather than entering into conflict with one another—something which might both have developed the potential as an SF story as much as it might have offered a more discursive space for thinking about futures. Instead, Dunne and Raby relinquish any

responsibility for the choice between the options they propose, seeming to suggest that ethical decision making happens *after* and not *with* design. As Levitas points out:

“One of the consequences of [the] reading of utopia as heuristic rather than systematic, exploratory rather than prescriptive, is that it provides an alibi for what otherwise might be seen as the weaknesses, and failures of the iconic register of the utopian text.”⁶⁷

This is to say, Levitas asks us to be rather more deliberate about the futures we are proposing, which is especially relevant as it is taken up by fields with real-world consequences, such as the design disciplines. Instead, Dunne and Raby introduce an opposition between critical and mainstream design.⁶⁸ This distinction is disingenuous for two reasons, first, by suggesting that reinforcing the status quo in mainstream or “affirmative” design is not already a critical worldbuilding choice. As I suggest above, all design contains a world, whether it challenges or reaffirms the status quo. Second, suggesting that ‘critical’ design doesn’t happen in the ‘real’ world also ignores its real potential to shape the future by shaping images of the future. It is for this reason that any work in design can and should be read critically for its ethical consequences. As the constructive proposition of transformed social relations, any work of design is always in critical dialogue with the world as it is, and the world as it could be.

It is this attention to the world as it could be that unites architecture with utopian hopes and dialectical futurities of SF. As Freedman writes:

“Utopia can never be fixed in the perspective of the present, because it exists, to considerable degree, in the dimension of futurity: not, however... mere chronological forecasting, or in mechanistic and philistine notions of bourgeois ‘progress,’ but rather as the future is the object of hope, of our deepest and most radical longings—longings that... demand a revolutionary reconfiguration of the world as a totality.”⁶⁹

What SF and utopian scholarship offer to the design disciplines is the knowledge that we could never design utopia, but we can always design towards it. It is in this way that utopia is never a blueprint, it is always a practice. Levitas’ ‘utopia as architecture,’ therefore, is not about developing ideal futures, but rather about utopia

67 Levitas, ‘For Utopia’, 39.

68 Dunne and Raby, *Speculative Everything*, 34.

69 Freedman, *Critical Theory and Science Fiction*, 74.

as a perpetual constructive principle. The concepts of utopia, and critical utopia and dystopias in SF offer a space to think of and with potential futures, and crucially, to put works of architecture into dialogue with the futures of SF to test them. As Donna Haraway reminds us,⁷⁰ SF worlds motivate us to “test their virtue, to see if their articulations work—and what [and who] they work for.” Rather than the closure of a “world frozen in the dance of death,” Haraway argues that SF affords the reader the possibility of differential or oppositional rewriting of the world, to “unsettle the closed logics” of anemic futures and invite new futures to come.⁷¹

Co-Futures

As I wrote at the top of this chapter, one question in developing the relation between architecture and SF is about which futures are made available to our consideration both as architects and as citizens of the world who must live in the environments we produce. The question is also about architecture’s role in supplying those futures. So I offer a consideration of several projects, most of which are built, which already hold the suggestion of futures which begin to address the significant challenges and opportunities of our unique historical moment. Each of these is “staying with the trouble” in one way or another, to use Donna Haraway’s now oft-repeated imperative,⁷² in offering ways to think about and through climate change, social inequality, legacies of colonialism, the place of marginalized peoples in our communities, and excesses of a rapacious capitalism.

The quote from Carl Freedman ending the previous section says that he hopes that animate utopian figurations in SF should “demand a revolutionary reconfiguration of the world as a totality.” “The world,’ as ‘the future,’ is presented as singular and with a definite article as if there were only one future that is coming for us all, as ominous as that sounds. This kind of semantic construction reveals a kind of, perhaps unintentional, erasure of what is effect a much more complex assemblage. Trying to describe the world as singular tries to perform the same kind of “god trick” that Donna Haraway ascribes to western science—a fallacy which imagines

70 Donna Haraway, “The Promises of Monsters: A Regenerative Politics for Inappropriate/d Others,” in *Cultural Studies*, ed. Lawrence Grossberg, Cary Nelson, and Paula A. Treichler (New York: Routledge, 1992), 326.

71 Haraway, 327.

72 Donna Haraway, *Staying with the Trouble: Making Kin in the Chthulucene* (Durham: Duke University Press Books, 2016).

one's situated point of view as universal or totalizing.⁷³ Just as it is naïve or ignorant to imagine that any one of us could understand our experience of the present as universal, so to is it difficult to imagine that the future might be in any way singular.

As John Reider reminds us, SF is historically and inextricably entangled with colonialism and is structured from a western perspective;⁷⁴ It emerges from a set of conventions and expectations that, far from being universal, are rather structured from 19th century discourses around science and progress—discourses that for all their claims to enlightenment rationalism, also hide explicitly racist and exclusionary rhetoric.⁷⁵

As Bodhisattva Chattopadhyay writes, 'science fiction' is a recent western designation for a type of speculative literature that has existed long before its being named 'science fiction' by a western marketplace. Chattopadhyay's own research concerns Bangla SF and Kalpavigyan, a recently coined word for a literary tradition in Bangalore that includes both the SF tradition from imperial sources, but also an existing Bangla tradition in speculative storytelling.⁷⁶ Chattopadhyay's ambition to 'recenter' SF away from western, largely Anglo sources is not to propose some other origin myth for the genre, but to recognize that the recent emergence of the term 'science fiction' makes a claim to storytelling devices that had been around for much longer.⁷⁷ In reclaiming a speculative literature from its entanglements in colonial, racist, and problematically techno-optimistic history, Chattopadhyay is advocating for an attention to futures emerging from the whole range of global futurisms.

73 Donna Haraway, 'Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective', *Feminist Studies* 14, no. 3 (1988): 575–99, <https://doi.org/10.2307/3178066>.

74 John Rieder, *Colonialism and the Emergence of Science Fiction* (Middletown, Conn: Wesleyan University Press, 2008).

75 Here is another reason why 'SF' is preferred in academic discourse to science fiction, there is a certain fluidity to the acronym's referent, leaving it open to alternate, less historically loaded formulations, such as speculative fiction, speculative futures, and more.

76 Bodhisattva Chattopadhyay, 'On the Mythologerm: Kalpavigyan and the Question of Imperial Science', *Science Fiction Studies* 43, no. 3 (November 2016): 435–58, <https://doi.org/10.5621/scieftstud.43.3.0435>.

77 Bodhisattva Chattopadhyay, 'Recentering Science Fiction and the Fantastic: What Would a Non-Anglocentric Understanding of Science Fiction and Fantasy Look Like?', in *Speculative Fiction 2013: The Best Online Reviews, Essays and Commentary*, ed. Ana Grilo and Thea James (London: Jurassic, 2014), 216, <http://strangehorizons.com/non-fiction/articles/recentering-science-fiction-and-the-fantastic-what-would-a-non-anglocentric-understanding-of-science-fiction-and-fantasy-look-like/>.

After the coinage of Afrofuturism in 1994,⁷⁸ an aesthetic expression centering the African diaspora's experience and expectations for the future, there has been a florescence of futurisms from across the globe, now also including, along with the Indo-futurisms that Chattopadhyay documents, Indigenous futurisms,⁷⁹ Gulf-futurisms, and Sino-futurisms⁸⁰ or its related Asia-futurism.⁸¹ Beyond futurisms drawing upon various global cultures, other oft-marginalized voices to claim their own spaces in the future, including feminist⁸² and queer futurisms. This proliferation of potential futures does not congeal into a singular mass deserving of a definite article (*the* future), and while it might contain similarities with the genre conventions of science fiction, are derived as much from speculative storytelling traditions that precede that western designation, and which reveal a greater human predilection for “games of anticipation and expectation.”⁸³

Chattopadhyay proposes that these plural futures be equally valued and such plurality be nurtured as “CoFutures.” In developing this term as an alternative to science fiction, Chattopadhyay is arguing for mutual acknowledgment and respect for the multiplicity of futures in a mode which acknowledges their *complexity*, their *coeval* nature, and their *compossibility*. That is, the liberatory potential of the future imagination comes from understanding their unique constellation of qualities, how they arise from unique subjective positions, and especially, using them to imagine multiple futures of and for diverse groups of people at the same time. From this perspective, it may be beneficial to think of a future for architecture in terms coming from the co-futures imaginary.

How much might architectural *nova* arise by acknowledging co-*eval* futures—futures that arise from outside the hegemony of western patriarchal culture, but

78 Mark Dery, ‘Black to the Future: Interviews with Samuel R. Delany, Greg Tate, and Tricia Rose’, in *Flame Wars: The Discourse of Cyberculture*, ed. Mark Dery (Durham, NC: Duke University Press Books, 1994), 179–222.

79 Grace L. Dillon, ‘Imagining Indigenous Futurisms’, in *Walking the Clouds: An Anthology of Indigenous Science Fiction*, ed. Grace L. Dillon, Sun Tracks : An American Indian Literary Series, v. 69 (Tucson: University of Arizona Press, 2012), 1–12.

80 Ana Teixeira Pinto, ‘Alien Nations’ Mousse, no. 64 (2019): 166–75.

81 Dawn Chan, ‘Asia-Futurism’, *Artforum*, Summer 2016, <https://www.artforum.com/print/201606/asia-futurism-60088>.

82 Laboria Cuboniks, ‘Xenofeminism: A Politics for Alienation | Laboria Cuboniks’, accessed 3 October 2021, <https://laboriacuboniks.net/manifesto/xenofeminism-a-politics-for-alienation/>.

83 Chattopadhyay, ‘Recentering Science Fiction’, 228.



Figure 1.1.14 - Olalekan Jeyifus, *Crown Heights Bodega Ecohaven*, 2020

which nevertheless have equally complex origins, motivations, and expressions? If I am to reformulate that question: how do we evaluate claims to futurity in architectural discourse? What architectural practices can emerge from diverse subject positions, and what are their attitudes towards the future? In contrast to the few practices I discussed earlier in the chapter, what happens when we try to look for architectural *nova* predicated on motivations and utopian expectations that supersede the narrow futurisms of western technological rationalism? If every project in architecture contains a world imagined differently, the question is never *if* a project is utopian, but *how* and *to what degree*? which ideology does it reproduce, and which does it challenge? What lack or absence does it reveal, but also, what world becomes available to our imagination? Since no practice in architecture is autonomous, we must always ask how it is embroiled in the imaginations of possible futures.

Each of the following architectural futures has an equal claim to being as ‘science fictional’ or ‘futuristic’ as practices in digital technology are. In contrast to the universalizing tendency of Fuller’s project, and also to the cagey avoidance of responsibility in Dunne and Raby’s project, these present worlds that are in every respect “cofutures,” they arise from specific subjective positions, they are not strictly beholden to universal tropes, and they are possible together.

There is of course a risk in presenting futures for my reader’s consideration. Whatever thought images I here (re)produce, I risk amplifying some while foreclosing the possibility of others. This is, of course, the danger and responsibility of imagining the future. I have made the determinations below based upon how these architectural projects align with themes from across global SF, emerging from oft-marginalized cultures and perspectives, with a view to alternate economic futures, or even producing alternative visions of how architecture can interact with the environment.

Some of these architectural practices are self-consciously aligned with emerging movements within SF. Olalekan Jeyifus refers to Afro-futurism alongside eco-futurism and agro-futurism. Each of the latter terms seems to have been coined in the very recent past and there is no strict consensus on what they might mean. However, we might read them as affirming a futurism which centres ecological futures and which imagines new social technologies in food production. As examples

*Figure 1.1.15 -
Olalekan Jeyifus,
Bedstuy Chicken
Coop(erative),
2020*



of how such futures might be represented in architecture, Jeyifus re-imagines his own Brooklyn neighbourhood in Crown Heights Bodega Ecohaven [fig. 1.1.14], or Bedstuy Chicken Coop(erative) [fig. 1.1.15].

While these are striking images on their own and the visual language of these drawings plays upon familiar SF tropes, what is notable about them is not necessarily their aesthetic innovation. Instead, these feature self-sufficient communities organized around resource management and exchange. These images are developed from Jeyifous' own photos of his Brooklyn neighbourhood, and thus have a unique resonance not as an abstract possibility, but in historical continuity to the present day. Though the Caribbean and Latinx communities who have long called Brooklyn home are now facing gentrification, these projects—there are a host of others too—reaffirm not only the continued presence of these communities but also shows them reclaiming the space in a “postcapitalist” intervention;⁸⁴ the images include references to multicultural diasporas in present-day Brooklyn, while also hinting at an urban agriculture with new technologies and systems to capture and store water and to grow and distribute food within the neighbourhood.

Another vector for utopian worldings in architecture is the reassertion of Indigenous spatial knowledge in post-colonial practice. The Gathering Circle at the Spirit Garden is a space for Indigenous ceremonies and gatherings in Thunder Bay, Ontario [fig. 1.1.16]. As a whole, the Spirit Garden project reclaims the shore of Lake Superior

84 Diana Budds, ‘Olalekan Jeyifous Is Imagining an Afrofuturist Brooklyn’, *Curbed*, 1 July 2020, <https://archive.curbed.com/2020/7/1/21308742/afrofuturism-olalekan-jeyifous-interview>.



Figure 1.1.16 - Ryan Gorrie & Brook McIlroy, *Gathering Circle*, Thunder Bay, Ontario, 2012.

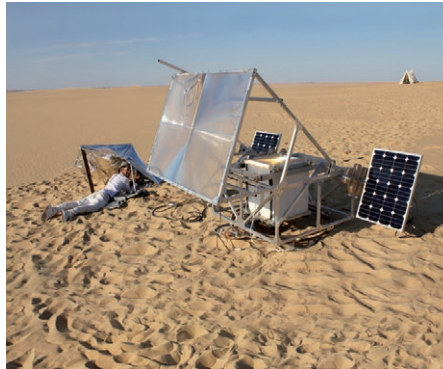
Figure 1.1.17 - Detail of wood construction

as a place of Indigenous gathering, especially poignant in a city and a country which has long suppressed Indigenous knowledge and cultural practices. As a gathering space, the pavilion takes on a spatial and material order that is alien to the colonial powers in Canada, but which carves out a space unique to the spatial and ceremonial practices of the Indigenous people of the region. For these peoples, the circle is a potent form to encourage discussion and building consensus, while the structure itself is an adaptation of traditional wood-bending techniques.⁸⁵ The architect of this project is Ryan Gorrie, leader of the Indigenous Design Studio at Brook McIlroy, and a member of Bingwi Neyaashi Anishinaabek Nation. The elegant form of the ceremonial space is constructed with rough hewn pieces of wood reminiscent of Indigenous tectonic culture. This culture is marked by material assembly with tying and bundling rather than cutting and fitting [fig. 1.1.17].

As well as imaginations emerging from non-western cultures, we might look to other future prospects driven by other discourses such as sustainability or feminist futures. Markus Kayser's *Solar Sinter* is an example of an architectural technology which proceeds upon very specific range of criteria. He imagines a 3d printing process that works only with solar energy and desert sand [fig. 1.1.18]. Photovoltaic cells power the motors and computer, and a Fresnel lens focuses solar energy to melt desert sand in patterns as it passes over layers of sand [fig. 1.1.19]. By using available solar energy, the project drastically reduces the embodied energy of anything it produces, while also suggesting a new material culture on the way. As well as this kind of uncompromising insistence on careful energy and resource use, already a proposition which finds

85 CBC News, 'Thunder Bay Architects Win Award for Gathering Circle | CBC News', CBC, 2 September 2013, <https://www.cbc.ca/news/canada/thunder-bay/thunder-bay-architects-win-award-for-gathering-circle-1.1318188>.

Figure 1.1.18 - Markus Kayser,
Solar Sinter apparatus, 2011
Figure 1.1.19 - 3D glass bowl,
sintered with Solar Sinter, 2011



significant resonances with the Solarpunk subgenre.⁸⁶ One of the significant contributions of this project is that, while digital fabrication methods are usually represented as universal and largely use industrially produced or manipulated material, Kayser's project is a suggestion of fabrication methodology uniquely suited to the places he tested the machine, the deserts of Morocco and Egypt, and completely useless in other locales. Like my investigation of William Gibson's material cultures,⁸⁷ this project is strangely situated in relation to global capitalism, and the possibility of post-capitalist fabrication technology. The material and energy are to some degree 'free,' as Kayser does pay for neither sand nor sun, but of course, the equipment within the apparatus—solar panels, fresnel lens, motors, microcontrollers and extruded aluminum profiles—are all the result of global supply chains. However, like the salvaged assemblages explored in the 'Making Worlds...' project, a generous interpretation could conclude that this project has some intimations of a locally oriented, post-capitalist building culture—like Gibson's oft repeated dictum, although the stuff is made in a factory, the 'street' finds its own uses for things.⁸⁸

Raumlabor's Floating University in Berlin [figs. 1.1.20, 21] also resonates with ecological themes, but in this case, in a vision of spaces seemingly directly lifted from post-apocalyptic SF—and therefore staying with the theme of a post-capitalist architecture of salvage. They propose a "Floating University" in the post-anthropocentric landscape of a rainwater catchment pond in Berlin's now-shuttered Templehof Airport. Billed as a "laboratory for collective, experimental learning, knowledge transfer and the formation of trans-disciplinary networks to challenge routines and habits of urban practices" the Floating University Berlin included learning spaces, workshops, an auditorium, a laboratory tower for experimental water filtration systems, a kitchen, a bar and of course the toilets.

86 Hannah Steinkopf-Frank, 'Solarpunk Is Not About Pretty Aesthetics. It's About the End of Capitalism', accessed 6 October 2021, <https://www.vice.com/en/article/wx5aym/solarpunk-is-not-about-pretty-aesthetics-its-about-the-end-of-capitalism>.

87 See ch. 2.3: Making Worlds

88 William Gibson, 'Rocket Radio', in *Distrust That Particular Flavor*, E-Book (New York: G.P. Putnam's Sons, 2012).



Figure 1.1.20, 21 - Raumlabor, *Floating University Berlin*, 2018

There's a considerable idealism driving the project, they imagine the "university" as a free space of collective learning. Over the course of the 6-month installation, the space hosted a range of learning situations, starting with the construction by students of design from across Europe, and followed by a range of lectures, courses, and discussions. Already, the program of their university is very different from either exclusive institutions or market-based educations. The mode of building, like Kayser's project above, recalls the "Salvagepunk" aesthetic of much post-apocalyptic SF,⁸⁹ but it is here translated to an hopeful act of reconstruction—the spatial cultures pre-figured here do not recall the 'grittiness' often associated with that subgenre. Indeed, their plan would seem naïve were it not already built. In addition, in working with the anthropogenic landscape, we can read the project as an exercise in city building for the Anthropocene—rather than working on open ground, they take this difficult site and prefigure the kind of resilience and adaptation to existing conditions that might suggest modes of building for the city of the future. That is, rather than imagining that utopia needs to emerge in pastoral arcadia, the architects work from a post-human polluted landscape condition as it is, and still aims at articulating a specific social and environmental program in offering an experience of the "rich variety of plants, birds, amphibians, and insects" now calling the concrete catchment pond home.⁹⁰

Finally, Atelier d'Architecture Autogérée, the practice led by Doina Petrescu and Constantin Petcou, suggests an urban commons built around collective work and ecological themes in the suburbs of Paris. The scheme itself is not restricted to a specific site, having been tested in Colombes, France, and with other mobile sites

89 For a longer discussion of Salvagepunk, see ch. 2.3. the term is coined in: Williams, Evan Calder. *Combined and Uneven Apocalypse*. (Winchester: Zero books, 2011).

90 'raumlabor » Floating University Berlin', accessed 14 October 2021, <https://raumlabor.net/floating-university-berlin-an-offshore-campus-for-cities-in-transformation/>.

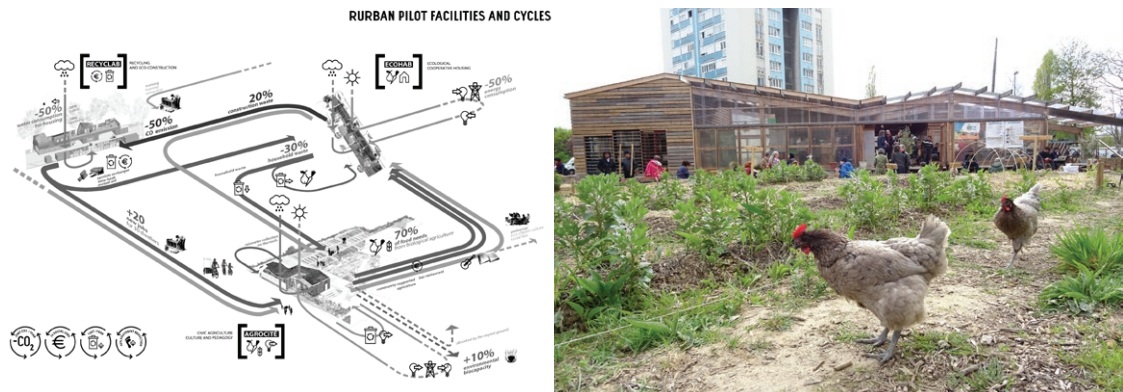


Figure 1.1.22 - Atelier d'Architecture Autogérée, R-Urban Strategy Diagram

Figure 1.1.23 - Atelier d'Architecture Autogérée, L'AgroCité, a part of the R-Urban scheme in Gennevilliers, France, 2016

across Europe. As a whole, the vision driving the R-Urban network suggests new, resilient ways of living that centre local, sustainable, and collective practices, all of which in direct opposition to capitalist and neoliberal modes of assembly and consumption [fig 1.1.22]. The architects invite multiple agencies and stakeholders into their process, with the first act to establish a “commons,” a space co-created between themselves and community members who wish to join. Having established a community of actors, the strategy begins setting up local networks, often using quotidian, everyday practices such as gardening, and empowering women to articulate a space for their own engagement with the city as they develop a relationship with the local ecology. The strategy itself is developed spatially through several buildings, such as the AgroCité—a community gardens, education, and meeting place [fig. 1.1.23], RecyLab—to gather and treat waste, and EcoHab—a cooperative and ecological housing scheme.

Except for the rather strong emphasis on sustainability, the scheme's emphasis on community and local economy is reminiscent of a certain strain of post-apocalyptic SF. For example, the community of “Acorn” in Octavia Butler's *Parable of the Talents*,⁹¹ and similar communities in “The Walking Dead” (AMC, 2010-2022) [fig 1.1.24], reimagine the future on the basis of pre-industrial rural towns or on still-existing intentional communities such as hippie communes or the Mennonites of rural Pennsylvania. In each case, these are notable for building mechanisms of community solidarity, and for example, producing their necessities locally and with a minimum of waste. Nevertheless, while Atelier d'Architecture Autogérée's projects revive this utopian imaginary from the rural past,⁹² they are resolutely

91 Octavia E. Butler, *Parable of the Talents*, (1998) (New York: Grand Central Publishing, 2019).

92 As Coleman notes, this romantic association of utopianism with the past is also a feature of Lefebvre's writing on the city and utopia, see: Nathaniel Coleman, *Lefebvre for Architects* (Abingdon, Oxon; New York: Routledge, 2015), 18–51.



Figure 1.1.24 - The town of “Woodbury” in *The Walking Dead*, with planters and solar panels installed on the road’s median.

forward looking—they are still urban, and address issues that never occurred to the past, such as the contemporary global imperative to sustainable cities, or relationship between urban agencies and peoples who have been marginalized because of race and migration in contemporary France.

Each of these 5 project shares affinities with future imaginations within the broader scope of global SF, but also offer significant insight into futures with perhaps less emphasis on the narrative of progress though technological futurity, and a greater emphasis on those who will be living in the future. While technology is not absent from any of these, the question is consistently how this technology creates conditions for community, and even breaks from capitalist hegemony.

I have not mentioned architectural pedagogy to any great degree in this first chapter. This is because I first want to establish my position on what science fiction offers to thinking about architecture in contradistinction to other alignments between the fields.

There is another reason to begin with the *novum*. I admit that when I started this project, I had a rather naïve expectation of what SF offered to thinking about architecture. This expectation is somewhat summed up in the *novum*, namely that SF offered the possibility to imagine the world differently. As we have seen, borrowing the idea of the *novum* from SF criticism allows us to probe what we mean by new-ness and futurity in architecture; the concept asks us to shift our attention away from aesthetic novelty towards synthetic prospects for the future which not only include technological, social, and environmental innovation, but also look to how these are aligned.

As I proceeded through the experiments in the second half of this book, the category of the *novum* was always present, although in different ways. The first experiment documents the exploration of what one might call a utopian ambition, understanding how architecture might shape the social relations of a post-capitalist community. Each experiment considered what about the project was ‘new,’ but the focus had shifted significantly by the time of the final experiment, where I began to understand the science fictionality of teaching, and its construction of new figurations of the architect and the discipline. Nevertheless, this question of what is new in a project,

and what possibilities or futures are nested inside is a question I have turned both towards individual student's works, and towards my own experimental practice in the experiments that follow.



1.2 Estrangement

If the SF *novum* might be understood as what SF is about, estrangement can be understood as how SF works. However, it must be said from the outset that the operations here presented as distinct are never so clearly defined, nor do they work separately from each other. While it is important to recognize that these are simultaneous operations in the SF text, it is notable that although “predicated on the hegemony of the *novum*,” Darko Suvin’s poetics of the genre chooses to define SF as the “literature of cognitive estrangement.”¹ This chapter explores this central quality in SF, and how it might be understood as active and productive in architectural research and pedagogy. We look at estrangement as it defamiliarizes the experience of the world in the work of Lebbeus Woods, we dive deeper into the discussion around estrangement in SF scholarship, the relation to some of the practice-based works in the project, and the benefits afforded by SF estrangement to architectural pedagogy, especially in how estrangement implicates the reader.

As an example of SF estrangement in architecture, let us consider the work of Lebbeus Woods—in particular the work around ‘freespace.’ While the name ‘freespace’ or ‘freezone’ is reserved for only a few projects, among them the Berlin Free Zone [fig. 1.2.0] and Zagreb Free Space [fig. 1.2.1], Woods himself notes that they participate inside a rather consistent theme of indeterminate socio-political forms which start to emerge in his work after the mid-1980s.² And Woods’ fascination continues in his later work, which invites the viewer to mentally inhabit the spaces represented by the drawing or installation in individual and indeterminate ways.³

Justifiably, Woods has long been celebrated for his capacity as a master draughtsperson, and for the considerable talent for design across the wide range of his works. However, while the spaces and materiality of the drawings are seductive, it is worth noting that Woods’ ambition has never been to propose a novel spatial language, rather, it is to deploy architectural drawing as critical or dialectic vehicle. As Woods

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- 1 Darko Suvin, *Metamorphoses of Science Fiction: On the Poetics and History of a Literary Genre*, ed. Gerry Canavan, *Ralahine Utopian Studies*, volume 18 (Oxford: Peter Lang, 2016), 80, 15.
 - 2 Lebbeus Woods, *Anarchitecture: Architecture Is a Political Act*, *Architectural Monographs*, no. 22 (London : New York: Academy Editions ; St. Martin’s Press, 1992), 10.
 - 3 Lebbeus Woods, *Slow Manifesto: Lebbeus Woods Blog*, ed. Clare Jacobson (New York: Princeton Architectural Press, 2015), 167.

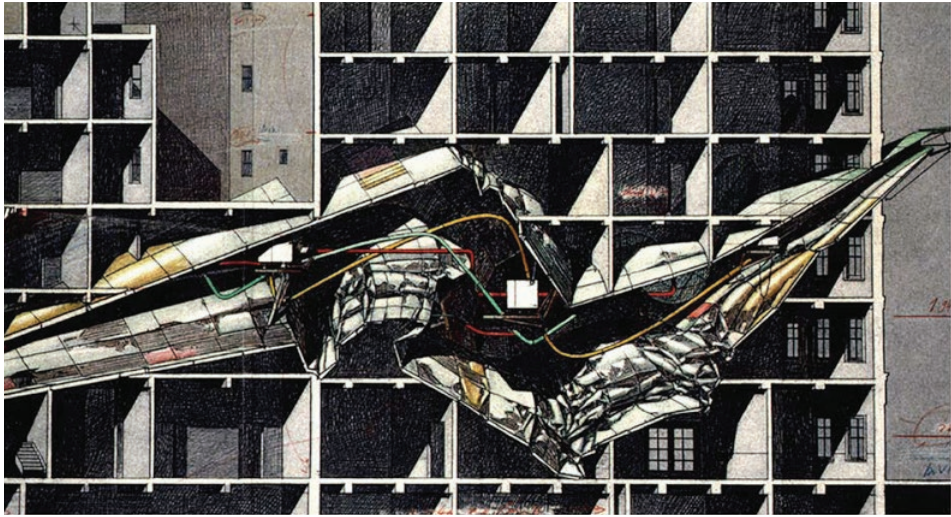


Figure 1.2.0 - Lebbeus Woods, *Berlin Free Zone*, *Vertical Section Through Freespace Structure* (1990)

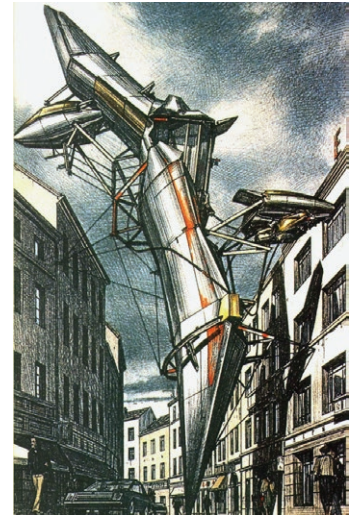
“throws images of yearning into the world,” the yearnings are not for a new style of architecture, but for a new mode of practice. Woods’ drawings are less architectural propositions than expressions of a private utopian desire for a radically inventive and participatory practice, while staging a critique of a profession no less in thrall to capitalist development in the early 1990s than in our own time.⁴

The freespaces that Woods draws are provocations intended to inspire new modes of inhabitation, intentionally without use and difficult to inhabit. These drawings are meant to inspire a creative intervention or inhabitation on the part of viewers by imposing an alien spatial order in a familiar space, its strangeness leading to previously unimagined forms of inhabitation as the eye traces the unfamiliar topologies of an oppositional architectural syntax. Woods’ intention with the drawings is to invite the reader into the experience of freespace, where “what is lost is the familiarity of architectural and social norms, the reassurance of control by stable authority, and of predictability, certainty, and the routinization of behaviour.”⁵ The imposition of a new freespace in Zagreb, for example, disrupts an existing urban order in that post-communist period, suggesting the possibility of as yet unimagined building types and urban patterns and inhabitations as an alternative to importing a neoliberal capitalist order from the west. The narrative that Woods brings to the freespace projects—both in text, but also in the explicit materiality and textures of the drawings—suggests that these are not architectural proposals that pre-exist inhabitation, but which emerge

4 Peter Noever, “At the Outermost Boundary,” in *Anarchitecture: Architecture Is a Political Act*, Architectural Monographs, no. 22 (London : New York: Academy Editions ; St. Martin’s Press, 1992), 6.

5 Lebbeus Woods, *Radical Reconstruction* (New York: Princeton Architectural Press, 1997), 27.

Figure 1.2.1 - Lebbeus Woods, *Freespace Structure Zagreb* (1991)



from the creative inhabitation of users. It is a narrative that suggests the drawings are only dream-fragments of a future still to come, and a poor substitute for the possibilities that are waiting to be imagined. Rather than existing as buildings, their rhetorical weight is in their existing as drawings—it is the reader who imaginatively traverses the strange new spatial order not to produce a prescribed behavior, but hopefully to reinvent their own ways of imagining and occupying space.⁶

To oversimplify, Woods is not saying that the drawings represent how freespaces *should* be, and he is especially not proposing a static environment. The drawings are meant to provoke in the reader an imagination of architecture being otherwise—“an opportunity, not a declaration of finality.”⁷ Woods’ freespaces cut across existing buildings and infrastructure, and impose themselves in the public spaces of the city with a high attention to detail suggesting a kind of material presence that makes the space seem real. But the seeming realism is inviting the reader into an impossible space—impossible both because of flagrant disregard of existing norms of practice and law, but also because the spaces are simply not easy to be in. The drawing of the Berlin Free Zone cuts through a section of what seems like a mundane housing or office building, setting up a deliberate confrontation between two spatial orders, and the reader’s attention is drawn not only into the seeming baroque excesses of the free space, but also to the spaces created by the collision. It is Woods’ intention that any seduction by the spaces is not in order to model the stable forms of a new architecture, but instead to suggest an “architecture of continuous transformation.”⁸ Woods writes:

“the role of architecture [or of the drawing] on this landscape is instrumental, not expressive. It is a tool extending individual capacities to do, to think, to know, to become, but also to pass away, to become an echo, a vestige, a soil for other acts, moments, individuals.”⁹

6 Woods, 26.

7 Joseph Becker, “Drawn In: The Rendered Visions of Lebbeus Woods,” in *Lebbeus Woods: Architect*, ed. Jennifer Dunlop Fletcher and Joseph Becker, Drawing Papers 114 (Exhibition, New York, NY: Drawing Center, 2014), 13.

8 Woods, *Anarchitecture*, 12.

9 Woods, *Anarchitecture*, 11. Although an emphasis on individual autonomy of the inhabitants of the freespace has unfortunate resonances with libertarian ideologues, Woods vehemently opposes such an association. The seeming anarchic libertarianism of the freespace has its roots in Woods’ authentic desire for non-hegemonic space, but just like the production of many in a

Peter Noever describes Woods as drawing from “outermost boundary” of the discipline.¹⁰ That is to say, Woods is deliberately taking a provocative position; he is using the drawing not to propose a new architecture, but to challenge the normative—that is to say capitalist—*status quo*, to take an estranged position from which to look back upon the discipline’s norms and render its aspirations flaccid and degenerate. If we translate Woods’ work into the parlance of SF, where Woods’ work is sometimes read as mere formal novelty, it more closely matches his authorial intention that the *novum* of the drawing be read as an incitement to thought, its valence derived not from its innovation but from the challenge it produces to our everyday experience of architecture—its capacity to provoke estrangement.

On Suvin’s Estrangement

While the *novum* features largely in his formulation of the genre, it is somewhat telling that SF, for Suvin, is not about such newness. Rather Suvin very explicitly chooses to define the genre as the “literature of cognitive estrangement.”¹¹ We might understand the *novum* as what sf is *about*—a speculative imaginary of a world different than that presented to the senses through the presence of something like a different technology, social organization, or environment that is not a part of the author’s empirical experience.¹² Estrangement, however, is not the subject of SF, but rather more like how SF works. That is to say, there is something in the reader’s experience of the text that is different from their own experience—the *novum*—which is instrumentalized in SF to produce a thoughtful relationship to how the work is different from the reader’s everyday reality.

To reiterate, the *novum* is the element of an SF story that produces a difference from the reader’s empirical world. However, to quote Carl Freedman, SF is not about the difference from the empirical world, but in the “difference such a difference makes.”¹³

privileged discourse, seems to imagine such space springing from a *tabula rasa* condition, and rather overlooks the embedded mechanisms of oppression that prohibit such a non-hierarchical beginning. That is to say, while we might appreciate Woods’ ambition, his drawings should never be confused for a political program.

10 Noever, “At the Outermost Boundary.”

11 Darko Suvin, *Metamorphoses of Science Fiction*, 15.

12 Suvin, 80.

13 Carl Freedman, *Critical Theory and Science Fiction* (Middletown, Connecticut: Wesleyan University Press, 2000), xvi.

In our reading of Woods' freespace projects, our imaginative inhabitation of the space is sharply contrasted with our everyday experience of hegemonic architectural space, we are also left to wonder if our everyday spaces and the order they represent couldn't be different. In short, the strangeness of the drawings reflects back our own world, but in such a way that its seeming inevitabilities become contingent or even arbitrary. For example, the Berlin free zone drawing [fig 1.2.0] highlights the banality of its rectangular grid, and suggests a stimulating, if wholly impractical, alternative. If we have lived up to Woods' expectation, the drawing has produced a meaningful difference from or confrontation with our observed reality; whether we approach the space of Woods' drawing with fascination or scorn, it has produced estrangement.

Suvin's discussion closely allies estrangement with playwright and theorist Bertolt Brecht's concept of the *verfremdungseffekt* or alienation effect.¹⁴ In theatre, this effect is that quality of a performance whereby the action of the play is meant to reveal the fact that it is a dramatic invention; everything from the actor's portrayal of character, to elements of staging and theatre construction shifts audience engagement in the play from subconscious acceptance of the fiction to a conscious understanding of the play *as* artifice.^{15,16} The audience does not suspend their disbelief—they cannot see the space of the play as 'real' because, by virtue of the estranging devices, the space-time of the play rather obviously intersects with the space-time of the performance. In this way, they are alienated from the space of the play in such a way which should, according to Brecht, provoke a socio-critical response from the audience; they are aware of the drama as a composed representation of social relations, and thus the factors that contribute to such composition.

If my reader is familiar with architectural representation, perhaps the concept might be better illustrated analogously by comparing the photo-realistic rendering and a drawing of a building in plan projection. Where the photo-realistic rendering might present the illusion of being in the space being represented, the plan does no such thing. The plan makes no pretense at being true-to-life, the abstractions of orthogonal representations produce points of view that are quite literally impossible

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- 14 Suvin also references Viktor Shklovsky's discussion of *Ostranenie*, but it seems less influential to his elaboration of estrangement.
- 15 Bertolt Brecht, "Alienation Effects in Chinese Acting," in *Brecht on Theatre: The Development of an Aesthetic*, trans. John Willett, 13th edition (London u.a: Hill and Wang, 1977), 91–99.
- 16 Bertolt Brecht, "A Short Organum for the Theatre," in *Brecht on Theatre: The Development of an Aesthetic*, trans. John Willett, 13th edition (London u.a: Hill and Wang, 1977), 179–205.

to inhabit. However, we might still be able to understand the same space shown in the rendering. As we traverse that space in our mind's eye, we are not static in the drawing's underlying syntax, we understand individual spaces, but simultaneously the space's systems of relation, its orders and disorders, its connections and prohibitions, and move easily through the plan rather than remaining locked in the perspective supplied by a rendering. The plan estranges us from the space, by inviting us to see the whole in a way that is not available to the photorealistic rendering, as long as we invest the mental energy in interpreting it. This is, to be sure, a strained analogy, but helpful nonetheless as it reveals how much estrangement relies upon the non-closure of the representational system, and upon the reader's role in working through their own estrangement.

As we will see, Suvin's estrangement is a much broader category than that described by Brecht. However, it is useful to start with Brecht's definition because it describes much already at work in the concept, specifically the tension between a reader's experience of their 'reality' and their appreciation of a different or fictional reality. Brecht and Suvin also both insist on the didactic and revolutionary possibility of estrangement. The fictional estrangement, for both, is a mirror held up to reality, but never reality itself; "The mirror is not only a reflecting one, it is also a transforming one, virgin womb and alchemical dynamo: the mirror is a crucible," reflecting back reality as strange and mutable.¹⁷

The Multiple Estrangements of Patcher's Island

I have argued that Woods' work produces a kind of SF estrangement—quite intentionally on the author's part. Even when appreciated more for its formal innovation, the work still inspires a sense that architectural space could be different than that observed in the normative production of architecture. That is, Woods produces a spatial fiction that works as a kind of SF. The work's speculative quality, however, is not in its formal similarity to other works of speculative fiction, but rather because Woods' drawings implicate the reader in the process of mediating their reality and the world as shown in and through the work. As briefly discussed in the prior section, this quality of the tension between real and fictional worlds might be instrumentalized as a didactic tool.

This section unfolds how a researcher or student can not only investigate the strange elements of a fiction, but also trace the journey back to reality, so to speak. Briefly,

¹⁷ Suvin, *Metamorphoses of Science Fiction*, 17.

I follow my own process in trying to understand and translate or naturalize the estrangement I found in William Gibson's 2014 novel *The Peripheral*, and how it became productive in thinking about contemporary practices in architectural research. The Making Worlds with Patchers experiment¹⁸ proceeded from multiple estrangements in Gibson's work, among them the otherwise unthinkable spaces of the *The Peripheral's* Patcher's Island, an artificial island floating in the Pacific Ocean, continuously assembled from the plastics floating in the water column.¹⁹

Although the reading of the novel in the context of Gibson's oeuvre is described in more detail in the chapter devoted to the project, the "island" itself is described in extremely nuanced fragments, which although highly detailed, never quite resolve into a whole. As a result, the reader's visual imagination is stimulated by each of these fragments, from the "greyly translucent" plastic and a reference to Theo Jensen's Strandbeests, to allusions to strangely urban forms—squares and broad avenues. However, an overall shape to ground the fragments is missing; although "vast" it is "worryingly insubstantial," and "what shape it had taken was afterthought, offhand gesture, however remarkably unattractive" and the reader must collect these fragments, a few pieces from a missing puzzle, and combine them as they can.²⁰

Nevertheless, in spite of its vagueness, the post-natural island is a tantalizing thought experiment given contemporary anxieties about plastic waste in the ocean, an image drawing from the real-world Pacific garbage patch, a gyre of floating plastic debris in the northern Pacific Ocean already, at time of writing, estimated to exceed 1.6 million square kilometers, or more than three times the size of France.²¹ That this great tragedy might be the source of a new mode of living—however alien the inhabitants may be represented—is an interesting consideration for a reader and places the squandering of the existing resources in the patch in stark relief.

Our first view of the Patcher's city is as the character Daedra parachutes onto the island, and Gibson hurls the reader through a similar experience of vivid but fleeting fragments, seemingly passing by at speed. In short, rather than describing it, the text estranges the place, and the reader must construct their own strange collage from

18 See chapter 2.3.

19 The Patch appears in only a few pages of the text: Gibson, *The Peripheral* [2014], 16–19, 23–27, 272–76.

20 Gibson, 17–18.

21 "Great Pacific Garbage Patch," in *Wikipedia*, December 29, 2020, https://en.wikipedia.org/w/index.php?title=Great_Pacific_garbage_patch&oldid=996949734.

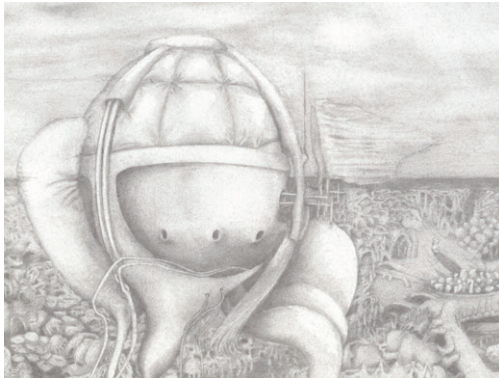


Figure 1.2.2 - “simultaneously cyclopean and worryingly insubstantial,” (Detail, 2018)



Figure 1.2.3 - “what shape it had taken was afterthought, offhand gesture, however remarkably unattractive,” (Detail, 2019)

the fragments. This strategy is not merely an aesthetic effect on Gibson’s part, but central to the experience of the genre; as Edward James writes, much of the joy in reading SF is in constructing the world for one’s self from the clues provided.²² This kind of fragmentation is also necessary in order to imagine what is otherwise an unimaginable space, there are formal and compositional orders that are hinted at in the text, but which are harmed rather than helped with a too rigid description.

My first attempts to imagine this island as the artifact of a new or estranged material culture came in the form of graphite drawings. The first, named “simultaneously cyclopean and worryingly insubstantial” after a quote from the novel,²³ was an attempt both to come to grips with or to stabilize a visual image that is illusive and fragmentary for the artist/researcher, and also an attempt to produce an image that can communicate with others. This first drawing collected the diverse fragments of the text, from urban forms to plastic bags blowing in the wind, and also considered some of the qualities communicated in the text—plastic morphologies, thinness, and lightness [fig. 1.2.2]. The second drawing [fig. 1.2.3], entitled “what shape it had taken was afterthought, offhand gesture, however remarkably unattractive”²⁴ came as an attempt to understand the strange morphologies one would find on a plastic island. Recognizing in this second instance that imagining form from personal experience was unequal to the task of communicating the strangeness of the island, this drawing looked to other phenomena to inform the shape of the island, in particular a series of experiments in fluid wax deposition—under the assumption that “whatever” is assembling the island, it would melt the plastic which would in turn be subject to the fluid dynamics of those environs. These first two drawings came at a time when I tried to naturalize my estranged relation with the text by translating the text to different

22 James, cited in: Tom Moylan, *Scraps of the Untainted Sky: Science Fiction, Utopia, Dystopia*, Cultural Studies Series (Boulder, Colo: Westview Press, 2000), 7.

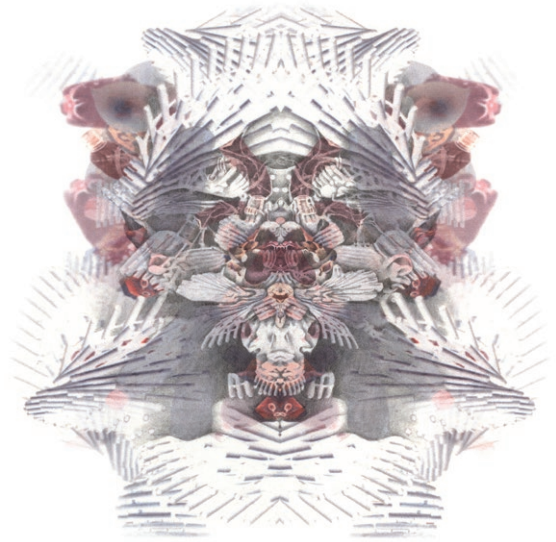
23 Gibson, *The Peripheral* [2014], 17.

24 Gibson, 18.

Figure 1.2.4 - "Incorporating him into the fabric of the place... Each cell in his body replaced with a minim of recovered polymer," Boss Patcher IV (2020)

media—a strategy re-introduced throughout my pedagogical experiments. These gave me the impression that, at least, I could inhabit and describe the alien environment of the novel.

The first two graphite drawings are a naturalization of my own estrangement as one of Gibson's readers, but I wondered if, as an aesthetic experience, they really partook of a continued estrangement, or whether they might be too composed or too static to communicate the incongruous experience of what the text implies is a digitally informed building process. That is to say, I did not want to represent what such an island would look like so much as I wanted to understand the processes which might produce the estranged space of my imaginings. The next set of drawings related to the project wondered if it were possible to continue to explore some of the themes drawn from Gibson's text, while not strictly to naturalize the estrangement, but rather to partake of it [fig. 1.2.4].



While the island is represented in fragments, and textures, the description of the Patch's peri-human inhabitants is startlingly precise, from their grey, salt-encrusted raiment to genetically engineered decorative cancers and superfluous genitalia.²⁵ In order to try to capture some level of this estrangement in drawing, I began a series of experiments in procedural drawing inspired by the automatic drawing practices of the Surrealists. Inspired by Surrealist experiments in automatic drawing such as frottage or the exquisite corpse game, this series of drawings started by developing a computer program to compose and process images of plastic waste. I then interpreted the results by selectively darkening or highlighting the drawing in stages until forms began to emerge. As I develop further in chapter 2.3, this process was an exercise in extending the estrangement of Gibson's text to a visual domain, essentially estranging myself from any initial aesthetic determinations towards the development of new forms. I was also interested not only in the novel formal language the drawings produced, but also in the process of sense-making that the drawing required, in a parallel to the reader's naturalization of SF estrangement. These drawings were never fully naturalized, and I hope that something of the process of making sense of the unusual figures within each drawing is transferred to the viewer.

25 Gibson, 23.

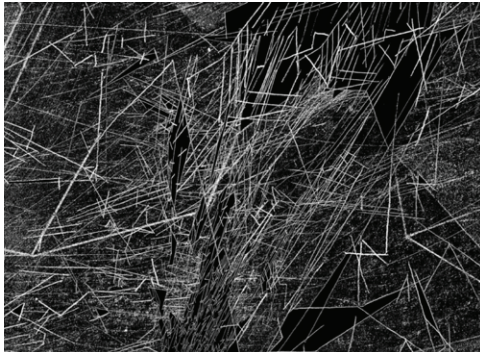


Figure 1.2.5 - Lebbeus Woods, *System Wien* (2005)

Formal Estrangement

As Simon Spiegel so clearly points out, Suvin's use of the term estrangement is quite vague, taking in multiple senses throughout his text, including formal, generic, fictional, and receptive aspects of estrangement.²⁶ While Spiegel might rightly bemoan the imprecision in Suvin's usage of estrangement, these multiple perspectives on the term illuminate the different ways in which estrangement is productive for SF and pedagogy. In Bertolt Brecht's *verfremdungseffekt*, the familiar is made strange so as to provoke a conscious and deliberate engagement on the part of the audience—usually through interventions in the form of presentation to reveal the artifice of the drama. While such formal estrangements are far from the only mode of SF estrangement, an example of such estrangements in SF is Ursula K. Le Guin's 1985 novel, *Always Coming Home*.²⁷ Rather than the form of a single unfolding narrative, the novel takes the form of an anthropological report. Descriptions of the future society's language, religion, culture, even examples of oral poetry, and the anthropologist's commentary, are all interwoven with the story of a woman living in that society. The result is, rather than reading the book front to back, the report encourages the reader to linger in that society rather than seek the closure of a singular narrative.²⁸

Another example of estrangements on the level of form or surface of expression is the use of language in SF, where the linguistic register itself challenges the reader's socially constructed norms of language usage. That is, the language of SF can be estranging, whether due to its "distinct level of subjunctivity"²⁹—its hypothetical force, or the introduction of new concepts and neologisms,³⁰ and in the tension

26 Simon Spiegel, "Things Made Strange: On the Concept of 'Estrangement' in Science Fiction Theory," *Science Fiction Studies* 35, no. 3 (2008): 369–85.

27 Ursula K. Le Guin, *Always Coming Home*, [1985], SF Masterworks (London: Gollancz; Orion Books, 2016).

28 This novel is coincident with and a shining example of Le Guin's carrier bag theory of fiction, discussed in more detail in chapter 1.3.

29 Samuel R. Delany, "About 5,750 Words," in *The Jewel-Hinged Jaw: Notes on the Language of Science Fiction* (Middletown, Conn: Wesleyan University Press, 2009), 65.

30 For example, Freedman discusses the introduction of the strange technology "mood organ" in the first line of Phillip K. Dick's short story "Do Androids Dream of Electric Sheep?" Carl Freedman, "Science Fiction and Critical Theory [1987]," in *Science Fiction Criticism: An Anthology of Essential Writings*, ed. Rob Latham (London ; New York: Bloomsbury Academic, 2017), 231.

between logical structure and poetic surplus³¹ in SF narration. Samuel Delany suggests that a sentence like “he turned on his left side” could be understood in a quite literal sense in SF; the character presumably flipping a switch to provide power to his left side, rather than the way it might be understood in naturalistic fiction.³² A sentence like “the red sun was high, the blue low” is composed of completely familiar words, but in such a way as to transport us to an entirely alien world.³³

These kinds of estrangements on the level of style or aesthetic form do find correspondence in artistic or architectural estrangement; While architectural drawing is often intended to communicate the architect’s intent with precision, Lebbeus Woods’ later works revel in instability and representational indeterminacy, and in the viewer’s own inhabitation of the space of several drawings³⁴ [fig. 1.2.5] or installations.³⁵ The Boss Patcher IV drawing above tries to instrumentalize formal estrangement in the automatic drawings produced by a digital program at the same time it attempts to preserve some of the estrangement for a potential viewer—that is to say, it does not fully domesticate or naturalize the output of the computer program.

The project entitled ‘Personal Space’ [fig. 1.2.6], a part of the experiment entitled Playing Innocent, also attempts to provoke rather than ameliorate the viewer’s estrangement as a consequence of its formal composition and phenomenological experience. In this case, the installation translates the estrangements inspired by Ballard’s short story in disturbing the viewers’ own experience of space and proximity through various architectural devices.

Another possible parallel of Brecht’s formal estrangement in SF might be where the text blurs the line between the fiction’s and reader’s reality, breaking the internal consistency of the fiction, and setting it in historical relation to the viewer’s own

31 Samuel R. Delany, “Some Real Mothers...: The SF Eye Interview,” interview by Takayuki, Tatsumi, *Silent Interviews: On Language, Race, Sex, Science Fiction, and Some Comics*, Hanover, NH: Wesleyan UP, 1994, 164 - 185, 1987, 174.

32 Samuel R. Delany, “On Triton and Other Matters: An Interview with Samuel R. Delany,” *Science Fiction Studies* #52 17, no. 3 (November 1990), <https://www.depauw.edu/sfs/interviews/delany52interview.htm>.

33 Samuel R. Delany, “About 5,750 Words,” 57-60.

34 Woods, *Slow Manifesto*, 167.

35 Woods, 114.



Figure 1.2.6 - Sophie Elizabeth Hutchvinson, Oleksandra Ianchenko, Nanna Louise Holmberg Nielsen, David Bjelkarøy Westervik - *Personal Space* (2017)

reality. A potent example from film is in the *Planet of the Apes*³⁶ iconic moment when George Taylor, played by Charlton Heston, discovers the remains of the Statue of Liberty and the planet is revealed as a future Earth after the destruction of human civilization.

The statue is not strange, but its context is, and the reading in the new context asks the reader to confront the possibility of human's destruction of the planet and supersession by a different species. So, in some ways, SF estrangement overlaps with Brecht's *verfremdungseffekt* in making the familiar seem strange, again. This trope is taken up as a part of experiment entitled *Future Archeology*,³⁷ where through the conceit of a fictional 'time travel,' items from the present are presented as estranged. However, SF estrangement also works in other ways, not least in reversing the above formulation; rather than making the familiar strange, much of the joy of reading SF is in making the strange seem familiar.

Generic and Fictional Estrangements

Suvin's somewhat longer definition of the genre also mentions the term 'formal' with regard to SF estrangements: "SF is, then, a literary genre whose necessary and sufficient conditions are the presence and interaction of estrangement and cognition, and whose main formal device is an *imaginative framework alternative to the author's empirical environment*."³⁸ In this definition, Suvin privileges the alternative imaginative framework, but it is unclear how this is estranging on the level of form. Formally, as Spiegel points out, non-realism is expected in the generic SF text.³⁹ The imaginative alternative environment in SF estrangement rather more often happens in the ontology of the fictional world than in the form of the text. That is to say, in SF, rather than the familiar being made strange, the reader is more often engaged in naturalizing the strange, in making the strange familiar.

The estrangements of the freespace drawings by Lebbeus Woods and the work on *Patcher's Island* are rather more in this mode. In Woods' drawings, we are presented with a world that is different from our own, and must, if the estrangement is to

36 *Planet of the Apes*, directed by Franklin J. Schaffner, Los Angeles; 20th Century Fox, 1968.

37 See chapter 2.5.

38 Darko Suvin, *Metamorphoses of Science Fiction: On the Poetics and History of a Literary Genre*, ed. Gerry Canavan, *Ralahine Utopian Studies*, volume 18 (Oxford: Peter Lang, 2016), 20.

39 Spiegel, "Things Made Strange," 371.

work, assimilate this new information into our experience of architecture. In the case of the Patchers project, the estrangements are encountered and explored from the perspective of the new world of Gibson's text, and much of the work in the experiment traces my own attempts to assimilate my understanding of that world into my own empirical experience through drawing and building.

As Tom Moylan writes, it is SF's "imaginative proclivity to re-create the empirical present of its author and implied readers as an "elsewhere," an alternative spacetime that is the empirical moment but not that moment as it is ideologically produced by way of everyday common sense."⁴⁰ Naturalizing the ontological estrangements of SF asks the reader to consider how the world of the work might have come to be, its underlying conditions and assumptions, how it is different from our own world, and even—and perhaps most importantly—how the beginnings of that world might have its roots in the empirical experience of the reader.

This movement of estrangement is thus both away from and towards the reader's experience of reality. That is to say, using the Making Worlds project as an example, the estrangement becomes more vivid for me as the reader as I used William Gibson's work not only to see my own practices as contingent, but to actively challenge existing or received practices in digital fabrication, to estrange my own knowledge. In taking the world of the Patch, but also the "Funny Fabbers" of *The Peripheral's* near future timeline and the scavenger culture of the "Bridge" as the 'world' of a practice, I was forced to ask myself how my own seemingly obvious practices in material fabrication are nested inside my own received worldings. I tried to ask myself, if I were to try to approximate a "Patcher" or "Bridge" fabrication culture—its materials, tools, processes, and aesthetics—what assumptions about architectural would I have to reconsider, if not completely abandon? The answer to these questions made me consider which material I could use—waste plastic and also scavenged materials for the tool, which communities of knowledge and practice I encountered—open source rather than 'expert' knowledge, which processes were encountered in the constellation of materials and practices, and finally, which aesthetic determinations resulted. The hope was to untangle material fabrication practice from the assumptions normally encountered within the existing digital fabrication paradigms. In this case, an aim of zero tolerance and specificity was abandoned in favour of an adaptive paradigm accounting for and even encouraging material imprecision.

40 Moylan, *Scraps of the Untainted Sky*, 5.

Cognition

So far we've discussed formal, generic, and fictional estrangements, now we turn to the receptive aspects of estrangement; estrangement happens when a reader reads a text, to be sure, but *how* that reader appreciates the estrangement is a crucial aspect of Suvin's poetics of the genre. There is a crucial term that Suvin carefully conjoins with estrangement; it is there in his most succinct definition of the genre, but so far, we have not discussed it, namely 'cognition.'

For Suvin, cognition is the element which separates SF estrangements from the supernatural or mystical elements of myth, folk-tale, or fantasy—a distinction given an unambiguous moral force within Suvin's hierarchy of estranging fiction. Where the estrangements of fantasy or myth are a 'conservative force,' tending to re-inforce stable identities—us/them, good/evil, or the centrality of a certain class hierarchy—SF estrangement focuses on variable, rather than stable elements of the reader's empirical experience and on attempts to destabilize those elements further.⁴¹ An example of such destabilization might be in the concept of gender; where western culture tends to reproduce a rather stable binary between male and female, works in SF provide the space for an author to explore a space of a single gender,⁴² androgyny,⁴³ gender fluidity,⁴⁴ and even explore representations of gender diversity from Indigenous cultures in the Americas.⁴⁵ More succinctly, Suvin writes, "Mathematically speaking, myth is oriented towards constants, and SF towards variables."⁴⁶ However, while cognition is imperative for Suvin's poetics of the genre, like Suvin's use of the term 'estrangement,' many authors also point out the looseness of this concept in Suvin's theory.

In defending other non-naturalistic fiction, such as fantasy or weird fiction⁴⁷ from Suvin's hierarchy, China Miéville suggests that a too-strict alignment between

41 Suvin, *Metamorphoses of Science Fiction*, 20.

42 Joanna Russ, "When It Changed," in *Again, Dangerous Visions*, ed. Harlan Ellison (New York: Doubleday, 1972).

43 Ursula K. Le Guin, *The Left Hand of Darkness* (New York: Ace Books, 1969).

44 Samuel R Delany, *Triton* (New York: Bantam Books, 1976).

45 Rebecca Roanhorse, *Black Sun* (London ; New York: Saga Press, 2020).

46 Suvin, *Metamorphoses of Science Fiction*, 40.

47 "Weird" is a term used to define a subgenre of speculative fiction with strong affinity to horror, the supernatural, the gothic, as well as myth and folklore. See: Jeff VanderMeer, "The New Weird - 'It's Alive?,'" in *The New Weird*, ed. Ann VanderMeer and Jeff VanderMeer (San Francisco: Tachyon Publications, 2008).

cognition and a reader's supposed scientific validation of a text's rational leads to the naturalization of a text within the bounds of the already knowable, that is, within the confines of what can be thought within the reader's historical moment:

“This supposed logic is repeatedly, if not explicitly, related to a strangely prelapsarian, often instrumentalised, science and bureaucratic rationality. To the extent that SF claims to be based on ‘science’, and indeed on what is deemed ‘rationality’, it is based on capitalist modernity’s ideologically projected self-justification: not some abstract/ideal ‘science’, but capitalist science’s bullshit about itself.”⁴⁸

To be sure, Suvin does not do himself any favours when, at one point, he explicitly aligns cognition with the scientific method—a method already constrained within enlightenment knowledge practices.⁴⁹ But in a more charitable reading of his scheme, he is not suggesting that a fiction should be knowable or conceivable within the scientific understanding of the reader's present. Instead, he is suggesting that the reader should expect a level of internal consistency—“a system of stylized narrative devices understandable only in their mutual relationships within a fictional whole”—and should be able to construct an analogical, rather than rational, relation to their present.⁵⁰ For Suvin, what is essential is that the reader is able to construct a critical relation to their own historico-material reality so that they can engage intellectually with the possibility of their reality being otherwise. Thus, the reader's appreciation of the text is in their capacity to use the fiction as a “stimulus for independent thinking,” and never as slave to the “reigning theology of the day.”⁵¹

While it is true that at one stage Suvin, somewhat problematically, aligns cognition with “post-Baconian scientific method,” what is perhaps most profitably—and perhaps generously—important about cognitive estrangement is the “reality it displaces,” in how the reader is led into a methodological engagement with their own

48 China Miéville, “Afterword: Cognition as Ideology,” in *Red Planets: Marxism and Science Fiction*, ed. Mark Bould and China Miéville (Middletown, Connecticut: Wesleyan University Press, 2009), 240.

49 Suvin, *Metamorphoses of Science Fiction*, 81.

50 Suvin, 41.

51 Suvin, 42.

cognitive horizon—or their own mundane reality.⁵² To put it simply, the value of such estrangement is in how SF makes the reader think differently than they would otherwise.

While Suvin’s discussion does make references to rationality and the scientific method, he is also careful to distance SF cognition from the technocratic dogma of scientific positivism, pointing out explicitly that the demand for scientific accuracy in SF is rather “insensible,” and that even the scientific accuracy of the most ‘hard’ SF is often overturned quite quickly by the continuing advances in scientific research.⁵³ Rather, like estrangement, cognition is an effect produced by the text in the reader’s appreciation of the analogical affordances of the text. Carl Freedman prefers to call this the “cognition effect,” not strictly related to the scientific knowledge of the day, but to a text’s internal ability to produce cognition on the part of the reader, or the critical attitude of the text—not how it produces connections to any specific reality, but how it produces the possibility of such connections. It is in this way, Freedman argues, that SF is the genre most closely aligned with critical theory:⁵⁴

“I maintain that science fiction, like critical theory, insists upon historical mutability, material reducibility, and utopian possibility. Of all genres, science fiction is thus the one most devoted to the historical concreteness and rigorous self-reflectiveness of critical theory. The science-fictional world is not only one different in time or place from our own, but one whose chief interest is precisely the difference that such difference makes. It is also a world whose difference is concretized within a cognitive continuum with the actual...”⁵⁵

52 Suvin, 82.

53 Suvin, 42.

54 Freedman’s definition of critical theory is not unrelated to the Frankfurt school, but he attempts to broaden the definition to include any self-reflexive and dialectical thought emerging after Kant and Hegel. He writes that he defines critical theory as fundamentally dialectical, taking the whole of human and social world for its object. The critical theorist understands their position as embedded in or a part of that world, not an objective analyst, and subject to the same historical and material forces. Finally, for Freedman, critical theory is fundamentally oppositional or subversive in nature—undermining rather than affirming given categories. Marxism, for Freedman, is the most exemplary of this critical mode, but he is also willing to include other theoretical frameworks emerging in 20th century: singling out the psychoanalysis of Freud, and the “poststructuralism” of Derrida and Foucault. See: Carl Freedman, *Critical Theory and Science Fiction* (Middletown, Connecticut: Wesleyan University Press, 2000), xvi, 8, 10, 12.

55 Freedman, *Critical Theory and Science Fiction*, xvi.

Thus, other critics have a more charitable view of cognition than Miéville, although, as much as he is indebted to Suvin, Carl Freedman also joins Spiegel in lamenting his “sacrifice of descriptive to eulogistic force.”⁵⁶ In his discussion of cognition, Mieville separates cognition from estrangement, though it is not a schism that figures in Suvin’s discussion, where the two words together denote a single concept. Like Suvin, Freedman insists on the coupling of cognition and estrangement. He writes that that they form a dialectic pair—while estrangement produces a different world, it is cognition which asks the SF text to “account rationally for its imagined world and for the connections as well as the disconnections... to our own empirical world.”⁵⁷

It is Fredric Jameson’s discussion of SF estrangement that gives its name to the present study. For Jameson, SF’s “elaborate strategies of indirection” follow Suvin’s estrangement in being necessary “to defamiliarize and restructure our experience of our own present,” a present whose tendencies are otherwise opaque to our understanding or intervention.⁵⁸ For Jameson, this defamiliarization has an explicitly utopian dimension, but not in the sense of utopian prefiguration. When reading SF, he argues, the reader constructs, as if retroactively, a path from our world to the world described in the text. The reader’s present is imagined as the history of the fictional future. As the reader reconstructs the traces of their present in that future, they see their present as historically contingent; they see the present as bearing the seeds of multiple possible futures rather than those imagined within the received wisdom of their society’s ideological horizon. This estrangement thus works to explore utopian possibility in the present, though never to imagine the big-U Utopia directly.⁵⁹ I have already described SF’s simultaneous oscillation between critical and projective modes;⁶⁰ similarly, for Jameson, SF estrangement is fully engaged with its *novum* while also reasserting the relationship of the fiction to the “real” world. In describing Kim Stanley Robinson’s Mars trilogy, he writes:

“The reassertion of the cognitive means... a refusal to allow the (obvious) aesthetic and artistic status of the SF or utopian work to neutralize its

56 Freedman, “Science Fiction and Critical Theory [1987],” 226.

57 Freedman, *Critical Theory and Science Fiction*, 16–17.

58 Fredric Jameson, “Progress versus Utopia, or, Can We Imagine the Future? [1982],” in *Archaeologies of the Future: The Desire Called Utopia and Other Science Fictions* (London: Verso, 2007), 281–95.

59 Writing in 1982, much of the discourse around Utopia would have imagined Utopia in the static, formal mode. The previous chapter has a discussion about utopia as method rather than blueprint.

60 Ch. 1.0

*realistic and referential implications: so we do want to think about “real” science when we read these page... and by the same token we want to be able to think about “real” politics here and not merely about its conflicting or unconvincing “representation” in these episodes.”*⁶¹

Grammatically, the previous quote highlights a specific subject: “we do want... we want...”. What this describes is that, like estrangement, cognition is not invested in the text by its author, it is a part of the reader’s appreciation of the SF text. It is ‘we,’ the reader who is estranged, according to ‘our’ reality, it is ‘we,’ the reader who cogitates. While the text may be unfamiliar, it is the reader’s “naturalization” —to use Spiegel’s term—of the unfamiliar in SF estrangement that produces the profound learnings that SF can provide.⁶² This quality of SF, more so than is possible in naturalistic fiction, is central to the genre’s aesthetic effect and didactic potential. In reading a work of SF, the reader is engaged in an act “of filling in, *co-creating* the imagined paradigm of a society that does not exist but that nevertheless supplies a cognitive map of what does exist” (emphasis added), a kind of co-creation not possible in other literary fiction, where the world might be taken as given.⁶³ That is to say, SF makes the world “critically legible” to the reader in the interaction between the text and the history in which it is being written.^{64,65}

Suvin and Jameson’s argument for SF estrangement as a way to reveal the hidden historical mechanisms of the reader’s reality relies on a rather limited definition of the genre. While neither insist on a strict possibility of historical continuity with the reader’s present, they do insist on the fact that the reader should be able to construct an rational, analogical relation to their historical and material situation. In both cases, however, an insistence on the possibility for “analogical modelling” in SF is married with a narrowly defined canon based upon the critics’ own predispositions,⁶⁶ and as such grows increasingly suspect.

61 Fredric Jameson, “‘If I Can Find One Good City I Will Spare the Man’: Realism and Utopia in Kim Stanley Robinson’s Mars Trilogy,” in *Archaeologies of the Future: The Desire Called Utopia and Other Science Fictions* (London: Verso, 2007), 410.

62 Spiegel, “Things Made Strange,” 373.

63 Moylan, *Scraps of the Untainted Sky*, 5.

64 Moylan, 28.

65 Tom Moylan, “‘Look into the Dark’: On Dystopia and the Novum,” in *Learning from Other Worlds: Estrangement, Cognition, and the Politics of Science Fiction and Utopia*, ed. Patrick Parrinder (Durham: Duke University Press Books, 2001), 60.

66 See: Suvin, *Metamorphoses of Science Fiction*, 43.

In such a case, Miéville's critique is well taken, and one might ask if Suvin is too quick to dismiss so much of speculative fiction as "confectionary."⁶⁷ That is to say, it might be clear that the strict binaries of high fantasy—as between Good and Evil in J.R.R. Tolkien or C.S. Lewis—might not be aligned to the more complex historico-material realities of the reader's experience. However, it does not necessarily follow that we should look for clear scientific rationalism in SF, and we might also consider how a wider understanding of speculative fiction is still able to form an analogical relation to reality. This is especially true of when a strict understanding of cognition on the "post-baconian" scientific rationality precludes other ways of knowing, as represented by works of SF emerging from non-European authors and worldviews. As an example, works of Indigenous Futurism—like the more widely known Afro-Futurism—represent ways of knowing the world that "constitute a science despite their lack of resemblance to taxonomic western systems of thought," especially with regard to sustainable and ecological practices.⁶⁸ In fact, such analogical storytelling, where the lesson of a story is naturalized by the listener rather than stated explicitly by the storyteller, is central to traditional Indigenous pedagogical practices.⁶⁹ We might also ask if Suvin's schema might unnecessarily exclude other types of estrangement, as, for example, of psychological or sociological nature, or whether we can learn anything from works which by their nature question the very possibility of utopia.

Critical Dystopian Estrangements

The kinds of estrangements provoked by SF are not always comfortable. SF authors, like the cultures in which they write, have not always seen the future positively, and extrapolations from an author's present conditions can occasionally be quite bleak. This tendency is notably illustrated in the works of J.G. Ballard. Part of his unique ability as a writer is to invite his reader to experience his futures not as an analyst, but as a participant—the reader becomes quite uncomfortable, and that is the point.

Ballard was part of the "New Wave" of SF, a generation of experimental writers emerging in 1960s known for stylistic innovation and an exploration of more diverse, not to say challenging, themes—political, social, psychological, even

67 Suvin, 49.

68 Grace L. Dillon, "Imagining Indigenous Futurisms," in *Walking the Clouds: An Anthology of Indigenous Science Fiction*, ed. Grace L. Dillon, Sun Tracks : An American Indian Literary Series, v. 69 (Tucson: University of Arizona Press, 2012), 7.

69 Judy Iseke and BMJK Brennus, "Learning Life Lessons from Indigenous Storytelling with Tom McCallum," *Counterpoints* 379, no. Indigenous Philosophies and Critical Education (2011): 245–61.

sexual in nature. From their point of view, the New Wave authors were writing in reaction to the rather staid genre fiction that was published and publishable in the pulp magazines in the decades preceding their own.⁷⁰ If not strictly adhering to the classically dystopian formula established by Yevgeny Zamyatin, Aldous Huxley, or George Orwell, along with other writers after the Second World War, Ballard shared a considerable consternation, if not pessimism, about the future and of technology.⁷¹

In using Ballard as a source of estrangement, one must acknowledge that his texts do not aim at making the reader comfortable; Ballard does not want to explore technological innovation for innovation's sake, rather he is concerned with what the future will do to humans' "inner space," and so seeks out "more psycho-literary ideas, more meta-biological and meta-chemical concepts, private time-systems, synthetic psychologies and space-times, more of the sombre half-worlds one glimpses in the paintings of schizophrenics, all in all a complete speculative poetry and fantasy of science."⁷² And Ballard did write stories which mined the surreal, often grotesque, depths of this "inner space" in engaging with the physical and psychic landscapes of the post-apocalypse in *The Drowned World* (1962), or with the fascination between celebrity, sex, technology, and catastrophe in *Crash* (1973). It might seem like a kind of sadism to ask students to read these "sombre half-worlds" and to construct from it within our own world, but Ballard's short stories have become a fertile source of estrangements in my experiments titled *Playing Innocent*, and *There and Back Again*.

*Playing Innocent*⁷³ used exclusively texts by Ballard and asked students to look for "relational mechanisms" in the text—either affective or social mechanisms that, because of their surreal nature, were outside students' lived experience. Among the affective phenomena described by Ballard, the students encountered extreme experiences such as that described by the main character in "The Enormous Space," [1989] who feels agoraphobia to an extreme extent that he feels the space of his home growing around him as he retreats further into himself, and eventually the gradual expansion of the grid of floor tiles in his closet to infinity. "Escapement" [1956] describes what it might feel like to be inside a series of time loops and trying to communicate

70 Rob Latham, "The New Wave 'Revolution,' 1960-76," in *Science Fiction: A Literary History*, ed. Roger Luckhurst (London: The British Library, 2017), 157–80.

71 Moylan, *Scraps of the Untainted Sky*, 168.

72 J. G. Ballard, "Which Way to Inner Space? [1962]," in *Science Fiction Criticism: An Anthology of Essential Writings*, ed. Rob Latham (London ; New York: Bloomsbury Academic, 2017), 103.

73 See chapter 2.2

one's confusion to others who are not sharing that experience. Ballard also considers new social relations as they may be affected in the future; "The Thousand Dreams of Stellavista"[1962] describes how a house may store and then release the psychic energies of previous inhabitants—effectively translating psychological to spatial states and communicating them over time. "The Intensive Care Unit"[1977] describes a family who have, until their dissident and eventually violent real-life meeting, only interacted over two-way television in carefully framed and edited modes—a story still relevant now in the age of the carefully curated selves of social media.⁷⁴

Ballard's short story "Motel Architecture"[1978] was assigned to students in both the *Playing Innocent* and *There and Back Again*⁷⁵ projects. In this story, the character Pangborn lives intentionally confined to a wheelchair, naked and bathed in artificial light, while endlessly analysing television, especially the shower scene from Alfred Hitchcock's "Psycho" [1960]. Pangborn's total immersion in the space of the screen begins to be disturbed by the regular visits of a cleaning woman, and during the course of the story, Pangborn begins to feel the presence of an intruder in his space, evinced by physical traces such as body odour, or footprints on the clean floor. This presence so disturbs the character that he kills the cleaning woman before killing the intruder—his own body.

Understandably, this is a difficult story, and it does not invite an easy transition to the kinds of ambitions that are usually harboured by architecture students, although I am thankful for students that look to positive and hopeful encounters within their projects and their hoped-for futures. While this rather melancholic story could be literally interpreted into the program for an architectural design exercise, it is perhaps more productive for the students and teacher together to speak through the estrangements of the story to look for resonances within the students' own present. In this way, the students are not merely presented with a different impetus for a design exercise, rather, they are tasked with understanding the story's currency for their present, and how it challenges their own assumptions about the relationship between information technology and the body.

"Motel Architecture" was assigned to one group of four 2nd and 3rd year Bachelor students in the *Playing Innocent* project. These students' naturalization of the story's estrangement focused on the fragmentation of the character's body viewed through

74 All stories in: J. G. Ballard, *The Complete Stories of J. G. Ballard* (New York: W. W. Norton & Company, 2009).

75 See chapter 2.4

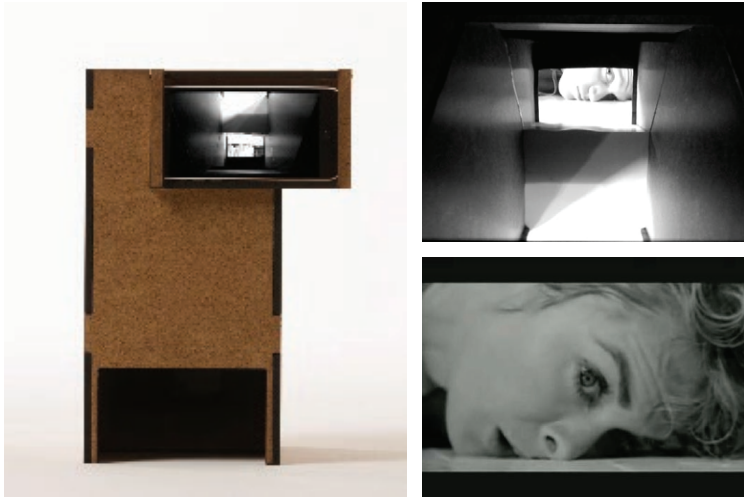


Figure 1.2.7 - Niclas Heydorn's initial interpretation of "Motel architecture" staged the viewer's body, and reproduced it on the screen, intermingled with the vulnerable pose of the character from Hitchcock's film.

the frame of the screen. As SF estrangement looks to produce a critical relation the reader's present, we need to ask how this happened, and what this story reveals about the reader's present that was not available to them beforehand. First, the naturalization was facilitated in the course of the studio project through successive translations of the text into different media. These were accomplished both individually and as a group, which staged encounters between themselves and the story, but also between each other's interpretations of the story. In this way, what the text meant to each student and how they interpreted the estrangements the story produced was revealed to the group in the conversations within the diverse phases of the project. As Niclas Heydorn's interpretation shows, it was not necessary (nor possible) to translate the entirety of the story, but rather to pull at the threads of the initial estrangements the story produced, in this case, the activity or passivity of viewer's in relation to the filmic media, and even the confusion produced by intermingling the experience of one's body and the film [fig. 1.2.7].

As to how the estrangement was eventually relocated into the reader's present, the final 'translation' of the work was built as a full-scale architectural 'instrument,' meant to enact the relational mode of the story on a real site in a courtyard at the Aarhus School of Architecture. What the story describes as the mediated disintegration of the individual is translated by the students into an architectural device which initiated spatial and social connections through the apparatuses of the frame and mirror, but where subtle modulations of angle and pitch fragmented the reflection of the individual, and layered other reflections onto the space, the disintegration of the body leaving room to invite otherness into the space of the body-image [fig. 1.2.8].

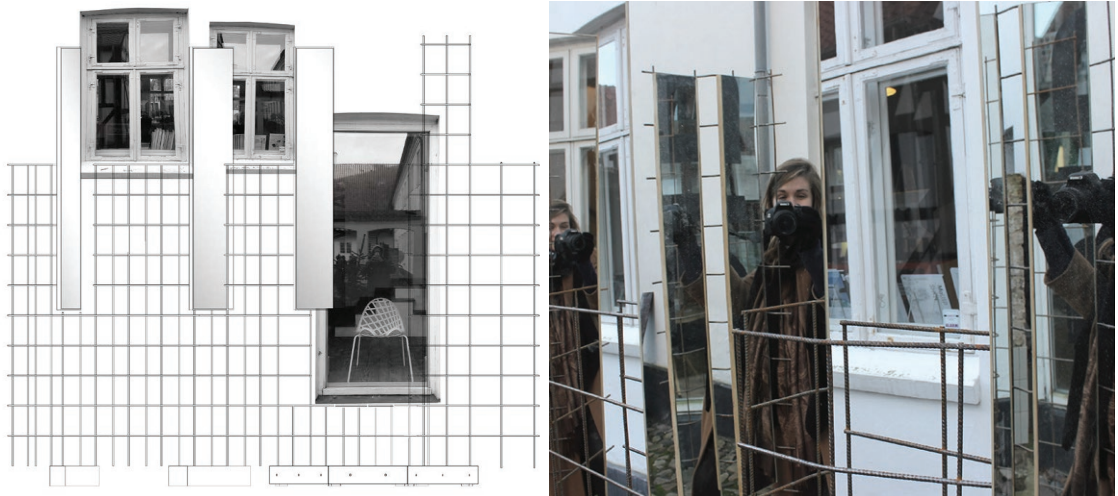


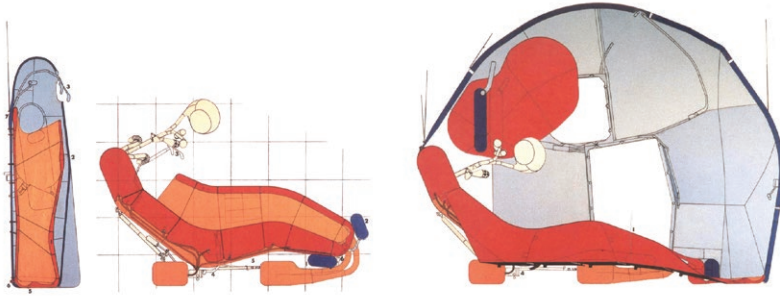
Figure 1.2.8 - Affective architectural element exploring the disintegration of the body image through optical devices of reflection and framing. Students: Mathilde Møll Helms, Niclas Heydorn, Anne Sofie Ravnsbæk Geertsen, Student X.

In *There and Back Again*, students worked with SF estrangement as the impetus to rethink future habitation. In this case, students were doubly challenged, first in engaging with a subject distinct from their own experience—the character, and second, with an estranged context—the future or some alternative present which introduces a different technical, social, or affective milieu. Although describing future modes of living is impossible by definition, the partial, non-authoritative point of view offered by the estranged character and context of an assigned short story opened up a range of possibilities for students to explore. The step-by-step process of the workshop, explained in more detail in that respective chapter, was staged in such a way as to allow students to naturalize or domesticate their experience of the text by telling and re-telling of the story through diverse media.

In this case, Ballard’s “Motel Architecture” provoked a very different engagement on the part of the reader than it did in the previous project. The master’s students reading the story were similarly uncomfortable with the story, but in this case, their discomfort activated a discussion with me in which we situated Ballard’s story in a critical relation to architectural proposals exploring the same theme. These include Mike Webb’s “Cushicle” and “Suitaloon” [fig. 1.2.9]—a living infrastructure to supply the body with all its needs including media diet, as well as Diller + Scofidio’s “Para-site” [1989] and “Slow House” [1991], both of which explored the dissociation of physical and informational experience. We could ask together what the possible benefits of such a dissociation could be, and could also discuss how, even now, information technology significantly the way we use our physical bodies.

In this case, as a tutor, I could work with the student in developing a critical position from the text. However, this project also showed that reading SF is a skill like any

Figure 1.2.9 - Mike Webb,
Cushicle, 3 Phases (1969)



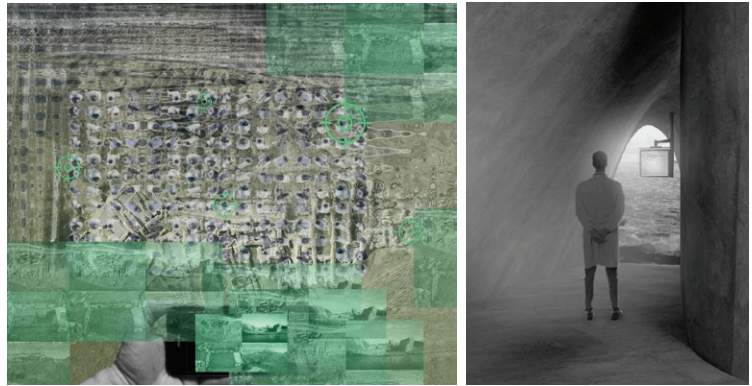
other, and not every student has developed the skill to imagine with a text in the same way. Taking the time to develop the capacity for reading SF, however, is not only useful for the coursework I was proposing; reading contingency and possibility in SF expressions including architecture is a way to develop the speculative capacity so useful for architecture.

Nevertheless, the object with such a discussion in the context of this project is not to propose a moralizing counter to the mind/body dissociation in Ballard's story, but instead to see the currency of such a lifestyle, and to look for potentials inside of it. In this case, the naturalization or, somewhat literally, domestication of the estrangement happened because the students needed to resituate the substance of the story in relation to the 'real world' program for their studio project. For Vildana Duzel, this discussion resulted in a program for a caretaker which imagines that much of that job might be better accomplished using digital tools. Her proposal for a caretaker's house provokes the physical body, while supporting the digital infrastructure necessary to monitor the site's ruins. Her project then developed the possibility that the physical and digital spaces might be co-implicated, with each disrupting and augmenting the experience of the other [fig. 1.2.10].

The workshop presented students with 9 different texts, each of which introduced estranged contexts and characters' lifestyles as well as looking for potential developments arising from outside dominant cultural expectations of futurity. These were—as SF so often is—not wholly divorced from everyday experience, they are imaginative extrapolations from the authors' respective points of view—and thus there is some place from which to ground the texts' estranged context. Some of the texts' respective worldings emerge in relation to pressures facing our own future, such as climate change, economic change, food insecurity, data privacy, and migration: Skinner and the Girl, from William Gibson's "Skinner's Room,"⁷⁶ are living atop the ruins of San Francisco's Bay Bridge after it has been damaged by an earthquake and occupied by that city's dispossessed, while the same author's Julius Deane is a

⁷⁶ William Gibson, "Skinner's Room," *Omni*, November 1991.

Figure 1.2.10 - Vildana Duzel, *Speculation on overlapping physical and digital experiences, inspired by J.G. Ballard's character Pangborn from "Motel Architecture" and image of subsequent design proposal.*



paranoid and debauched criminal [fig. 1.2.11].⁷⁷ Economic disparity has hollowed out Toronto in Nalo Hopkinson's *Brown Girl in the Ring*,⁷⁸ where the matriarch Mami Gros Jeanne has settled in a park where she grows and prepares folk medicines for her community.

As well as external pressures, the texts also introduced provocations from the characters' unique qualities: Nnedi Okorafor's "Mother of Invention" contemplates and conflates sheltering and motherhood.⁷⁹ While both are scientists, Sax from Kim Stanley Robinson's *The Martians* is a unique and moving meditation on aging and memory,⁸⁰ while the same author's Frank Vanderwal is going through a midlife crisis and experimenting with pseudo-"paleolithic" living in a near-contemporary Washington, DC [fig. 1.2.12,13].⁸¹

What these stories, and respective student work, show is that there is not a literal translation from the specific novum of a 'futurological' SF to students' architectural futures. In fact, such a literal translation limits how we might learn from SF by reducing the critical possibilities to a formal reproduction of an imagined world. While it certainly is possible to look for utopian prefigurations in some stories, it also limits the intellectual horizon of what's possible according to predeterminations of a supposed utopian intent by the author, reader, or (worse) tutor. To not pre-judge utopian figurations, however, is also not to abandon them, rather it is to look for currencies in unlikely places. The difficulty of utopian speculation is perhaps better approached when one considers both what might go right, and also what might go wrong. In much contemporary SF, even where utopia is presented as a possibility, it is ambiguous and precarious. As we have seen, the estrangements of SF present

⁷⁷ William Gibson, *Neuromancer* (New York: Ace, 1984).

⁷⁸ Nalo Hopkinson, *Brown Girl in the Ring* (New York: Warner Books, 1998).

⁷⁹ Nnedi Okorafor, "Mother of Invention," in *A Year without a Winter*, ed. Dehlia Hannah (New York: Columbia Books on Architecture and the City, 2018), 213–31.

⁸⁰ Kim Stanley Robinson, *The Martians* (New York; London: Spectra, 2000).

⁸¹ Kim Stanley Robinson, *Fifty Degrees Below* (New York: Spectra, 2007).

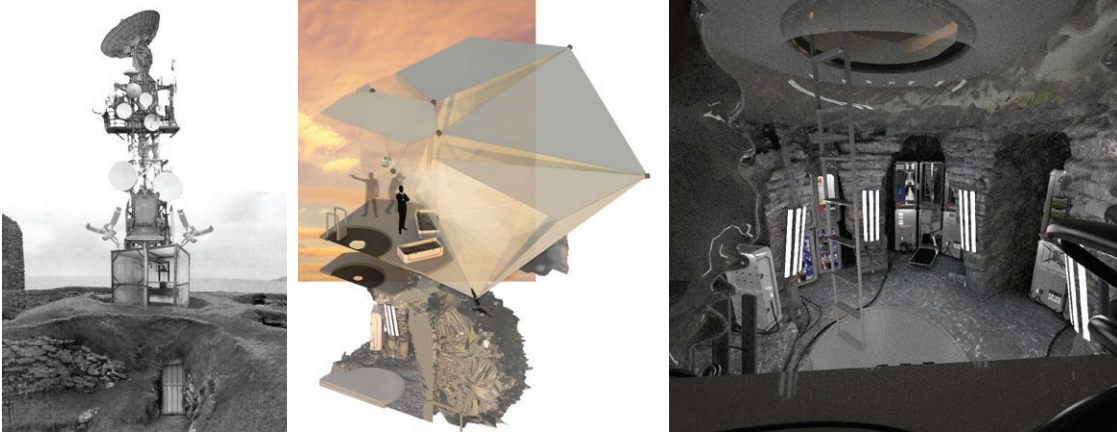


Figure 1.2.11 - Jesper Asferg Scheel, *Intermediate and final results of Julius Dean's "Safe House"*

a rather more dialectic exploration of future possibility, and rather than presenting a case for a single future, invite the reader to make their own present “critically legible.”⁸² This is the case if the futures imagined are hopeful or not.

The works presented in the There and Back Again workshop were drawn from works written in the 1980s and later. Rather than the heroic techno-positivist adventures of Golden Age SF, SF in the latter half of the previous century is marked by a “dystopian turn,” what critic Kingsley Amis famously characterized as “New Maps of Hell.”⁸³ These works were not intended to supply an easy program to follow, rather to challenge the student to search the work for latent possibilities on their own, even where it might be difficult, to “stay with the trouble” as it were.⁸⁴ Rather than looking for either any type of closure—whether utopian or anti-utopian—the works of SF assigned here presented a rather more open strategy, challenging the reader to engage the text from their own value position. This strategy, following Tom Moylan, has become a hallmark of the genre, and central to the didactic potentials of its dialectic between utopia and anti-utopia. Moylan borrows Lyman Tower Sargeant’s term in calling this tendency the “critical dystopia.” While the futures might be bleak, each text maintains possibility for change, presenting “estranged relation with the historical situation that does not capitulate”—a dialectic that produces the space of estrangement, and invites the reader into the dialogue.⁸⁵

The “critical dystopia” described by Moylan would not necessarily apply to some of the texts that I have assigned in the workshop, as they do not necessarily describe

82 Moylan, *Scraps of the Untainted Sky*, 28.

83 Moylan, 121, 186.

84 Haraway’s quote is further discussed in chapter 1.3, see: Donna J. Haraway, *Staying with the Trouble: Making Kin in the Chthulucene* (Durham: Duke University Press Books, 2016).

85 Moylan, *Scraps of the Untainted Sky*, 157.



Figure 1.2.12, Kristoffer Holmgaard Gade, 1.2.13 and Mathias Klith Harðarson, both inspired by the character Frank Vanderwall's experiments in 'paleolithic' living in Kim Stanley Robinson's *50 Degrees Below* [2007]

any oppositional tendency or possibility to counter the weight of the grim futures described. One might note a considerable pessimism about the future in much of Ballard's work. *Neuromancer* and "Skinner's Room" both number among William Gibson's earlier work which, like other "cyberpunk" work, is often understood to reflect an attitude of inevitability around neoliberal capitalist oligarchy;⁸⁶ even the "Patch" in *The Peripheral* is only imagined, or *imaginable*, after the slow-motion apocalypse of the Jackpot.⁸⁷ However, SF estrangement does not rely on the authorial intention, but rather the reader's thoughtful engagement with the world of the text, and as we have seen, even such texts as Ballard's "Motel Architecture" offer to a canny reader the dialectic space to challenge and inspire their own aspirations for futurity. Moylan:

*"... several questions can be asked of a given dystopian text, do the narrative and counter-narrative of the text play out in the iconic and discrete registers of the text? How does the text negotiate the difference between an open or a closed strategy? ... How is the text in-formed by a novum or pseudo-novum? ... How, then, does the dystopia situate itself in the contest between history and the "end of history," between Utopia and Anti-Utopia?"*⁸⁸

86 Fredric Jameson, *Postmodernism, or, The Cultural Logic of Late Capitalism*, (Durham, NC: Duke Univ. Press, 2005), 419, note 1.

87 Though Gibson has occasionally been the subject of a similar critical evaluation, more dialectical and oppositional vectors in his work are discussed in chapter 2.3.

88 Moylan, *Scraps of the Untainted Sky*, 157.

Didactic Value of SF Estrangements

For Suvin, SF is “an educational literature, shaped by preaching the good word of human curiosity, fear, and hope.”⁸⁹ And as we have seen, Suvin, following Bertholt Brecht, also considered the estrangement of an SF text to be its primary didactic vehicle. This section collects some of the findings from the experiments described above, and further elaborates how such a value can be instrumentalized in architectural education specifically. After all, estrangement seems like a strange thing for a teacher to wish for their students. These last sections of the chapter describe some potentials for estrangement in architectural pedagogy: first, a tool to disturb one’s one tendencies, second, a way to take a critical perspective on architectural production, ie. to ask how it is different from everyday experience, and in this way, third, a tool to reveal ‘real’ context of architectural production. These potentials are not separate, rather they are coeval within sf estrangement.

Estrangement, though it isn’t always described as such, already seems to be widely used in architectural pedagogy. Stephanie Liddecoat, for example, mentions William Burroughs’ *Junkie* [1953] in a discussion of literature’s capacity to reveal the strange subjectivities of unfamiliar clients or contexts to students,⁹⁰ a fact also considered in Amy Butt’s discussion of a literary text’s capacity to provoke empathy with unfamiliar subjects.⁹¹ In fact, while a full survey of literary fiction as it is used in architectural education is well outside the purview of the present study, it seems that speculative literature features quite frequently in architectural research, specifically for its ability to inspire perspectives not otherwise available to students in the present; in short, its estranging potential. While these are not always from the literary tradition of SF, a strong argument can be made for the speculative posture of Jorge Luis Borges or Italo Calvino. Deborah Levy, for example, discusses Borges’ and Adolfo Bioy Casares’ short story “The Flowering of an Art” which describes the fictional critic Honario Bustos Domecq’s critique of a fictional, nonsensical building, which Levy

89 Suvin, *Metamorphoses of Science Fiction*, 50.

90 Stephanie Liddcoat, “Writing the Client: The Role of Fictocriticism and Prose Fiction in the Architectural Design Studio,” *Higher Education Research & Development* 38, no. 1 (January 2, 2019): 81–83, <https://doi.org/10.1080/07294360.2018.1539065>.

91 Amy Butt, “‘Endless Forms, Vistas and Hues’: Why Architects Should Read Science Fiction,” *Architectural Research Quarterly* 22, no. 2 (June 2018): 156, <https://doi.org/10.1017/S1359135518000374>.

prizes for its capacity to spark critical perspectives on real building.⁹² Daria Ricchi traces Calvino's transition from an earlier period of "uncomfortable" neo-realism to a mature fantasy able to inspire the reader's "dreamlike imagination."⁹³ Nic Clear's Unit Fifteen often relies on works of SF for their estranging capacities, one example is the "weird fiction" of China Miéville's *The City and the City* [2009].⁹⁴ We might well ask whether the motivation for using literary fiction in architectural education in general hinges upon its ability to take the reader outside of themselves and their experience.

This capacity to take the reader outside of themselves has a seeming corollary within existing architectural pedagogy in the idea of the "innocent eye," but there is an important difference.⁹⁵ The innocent eye was privileged by John Ruskin for training in art, with a lineage in enlightenment era pedagogies. He believed that those who could see with an innocent eye would see the world without the weight of symbolic meaning, seeing the world as a child might. The training of the innocent eye continued in Johannes Itten's *Vorkurs* at the Bauhaus, and was meant to strip students of inherited sense of what art was and to develop in them a language of abstraction—form, space, and composition. This training of abstraction was championed in architectural education by Colin Rowe, Robert Slutsky, and those who came to be known as the Texas Rangers.

The emphasis in architectural education on space, form, and composition is notable for being ahistorical—appropriate for the rhetoric of universality within modernism, but represents architecture without social commitment. This type of education presents architecture as a special language of abstraction, available only to those who have skill to sense it, stripping students of their histories, cultures, and embodied knowledge. As Varnelis notes, not only does this strip architecture of its social

92 Deborah Levy, "The Critical Relevance of Fictional Projects: About Buildings That Do Not (Yet) Exist," in *Writingplace: Investigations in Architecture and Literature*, ed. Klaske Havik et al. (Rotterdam: nai010publishers, 2016), 44–51.

93 Daria Ricchi, "Reality without Colours: Imagining Architecture through Calvino's Eyes," in *Writingplace: Investigations in Architecture and Literature*, ed. Klaske Havik et al. (Rotterdam: nai010publishers, 2016), 41–42.

94 <http://unitfifteen-archive.com/2011-2012-Greenwich-A-L/2011-2012-1>

95 Kazys Varnelis, "The Education of the Innocent Eye," *Journal of Architectural Education* 51, no. 4 (May 1998): 212–23, <https://doi.org/10.1080/10464883.1998.10734780>; Erik Forrest, "The 'Innocent Eye' and Recent Changes in Art Education," *Journal of Aesthetic Education* 19, no. 4 (1985): 103, <https://doi.org/10.2307/3332302>.

commitments, it also suggests architectural knowledge is only available to those who have been able to learn the specialized language of abstraction—those who have been able to afford the considerable privilege of an architectural education.

While SF estrangement, like the innocent eye, does ask the reader to step outside themselves, it does not ask the reader to forget themselves in the process. Rather, the reader brings the whole weight of their experience to interpretation; their position as reader is privileged, and they remain entangled in their subjective position and in the social political situation in which they are reading. Estrangement does not, after all, remove the reader from their milieu, but rather sets up a dialectical encounter with the complexities of reality itself. Whereas the innocent eye represents architecture in ahistorical, absolute terms, science fictioning in architectural pedagogy does not propose a single model of an architect, nor a single language for a prospective architect to master. Instead, it is important that science fictioning, as a pedagogical methodology, invites the subjective, embodied experience of the student as foundational—their histories, cultures, genders, and lives are an irreducible part of being a reader of SF.

Therefore, the first affordance of SF estrangement for the architecture student is in establishing an estranged position from which to look back upon their own experience. More so than naturalistic fiction, SF establishes critical perspective which reveals social, political, ecological systems outside of the immediate experience of the author, not because these other systems might be absent from naturalistic fiction, but because, while reading naturalistic fiction, the reader assumes a normative model until told otherwise. In SF, the opposite is true, as we have pointed out, the reader is actively co-constructing world as they read on the assumption of a totally alien world. And in addition, as Amy Butt also points out, SF uniquely illuminates how architecture is implicated in creating, supporting, even disturbing such systems.⁹⁶

SF's critical lens is turned towards multiple facets of contemporary life, and like architecture, it suffers from its own fuzzy disciplinarity. That is to say, SF literature and scholarship does not operate in its own siloed domain, but in correspondence with all facets of human social, economic, ecological, and aesthetic life. In tracing the multiple perspectives within SF scholarship, Hollinger mentions critical practices that unfold the particularities of the genre, but also, those that begin to assimilate critical perspectives from the 'real world,' namely feminism and post-modern

⁹⁶ Butt, "Endless Forms, Vistas and Hues," 154. The co-implication of architecture and socio-political context in SF also forms the grounds for my critique of Fuller in the previous chapter.

epistemology.⁹⁷ Certainly, Freedman's great contribution with *Critical Theory and Science Fiction* is in linking SF with critical theory's dialectical perspective uniting all human socio-cultural praxis as an object of study. More recent SF scholarship has shown how the genre activates multiple critical perspectives for its readers, critical perspectives that can be translated into other speculative practices in architecture. These certainly include socio-economic class⁹⁸ and gender,⁹⁹ but also race,¹⁰⁰ indigeneity and colonialism,¹⁰¹ species, animality¹⁰² and ecology,¹⁰³ post-human and cyborg ontologies,¹⁰⁴ and many more besides. Even so, The value is not necessarily that each of work introduce an explicit critical perspective so much as it is about how that work allows a student to step outside themselves, to establish their own critical perspective from the estranged world of the SF work. Estrangement in Moylan and Jameson's formulation, according to Ruth Levitas,

“render[s] the taken-for-grantedness of the world problematic, and call[s] into question the existing state of affairs, not the imposition of a plan for the future. Again, what is most important about utopia is less what is imagined than the act of imagination itself, a process which disrupts the closure of the present.”¹⁰⁵

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- 97 Veronica Hollinger, “Contemporary Trends in Science Fiction Criticism, 1980-1999,” *Science Fiction Studies* 26, no. 2 (July 1999).
- 98 Mark Bould and China Miéville, eds., *Red Planets: Marxism and Science Fiction* (Middletown, Connecticut: Wesleyan University Press, 2009).
- 99 Veronica Hollinger, “Feminist Theory and Science Fiction,” in *The Cambridge Companion to Science Fiction*, ed. Edward James and Farah Mendlesohn (Cambridge ; New York: Cambridge University Press, 2003), 124–36.
- 100 Elisabeth Anne Leonard, “Race and Ethnicity in Science Fiction,” in *The Cambridge Companion to Science Fiction*, ed. Edward James and Farah Mendlesohn (Cambridge ; New York: Cambridge University Press, 2003), 253–63.
- 101 John Rieder, *Colonialism and the Emergence of Science Fiction* (Middletown, Conn: Wesleyan University Press, 2008).
- 102 Sherryl Vint, “Animal Alterity: Science Fiction and Human-Animal Studies,” in *Science Fiction Criticism: An Anthology of Essential Writings*, ed. Rob Latham (London ; New York: Bloomsbury Academic, 2017), 414–36.
- 103 Gerry Canavan and Kim Stanley Robinson, eds., *Green Planets: Ecology and Science Fiction*, (Middletown, Connecticut: Wesleyan, 2014).
- 104 Donna J. Haraway, *Simians, Cyborgs, and Women: The Reinvention of Nature [1991]* (London: Free Association Books, 1998).
- 105 Ruth Levitas, “For Utopia: The (Limits of the) Utopian Function in Late Capitalist Society,” *Critical Review of International Social and Political Philosophy* 3, no. 2–3 (June 2000): 39, <https://doi.org/10.1080/13698230008403311>.

As Levitas so eloquently points out, however, the provisionally of such imaginative endeavours is in danger of leading to a kind of “pathological pluralism,” where the reader does not look to re-establish and occupy a stable critical position.¹⁰⁶ In fact, this strategy of pathological pluralism is perhaps best exemplified in Dunne and Raby’s “United Micro Kingdoms” project, already explored in Chapter 1.1, where the mechanism of estrangement is seen primarily as a “catalyst for social dreaming,” and rather than making any specific assertions about desirable—not to say utopian— futures, Dunne and Raby merely present a range of possibilities and allow viewers to “make up their own minds” about what they might find a desirable future.¹⁰⁷ The danger of such a pluralist strategy—Dunne and Raby present four alternative strategies as equally plausible—means that they do not invest any one of them with a strong value judgement, either positive or negative (*i.e.* utopian or dystopian). Moreover, each of these images is a static representation of a static ideological position, and in spite of operating in a material and spatial field, the designers do not pursue an historical or material relation to their own or their reader’s present; their proposals do not evolve from contemporary socio-political conditions, they are invented positions that ‘just are.’ While, of course, the canny reader is still able to uncover a critical position for themselves in relation to each proposal, Dunne and Raby’s reluctance to pursue an explicitly utopian *or* dystopian strategy means that there is very little for a potential reader to hang a critical evaluation on. There’s a difference from the reader’s reality, but is this enough to stimulate a critical perspective? We might also ask whether a similar question should be asked of other practices in architectural speculation which, while predicated on their implied futurity, do not necessarily situate their imagination of aesthetic and material novelty within an imagination of an improved human or environmental condition, and which therefore only promise a future very like the dystopia of the present.

In Levitas’ own investigation of utopia as method, the critical position established by estrangement still figures largely. In this case, it is expressed as the ‘archeological’ or analytical movement of a utopian method, an essential part of its perpetual oscillations between analysis and intervention.¹⁰⁸ That is to say, estrangement is one element of a perpetual oscillation in reading architecture with and from SF. In this case, a work’s utopian force or disposition is in its simultaneous ability to propose a socio-political

106 Levitas, 40.

107 Anthony Dunne and Fiona Raby, *Speculative Everything: Design, Fiction, and Social Dreaming* (Cambridge, Massachusetts ; London: The MIT Press, 2013), 189.

108 Described more fully in ch. 1.0

innovation—a *novum*—but *at the same time* to open up such innovation to scrutiny. In Levitas’ scheme, the analytical perspective afforded by the estranged position is, if the proposition is utopian, coincident with the projective, “architectural” content of utopia.¹⁰⁹ For works of SF, whether of architectural futurity or other texts which may be used in architectural pedagogy, it is not enough to merely be strange. While an outside observer cannot know the extent of a reader’s aesthetic appreciation of a text, its value for architectural speculation is in its ability to propose a significant provisional hypothesis while at the same time establishing the conditions for a critical appraisal of that hypothesis.

In inviting the reader to take step outside themselves, works of SF invite a confrontation with one’s embodied positions. bell hooks writes eloquently about the significance of a marginal position, whether that position is chosen or imposed: “moving out of one’s place” asks one to understand their location whether “home” or far from home, and not in a universal coordinate system, but in relation to existing structures of authority. This can lead, she writes, to “extreme estrangement and alienation,” but it is also where “one confronts and accepts dispersal, fragmentation as part of the construction of a new world order that reveals more fully where we are, who we can become.”¹¹⁰ That is, hooks reminds us that estrangement invites one to understand one’s own subjective position as unique, in relation to or even opposition to a contemporary, dominant worldview, and when one has established this unique, situated,¹¹¹ or marginal subjective position on one’s own present. The second capacity of estrangement is in being able to see the conditions of one’s present as contingent, and changeable, after stepping outside, seeing how the present could be otherwise, to locate dynamics and hinge points in one’s present circumstance. In inviting the architectural student to be estranged, I invite them to find their position, a position from which to engage with their present in a way that sees it as a space of possibility.

The power of this position is explored in the following chapters, but already we can see how estrangement both places and displaces the reader—the reader is complicit in the co-creation of SF worlding, and thus in positioning them and inspiring their

109 Ruth Levitas, *Utopia as Method: The Imaginary Reconstruction of Society* (Houndmills, Basingstoke, Hampshire ; New York: Palgrave Macmillan, 2013), 154.

110 bell hooks, “Choosing the Margin as a Space of Radical Openness,” *Framework: The Journal of Cinema and Media*, no. 36 (1989): 19.

111 Donna Haraway, “Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective,” *Feminist Studies* 14, no. 3 (1988): 575–99, <https://doi.org/10.2307/3178066>.

own critical perspectives. The SF text invites “self-reflection,” which Amy Butt argues is invited by the readers complicity in co-creating the world half-revealed by the SF text from their own knowledge and predilections.¹¹² The world of the SF text and its critical affordances are not found in the text, but are created within reader’s aesthetic engagement with the text. In this way, the value of SF estrangement invites the reader(student) to create their own critical space, making them expert in their own positioning and situating—their creative energy meeting the creative energy of the text.

112 Butt, “Endless Forms, Vistas and Hues,” 157.

1.3 Speculative Practice, or Toward a Carrier Bag Theory of Making Architecture

“To think is always to follow the witch’s flight”¹

In an essay called “The Carrier Bag Theory of Fiction,” SF author Ursula K. Le Guin speculates that although early human societies may have earned much of their sustenance from the unremarkable work of gathering wild grains, roots, and fruit, the first stories were told about the experience of the hunter who battled a wild beast and won; ever since, story-telling becomes a preserve of the heroic narrative.² The hunter’s story is more exciting; it abjures the everyday in favour of the singular narrative arc. The hunter’s story continues in one form or another today, and all its forces are instrumentalized, from the myth of Prometheus onwards, towards its final, definitive conclusion; it is, for Le Guin, a story about the killing thing—the length of bone, the spear, the ax, the atom bomb—technology becoming an instrument in the service of the story’s fitting end. And there is only one ending: Apocalypse, Ragnarok, Nuclear Armageddon, for us now perhaps, ecological collapse.

The singular, linear narrative of the heroic story is reminiscent of kind of assured single mindedness from those SF theorists emerging from the critical theory school—for whom big-‘H’ history is both the unstoppable force and the immovable object, an impasse which expects the force of history to be overthrown, but which at the same time sees the present hegemony of capitalism as so dominating that those under its thrall cannot imagine a way out. While the SF scholarship emerging from the Marxist predilection seems to become mired in the impossibility of escape from the dominance of capitalist hegemony, other theoretical perspectives worry at the cracks. Other worlds lie waiting in the future imaginaries cultivated both in SF and in architecture. The previous chapters covered something of how SF works, this chapter asks whether the discursive modalities offered by SF might allow us to define a speculative architectural practice, proposing a model of the architect as the author of speculative fiction.

1 Gilles Deleuze and Félix Guattari, *What Is Philosophy?* (London: Verso, 2011), 41.

2 Ursula K. Le Guin, “The Carrier Bag Theory of Fiction (1986),” in *Dancing at the Edge of the World* (New York, NY: Grove Press, 1989), 165–70.

For her part, Le Guin is looking for a “carrier bag” theory of fiction and of human evolution. Rather than the “killer” narrative of the weapon, she is looking for a type of fiction which gathers and gives sustenance, which celebrates the everyday work of being alive. “So long as culture was explained as originating from and elaborating upon the use of long, hard objects for sticking, bashing, and killing,” she writes, “I never thought that I had, or wanted, any particular share in it.” The killer narrative dominates western culture’s myths and histories, and all too often, the histories of the future we find in SF; the killer story, the story of the weapon or tool, relies on linear progression towards the heroic end, on technological teleologies or “progress,” and on the heroic (*ie.* male) dominance of the Promethean triumph, conquest, or victory.

Ayn Rand’s *The Fountainhead* (1943) portrayed the architect as such a singular heroic figure. And while it may seem that the age of the starchitect is waning, from some corners at least the discipline is still represented for students as the work of singular masters and their monuments, rather than a more nuanced discussion of socio-cultural, historical, and economic influences on a work.³ This has a significant impact not only in how students will learn disciplinary history, but also in how they will practice. The carrier bag, by contrast, collects diverse elements, and places them in relation to one another. It is not a fiction of resolution and eventual stasis, but a fiction of continued process, change, transformation and growth, it is a fiction that nurtures futures rather than the singular tragedy of the technological myth.⁴

Le Guin’s figure of the author of feminist SF will be our companion in this chapter. Rather than the weaver of fictions, we will use this figure to imagine a new *conceptual persona*,⁵ a figure of the architect in a speculative practice. As an impetus for thought we ask, succinctly, can we imagine a carrier bag theory of architectural practice? What

3 Adnan Morshed, “Thus Spoke the Über-Architect: The Architecture of the Heroic Myth,” in *Encounters = Encuentos = Recontres*, ed. David Covo and Gabriel Merigó (2005 ACSA International Conference, Mexico City, Washington, DC: ACSA Press, 2005), <https://www.acsa-arch.org/chapter/thus-spoke-the-uber-architect-the-architecture-of-the-heroic-myth/>.

4 Ursula K. Le Guin’s *Always Coming Home* (1995) is an exemplary specimen of the carrier bag novel, and of the gift this offers the reader. Rather than a linear narrative, the novel weaves together multiple stories as a kind of anthropological report about the Kesh, a fictional future people in a climate changed Northern California. The reader inhabits the novel in the same way as they inhabit this future landscape, flipping between stories, myths, poems, lexicons; Le Guin invites the reader to dwell inside the Valley and weave stories of their own.

5 The use of “conceptual persona” here derives from Deleuze and Guattari’s discussion, particularly as this persona synthesizes the conceptual, affective, and perceptual operations of the philosopher, artist, and scientist. see.: Deleuze and Guattari, *What Is Philosophy?*, 61–83.

would that mean? It might mean a rejection of a mode of practice that privileged the singular authority of the individual genius, instead recognizing the myriad agencies and stakeholders involved in a project. It might even mean a practice which did not end with a building at all, and was instead an ongoing practice, characterized by continuing to be involved with and care⁶ for a community or ecology, rather than ending in a building.

I say, ‘it might mean’ because the future of practice is opaque to us, and it should remain so. We don’t yet know what an architect can be. Therefore, there is considerable difficulty for the teacher in defining what a prospective architect should know and how they should practice. Moreover, we cannot know the specific situation of any future practice, where it will be, for whom, under whose patronage, and what technologies or materials might be available. The becoming-architect in their future practice, then, navigates the unknown, carrier bag slung at their side—the receptacle of diverse, contradictory, contested, sometimes complementary stories. Their practice is about cultivating, a careful practice of placing things in relation. The gerundial ending is important—cultivating, placing, practicing—it is active and carried out by the subject; it is an ongoing-ness, not a static canon of knowledge. What Le Guin’s carrier bag reminds us of is that the future is not a singular thing that will happen, not the apocalyptic culmination of the hero’s saga. The future is a garden we prepare for and cultivate, but which we cannot know. This is why we do not look for a singular narrative to define the discipline, but towards the sprouts beginning to show in the field around us, nurturing those filled with promise and hope.

Given the difficulty of defining a future practice in architecture, this chapter discusses the recent turn towards ‘speculation’ as a critical and investigatory method, and how we might extend this speculative disposition to include a practice in architecture—and as a corollary, a practice in research. The architect with their carrier bag is our companion, maybe our avatar, as we speculate on the dimensions of a future architectural practice. They remain with us as we set out into new territory, drawing together a speculative futuring practice, a practice that is critical, situated, immanent, and navigating complex, heterogeneous, polyvocal ontologies.

6 I would be remiss if I failed to mention the works of care excellently documented in: Angelika Fitz and Elke Krasny, eds., *Critical Care Architecture and Urbanism for a Broken Planet* (Vienna; Cambridge; London: Architekturzentrum Wien; MIT Press, 2019).

Architecture as Post-Discipline

What is the territory of an architectural practice? Or, what is it that an architect does? Vitruvius begins his treatise by writing that an architect should be “adorned with much and varied learning,” going on to suggest that they should be aware of both practical and theoretical concerns. Some of these remain familiar to the contemporary architect—form, aesthetics, structure—while some of these areas of knowledge might seem more tangential:

*“[the architect] should be a good writer, a skillful draftsman, versed in geometry and optics, expert at figures, acquainted with history, informed on the principles of natural and moral philosophy, somewhat of a musician, not ignorant of the sciences both of law and physic.”*⁷

Even in this earliest extant discussion of the discipline, ‘architecture’ is already characterized by a certain broadness. That is, while there may well be knowledge that is unique to the discipline, the field is also characterized by several trajectories leading away from the know-how of building into all the known territories of human knowledge. No remedy for this fuzzy practice is yet to be found. Quite to the contrary, it is exacerbated as the education of the architect is made subject to various institutional and legal frameworks the world over, and as architects take up diverse practices beyond the work of drawing a building. This is, however, not intended to be an apology for one or another origin myth for the discipline. Instead it is to argue that no one has ever really been sure of what an architect should know, or what it is that an architect does.

Academic disciplines as they come to us are characterized by a certain historical instability as knowledge, vocabulary, canons, and modes of analysis and criticism adapt to changing times and places. They are defined by historically contingent boundaries that, while they might once have seemed expedient, do not neatly segment the broad territory of human knowledge. While ‘architecture’ contains hallmarks of a traditional discipline—a canon and historical lineage, and specialized knowledge and methods—if it can be said to exist as a discipline, is just as much characterized by a perpetual fuzziness. As a professional practice, even while subject to continued legal and political definition, aspects that were formerly a core domain of an architect—structural engineering or project management for example—have become specialized disciplines, while the work of being an architect continues to

⁷ Marcus Vitruvius Pollio, *On Architecture*, trans. Joseph Gwilt (London: Priestley and Weale, 1826), <http://penelope.uchicago.edu/Thayer/E/Roman/Texts/Vitruvius/home.html>.

range broadly. As an academic discipline containing both research and teaching, it is subject to a similar fuzziness—research in architecture proceeds along a wide variety of avenues, with processes and methods that can rarely be said to be purely architectural, and more often than not, are variously aligned with one or more of the ‘pure,’ ‘applied,’ or ‘social’ sciences, as well as its prior allegiances to the arts or humanities. Given this disciplinary fuzziness, Jane Rendell suggests that while on one hand architectural practice does have a particular mode of practice—what she calls “practice-led research,” it is just as often operating as the *subject* of a kind of interdisciplinary research with the capacity to turn the lens of any number of disciplines—sometimes in unique combinations—towards an examination of the built environment, such that architecture can be, sometimes simultaneously, a discipline, a subject, or a method.⁸

While the boundaries that would define the practice of architecture remain fuzzy, the complexity of actually drawing and making buildings—the supposed core activity of architecture—results in a practice of architecture that is often described as interdisciplinary⁹ or cross-disciplinary.¹⁰ What these descriptions suggest is that it requires the collaboration of several disciplines to practice architecture; the word might be used to describe collaborations between, for example, architects, material scientists, and structural engineers,¹¹ where each contributes their own fields knowledge to a collaborative project. In these discussions, at least, each of these individual disciplines are relatively siloed—each working from their disciplinary prerogatives and epistemological frameworks.

However, the act of making a building is not the only way of practicing architecture, and architecture consistently abuts a rather broad range of disciplinary territories and

8 Jane Rendell, “Architectural Research and Disciplinarity,” *Architectural Research Quarterly* 8, no. 2 (June 2004): 141–47, <https://doi.org/10.1017/S135913550400017X>; Jane Rendell, “Prelude: The Way in Which We Write,” in *Writing Architectures*, ed. Hélène Frichot and Naomi Stead (London ; New York: Bloomsbury Visual Arts, 2020), 2.

9 Hanif Kara and Andreas Georgoulas, eds., *Interdisciplinary Design* (Barcelona: Actar, 2012).

10 Cornelia Leopold, Christopher Robeller, and Ulrike Weber, eds., *Research Culture in Architecture: Cross-Disciplinary Collaboration* (Boston: Birkhäuser, 2019).

11 Michael U. Hensel, “Developing Research Cultures in Architecture,” in *Research Culture in Architecture: Cross-Disciplinary Collaboration*, ed. Cornelia Leopold, Christopher Robeller, and Ulrike Weber (Boston: Birkhäuser, 2019); Mark Burry, “Towards Meeting the Challenges of Facilitating Transdisciplinarity in Design Education, Research and Practice,” in *Design Innovation for the Built Environment: Research by Design and the Renovation of Practice*, ed. Michael Hensel (Abingdon, Oxon ; New York: Routledge, 2012), 53–66.

practices—from ecology to economics, from psychology to sociology and beyond. As Rendell reminds us, it is these theoretical entanglements that continue to (re-) define the discipline—constantly re-asserting what the practice of architecture is, how it can be accomplished, and for whose benefit.¹² Similarly, Elizabeth Grosz writes:

*“Outside of architecture may be technologies, bodies, fantasies, politics, economics, and other factors that it plays on but doesn’t direct or control. Outside architecture is always bodies, sexualities, history, culture, nature—all of those others it seeks to exclude but which are the constitutive edges, the boundaries, of its operations. . . . I do not want to suggest that architecture is itself outside politics, sexuality, desire, economics, but only that these constitute its perennial sites of negotiation. . . . practitioners of architecture . . . are deeply imbricated in them and must address them in more nuanced and complex ways.”*¹³

Interdisciplinarity is hardly unique to architecture. This term is widely used to describe the confrontation in research of (at least) two different disciplines with all their attendant methods, perspectives, or representations of knowledge; this confrontation is often further refined in the form of various prefixes which accompany or supplant ‘inter-,’ such as ‘multi-,’ ‘cross-,’ or ‘trans-.’ In her discussion of the emergence of feminist studies as a non-traditional academic field of knowledge production, Nina Lykke argues that, while feminist studies as an academic field has sufficient stature as an independent field of knowledge production, feminist studies is perhaps more appropriately understood and practiced as a post-discipline.¹⁴ That is, it is perhaps best understood as a field of knowledge production which maintains the “double stance” of “the tension that is embedded in defining itself both as a field of knowledge production in its own right and as a field characterized by a total openness to transversal dialogues, crossing all disciplinary boundaries.”^{15,16}

12 Rendell, “Architectural Research and Disciplinarity,” 146.

13 Elizabeth Grosz, *Architecture from the Outside: Essays on Virtual and Real Space*, Writing Architecture Series (Cambridge, Mass: MIT Press, 2001), xvii.

14 Nina Lykke, *Feminist Studies: A Guide to Intersectional Theory, Methodology and Writing* (New York: Routledge, 2010), 14–30.

15 Lykke, 18.

16 In a term that will reappear in this essay, Felix Guattari proposes “transversal” practices as a counter to the ‘solipsistic closure of universes of value’ we see in disciplinary proceedings. This definition proceeds from his experience in psychoanalysis, describing the multiple, simultaneous, non-hierarchical processes of subjectification he observes in treating both individual and social

While architecture has its long-standing academic pedigree and idiomata, developing the dialogue between the architectural discipline and SF studies reveals other possibilities in this alliance. SF studies follows in the wake of the newly minted academic fields emerging from the humanities in the last half of the 20th century—the various “studies” that join feminist studies in challenging the formerly unary narrative of western humanism—including queer, race, post-colonial, environmental studies, as well as those which open up questions about a changing technical world—media, film, or television studies, for example.^{17,18} The continued difficulty of defining architecture might look to these studies as a model for imagining its (post-) disciplinary position. Each of these poses a challenge to established or institutional disciplinary boundaries while at the same time cultivating new representations and fields of knowledge that lie outside of or between previously siloed disciplines. While SF studies emerged from the field of literary studies, by the turn of the previous century, Veronica Hollinger’s survey of SF scholarship already shows the “double stance” described by Lykke, including on the one hand genre-specific studies, histories and attempts at definition, while also showing strong engagements with feminist studies and postmodern cultural theory.¹⁹

The SF field’s interdisciplinarity has continued to flourish in recent SF scholarship. A cursory survey of papers at a recent SF conference includes topics such as diverse as indigeneity and colonialism, post-scarcity economics, sexuality and gender, ecology, and disability studies, among many others.²⁰ These studies do not use the methods of one field to analyze the other, nor do they solely offer insight to one or the other,

subjects. Guattari warns us against imagining any existential territories or analytical frameworks as discrete. Disciplinary perspectives, he argues, reveal only a small part of multiple and simultaneous streams composing an event, even “the most autistic closure can be in direct contact with ambient social constellations and the machinic Unconscious, historical complexes and cosmic aporias.” See: Félix Guattari, *Chaosmosis: An Ethico-Aesthetic Paradigm* (Bloomington: Indiana University Press, 1995), 117–18.

- 17 Rosi Braidotti, “A Theoretical Framework for the Critical Posthumanities,” *Theory, Culture & Society* 36, no. 6 (November 2019): 8, <https://doi.org/10.1177/0263276418771486>.
- 18 For just one example of the reach of SF studies, see its unfolding of perspectives in contemporary art: Dan Byrne-Smith, ed., *Science Fiction*, Whitechapel: Documents of Contemporary Art (London : Cambridge, Massachusetts: Whitechapel Gallery ; The MIT Press, 2020).
- 19 Veronica Hollinger, “Contemporary Trends in Science Fiction Criticism, 1980-1999,” *Science Fiction Studies* 26, no. 2 (July 1999).
- 20 Michael Fuchs, ed., *Abstract Booklet: Worlding SF: Building, Inhabiting, and Understanding SF Universes* (Graz: University of Graz, 2018), https://www.worlding-sf.com/files/abstract_booklet.pdf.

they are vectors across a post-disciplinary landscape, and their belonging within the field of SF studies is only one focus in the elliptical orbits of radically diverse individual projects. As SF scholarship develops, its capacity to absorb and foster unique perspectives and to challenge existing knowledge grows, yet at the same time, it is located in a popular, widely appreciated genre. What is important to note about this, however, is that these unique perspectives are not new to SF. In fact, the genre has always interrogated and estranged any number of fields of inquiry in productive and nuanced ways.

It is here that we learn not only in reading from and with the genre, but also in the practice of the genre's scholarship. Architecture still maintains some semblance of a disciplinary core—modes of knowledge production and representation unique to the field that emerge from our historical disciplinary practice such as drawing, making, or writing about buildings and parts of buildings. But at the same time, this core is only provisionally stable while research in the field continues to criss-cross a post-disciplinary landscape not dissimilar to SF studies. As I discuss briefly in chapter 1.1, developing the relationship to other futures such as Afro-futurism allows the reader to begin to imagine the parameters of an architectural practice within other social, economic, or ecological frameworks. Just as we might *read* architecture with perspectives gleaned from SF scholarship, *making* architecture as a kind of SF is always subject to similar entanglements.

That any field, whether feminist studies, SF studies or architecture can challenge its own assumptions is important: “disciplinary borders come to represent power relations rather than rational cuts in the body of knowledge,”²¹ and the borders of the discipline police what might be discussed (or not) and how. This is especially relevant in the context of the multiple crises of the contemporary moment. In *We Have Never Been Modern*, Bruno Latour describes the damage to the ozone layer²² as a “hybrid” crisis, whose causes are not singular, and which cannot be addressed with a singular disciplinary science. Instead, the problem of the damage to the ozone layer is an imbroglio “of science, politics, economy, law, religion, technology, fiction” without territories of clearly defined hierarchy or responsibility.²³ Just as we cannot solve a problem like the ozone with disciplinary science, so too the challenges proliferating

21 Lykke, *Feminist Studies*, 20.

22 Particularly acute in 1991, the year in which Latour wrote the book.

23 Bruno Latour, *We Have Never Been Modern*, trans. Catherine Porter (Cambridge, Mass: Harvard University Press, 1993), 2.

at the time I am writing require post-disciplinary perspectives to “keep up a transversal openness and a dialogical approach to all academic disciplines (human, social, medical, technical and natural science disciplines).”²⁴ The segmentation of knowledge has brought the architectural discipline to our own imbroglio—the imagination that architecture is autonomous has made architects forget the political import of a wall, only to be reminded by the chant of a racist demagogue. As such, it is incumbent on every discipline, not least architecture, to disturb its own knowing, and to form and nurture bonds and dialogues outside its own boundaries.²⁵

What might architecture as a post-discipline look like? I do not want to propose any limit cases, but I think one good example might be Forensic Architecture,²⁶ a research practice founded by Eyal Weizman turning ‘architectural’ tools to different ends. This practice is accomplished with the disciplinary toolset familiar to most contemporary practices—they use drawing, 3D modeling, diagrams, and spatial/temporal representations in animation software. However, while the representational, analytical, and epistemological frameworks are familiar to the architect, in the case of Forensic Architecture’s practice, they are used not to draw and sell buildings, but to confront the intersection of spatial and social issues in both legal and public fora such as the media. These can include: police brutality, other human rights and environmental abuses, and other neo-colonial and racist state policies across the world.²⁷

24 Lykke, *Feminist Studies*, 8.

25 There are other articulations of a need to think across previously segmented territories of knowledge. For example, Kimberle Crenshaw defines the term ‘intersectional’ as an analytical framework to describe overlapping modes of oppression faced by those whose identity is multiply othered – as black women might face in overlapping sexist and racist modes of oppression. I admit to some difficulty in using this term as there may be a danger that it would dull Crenshaw’s important critique by diluting the term’s force. Nevertheless, the term reiterates not only how modes of oppression can be layered one atop the other, but also how such modes of oppression can only be critiqued by understanding and taking up the diverse perspectives of both racial and gendered oppression. See: Kimberle Crenshaw, “Demarginalizing the Intersection of Race and Sex: A Black Feminist Critique of Antidiscrimination Doctrine, Feminist Theory and Antiracist Politics,” *University of Chicago Legal Forum* 1989, no. 1 (1989).

26 Eyal Weizman, *Forensic Architecture: Violence at the Threshold of Detectability* (Zone Books, 2017), <https://doi.org/10.2307/j.ctv14gphth>; Forensic Architecture, *Forensis: The Architecture of Public Truth* (Berlin: Sternberg Press, 2014).

27 Forensic Architecture, “Investigations ← Forensic Architecture,” accessed October 21, 2021, <https://forensic-architecture.org/>.



Figure 1.3.0 - Bughaus, Emma Helene Rishøj Holm and Rasmus Svane Høj (2017)

As the quote above from Vitruvius already establishes, there is nothing new in arguing for architecture’s interdisciplinarity. What might be new is the suggestion of architectural post-disciplinarity and of the importance of maintaining the double stance. In practicing architectural research as if it were post-disciplinary—and importantly, in representing architectural post-disciplinarity for students—we affirm its commitments to operating in a world that is multi-faceted. We also affirm that the discipline as we find it is, and will always be, an unfinished project. While a post-disciplinary perspective in architecture affirms already existing knowledge and practices within the discipline, it also looks to potential fruitful copulations with adjacent territories of knowledge. Rather than merely delimiting the discipline as Grosz seems to argue—its “constitutive edges”—these copulations are more promiscuous, and we might well welcome new conjunctions as productive for novel conceptions of what architecture is or could be. This is one of the modes of science-fictioning the discipline—understanding the discipline as its own fiction and writing the discipline anew or as a discipline-to-come. Such an open stance toward defining the discipline is a way to challenge the boundaries of architecture and its possibilities by exploring *nova* and their respective estrangements that were formerly foreign to the discipline.

As a modest example of such a confrontation, Unit 2/3 F’s project for the Spring 2017 semester²⁸ included a reappraisal of suburban living in the context of a shrinking city. Using the post-communist and post-industrial Dessau, Germany as a case, and Walter Gropius’ Törten Estate as the site, the project started from a perspective that included sustainability, re-wilding, communal living,²⁹ and alternative economic scenarios³⁰ to develop new possibilities for collective housing. In their project called “Bughaus” [fig. 1.3.0], Emma Helene Rishøj Holm and Rasmus Svane Høj transformed the already existing skeleton of Gropius’ Törten Estate to adapt to more diverse co-habitation scenarios while organizing the communities’ economy around

28 See chapter 2.1

29 Explored through the Central European tradition described in: Niklas Maak, *Living Complex: From Zombie City to the New Communal* (München: Hirmer, 2015).

30 J. K. Gibson-Graham, *A Postcapitalist Politics* (Minneapolis: University of Minnesota Press, 2006); J. K. Gibson-Graham, Jenny Cameron, and Stephen Healy, *Take Back the Economy: An Ethical Guide for Transforming Our Communities* (Minneapolis ; London: University of Minnesota Press, 2013).

permaculture and the production of insects for food. The result is both a coherent architectural proposal while at the same time, it suggests social and economic models that articulate modes of community beyond the individual and family unit.

With her carrier bag, Le Guin reminds us that essentializing or valourizing any knowledge practice is participating in exactly the kind of promethean narrative that leads only to the singular end—inevitably apocalypse, while an attentive practice of gathering and sharing within the territory one is traversing unfolds possibilities and avoids closure. Donna Haraway joins Le Guin to criticize the phallogocentrism of the ‘tool-maker’ storyline, and its attendant “mythos of enlightenment transcendence.”³¹ She deplores the tendency to take the western Enlightenment’s practice of producing principles and categories as truth rather than understanding these as artifactual—as the product of particular ways of looking, and always risking the inclusion and exclusion of certain forms of knowledge.

That the field of architecture might be understood as artifactual and, in the sense outlined by Judith Butler’s discussion of gender performativity,³² continuously constructed by its reproduction in discourse, is not a failing; the very elusiveness of ‘architecture’ in any sense as a distinct disciplinary whole is (re-)productive, it can create new ways of knowing. In understanding the limits and the potentials of this artifactualism, we understand ‘architecture’ as a constructed category where other “in-appropriate(d)” monsters may emerge.³³ As we have seen already in the chapter on the novum, there are modes of practice which do not take the given categories of practice as sacrosanct. In emerging from the unique perspective of its practitioners, these practices traverse the borders of practice, and reveal new programs, clients, or material expressions—in essence, new ways of being an architect.

Hélène Frichot, thinking with Isabel Stengers, defines architecture as an “ecology of practices,” for Stenger, a conceptual tool for thinking of intellectual practices as they emerge out of their milieu, rather than from inherited modes of universalist

31 Donna Haraway, “The Promises of Monsters: A Regenerative Politics for Inappropriate/d Others,” in *Cultural Studies*, ed. Lawrence Grossberg, Cary Nelson, and Paula A. Treichler (New York: Routledge, 1992), 297–98.

32 Judith Butler, *Gender Trouble: Feminism and the Subversion of Identity [1990]* (New York: Routledge, 2006).

33 Haraway, “Promise of Monsters.”

thinking.³⁴ For Frichot, it is a chance to think about architecture as a minor practice—rather than its figuration as capital-A Architecture.³⁵ Maybe it is even better to recognize that there is no practice of big-A Architecture so much as many practices that come to matter in the ways they interact with their local milieu, the obligations, desires, and needs that are about the environments in which each respective practice is found. In forming alliances with localized actors and environments, these practices develop their own tools for thinking—”thinkables”—and practicing in ways that fall into and out of the territory of architecture, or constantly shift the boundary of what a practice in architecture is.³⁶

The confrontation cultivated in this project—between SF and architectural pedagogy—is an attempt to maintain this intellectual promiscuity, to continue asking for myself and for a prospective student, what is architecture? We can only know with certainty that the architect of the future will be operating in a world that does not yet exist, and so the aim of the present research and its proposition for teaching architecture is to maintain a stance which challenges disciplinary norms, and more importantly invites students into the space of challenging disciplinary norms as an *inevitability* for practice. The architect of the future—they are still walking along with us—will traverse a heretofore unseen landscape with a carrier bag slung at their side, gathering, cultivating, and sharing new and strange knowledges. The challenge for students, even as they practice drawing, attend structures courses, and learn of the history of the discipline, is to be aware of *what they know* and *how they are learning* as emerging from a given historically and culturally defined perspective, but a perspective that is also contingent, tenuous, likely to break, but also open to new alliances and ways of operating—open to telling new fictions. The teacher is here accompanying the student as they are in the practice of defining the practice anew; each with their carrier bag gathering fruits from both likely and unlikely places, and mixing them in new ways.

34 Isabelle Stengers, “Introductory Notes on an Ecology of Practices,” *Cultural Studies Review* 11, no. 1 (August 12, 2013): 183–96, <https://doi.org/10.5130/csr.v11i1.3459>.

35 On developing architecture as a minor practice, see also: Jill Stoner, *Toward a Minor Architecture* (Cambridge, Mass: MIT Press, 2012).

36 H el ene Frichot, *Creative Ecologies: Theorizing the Practice of Architecture* (New York: Bloomsbury Visual Arts, 2018).

How is Speculation Possible?

As much as we don't know what a practice in architecture can be like, we also do not know the context of such a practice. In a very real sense, as we discuss in greater detail in both chapter 1.1 and 1.4, we don't know the future, and yet, the future is very much on our mind, though hopefully less dominated by the fever dream of western rationalism. As images of a burning planet intrude upon attentions already frayed by a global pandemic, racist oligarchs, political violence or indifference, and ecosystemic collapse, the future has never seemed more fraught, but a commitment to a workable future has never seemed more necessary. However, as I've already written, SF cannot tell the future directly, and we've already explored what that might mean to a reader of SF. Here we try to probe what that mean to one who sets out to imagine the future, particularly as one moves away from the indicative grammatical mood—what *is* or *will be*—to the subjunctive—what *might* be, and the polyvocal encounters enabled by SF.

In chapter 1.1, I describe Suvin's distinction between SF as extrapolation and as analogy. In that distinction, Suvin argues that SF could never tell us the future directly, and therefore we should understand it as a critical (estranging) encounter with the author's own space and time, as analogy. According to Suvin, SF analogy functions to reframe the reader's own reality, not to tell the future but, in the didactic mode of estrangement, to act as a stimulus to thought:

“Ontologically, art is not pragmatic truth, nor is fiction fact. To expect from SF more than a stimulus for independent thinking, more than a system of stylized narrative devices understandable only in their mutual relationships within a fictional whole and not as isolated realities, leads insensibly to the demand for scientific accuracy in the extrapolated realia.”³⁷

Suvin's disavowal of the very possibility of SF extrapolation echoes other scholars in the critical theory tradition. Adorno, for example writes, “What takes itself to be utopia remains the negation of what exists and is obedient to it.” Adorno uses the image of a child pecking at the keys of a piano, trying to find a previously unheard

37 Darko Suvin, *Metamorphoses of Science Fiction: On the Poetics and History of a Literary Genre*, ed. Gerry Canavan, *Ralahine Utopian Studies*, volume 18 (Oxford: Peter Lang, 2016), 41–42.

chord, where the standard keyboard already confines the combinatory possibilities to a limited range pre-determined by the existing instrument.³⁸ Even more forcefully, Fredric Jameson writes:

*“(SF’s) deepest vocation is over and over again to demonstrate and to dramatize our incapacity to imagine the future, to body forth, through apparently full representations which prove on closer inspection to be structurally and constitutively impoverished, the atrophy in our time of what Marcuse has called the utopian imagination.”*³⁹

For Jameson, following Suvin, SF’s purpose is to estrange the reader’s experience of their present, and any anticipatory sense in the fiction is merely a “fantasy” of the future.⁴⁰ This is a view echoed in architectural culture by Manfredo Tafuri, who argues for the impossibility of imagining utopia within capitalist hegemony,⁴¹ leading to the kind of impasse described in an aphorism variously attributed both to Jameson and also to Slavoj Žižek: that it is easier to imagine the end of the world than the end of capitalism. There’s a kind of inescapability in the language of Suvin and these others, that, while it might contain the hope for post-capitalist futures, suggests that it is impossible to imagine. We can only see the future, they argue, from the knowledge of the present. But this ‘present’ they imagine is somehow stagnant and monolithic, hermetic. They proceed from a Marxist tradition that sees capitalism as subsuming all other social, material relations in the world. One wonders if it is not an image of authority that can only be wielded by western white masculinity, who cannot imagine that oppositional forces might already be at work in the historico-material world, nor that these oppositional forces are unlike them—perspectives cultivated in other grounds, and by other agencies, and towards multiple futures.

Ernst Bloch writes, lamenting modern architecture’s bourgeois emptiness: “Architecture cannot at all flourish in the late capitalist hollow space since it is, far more than the other fine arts, a social creation and remains that way. Only the

38 Theodor W Adorno, *Aesthetic Theory*, ed. Gretel Adorno and Rolf Tiedemann, trans. Robert Hullot-Kentor (London: Continuum, 2002), 33.

39 Fredric Jameson, “Progress versus Utopia, or, Can We Imagine the Future? [1982],” in *Archaeologies of the Future: The Desire Called Utopia and Other Science Fictions* (London: Verso, 2007), 289.

40 Jameson, 286.

41 Manfredo Tafuri, *Architecture and Utopia: Design and Capitalist Development*, trans. Barbara Luigia La Penta (Cambridge, Mass.: The MIT Press, 1979).

beginnings of a new society will make a true architecture possible again.”⁴² However, this statement belies other potentials in Bloch’s work, namely Bloch suggests that all cultural production contains an “anticipatory consciousness,” it contains something of its present circumstance, but always the bare traces of utopian potentiality.⁴³ He is not talking about abstract futures, but of a “not yet,” something that might usefully be described as a performative hope, a concrete prefiguration while still a wish. In short, he is describing a potentiality in the latencies of the moment, presupposing a contingency and an openness about historical progress at the same time he seems to reject the very possibility of such openness. As I contend at the end of chapter 1.1, other futures, or “cofutures” are not only described in SF, they have also become an impetus for practices that, while necessarily participating to varying degrees in global capitalism, also contain some of its undoing.

The kind of impasse that Bloch, along with the others, have identified depends on totalizing, monolithic, closed representations, both of capitalism and of architecture. However, the historico-material currents that have led global society to its present predicaments are only monolithic from the perspective that imagined them in the first place. The kind of negativity evinced by Jameson, for Levitas, “risks political evasion;” one assumes that it impossible to imagine a positive program of whatever scale and duration within Jameson’s negativity.⁴⁴ As Levitas argues, such strictures run counter to Bloch’s own idea of a utopian surplus in cultural production.⁴⁵ Instead, she argues that it is not only possible but necessary to see the work of imagining futures as a way of testing out alternatives to the present circumstances. Haraway also sees a similar possibility in a speculative practice; in contrast to the closure foreshadowed by the Suvin/Jameson axis, she writes: “That’s why none of the narratives of masculinist, patriarchal apocalypses will do. The system is not closed; the sacred image of the same is not coming; the world is not full.”⁴⁶

42 Ernst Bloch, *The Utopian Function of Art and Literature: Selected Essays*, Studies in Contemporary German Social Thought (Cambridge, Mass: MIT Press, 1988), 188–89.

43 Ruth Levitas, *The Concept of Utopia* (Bern: Peter Lang AG, Internationaler Verlag der Wissenschaften, 2011), 99–101.

44 Levitas, qtd. in: Tom Moylan, *Becoming Utopian: The Culture and Politics of Radical Transformation* (London, UK ; New York, NY: Bloomsbury Academic, 2021), 191.

45 Nathaniel Coleman, Ruth Levitas, and Lymon Tower Sargent, “Triologue,” in *Imagining and Making the World: Reconsidering Architecture and Utopia* (Oxford England ; New York: Peter Lang AG, Internationaler Verlag der Wissenschaften, 2011), 326.

46 Haraway, “Promise of Monsters,” 327.

For Kim Stanley Robinson, it is a moral imperative for SF to interrogate the future, at the least as a kind of future modelling exercise,⁴⁷ to probe the potentials and pitfalls of the historical moment, and of possible paths out of it. That is, even if the work cannot tell the future, one could still explore a space of possibilities, asking: all other things being equal, what might the consequences be if the author were to posit a change in one variable or another? Would this be ‘better’ and what could we mean by ‘better’? In Robert Markley’s biography of Robinson, he writes that Robinson is able to confront contemporary socio-political and ecological concerns in such away as to not only reveal ‘reality’s’ challenges, but also to “expand our imaginative ability to chart possible realities to come.”⁴⁸ In one example from Robinson’s own oeuvre, his recent novel *Ministry for the Future*⁴⁹ imagines that a series of extreme climate events force the United Nations to found a subsidiary body to advocate for the rights of future generations against the avarice of the present one. This thought experiment allows Robinson to imagine one—albeit fragile—hope for global, significant action on climate change.

As the example from Robinson might illustrate, rather than the vocation of SF to only allegorize and critique the present, there is something unique in the modality we call SF to represent things and relations to the reader that do not yet exist, to make them thinkable. Seo-Young Chu argues that, “SF is distinguished by its capacity to perform the massively complex representational and epistemological work necessary to render cognitively estranging referents available both for representation and for understanding.”⁵⁰ For Carl Freedman, himself following in the intellectual tradition of Bloch, Suvin, and Jameson, SF has a dialectical quality between cognition and estrangement, thus the capacity to escape the complete closure of representations, maintaining “fractional pre-illuminations” of possibility beyond what is known to the reader.⁵¹

47 India Bourke, “Kim Stanley Robinson: ‘What the Hell Do We Write Now?’,” accessed February 4, 2021, <https://www.newstatesman.com/kim-stanley-robinson-interview>.

48 Robert Markley, *Kim Stanley Robinson*, Modern Masters of Science Fiction (Urbana: University of Illinois Press, 2019), 6.

49 Kim Stanley Robinson, *The Ministry for the Future* (New York, NY: Orbit, 2020).

50 Seo-Young Chu, *Do Metaphors Dream of Literal Sleep? A Science-Fictional Theory of Representation* (Cambridge, Mass: Harvard University Press, 2010), 7.

51 Carl Freedman, *Critical Theory and Science Fiction* (Middletown, Connecticut: Wesleyan University Press, 2000), 80.

Levitas takes this one step farther, to attach an ethical significance to the possibilities within representations of future possibilities:

*“content, not just process, remains essential. It is, of course also essential that utopia embraces provisionality, reflexivity, and pluralism, and that utopians recognize the contingency of their hopes and desires. This is not incompatible with commitment, with taking responsibility in conditions where there can be no epistemological, moral or historical certainty. The effective synthesis of provisionality and responsibility may be the condition of keeping utopia open as a space in which to reach out to the real possibility of a transformed future.”*⁵²

When the future escapes the singular telos of Marxist historical progress, it no longer matters whether SF predicts the future, but rather what the surplus of futures in SF, from a diverse authorship, makes thinkable—consider the CoFutures outlined in Chapter 1.1. Moreover, as Levitas’ reading of Bloch reminds us, not only is speculation important, but given the small hopes nested inside every artifact of cultural production, we do it all the time.

Subjunction

In the discussion from Levitas and Robinson, there is a shift in language from future as a fact—in the strict binary logic of the indicative mode (is or is not)—to a verbal tense that conveys the sense of possibility, even of multiple possibilities:

*“in recent centuries we speakers of this lovely language have reduced the English verb almost entirely to the indicative mood. But beneath that specious and arrogant assumption of certainty all the ancient, cloudy, moody powers and options of the subjunctive remain in force. The indicative points its bony finger at primary experiences, at the things; but it is the subjunctive that joins them, with the bonds of analogy, possibility, probability, contingency, contiguity, memory, desire, fear, and hope: the narrative connection.”*⁵³

This passage from Ursula K. Le Guin reminds us of another of the facets of a speculative practice in the understanding of contingency encoded in the grammatical figure of

52 Ruth Levitas, “For Utopia: The (Limits of the) Utopian Function in Late Capitalist Society,” *Critical Review of International Social and Political Philosophy* 3, no. 2–3 (June 2000): 40, <https://doi.org/10.1080/13698230008403311>.

53 Ursula K. Le Guin, “Some Thoughts on Narrative,” in *Dancing at the Edge of the World* (New York, NY: Grove Press, 1997), 44.

the subjunctive mode, a verbal conjugation almost entirely disappeared from the English language, but present in the form of modal auxiliary verbs—may, might, could, or would. In a grammatical sense, the subjunctive is used to convey degrees of conditionality in a grammatical construction, as Le Guin writes—always more poetic and succinct than I am—the subjunctive mode carries “analogy, possibility, probability, contingency, contiguity, memory, desire, fear, and hope.”

Far from merely signaling a degree of non-reality or critical distance, the subjunctive is a core part of the speculative toolkit, both for the writer or the architect—it conveys not only what *is*, but also what *is possible*. SF creates a new image of thought that reshapes the reader’s experience of the world. In this sense, the subjunctive works very like estrangement, staging a relationship between the reader’s experience of the world and their experience of the text, but SF subjunction not only places contingency on the action of the text, it places contingency on the reader’s experience of their own reality by rewriting the terms of *that* fiction—the reader’s own reality is contingent in the face of the text’s contingency. As Delany writes: “in all the brouhaha clanging about these unreal worlds, chords are sounded in total sympathy with the real.”⁵⁴

Subjunction is also, according to Samuel Delany, the key concept for understanding how the language of SF differs from naturalistic fiction. According to Delany, the mode of communication characterizing the “word-beast” of SF storytelling is subjunctivity, but in a mode different than its expression in naturalistic fiction.⁵⁵ Rather than what ‘could have happened,’ the reader knows that the subjunctive in SF has not happened. Instead, “The particular subjunctive level of SF expands the freedom of the choice of words that can follow another group of words meaningfully; but it limits the way we employ the corrective process as we move between them.”⁵⁶ The reader of SF is asked to assimilate or ‘correct’ the language of SF according to what they know as possible of the physical universe. In this sense, Delany’s subjunction implicates the interpretive faculties of the reader, asking us to create

54 Samuel R. Delany, “About 5,750 Words,” in *The Jewel-Hinged Jaw: Notes on the Language of Science Fiction* (Middletown, Conn: Wesleyan University Press, 2009), 62.

55 Delany, “About 5,750 Words.”

56 Delany, 66.

things in our mind that a foreign to our experience. The example that Delany uses is a phrase from Heinlein: “the door dilated”—and we as readers need to twist our mind to imagine a door that can dilate.⁵⁷

As Seo-Young Chu argues, no word accurately describes the world, and while some words are familiar and have a high degree of mimesis, words like ball or cup, others operate on the fringes of meaning. She writes that SF language in particular works in this liminal space between mimetic representation and poetic surplus of language:

“Accordingly, SF is distinguished by its capacity to perform the massively complex representational and epistemological work necessary to render cognitively estranging referents available both for representation and for understanding”⁵⁸

This unique semantic surplus in science fictional language is not stabilized or resolved by the SF author, rather the language invites, perhaps coerces, the reader into co-creating the world of the work. Thus, the worlds of SF are not supplied by the author, they are created by the reader, and any encounter with the semantic surplus of language will by necessity invite such speculative engagements.

In a word, the specific contribution that a speculative disposition offers to architectural pedagogy is in how it invites new ‘thinkables.’ This is definitely true of works of SF, which present images to our brain of things that do not exist; in reading from SF, the *nova* do not remain empty signifiers, they come to exist as possibilities, but also become a ‘real’ image of thought for the reader. Following H el ene Frichot’s investigation of the image of thought from Gilles Deleuze and Isabelle Stengers, the new thinkable is not a new concept, but that which disturbs the existing categories of thought, with the possibility of liberating the thinker from their habits.⁵⁹ The unique possibilities of SF expressions challenge the reader to confront previously unthinkable thoughts, making new ‘thinkables’ available to the reader. That is, if the reader is engaged with the text, the *nova* exist for them as a new image of thought and a new system of relations, the tender shoots of a new worlding (in a

57 Delany also mentions a phrase like “her world exploded,” which could mean emotional turmoil in naturalistic fiction, but means quite another thing to Princess Leia on the deck of the Death Star. see: Samuel R. Delany, “The Semiology of Silence: The Science Fiction Studies Interview (1987),” in *Silent Interviews: On Language, Race, Sex, Science Fiction, and Some Comics* (Hanover, NH: Wesleyan UP, 1994), 26.

58 Chu, *Do Metaphors Dream of Literal Sleep?*, 7.

59 Frichot, *Creative Ecologies*, 12, 149–50.

Deleuzian terminology, a plane of consistency), where the reader is able to cultivate new concepts for themselves. As we will see, Frichot’s thinkable is not only useful for its synthesis of previous philosophical work, but also because of her discussion of how these emerge from specific, situated encounters between subjects and spaces—“environmentalities.”⁶⁰

Earlier in the present work, I make the distinction between reading and writing SF. I have also outlined ways in which reading SF can be productive for architects and students of architecture—the worlds encountered through the *novum*, and the critical affordances created by estrangement with that world. However, as we briefly outlined, because of the semantic surplus in SF language, reading works of SF always involves the reader in co-creating SF—they do not share the speculative thoughts of the author, they become speculators themselves. Therefore, reading SF is very literally one mode of making SF, and it is this possibility which I have leveraged in the experiments which read from SF literature, as a way to stimulate new ‘thinkables.’ In addition, however, if we understand making architecture as a mode of SF practice, the semantic surplus in speculative expressions has additional affordances for an architectural practice.

As one way to develop the discussion of what I have called SF’s semantic surplus, we turn to Carl Freedman’s reading of Mikael Bakhtin, for whom novelistic language is characterized by a kind of “heteroglossia.” In novelistic language, for Freedman SF language in particular, signs are polyvalent in discourse. These signs are not stable, but rather are social forms containing, because of their sociability, what Freedman⁶¹ calls an “irreducible multiaccentuality”—signifiers do not have a single meaning, they have a field of meaning that emerges from social negotiation in and with the text. This is something that Freedman notes especially of the prose of Philip K. Dick, where the estrangements of the work not only happen at the level of the plot, but also in the “molecular” operations of language—the neologisms, or strange combinations of words, such as “I’ll consult my dead wife,”⁶² all invite the creativity of the reader together with the author.⁶³ Thus, though the reader might stabilize an image of thought for themselves, the signifier, *novum*, or concept is still in dialogue with other interpretations. As long as the concept is in ‘play’ it remains open to mutation. For

60 Frichot, 29–31.

61 Freedman, *Critical Theory and Science Fiction*, 38.

62 Dick’s *Ubik* (1969) is quoted in: Freedman, 38.

63 Freedman, 36–41.

Freedman, SF is a privileged form of such dialogism, if not the only form, but it is especially important within the pedagogical frameworks we encounter later that this multiaccentuality remain: not only that the reader co-creates with the author, but that *different readers* will make different worlds of the same text.

It may be strange to suggest there is or could be some dialogic multiaccentuality at work in architecture. While SF might revel in semantic surplus, the object of most (but not all) forms of architectural representation is to limit the speculative interpretations of the reader. While it is true that some will read a plan with attention to its specificities, I would argue a speculative reading of these representations is also possible. Certainly, this is the core of Tschumi's argument in suggesting that uses of a building will always supersede the imaginations that an architect has for a space or for a drawing.⁶⁴ That is, can one *read* an orthogonal drawing, perhaps even a BIM model, speculatively, *as* SF, not for the spaces they represent, but for the lives and futures they may house and nurture or which we might imagine into them? I'd suggest that the critical faculty by necessity inhabits the drawings in exactly this speculative manner, reading them as SF for the futures they may invite.

It is in this sense that the subjunctive encounter in speculative thinking is both available to architecture *from* SF—we read possibilities in SF, but also supplied to architecture *by* SF—that is, as an interpretive protocol in reading architecture as SF, and in welcoming a speculative engagement with our own work as architects. All of which, if we are the creator, are modes of inviting and challenging the reader to speculate with us, or if we are the reader, are ways of reading which can produce a speculative encounter with a building, a drawing, with the figure of the architect, with the discipline, and with our pedagogy. In every case, the critical heteroglossia afforded by a speculative disposition becomes a powerful way to disturb any monologic discourse within the architectural project towards disciplinarily promiscuity, and within normative, hegemonic futures that perpetuate an unworkable present. A speculative disposition sees the discipline and the future itself as contested spaces open to perpetual (re)definition not only by the author of the text but also all those readers who—in speculating—take *authority* over the texts we produce.

Speculative Inquiry

Michel Foucault:

64 Bernard Tschumi, *Architecture and Disjunction* (Cambridge, Mass.: The MIT Press, 1996).

“I can’t help but dream of the kind of criticism that would try not to judge but to bring an oeuvre, a book, a sentence, an idea to life; it would light fires, watch grass grow, listen to the wind, and catch the sea foam in the breeze and scatter it. It would multiply not judgements but signs of existence; it would summon them, drag them from their sleep. Perhaps it would invent them sometimes — all the better... I’d like a criticism of scintillating leaps of the imagination. It would not be sovereign or dressed in red. It would bear the lightening of possible storms.”⁶⁵

This section argues that architecture’s engaging with the world, like the work of the author of speculative fiction, has various allied figurations in contemporary philosophy wherein speculation is revealed as principle mode of engaging with the world as it *is* as much as with the world as it *could be*. So far, I’ve argued that we might productively understand a practice in architecture on the model of Ursula K. Le Guin’s “carrier bag” author of feminist SF. This model is not a singular model but one which invites the author of SF to cultivate their own practice, drawing on their own interests and experiences of the world. A carrier bag theory of architecture sees each architect traverse a broad field of knowledge, cultivating their own individual practices and forging alliances—sometimes with each other or with other disciplines—all the while expressing more diverse possibilities for the future. In answer to Donald Schön’s still influential characterization of the practice of architecture as ‘reflection in action,’ we will look at other models of intellectual inquiry, the *concepts* of Deleuze and Guattari’s philosopher in *What is Philosophy?*, and the discourse around “speculative inquiry” in philosophy and criticism, to use Maggie MacLure’s term for this discourse.⁶⁶

This question of whether architectural practice can be critical or whether it should be projective echoes debates from the mid-2000,⁶⁷ where some commentators argued for a ‘projective’ engagement with society. As Heynen so clearly points out, however, this distinction rests on an extremely narrow definition of ‘critical’ with reference only

65 Michel Foucault, “The Masked Philosopher,” in *The Essential Foucault: Selections from the Essential Works of Foucault, 1954-1984*, ed. Paul Rabinow and Nikolas Rose (New York: The New Press, 2003), 176.

66 Maggie MacLure, “The ‘New Materialisms’: A Thorn in the Flesh of Critical Qualitative Inquiry,” in *Critical Qualitative Inquiry: Foundations and Futures*, ed. Gaile Sloan Cannella, Michelle Salazar Pérez, and Penny A. Pasque (Walnut Creek, CA: Left Coast Press, Inc, 2015), 93–112.

67 see Baird’s helpful survey of the discussion: George Baird, “‘Criticality’ and Its Discontents,” *Harvard Design Magazine* Rising Ambitions, Expanding Terrain: Realism and Utopianism, no. 21 (2004): 16–21.

to critical practices which argued for the autonomy of the discipline to the exclusion of other conceptions of critical practice.⁶⁸ Heynen argues for an expanded definition of critical—one that aligns more closely with Carl Freedman’s understanding of critical theory⁶⁹ as taking the whole world as its object. Heynen closes with an appeal for a “transformative” architectural project which contains both critical and utopian dimensions,⁷⁰ closely corresponding with Ruth Levitas’ *Utopia as Method*, and its simultaneous critical and projective, or “archeological” and “architectural” modes. It is in this sense that the discourse of speculative inquiry might begin to enlighten not only that architects *can* or *should* be simultaneously critical and project, but also how they might *do* a speculative practice.

Donald Schön’s “reflexive practitioner,” despite significant methodological difficulties,⁷¹ remains an influential model for how an architect *does* architecture.⁷² This model, which uses the practice of architecture as an exemplary case, suggests that the core activity of professional work is not strictly about the application of specific knowledge, but rather an improvisational ability to navigate the complex territories of a professional practice. What is often forgotten in discussions of Schön is how his model is not intended as a model for architectural education,⁷³ nor it seems for an architectural practice, but rather merely as a demonstration of reflection-in-action—an ability to practice while maintaining a critical or thoughtful attitude towards that practice. Nevertheless, because of its continued influence, we take it as a starting point for a discussion of what’s happening when we *do* architecture.

Philosopher Sverre Raffnsøe argues that any intellectual practice, since the Enlightenment, is not unreflexive and that an attitude of criticism is a defining feature of western thought. It is not correct, he argues, to characterize a practitioner

68 Hilde Heynen, “A Critical Position for Architecture,” in *Critical Architecture*, ed. Jane Rendell et al., 48–56 (London ; New York: Routledge, 2007).

69 See my brief discussion in Chapter 1.2, note 53.

70 Heynen, “A Critical Position for Architecture,” 55.

71 Helena Webster, “Architectural Education after Schön: Cracks, Blurs, Boundaries and Beyond,” *Journal for Education in the Built Environment* 3, no. 2 (December 2008): 63–74, <https://doi.org/10.11120/jebe.2008.03020063>.

72 Donald A. Schön, *The Reflective Practitioner: How Professionals Think in Action* (New York: Basic Books, 1983).

73 Donald A. Schön, *Educating the Reflective Practitioner: Toward a New Design for Teaching and Learning in the Professions*, The Jossey-Bass Higher Education Series (San Francisco, Calif.: Jossey-Bass, 1987), 282–83.

as being unaware of their presuppositions, while an outside observer might maintain a critical distance to uncover the hidden mechanisms governing a specific practice—the critic is not in a privileged position to the creator. Instead, he argues, the modern world is characterized by an attitude of critique, it is demanded by social norms: “I myself am at stake in this conception of myself as a modern self that must establish a critical relation to myself;” that is, the very subjectivity of the practitioner is constituted by their ability to form constructive critique.⁷⁴ So the question is not whether architectural work is reflective. If, as Raffnsøe argues, all intellectual pursuit is reflexive, the ability to reflect on one’s actions is integral to the construction of the modern subject, and thus the paradigm of the reflective practitioner is not enough to describe what is happening when we make architecture.

Schön’s *Educating the Reflective Practitioner*⁷⁵ reproduces a conversation between tutor and student over the students’ work. In this case, the architect Quist is drawing on top of Petra’s, the student’s, drawing, talking through some of the considerations at stake in the massing of Petra’s project. Here, Quist is enacting a kind of knowledge which pulls out aspects of the world as anchors for the decisions he must make—structural and material behaviour, site conditions, organizational schema, his experience of prior projects. What Schön seems to be describing is the judicious, perhaps improvisational, application of specific knowledge in a feedback loop scenario, where an architect makes a design gesture, and then is able to judge the appropriateness of that gesture from a relevant set of perspectives. However, the question is not, does an architect reflect-in-action. Of course they do. The question is more about how an architect might be able to acquire, synthesize, sort and utilize appropriate knowledge in a design exercise. As well as not describing the extent to which such transversal knowledge is activated, Schön also does not seem to capture the extent to which Quist’s actions and judgements are guided as much by expert knowledge as by an intimation of potentialities inside the object being designed.

Schön also misses the ways in which Quist’s knowledge is situated, not as an expert, but from specific situated and subjective knowings; the way Quist’s subjectivity is activated and indeed changed by his presence in and engagement with the design activity—that Quist is not arriving at the ‘right’ solution so much as negotiating one

74 Sverre Raffnsøe, “What Is Critique? Critical Turns in the Age of Criticism,” *Outlines - Critical Practice Studies* 18, no. 1 (2017): 34.

75 Schön, *Educating the Reflective Practitioner*.

of multiple possibilities inside the scope of the project.⁷⁶ Even here, Quist is not only reflecting, he is in the active practice of creating and re-framing knowledge, a gesture—perhaps of hope—towards a world that does not exist. To reduce architectural practice to a kind of reflection is a misconstrual of a simultaneous process which reflects on the object on one side, but on the other might be characterized as a kind of interrogation of the possible. I would like to suggest that ‘reflection-in-action’ only captures a smaller portion of a type of speculative inquiry that is simultaneously speculative and critical, and which finds an ally in the author of SF.

Echoing Foucault at the top of this section, Bruno Latour asks, “why has critique run out of steam?” after the fervour of enlightenment critique, which seemed excellent at debunking the knowledge claims, but did not fare as well when its tools were turned upon itself. Rather, Latour is looking for a different form of critique:

“Can we devise another powerful descriptive tool that deals this time with matters of concern and whose import then will no longer be to debunk but to protect and to care...? Is it really possible to transform the critical urge in the ethos of someone who adds reality to matters of fact and not subtract reality?”⁷⁷

Eve Sedgwick carefully marks a distinction between paranoid and reparative critique.⁷⁸ Sedgwick elaborates paranoid reading from Paul Ricoeur’s discussion of “hermeneutics of suspicion,”⁷⁹ an attitude that centralizes paranoia as the only appropriate scholarly disposition to such a degree that has come to seem to define criticism itself, precluding other, alternative positions for theoretical practice. These paranoid practices often engage in a type of criticism which sees the object of analysis as obscuring the truth, and whose job it is to reveal or demystify these obscurities. While these suspicious dispositions and such “protocols of unveiling” might be familiar from a range of cultural studies, Sedgwick suggests that they preclude other

76 I am aware that this is a generous interpretation of Schön’s teacher of architecture, and it is also critical that we consider the overlapping fields of power relations in Schön’s anecdote, in particular, the representation of teacher as master, and as model for the discipline, especially in the genders of the participants.

77 Bruno Latour, “Why Has Critique Run out of Steam? From Matters of Fact to Matters of Concern,” *Critical Inquiry* 30 (Winter 2004): 232.

78 Eve Kosofsky Sedgwick, “Paranoid Reading and Reparative Reading, or, You’re so Paranoid, You Probably Think This Essay Is About You,” in *Touching Feeling: Affect, Pedagogy, Performativity* (Durham: Duke University Press, 2003), 123–51.

79 Sedgwick, 124.

modes of scholarly engagement with the world, in particular the act of reparative reading.⁸⁰ A reparative reading does not see the analyst outside of cultural practices, but their reading from within and together with their object can have them act with and upon their object:

“the desire of a reparative impulse, on the other hand, is additive and accretive... it wants to assemble and confer plenitude on an object that will then have resources to offer to an inchoate self.”⁸¹

Sverre Raffnsøe expands on Sedgwick’s discussion of Ricoeur’s ‘hermeneutic of suspicion.’ He argues the substance of critique since Kant has been unfairly characterized as a pure negativity. In contrast however, he cites Heidegger on the object of Kant’s critique: “to lift out what is special.”⁸² Raffnsøe continues:

“what appears as crucial for and is affirmed in the critical judgment is not the factual or the counter-factual but instead another very real and momentous aspect of the world: the virtual...something that is on its way and makes itself felt as it exercises a guiding or piloting role, affecting and working through what is presented.”⁸³

“Something that is on its way.” What is this something? A new knowledge, a new thing, a possibility, a new assemblage assembled from the contents of the critic’s—or our architect’s—carrier bag and in dialogue with their position.⁸⁴ In this sense, both Sedgwick and Raffnsøe argue that the work of critique is not in opposition to the ‘project,’ but an active engagement with the world in order to draw “something” out of a multifaceted world.

80 Sedgwick, 143.

81 Sedgwick, 149.

82 Raffnsøe, “What Is Critique?” 44.

83 Raffnsøe, 45.

84 In using the figure of the critic, I am constructing a figure that aligns with Deleuze and Guattari’s conceptual persona of the philosopher. Deleuze and Guattari describe 3 conceptual personae: the philosopher, the artist, and the scientist. These do not refer to any specific disciplines so much as ways of engaging with intellectual inquiry. At times, then, the subject of the architect – as all subjects – emerges from and is constituted by all three, creating concepts, sensations, and figures of knowledge out of chaos. Thus, that the work of critique or philosophy, like art and science, is already creative and projective is also affirmed by Deleuze and Guattari. However, in order to avoid piling metaphor on top of metaphor, we preserve the situated subject, engaged in a specific, creative and co-constitutive engagement with their environment that we find in Haraway. See: Deleuze and Guattari, *What Is Philosophy?*

As Donna Haraway reminds us, there is no possibility that objects of knowledge might be captured and revealed whole. The ontological condition she describes sees any object as necessarily hybridized or chimeral—any object of knowledge exists simultaneously as material, as social discourse, within the ‘knower’s’ imagination, and even as “fiction.”⁸⁵ Much more recently Haraway describes such entanglements by describing the myriad creatures, both mythic and real, inhabiting the “chthulucene.” Invoking the Greek “‘chthonios,’ meaning of, in, or under the earth,” rather than the tentacular monster of Lovecraftian horror fiction, Haraway reminds us again of the material, discursive, multi-species becomings who reject easy categorization within anthropo- or capital-centric modes of analysis, and who instead are concerned with the flux of “biotic and abiotic powers” in localized becomings.⁸⁶ The recognition and articulation of such differences and frictions creates modes of ethical practice across formerly discrete categories—modes of “hybrid” practice that move across this new fluid terrain. Sedgwick again :

“Hope, often a fracturing, even a traumatic thing to experience, is among the energies by which the reparatively positioned reader tries to organize the fragments and part-objects she encounters or creates. Because the reader has room to realize that the future may be different from the present”⁸⁷

That is to say, the critical engagement with the world, much like the polyvocal encounter of the reader with the SF text, actively constructs the world, and as Sedgwick notes, actually ‘repairs’—recombines and mends—the formerly discrete categories into workable futures. While Suvin’s negative critique only attempts to describe the limits of the known and reflect it back upon the present, this does not explain how SF or architecture might introduce oppositions, alternative worlds, and possibilities beyond the present. But knowledge is not a monolith, and what is “known” is known only partially, and so like SF, speculative inquiry—in critique or as architecture—takes the critique beyond those limits, to introduce new science fictional ways of knowing the world by re-making the world as fiction.

85 Donna J. Haraway, *Simians, Cyborgs, and Women: The Reinvention of Nature [1991]* (London: Free Association Books, 1998), 149-150.

86 Donna J. Haraway, *Staying with the Trouble: Making Kin in the Chthulucene* (Durham: Duke University Press Books, 2016), 55.

87 Sedgwick, “Paranoid Reading,” 146.

Worlding & Futuring: Utopian Practice

“If thought searches, it is less in the manner of someone who possesses a method than that of a dog that seems to be making uncoordinated leaps.”⁸⁸

In the present impasse, epistemological models which privilege discrete, positivistic knowledge are not equipped to handle the hybrid crises of our time, synthetic ways of knowing are necessary. The scholarship around speculative inquiry proposes several different figures as a way to describe the kind of inquiry which navigates the complex heterogeneities that characterize post-human knowledge territories. Among other esoteric practices, Maggie Maclure describes speculative inquiry as a kind of divination,⁸⁹ simultaneously evoking the inspiration of the prophet, the experimentation of the alchemist, and the lonely figure with the forked rod searching the desert for water. Donna Haraway proposes “string figures” or “weaving” as an image of “tentacular thinking,” string figures sharing the acronym SF with science fiction, speculative feminism, science fantasy, speculative fabulation, and science fact.⁹⁰ This process of weaving ties together otherwise disparate knowledge territories into contingent and active knowing processes. Weaving reveals the specific situated knowledge of the weaver, also acknowledges their place inside of a specific terrain, from a specific perspective, rather than the illusion of the impartial, objective analyst.⁹¹ Each of the experiments in this book is some small example of such a speculative practice, each situated in specific orientation to the discipline and its pedagogy.

We return now to the concept of worlding, a figure we already visited in the chapter on the *novum*. In that chapter, we started from Haraway’s reminder that stories are never innocent, that “stories make worlds and worlds make stories.”⁹² In a parallel of SF world building, the authorial process of developing the environment relevant to a story, the action of worlding defines the scope and territory of this processes as it brings a new image of the world into being, in SF never just about an imagined

88 Deleuze and Guattari, *What Is Philosophy?*, 55.

89 Maggie MacLure, “Inquiry as Divination,” *Qualitative Inquiry*, July 5, 2020, 1–10, <https://doi.org/10.1177/1077800420939124>.

90 Donna J. Haraway, *Staying with the Trouble: Making Kin in the Chthulucene* (Durham: Duke University Press Books, 2016), 10, 32.

91 Haraway, *Simians, Cyborgs, and Women*, 189.

92 Donna J. Haraway, *Staying with the Trouble: Making Kin in the Chthulucene* (Durham: Duke University Press Books, 2016), 12.

world, but also a way of looking at our own world differently. Bringing this figure back in this chapter we recognize that this action has (at least one) agency behind it. In the context of defining a practice, how does a prospective architect (or researcher) define—both for themselves and to share with others—a field of architectural operations?

As always, the gerundal suffix ‘-ing’ is important. Worlding is ongoing, it is generative—here, there is no final construal of the world or of a practice. What is a worlding practice? What is worlding a practice? These questions are one and the same. Construing a practice is always construing a world, the prospective architect chooses what to look at, who to value, what objects to place in their carrier bag. It is useful to think with Donna J. Haraway’s situated knowledges⁹³ here—a reminder that such storytelling is not the mere spinning of another fiction from thin air, nor does it proceed from any febrile relativism. In this essay, Haraway argues both against social constructivism, but also against the ‘god trick’ of imagining that the privileged perspective of western, male, ‘rational’ science is in any way objective or impartial. Instead, she reminds us that our politics and epistemologies are both the result of embodied positions and optical devices—where we are and how we look. Claims to knowledge, then, are constructed from specific bodies—of diverse genders, races, abilities, and cultural backgrounds.⁹⁴

An inclusive practice in architecture would recognize the subject (both of architecture and of the architect) as an unbounded field, an ill-defined territory of knowledge, but also, that *any* construal of that field is necessarily partial. As the prospective architect begins their journey, they are helped along with their tutors as guides, but their positions do not start at the same space, and never completely align. Each journey, then, reconstructs the field of knowledge anew, each a small worlding offering a new insight into what the practice of architecture can be.

In their final collaboration *What is Philosophy?*, Deleuze and Guattari describe the importance of a speculative disposition for a practice in philosophy.⁹⁵ In this work,

93 Donna Haraway, “Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective,” *Feminist Studies* 14, no. 3 (1988): 575–99, <https://doi.org/10.2307/3178066>.

94 Vision is a potent metaphor for Haraway; in the territory of knowledge, each position affords its own unique perspective, and each can be augmented with optical devices—a microscope, the camera atop NASA’s Perseverance on Mars, or other more metaphorical optical devices to see and think with.

95 The conceptual personae of philosopher is contrasted with the scientist and the artist. While these are distinct ways of knowing afforded by different images or cultures of thought, it would

they describe how knowledge is not given from the world, but constructed in the ways the philosopher chooses how to segment experience, what to include and exclude in the creation of concepts. In this way, speculation is not “a dream,” it is the the method by which all concepts are created, the philosopher creating the world in which the concept might be able to emerge—in their specialized vocabulary, the concept emerges from its milieu on the plane of consistency. In his preface to *Difference and Repetition*, Deleuze even declares that this practice in philosophy is “in part a kind of science fiction” in that the philosopher writes “at the frontiers of our knowledge, at the border which separates our knowledge from our ignorance and transforms one into the other.”⁹⁶ Deleuze and Guattari also identify this kind practice as “utopian,” and this is where it becomes important for thinking about how architects speculate with things in the world. It is utopian in that, like Haraway’s worlding, the creation of new concepts by necessity needs to redescribe its milieu, resulting in a “new earth,” and a “people-to-come.”⁹⁷

Ronald Bogue finds an ally for Deleuze and Guattari’s utopian disposition in Octavia Butler’s Parable series in her chronicling a ‘people to come.’ The first novel, *Parable of the Sower*,⁹⁸ takes place amongst the collapse of the final stages of the collapse of American society—in no small coincidence on the author’s part, brought about by climate change, wealth inequality and corporate greed, racial segregation, and religious fundamentalism. In the midst of this collapse, central character Lauren Oya Olamina develops a new belief system called Earthseed, the fundamental tenant of which is “god is change,” and looks past the character’s present to imagine humanity’s future destiny in the stars.

The first novel follows Lauren as she is forced from her home in Southern California, and while fleeing north, begins to collect a community of people for mutual support and protection. Eventually, these people settle in the first Earthseed community in

be a mistake to conflate these personae with the protocols and practices of these disciplinary silos. Rather, the act of producing knowledge – especially in a post-discipline such as architecture – dons each of these roles in some way, even joined in monstrous chimeras. “Philosophy, art, and science are not the mental objects of an objectified brain,” they write, “but the three aspects under which the brain becomes subject...”. Therefore, when I bring up philosophy here, I’m suggesting that this is a characterization of thinking in general, which may be productively leveraged by the architect. Deleuze and Guattari, *What Is Philosophy?*, 210.

96 Gilles Deleuze, *Difference and Repetition* (London: Athlone Press, 1994), xx, xxi.

97 Deleuze and Guattari, *What Is Philosophy?*, 99, 109.

98 Octavia E. Butler, *Parable of the Sower*, (1993) (New York: Grand Central Publishing, 2000).

a corner of northern California, a place they call ‘Acorn.’ The second novel of the unfinished trilogy⁹⁹ sees the near collapse of Acorn before the eventual growth of Earthseed’s influence. The novel ends watching the launch of a starship as it leaves Earth to settle Alpha Centauri. The new belief system helps to locate and inspire new ways of being and relating to one another, to imagine a future beyond the very real difficulties that Lauren and her community face: “The Destiny of Earthseed is to take root among the stars.” Bogue remarks upon the character’s creating the community around Earthseed, prefiguring the people who will be able to emerge, and encouraging the already small community to follow its own image of the world: “each novel is an experimentation, an investigation of the possible outcomes of becoming-other and thereby creating a people to come. As experimentation, each novel introduces a protocol, a means of providing reference points. For an experiment which exceeds our capacities to foresee.”¹⁰⁰

Although they write that utopia, given its “mutilated meaning” in practice, isn’t the right word,¹⁰¹ as Michael-Matsas writes,¹⁰² Deleuze and Guattari’s conception of utopia aligns closely with Ernst Bloch in rejecting the absolute or transcendent utopia and preferring to characterize their utopia as immanent. Unlike Marx and Engel’s ‘scientific’ disdain for the utopian socialists,¹⁰³ Deleuze and Guattari appreciate the 19th century figures in their “production of desire.” While as political models the dreams of Fourier or Bellamy may no longer hold much relevance, their valence for their period, and still for the present is in their capacity to stir revolutionary action and passion. In this way, the speculative practice of utopia is a perpetual practice of refusal and renewal. This posture underscores a utopia as a practice and as practical—as a practice in its perpetual unbecoming of the milieu it finds itself in, and practical in its interaction with its socio-political situation, that is, its imminence—as Deleuze and Guattari write, utopia is philosophy in interaction with the political realities of its given milieu: “utopia is what links philosophy with its own epoch.”¹⁰⁴ Thus,

99 Octavia E. Butler, *Parable of the Talents*, (1998) (New York: Grand Central Publishing, 2019).

100 Ronald Bogue, “Deleuze and Guattari and the Future of Politics: Science Fiction, Protocols and the People to Come,” *Deleuze Studies* 5, no. supplement (December 2011): 95, <https://doi.org/10.3366/dls.2011.0038>.

101 Deleuze and Guattari, *What Is Philosophy?*, 100.

102 Savvas Michael-Matsas, “A Utopia of Immanence: Revolution in Deleuze and Guattari,” *Deleuze Studies* 10, no. 3 (August 2016): 293, <https://doi.org/10.3366/dls.2016.0227>.

103 Levitas, *The Concept of Utopia*, 41–69.

104 Deleuze and Guattari, *What Is Philosophy?*, 99–100.

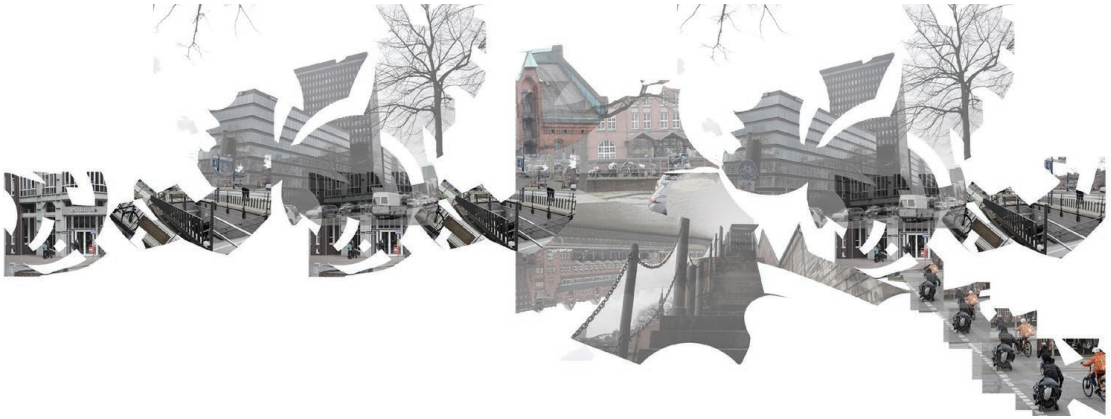


Figure 1.3.1- Lucia Garcia de la Peña, from “The Life of Brian” (2020)

the appropriate disposition for the figure of the speculative architectural practice is a posture or persuasion of constant revolution while still engaged within a specific milieu. This figure is not a fixed master of a static domain, but a drifter roaming the terrain in constant search of things to place in their carrier bag.

It is most serendipitous that Lucia Garcia de la Peña supplies us with just such an image of the architect in her project for Parasite Studio.¹⁰⁵ The project takes up not only an imagined client in an imagined world, but also sees the construal of a mode of practice which resituates her own emerging practice as an architect—worlding a project and worlding a practice. Garcia’s project starts with the observation and mapping of a homeless person as they negotiated the streets of Hamburg with their belongings [fig. 1.3.1]. Garcia did not propose to house this person inside a normative model of social housing. Rather, she understood this person’s lifestyle as speaking to an increasing precarity around housing and ownership of city space—and made this person the architect.

Her figure of the architect in the project was a bicycle food delivery person named Brian, and Brian is the conceptual persona or optical device that allowed her to see and describe the city of Hamburg differently than her own experience might allow. Her project is described as her record as she tries to follow the ‘architect’ Brian, who has constructed a ‘home’ in Hamburg by reading the city for moments in-between other inhabitations—a doctor’s office becomes a space for prayer and contemplation and the subway becomes a “theatre of disappearance”—a place to clean oneself as the most public place becomes a place where people are most likely to turn away [fig 1.3.4]. Garcia constructs a world with the project, a way of reading a contemporary city from the very specific viewpoint enabled by the ‘optical device’ offered by the

105 See Chapter 2.6.

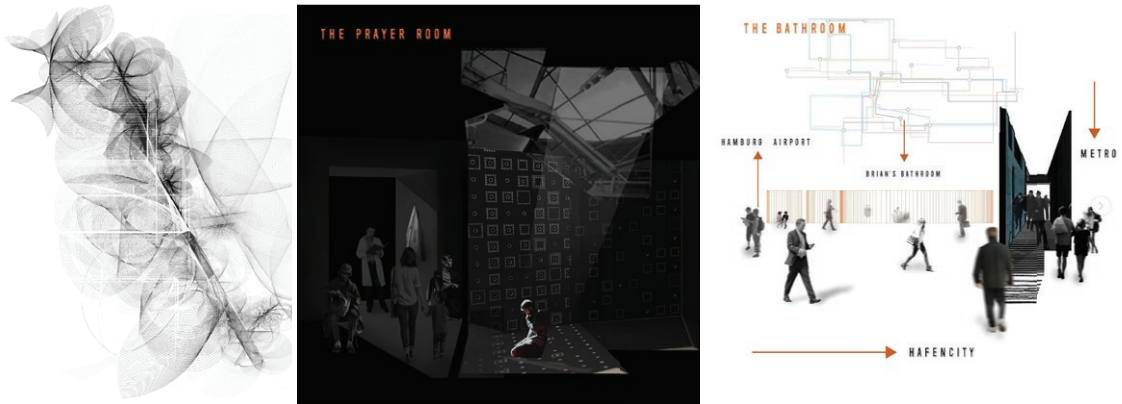


Figure 1.3.2-4 - Lucia Garcia de la Peña, from “The Life of Brian” (2020)

character she created—a character, it must be said, who is also traversing a strange territory with his carrier bag along. This worlding does not recreate the world so much as reveal the existing world as wholly changed simply by the shift in perspective.

There is an additional layer in the project as the work of the architect is here understood as attentive to vastly different phenomena than might otherwise be discovered—Garcia is attentive to the quality of already existing spaces, but in very specific social, cultural, economic and temporal mode; It is the quiet moment and quality of light in the existing office that makes it a space for prayer, it is the busy metro that makes it a bathroom. As well as the worlding implicit in constructing an image of the city for the project—an SF worldbuilding, Garcia undertakes other worldings: first, where the persona of the architect is revealed as collecting impressions and valuations of the city that would be strange to those in an average practice, and second, where Garcia subjects herself to a re-appraisal of her own practice in relation to new subjectivities uncovered in the project.

Finally we return to the carrier bag, a figure Haraway also takes up in her own work.¹⁰⁶ Haraway reminds us that not only does the carrier bag narrative shape its carrier, but it becomes an instrument for sharing, for trading in seeds or stories. In this way, the carrier bag narrative is not turned towards singular telos, but the *sympoietic* becoming of multiple earth others—the stories we share with one another.¹⁰⁷ Haraway is an example of a practice in imagining worlds with and as SF. In some cases she becomes the storyteller, not least in SF figure of the cyborg,¹⁰⁸ or in the Camille stories which

106 Haraway, *Staying with the Trouble*, 119.

107 Haraway, 125.

108 Donna J. Haraway, *Simians, Cyborgs, and Women: The Reinvention of Nature* [1991] (London: Free Association Books, 1998).

close her latest book, telling the story of multispecies becoming between cloned generations of Camille and their role in nurturing monarch butterflies as one of the children of compost who are working towards multi-species flourishing.¹⁰⁹

Haraway has also often acknowledged her debt to SF in reading from works from a variety of authors, or to put it more exactly, works of SF become her companions as both Ursula K. Le Guin's *Acacia Seeds* and Octavia Butler's *Earthseed* join her in exploring how different worldings might be cultivated.¹¹⁰ In one instance, John Varley's short story "Press Enter" (1986) helps illustrate how the misogynistic, racist treatment of the protagonist in the story helps illustrate how SF not only narrates a story, but in fact invites a reader to begin to recombine elements of the story, to re-read and speculate with SF:

*"SF conventions invite—or at least permit more readily than do the academically propagated, respectful consumption protocols for literature—rewriting as one reads... Most of the SF I like motivates me to engage actively with images, plots, figures, devices, linguistic moves, in short, with worlds, not so much to make them come out "right," as to make them move "differently." These worlds motivate me to test their virtue, to see if their articulations work—and what they work for."*¹¹¹

In both of these examples, Haraway is thinking *with* SF, illustrating how a speculative disposition invites encounters with other storytellers. The stories told by those holding the carrier bag are not singular, they invite *sympoiesis*—while every individual worlding practices is necessarily partial, far from depriving them of objectivity, it is the only position with the possibility of objectivity, as long as the conceit of western, 'rational' 'objectivity'—the "god trick"—is disallowed.

Haraway's situated worlding includes the possibility of building alliances, of construal of shared world-spaces, of telling stories together—with broad implications for a practice of architecture and architectural education—who we chose to encounter, to listen to and in what circumstances, and how we chose to imagine a world together. Though each practitioner is in their own place, each also has their story to tell—Frichot reminds us that the process of worlding is co-constitutive with one's milieu

109 Haraway, *Staying with the Trouble*, 134–68.

110 Haraway, 118–25.

111 Haraway, "Promise of Monsters," 326.

and with other subjects: “worlding is entanglement and generative interruption, where I am startled out of my self-centered subject position by responding to some other.”¹¹²

As we proceed upon “science fictioning” architectural pedagogy, it is important to bring along the elements of a speculative “carrier bag” practice in architecture that we have outlined so far. A speculative practice in architecture is a perpetual (re-)construction of the discipline remembering how porous the borders of ‘architecture’ are. It maintains an attitude of possibility, not risking the closure of the discipline. It is polyvocal, attentive to its own situated perspectives and how these might be augmented by listening to other stories and in symposiums—in telling stories together. It is critical, but in such a way as to build new knowledge, to open up new possibilities, and to find new ethical operations within the continued practice—though never realization—of utopia.

On A Speculative Research Method

If this chapter has been about introducing how architectural practice might align with speculative methods in SF storytelling and in philosophy, it has also been something of a defence of the writing process within this project. The project itself is a speculative assembly from a wide range of scholarship, and concepts are introduced, mutated, conjoined to ask what might become of them and how they might fit together. This mode of scholarship does not adhere strictly to any specific disciplinary framework and as such, relies on methods cultivated within and through interdisciplinary perspectives. As such, the project relies on research methods such as ficto-criticism, auto-theory, and speculative interdisciplinary research. The project also relies on writing as a method, as a mode of bringing the seemingly incongruous aspects of the project together through a form of weaving. These modes of scholarly research are usually expressed in writing—often in the critical humanities. However, as my project bridges both writing and making, I believe that these methods have strong significance to already-existing practices in the qualitative methods variously known as research-through-design or practice-based research. In a manner of speaking, as Liddicoat already argues that ficto-criticism may be translated across multiple modes of expression,¹¹³ we might be able to speak of practice-based research as a form of multi-modal auto-theory and of speculative research.

112 Frichot, *Creative Ecologies*, 33.

113 Stephanie Liddicoat, “Writing the Client: The Role of Fictocriticism and Prose Fiction in the Architectural Design Studio,” *Higher Education Research & Development* 38, no. 1 (January 2,

As a mode of writing and of research inquiry, this project is speculative by nature. It must be said that as much as a speculative methodology is pursued and described in the practice-based experiments of the project, it is also pursued in the writing of the project—the project aims to describe a methodology which it is itself following. If I should hazard a preliminary proposition, if making architecture is like making science fiction, making architectural theory is also like making science fiction, and so some of this speculative method is contained within the writing. In this way, writing is its own mode of inquiry, in methods adapted from qualitative research traditions;¹¹⁴ the thoughts here contained do not precede their being set down, but are rather assembled and moulded as I pursue the process of writing and re-writing and so my reader encounters an “experiment in process,”¹¹⁵ an experiment in which I by necessity move between multiple perspectives, roles, and modes of practice, with each one supplementing—and often confusing—the others. Thus composing the present text is a record of the research being enacted and set down, not a written record of thoughts thought or phenomena observed elsewhere.

Largely, in the mode of other interdisciplinary research, I do not aim to correlate or collapse two fields of knowledge, but rather to line them up together and look for “interferences” between a practice in architecture and a study of SF scholarship.¹¹⁶ The project constructs its own optical devices and then writes from those perspectives; these optical devices are used both for looking at and developing my argumentation, as well as at the artifacts produced in architecture and architectural pedagogy, to see how these perspectives enable us to think differently about what we do as architects, educators, and people who think about architecture.

Drawing upon forms of feminist and queer scholarship, writing in this project is just as much a practice of speculative inquiry as the other forms of knowledge production. That is, the writing does not describe the results of other modes of research, but is rather a tool that I use as an author to assemble the findings of the project. As

2019): 77–96, <https://doi.org/10.1080/07294360.2018.1539065>.

114 Laurel Richardson and Elizabeth Adams St Pierre, “Writing: A Method of Inquiry,” in *The Sage Handbook of Qualitative Research*, ed. N.K. Denzin and Y.S. Lincoln (SAGE Publications, 2005), 1410–44.

115 Nina Lykke et al., “Editorial Introduction,” in *Writing Academic Texts Differently: Intersectional Feminist Methodologies and the Playful Art of Writing* (New York; London: Routledge, 2014), 2.

116 Celia Lury, “Introduction: Activating the Present of Interdisciplinary Methods,” in *Routledge Handbook of Interdisciplinary Research Methods*, ed. Celia Lury et al. (Routledge, 2018), 1–25, <https://doi.org/10.4324/9781315714523>.

Jane Rendell writes, in a challenge both to the so-called objectivity of academic writing and an invitation to a playful encounter with knowledge appropriate to other forms of practice: “playing with the ways we do things with words can expose the power systems that set the rules for those often-taken-for-granted ways that tell us how things with words are to be done.”¹¹⁷ In a sense, we can think of this form of scholarship—especially a practice-based scholarship—as a kind of activism, not aiming to describe the world as it is according to established modes of thinking, but an active construction of new knowledge and conceptual or analytical frameworks.

The paradigm of speculative research already has some strong correlations to work in design. The work produced by speculative designers such as Dunne and Raby, as much as I have elsewhere expressed some criticism of their work,¹¹⁸ is held up as an exemplar of how the production of knowledge takes place in a speculative way.¹¹⁹ In addition, drawing upon many of the sources I have cited above, and many more I have not, Savransky *et al.* argue for a speculative method as productive for many forms of interdisciplinary research. With explicit reference to SF and to author Margaret Atwood, they write that speculative research is explicitly future-oriented and attentive to how future might be different: “speculation is here associated with a sensibility concerned with resisting a future that presents itself as probable or plausible, and to wager instead that, no matter how pervasive the impasse may be, it can never exhaust the unrealized potential of the present.”¹²⁰ They do not propose a strict method, and write that the speculative method introduces the possibility of mutating the constraints of one’s own practice—in this sense, to look for the unexpected in unlikely or unlooked for alliances and alignments within situated “engagements” of an interdisciplinary practice.¹²¹ Importantly, speculative research is not concerned with other imaginations of the future—it is entangled with, but not

117 Jane Rendell, “Prelude: The Way in Which We Write,” in *Writing Architectures*, ed. Hélène Frichot and Naomi Stead (London ; New York: Bloomsbury Visual Arts, 2020).

118 My criticism of their work has never held that it wasn’t a speculative production of knowledge, merely that it paled in comparison to the possibilities suggested by other SF storytelling.

119 Martin Savransky, Alex Wilkie, and Marsha Rosengarten, “The Lure of Possible Futures,” in *Speculative Research: The Lure of Possible Futures*, ed. Alex Wilkie, Martin Savransky, and Marsha Rosengarten (London ; New York: Routledge Taylor & Francis Group, 2017), 9.

120 Savransky, Wilkie, and Rosengarten, 8.

121 Savransky, Wilkie, and Rosengarten, 10; also see: Alex Wilkie, “Speculating,” in *Routledge Handbook of Interdisciplinary Research Methods*, ed. Celia Lury et al. (Routledge, 2018), 347–51, <https://doi.org/10.4324/9781315714523>.

alike to, SF scholarship: “rather than objects of knowledge or thought to be captured by a backward-walking present, possible futures are here engaged as vectors of risk and creative experimentation.”¹²²

Writing as a method is allied with other forms of feminist and queer writing practices as well. If my project is a kind of speculative fiction, as I wrote above, it is allied with practices in ficto-criticism—in essence, a mode of writing theory or criticism as a kind of fiction (as if there could be any other way), largely inspired by feminist situated writing practices from Australia and Canada. Including ‘fiction’ in the title of the concept points to this mode of writing’s engagement with non-reality, while including ‘criticism’ maintains its ethical and conceptual commitment to the ‘real.’ In this way, ficto-criticism is not about writing the unreal, but in reframing the real using fiction; as Frichot and Stead write, ficto-criticism leans more into criticism than fiction.¹²³ In short, ficto-criticism describes a creative engagement with writing practices—a practice in treating critical writing or academic writing as fictional, or rather a way to reveal that philosophical or critical writing had always used the rhetorical devices of fiction. As Anna Gibbs writes, as an experiment with genre and voice, ficto-criticism is uniquely able to use academic and philosophical writing to maintain, following Bakhtin, the possibility of multiplicity and polyvocality and contingency to truth claims, and to reveal the voice of authority who constructs these claims.¹²⁴

As Frichot and Stead also write, ficto-critical writing has unique affordances for writing about architecture, especially the capacity to talk from a situated perspective—literally and metaphorically, and about the embodied experience of the author. Thus, writing theory as fiction also reveals the conditions of a text’s authorship. They write, “ficto-critical approaches to writing architecture engage a queer and feminist ethos, allowing subjectivities to multiply, to quiver, to challenge what otherwise becomes sedimented in normative structures, or cemented in a status quo.”¹²⁵ There are many quivering subjectivities in this text, not least the present author. Thus, this project—as indeed many projects in research through design—may be read as a form of auto-

122 Savransky, Wilkie, and Rosengarten, “The Lure of Possible Futures,” 5.

123 Hélène Frichot and Naomi Stead, “Waking Ideas from Their Sleep: An Introduction to Ficto-Critical Writing in Architecture,” in *Writing Architectures Ficto-Critical Approaches*, ed. Hélène Frichot and Naomi Stead (London ; New York: Bloomsbury Visual Arts, 2020), 15.

124 Anna Gibbs, “Fictocriticism, Affect, Mimesis: Engendering Differences,” *Text* Vol. 9 No. 1, accessed August 20, 2019, <http://www.textjournal.com.au/april05/gibbs.htm>.

125 Frichot and Stead, “Waking Ideas from Their Sleep,” 13.

theory.¹²⁶ This is theory that is consciously written from the authors' perspective and aims at forms of hybridity between the situated practice and experience of the author and already established academic knowledge and theory. More explicitly, in acknowledging my writing as autotheory, I reveal how deeply implicated the embodied position of the author is in constructing an account of thinking. And while I am joined by those who have shared my practice—students and colleagues—over the last years, I continue to write from the embodied position of an author constructing an account of their thinking in relation to their own history and experience. The first person-singular pronoun appears occasionally throughout my text, and it describes not a stationary being, but also a being in becoming. I will not delve any deeper into my autobiography. Perhaps the most explicit position—and also the most autobiographical—is in the speculative futures implied in the text—the futures of the discipline and also of pedagogy, because this is where I have placed (some of) my hope. In this way, as much as this work describes an already existing practice, I also hope that it has an activist encounter with constructing knowledge, shaping practices to come. That is, I believe this work to be a utopian fiction that carries hopes for the future of the discipline in which I find myself.

126 Wiegman seems to suggest the term originates in Paul B. Preciado's *Testo Junkie* (2008), which combines a deeply personal account of gender variance with an erudite account of gender, sexuality, pharmacy, and bio-politics: Robyn Wiegman, "Introduction: Autotheory Theory," *Arizona Quarterly: A Journal of American Literature, Culture, and Theory* 76, no. 1 (2020): 2, <https://doi.org/10.1353/arq.2020.0009>; Also see: Lauren Fournier, *Autotheory as Feminist Practice in Art, Writing, and Criticism* (Cambridge, Massachusetts: The MIT Press, 2021).



Boss Patcher II, 2019

1.4 Science Fictioning

This chapter describes the practice I have named “science fictioning.” This approach has developed in the dialogue between theoretical investigations described in Part 1 and the practice-based experiments comprising the second half of this book. While the previous chapter proposes a provisional definition of architectural practice as speculative, this chapter quite intentionally shies away from defining a specific architectural pedagogy, preferring to retain the gerundial force of the -ing suffix in science fictioning. In this way, rather than defining a specific teaching practice, I outline considerations that have informed my own teaching practice, and the ways I have utilized what I have learned from SF. From the background established in the previous chapters, this chapter explores how a speculative practice might be accomplished inside a studio-based curriculum in an architecture school.

This chapter begins with the difficulty of imagining the future within the horizon delimited by present-day conceptual schemata, both within education, but also more broadly given the spectre of climate change, ecosystemic collapse, the erosion of civil liberties, and the precarity of political institutions. As a teacher, I look at students with the expectation that, by necessity, they will be pursuing a very different kind of architectural practice than I was trained for. There are monsters beyond the thin line of futurity drawn by contemporary discourse of advertising, speculative finance, and governmental policy. Beyond this horizon lies the unthinkable in two senses, both the things that escape the cognitive frame of the present, but also the prospect of future suffering so acute as to be an offence to thought.

What science fictioning proposes is first a stature of refusal towards the instrumentalized educational practices that only prepare students for the future imagined in the constraints of neo-liberal capitalism. This is a stature of refusal which celebrates unknowing, not as frightening but as a gap which accommodates a welcome embrace of wildness beyond. I attempt to describe this practice using the language of subjunction and polyvocality we see in SF. This includes how science fictional forms become an impetus to thought in studio pedagogy using the verb science fictioning to centre futurity in architectural pedagogy with the framework supplied by the discussions of the novum and of estrangement. However, as the present project progressed, I had a growing awareness of other modes of science fictioning happening in the project; as much as each student’s project could be

understood as a kind of science fiction, I was also telling other stories. That is, science fictioning architectural pedagogy is telling stories and stories built upon stories, not only of projects and possible futures, but also the science fictions of the discipline-to-come, the architect-to-come, and the studio-to-come.

No Future

“We have no idea, now, of who, or what the inhabitants of our future might be. In that sense, we have no future. Not in the sense our grandparents had a future, or thought they did. Fully imagined futures were the luxury of another day, one in which ‘now’ was of some greater duration. For us, of course, things can change so abruptly, so violently, so profoundly, that futures like our grandparents’ have insufficient ‘now’ to stand on. We have no future because our present is too volatile”¹

I start this chapter with two figures from recent works of science fiction. In *2312*,² Kim Stanley Robinson’s future solar-system-wide human civilization looks back upon the period between 2005–2060 as the time of “the Dithering.” These are the “wasted years” between the UN’s announcement of climate change and “the Crisis,” when the acute effects of climate change were felt; the novel details cascading climate change, food shortages, and mass extinctions of both human and more-than-human species. As I write, the novel’s 40-year horizon now seems optimistic, and even scientific organizations such as the IPCC—never predisposed towards hyperbole—urge more drastic climate action.³

In *The Peripheral*, William Gibson imagines the “Jackpot,” a decades-long, “androgenic, systemic, multiplex” world apocalypse already well on its way by the novel’s mid-21st century timeline.⁴ By the novel’s 22nd century—the novel involves a kind of informational time travel—climate change, raging pandemics, and a rampant capitalism has resulted in the death of 80% of the world’s human population,

1 William Gibson, *Pattern Recognition* (New York: G.P. Putnam’s Sons, 2003), 58–59.

2 Kim Stanley Robinson, *2312* (New York: Orbit, 2012).

3 Jeff Tollefson, “IPCC Says Limiting Global Warming to 1.5 °C Will Require Drastic Action,” *Nature* 562, no. 7726 (October 8, 2018): 172–73, <https://doi.org/10.1038/d41586-018-06876-2>.

4 William Gibson, *The Peripheral [2014]* (London: Penguin, 2015), 320.

extensive destruction of the natural world, and an economic system that combines a corrupt capitalism with a kind of old-money mafia kleptocracy, becoming in effect a resurgent feudalism.

What these two events dramatize is the long slow collapse of extant human civilization, a fictional expression of processes that are at best representative of a widely felt anxiety and at worst, well underway while I am writing. It is hardly a hopeful image to start with, but these two images are among hundreds of SF apocalypses across a wide range of media, each dramatizing their respective authors' very real conviction that such an end is the only possible outcome of our world's present course. These long slow collapses, as Budge and Chan remind us, are only distant to a western readership; their discussion of contemporary climate fiction reminds us that vulnerable communities all over the world are already facing this "slower and ongoing devastation" more acutely than the developed west.^{5,6} The promised abundance of global capitalism has never arrived and the global course has long since turned towards another, more sinister path. Succinctly, given the preponderance of apocalyptic imaginations it seems, as William Gibson writes in the epigraph above, "we have no future." The futures we can imagine, from the scale of the individual to collectives encompassing all life on earth, are now understood as at least uncertain, if not increasingly precarious.

Jessie Beier writes that a similar incapacity to imagine beyond the present haunts the neo-liberal educational project, in which, we might well argue, architectural profession is a willing participant. The neoliberal project, which she together with Jason Wallin dubs the "educacene,"⁷

5 Ana Josephine Budge, "In Conversation with Angela Chan," in *Science Fiction*, ed. Dan Byrne-Smith, Whitechapel: Documents of Contemporary Art (London : Cambridge, Massachusetts: Whitechapel Gallery ; The MIT Press, 2020), 218; also see: Saeed Kamali Dehghan, "Climate Disasters 'Caused More Internal Displacement than War' in 2020," the Guardian, May 20, 2021, <http://www.theguardian.com/global-development/2021/may/20/climate-disasters-caused-more-internal-displacement-than-war-in-2020>.

6 Although now less distant; the effects of climate change are also reaching the developed west. As I wrote the first draft of this chapter in June 2021, my home country of Canada was reporting its highest ever recorded temperature at 49.6 degrees Celsius, and as I edited this chapter in November, 2021, the same region is experiencing catastrophic flooding. See: <https://www.cbc.ca/news/canada/british-columbia/bc-heat-wave-climate-change-1.6085275>; <https://www.cbc.ca/news/canada/british-columbia/bc-floods-nov-29-1.6266398>.

7 This neologism deliberately and ironically playing on the proliferation of "-cenes" in contemporary discourse, in: Jessie L Beier and Jason J Wallin, "Pedagogy of the Negative: Pedagogical Heresy for 'The End Times,'" *Oraxiom: A Journal of Non-Philosophy* 1, no. 1 (2020): 44.

“hinge[s] on the axiom that education should produce citizens that can function in the future society, which is most often imagined by the dominant discourses and reified ideologies of the past present”⁸

That is to say, the future imagined within the ‘educacene’ is premised upon the expected continuation of the status quo. As we’ve seen it is not possible to expect this future, nor is it particularly desirable except to those few who benefit from the current socio-economic framework:

“Contemporary curriculum reforms... are founded on the assumption that schools should produce students who can adapt to and survive a future world defined by individual competition and modes of labour that are responsive to the ever-changing face of neoliberal capitalism. In turn, teaching and learning become means to a particular end... and the school acts as the territory for the inculcation of the requisite duties, speeds and repetitions of a future defined by the capitalist project.”

What Beier and Wallin argue is that that training students in this mode not only fails to prepare them for whatever futures lay ahead, teachers also become complicit in perpetuating this disastrous status quo. While I imagine that most teachers would like to believe that their teaching practice is of and for ‘the future,’ it is the definite article, ‘the,’ that is troubling. By imposing the definite article, such projects also preclude the possibility of other futures being imagined and enacted. We have reached the end of *the* world.

In his 1968 *Pedagogy of the Oppressed*, Paulo Freire was highly critical of a ‘banking’ model of education.¹⁰ This model is metaphorically described as a teacher ‘depositing’ a static body of knowledge into the empty account of the student, indoctrinating the student into the dominant ideology through the representation of that deposit’s presumed universality. As critics of architectural education have long pointed out, a similar condition afflicts architectural education; In 1976, Manfredo Tafuri argues that the dominance of capitalism has meant that architectural education is wholly subservient to real estate interests, and only exists to train technicians for the building

8 Jessie L Beier, “The Future Is Cancelled: From Melancholia to Belief in the World,” in *The Precarious Future of Education: Risk and Uncertainty in Ecology, Curriculum, Learning, and Technology*, ed. Jan Jagodzinski (New York: Palgrave Macmillan US, 2017), 278, <https://doi.org/10.1057/978-1-137-48691-2>.

9 Beier, 278.

10 Paulo Freire, *Pedagogy of the Oppressed*, 50th Anniversary Edition (New York: Bloomsbury Academic, 2018).

industry within the rubrics supplied by that very industry.¹¹ Similarly, Nathaniel Coleman describes contemporary architectural education as only having a focus on skills and employability rather than on the social role of a critical practice,¹² a condition that has proliferated as schools of architecture are increasingly responsible for teaching students a broader and more complicated suite of digital media tools. These schools, including the institution hosting my own project, are increasingly under pressure, from students and their potential employers, and the government ministries paying for the education, to produce technicians for that industry.

Coleman's critique demonizes a focus on skills¹³—in the recent development of the architectural academy, this has largely become a focus on digital management, design, representation, and fabrication skills,¹⁴ mirroring or answering a similar enthusiasm from the building industry. To be sure, there are areas of resistance to the emphasis on skills development in architectural education, sometimes seemingly a kind of luddite call for traditional practices such as hand drawing and modeling,¹⁵ and sometimes advocating for a digital practice that is engaged with poetics¹⁶ or a politically-oriented

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- 11 Manfredo Tafuri, *Architecture and Utopia: Design and Capitalist Development*, trans. Barbara Luigia La Penta (Cambridge, Mass.: The MIT Press, 1979), 176–81.
 - 12 Nathaniel Coleman, "History Theory Design: A Pedagogy of Persuasion," *Architectural Research Quarterly* 7, no. 3–4 (September 2003): 354, <https://doi.org/10.1017/S1359135503002288>.
 - 13 I introduce Coleman as an initial point of reference because of his sustained engagement between architecture, pedagogy, and utopia, and his attention to the social dimensions of architecture. Others who mine this territory include Amy Butt, who is cited throughout this work, and Maze and Wangel, who in spite of an extended discussion of Levitas strangely shy away from the U-word: Mazé, Ramia, and Josefin Wangel. "Future (Im)Perfect: Exploring Time, Becoming, and Difference in Design and Future Studies". In *Feminist Futures of Spatial Practice: Materialisms, Activisms, Dialogues, Pedagogies, Projections*, edited by Meike Schalk, Thérèse Kristiansson, and Ramia Mazé. Baunach: AADR, Art Architecture Design Research : imprint of Spurbuchverlag, 2017.
 - 14 Stan Allen, "The Future That Is Now," in *Architecture School: Three Centuries of Educating Architects in North America*, ed. Joan Ockman and Rebecca Williamson (Cambridge, Mass. : Washington, D.C: MIT Press ; Association of Collegiate Schools of Architecture, 2012), 202–29.
 - 15 Levent Kara, "A Critical Look at the Digital Technologies in Architectural Education: When, Where, and How?," *Procedia - Social and Behavioral Sciences* 176 (February 2015): 526–30, <https://doi.org/10.1016/j.sbspro.2015.01.506>.
 - 16 Marjan Colletti, *Digital Poetics: An Open Theory of Design-Research in Architecture*, 1 edition (Burlington: Routledge, 2016).

practice,¹⁷ and even towards more far ranging technological futurities.¹⁸ For his part, Coleman advocates for a stronger attention both to architecture's disciplinarity and also its alignment with the humanities. A focus on history and theory frames the act of making architecture—drawing, writing, building—by comparing and differentiating historical and contemporary practices, while the relation to humanities promotes a deeper critical dialogue with architecture's possibility for ethical and imaginative modes of engagement with society. In short, in order to counter the banking model of architectural education, Coleman advocates that the academy develop and maintain a critical distance from professional practice in the critical contextualization afforded through disciplinary history and theory, and extra-disciplinary affiliations.¹⁹

This critique does introduce a conundrum for the teacher: to whom is the teacher responsible, and how do they meet this responsibility—is it to student, institution, profession or some more abstractly defined social or ecological collective? And what happens when these are in conflict? We could not ignore that the teacher of architecture does have the responsibility to their students' future prospects. Nor could the teacher ignore that as much as some of the discipline is complicit in perpetuating an untenable status quo, there are any number of inspirational modes of practice which take into account human and more-than-human flourishing. That is, we might be wary of critiques which construct an easy binary opposition between employability and ethical practice. What Coleman's critique does illuminate is that, while we might be critical of how we delimit the scope of such teaching, the spatial disciplines have evolved a set of conventions in order to 'speak' with one another—from modes of visual representation to overarching disciplinary narratives, and it does behoove the student to learn these conventions, even while we might question them.

17 Bruno Gil, "Digital Redux: The Confluence of Technologies and Politics in Architecture," *Architectural Research Quarterly* 19, no. 3 (September 2015): 259–68, <https://doi.org/10.1017/S135913551500055X>.

18 Neil Spiller, "Paradoxical Simultaneities: Architectural Education at the Edge of the 21st Century," in *Educating Architects: How Tomorrow's Practitioners Will Learn Today*, ed. Neil Spiller and Nic Clear (London New York: Thames & Hudson, 2014), 10–19.

19 Nathaniel Coleman, "The Limits of Professional Architectural Education," *International Journal of Art & Design Education* 29, no. 2 (June 14, 2010): 209, <https://doi.org/10.1111/j.1476-8070.2010.01643.x>.

It may be advantageous to read these critiques of architectural education's focus on students' skills and employability as less a critique of whether students learn how to draw and whether they master the latest software, and more about how such skills are instrumentalized towards the future-less-ness of contemporary neo-liberal practices. Science fictioning does not advocate for ignoring students' skills development, but it does demand that we re-evaluate how such skills are acquired, and toward what ends they might be used. Indeed, two of the experiments in this book happen in the context of courses in digital literacy—one area of increasing focus at my institution, the Aarhus School of Architecture. These courses attempt to chart a course between students' employable skills and a broader ethical responsibility to the discipline and those who it would serve, both in the present and in the future. What science fictioning might offer is an understanding of how discourses of architectural futurity are often rhetorically comingled with technological futurities, while often either ignoring socio-political or ecological futurities or, worse, imagining that technological futurities can accomplish the wished-for futures. When we refocus the critique on such singular futures, we can ask what other imaginations are possible within architectural pedagogy? What if the coming neo-liberal apocalypse is less the end of *the* world rather than the end of *a* world?

The Unthinkable—Teaching After the End of a/the World.

“The end of the world is over. Now the real work begins.”²⁰

“If every decision to teach/learn involves some sort of commitment to the future,” Beier writes, “how does one go on teaching in and about the end-of-the-world?”²¹ If we accept that there is ‘no future,’ what does it mean to what is, in principle, a future-oriented practice such as architecture? More succinctly, how do I keep teaching architecture with the certainty that I could not continue on the basis of how I was taught? The fringes bordering the end of the world are populated with all sorts of unthinkable monsters. The unthinkable could be understood in two ways. On one hand, the unthinkable might be understood as the limited imaginative possibilities imposed by extant paradigms of thought; these things are unthinkable in a literal sense. On the other hand, the unthinkable may refer to a condition so undesirable that it escapes easy assimilation into the cognitive frame of the thinker.

20 Kim Stanley Robinson, “Dystopias Now | Kim Stanley Robinson,” *Commune* (blog), November 2, 2018, <https://communemag.com/dystopias-now/>.

21 Beier, “The Future Is Cancelled,” 281.

If the unthinkable in the first sense refers to things that are opaque to our understanding, the unthinkable in this second sense asks us to account for the very real possibility of future suffering, events so objectionable as to be an offense to thought. In a strange inversion of the first meaning, the unthinkable things in this sense are all too familiar to the contemporary apocalyptic imaginary, and increasingly, escaping the imaginary into real life, becoming more and more likely; they are those affronts to human and more-than-human wellbeing brought about by ecological catastrophe, social and political indifference or outright violence, and the ravages of capitalism. Perhaps one could accuse me of a cruel pessimism to include such a disposition in this work, as meditation on the unthinkable can result in a mood disposed towards melancholia, anxiety, or anger. However, it is mood somehow seeming to infect the zeitgeist, and which seems to animate movements directed toward environmental, racial, and social justice the world over.²²

Beier and Wallin write that pedagogy in general, and critical pedagogy in particular, tends to privilege hope and optimism, “constructing negativity and nihilism as anathema to pedagogical thought.”²³ They are rather more interested in thinking *through* rather than rejecting anger and despair. What they suggest is that affecting a mood of optimism in such times would in effect be a kind of mass cognitive dissonance, whereas accepting and proceeding from the premise that the world is ending is the only viable way to think about what happens afterwards. Brigitte Bargetz also writes about the mobilizing force of such an affective disposition. While noting the atmosphere of gloom that sometimes pervades calls to climate action or social justice, Bargetz also notes—pointing to queer, feminist, and postcolonial work—that such negative feelings can become a mobilizing force rather than an event horizon consuming any possibility for collective change.²⁴ It is the stature of negativity, rather than hope, which can effectively describe the present as it is historically constructed, and in a word, imagine it as could be otherwise.²⁵ Beier and Wallin join Bargetz in looking for transformational potentials in despair, places to

22 Sometimes this mood is also coded into the respective movement’s names, such as, for example, the Extinction Rebellion climate movement, or Spain’s Indignados (“outraged, indignant”) movement.

23 Beier and Wallin, “Pedagogy of the Negative,” 51.

24 Brigitte Bargetz, “Longing for Agency: New Materialisms’ Wrestling with Despair,” *European Journal of Women’s Studies* 26, no. 2 (May 2019): 185, <https://doi.org/10.1177/1350506818802474>.

25 Bargetz, 191.

articulate dissent within and beyond melancholy.²⁶ These thinkers aim to transform unthinkable in the second sense to approach the unthinkable in the first—literal—sense. As Cornell West writes,

*“Hope is inseparable from despair. Those of us who truly hope make despair a constant companion whom we outwrestle every day owing to our commitment to justice, love, and hope. It is impossible to look honestly at our catastrophic conditions and not have some despair... Wisdom comes from wrestling with despair and not allowing despair to have the last word. That’s why hope is always blood-stained and tear-soaked.”*²⁷

Beier and Wallin argue for a “pedagogy of the negative,” which thinks through negation and pessimism. Affirmation and optimism, they write, is demanded by neoliberal educational apparatus. This optimism would affirm human permanence within the *status quo* supplied by the present, that is, within the permanence of existing socio-economic relations. A pedagogy of the negative, they argue, works through the “heretical elaboration” of thought outside of the regulation of the existing educational apparatus. By engaging in such heresy, they engage in a “practice of mutating and bifurcating ideas from their standardized regulation,” opening up the possibility of thought beyond the anthropocentric perspective.²⁸

They give an example of how such heresy might contribute to ecological thought; whereas normative educational practices might be habituated towards imagining human permanence, and therefore restricted to practices to ensure a “good anthropocene,” they suggest the ‘heresy’ of imagining end of the world.²⁹ Doing the work of imagining the world *after* humans might suggest the conditions under which life on earth might continue without another mass extinction. Such a thought changes the horizon and scope of one’s anthropocentric world view, and makes the one reconsider the scale of humanity’s encounters with the world and the nature of one’s ethical obligations. To be sure, there’s some melancholy in imagining the world after humans, but also some possibility in imagining new ecological relations. And when we have imagined the world after humans, we might reintroduce the possibility of humanity and the role we might play in this new ecological paradigm.

26 Beier and Wallin, “Pedagogy of the Negative,” 51.

27 Cornell West, quoted in: Bargetz, “Longing for Agency,” 182.

28 Beier and Wallin, “Pedagogy of the Negative,” 54.

29 Beier and Wallin, 52.

Beier and Wallin, following Andrew Culp, suggest that developing pedagogical methods for an unknown future requires a stance of an “unrelenting heresy,” a persistent stature of refusal.³⁰ This refusal is not merely a stance of negation or a logical inversion of the neo-liberal educational apparatus. Rather, they argue for non-dialectical negation which might be better categorized as unmasking or demystification of the ‘real’ world as it is. What they suggest in their project is working towards the ‘unbecoming’ of ‘education,’ ‘futuraity,’ or even ‘human.’ That is, they argue that a stature of negation refuses to take these categories as given; following Laruelle’s advocacy for non-philosophy, these apparently stable terms of reference within western hegemony must be “rebuked through a process of indefinition”—a perpetual disidentification of the real from itself.³¹ We return to these processes of indefinition and the related terms of refusal and wildness below, especially as the supposedly stable categories within architectural discourse—categories such as client, housing, or tectonics—are made “weird” in the various experiments.

For architectural educators, perhaps the necessary heretical move is similar. Rather than ‘Yes is More’ sloganeering, perhaps the stance of negativity is to see how much of our discipline isn’t working. Following Donna Haraway’s admonition to stay with the trouble, we might begin to question many of the premises that construct our discipline, and understand our complicity in propping up an untenable status quo. One possibility is surely the courage to say ‘no.’ However, as Beier and Wallin argue this can be a generative negativity which asks us to re-evaluate what doesn’t work, but also what works—what possibilities already lurk in existing practices in architecture.

The title of Beier and Wallin’s article invokes “the end times.” That figure from Christian eschatology looms large in western mythology, even in science fiction. The western world, even in its secular incarnations, is hounded by the prospect of Armageddon, Ragnarok, nuclear apocalypse, or ecological collapse. As if it were the end of the world! Here, a western bias might imagine that the end of the world has not yet happened, or at worst, as Gibson’s ‘Jackpot’ might suggest, it might merely be in progress. However, futurisms arising from non-western discourses already work through and beyond the end of the world: Afrofuturism reminds us that African peoples, among others, have already been abducted by European aliens in the

30 Beier and Wallin, “Pedagogy of the Negative,” 56.

31 Beier and Wallin, 57–58.

international slave trade.³² Detroit techno musicians Drexciya's 1997 album "The Quest" works through this melancholy in imagining a new race of peoples descended from those born of pregnant slaves thrown overboard in the Atlantic crossing. In this imagination, these children adapted to breath and thrive underwater; never more poignant than in the present, when people of colour all over the world can't breathe, as we are reminded by the deaths of Eric Garner, George Floyd, and too many others. Indigenous futurisms too remind us that Indigenous peoples have already lived through an alien invasion of their homelands and the apocalypse of their peoples and ways of life.³³

What these historically marginalized discourses reveal is that whatever is beyond the end of *the* world is already the stuff of considerable speculation. They accomplish the "real work" of Robinson's epigraph; as I cover in more detail in chapter 1.1, storytellers from diverse perspectives, in architecture as much as SF, do the real work of imagining futures emerging from outside western hegemony, futures that reframe social and ecological relations, and suggest it is possible to imagine and to hope again for an architectural practice beyond the apocalypse of neoliberal capitalism. They have already taken up Beier and Wallin's posture of refusal and strategy of indefiniteness, offering a chance to understand the frailty of the discourses we have used to define our disciplinary futurity, and the possibility of other modes of being.

Science Fictioning

*"We cannot ask reason to take us across the gulfs of the absurd. Only the imagination can get us out of the bind of the eternal present, inventing or hypothesizing or pretending or discovering a way that reason can then follow into the infinity of options, a clue through the labyrinths of choice, a golden string, the story, leading us to the freedom that is properly human, the freedom open to those whose minds can accept unreality."*³⁴

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- 32 Mark Dery, "Black to the Future: Interviews with Samuel R. Delany, Greg Tate, and Tricia Rose," in *Flame Wars: The Discourse of Cyberculture*, ed. Mark Dery (Durham, NC: Duke University Press Books, 1994), 180.
- 33 Grace L. Dillon, "Imagining Indigenous Futurisms," in *Walking the Clouds: An Anthology of Indigenous Science Fiction*, ed. Grace L. Dillon, Sun Tracks: An American Indian Literary Series, v. 69 (Tucson: University of Arizona Press, 2012), 5.
- 34 Ursula K. Le Guin, "Some Thoughts on Narrative," in *Dancing at the Edge of the World* (New York, NY: Grove Press, 1997), 45.

As a verb, we can characterize science fiction-*ing* in its action on an object—that is, attaching or imposing some attribute or quality of SF to another object, perhaps staging a confrontation between SF and that object. Previous chapters have talked about how architecture might already be science fiction-*al*; something of science fiction-*ing* is in recognizing and accounting for this, and in developing the possibilities of this correspondence. However, as well as analysing something as if it *were* SF, science fictioning also suggests partaking of the attitude of subjunctive polyvocality I describe as undergirding a speculative practice in the previous chapter—that is, the other side of science fictioning is to make architecture, or indeed architectural pedagogy, *as if one were making SF*.

I am indebted Jessie Beier for her use of the term science fictioning.³⁵ Citing Vilem Flusser, Beier argues that a subject's attempts to define the world are a fiction pieced together from their experience of the world.³⁶ These fictions are sometimes individual, but often, they congeal into consensus realities constituting 'common sense' perspectives. These are sometimes productive, and sometimes stupefying in that they preclude other ways of knowing the world. The special strength of science fictioning is first to understand these consensus realities as fiction, but then as a perpetual inducement to read such fictions with the subjunctive mood of SF—as skirting between reality and possibility. In practice, then, science fictioning follows the persistent stature of refusal of the pedagogy of the negative. Science fictioning does not suggest building any new consensus reality, but rather disturbing that reality. It is about cultivating 'elaborate strategies of (in)direction' as an incessant

35 David J Burrows and Simon O'Sullivan's recent *Fictioning* also describes the "myth functions" emerging in contemporary art describing: "the writing, imagining, performing or other material instantiation of worlds or social bodies that mark out trajectories different to those engendered by the dominant organizations of life". Although O'Sullivan's earlier use of 'science fictioning' seems to rely on a popular understanding of a genre concerned with science, technology, or otherworldliness, *Fictioning* elaborates on 'science fictioning,' especially as it produces "alternate and decolonising perspectives would necessarily cultivate a wild diversity of counter-fictions to resist naturalising and universalising tendencies." see: David J Burrows and Simon O'Sullivan, *Fictioning: The Myth-Functions of Contemporary Art and Philosophy* (Edinburgh, UK: Edinburgh UP, 2019), 3, 250; see also: Simon D. O'Sullivan, "From Science Fiction to Science Fictioning: SF's Traction on the Real," *Foundation: The International Review Of Science Fiction*, December 31, 2017, <http://research.gold.ac.uk/19772/>.

36 Jessie L Beier, "Dispatch from the Future: Science Fictioning (in) the Anthropocene," in *Interrogating the Anthropocene*, ed. Jan Jagodzinski (Cham, CH: Springer International Publishing, 2018), 362, https://doi.org/10.1007/978-3-319-78747-3_16.

imperative to “defamiliarize the given,” in order to “dilate what is possible to think in terms of what might be”³⁷—offering the chance to “fiction another world” from the material of the present.³⁸

As an example of what science fictioning might mean, Beier weaves a near-future SF into a recent essay in a kind of science fictional fictocriticism. She takes the reader to the year 2023, 5 years after the publication of her essay, describing among other things a future government’s boosterism for elaborate geoengineering schemes, and social media’s (further) fragmentation of consensus narratives. These fictions illustrate and critique the conceits of anthropocentric and technological culture, but in using these fictions, Beier also describes how such fictions continue to shape our experience of reality. Beier’s move is to reveal the fictionality within the supposed realism of instrumental consensus narratives, creating an analytical perspective for the “post-post-truth” age.³⁹ Such science fictioning thus works between the present which is apparent to the reader, and also, in seeing the breadth of imaginations supplied, multiplies the possibilities that might unfold into the future. Such flights of fantasy, however, do not alienate us from our experience of reality, but are “rather an attempt to intensify and problematize the actual world while remaining fully in it.”⁴⁰

Beier is not alone in her science fictioning practice—my previous chapter also describes how Donna Haraway thinks in and with SF—an acronym blending science fiction with speculative feminism, science fantasy, speculative fabulation, science fact, and string figures among others.⁴¹ The last substitution for the acronym becomes a potent metaphor for Haraway: Science fictioning then aligns with the practice—and she insists it is a practice⁴²—of *weaving* stories from the material of the authors’ present circumstance, not only for the possibilities they engender in their subjunctive disposition. Haraway also follows the metaphor of weaving for the polyvocality inherent in conjoining disparate narrative threads—what becomes

37 Jessie L Beier, “Close Encounters of the Pedagogical Kind: Science Fictioning a Curriculum-to-Come,” in *Provoking Curriculum Encounters Across Educational Experience: New Engagements with the Curriculum Theory Archive*, ed. Teresa Strong-Wilson et al. (Routledge, 2020), 158, <https://doi.org/10.4324/9780429058110>.

38 Beier, “Dispatch from the Future,” 377.

39 Beier, 361.

40 Beier, 386, n.16.

41 Haraway, *Staying with the Trouble*, 10.

42 Haraway, 3.

thinkable, and what voices are joined in the imagining. That's why, in Haraway's memorable assertion, "it matters what stories we use to tell other stories with... what stories make worlds, what worlds make stories."⁴³

Beier argues that science fictioning might be turned towards telling the story of the curriculum-to-come. Rather than a curriculum instrumentalized toward the futures imagined from the myopic present, Beier's curriculum-to-come suggests that educators pursue a curriculum that could challenge anthropocentrism and neoliberal capitalism:

*"a curriculum-to-come is an approach to curriculum theorizing that seeks to counter common-sense assumptions, or that which is given within curriculum thought, by untethering curriculum inquiry from the presumption of a prior methodology or structure and orientating inquiries to the creation of an unknown future."*⁴⁴

Beier's suggestion is important not for substituting one curriculum for another, but rather as an approach which asks educators to look for ways to defamiliarize their own curricula, whether these are supplied by habit or by externally mandated learning goals. This would mean first asking what is the world that is imagined in the curriculum—in the parlance of SF we have established, what is the worlding implied in the curriculum's fiction. Second, Beier would ask the educator to find ways of resituating one's self, in order to see what of the curriculum might still be appropriate.

In the context of a studio- or project-oriented pedagogy, while the teacher might begin with a clearly defined set of learning objectives, these goals and how they are accomplished are rather more of a direction than a destination, with the expectation that the project can and should lead students towards their own discovery. Instead, what the curriculum-to-come approach offers is the imperative to construct a "weird" encounter outside of the teacher's self and their experience with their own milieu. First, that is, the teacher 'weirds' themselves; science fictioning is an encounter not only orchestrated for the student by the teacher, it is a suspension of the teacher's own expectations in favour of probing what is unknown. Even at this stage, this is an act of refusal, saying no to a methodological instrumentality in education and the singular future it represents. It also says no to the dread accompanying this singular

43 Haraway, 12.

44 Beier, "Close Encounters," 150.

future. When the teacher's experience of the world is unveiled as one fiction among many, we do not turn from further estrangement, but move through it, as Le Guin's epigraph says, looking to fiction to weave the metaphorical Ariadne's thread to lead us out of the labyrinth. In looking for moments to estrange one's self, one may find that many elements of one's curriculum are there for reasons which do not align with one's aims—the impetus for the present project was, in fact, the gnawing sense that much of what I reproduced in my own pedagogy contained an imagination for the future that I found difficult to accept.

While not knowing, especially for a teacher, might produce considerable anxiety or its own negative affect, not-knowing is also a productive place, and navigating the unknown is where science fictioning starts—it must be sought out as the precondition for an SF practice. Emma Cocker argues for not-knowing as a generative, even desirable condition that one might inhabit in an artistic practice. Not-knowing, for Cocker, disavows the possibility of a path to specific knowledge—a one-way path proceeding from unknowing to knowing. The teleology of such a practice—the determinacy of its imagined ends—is very like the future-less-ness of a perpetual present represented by educational technologies which imagine a singular path of progress. Not knowing, by contrast, is a condition of expectation and anticipation, and an openness to a “desirable indeterminacy.” “Not knowing,” she writes, “is not experience stripped clean of knowledge, but a mode of thinking where knowledge is put into question, made restless or unsure.”⁴⁵ Deleuze reminds us that operating at the frontiers of knowledge is not only desirable for artistic practice, it is a precondition for philosophy as well. Such an exercise, in philosophy as in art, is “in part... a kind of science fiction” at the “frontiers of our knowledge, at the border which separates our knowledge from our ignorance and transforms one into the other.”⁴⁶

To a great degree, the project-based pedagogy of the architecture studio⁴⁷ is also a mode of pedagogy which centres unknowing. This being the case, science fictioning affirms a practice already well known to teachers of architecture. More than as a

45 Emma Cocker, “Tactics for Not Knowing: Preparing for the Unexpected,” in *On Not Knowing: How Artists Think*, ed. Rebecca Fortnum and Elizabeth Fisher (London: Black Dog Publishing, 2013), 131.

46 Gilles Deleuze, *Difference and Repetition* (London: Athlone Press, 1994), xx, xxi.

47 The studio project has been a fixture of architectural education since the establishment of the studio system at the Ecole des Beaux Arts. See: Richard Chafee, “The Teaching of Architecture at the Ecole Des Beaux-Arts,” in *The Architecture of the Ecole Des Beaux-Arts*, ed. Arthur Drexler (New York; Cambridge, MA: The Museum of Modern Art; MIT Press, 1975).

space to transmit specific knowledge, the studio is often a space to disturb already known concepts and to create new ones, reaffirming the process of discovery that characterizes a speculative practice such as architecture. In this way, science fictioning would ask that we teachers of architecture might lean further into unknowing, being ready to deny what we know of architecture at all.

This attitude of unknowing is not to be understood as a perpetual inducement to acquire new skills and knowledge at the service of architecture as such. As Carlin and Wallin warn us, this drive towards life-long learning can be co-opted into a neoliberal imperative: “neo-liberal market economics requires a subject that is always already in a process of seeking out new tastes, sensibilities, and images. For neo-liberal economics, the ‘complete’ subject is to be avoided ‘at all costs’...”. By this they mean that the neoliberal university would keep the prospective student in a perpetual debt, always needing to improve their skills or knowledge at the service of a perpetually evolving job market. They argue that the speculative epistemology of Deleuze is a more radical form of inquiry—working through unknowing is not to acquire an advantage in the job market, but rather to invite an experimental encounter which casts doubt on all we already know. They write, “the empiricism of Deleuze inspires a trust and corresponding experimentation with this world that resituates ignorance as not only a productive force, but one essential to imagination and creative discovery.”⁴⁸

After all, the practice-based pedagogy of the architecture studio, in particular since the decline of the master-apprentice model of pedagogy, is not about what the teacher knows, but about what the student discovers, which is in direct contradiction to an imagination of education with determined outcomes. Judith Simmer Brown writes:

*“As educators, one of the best things that we can do for our students is to not force them into holding theories and solid concepts but rather to actually encourage the process, the inquiry involved, and the times of not knowing—with all of the uncertainties that go along with that.”*⁴⁹

One of the strategies for unknowing Cocker mentions is in acts of deconstruction, though not, it seems related to Derrida’s philosophical project. Instead, Cocker

48 Matthew Carlin and Jason J. Wallin, “Preface: For a People-Yet-to-Come: Deleuze, Guattari, Politics and Education,” in *Deleuze & Guattari, Politics and Education: For a People-yet-to-Come*, ed. Matthew Carlin and Jason J. Wallin (New York: Bloomsbury, 2014), xxiii, xxv.

49 Quoted in: bell hooks, *Teaching Community: A Pedagogy of Hope* (New York: Routledge, 2003), 47–48.

allies deconstruction with acts of disassembly, undoing or unraveling, a “move towards the incompressible wild”⁵⁰ that finds an accomplice in recent work by Jack Halberstam—both in the figure of unbuilding and of wildness. Halberstam reminds us of the constructive valance of such unbecoming and such gestures of refusal; queer and trans*⁵¹ lives, he writes, are often characterized by such acts of unbecoming or unbuilding, what Halberstam also calls a will to wildness. Halberstam resists a comprehensive definition of wildness—instead he notes “forms of disorder that do not submit to rule, a mode of unknowing, a resistant ontology” across a wide range of cultural expression—from children’s literature, to music, dance, art, and cinema.⁵² Wildness has long been used to describe those things outside social regulation—and which often had to be subjugated by rationalizing forces.⁵³ “Wildness takes the anti-identitarian refusal embedded in queer theory,” Halberstam writes, “and connects it to other sites of productive confusion, taxonomic limits and boundary collapse.”⁵⁴

The value of wildness to architectural discourse and to architectural pedagogy is in its perpetual process of indefinition. Halberstam writes that as a concept, transgender is “a kind of wrecking ball” that destroys the immutability of previously sacrosanct categories—namely male and female. He writes that trans* aesthetics exposes all bodies as “wrong-ish.”⁵⁵ But beyond the critical stature which reveals the fragmentary and contradictory semiotics defining gender expression, he proposes that acts of unbuilding can become rather an assertion of a perpetual need to be ‘under construction,’ always refusing to assume identities of one kind or another.

50 Cocker, “Tactics for Not Knowing: Preparing for the Unexpected,” 130.

51 The asterisk accompanying “trans*” in this case signifies that term’s variability, uncertainty, and incompleteness. The asterisk stands against the tendency in western scientific and medical practice for precise categories and taxonomies in contradistinction to bodies that are fragmentary and incomplete. see: Jack Halberstam, *Trans*: A Quick and Quirky Account of Gender Variability* (Oakland, California: University of California Press, 2018), 1–21, <https://doi.org/10.1525/9780520966109>.

52 Jack Halberstam, *Wild Things: The Disorder of Desire*, Perverse Modernities (Durham: Duke University Press, 2020), 8.

53 Halberstam discusses how western modernity is constructed by its opposition to wildness, often associated, in a patriarchal and white supremacist mode, with blackness, indigeneity, and gender variance, as much as with non-human life.

54 Halberstam, *Wild Things*, 30.

55 Jack Halberstam, “Unbuilding Gender,” *Places Journal*, October 3, 2018, <https://doi.org/10.22269/181003>.

Halberstam's analysis of the work of Gordon Matta-Clark looks at the artist's acts of surgery on buildings as acts which are not destructive, but neither do they result in new edifices. Instead, they rewrite the syntax of these spaces, disturb the order of their enclosures, and suggest the possible, perpetual acts of re-creation that might be imposed on other edifices, both metaphorical and real.⁵⁶ It is here where the acts of refusal characterizing the respective projects of Beier and Wallin in pedagogy, and Gordon Matta-Clark in spaces becomes more than a totalizing negativity. Instead, wildness helps us maintain the posture of refusal without totalizing dismissal, a "generative negativity." That is, we can refuse to accept the fixity of an instrumental architectural pedagogy, but in such a way which welcomes a playful, exuberant wilding of its constituent parts. Rather than framing estrangement as a dissociation or alienation, this work by Halberstam shows us that beyond the critical stature of Suvinian estrangement, new unforeseen bodies may emerge in the wild interventions that science fictioning allows. It is here where science fictional estrangement takes on its specific force, not only to illuminate the present, but also in the active re-invention of the categories defining architectural pedagogy—most importantly for this project:= futurity, the architect, and architecture itself.

While I should be wary of constructing misleading binaries lest they quickly be mistaken for easy taxonomies, it is helpful to suggest some preliminary distinctions in order to sort out what science fictioning is doing. I do this with the sincere hope that such distinctions do not undermine the perpetual entanglements of this term, especially as the potential of science fictioning is not to stabilize new forms, it is to retain instability as integral to a future-oriented practice. I have already constructed a binary in describing science fictioning within an architectural practice in writing that we can use the term to describe the critical affordances of a confrontation between architecture and SF, and also to describe participation in a speculative practice—what I have described as roughly analogous to the difference between *reading* and *writing* SF. I will also propose that science fictioning architectural pedagogy has two directions. Lacking an appropriate term, we will call them, with Ballard, outer space and inner space.⁵⁷ Science fictioning is a practice that is turned outwards, towards the project, the practice, the discipline, and towards larger scales of engagement. It is also a practice turned inwards, towards the figure of the architect—the person engaged in this practice. These two directions are complementary. That is, as a verb,

56 Halberstam, "Unbuilding Gender."

57 J. G. Ballard, "Which Way to Inner Space? [1962]," in *Science Fiction Criticism: An Anthology of Essential Writings*, ed. Rob Latham (London ; New York: Bloomsbury Academic, 2017), 101–3.

science fictioning is always reflexive—imagining the world differently necessarily entails a change in how the architect is imagined, and *visa versa*. While presented here as separate, it is worth reiterating how these actions are entangled. Not only are these different facets of science fictioning present in each experiment of this research, each fiction is an active intervention in other fictions: the SF estrangements of any single project always already contain a refiguration of a new discipline, a new practice, and the architect-to-come.

Science Fictioning: Outer Space

In discussing the individual projects described in the second half of this work, I take up the specific fictions and methods of science fictioning as they appear in their respective projects. Nevertheless, these experiments have suggested a few commonalities. While a few common themes have emerged, these do not encompass every operation available to a science fictioning practice. In the manner of the multiplicity of possible worlds available to the imagination, these few conclusions merely describe one course of science fictioning within my specific teaching context. There are many parallel courses not taken, a few have been intentionally set aside, but most have never entered my mind.

I will first consider those fictions that emerge with regard to the world external to the architect themselves—what I’m calling ‘outer space.’ This outward orientation starts with how a project is its own SF, but then by implication, how the discipline—as it is historically constituted and as it will be in the future, as well as the future more generally become SF as well. The first step in this work of ‘science fictioning,’ of staging estranging encounters in architectural pedagogy, is accomplished in introducing various parameters for students to consider within the context of the design exercise—understanding the project as its own encounter with a possible future. This happens in a few different ways, though narrative fiction, theory, objects, encounters with human and more-than-human others, and with the idea of futurity itself. As we continue to science fiction ‘outer space,’ a second orbit takes us beyond students’ individual projects and toward more sprawling narratives, namely the speculative dimensions proscribing architecture’s disciplinary discourse and historicity.

In the experiments collected in this work, the estrangement supplied by SF literature has figured largely. Indeed, one of the major progenitures of this thesis is my own enthusiasm for the futurities imagined in SF literature. I am hardly the first to have introduced literary inspirations to architectural pedagogy, and while the absence of

literary pedigree might have some architectural educators shying from the genre, SF literature has also been used in the architecture studio. While the present work does not attempt a comprehensive analysis of how SF literature figures in architectural pedagogy, its uses range from quite direct translations, as when Amy Butt uses works of feminist utopian SF to translate their spatial implications into the real-world classroom space of a conference.⁵⁸ Sometimes a single work forms the basis for a project. For example, Igea Troiani has her studio read “Edilia, or make of it what you will” David Harvey’s utopian SF appendix to his *Spaces of Hope*,⁵⁹ although as its title suggests, it is notable less for its formal specificity than as a provocation to contemporary urbanism. In the case of Troiani’s studio, this story inspires an alternative relationship between nature and urbanism in Iceland.⁶⁰ In some cases, works of SF are not referenced for any specific novum, but rather as an impetus for thought, as when Nic Clear and Mike Aling assign China Miéville’s *The City and the City* to discuss “tactics of exclusion, division, and dissuasion” in that novel’s exploration of urban segregation.⁶¹

In my own experiments, I have used a range of SF stories, each chosen for specific purposes. The studio project entitled *Playing Innocent* proceeded from the strange relational and affective states in J.G. Ballard’s short stories to estrange student’s expectations of how architecture could stage a body’s appearance or experience.⁶² I used the material and fabrication cultures described in William Gibson’s oeuvre to challenge what digital fabrication could be.⁶³ Finally, I used short stories from a range of SF authors to find solitary characters and their strange ways of living for a site in the Shetland Islands.⁶⁴ A common thread through each of these experiments is the work of translation. In each, students and I proceed through multiple stages, although rather than moving from one language to another, translation here is an act

58 Butt references Ursula K. Le Guin’s *The Dispossessed*, Marge Piercy’s *Woman on the Edge of Time*, and Sally Miller Gearhard’s *The Wanderground: Stories of the Hill Women*. See: Amy Butt, “‘Only One Way in and One Way out’: Staging Utopian Spaces,” *Studies in Arts and Humanities* 5, no. 1 (May 1, 2019): 5–23, <https://doi.org/10.18193/sah.v5i1.155>.

59 David Harvey, *Spaces of Hope* (Edinburgh: Edinburgh Univ. Press, 2006).

60 Igea Troiani, “Eco-Topia: ‘Living With Nature’ in Edilia, Iceland,” *Journal of Architectural Education* 67, no. 1 (March 7, 2013): 96–105, <https://doi.org/10.1080/10464883.2013.767129>

61 Nic Clear and Mike Aling, “The City and the City,” accessed August 8, 2018, <http://unitfifteen-archive.com/2011-2012-Greenwich-A-L/2011-2012-1>.

62 See chapter 2.2.

63 See chapter 2.3.

64 See chapter 2.4.

of re-imagination; students were asked to move from text to visual or spatial media and back over several phases, at each stage trying to faithfully represent the nuance of their interpretation in the new translation.

Such an exercise in storytelling echoes a pedagogical process described by Stephanie Liddicoat as multimodal ficto-criticism.⁶⁵ As a style of writing, ficto-criticism—a portmanteau of fiction and criticism—navigates the heterogeneity and complexity of language and theory through narrative synthesis rather than within disciplinary protocols of academic writing. Referring to Bakhtin’s discussion of literature’s dialogic character, Anna Gibbs writes that ficto-critical writing is inherently polyvocal; its heterogeneous voices contain its own challenges, doubts, speculations, its own critique or antithesis.⁶⁶ Liddicoat adds a dimension of ‘multi-modal translation’ to this ficto-critical writing—effectively bringing an architectural disciplinary toolkit to storytelling by having her students iterate their storytelling through different modes of articulation—prose, drawing, collage, and diagrams.⁶⁷ In her pedagogy, Liddicoat uses such multi-modal storytelling to look at the complex characterizations within naturalistic fiction in order to understand the needs of the character as a client.

While Liddicoat focuses on naturalistic fiction, SF leverages the unreality of the text to implicate the reader in the story’s telling as the reader encounters alien settings and subjectivities. That is, as the becoming-architect engages with works of literary SF, the polyvocality of the text works in inviting their subjective re-articulation of any text they read; the SF text precludes finality because the polyvocal language of literature itself not only encourages but demands the readers’ investment in creating the text anew in dialogue with the author’s original text.⁶⁸ In this way, Carl Freedman argues, in contrast to the monovocal literary utopia—a totalizing work proceeding from a single author—the SF text maintains a polyvalent language, alienation on the level of language itself;⁶⁹ as SF, these texts can not resolve into a stable point of

65 Stephanie Liddicoat, “Writing the Client: The Role of Fictocriticism and Prose Fiction in the Architectural Design Studio,” *Higher Education Research & Development* 38, no. 1 (January 2, 2019): 77–96, <https://doi.org/10.1080/07294360.2018.1539065>.

66 Anna Gibbs, “Fictocriticism, Affect, Mimesis: Engendering Differences,” *Text* Vol. 9 No. 1, accessed August 20, 2019, <http://www.textjournal.com.au/april05/gibbs.htm>.

67 Liddicoat, “Writing the Client,” 79–80.

68 Félix Guattari, *Chaosmosis: An Ethico-Aesthetic Paradigm* (Bloomington: Indiana University Press, 1995), 13–15.

69 Freedman is, however, careful to differentiate the totalizing literary utopia from the “fractional pre-illuminations” of authentic utopian desire afforded by SF works of critical utopia, such



Figure 1.4.0 - Lucia Garcia de la Peña, “Obi 3 was only an extension of herself. She was alone. “The Storm...pollen...I don’t want to...”. She started to cry again. She cried as she started at the spotless sky-blue ceiling. She cried as lightning flashes and the thunder roared outside.”

reference outside the text—the references of naturalistic fiction would tend to refer to things the reader might observe in their own world, while SF precludes this possibility. In writing and translating their text as ‘fictocritical’ storytelling, students begin from points of view, experiences, and subjectivities that are radically different from their own experience, writing with a voice not their own and from inside the first author’s text. From this non-authoritative starting point, students began their own self-articulation of and with the storytelling, a “translation” from the text of the story into a visual storytelling language. The multiple translations in each exercise are, in effect, multi-modal and polyvocal repetitions of the story becoming, following Liddicoat, heuristic evolutions of the narrative in order to activate the student’s subjective understanding and ownership of

the narrative and their client in progressive steps.

There and Back Again confronted students with subjects that were alien to their experience in more than one way. First, the stories provoke modes of empathy and understanding across difference by reading a diverse group of authors. Second, they were also alien in the sense that they described modes of habitation that, as science fictional, were not easily assimilable to the cognitive frame of the students. Instead, the texts require the imaginative investment of the reader in such a way as to activate their subjective spatial and cultural experiences and references. Multi-modal translation then implicates the student in externalizing their own subjective experience of the text, but also charges them with being intentional with how the nuance of the text is effected by such translation, taking ownership of the representational tools so vital to architectural communication while also imagining how these tools can be turned towards new expressions. Lucia Garcia De La Peña’s collage [fig. 1.4.0], derived from Nnedi Okorafor’s “Mother of Invention,” shows that such translations are not resolutions, they engender difference and each articulation remains a perpetual destabilization. Lucia is not satisfied with a stable representation of a future client and way of living, but rather invites us as her reader into the speculative dimension of the her ongoing imaginative engagement with the text.

as those explored by Moylan in his work on critical utopia. see: Carl Freedman, *Critical Theory and Science Fiction* (Middletown, Connecticut: Wesleyan University Press, 2000), 38–46, 80.

While literature is a fertile source of estrangement, the various experiments here also used other modes of dissociation from students' experience. Parasite Studio⁷⁰ began with "Rhizome," the introductory chapter of Deleuze and Guattari's *A Thousand Plateaus*,⁷¹ and Michel Serres' *The Parasite*.⁷² These difficult theoretical works were not intended to convey a specific notion of parasitism and relationality, but rather to establish a field for students to explore within. Students engaged these works, like the works of literature, through multi-modal translations of the texts into drawings, in this case using non-linear, agent-based digital drawing to describe the multiple dimensions of a particular rhizomatic condition they had encountered.

Some experiments suggested that futurity itself could be a source of estrangement. Both Parasite Studio and Materializing Collective Futures worked from a premise of unknown futures as point of departure; simply put, students were told to 'site' their project 30 to 50 years in the future. This farther prospect breaks continuity with the present, and even if it is not expressed as such, students begin working in a science fictional mode, the break in continuity with the present becoming populated with strange possibilities that infected the students' respective futures. That is to say, in these, students 'science fiction-ed' the project themselves. In Materializing Collective Futures, co-tutor Ricelli Laplace and I introduced a few parameters that set the stage for exploration, but did not determine any specific future scenario—we introduced ideas around climate, demographic, and ecological change based on widely available projections, from which students imagined future scenarios. The prospect of a changed environment was the primary motivation for one group; their 50 year horizon started from premise of a much higher sea level, and also included lush vegetation and a changed atmosphere appropriate to the future projections for Denmark.

The question these projects raise, however, is not about the source of estrangement, but rather, what can such estrangement reveal for students or tutor about the discipline, project, or the future? The point of these elaborate strategies of (in) direction is not first to estrange the student and then to set them aright. Rather, the purpose is to enter a discursive space, a space filled with the possibilities lying latent in the subjunctive mode. This tendency is perhaps best exemplified in the

70 See chapter 2.6.

71 Gilles Deleuze and Felix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia*, trans. Brian Massumi, 2 edition (Minneapolis: University of Minnesota Press, 1987).

72 Michel Serres, *The Parasite*, trans. Lawrence R. Schehr (Minneapolis: University of Minnesota Press, 2007).

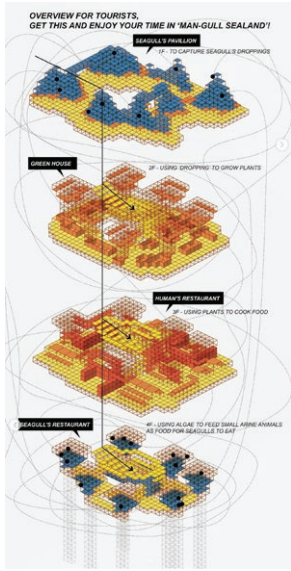


Figure 1.4.1 - Ke Liu, *Diagrams of human/seagull integration on Man-Gull Sea-Land*

students' own science fictioning, as students began fictioning within and through the possibilities afforded by each project. Each action of science fictioning, whatever its immediate source, enlarges the sense of possibility for the future, in doing so, one's own expectations are suspended. The futures each student described showed how making architecture is not delimited by disciplinary considerations—projects also included economic fictions, ecological fictions, social fictions, even bodies and subjects that are outside contemporary experience. In another game with prepositions, these projects were not making *from* SF, they were fully engaged in SF worlding, in making worlds *with* and *as* SF.

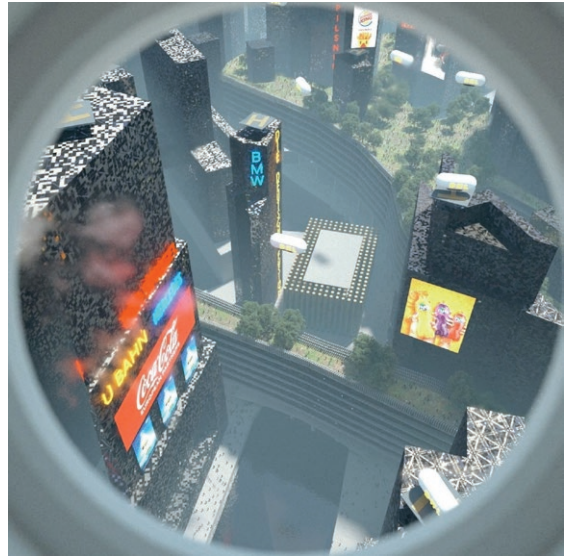
In the semester-long Parasite Studio, students set the terms of a future scenario for a site along the Elbe River in Hamburg, Germany. These estrangements opened up new possibilities not only for the project, but in following the implications suggested by their initial estrangements, for architectural technology, for larger fields of engagement such as social forms, political engagements, and the city itself. Ke Liu's Man-Gull Sea-land proceeds from the preponderance of seagulls and the increased seaweed from a carbon-rich atmosphere to imagine a restaurant as a semi-closed ecological cycle, with seagull waste leveraged to grow human food [fig. 1.4.1]. This project imagined not only architectural expression of this relationship, but also invented an economic model based on carbon capture to 'pay' to enjoy the restaurant. Jacob Thuesen imagined how an increase in vehicular traffic would lead to technologies to manage traffic noise, these manipulations of sound become the cornerstone of his invented combined religion and wellness regime, which he calls the Temple of Tritonalism [fig. 1.4.2]. In both cases, the SF premise offers a new architectural program to explore, but also highlights the complex interrelations between architectural program, technology, and the evolving organism of the city.

The previous chapter discussed the discipline of architecture and the potential of viewing it as a post-discipline, following Nina Lykke's formulation to describe feminist studies. As a post-discipline, without denying its historical constitutions, we affirm that the boundaries of the practice are fuzzy at best. Among the representations of knowledge that C. Greig Crysler⁷³ along with Nathaniel Coleman⁷⁴ critiques in

73 C. Greig Crysler, "Critical Pedagogy and Architectural Education," *Journal of Architectural Education* (1984-) 48, no. 4 (May 1995): 212, <https://doi.org/10.2307/1425383>.

74 Coleman, "The Limits of Professional Architectural Education," 202.

Figure 1.4.2 - Jacob Thuesen, Intensified traffic in downtown Hamburg as the prerequisite site condition for the Temple of Tritonalism



architectural academia is the tendency towards a wholly determined curriculum, as if each of the prescribed courses would represent the sum of all ‘core’ knowledge of architecture, and the successful completion of these courses would impart all the knowledge relevant to a practice of architecture. In courses of history and theory as much as technology or professional practice, they argue, knowledge is so often represented as an immutable ‘canon’ that is endlessly reproduced, restricting access to other

knowledge, particularly knowledge that is outside the experience of a faculty that often does not represent the diversity of their student body or of society as a whole. Science fictioning, in this sense, does not deny that such categories are essential to the discipline, but it tries to ‘weird’ these categories, seeing the multiple narratives that have constructed, and continue to construct architecture, opening up the discipline to new perspectives, affiliations, and articulations.

Nevertheless, even while a speculative pedagogy would resist proceeding from a fixed curriculum, protocols of representation and communication in architecture have temporarily stabilized around digital drawing and modeling tools, which begs the question of whether these are better communicated in a so-called banking mode of education.

One experiment in science fictioning technology asked whether it was beneficial for students to, metaphorically, re-invent the wheel; I developed the course called Future Archeology⁷⁵ as a part of the school’s program in digital literacy. Rather than teaching students a single method of digital design and fabrication, I supplied each group with a single artefact, and asked them to reconstruct how it might have been made, what its place in a tectonic assembly might have been, and what story it was telling about the people who built it. While this experiment is discussed in greater detail in its own chapter, the experiment was able to reframe technical education around digital drawing, parametric software, and robotics as a kind of science fiction. Rather than the one-way transmission of knowledge usually associated with such teaching, the intention is that students could see digital fabrication as a place of speculation and discovery, developing their own processes and even tools rather

75 See Chapter 2.5.

than following an established protocol. As a teacher, I was there to frame students' speculations and, while they were learning, to help adapt the speculations to the specific languages of digital code and robotics. While this experiment did show it was possible to explore technology as a kind of estrangement, I'm afraid I cannot say for certain that it is preferable. What we may conclude however, is that, while in order to engage with the discipline in any way, students need to know about existing representational tools, it also behooves the tutor to communicate these tools' instability, their existence as narratives, and not as inevitable or immutable parts of the discipline. This is all the more relevant in the current climate of technological acceleration, when any process will shortly be overturned. While this course did include learning about the Rhino and Grasshopper software platforms, its focus was on the students' own agency with respect to learning about these platforms.

Science fictioning so far has been presented in the way it works upon the imaginations of a single project. But these individual projects are not discrete, they emerge from and in relation to a disciplinary discourse with its own science fictionality. Science fictioning in this sense also works to understand the narrative and speculative dimensions that frame the discipline itself. Elsewhere,⁷⁶ I have looked at the ways both historical and contemporary technological projects in architecture align with a specific socio-political imaginary, both R. Buckminster Fuller's project, and also the recent projects collected under the title of *Discrete Architecture*. Under closer scrutiny, the purported utopian ambitions of each project begin to show that their socio-political ambitions are meant to be accomplished with technical, rather than social means. Moreover, both technical projects have already been explored in significant detail within the "megatexts" of SF.⁷⁷ Fuller's project most closely mirrors the dystopian fictions around technical automation such as Zemyatin's *We* (1921) or Vonnegut's *Player Piano* (1952), while the technical innovations informing the discrete—CNC robotics—have featured largely in Cory Doctorow's *Makers* (2010) and *Walkaway* (2017), in both positive and negative articulations. As science fictions and as architecture, these projects are dystopian—their socio-political ambitions are

76 Joel P.W. Letkemann, "Critical Dystopias in the Digital Project," *In Folio*, no. 36 (2021): 90–97.

77 Megatexts, as Broderick argues, are icons that are developed in dialogue between individual works of SF – ideas such as faster-than-light travel, humanoid robots, or the rogue artificial intelligence are all developed in articulations and references across the genre without a specific origin text. Authors will anticipate that many readers of SF will be sufficiently familiar with many such megatexts and thus curtail any excessive exposition. Damien Broderick, "Reading SF as a Megatext," in *Science Fiction Criticism: An Anthology of Essential Writings*, ed. Rob Latham, Reprint edition (London ; New York: Bloomsbury Academic, 2017), 139–48.

supposed to be accomplished with technical means, and can only re-inscribe the failures of contemporary technocratic culture. I argue they might be most charitably read as critical dystopias, following Tom Moylan's formulation,⁷⁸ that is, as a warning against any futurity that sees its aesthetic and technical novelty as accomplishing, rather than serving, an improved human and environmental condition.

The work of science fictioning might even be turned from motives and artifacts into *creating* narrative strands from history, might be able to reveal aspects of a practice that escape the notice of disciplinary norms. For example, the project *Women in Danish Architecture*, based at Copenhagen University, is just such a project.⁷⁹ The new point of view—the perspectives afforded by a new situation or optical device—change the substance of the disciplinary narrative—in this case, the otherwise overlooked contribution of women to Danish architectural practice in the 20th century. While I cannot claim my own experiment has the same cultural import, the project titled *Future Archeology* also initiated students into this process of constructing history, however fictional these histories turned out to be. In this project, as well as recreating the process that made the artifact, these groups also had to speculate on where the artifact came from, much as an archeologist would. This kind of science fictioning sees historicity itself as narratively defined—not so much that history is untrue but that each narrative be understood as having its own situated perspective and degree of subjunctive contingency.

The sense of science fictioning on this disciplinary level is to look at projects as SF, and to see them as narratives in dialogue with other disciplinary fictions, and also with broader cultural articulations of futurity. Looking at individual projects as science fictional suggests that that the discipline does not exist outside of these narratives, but is constituted by them—that the discipline itself might be understood as SF. While the previous chapter argues against a stable definition of architectural discipline, the work of science fictioning then, is in how this is communicated to students. Indeed, just as the experiment *There and Back Again* started with short SF texts, as a tutor I was able to situate these short stories and the students' discoveries in relation to other works of SF, both architectural as well as other media. The relation between architecture and media in Ballard's "Motel Architecture" suggested a dialogue with other explorations in architecture, such as Diller and Scofidio's

78 Tom Moylan, *Scraps of the Untainted Sky: Science Fiction, Utopia, Dystopia*, Cultural Studies Series (Boulder, Colo: Westview Press, 2000).

79 "Women in Danish Architecture" (University of Copenhagen, August 22, 2019), <https://ign.ku.dk/english/women-in-danish-architecture/>.

Para-Site (1989)⁸⁰ or Slow House (1991),⁸¹ along with Reyner Banham's discussion of services in and as architecture.^{82,83} In a larger sense, such explorations suggest for a student that what making architecture is about is hardly settled, and that the discipline itself is presented as contested and unfinished. The next section introduces how the figure of the architect is also similarly estranged, and of the student's own agency in constructing both the discipline and the figure of the architect-to-come.

Science Fictioning: Inner Space, the Architect-to-Come

Just as science fictioning works against the formal closure of discipline, so too is it instrumental in (re)constructing the figure of architect. The process of pedagogy is, by necessity, responsible for shaping the emerging subject—the subjectification—of the prospective architect. We will call this figure the becoming-architect.⁸⁴ Together, the teacher (also a becoming-architect themselves, and a becoming-teacher) and student are pursuing a practice in architecture, but just as we cannot know what a future architectural practice will be like, so too, the architect of the future is also unthinkable. Together, they must write the architect as a conceptual persona, as a science fiction with the full knowledge that it is a contingent and vanishing spectre.

A science fictioning practice works towards the “unbecoming” of the terms framing ‘futurity,’ or even ‘human,’ or ‘education,’ and likewise, science fictioning architectural pedagogy does not aim to define ‘architect.’ Quite the opposite, we don't yet know what an architect can be. The ‘architect-to-come’ is an imaginary, even utopian discursive mirage—a science fiction narrative that gets told by teacher and student alike. Moreover, the figure is constantly constructed anew by each prospective architect—each becoming-architect confronted with their own unbecoming. Just as

80 “Para-Site,” DS+R, accessed June 13, 2021, <https://dsrny.com/project/para-site>.

81 “Slow House,” DS+R, accessed June 13, 2021, <https://dsrny.com/project/slow-house>.

82 Reyner Banham, *The Architecture of the Well-Tempered Environment*, 2nd ed (Chicago: University of Chicago Press, 1984).

83 For a longer discussion of this project, see chapter 2.4.

84 This figure is inspired by Deleuze and Guattari's *A Thousand Plateaus*, and is principally useful in that understands the becoming-* figure as a processual ontology. The closure of a term – whether the becoming-woman, -child, or -animal, is only occurs in the stillness of death. As we discuss the emergence of the becoming-architect, we understand it as becoming always in milieu, in relation to itself, but also to a multiplicity, an assemblage of relations outside of itself. In the project, the becoming-architect always a hybrid – a part of chimeras such as student/studio, student/profession, student/teacher. These do not emerge from a filial or evolutionary relation, rather more fluid web of influence. Deleuze and Guattari imagine a different kind of relationship: “the vampire doesn't filiate, it infects.” *A Thousand Plateaus*, 242.

unknowing invites the teacher to a humble admission of their limitations with regard to the future, writing the architect-to-come involves the teacher estranging their own idea of what an architect is. We do not aim to create another stable figure, we aim to perpetually question this role. Such a practice is to introduce students to this process of continual discovery. The teacher does not aim to help the student find themselves, but rather to suggest that once they have found themselves, they must begin to lose themselves again.

We describe some of this character of the architect-to-come by way of looking at what imaginations of the architect might emerge, but also, the conditions for such imaginations to emerge within the pedagogical practice described here. With the awareness that the pedagogical practice is instrumental in constructing each student's image of the architect-to-come, this work tries to cultivate the individual subjectivities of students. It is useful to remember that the becoming-architect is only a small part of a much more complex becoming-* of the student. As such, it is useful to consider teaching practices which address the classroom as a space of socio-political encounter, and which argue for re-articulating relations of authority, empowering students to challenge dominant epistemologies and representations of knowledge, and ways of acting in the world in their process of self-discovery as architects and as more entangled complexes of subjectification.

One aspect of such a practice is articulated by Freire's *Pedagogy of the Oppressed*.⁸⁵ Freire's critical pedagogy is drawn from his work in adult literacy with marginalized, Indigenous communities in the context of colonial oppression in his native Brazil.⁸⁶ Critical pedagogy recognizes all meaning-making as political, and every learner as coming to understand and situate their own subjectivity in relation to a polis. This is no less true of the architectural studio as space of meaning-making, it is a source

85 Freire, *Pedagogy of the Oppressed*.

86 It is somewhat incongruous to translate a model for decolonial pedagogy to the privileged space of higher education, as it risks the erasure of Critical Pedagogy's radical critique of colonial violence. These colonial practices, both in Brazil and elsewhere, brought poverty to Indigenous peoples and delegitimized Indigenous peoples' political power and knowledge practices. Forgetting this would be to forget the debt this pedagogical tradition owes to such political practices. Nevertheless, Freire's model has been widely and influentially emulated across a wide range of academic practices. See the testimonials in the 50th anniversary edition of Freire's work: Freire; and, for example, hooks, *Teaching Community*; bell hooks, *Teaching to Transgress: Education as the Practice of Freedom* (New York: Routledge, 1994).

of disciplinary narratives and not only for students; the studio is a site to produce, re-produce, or contest existing ways of knowing about the discipline and about the work of the architect.

In the context of the vast and contested knowledge of the discipline, the challenge of architectural education is to enable students to articulate their own subjectivity in relation to disciplinary knowledges and histories, but also to make them aware of and empowered to act upon disciplinary lacunae. This is especially important in architecture studio, where success does not depend primarily on mastering a body of expert knowledge, but rather on their creative engagement with the problem that is posed. Given the complexity and murky boundaries of the discipline, it is somewhat of a paradox that most legal jurisdictions impose a singular model of a professional architect, to which every student must eventually assimilate—often through enacting the model embodied by their teacher. While a ‘banking’ model of education might be appropriate for such a singular imagination of the discipline and practice, Freire argues that any liberatory education must begin with understand the student as already bearing their own histories and knowledges. Freire argues, their subjective becoming is not a result of a fixed body of knowledge, but rather of the student’s being able to reflect on the world in order to act in it from their own position in the world.⁸⁷

C. Greig Crysler writes about the potential for applications of Freire’s theory in architectural education.⁸⁸ He argues that, from the first year, the aim of much architectural pedagogy is to erase students individual experience—their personal, material, cultural and intellectual histories—in order to produce “empty vessels” ready to be filled with the knowledge of the faculty; as I wrote in my discussion of the innocent eye,⁸⁹ first year courses in the latter half of the built upon a series of exercises representing architectural practice in a series of abstractions—drawings and compositions of geometric forms, rather than located in specific places, histories, or ideologies. The representation of architecture in such ‘ideal’ or ‘platonic’ geometries mirrors the initial empty abstractions imposed by the first year studies. In answer to this critique, he describes two strategies adapted from critical pedagogy.

87 Freire does propose a problem-based pedagogy very similar to the project-based education predominant in contemporary architecture studio education. Freire, *Pedagogy of the Oppressed*, 79.

88 Crysler, “Critical Pedagogy and Architectural Education.”

89 See chapter 1.2.

The first project he describes is housing project for a low income site assigned by Thomas Dutton, where students had to engage with people in the community that came from different class, race, and gender experiences, thus engaging with others as experts outside the students' knowledge territory. Students had to question the position of the architect as a "distanced expert," their own experience and knowledge in relation to the community they were designing for, and also the social constructions of appropriate knowledge and of construed power and authority inherent in the specific context of their interaction with the community. Such a practice, according to Dutton, enables a language of "demystification" of the practice, both for students and other stakeholders, and offers architecture a perspective to restore a commitment to project of human emancipation, and to understand an architect's agency as they work with and for human flourishing.⁹⁰

The second example Crysler gives comes from UC Berkley, a first year project titled "ancestor's house" where students explore their relation to their own cultural histories, memories, and historical representations while producing the house in clay. In this project at the very beginning of students' education, tutors acknowledge incoming students' experience and personal cultural history as relevant and significant to the process of learning and the development of architectural knowledge. Such a project disavows a closed canon of expert knowledge in the discipline. In this case, it is the tutor who must examine their own position as gendered, raced, and classed, and become ignorant in relation to the student's expert knowledge. This case showcases two aspects that are relevant to a critical pedagogical practice in architecture: first, the student is not passive recipient of 'teaching,' they are actively 'learning' while 'teaching' their teacher and take individual responsibility for it; they are the expert in relation to forces that have shaped their own subjective becoming. Second, architectural knowledge is not represented as static or canonical; instead, knowledge is represented as if in process, a part of larger socio-cultural currents, linked to students' experience of their own personal histories, and embodied in their everyday phenomenological experience. In this case, they do not begin as empty vessels, but as knowledgeable subjects, contributing that knowledge to an ongoing discussion. It is a challenge to existing hegemonic practices and canon recognizing the students' cultural experience and history as the site of knowledge which the teacher does not

90 Thomas A. Dutton, "Cultural Studies and Critical Pedagogy: Cultural Pedagogy and Architecture," in *Reconstructing Architecture: Critical Discourses and Social Practices*, ed. Lian Hurst Mann and Thomas A. Dutton, Pedagogy and Cultural Practice, v. 5 (Minneapolis, Minn: University of Minnesota Press, 1996).



Figure 1.4.3 - *Housing in a Rewilding Forest, Forest Succession Diagram* - Trine Mellemstrand Jarstø and Jens Toft Madsen

know, but which can have an impact on practice. Here, the teacher abandons the position as superior, knowing subject, and instead enters into a dialogue with the student as co-learner.

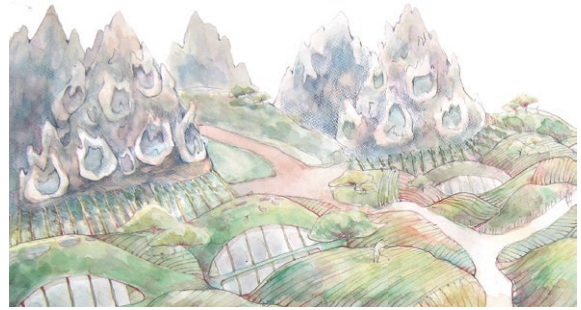
The experiments in this project, in full commitment to a student-led project-based pedagogy, similarly establish a framework for student's own explorations. Instead of critical pedagogy's language of demystification, however, I'm rather interested in how mystification and demystification work side-by-side. To propose a language of demystification is to presuppose a static external world which the student can uncover with sufficient critical attention. Science fictioning rather works entirely upon mysterious figures, figures that are never quite arrived, but rather co-implicated in their emergence; the architect-to-come is not separate from the world-to-come, and both fictions can be told in dialogue with one another. As Beier writes, Freire's critique,

“relies on images of the world as given, in turn ignoring images of the world as it might be... it is therefore necessary to replace limiting models of critique with those of belief, wherein belief is not only conceived as a disposition to act, but also that which necessitates a different understanding of bodies and the relations found between them ... human subjects, for instance, are not considered totalized bodies but as partial objects that find potential vectors of subjectification that might create belief in a world, and thus create the world itself.”⁹¹

What is interesting for me at this stage is where the subjectivity of the student begins to reveal unique ways of thinking or working—joining the growing variety of practices which spill out of a discipline artificially constrained by its singular name. What this means for me is that the initial framework supplied by the project brief should be open enough to allow a significant degree of exploration on the student's part, whether this is in addressing topics that extend or even contradict the initial provocations or introducing ways of working or thinking that are outside my own experience. These students imagine new practices for the architect-to-come. Some premise their work upon more-than-human worlds, as Trine Mellemstrand Jarstø

91 Beier, “The Future Is Cancelled,” 293.

Figure 1.4.4 - Quynh Nguyen. Törten Park (Detail)



and Jens Toft Madsen's project which takes 're-wilding' and a forest's renewal as its starting point [fig. 1.4.3]. Lucia Garcia de la Pena's project for Parasite studio suggests that the work of the architect is in attentive occupation of existing spaces rather than building new spaces, in her project, the architecture is not parasitic, the architect-inhabitant is, probing the existing city for the possibility of new modes of inhabitation.⁹²

While it can never hope to encompass the whole of human or more-than-human society, the space of architectural education can become a space to enact not only shared responsibility, but also shared vulnerability. In a search for strategies for pedagogical space to explore futurity, Anthony Nanson suggests places to cultivate respect, empathy, dialogue, sometimes desire.⁹³ Desire is often not defensible on rational grounds, and is difficult to justify inside an architectural project. Levitas, however, reminds us that utopia can proceed from affective investment that precedes rational expression.⁹⁴

Quynh Nguyen's project Törten Park, for example, is driven by a desire to encounter non-human species in a dense suburban housing development. She takes the artificial landscapes of the English landscape tradition as an inspiration, along with that tradition's tendency to construct encounters with the natural and pseudo-natural in order to create an intensified hybrid of housing development, farm, park, and shopping centre [fig.1.4.4]. This space of affective desire was first articulated and explored after I encouraged a shift in media to one more comfortable for the student, namely watercolour painting and sculpting in clay, before returning to the geometric specificity typical of architectural representation. While we could not know the result beforehand, it was important in this project to find an avenue to cultivate the student's personal investment in the project, an investment, in short, that had to be drawn intuitively before it could be explained. While the project contains significant

92 For further discussion, see chapter 2.6.

93 Anthony Nanson, "'The Future Has Gone Bad; We Need a New One' Neoliberal Science Fiction and the Writing of Ecotopian Possibility," in *Storytelling for Sustainability in Higher Education: An Educator's Handbook*, ed. Petra Molthan-Hill et al. (Abingdon, Oxon ; New York, NY: Routledge, 2020).

94 Ruth Levitas, *Utopia as Method: The Imaginary Reconstruction of Society* (Houndmills, Basingstoke, Hampshire ; New York: Palgrave Macmillan, 2013), 177.

discussion of land use strategies, housing density, and multi-species coexistence, the joy of the project is in sustaining this first affective investment, translating the joy of these composed landscapes into the aesthetic sensibility of the final project.

Becoming an architect—the student as ‘becoming-architect’—is a subject in process. The architect never arrives fully formed. Likewise, the becoming-architect’s ‘architect-ness’ is only a small part of a much larger process of subjectification. Following Felix Guattari, we will define subjectivity as the “ensemble of conditions which render possible the emergence of individual and/or collective instances as self-referential existential territories, adjacent, or in a delimiting relation to, an alterity that is itself subjective.”⁹⁵ The subject is continually shaped by multiple modes of subjectification across several scales, from their own senses, to interpersonal relations and larger machines of signification—nation, religion, media. That is to say, the becoming-architect does not arrive as a blank slate—they come with their own histories, passions, and ambitions. While Freire reminds us of the ethical imperative to recognize and empower the diverse subjectivities under a teacher’s care, it is also important to remember that just as the becoming-architect is not static, neither is the architect-to-come. Furthermore, neither are static in relation to a teacher-to-come, a discipline-to-come, nor indeed to other worlds-to-come. The becoming-architect is rather a subject who is shaped and who shapes a dynamic world in a polyvocal chorus. It is this chorus, this speaking together, which demands a careful consideration.

One aspect of this polyvocality has already been explored in the students’ reading with and from works of SF and other modes of estrangement. As much as polyvocality might inspire a different understanding of the world, it also creates encounters with the self. In science fictioning architectural pedagogy, the figure of the architect, and the students’ awareness of themselves as architects, is mutated and opened to polyvalent discourse as the various experiments place different voices in collaboration in order to sustain a resistance to closure. In short, the architects-to-come are also (re-)constituted by polyphony, the ensemble articulations that co-mingle in constructing the figure—ongoing dialogues with the multiplicity of other actors including the teacher, fellow students, and the discipline.

95 Guattari, *Chaosmosis*, 9.

Utopia as Ontology

As well as describing how encounters perpetually constitute the individual subject, polyvocality can describe a condition in the socio-political space of the classroom or studio, where the subject meets others and is shaped by this mutual exchange. Therefore, I close this chapter with reference to Ruth Levitas' conception of utopia as ontology.⁹⁶ Utopia has been a constant companion in this work; Levitas' modes of utopia as architecture, and utopia as archeology are joined in chapter 1.3 by utopia as practice—an insistence on the pursuit of utopia as a mode of discovery rather than an object. Finally, utopia as ontology asks us to consider the agencies that constitute that utopian practice. While we have already discussed the becoming-architect as one of the active subjects inside a pedagogical practice, this section asks us to consider the science fictional pedagogical practice as, by necessity, utopian. It is utopian in that, like SF, it features some sense of subjunction—of possibility, contingency, openness, resistance to closure—and is animated by a desire for human and more-than-human flourishing. In a science fictional pedagogy, we might start with the character of the architect-to-come, but this character is already polyvocal; it is a story that is shared with other actors, subjects, and stakeholders. How does architectural education pre-figure not only the architect-to-come, but *enact* the studio-to-come?

Levitas writes that some resistance to utopia is on the basis of the assumption that human nature is just that—natural, that it is defined by biological imperatives and therefore static. Pursuing a utopian society, according to this line of reasoning, is impossible because humans are necessarily imperfect. However, following Deleuze and Guattari, our own argument proceeds on the basis of perpetual human subjective becoming—not only that humans have the capacity for change, but are, in fact, *characterized* by it. Speaking as a sociologist, Levitas argues that such an image of a static human 'nature' is belied by the sheer diversity of human societies that have been observed and recorded. "The utopian project," she writes, "is not imperiled by an incapacity to change and become otherwise but impelled by our capacity, need, and desire to do so."⁹⁷

While I started this chapter with the difficulty of imagining the future, I also acknowledge that it is important and necessary. The role of the architect-to-come in this endeavor is similarly difficult to draw out, and their definition is contingent on the factors involved in their perpetual becoming. The utopian ontology in Levitas'

96 Levitas, *Utopia as Method*, 175–96.

97 Levitas, 196.



Figure 1.4.5 - Cooperative Work Group

method should similarly be understood as a processual ontology. Therefore, architectural education should never say what the architect of the future should be. Instead, the job of architectural education is to create the conditions to explore the possibilities of the architect-to-come as much as how such a figure joins other subjects in fictioning a world. As well as the individual subject, then, the polyvocality of science fictioning also suggests the possibility of constructing a socius-to-come—a place not only to imagine ourselves otherwise, but also to imagine our relations with earth-others otherwise. The architect-to-come is entangled in numerous ways with other subjects in becoming, not least between the individual and the social, thus it is helpful to imagine the space of architectural education as a prolific space to encounter shared modes of practice that bring other collective subjects into focus.⁹⁸

From critical pedagogy we learn that rather than imposing an artificial power relationship with teacher at top, the classroom may be organized as students and teacher join a co-intentional dialogue, where it is the job of the teacher to become a partner with the student in mutual learning:

“pedagogy as a critical practice should provide the classroom conditions that provide the knowledge, skills, and culture of questioning necessary for students to engage in critical dialogue with the past, question authority (whether sacred or secular) and its effects, struggle with ongoing relations of power, and prepare themselves for what it means to be critical, active citizens in the interrelated local, national, and global public spheres.”⁹⁹

In this situation, the teacher is not a knowledge bearer, both become co-learners together, and the humility of the teacher is crucial in the student being able to critically examine the world together. This empowers the student to articulate their own subjective position vis-a-vis the language of power and ideology, and to articulate their

98 Although it comes too late in my own writing to include a comprehensive discussion, Kasia Nawratek has lately published some exciting work on the relation between Bakhtin’s Polyphony, architectures of care, and radical inclusivity: Kasia Nawratek, “Hope in the Burning World,” in *Everything Needs to Change: Architecture and the Climate Emergency*, ed. Sofie Pelsmakers and Nick Newman, vol. 1, Design Studio (London: RIBA Publishing, 2021), 86–97.

99 Henry A. Giroux and Susan Searls Giroux, “Challenging Neoliberalism’s New World Order: The Promise of Critical Pedagogy,” *Cultural Studies ↔ Critical Methodologies* 6, no. 1 (February 2006): 28, <https://doi.org/10.1177/1532708605282810>.

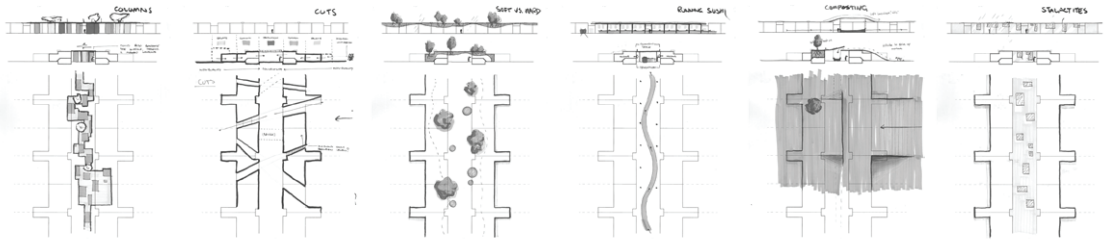


Figure 1.4.6- Cooperative permutations of cross section for Emma Helene Rishøj Holm and Rasmus Svane Høj's Project

own authority—their becoming an author of their own knowledge. As bell hooks, following Freire, reminds us, it is of principle importance to democratic education that the educator work towards shaping the classroom as a learning community. In building up a spirit of closeness and intimacy, students become critically aware of their place in relation to the social milieu of the classroom, and become able to assert themselves within this milieu. So hooks privileges conversation as the place of a learning encounter, a space of dialogue in which teacher and student and students together can support each other in mutual learning.¹⁰⁰ This attitude already echoes the 'desk-crit' in its recent incarnation in architectural learning, especially where the teacher leaves space for a student's own discovery. As well as the encounter between teacher and student as equals, in the experimental practices of this project, I have also attempted to play with how students come into dialogue with their peers. I'd suggest that these begin to inform the barest contours of another fiction: a studio-to-come.

The New Törten Estate experiment intentionally encouraged polyvocal exchanges in staging studio work groups in order to estrange students from their own project, to help each other see one another's projects through new eyes. Several times during the semester, studio time was devoted to sessions where students sat in groups and worked on each others' project. Each student had an equal portion of time to come to their colleagues with a problem or decision in their project that they would talk through. As a whole, the group would then discuss the context, parameters, and a range of solutions or considerations for the given stage of the project. As well as a way to cultivate comfort with vulnerability and not-knowing, it was a way to estrange their own relation to a project, and a way to privilege dialogue over singular authorship [fig. 1.4.5]. In such discussion groups, students also grew to understand that knowledge is not communicated by a teacher or canon *ex cathedra*, but is more productively constructed in and through encounters in which they are implicated. For example, Emma and Rasmus came to the discussion group with the question about the cross-section drawing of their project, but as the group talked through this cross section, and discussed various permutations, the questions turned from light and spatial experience to how their section could suggest collectivities across different scales, between dwellings, and in the project as a whole [fig. 1.4.6].

100 hooks, *Teaching Community*, 41–49.

Group work is a fixture of many of the experiments in this project. Playing Innocent also introduced this polyvocal meeting in another illustration of how heteroglossia shapes the architect-to-come in multiple ways of speaking together. The first phase of this project asked students to translate the affective and relational modalities from a work of short fiction by J.G. Ballard. After the initial experience of speaking with and from the work of Ballard individually, the remainder of the project asked them to switch repeatedly between working individually and in groups of four. Because their interpretations of the first text often radically different, they could see their practice as one possibility among many. Such a strategy would dismiss the possibility of seeking the right answer, and open students to a space of negotiation and interpretation that meant their individual subjective positions needed to be expressed in multiple modes of articulation, the word, sketch, diagram, model, communicating their subjective learning to one another. Such exercises with learners at a similar stage in their development reveal to each student how their own knowledge is constructed, and how it relates to others' constructed knowledge. So, in this way the group work teaches collaboration, but there is another layer in this encounter where they negotiate an image of the architect together, constructing the self—temporarily, at least—by taking individual responsibility in relation, but understand the self in larger collective identity. The final phase of this project was a theoretical essay which had students rearticulate the aims of their project in relation to other architects' work, or disciplinary perspectives from architectural history and theory, placing the students' own work inside of ongoing dialogues within the discipline.

As a part of exploring the possibilities of a future architectural practice and different forms of collectivity, *Materializing Collective Futures*¹⁰¹ is on one level an experiment in the configurations and permutations of the studio as it enacts a utopian ontology. Among its ambitions is the way it constructs a figure of the architect in relation. As students joined one another in groups, they had to begin with understanding and sharing their individual values and motivations for practice—often probing a much more personal space than they had previously done and articulating their desire for practices that were sustainable, life-affirming, and which contributed to social good. After they had shared their individual values with each other, groups had to name themselves based on these shared, negotiated values.

Later, the project asks individual members of the group to take on different roles: the architect as builder, as mediator, and as storyteller. They must take on

101 See Chapter 2.7.

individual points of view within the project but still work together. The architect as builder must consider the material realization of the project—such as material and fabrication processes. The architect as mediator must pay special attention to demands of the community in the participatory process. The architect as storyteller must pay attention to representational strategies, synthesis of different demands, and maintain attention to the article of hope that has defined the aims of the project. Such a division of labour creates the possibility for dissensus, realizing that the figure of architect is not singular, nor that the work of an architect could be captured in only three roles. As the work progresses, who does what and how people become responsible for different parts of the project is a perpetual negotiation. The roles are a fiction which captures some dimensions of practice, but students also realize dimensions which are not captured by these roles, or indeed could not have been foreseen by their teachers. This project also invited other expertise in welcoming other stakeholders in the project to join the conversation in another polyvocal encounter, not only affirming the value of perspectives from the community, but also in valuing the communities' own visions for the future of the site as all stakeholders told the story of the site's future together.

These few examples illustrate how the relations between students in the studio can be organized within pedagogy. While each of these strategies may have spatial implications, these strategies largely imply how different subjects meet one another, and how they are empowered to speak together. While the teacher remains a constant fixture, they understand that becoming-architects can begin to self-articulate alone and together, and take ownership of the encounter. In this case, the studio becomes a microcosm of practice, but also, students understand it as a space they are complicit in constructing. The quality of utopian ontology it proposes is, and can only be, in its maintenance of openness and contingency in its perpetual reimagining of utopian spaces.

With this in mind we can turn to the concept of the architecture studio-to-come, the place of architectural learning. In invoking the studio-to-come, I also invoke the kind of fictionality that we also find in the architect-to-come. What ever is 'to-come' does not yet exist in the world, it is a figment of imagination, or better yet, an article of hope. It is a shared phantasm shaped and re-shaped through discourse that, while never fully formed, can inspire a collective practice of innovation. In the meagre evidence of my teaching practice too, the studio-to-come is only caught as a mirage—it has not and will never arrive. Nevertheless, I write the studio-to-come in the speculative encounter of this text, as another SF among many, but one

which carries hope in a way that mere description cannot. And in particular, in the following, I argue that the studio-to-come is predicated on those who participate in the studio—in particular the person who takes the role of the teacher—being vulnerable to the ongoing process of fictioning.

It is important here that when I talk about the studio I do not refer only to the physical space. Rather I am describing what Helene Frichot, building upon the work of Michel Foucault calls an “environmentality.” As well as sharing the physical space, subjects that meet together share a common mental environment; she describes how, in gathering together, individual subjects are formed by their relations to one another and the environment they are in: “The human subject is collectivized amidst a population that takes shape reciprocally with its environment.”¹⁰² Frichot continues that the development and negotiation of the mental environment is in spatial relation but also between embodied subjects. She refers to noology in Deleuze and Guattari, who argue that the individual subject’s mind—the nous—is embodied, situated in time and place, and not an abstract mentation as might be observed in enlightenment conceptions of mind-body dualism. As embodied, each subject has their own position and unique perspective on the world. This does not mean that they are alone with their thoughts. Each encounter, *between* subjects and *in* spaces, is the site which produces a ‘noopolitics’—this is a term that Frichot uses to describe how concepts thought are not thought individually, but in collaboration with others who share the space—those who are embodied together.¹⁰³ Being together is thinking together.

The studio, as a space of learning, is a overt example of what happens when subjects meet one another, or rather a space where a noopolitics might be more intentionally defined. In such an encounter, ideas are not passed from one person to the next whole, and especially not deposited directly from teacher to student. Instead, ideas and concepts are developed in conversation; in the studio, learning happens as ideas are developed, sharpened, mutated by the relations between people with whom we engage in dialogue. Following the conception of noopolitics, we are also in negotiation with the material environment as well, as it shapes our spatial relationships with one another, but also our relation to non-human others. The studio-to-come emerges as a possibility in our practice within the space of the encounter, the arrangement of

102 H el ene Frichot, *Creative Ecologies: Theorizing the Practice of Architecture* (New York: Bloomsbury Visual Arts, 2018), 30.

103 Frichot also suggest that noourbanology is an emerging method to describe the unique encounters between subjects and ideas on an urban scale. Frichot, *Creative Ecologies*.

subjects, the chorus of voices, choreography of bodies, the mutation of concepts—for all of which the teacher bears responsibility. If the studio-to-come might then be characterized less as a specific environment, and more about the event of learning, it becomes possible to discuss how the participants in a studio—the becoming-subjects both of student and teacher—are always in a vulnerable position to each other, and that this vulnerability is how learning occurs. As we discussed above in relation to critical pedagogy, the studio is already a space of socio-political encounter. My proposition is that, if we should preserve the productive valence of this noopolitics, it necessitates a vulnerability or openness to dispossession among participants, including the teacher.

Judith Butler and Athena Athanasiou use the concept of dispossession to describe how subjects come to affect and shape one another, and as a concept to critique the liberal image of the self-contained, self-determined individual. For them, dispossession “marks the limits of self-sufficiency and ... establishes us as relational and interdependent beings,”¹⁰⁴ it is a reminder that we are moved by each other as we meet each others. Thus, this condition of being dispossessed is a condition for sociability:

*“dispossession establishes the self as social, as passionate,..., as dependent on environments and others who sustain and even motivate the life of the individual itself.”*¹⁰⁵

While they acknowledge that dispossession often implies deprivation as a result of violence, where an individual might be deprived of their property or self-ownership, they also point at modes of encounter, through language, art, film, or the political performance of bodies, where the subject is drawn outside themselves, and such dispossession becomes productive in its openness to growth, change, and new alliances. For Butler, this is particularly true of the capacity to develop new constitutions of the subject, and also new political forces and forms of assembly. Recent street movements such as Arab Spring or Indignados, for example, are

104 Judith Butler and Athena Athanasiou, *Dispossession: The Performative in the Political* (Malden, MA: Polity, 2013), 3.

105 Butler and Athanasiou, 4.

possible on the condition of a shared dispossession—often enforced by material or bodily precarity, or susceptibility to violence, but which also forms a new social body with political to act politically.¹⁰⁶

I'd like to suggest that dispossession in a positive understanding can be a productive concept in making the studio-to-come. In particular, it suggests that participants would need an openness to be shaped by one another, and to co-construct the space of this learning together. The studio-to-come is not a space that can pre-exist those who define it, it is, as the image of the architect, shaped by those who participate in it. The pre-condition for such dispossession is a willingness to be vulnerable—and this is also true of the teacher, who must be willing to set aside their expert knowledge in order to welcome new conceptions of the discipline.

Vulnerability is also an important concept for Butler. By vulnerability, she does not mean a subject's being exposed to violence, although this is one aspect of bodily vulnerability that has a particular importance to political encounter—bodily susceptibility is necessarily coincident with becoming present and visible in political space. Rather, vulnerability and dependency are the precondition to any the sociable encounter, exposing the myth of non-dependancy at the heart of “masculinist” idea of the body. Vulnerability is the condition of being interdependent, and “challenges the dominant ontological understanding of the embodied subject;”¹⁰⁷ The human subject does not appear fully formed, nor are they bounded by the border of their skin, but are instead constituted by their relations—either material relationality or by relations in discourse.

“[vulnerability] characterizes a relation to a field of objects, forces, and passions that impinge on or affect us in some way. As a way of being related to what is not me and not fully masterable, vulnerability is a kind of relationship that belongs to that ambiguous region in which receptivity and responsiveness are not clearly separable from one another”¹⁰⁸

There is a power structure in place in the space of learning, an extension of the institutional power of the school—a structure that enforces vulnerability or dispossession upon those with least power. In order to answer a potential imbalance

106 see: Judith Butler, *Notes Toward a Performative Theory of Assembly* (Cambridge, Massachusetts: Harvard University Press, 2015).2015

107 Judith Butler, “Rethinking Vulnerability and Resistance,” in *Vulnerability in Resistance*, ed. Judith Butler, Zeynep Gambetti, and Leticia Sabsay (Durham: Duke University Press, 2016), 21.

108 Butler, 25.

of power in the studio, and to address the becoming-political of the becoming-architect, I'd like to suggest that vulnerability is also an appropriate disposition for the teacher. In this way, it is worth thinking about the studio as an infrastructure for collective political encounter—as the space to meet one another—and to recognize teacher's agency in composing/choreographing this meeting is first in affirming their own openness to vulnerability. As bell hooks writes:

*“When education is the practice of freedom, students are not the only ones who are asked to share, to confess. Engaged pedagogy does not seek simply to empower students. Any classroom that employs a holistic model of learning will also be a place where teachers grow, and are empowered by the process. That empowerment cannot happen if we refuse to be vulnerable while encouraging students to take risks.”*¹⁰⁹

That is, rather than imaging the teacher as the individual subject who is unmoved, and who maintains authority over the students—who initiates students into architect-ness in enacting and performing the role of ‘architect’ for them—we can imagine that the teacher is one who enacts an openness—the willingness to acknowledge their own limitations, their own process of discovery within the evolution of the discipline and the figure of the architect. It also means being willing to be vulnerable to the power relations already present, to be susceptible to the hegemonic power represented by one's institution—even to resist it if necessary as a way to empower students against the reduction of their future practice to the demands of present-day governance.

So, when I speak about a studio-to-come, I am not describing a specific space so much as an attentiveness about how encounters are structured, maintained, and mutated through the course of an education. The strategies I have describe to this effect are those which encourage dialogue, openness to estrangement, to not knowing, and finding out together. It is also a polyvocal space—as Sabsay reminds us, Bakhtin's polyvocal encounter does not just entail the becoming of a text in relation to the reader, it is also a condition of vulnerable intermingling between subjects.¹¹⁰ It entails a sensitivity to how vulnerability and dependency are a part of this socio-political encounter—and not only how students are vulnerable to

109 hooks, *Teaching to Transgress*, 21.

110 Leticia Sabsay, “Permeable Bodies: Vulnerability, Affective Powers, Hegemony,” in *Vulnerability in Resistance*, ed. Judith Butler, Zeynep Gambetti, and Leticia Sabsay (Durham: Duke University Press, 2016), 286.

one another and to the teacher, but also how the teacher must make themselves vulnerable, maintaining their own invitation of the teacher-to-come, even when it risks the teacher-that-is. Rather than enacting the model of ‘architect-ness’, if the teacher is to enact something, maybe it’s better to enact the kind of vulnerability that is about another’s flourishing as much as it shapes one’s own becoming. The becoming of the students necessarily entails becoming of the teacher and *visa versa*, one does not happen without the other. The strategies of unknowing, wildness, and openness to estrangement, and the invitation to polyvocality are all ways of affirming one’s own dispossession in relation to the socius of the studio and to what is still in construction—that is still within the process of science fictioning.

1.5 Elaborate Strategies of (In)Direction

The title of the present project comes from Frederic Jameson's discussion of SF estrangement. The elaborate strategies he is referring to are the ways in which SF literature is able to defamiliarize a reader's experience of their own present, as if to make it unfamiliar. In doing so, he writes, such unfamiliarity serves to reveal one's present circumstances anew, without the weight of habit. It is these "elaborate strategies of indirection" which produce the possibility of a critical encounter with reality, they "defamiliarize and restructure our experience of our own present," a present whose tendencies are otherwise opaque to our understanding or intervention.¹

I choose the title to maintain an attachment to the quality of (in)direction. In these pages, I'm not defining science fictioning as a specific methodology so much as arguing for science fictioning as a practice of searching out perspectives and positions from which to estrange my experience of my own practice, to do the same in the context of education, and in doing so, illustrate the same for my reader, inviting them to make a similar appraisal of their own architectural or teaching practice. In leveraging the elaborate strategies of (in)direction in these pages as a perpetual provocation, I hope to maintain a stature which is resistant to the closure of terms defining architectural education—I have especially turned my attention to the 'future' and the discipline of architecture and the figure of the architect themselves. However, the parenthesis surrounding (in) in the title, which I have added to Jameson's quote, remind us that estrangement can be a guide as much as it can lead astray, that in developing different ways of looking at our practices, we reveal them to ourselves anew. It is this tension between mystification and demystification which is so useful within the context of architectural pedagogy as much as it is for reflection upon that pedagogy.

As well as developing the theoretical relation between architecture and SF scholarship more generally, one of the contributions of the present thesis is to develop how this reading of architecture becomes productive in design education in the architecture studio. However, the relation between the theoretical developments and their use in

1 Frederic Jameson, "Progress versus Utopia, or, Can We Imagine the Future? [1982]," in *Archaeologies of the Future: The Desire Called Utopia and Other Science Fictions* (London: Verso, 2007), 287.

practice is not linear. Therefore, while the previous chapter synthesized some aspects of the theoretical contribution, the present chapter describes how the experimental practice has become an active part of the present project.

Designing The Experiments

The present section elucidates how I have used the experiments to contribute to the knowledge of the project. The perspectives I have developed and framed as 'novum,' 'estrangement,' and 'speculation,' and 'science fictioning' are all ways of thinking about a practice in teaching architecture that have emerged as I have explored them both theoretically and practically. These are not hierarchically related, but rather different perspectives on a practice that are rather more convoluted within the project than their linear presentation may seem.

As these perspectives are derived from SF scholarship and from other theoretical perspectives, their specific contribution to architectural teaching is not immediately apparent, and one of the questions at the beginning of the present project is, in a general sense, to examine how SF is a useful way of thinking about architecture, which is one of the aims of the present set of experiments. These experiments, however, are not aimed at instrumentalizing SF, but are rather more explorative, searching out what these concepts might reveal about teaching architecture.

In fact, I'm quite sure 'experiment' is something of a misnomer for the works in this project, but which remains for the sake of expediency. If they can be said to be experiments, they are more closely related to field experiments in that they are subject to a complex intermingling of active elements from inside and outside the experiment, all of which may have a bearing on the 'result.' Moreover, with the 'result' in hand, they are not subject to quantitative analysis so much as to critical analysis and synthesis from the theoretical point of view of the project at the same time they are challenging the theoretical point of view. Thus, The experiments are both a case-study in relation to the project—an object of analysis from the theoretical perspectives, as well as the site of knowledge development—the experiments are where the theoretical contribution as much as the teaching methodologies are tested and refined. While a strict comparative method of analysis between the seven experiments would not be possible given the different contexts of each experiment, there are several continuities which can be explored using the vocabulary developed in the theoretical portion of the project. This chapter tries to develop such a cross-reading of the project.

The second half of this book presents the projects in chronological order, as the questions I was asking of each experiment and the intentions I brought to each instance of ‘science fictioning’ developed as I learned both from earlier experiments and also from how I synthesized this learning with a continued engagement with theoretical perspectives. As I continued through the project, I was able to critically reflect upon and develop the framework and methodology under consideration, with reference to the theoretical perspectives driving the project. I was then able to return to the next iteration armed with additional knowledge, able to develop my approach and to probe new nuances of what science fictioning might entail. This constant relationship between doing, reading, and writing with the experiments forms a pseudo-iterative process, but with significant interventions or evolutions in each stage.

I have approached these experiments much as I would a design practice. That is to say, given the range of interrelated concepts at work and the diversity of interpretations that each concept invites, we very quickly run into a problem which falls squarely into the category of a “wicked problem,” as described by Rittel and Webber.² This particular wicked problem includes different layers inside the project—the various concepts that intervene at the scale of an individual project, but also at the scale of the discipline. It also includes the complex network of demands outside the project itself. The experiments here are my own attempt at synthesizing these diverse demands much as a design exercise, answering the demand of the teaching context as much as the questions I wanted to ask about a science fictioning practice.

As I have written, I am not the first to use SF in architectural education. In some cases, other architectural scholars have even published the results of such teaching. However, the contribution of SF to the *process* of teaching architecture has not been described or theorized to any great degree. In order to engage with the process of teaching architecture with/as SF, I included practice-based element in the project with which I can develop insights into how SF is working throughout the process and use the different circumstances in which I am teaching to test different aspects of such teaching, and finally develop a vocabulary and insights into how such a practice might unfold. Therefore, the theoretical developments of the project are tested against existing practices in architecture and design, but also within my ongoing speculative teaching practice.

2 Rittel, Horst W. J., and Melvin M. Webber. ‘Dilemmas in a General Theory of Planning’. *Policy Sciences* 4, no. 2 (June 1973): 155–69. <https://doi.org/10.1007/BF01405730>.

My reading of SF scholarship and other works of critical theory have made me aware of different understandings of a SF practice, but how these are activated productively when teaching architecture is not immediately obvious from this scholarship. If SF scholarship can supply a description of how such popular media works, at least according to those authors who have discussed it, it has not been turned towards architectural education specifically, and thus, the practice-based experiments set out to understand how the concepts I have identified are used and usable to describe an architectural or teaching practice, asking: what are the parameters which can define SF's contribution to teaching architecture?

I have found that using these perspectives in a different way requires a work of translation. Like works of translation between languages, this is not a simple matter. In exploring how a concept from SF might be adapted to thinking about architecture, I am sometimes able to look to existing works of architectural production. However, at other times, I found the best course of action is to develop a more focused investigation in practice—to develop a way to test that translation in an experiment.

And so, one aspect in which the interaction between experimental and rhetorical practice is valuable is in how these concepts are translated when they are brought into teaching; understanding SF estrangement does not suggest its value for teaching architecture, and understanding the worlding potential of SF does not describe how it works within the representational conventions of architectural practice, and understanding architectural education as its own mode of SF is not possible without a close attention to a teaching practice. The role of the experiments in the present project is not to propose a best practice, nor to suggest a new methodological imperative; if, as I have written, architecture is a speculative practice, what the theoretical and practice-based elements of this project have done is to investigate how this is true about the process of teaching architecture, and to probe the implications of that alignment.

In designing the experiments documented in Part 2 of the present work, I framed my own questions around the key terms I have identified in SF scholarship, using the concepts of 'novum,' 'estrangement,' 'speculative practice,' and 'science fictioning' as a locus around which to organize the ambitions of each experiment. However, deriving each perspective from SF scholarship did not necessarily precede the experimental series itself; instead, they are coeval with the experimental practice. While I might already have encountered the vocabulary in my literature review, I was developing my own interpretations of these concepts as a way to explain what I observed within

my own teaching, whereupon the new observations, combined with the reading, helped me ask new questions about what I was doing. At first, I used my readings of the teaching experiments to ask questions like: am I proposing or observing SF estrangement? Or, what is new (*novum*) or science fictional about what I am seeing/doing? Later on, having observed several experiments, the questions became more focused: what sorts of estrangements can be used in teaching architecture? Are students producing SF themselves, and how? What SF am I producing as I teach in this way? While chapter 1.4 describes how these different conceptual frameworks are synthesized, this chapter describes how they were addressed within the speculative experimentation of the practice-based portion of the research and discusses the results of this practice.

As a researcher, I set up the framework for the experiment and I shepherd the process along but, with the exception of the experiment entitled *Making Worlds*,³ the results are produced by students. The knowledge that is produced in these experiments takes many forms—sometimes drawings or other visual media, models, essays and even more experimental or literary texts—all of which are collected for analytical purposes as the ‘experimental results.’ It is these works that are the record of the project, and each experiment has supplied a wide range of different interpretations of the same process from different students. They embody each student’s own interpretation and development of the project that I have set before them, and it is the broad set of results within each experiment which I can analyze and evaluate. In each case, I do not make strictly qualitative judgments of the student work, I am not interested in which is ‘best,’ but rather in the range of results, and even difficulties, afforded by the experiment.

It must also be said that in the spirit of a critical pedagogy, and with the project’s focus on authorship, while the framework of each course is defined beforehand, students have considerable agency in how the questions posed to them unfold. In the context of a teaching practice, the attentive teacher not only looks for or expects these moments, they also hope for them, as these are also the moments where a student might come into knowledge in their own way. The experiments described here, therefore, are all ‘boots on the ground,’ or rather more often, ‘seat of the pants’ situations. It might be some small reassurance to a reader who wants to pursue such a

3 See chapter 2.3.

pedagogical initiative that each of these experiments is so constrained; The potentials and critical perspectives described here do not need a *carte blanche* condition to happen and one might pursue a science fictioning practice in any number of ways.

The First Case: New Törten Estate

I'm getting ahead of myself. In a very real sense, this project came about because I wanted to understand and describe my own teaching practice. Of the projects here included as experiments, two precede the PhD research. Although I was not aware of it at the time, both of these were already doing something like science fictioning, and while this was partially intentional, I did not have the vocabulary to explain what I was doing.

The first project I have included here already contains all the elements of a nascent SF teaching practice. The New Törten Estate is a project for collective housing in Dessau, Germany. This project for an economically challenged city is described in more detail within its own chapter, but in the language established in the preceding chapters, the core of the project might be understood as a worlding exercise. That is, the brief itself as much as the projects that emerged from the studio are all remarkable in how they disregard 'this-worldness' to some degree—they are made for a world that could exist, but does not yet exist. The projects that resulted were all very carefully articulated architectural propositions, but consciously made in relation to demands that might not be immediately familiar or recognizable to students from a normative mode of practice. Their organization and articulation of architectural space, program, technology, and poetics is as a consequence of an economic program and ambition for cooperative living that, although inspired by 'real-world' examples, is very different than the might encounter in many contemporary practices.

The first contribution to the project's 'other-worldness' comes from the brief that I wrote as a teacher. With the ambition that students need to understand and critique their own received expectations for what housing is, I introduced various aspects of the project that would make the most dominant model of developer-driven spec housing untenable. That is, I introduced modes of estrangement in order to begin the project of worlding for the students; from the site, I included considerations about an aging demographic, economic precarity, a shrinking city, and Dessau's own strategy of re-wilding the disused parts of the city. In addition, I also introduced historical and contemporary examples of collective housing types, and the possibility of post-capitalist economic frameworks as additional modes of estrangement. It was not necessary for them to pursue these avenues, but it was suggested by the economic

precarity of the site and by the studio's orientation towards sustainability. In guiding students through the project, I asked them to identify one core idea which would drive the project forward, given the framework of the brief, thereby even at the beginning affording them a degree of authorship in defining the terms of the project. Nevertheless, each of these estrangements individually showed that it could produce worlding potentials.

In the combination of a sustainable agenda, an interest in collective housing, and post-capitalist economics, there is admittedly a considerable degree of, perhaps naïve, idealism or utopianism driving this project, from their tutor as much as from students themselves. My reader should by now be aware that I do not view such a flight of fantasy as a bad thing. So, as much as there are significant 'real world' precedents for many elements of the project, given its 'other-world-ness,' it is also something of its own SF. While the project starts with a level of fantasy, in resolving the project, my aim is that students learn how to make architecture with a critical awareness of architecture's role in the project of worlding and the creation of community, while also maintaining a speculative attitude toward the discipline itself; what it is an architect does and how is very much a part of the project.

Looking for Estrangement

As might be indicated by choosing the title of the present thesis from Frederic Jameson's discussion of SF estrangement, one of the primary affordances of an SF practice for teaching architecture is in its ability to disturb given categories and expectations—an openness and critical perspective on the practice which creates room for students to reflect upon both their project and the discipline as it is and could be. I wrote that estrangement is how SF works, but if this is true for reading SF, I have also found that it is true within architectural education.

Thus, from the beginning of the project, the primary methodology at work is to introduce modes of estrangement as a way to implicate students (and teachers) within the speculative storytelling of architectural education, to introduce critical encounters and creative friction always with an eye towards the radical possibilities lying dormant within each practice. My aim is also that my project is just such an estranging encounter to crack open my own expectations and experiences to enable my own, and my readers', critical encounter with our own practice.

While SF scholarship describes estrangement according to that discipline's perspective, its specific value for teaching architecture is rather better explored in a practice which

tries to account not only for the presence of estrangement in teaching architecture, but also for its different modes, affects, and effects. This section describes the different ways in which I have tried to activate SF estrangement in the experimental series, in how I search for sources or positions of estrangement and then in what such a position affords.

The Törten project above introduced various estrangements in the form of alternative economic scenarios and other considerations, with implications for how collectivity could be articulated. In each of the following experiments, I introduced modes of estrangement rather more intentionally. I use the practice-based experiments to ask several questions about SF estrangement and how it might be used in teaching architecture: What is the source of estrangement? What about a student's (or teacher's) expectations about architecture become unfamiliar or foreign? What kinds of SF stories become possible to tell, or what possibilities does it introduce for the project, or about architecture more generally?

Sources of Estrangement

The three experiments that followed the Törten project investigated using SF literature as the source of estrangement. SF literature asks the reader to think about things that are outside their experience—the *novum*. But such experience is not only valuable for revealing a new thing to the reader's imagination, but also for the critical perspective it affords as the reader reflects the new thing onto their empirical experience of and expectations for the 'real' world—revealing the contingency of the 'real' world and the possibility of it being radically otherwise.

As I have covered in various places in this text, I'm not the first to have used SF literature as a mode of estrangement in teaching. These cases, as well as my own, show that there are many ways to read SF literature in order to think about architecture in different ways. The three experiments I have performed do not presume to have exhausted the range of possible encounters between SF literature and architecture; as SF literature can describe a fantastic variety of *nova*, so can it invite radically different responses from the reader. For example, one story might depart from a gadget, another from alternative social relations, and each reader would understand the implications of those *nova* differently, multiplying the possibilities latent within each story. Therefore, any estrangement might have radical implications for architecture, even if such implications are not immediately obvious.

In my three experiments which depart from literature, I have used SF in order to estrange how architecture produces sociability, material cultures, and domesticity

respectively; the first experiment to leverage SF estrangement more intentionally was the experiment titled *Playing Innocent*.⁴ In this experiment, students were reading short stories by J.G. Ballard as the basis for social and affective relations that they should then try to reproduce in a one-to-one, real world artifact. *Making Worlds*⁵ read works by William Gibson for the material cultures they described, particularly the ‘Bridge’ culture of salvage and the reused plastic of *The Peripheral*’s ‘Parchers Island.’ *There and Back Again*⁶ looked at portrayals of domesticity in several shorter works by a range of authors.

The most sustained experiment in students reading from SF literature, *Playing Innocent* demanded that students consider the possibility of architecture that manipulated the users’ experience of space, time, and other affective or social experiences; J.G. Ballard’s stories describe spaces that expand, time loops, intimacies at a distance or with inanimate objects, the experience of god-like surveillance, devices to manipulate one’s own or an other’s self image, and more. While the end result of this experiment is a sort of architectural instrument, with the unique starting place of Ballard’s text, these physical devices were made to perform in ways that are not within the normative expectations for architecture. That is to say, the stories primed students to talk about how architecture could manipulate a person’s sense of time, space, or relation to others, and how this would play out in a public space, where different temporal and spatial dimensions would intersect and interfere with one another. In the end, the projects become an extension of the SF storytelling that first inspired them, and that some elements of the story remain suggests that, in the course of estrangement, students encountered and were made to synthesize some architectural potential that was outside their experience. In continuing to tell this story, then, students were able to assimilate these strange elements into ideas of what architecture could be that could only have come from their meeting with the story.

Building off of Liddicoat’s multi-modal iterations from naturalistic fiction⁷ and Freedman’s SF reading of Bakhtin⁸ in these experiments from literature, I asked

4 Chapter 2.2

5 Chapter 2.3

6 Chapter 2.4

7 Liddicoat, Stephanie. ‘Writing the Client: The Role of Fictocriticism and Prose Fiction in the Architectural Design Studio’. *Higher Education Research & Development* 38, no. 1 (2 January 2019): 77–96. <https://doi.org/10.1080/07294360.2018.1539065>.

8 Freedman, Carl. *Critical Theory and Science Fiction*. (Middletown, Connecticut: Wesleyan University Press, 2000) 36–41.

students to manifest their co-creation with the text in successive stages. In doing so, students understand the stages of their translation/appropriation of the initial text, and they also learn to leverage their interpretive and critical faculties in relation to an external impetus that can be quite complex, to open it to dialogue and to their own critical awareness about the world. That students are not only critically aware of the difference, but actively able to use that critical perspective in developing new architectural potentials shows how SF literature is able to invite students into a mode of speculative practice. That is, this co-creation is a mode of speculative criticism that takes the literary work seriously, and because of that serious reading, develops the literary work into something new. While SF scholarship would seem to suggest this as a possibility, these experiments developed how to activate this potential without overwhelming students. In each experiment, I found that externalizing the process and moving through several iterations was integral to learning from estrangement. Moving through several stages of translation into modes of architectural representation made it possible to externalize this process of co-creation, to subject it to discussion and critique, and to develop the progress of interpretation over several steps as the students begin to assert authority over the text.

In comparing these three experiments, it is obvious that the *Playing Innocent* and *Making Worlds* experiments had the benefit of long periods of interaction with the text, whereas *There and Back Again* took place over only 5 days. This short time period had some challenges, and revealed some implications that I had not previously considered. I had assumed a certain degree of SF literacy in the students, based upon the relative prevalence of SF in popular media. This was not always the case, and in the short time of the *There and Back Again* experiment, it became obvious that reading SF is a skill that needs to be cultivated; I found that I spent a significant amount of time reading with students rather than engaging closely with their own readings of the text. By the end of the workshop, some students had developed rather complex readings of the text and architectural implications, and these continued to develop the text in the remainder of the semester. Other students, however, were not able to translate the text successfully. However, as is demonstrated by the *Playing Innocent* experiment, given enough time, even less-experienced students were able to engage successfully with SF texts as sources of estrangement. However, with the difficulty of a nuanced reading of SF literature in *There and Back Again*, I was faced with a question as regards the remaining experiments within this project. Given institutional limitations, I was mostly only able to teach shorter workshops, and so I wondered if I find a source for science fictional estrangement in another way.

The experiment that followed *There and Back Again* was another 2-week workshop entitled *Future Archaeology*,⁹ this time with a bachelor unit. In this case, in reflecting on the short time of the previous experiment, I wanted to see whether we could produce an estranged reading from a different source, in this case a physical artifact excavated from the school's workshop. To this end, relying on their relative unfamiliarity with digital fabrication, I developed a narrative framework for the workshop which asked them to read a physical artifact as SF—I asked them to imagine that they were archaeologists from the future who had discovered the 21st century artifact in the year 2688. From the estranged position that I had supplied, I asked them to read the artifact for clues of its materiality, fabrication methods, and provenance, and to develop a narrative about the object—how it was made, who made it, and why?

In the *Parasite* studio,¹⁰ as I began to lean into an understanding of doing architecture as a speculative practice, students developed their own estranged position on Hamburg in developing ways to 'see' the city from the point of view of a speculative urban agency. In this case, I was also more explicit about the project's science fictionality—they were asked to imagine that their project was developed for the year 2050. This 30 year gap gave students a certain freedom to imagine speculative urban subjects, technologies, and relations that do not yet exist but which might develop in the future. In this way, the project did not seek to totally naturalize its SF-ness so much as to pursue architecture as a form of SF in order to stimulate an attitude of critical invention and also to communicate the possibility of architecture being otherwise for the project's readers as much as its authors.

Finally, the *Materializing Collective Futures*¹¹ experiment continued this project of SF storytelling, and added some more dimensions. In this case, there are multiple strategies to estrange the students' expectations for the project. Like the previous project, this project also asked them to propose a future for a specific site in Aarhus, Denmark in the year 2071, with several suggestions from the tutors of how the site would change. However, this project also included a significant participatory component, which included input from a variety of stakeholders as another source of estrangement outside students' experience. In a kind of collective SF worlding,

9 Chapter 2.5

10 Chapter 2.6

11 Chapter 2.7

students and other stakeholders told the story of this future for the site together, and this became the estranged position from which they would work backwards to develop an architectural proposal for that imagined world.

Value of Estrangement

The results of each experiment are described in their respective chapters. However, in each case, the results show not only that they were able to understand the nova described in each text, but also to understand how these nova implied previously unthought—at least to the students—categories of architectural production. While their respective projects were eventually ‘translated’ into the rhetorical and representational conventions of architectural practice, the projects answer demands from the estranged world of the text, and in doing so, make all aspect of that production available to conscious, critical deliberation, rather than habit.

Given the different sources of estrangement, one of the important findings in my experiments is that SF estrangement is rather a way of reading that can be adapted to many objects rather than something unique to SF literature. In short, SF estrangement happens when reading a thing as if it were SF makes it SF. Cultivating this position is a matter of setting up the reader’s vantage from which to look critically upon their empirical experience of the world. To this end, each experiment invested time in arriving at this vantage point, not only through my supplying the estrangement, but also in devoting students’ time to reading and describing this estranged position alone and together. For example, reading the artifacts of Future Archeology as estranged in the short time of that experiment involved sitting with each group and reading the artifact, accounting for its material qualities and fabrication, but also drawing out a reading of the individual artifact, how it was worn or damaged, what elements might be due to its function or even decorative.

As architecture itself is such a polymorphous concept, it is impossible to delimit what estranged vantage might inspire a critical perspective on architectural learning, so the first question we might ask with regard to the experiments is: what is being estranged, or what of a student’s expectations about architecture become foreign?

Certainly, within the project, I used estranged positions seemingly far removed from architecture as much as from territories quite familiar to architectural practice; the Making Worlds experiment started with the material cultures within William Gibson’s oeuvre, as these propose a radical program of reuse and salvage that exceeds what architects might normally mean with those words. The unfamiliar material cultures described in the author’s work suggested ways of working with fabrication

methodologies that challenge the imagination of hylomorphism dominating the discourse of 3D printing. The estrangement in this case is quite severe and, given the breadth of Gibson's own worlding, introduces a critical attitude towards materials and reuse, tooling and tool building, aesthetic considerations of form and formlessness, and even post-human ontologies.

Also 'close' to architecture, Future Archaeology's estrangement started with an actual physical artifact, a 'piece' of architecture, and, because the anticipated learning outcome of the workshop was skills in digital design and fabrication, the critical encounter and learning did not stray far from the initial estrangement. In this case, the estrangement depended to an extent on the students' relative unfamiliarity with materials and processes involved. In this way, the project asked them into the process of discovery involved in developing fabrication processes. The idea driving this estrangement is that technological processes were not presented as instrumental and immutable. Rather, students were invited, on the basis of their observations and experience, to imagine how to speculatively reproduce the object before them. In presenting technical information in such a way as for students to be thoughtful and critical about each stage of the process, the aim is that they can see how even complex processes are assembled from simpler steps, and why certain choices might be appropriate for the process under consideration.

While these two experiments were invested in estranging material and fabrication, my experiments have also probed types of estrangement that are further afield. In these experiments, estrangement at times comes from representations that closely hew to a normative view of architecture, such as *There and Back Again's* discussion of domesticity, and sometimes from areas associated with other disciplines, such as *Törten Estate's* discussion of alternative socio-economic frameworks and *Playing Innocent's* investigation of the affective and relational modes enabled by fictional social and technological relations. The last two experiments in the project even considered how students participating in an educational project can even seek out their own estrangements. What these different experiments show is that there are many different possible sources of estrangement which might be seen as 'architectural.' My own experiments include instigations from many perspectives, both in existing works of SF, and in the students own work. As well as the directly 'architectural' estrangements, some experiments proceeded from a perspective where the spatial environment seems only to be implicated obliquely or even not at all.

These experiments do not show a limit case for estrangement—a source of estrangement that was entirely unproductive for thinking about architecture; as these experiments are ‘field’ experiments in a teaching context, I bore a level of responsibility to ensure students’ learning, and so it would not be appropriate for me to look for sources of estrangement which would inhibit students’ learning. Therefore, I was making choices for estranged positions in each experiment that I believed would be productive, and so aimed at sources that I believed would be a relevant starting point for each experiment, choosing source texts or other media that I believed shared a commonality with what each respective course was trying to accomplish.

In conclusion, SF estrangement is an important consideration in the didactic mode identified by Suvin, in how it affords a vantage for students at least to critically examine their expectations for and experience of the subject under consideration. That is, in teaching architecture, it is working in a similar way to its operations in SF: it implicates the reader both in ‘cognitively’ validating and completing the estranged scenario, and in developing the critical position supplied by the text. However, not every SF text is equally able to supply this critical vantage, and the motivation behind estrangement is not to simply baffle students. It is not enough that the impetus for the project merely be strange.

In the case of teaching architecture, I have also found that whether students are able to work through more indirect consequences of estrangement and to direct it towards new possibilities in their own world is related to how much they are able to assert authority over the subject. Therefore, there is considerable onus on the teacher both to choose what sorts of estrangement to pursue, and to guide students through the process of probing the possibilities of that estranged position. The question before the tutor is of supplying the appropriate material in order that there is space for students, in dialogue with one another and their tutor, to take ownership of the estranged position, to continue telling the story in a critical relationship with their own present.

I have also found the question of media important. Thus, as much as each experiment suggested a source of estrangement, each also included processes of translation into the representational protocols of architecture. These processes were worked into the course frameworks in quite explicit ways, including changes in media and format, for example from text to image, and also included multiple stages for iterative re-reading and refinement.

As is implied by choosing the title, and as I hope is clear from the theoretical investigations, SF estrangement's contribution to the project is in that making strange not only relates to students' work, but also in how an active practice of making strange leaves a space of contingency and possibility in all the representations involved in teaching. It became more and more clear throughout the project that SF invites a mode of reading which can be beneficially applied to the other representations of teaching architecture.

Novum: Worlding in Practice

While estrangement will continue to remind the reader that the representations of a project, a place, of the discipline or the future as a whole are always contingent and should be read in the subjunctive mode, such contingency and subjunctivity leaves space to begin telling stories with and from the estranged position. In the Suvinian formulation of the genre, the *novum* is often that thing which causes estrangement. Indeed, all of the estrangements I discussed in the previous section are activated by some new element which deviates from the students' expectations for or empirical experience of the 'real' world.

However, I found that the *novum* as a concept is also useful for its reminder that any new element will have far reaching consequences; the SF *novum* has its readers imagine the whole world anew. In as much as the estrangements of SF are elusive representations, they always implicate the reader in a work of co-creation, in completing the world of the work. This constant reminder of the worlding consequences of SF *nova* is its contribution to architectural education. With reference to the discussion of the *novum* in SF scholarship, my project asks what worlds and what futures are encoded in the way we are working, and what does that mean for the futures of specific buildings or cities as much as for the image of the discipline. In the experiments that follow, this meant developing ways to identify the 'new thing' and to have it enter into dialogue with the larger 'worlding' consequences it implied.

This project has pursued an approach to architectural *nova* in different ways. Some of these are relatively mundane. For example, one of the aims of the Future Archaeology experiment was for students to speculate on the building that a 'found' artifact had come from. In this project, I had hoped that students would begin to understand aspects of materiality and fabrication processes in their sometimes overlooked relation to the aspirations and constraints that could have driven the artifact's designer. This was likely a little too ambitious for the short time of the

project; although some groups made a valiant effort, the worlding implied by these artifacts is only hinted at in the students' work. For example, the careful craft and durability of a bronze artifact suggested a religious or ceremonial significance for one group, while a wooden lattice work suggested temporariness and lightness to another. The first developed into imagining a bronze lantern's scale and position in a ceremonial space. The second invented a scenario wherein the lightweight wooden structure protected plants and humans from a toxic atmosphere, supplying enough wood to renew the structure periodically. The significant *novum* in this second case is of a building which, in a sense, could grow itself.

In the Making Worlds project in chapter 2.3, I tried to imagine fabrication in relation to the fictional worlding of Gibson's oeuvre. As much as the project pursued the specific technical innovation of building a waste plastic extruder to mount on an industrial robot, perhaps more interesting from the perspective of the *novum* is how such a process comes to be in the small intimations of a post-capitalist fabrication culture; the process developed in working from salvaged and found material and technology, cultivating connections to a local maker culture, and to the municipal recycling plant. In short, the things that we can't see in that project—the network of connections that were necessary to make such a process—were where the project most closely aligned with a potential worlding practice.

In chapter 1.1, I used several examples of architectural nova which reflected movements within SF including Olalekan Jeyefous and Ryan Gorrie, who find affinity with Afrofuturism and Indigenous futurisms respectively. Projects such as Raumlabor's Floating University and Atelier d'Architecture Autogeree's R-Urban network reflect works of SF dealing with sustainable futures, new forms of collectivity, and even share a relation to critical feminist utopias in SF. Students' work in this project does not reflect a significant interest in the former—this is likely due to the demographics of the student body in the institution.¹² The latter futurisms, however, do have greater resonance with the student work in this project, perhaps as students can more closely identify with or feel more urgently towards participatory and sustainable agendas.

12 I introduce concepts and even literature identified with both Afrofuturism and Indigenous futurism in different ways, but it would be incongruous for students to work from these perspectives if they do not have that life experience. Were they to try, it would potentially produce an unfortunate colonial relation to works that are explicitly decolonial. However, as points of discussion and examples of architecture's worlding potential, each of these was very useful in the course of the project.

The variety of nova produced within the seven experiments are so vastly different from one another that it is impossible to produce a synthesis. This is due in part to the fact that each experiment had a very specific context and agenda in relation to the institution, curriculum, other tutors, and to no small degree, the individual personalities of the students themselves. Rather than remark upon the diversity of nova within the different experiments, it might be useful to reflect about how it becomes strategy and metric for teaching; in the course of tutoring students, it is way to ask: what are the consequences of this decision, how does this fit into or change the world as we know it, or an imagined world?

Nic Clear,¹³ Dunne and Raby,¹⁴ and CJ Lim¹⁵ all write that SF allows the architect to ask the ‘what if?’ question, as if SF is there to expand the field of possibility. And I still believe this to be a part of SF’s contribution to architecture. However, my finding after this series of teaching experiments is that the worlding implied by the SF *novum* also offers the opportunity to ask a follow up conditional: ‘if x then ... ?’ The SF *novum* is never isolated, it always has repercussions outside of itself—it is always conditional and always entangled in a world that is *and* a world that could be. It is in this sense that the *novum* is activated within the experiments, as a rubric to explore worlding more intentionally. That is, it is a way to frame architecture as a practice of contingent relations, rather than about the new thing. This is perhaps not revolutionary—I hope architecture students are trained to become aware of the consequences of their actions. But the *novum* does supply a framework to structure these consequences as a project of imagining the future, and to put them into conversation with other futures imagined in SF and other media.

While I might have a personal inclination towards utopian figurations, mostly I have not insisted upon an attention to a sociopolitical *novum* within these experiments, preferring on one hand to understand the quality of SF worlding that is at work in the experiments, and on the other to allow students to pursue their own ideas about the future. To insist upon a too specific idea of a utopian future undermines the contingent possibilities latent in any future imagination, and also would begin

13 Clear, Nic. ‘Architecture’. In *The Oxford Handbook of Science Fiction*, edited by Rob Latham, (Oxford University Press, 2014, <https://doi.org/10.1093/oxfordhb/9780199838844.013.0022>), 288.

14 Dunne, Anthony, and Fiona Raby. *Speculative Everything: Design, Fiction, and Social Dreaming* (Cambridge, Massachusetts ; London: The MIT Press, 2013), 143.

15 Lim, C. J. *Inhabitable Infrastructures: Science Fiction or Urban Future?* (New York, NY: Routledge, 2017), 29.

to undermine students' authority with regard to the futures they themselves might want to imagine. That being said, in the case I started this chapter with, New Törten Estate, I did take a somewhat heavier hand with regard to architecture's socioeconomic commitments. The projects that resulted from the New Törten experiment took on a process very like SF worldbuilding; the projects did not just describe architectural spaces and details, but also proposed the kinds of community structures and relations that could make the spaces work, and even developing these imagined communities' contribution to the wider city.

The last two experiments were most explicitly devoted to the project of worlding and futuring, and to the question of authorship. In both of these, I staged the discussion of the *novum* by situating the project for students in a future time. Parasite studio, described in chapter 2.6, is proposed for the year 2050, and Materializing Diverse Futures, chapter 2.7, the year 2071.

In these projects, the relatively distant time of the project would produce a degree of estrangement in which students were invested in discovering future potentials—by now, we are used to the idea that the future will be different than the present, and we are habituated to imagine future cities with flying cars and solar-panel clad buildings. Saying that this project would happen in 2050 or in 2071 opens up the possibility, even necessity, of students imagining parts of the world differently.

In Parasite studio, these came from their own observations and extrapolations of currents already present in Hamburg. Among the many projects, many had a basis in a *novum* with a significant difference from the world as we know it, from future energy infrastructures and homes for seagulls to self-described 'dystopias.' In Materializing Diverse Futures, given the short 2 weeks of the workshop, we were more conscious of initiating this process of worlding for students. We did this by suggesting some elements of a future scenario to ground their worlding process. These were culled from already existing projections around sea level rise and a changing climate, and projected population demographics in Denmark. These experiments were not strictly interested in pursuing what these futures might be so much as how students pursued the potentials of the futures they imagined. In framing the works as a practice of SF, students had the liberty to explore their own alternative social, ecological, or technological imaginings, culled from their own experience of the world and from the worlding they had already accomplished in the first phases of the project. Thus, these experiments looked more intentionally at the correspondence between worlding and its architectural implications

In the Parasite studio, students imagined a future for the northern German city of Hamburg, and then worked backwards from that imagined world to the architectural proposition. While they were describing quite significant changes to the world as they experience it, the project also staged this new worlding as emerging from a particular situated perspective. Their mappings of this new world were not gods-eye representations, they were the perspectives of the specific urban agencies they were investigating. In responding to the future they imagined, students need to develop architectural responses that are alien to their experience—the *novum* of the project is only suitable within the *novum* of the world. Such a strategy is a way to estrange students' expectations of what architecture is 'supposed' to do, and what processes might be developed as a way to explore the nova they had uncovered. Similarly, they had to be aware of how much they had assumed to be 'true' of architecture was merely habituated.

A couple examples from the resulting projects include how the intensification of city noise produces a temple to harmony, or how a preponderance of home delivery made it possible to imagine a delivery infrastructure as architecture/public infrastructure. The challenge and learning opportunity for students in this exercise is to adapt the tools and strategies they have learned as a part of their education and to re-contextualize them in relation to a newly imagined world, thereby taking a critical rather than instrumental perspective on their education in being obligated to choose how the conceptual framework they have assimilated would have to change in the new context.

The last experiment, Materializing Collective Futures, also worked backwards from a world to a specific architectural proposition. Like in the previous experiment, the site is presented as the locus of the worlding—the project of world building is not to imagine the whole world anew so much as to understand how one's own situated context might be different, and to balance how these local and global forces might interact. In this case, the future site is presented as the community of stakeholders on the site, rather than the territory itself. In fact, in framing the project for students, we began the project of worlding by describing how the physical and social territory of the site would change, given changing demographics, technology, and a changing climate. The worlding in the project was then to work together with other community stakeholders in order to arrive at a shared vision of what the future of that community would be like, and only then starting with the architectural proposal.

Therefore, the *novum* places an emphasis on worlding as part of architectural practice, not in the imagination of the whole world¹⁶ anew but in understanding what can be different about the world in the future given students' intervention, and what the potential consequences of that difference might be. Importantly, it also becomes a metric to disentangle genuine newness from the novelty of capitalist acceleration. That is, in each experiment in the present project, there is a specific attention to what and how futures are imagined and communicated, and what the implications will be. These futures are important because they guide decision making in the project, and also introduce possibilities for how architects can work in the present.

In practice, this involves reading students works as SF for the futures they represent and the futures they imply—that the teacher takes on the mantle of SF critic. I use this reading of the work as SF as a part of the ongoing development and conversation about students' projects as a part of tutoring. Such a practice in identifying the *novum* also brings architectural projects into conversation with other imaginations of the future, whether they arise from advertising, policy, or works of speculative fiction. This conversation between fields is also fruitful, and it is a chance to draw students' awareness to works where themes they are imagining has been explored in other media; even in experiments which did not rely upon SF literature specifically, I was able to rely on my own (admittedly idiosyncratic) knowledge of SF, and to point students at other works which could develop and even challenge their imagination. Therefore, the *novum* is activated not necessarily to develop newness or novelty in architecture, but to understand architectural design as part of a synthetic practice in worlding, bringing together and balancing aspirations, understanding the consequences of different decisions, and bringing ones own work into dialogue with other imaginations of the future.

Fictioning Architecture and the Architect

As well as translating concepts from SF scholarship to better illuminate their contribution to teaching architecture, my experiments also showed that there are other science fictions being written within my project. And if I started my investigation of SF by understanding the genre in a Suvinian paradigm, my continued experiments soon revealed that this language would be inadequate to describe what I was

16 There is a distinction in SF commentary between the so-called 'hard' world-building of, for example, the history, mythology, geography, and languages of J.R.R. Tolkien's Middle Earth and a more suggestive 'soft' world-building, whereby elements crucial to a story's development are determined, but not necessarily every aspect of an imagined world. The latter is the point of reference for worlding in this context.

observing. In the first place, in as much as I could read each experiment and each student's work as its own SF story, I would need to understand the author of such work as participating in a speculative practice. In addition, as a direct result of my observation of the experimental results, understanding how and in what way such a practice involved stories about the discipline, about the figure of the architect, and about the practice of teaching architecture became a significant part of the project. Together, these coalesced into the concepts of the architect- and discipline-to-come.

Therefore, while each experiment continued to examine the implications of Suvin's concepts of the *novum* and estrangement, I also sought out other ways of describing the practices of speculation I was observing in the experiments, and the implications for teaching architecture. This is to say, rather than imagining the contribution of one field—SF, to another—teaching architecture, I needed to further confuse the two, asking how the practice of making architecture is already a practice of making SF, and what that might mean for those who create it as much as for the discipline itself. In order to develop these observations into a coherent theoretical framework, it was necessary both to delve more deeply into the epistemologies of SF, which are recorded in chapters 1.3 and 1.4, as well as investigating how these fictions are told in practice.

In as much as the aim of an architectural education is to produce subjects who can call themselves architect, as I have argued, the stability of that figure—who an architect is and what they do—is under dispute. So in investigating how each of these teaching experiments might represent, or even estrange, the figure of the architect, I focused on how they developed the concept of student's own authorship, and how students developed their authority in relation to others. Thus, one aim of the experiments was to probe how the figure of the architect is constructed as a fiction within my teaching, and importantly, how to 'tell' that story differently, making the studio a space to explore different ways of being an architect, and estranging the model of the architect as a singular, authoritative figure.

One of the benefits of elaborate strategies of (in)direction is that they are entirely useless as explicit directives—they require the investment of the reader in developing an active critical posture. In understanding figure of architect as engaged in a speculative practice, one aim of the experiment is to find ways for students to become SF storytellers in relation to the futures they are proposing, but also to the representations of the discipline. While Carl Freedman's reading of Mikhail Bakhtin's dialogism and the subjunctive quality of SF expressions both suggest the co-creative

possibilities of reading from SF literature, how this potential might be activated within architectural education is not immediately apparent. In different ways, each experiment included elements which leveraged student's own authority in relation to the project, and which asked them to become active storytellers in relation to the project and the futures they were imagining. In doing so, they also enact a mode of practice which depends on their individual expertise of being in the world as much as on disciplinary protocols. As a teacher, this means they develop their authority in relation to their project and ways of working, and the job of the teacher is to cultivate each individual's own becoming.

Within the first experiments, I noticed a tendency on my part to move away from the image of the architect as singular practitioner to one which is more relational and discursive. Building upon practices in Paulo Freire's critical pedagogy, this focus on authorship not only empowers students' own subjective becoming, but also their becoming in relation to a polity. This is something that I had already included in the earliest experiment, in small ways, and which continued inform the experiments as I continued, and which I have later called the science fictions of the architect-to-come and of the discipline-to-come, which is described in the chapters devoted to speculative practice and science fictioning. Thus, rather than trying to enact 'the architect,' there were several elements in the experiments that tried to put a singular image of the architect in question, and which turned upon introducing strategies to develop and refine ways of working in which the student becomes an active agent in relation to the project, but also in political relation to their colleagues, their tutors, and others in the studio. To the degree that it was possible within my institution, I have experimented with different ways of forming the figure, responsibilities, and relations of the idea of the architect within the experiment, making the indeterminacy of the figure of the architect and discipline become a site of active intervention within the teaching.

Given the unique demands of each experiment, each introduced its own elements in which the students become implicated in developing their own relation to their project and practice. The way that SF estrangement works already implies a degree of subjective authorship that becomes more present as I include several informal and formal developments and iterations of a first reading. To this degree, as students and teachers continue to read the studio work as SF, their authority over the work increases. But even as we work to develop student's storytelling capacities, we must also develop how this figure is always already in political relation to others, to a student's peers and to others who will be impacted by their work. Already in the

first case discussed here, the New Törten Estate, we introduced strategies of mutual learning in sessions where students would work on each other's projects together. In this case, the individual shared some authorship with the group, students became vulnerable to one another, and the atmosphere of the studio becomes less about competition and more about a productive vulnerability, mutual support, and shared authorship as a suggestion for a different model of practice based upon these qualities.

Other experiments developed different strategies where the individual student is implicated in developing their political relation to one another, to the studio as a whole, and beyond. The experiment titled *Playing Innocent*, in chapter 2.2, had students working both individually and together. The project started with them developing an individual reading of an SF short story. They would then bring this individual interpretation into negotiation with their group members, developing a reading which synthesized all individual readings into a group. the remainder of the experiment had them move between individual and group, maintaining their individual commitment to the project and taking individual authority while sharing with one another. That this strategy was a success is evinced by the fact that these many individual readings could be detected in final submissions of the project, meaning that each had their own voice heard within the design. Most groups in this experiment, including those discussed in that chapter were successful in negotiation between individual and group, and in the shared authority it implied. This is not to say there weren't tensions, and it was a revelation that, even at this early stage in their education, some students had already assimilated the idea of the individual author, and were provoked by the assignment. This response underscored the need for us as tutors to be explicit about our own motivations within the project, and a reminder that we were also in collaboration with the students.

The last experiment is most explicitly oriented towards exploring the many dimensions of the figure of the 'architect-to-come,' and is the best example of an experiment in developing student's own values and motivations for practice as much as for how it places that practice in relation to others. Its invocation of an architect as a figure in relation involved a several strategies starting with value-based exercises, and iterative participatory engagement with other stakeholders. Both of these are a part of my own becoming-architect/becoming-teacher in that they reflect what I have learned from my colleague Ricelli Laplace. We started the experiment with

value exercises, derived from Laplace's research,¹⁷ in which students articulate their own deeply held personal values, and use these to understand their own subjective relation to the discipline and their motivations for architectural practice. Thus, we started by framing architectural practice as an extension of their own subjectivity, not an abstract ideal architect. They went on to develop a group identity as an articulation of their shared values. Furthermore, within their group, we asked them to pick a 'role' in relation to the group¹⁸—they were asked to take the role of architect as constructor, as mediator, or as storyteller, therefore presenting the role of the architect as contestable and even contradictory. Finally, we were careful that decision making in the project was in close collaboration with the community of stakeholders we had identified in the project through several iterations, further distributing authorship with the affected community.

These are some of the strategies with which the experiments in the present project explored how the figure of the architect as it might previously have been received from normative discourse is estranged within the experiments. I can only make the same claims about these futures as I can about all the other futures within the present project; I have not proposed one image of the future architect to replace another. Imagining the future of practice as its own SF places some contingency on the figure of the architect and of the discipline. That the field of architecture might be understood as artifactual and continuously constructed by its reproduction in discourse, I argue, is not a failing; the very elusiveness of 'architecture' in any sense as a distinct disciplinary whole is (re-)productive, it can create new ways of knowing and being an architect. To this end, Ursula Le Guin's figure of the author of feminist SF became our companion as we tried to imagine who this architect of the future might be, with the implication that this illusive figure is the one who is shaped within architectural pedagogy. In emerging from the unique perspective of its practitioners, these future practices traverse the borders of practice, and reveal new programs, clients, or material expressions—in essence, new ways of being an architect. Moreover, none of these is isolated from the other, and rather prefers an image of architecture as an "ecology" of practices.

17 Laplace, Ricelli. "Responsible Architecture: Participatory Learning for Sustainable Behaviour in Design." (PhD Dissertation, Aarhus, Denmark, Aarhus School of Architecture, Forthcoming).

18 I had also proposed group 'roles,' in which students choose how they will approach the group work, in a previous experiment, but did not insist on it, and thus students did not take this choice seriously.

The confrontation cultivated in this project—between SF and architectural pedagogy—is an attempt to maintain this intellectual promiscuity, to continue asking for myself and for a prospective student, what is architecture? We can only know with certainty that the architect of the future will be operating in a world that does not yet exist, and so the aim of the present research and its proposition for teaching architecture is to maintain a posture which challenges disciplinary norms, and more importantly invites students into the space of challenging disciplinary norms as an inevitability for practice. The architect-to-come will traverse a heretofore unseen landscape with a carrier bag slung at their side, gathering, cultivating, and sharing new and strange knowledges. The challenge for students, even as they practice drawing, attend structures courses, and learn of the history of the discipline, is to be aware of what they know and how they are learning as emerging from a given historically and culturally defined perspective, but a perspective that is also contingent, tenuous, likely to break, but also open to new alliances and ways of operating—open to telling new fictions.

The project explores different ways that the fictions of architectural education might be told with reference to an experimental practice in teaching architecture. Each of these experiments took up a mode of science fictioning in diverse ways. They do not propose a new methodology for teaching, and I hope that the project 'science fictions' itself, it offers some ways of thinking within a teaching practice, an 'elaborate strategy of (in)direction' which I have attempted to read for the possibility therein, and which I hope my readers will continue to read in a subjunctive mood.

Within the experiments, science fictioning asks us to continue understanding the objects of our discourse in a subjunctive mood, in possibility, hope, and even desire, introducing a stature of perpetual resistance and wildness, which refuses to take the terms now defining the architectural discipline as totalizing and immutable. Science fictioning does not supplant one future with another, but rather asks all present and future architects to become active and conscientious storytellers—fully aware that, to return to Donna Haraway's memorable invocation, these "stories make worlds."

Further Research

Because of the interdisciplinary nature of this project and the focus on architectural education, I have cut diagonally across a wide range of scholarly and practice-based work, and as such, this project opens numerous potential avenues for further research. As I have written, the nascent dialogue between architectural production and SF, and particularly SF scholarship, bears a much more thorough elaboration.

Within this project, I was able to explore the various affordances of what I have named ‘science fictioning’ in the context of a single institution and within either the design studio or courses in technology. However, there are hints throughout the project that science fictioning as a methodology might also productively contribute to other aspects of architectural pedagogy such as courses in history and theory, professional practice, and even curriculum development. Therefore, one avenue of future research is to explore these potentials within different aspects of architectural education.

Another potential avenue for this research is in developing the critical position afforded by reading works of architecture together with corollaries from within SF, especially as architects—perhaps unconsciously—reproduce the megatexts¹⁹ explored in SF. Indeed, the present project started by observing how claims to futurity within architectural technology come from positions that have already been explored and thoroughly critiqued in SF. Chapter 1.1 of the present work includes a discussion of Buckminster Fuller’s technical project and contemporaneous works of SF which form a dialectic pair with Fuller’s utopian ambitions. This critical perspective is further developed in a publication which also includes more contemporary projects and works of SF as a way to explore these project’s purported commitment to ‘democratic’ architecture.²⁰

While there are already some significant contributions in understanding the contribution of SF literature and scholarship²¹ to architectural discourse, I believe that this particular correspondence bears significantly more scrutiny, with potential interest from the field of SF studies as much as from architectural theory and criticism. In this case, the perspective from SF scholarship allows us to ask different questions about architectural production, particularly in the perspectives from minority discourses in SF: from Afrofuturism to Xenofeminism. I have also noted that there is a growing interest about architecture as SF from the field of SF studies, particularly in how works of architectural speculation align with the development of the genre. In both cases, the most interesting contribution for me is in outlining the dimensions of how architecture is a worlding practice.

19 Damien Broderick, “Reading SF as a Megatext,” in *Science Fiction Criticism: An Anthology of Essential Writings*, ed. Rob Latham (London ; New York: Bloomsbury Academic, 2017), 139–48.

20 Joel P.W. Letkemann, “Critical Dystopias in the Digital Project,” *In Folio*, no. 36 (2021): 90–97.

21 I have already mentioned the contributions of Amy Butt, David Fortin, and Nic Clear, among others.

How the figure of the architect is constructed as a science fiction is also an interesting avenue for research, especially as it serves as another ‘elaborate strategy of (in) direction’ in estranging that figure from its contemporary representations. I have already described some of the ways in which the architect-to-come can emerge in pedagogy. This figure is also constructed in SF—in works in which the architect must account for a different worlding with the change in the discipline. For example, it is somewhat peripheral to the present work, but I have observed that the work of SF author Kim Stanley Robinson maintains a curiosity about architecture and writes many architect figures into his novels. I believe this bears further scrutiny, partially because how the figure is constructed in discourse bears upon the continued evolution of the profession, but also for Robinson’s attention to how an architect might respond to the other critical utopian dimensions of his imagined worlds.

I believe the most important aspect of my project has been in advocating for ways to integrate ethical dimensions into architectural pedagogy, and this will continue. I have seized upon SF for its capacity to develop empathy, sensitivity, and care in the reader, as well as for its discursive construction of futurity. The great challenge of the present is in how we will share our precarious future with each other and the more-than-human world. Understanding this great challenge needs these qualities of empathy and sensitivity as well as the ability to develop polyvocal, sympoietic articulations of the future with a great diversity of actors. The subjunctive force and polyvocal encounters of SF are an ideal platform to share such articulations of the future, with the hope that it will be better than today. I hope that as I continue to pursue a teaching practice, I will be able to develop and communicate new modes of teaching.



Part 2



2.0 Introduction to Experimental Practices

Each of the following chapters is devoted to one of the experiments which comprise the practice-based elements of the PhD. There are 7 experiments in total. Five of these experiments occurred during the time span of the PhD, but further reflection made me think about my pedagogical practice in the years prior to starting the PhD. My project started within an existing teaching practice and this practice continues to be integral to the knowledge produced in the project. This is true both because some of that practice is documented here, but also because I rely upon this experience for much of the tacit knowledge that I activate as a part of this practice. In particular, two of the project I had assigned prior to starting the PhD stood out. I realized how much these projects were the impetus to my own thinking about the topic of the PhD, and so I include them in the first two chapters here because they represent a nascent ‘science fictioning’ practice and supply foundational dimensions to the methodology and conceptual perspectives of an evolving science fictioning practice. The remaining 5 experiments happened within the time-span of the PhD study. The first of these is a project that I developed on my own, while the remaining 4 were teaching experiments in relation to ongoing teaching units at the school.

While the present book is organized into the two sections corresponding to the theoretical and practice-based elements of the project, the two parts of the practice are quite inseparable. They happened simultaneously and mutually influence and support each other, and this inseparability is integral to the project. Robin Nelson writes about practice-based research in the arts as a dynamic, mixed model in which the conceptual, practical, and critical modes of research mutually support each other in developing different modes of knowledge about an artistic practice.¹ In the case of my project, each of these types of knowledge are all activated and developed largely by their interaction with one another. There is a reciprocal relation between the two sections: the theoretical perspectives I researched and developed help me ask questions about architectural pedagogy and suggest alternative ways of formulating my practice, while the results of these experiments would help challenge and refine the conceptual and methodological apparatus that is the object of the study.

1 Robin Nelson, “Practice-as-Research and the Problem of Knowledge,” *Performance Research* 11, no. 4 (December 2006): 144, <https://doi.org/10.1080/13528160701363556>.

The type of practice-based research here utilized is strongly aligned to other research practices already well developed, if not completely formalized, within the artistic and design fields, namely research through design.² While a teaching practice in architecture is hard to delimit, each of the experiments described here involved at the very least writing a brief, organization and logistics of the course, developing and communicating knowledge through lecture programs, and most importantly for a project-based pedagogy the ongoing interaction and dialogue with individual students and groups responding to their specific projects as they develop. All of this and more is included in the practice of teaching architecture, and in one form or another, are also found in the present project. It is also useful to remember how the experiments here are also aligned with methods in the social sciences such as action research³ in its circular iteration between doing, analysis, and critical reflection, and participatory action research (PAR) in its activist intervention in the production of knowledge not only from the analyst's intervention in methodology, but also with insight gleaned from various critical perspectives.⁴ Within my project, I as practitioner develop a course for pedagogy—I set up the experiment, but I am also an active agency within the process, I respond within the process while the students proceed through a design exercise, intervening with my own tacit knowledge as an architectural educator and from my personal intellectual and cultural background.

Reading the Experiments

“actually I still read everything as novels, including history memoir, and the newspaper. I think Borges is quite correct, all prose is fiction”⁵

I have used the experiments at first to adapt and test what I have learned from the speculative alignment between SF scholarship and architectural pedagogy. As I continued, I was able to critically reflect upon and develop the framework and methodology under consideration, with reference to the theoretical perspectives

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- 2 Christopher Frayling, *Research in Art and Design*, vol. 1, Royal College of Art Research Papers 1 (Royal College of Art, 1993).
 - 3 Bridget Somekh, “Action Research,” in *The Sage Encyclopedia of Qualitative Research Methods*, ed. Lisa M. Given (Los Angeles, Calif: Sage Publications, 2008), 4–6.
 - 4 Steve Jordan, “Participatory Action Research (PAR),” in *The Sage Encyclopedia of Qualitative Research Methods*, ed. Lisa M. Given (Los Angeles, Calif: Sage Publications, 2008), 601–4.
 - 5 Ursula K. Le Guin, “A Response, by Ansible, from Tau Ceti,” in *Words Are My Matter: Writings about Life and Books, 2000-2016 with a Journal of a Writer's Week*, First edition (Easthampton, MA: Small Beer Press, 2016), 22.

driving the project. I was then able to return to the next iteration armed with additional knowledge, able to develop the methodology and to probe new nuances of what science fictioning might entail. This constant relationship between doing, reading, and writing with the experiments forms a pseudo-iterative process. Rather than repeating the experiments with incremental developments, however, there significant interventions or evolutions from one experiment to the next.

The designs that students produced in each experiment form the archive of knowledge generated by each experiment, but it is important to note that the designs are not the object of the experiment. Rather, the object of the experiment is the development and refinement of the conceptual perspectives and methodologies of science fictioning, and the results of the students' work are a record of how the several experiments have unfolded. The knowledge that students produced in these experiments takes many forms—sometimes drawings or other visual media, models, essays and even more experimental or literary texts—all of which are collected for analytical purposes as the 'experimental results.'

All of the teaching experiments took place with between 15 and 40 students, and so has supplied a wide range of individual interpretations of the same process. They embody each student's own interpretation and development of the project that I have set before them, and it is the broad set of results within each experiment which I can analyse and evaluate. In each case, I do not make strictly qualitative judgements of the student work, I am not interested in which is 'best,' but rather in the range of results and even difficulties afforded by the experiment in the class as a whole.

As much as the results of each experiment are the primary material for the research, the knowledge of the project is only partially in developing the framework for the experiment, and as much with how it is contextualized, conceptualized, and critically evaluated afterwards. It is in this writing-with that I bring my own perspective to bear upon the results. That is, I am able to engage in a dialogue with the work from my own situated, embodied perspective and from my theoretical research, much as a critic does. This ongoing dialogue between my own reading and writing and the design practices of my collaborators is the most productive dialogue of the work. As a practitioner, I respond in real time to the engaged participation of students as they enter into a conversation with me and with the experiment I have initiated. I am also privileged to enter into a larger dialogue as the experiment closes and I am able to take the time to reflect upon the range of work that is produced.

Thus, I reflect upon the experiments by using the tools of writing-as-method and ficto-criticism.⁶ That is, I bring both a critical and projective or speculative stature to my discussion of these experiments. In order to interpret and communicate the results of the experiment, I rely on the conceptual alignment between SF scholarship and architecture that I develop in chapters 1.1 and 1.2, using a comparative analysis of the range of work in each respective experiment as the basis for a situated writing practice. In effect, this means I am reading and writing about the projects both as works of SF *and* as works of architecture, while also reflecting on the process and methodology in a speculative elaboration of the project. The perspectives afforded by SF scholarship are the rubric with which I read and evaluate the success of each respective experiment. In reading work *as* SF, I acknowledge these architectural projects' participation in the perspectives outlined in the theory chapters—as novum, estrangement, or speculation. I look at each projects' being entwined with a socio-cultural context, particularly those mega-texts often co-located with SF and architecture—including but in no way limited to futurity, utopia, dystopia, technology, and the city.

In reading the work as SF, I am looking at what the students' work makes thinkable about architectural pedagogy, and my practice in critical writing accords with the affirmative hermeneutic of speculative criticism I describe in chapter 1.3. That is to say, the students' results are evidence of their learning and engagement with the process, but they are also the starting point of further speculative reflection as I continue the experiment in writing. Taking the time after the process affords me some distance, where I'm able to contextualize the experiment inside the project, and it has been where I've been able to synthesize what I have learned in the research. For example, it is in this speculation after the process that the figures of the architect-to-come and the discipline-to-come began to coalesce in the earlier work, whereupon these concepts became a site of active intervention in the latter experiments.

As I write, I approach each experiment by trying to synthesize a number of different perspectives. First, I approach from the learning objectives of the course; as this is a school of architecture, my fellow teachers and I had certain expectations—from ourselves and from the school—of what students would learn in each respective experiment. Of course, these could never be strictly enumerated on a checklist so much as reflected in the students' results as the synthesis of learning objectives. Second, I read these experiments from the perspective of science fictionality; taking

6 See chapter 1.3.

a position of speculative criticism, I ask what the student work might let us think about architecture or about the future that we have not been able to think before. In this way, I draw upon the critical perspectives supplied by SF scholarship and in particular modes of affirmative criticism—that is, speculating with the content of students' work. Thirdly, I also try to read the student results from a pedagogical perspective, especially in reflecting upon how much students seem to have been able to take ownership of the project and of the subject matter under consideration in the course; I could ask how they approached the subject matter, how they were able to challenge or even subvert the brief, how much they could bring in their own knowledge or interests, and how much they were able to define their own learning and develop their perspective and practice.

These projects are presented in chronological order, and not only for mere convenience, but also because there is something of a narrative arc that emerges from these as each experiment builds upon the last, and as I learned more about SF scholarship. This means that the questions I was asking of each experiment and the intentions I brought to each instance of 'science fictioning' developed as I learned both from earlier experiments and also from how I synthesized this learning with a continued engagement with theoretical perspectives. The effect is cumulative, and it might thus be possible to see the learnings from one experiment proceed to the next. The effect is not however, linear, and I do not repeat the experiment seven times; each might be said to include the learnings from the previous experiment, and so the methodology developed through the process, but each also had its own context and questions.

While a strict comparative method of analysis between the seven experiments would not be possible given the different contexts of each experiment, there are some commonalities which might be explained using the vocabulary developed in the theoretical portion of the project. If we understand each of these experiments as a practice in speculative storytelling, each was predicated upon a novum that estranged the experience of the student or practitioner. In the first experiments, these initial estrangements were supplied by SF literature as a tool to think with and from, and as a strategy to begin by escaping and reflecting upon the seeming universality of one's own empirical experience. Later experiments kept the strategy of estrangement as the starting proposition for each teaching scenario, but looked at different sources for that estrangement.

In each case, the novum was aimed towards a specific learning outcome and also, as the project went on, towards the more abstract figures of the architect- and discipline-to-come. I tried to manage the level of estrangement to a smaller or greater degree depending on how long the experiment ran, *ie.* how much time a student might have in which to take ownership of the process. In the case of the 2 week long Future Archeology experiment, the novum is relatively narrowly defined; the expectation was that students would learn about digital fabrication, and so I supplied student groups with a specific artifact and asked them to speculatively reconstruct the process which shaped the artifact. There was some intention to pursue the broader consequences for this novum but the experiment was somewhat limited by the project scope and the short time available. The workshop entitled There and Back Again is similarly limited in time, and used SF short stories to suggest a future living scenario for an existing site and program supplied by the studio brief—in this case, the story telling continued to be developed for the rest of the semester. In other cases, where there was more room for students to explore the novum, the initial estrangement was correspondingly more open to their own interpretation and investment.

Each experiment developed its own permutation of the science fictioning method, I was also privilege to the sustained dialogue across the seven experiments, as the questions I was asking about the contribution of science fictionality developed a considerable nuance and depth through the course of the project; these reflections form the diverse perspectives in the theoretical chapters, each of which was always present in every experiment. In particular, the science fictions of the architect-to-come and of the discipline-to-come became more prominent through the course of the experimental series.

None of these experiments can be said to have happened in a laboratory setting. Each experiment begins with a speculation about science fictionality or futures, but the impetus from the research project joins an already quite dense network of demands coming from other sources: from students, from the school's curriculum, or other tutors. Thus, while each experiment happens in the context of the present project, and the learning from one proceeds to the next, each experiment must also be said to be completely unique—even given the similar or related thematic content, the circumstances around each experiment were always quite different. While I can use a comparative method of writing to describe the results within each individual experiment, I do not rely on a strictly comparative method across the different cases. The context of each experiment is too different, and each leads to its own points of

critical reflection. To pretend at a too objective regime of information gathering with the results of these experiments would miss what nuance and insight each experiment and each individual student work could offer.

Each of these experiments is situated in a unique manner. Each of these happens in Aarhus School of Architecture, but in different teaching teams, in different levels curricula and as might be obvious, different circumstances, with different demands and learning objectives. It must also be said that in the spirit of a critical pedagogy, while the framework of each course is fully defined before hand, students have considerable agency in how the questions posed to them unfold. Therefore, the aims of the study are better met by spending considerable time with the students in the process of their work. In the context of a teaching practice, the attentive teacher not only looks for or expects these moments, they also hope for them, as these are also the moments where a student might come into knowledge in their own way. The experiments described here, therefore, are all ‘boots on the ground,’ or rather more often, ‘seat of the pants’ situations. Therefore, the aims of the study are better met by spending considerable time with the students in the process of their work. This being the case, in the chapters that follow, I describe work in progress throughout the experiment as much as the final result.

The process of doing the research as well as the interpretive phases can both be described as a speculative, or a carrier bag method of research.⁷ Within my practice, this method recognizes that all participants approach the experiment as active, thoughtful, complex, and developing subjects, the researcher included. There can be no pretense of a blank or impartial experimental object. The knowledge of the project is a situated knowledge⁸—situated spatially and temporally, but also by its participants’ backgrounds, knowledges, and aspirations. Each subject in the study, then, is traversing a similar territory, having gathered something in their own bag, but still seeing from their own perspective, speaking with their own idiolect. In this way, in the manner of other situated research practices, nothing in this project is strictly reproducible. Its contribution is rather in the way it enacts and develops the methodology and conceptual perspective of science fictioning, with the expectation that, should my readers pursue a speculative practice, they would in turn translate the practice to their own unique subject and situation. However, in discussing the

7 See chapter 1.3.

8 Donna Haraway, “Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective,” *Feminist Studies* 14, no. 3 (1988): 575–99, <https://doi.org/10.2307/3178066>.

unique circumstances of each experiment, I believe that it is important to emphasize that as a pedagogical methodology science fictioning is available in any number of teaching circumstances and with a wide diversity of learning content. I hope the specific strategies and methods described here might be fruitfully adapted to my reader's own teaching practice, and that the conceptual perspectives of science fictioning might inform their reflection upon their own teaching.

Another side of speculative research is the activism it implies. As Alex Wilkie reminds us, speculative research involves an active investigation and “construction of possibilities” within the situation, while also reminding that the researcher is becoming-together with the experiment, neither is fully constituted with regard to the other, and the researcher is actively learning as they observe and participate, bringing these learnings back into the process.⁹ While the chapters that follow describe each experiment in turn, I do not only use the chapters to describe what happened—in each case, these experiments are ways to challenge and improve my own practice in architectural pedagogy. I write in the hope of seeing the possibilities in an existing practice, and assembling from these observations the intimations of a future teaching practice. Perhaps my reader can have a similar activist reading of the work, not to reproduce what I have done, but to actively challenge their own ideas about what architecture and architectural pedagogy should do.

Authorship

As it is a central theme in the present work, I raise the question of authorship again. Each of these experiments, to one degree or another, happen in or emerge from a dialogue with collaboration within a teaching team, often in quite complex ways. All tutelage at the Aarhus School of Architecture is in some form of collaboration, and this is also the case with these experiments. It must be said, I am grateful for the generous spirit with which my colleagues have accommodated these experiments.

In some cases, I was able to carve out the space for a workshop with myself as the lone tutor for a certain duration. However, even in these cases, the workshop is still aimed at developing the semester-long learning objectives of the teaching team; For example, Future Archeology set the stage for a bachelor unit's later engagement with time, aging, and durability, while There and Back Again took place half-way through

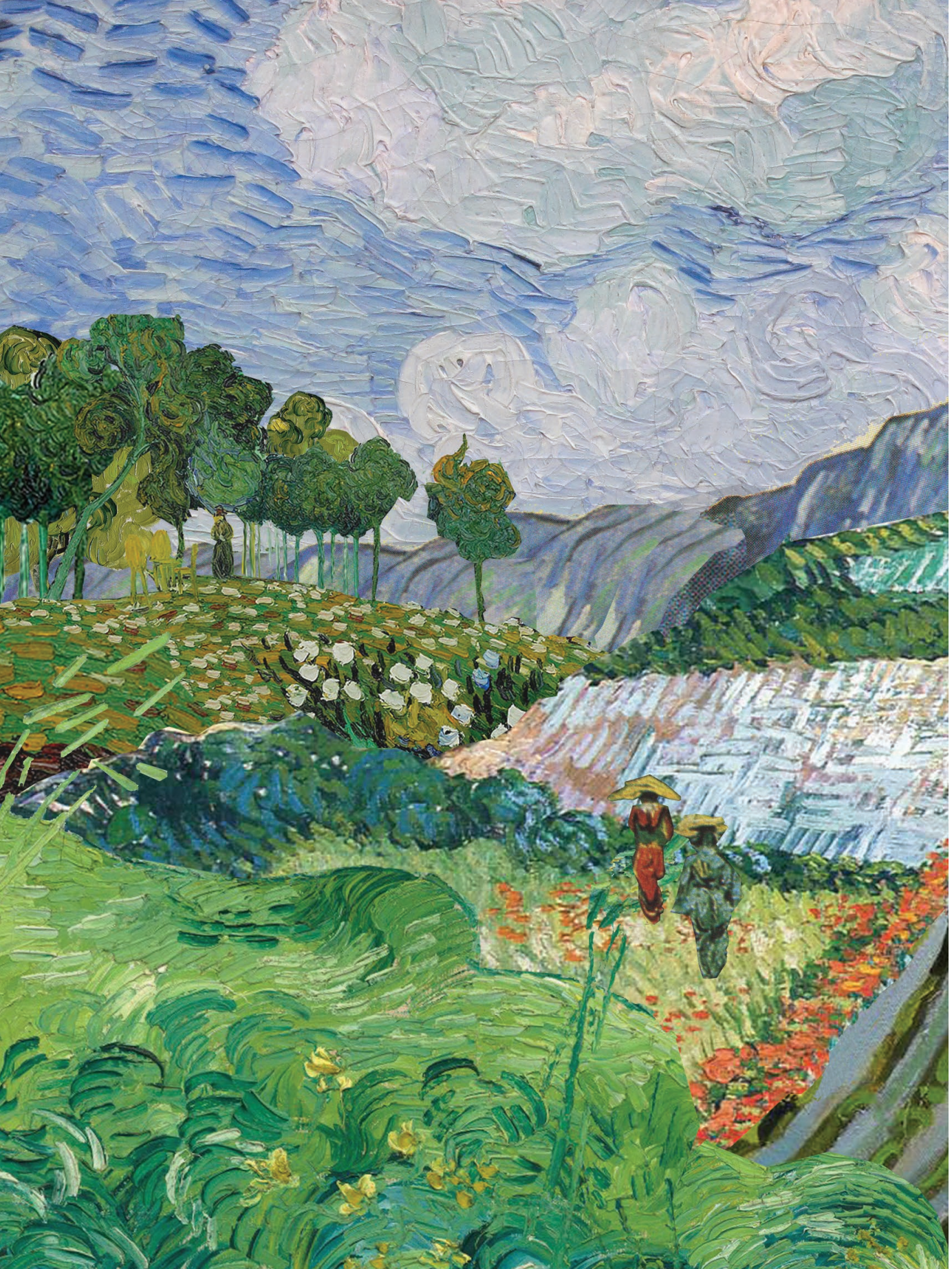
9 Alex Wilkie, “Speculating,” in *Routledge Handbook of Interdisciplinary Research Methods*, ed. Celia Lury et al. (Routledge, 2018), 350, <https://doi.org/10.4324/9781315714523>.

the semester, just as the studio returned from their site visit, and helped them knit their semester together, synthesizing their experience with the site while imagining the future occupants and program of that site.

In other cases, I was a part of a teaching team in a fully collaborative way. This is especially true of the studio-length projects. In these cases, while I assert some primary responsibility for the work of developing the curriculum and ongoing tutoring within each experiment, the question of authorship somewhat obscures the line of responsibility as each decision within these courses arises in and from a long dialogue. It also bears repeating that those who have joined these experiments as students also contributed remarkably to the results presented here.

Therefore, in each case, I do my best to note my role in the project, as well as the contributions of my colleagues, although in each case, I can assert either that I had a sole role in designing each experiment, or that each experiment emerged from an equal collaboration. Where each experiment ended, however, is subject to innumerable factors. As I have stated above, however, the knowledge developed in this project is not strictly in the results of the teaching, but rather in how these results enable a critical engagement with science fictionality, and how they reveal the affordances of the methodological framework of science fictioning. Therefore, each experiment's contribution is only to a small degree in how it was staged, and to a much greater degree in how it is read and how it might contribute to future possibilities in pedagogy.

The experiments that follow draw upon a long history of architectural pedagogy and my readers may find parallels with their own or another's teaching practice. As I have written elsewhere, I do not claim that I am the first to bring science fictional perspectives to architectural pedagogy, there are many others. Quite in fact, I expect that my readers will recognize some of the strategies at work here, if not the specific content and formulation of the experiments, and this is because much of what we already do as architectural educators is already science fictional. This being the case, my question is whether we are science fictional *enough*, and whether being explicit about such a conceptual perspective might offer new insights to architectural pedagogy. My contribution, I hope, is for the following chapters to reveal how much our own storytelling as teachers and practitioners is integral to how futures are imagined and enacted both within architectural pedagogy, but also in the discipline-to-come and by the prospective architects under our care.



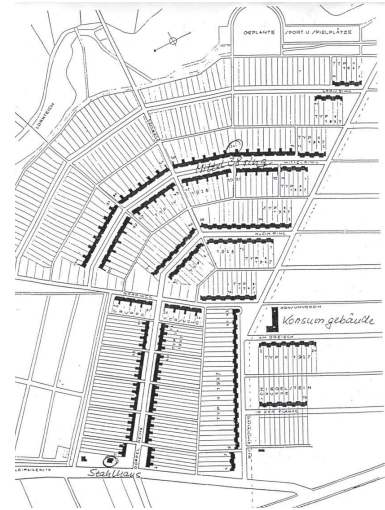


2.1 New Törten Estate

2.1.0 - Quynh Nguyen, Törten Park Collage



2.1.1 - Improved 1927 type house, Törten Estate



2.1.2 - Site plan, Törten Estate

In 1928, Walter Gropius finished work on the Törten Housing Estate, just south of the city of Dessau. This estate was one answer to a stagnating housing sector and stagnating economy in Weimar Germany. Gropius' design was commissioned by the municipality of Dessau, providing homes and garden plots to hundreds of workers and their families. The homes privileged the modern virtues of light, air, and sun, while at the same time, making use of new techniques in standardized building technology as a precursor to modern tract housing. At the time, it was state-of-the-art. Dessau has seen many changes in the 90 years since Gropius finished this project. Immediately following the 2nd World War, Dessau fell into the Soviet sphere of influence, eventually East Germany, and the population of the city swelled with the introduction of state-run industries, eventually reaching a population of 105,000 in 1990, with 15,000 in neighboring Rosslau. After Germany re-unified, however, jobs and economic opportunities in the city dwindled, and many inhabitants left. At the time of the brief for the project was written, the population of Dessau-Rosslau—the neighboring cities incorporated in 2007—already stood below 90,000, with the projected population of both cities for 2025 falling to 78,681, with 20% unemployment and 6000 empty apartments.¹

Dessau may be more familiar to architects as the home of the enormously influential Bauhaus school from 1925 until 1932, and the city has come to trade upon its reputation, having renovated several examples of this period in modernist architectural history. Nevertheless, the city is still dealing with the shrinking

¹ By 2020, the population of the incorporated city had already fallen below 80,000. see: Land Sachsen-Anhalt, 'Bevölkerungsstand, Natürliche Bevölkerungs-Bewegung, Wanderungen: Bevölkerung Der Gemeinden Stand: 31.12.2020', accessed 14 July 2021, https://statistik.sachsen-anhalt.de/fileadmin/Bibliothek/Landesamt/StaLa/startseite/Themen/Bevoelkerung/Berichte/Bevoelkerungsstand/6A102_02_2020-A.pdf.

2.1.3 - Example of “landscape corridor” proposed by ICA team with site rendered in grey. credit: Quynh Nguyen

population, unemployment and economic difficulties, as well as beginning to adopt strategies for dealing with climate change. During the IBA 2010 exhibition, which made proposals for 19 shrinking cities in the federal state of Saxony-Anhalt, the Shrinking Cities team made a radical proposal for Dessau.² This plan proposed ‘city islands’ in a green landscape, attempting to preserve and intensify most of the existing city, while razing former sites of industry and empty housing in the creation of a green corridor through the middle of the city. In short, the city could not hope for economic stimulus in the form of monetary investment, nor an increase in traditional employment. This project asked whether there might be other ways of thinking the economy of a place and how they might be integrated into a shrinking community—we asked whether there might be other ways to think about growth than monetary prosperity.



The New Törten Estate project is the oldest work included here as a part of the project. Conducted during the spring semester of 2017, it predates the PhD research by over a year. Nevertheless, even at this stage, this project already contains in a nascent form some elements of what I have come to call science fictioning, and forms a significant impetus for the present project. This project is a semester-long studio project for second- and third-year bachelor students as a part of the sustainability teaching program at the Aarhus School of Architecture. The program for the 2016-17 academic year was developed together with Naina Gupta and Fabio Gigone. Titled “(In)Voluntary Intimacies: Public Ambitions and Private Desires,” the program focused on studying and designing examples of collective housing.³ While I was the author of the brief and tutor of the group working in Dessau, as a way to explore how collective housing might be understood on different sites, each tutor in the studio

2 ‘Dessau-Roßlau: IBA Stadtumbau 2010’. Accessed 24 January 2022. <https://www.iba-stadtumbau.de/index.php?dessau-rosslau-en>.

3 In the first semester of this program the students in the Unit worked in pairs exhaustively analysing various historical examples of collective housing from a wide range of perspectives—as well as formal, tectonic, and programmatic studies, the studio looked at the context which informed the building’s development, the forces of history, economy, culture, politics and ideology. Altogether, the class studied 16 representative built housing projects over the first semester—from Jean-Baptiste André Godin’s Familistère(1859-1884) to Moisei Ginzburg’s Narkomfin(1928-1930), Torre David in Caracas (2007-2014), and MVRDV’s Silodam (2002)—and compiled the research into 4 books.



2.1.4 - Trine Mellemstrand Jarstø and Jens Toft Madsen - intermediate collages for Sharewood

took a group to a different city, as well as Dessau, one group worked with a site in central London, while another worked in the context of the Real Albergo dei Poveri in Naples.

Students were given the task of re-imagining the suburban housing of the Törten estate as if it were built today, using the context of demographic change, economic difficulties, and a new relation to landscape as the starting points. They were told to maintain the existing housing density on the site, now home to roughly 1300 residents, but were also encouraged to think of the organizing principles of this community, whether new notions of collectivity, sustainability, alternative economic practices such as sharing or self-sufficiency, or a new relation to the suburban landscape considering transport, recreation, agriculture, energy or rewilding. Most projects combined at least two of these.

Choosing Dessau as a site is a first point of estrangement for the students; it is interesting as much for what it doesn't allow as for what it allows. The site doesn't allow us to think of a commercial housing development as a solution, but this proscription also introduces other ways of thinking. As a teacher—and I suspect this is true of (nearly) all architecture studio briefs—I initiate the worlding for students; I give a speculative framework for them to start from—the parameters sketching out the beginnings of a world, in this case, the investigations around community organization that were the onus for the studio. In this case, the challenges faced by the site were only the first estrangement; following some of the already existing discourse around the future of Saxony-Anhalt, the other estrangements of the suggest that working in the area would need to consider re-wilding, demographic change, alternative economic scenarios, and new forms of collectivity. These provocations and interdisciplinary alliances temporarily construct the borders of 'architecture'—that is, it defines 'architecture' within the scope of the assignment, but does so by constructing bridges not borders.



2.1.5 - Trine Mellemstrand Jarstø and Jens Toft Madsen - Forest Succession Diagram

In a Deleuzian vocabulary, the brief constructs a temporary plane of consistency that constructs relations for the term of the project, while Haraway may call it the project building its own optical devices. This plane maps not only how ‘architecture’ might interact with a broader interdisciplinary field, but also reveals how whatever it is we refer to when we refer to ‘architecture’ is subject to definition within the field of relations that we establish in the brief. As well as what ‘architecture’ is, the brief also demanded that students reassess what ‘doing architecture’ is. This specific site and program, like all briefs do, demanded that students establish their own strategies for interpreting the project. Most students previously had dealt only with projects in a much smaller scale; housing for 1300 people on an urban scale meant they needed to approach this project differently than the projects they had done in the past, adapting previously-learned strategies to new scales. In the end of the project, this meant that students had to understand their project in strategic decisions across different scales, and deemphasize form in favour of defining relations.

Students began building their story from this initial ‘worlding’ and explored the various estrangements or provocations further in their own research. They would begin by choosing one or two as the material from which to begin telling their story. Trine Mellemstrand Jarstø and Jens Toft Madsen, for example, chose to begin from site considerations, with the city’s existing plan to introduce landscape zones into the urban fabric, but rather than making a strict division between nature and city, they asked whether housing might be tightly integrated with a new forest. New collective forms, they reasoned, would allow them to provide shared resources and spaces for their inhabitants, thereby greatly reducing the built volume on site. They also proposed that the inhabitants be grouped into several clusters or ‘cabins,’ each raised off of the ground, several stories high, and connected by walkways in the treetops—increasing the floor-to-area ratio of the site while making more room on the ground plane for something else. While these determinations may make it seem that their first thought was the collective form, their first consideration for the project was re-wilding, or reintroducing the forest ecology native to this site. They proposed that their collectives follow the path of forest succession, first as a shield and artificial canopy for an immature forest, then increasingly growing under the shelter of a developing ecosystem [fig. 2.1.5].

As well as the estrangements introduced from the site of Dessau, there were a few more attractors within the field of relations forged by the project. The principle discussion for the studio over the whole year is the tension between individuality and collectivity in collective housing—including how normative housing accommodates some collective subjects—nuclear family, for example—while excluding others. In addition to the previous semester’s study of historical examples of housing, this semester introduced practices⁴ and concepts in housing⁵ from recent Germany history.

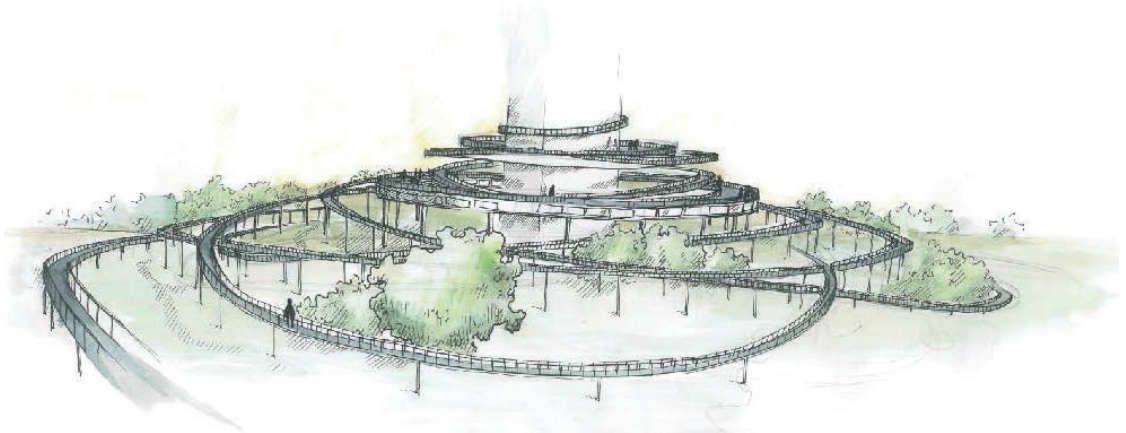
As a natural extension of the study of collective housing, and the economic precarity of the site,⁶ we also look to alternative economic organizations for the housing proposal. As the unit was a part of TP3: Teaching Program Sustainability at the school, there was also a baseline tendency to try to rethink the cycle of extraction and waste, and to think about other modes of circularity. The other theoretical input for the studio was in exploring the post-capitalist economic models described by J.K. Gibson-Graham, the joint pen name of economists Julie Graham and Katherine Gibson. The most successful example they describe is the Mondragon, a long-running and successful workers cooperative in the Basque country of Spain; founded in 1956, the Mondragon now includes over 81,000 people across the world. Along with Mondragon, J.K. Gibson-Graham look at project of quite diverse scales and from across the world, from Kerala to Massachusetts. They identify four features of a post-capitalist community economy which had an impact on how students imagined their collectives.⁷ These post-capitalist economic frameworks include 1) a focus on identifying and meeting community needs over economically beneficial motivations,

4 For example, the studio visited Berlin-based fatkoehl Architekten, who have been involved in several contemporary projects in collective housing.

5 Niklas Maak, ‘Post-Familial Communes in Germany’, *Harvard Design Magazine*, no. 41, accessed 9 July 2021, <http://www.harvarddesignmagazine.org/issues/41/post-familial-communes-in-germany>; Niklas Maak, *Living Complex: From Zombie City to the New Communal* (München: Hirmer, 2015).

6 As a part of the former East Germany, the industrial economy of Dessau was significantly interrupted after the collapse of the Soviet sphere of influence, and despite a quarter century of a reunified Germany, unemployment and lower incomes are still a significant problem for Dessau and other East German cities.

7 J. K. Gibson-Graham, *A Postcapitalist Politics* (Minneapolis: University of Minnesota Press, 2006), 167, 192–93.

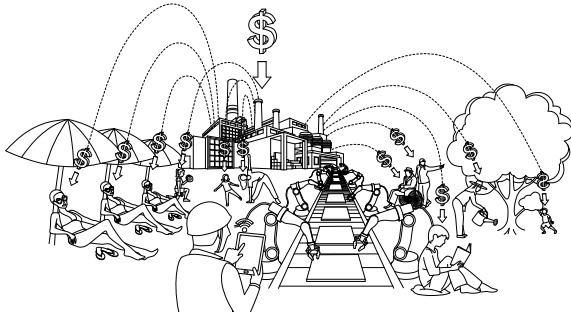


2.1.6 - Thomas Bengtsen and Sidsel Sandholm Valen, sketch for Törten Estate Collaboration of Sustainable Unemployment

2) they distribute surplus to the members of the community, 3) they advocate for responsible consumption, and 4) they devote considerable attention to defining, creating, and nurturing a commons that is shared by the community.

As well as exploring collectivity as a theme, this unit also undertook to understand the studio as a political space, where they might help one another. That is, while students were responsible either individually or in pairs for their projects, studio time was also given over to discussing each others' projects in common. This was a consideration about how we as tutors might imagine the studio space as less about competition, and more about collaboration—a small inkling of what I have come to call the studio-to-come. We introduced a series of group exercises and discussions, where students would be encouraged to be generous with their ideas. In practical terms, throughout the semester, we broke the studio into groups of 6-8 students, and students took it in turns to present their projects to each other and to pose a question based on the stage they were at. All other students in the group would then contribute with feedback, but also in sketching possibilities for the project. This creates an atmosphere of mutual support and encourages peer-to-peer discussion, learning and mutual investment rather than competition in the unit.

It might seem incongruous to include this project in a discussion of science fictioning architectural pedagogy. Although science fictionality was never included as the perspective driving the course, I have no hesitation in asserting that an attention to futurity and utopian possibility drove both the brief and student motivations as the course went on. The perspective afforded by SF also becomes a way for me to read each of these projects, to seek out their specific contributions the student's further study, and to the disciplinary discourse. However, it must be acknowledged that, while there are some elements that align the work with SF, this brief is very



2.1.7 - Thomas Bengtson & Sidsel Sandholm Valen, conceptual diagram for Törten Estate Collaboration of Sustainable Unemployment

like something one might find at any number of architecture schools. I believe that this shows the ubiquity, rather than uniqueness of something like the approach I am proposing, and how leaning into the science fictionality

might be productive in supplementing the discussion and disciplinary contribution of these works. We look at 3 projects, 3 science fiction stories told from and with the framework offered by the course, each of which offers its own speculation and space of affective, even utopian, desire.

TÖRTEN ESTATE COLLABORATION OF SUSTAINABLE UNEMPLOYMENT

Second-year bachelor students Sidsel Sandholm Valen and Thomas Bengtson's project arises out of economic anxiety around automation. As a foil, they propose a collectivity; not a collective built around labour, but rather around the lack of it. They propose a community built around a robotic factory—a form whose presence and absence dominates; it is housed in a tall 4-sided tower directly in the middle of the site [fig. 2.1.6]. Yet, in spite of its size, it is also relatively inconspicuous—it is clad in mirrors, reflecting the surroundings—a mysterious monolith working somewhere between the shareholders' celebration and denial of its existence. In the program that Sidsel and Thomas propose, members of the collective buy-in, selling what they have in order to join up with the promise of a life almost entirely free of work [fig.2.1.7]. The collective's inhabitants all take a turn in maintaining and administrating the factory, but this does not take much of their time. This being the case, the question for the designers becomes: what happens when we organize the community around leisure and free time?

The idea of spaces organized around leisure or after labour is not new, it has been a feature of several works of architectural SF and even realized works. Constant Nieuwenhuys proposed that his future city New Babylon [1959-1974] would be populated by *Homo Ludens* who would occupy themselves with a life of creative play. R. Buckminster Fuller thought everyone would be happy to engage in lifelong learning,⁸ while the 'real life' equivalents—the retirement village, vacation resort, or cruise ship—propose such a life as an endless series of diversions. To be sure, there is something of the resort plan involved in Sidsel and Thomas' project; the site is littered with things to do, including sports, meeting spaces, theatre, and many other

8 R. Buckminster Fuller, *Education Automation: Comprehensive Learning for Emergent Humanity*, 1 edition (Baden: Lars Müller Publishers, 2009).

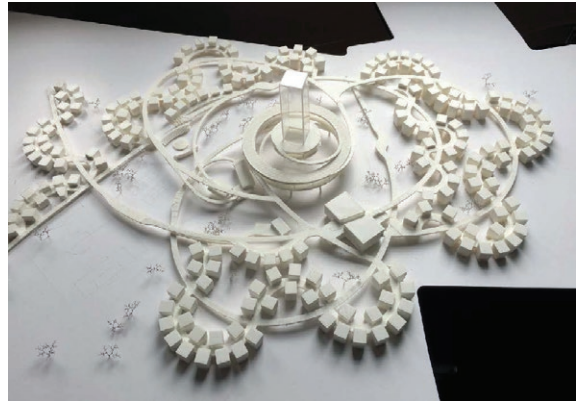
2.1.8 - Törten Estate Collaboration of Sustainable Unemployment Model (1:1000)

2.1.9 - Törten Estate Collaboration of Sustainable Unemployment, rendering of circulation and housing

diversions. If the reading were to stop here, as a future fiction, the project might read as naively utopian, although it does resonate with contemporary discussions of automated labour and of a universal basic income.

While one semester is too short for even the most clever architecture student to solve what happens after automation, the project is productive for a couple reasons. From the standpoint of architectural learning, they had to ask what the architectural consequences would be of a community with different ideas of temporality. They propose that the organization of the site be split between the factory's clear and rational spaces—organized on fixed paths on the ground plane, and the living spaces, which might be predicated on other temporal frameworks—of taking time to move more slowly, to provoke spontaneous encounters; proposing meandering and diversion as both a cultural and architectural strategy to invite maximal 'wasted' time. The site is series of paths meant to take longer to move round, to meet more people, and see more things [fig. 2.1.8].⁹ In short there is a level of estrangement from which to construct the imaginary constraints of a community different than the one from their experience. This means they need to examine what of their experience is appropriate, and what needs to be questioned. While their study of leisure temporalities is appropriate, the homes scattered across the site still hew quite closely to a normative 3-bedroom family home while only differing in how they meet the common circulation [fig. 2.1.9]. This being the case, one wishes that the space of the home and the relation to the commons could be developed rather more fully than in the current proposal.

Sidsel and Thomas were quite able to maintain a critical dialectic in their project, and in some circumstances, it is clear that they could also see the project in the vein of a critical dystopia. That is, they greet the prospect of a life of leisure with some



9 This device of vertical segmentation is a fixture of several works of architectural and other SF – even as early as the Eloi and Morlocks of H.G. Wells' *The Time Machine* [1895]. See an extended discussion in: Stephen Graham, 'Vertical Noir: Histories of the Future in Urban Science Fiction', *City* 20, no. 3 (3 May 2016): 389–406, <https://doi.org/10.1080/13604813.2016.1170489>.



2.1.10 - Clay Process Model; 2.1.11 - Sketch of Tunnel Pergola

suspicion. In order to expand on the SF of their project, each wrote a short story accompanying the project to explore how life might be like inside. As a learning, it is important to include this dialectical layer to the project, both being able to make a proposal, but also to be aware of the affordances and limitations of what they were proposing. Sidsel, in particular, shows ambivalence, and even suspicion; the character of her story—in spite of a day filled with volunteering, gardening, lectures, and meeting friends—still ends the day quite listless:

“That night she lay in bed thinking about when she first moved in. She had emptied her entire savings account securing herself against the [prospect of] unemployment...

She had tried jewelry designing and event managing, but had never really been pushed to take the leap of faith and fully invest in her projects, so instead they had ended up becoming simple hobbies.

She exhaled heavily, and considered how her life had started to stagnate ... She was becoming quite a skilled lady, attending lectures and all that, but she couldn't help but being bothered with the thought that... she would be the only one to ever benefit from it. There was a constant admonition for people to take responsibility, and stay insightful and smart, but to her it rang somewhat hollow. She felt it was a remedy to postpone the feeling of wasting time and of never actually achieving anything.

Did it even make sense then? She closed her eyes.

‘I’ll be more ambitious tomorrow. I want to make [a] difference.’”



HIGH DENSITY HOUSES

PEOPLE WHO DON'T FARM DOESN'T NEED THE LAND TO GROW THINGS ON.
CAN WE MAKE TALL MOUNTAINS AS A PURE AESTHETIC + CONTRIBUTION TO THE EXPERIENCE / SCENERIE ?
MOUNTAINS.

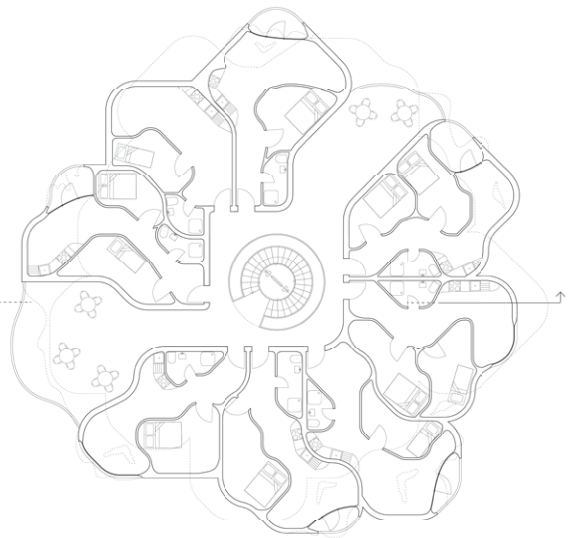
2.1.12 - Sketch of Mountain Dwelling

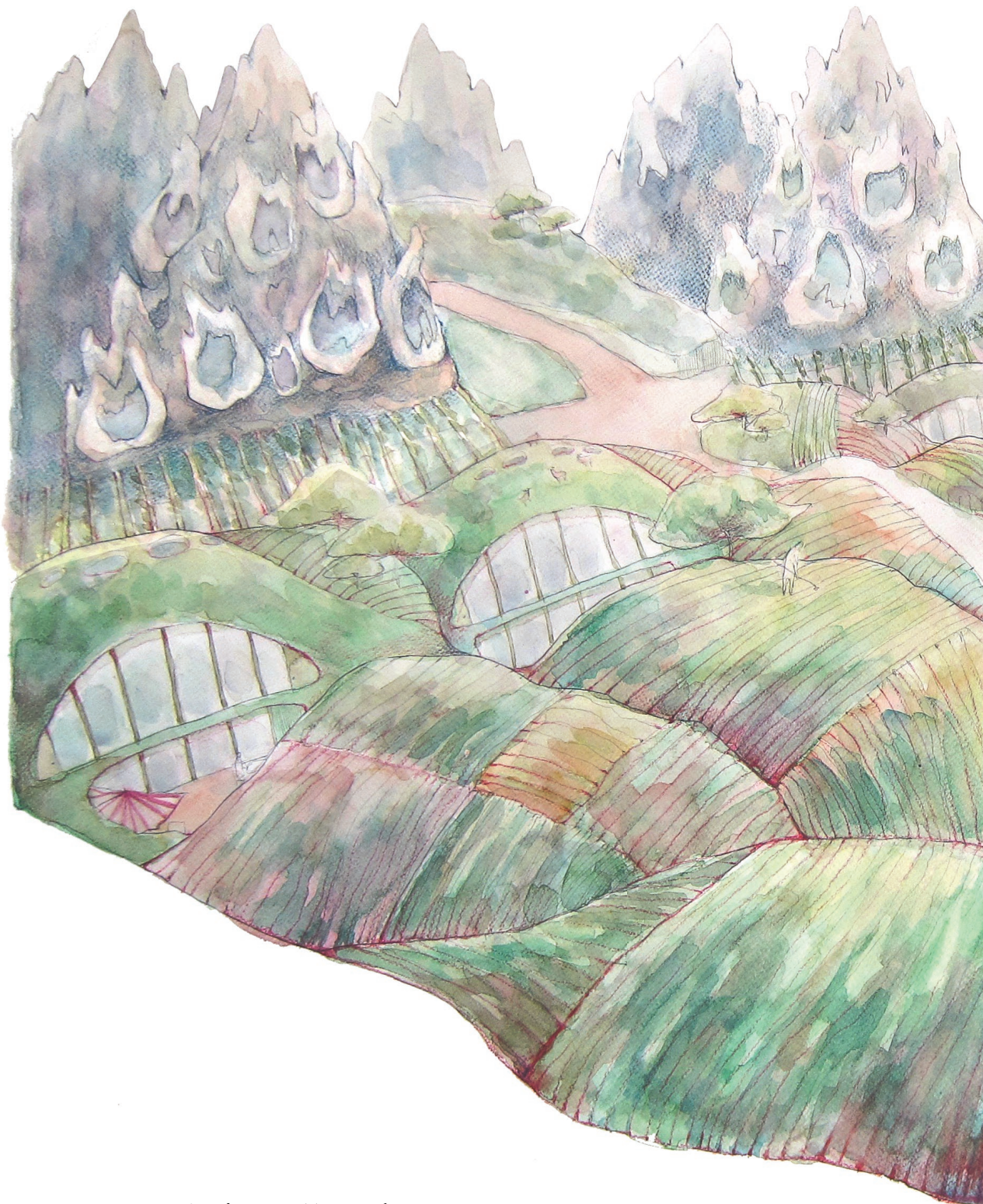
2.1.13 - Clay Model of Mountain Dwelling

2.1.14 - Plans of Mountain Dwelling

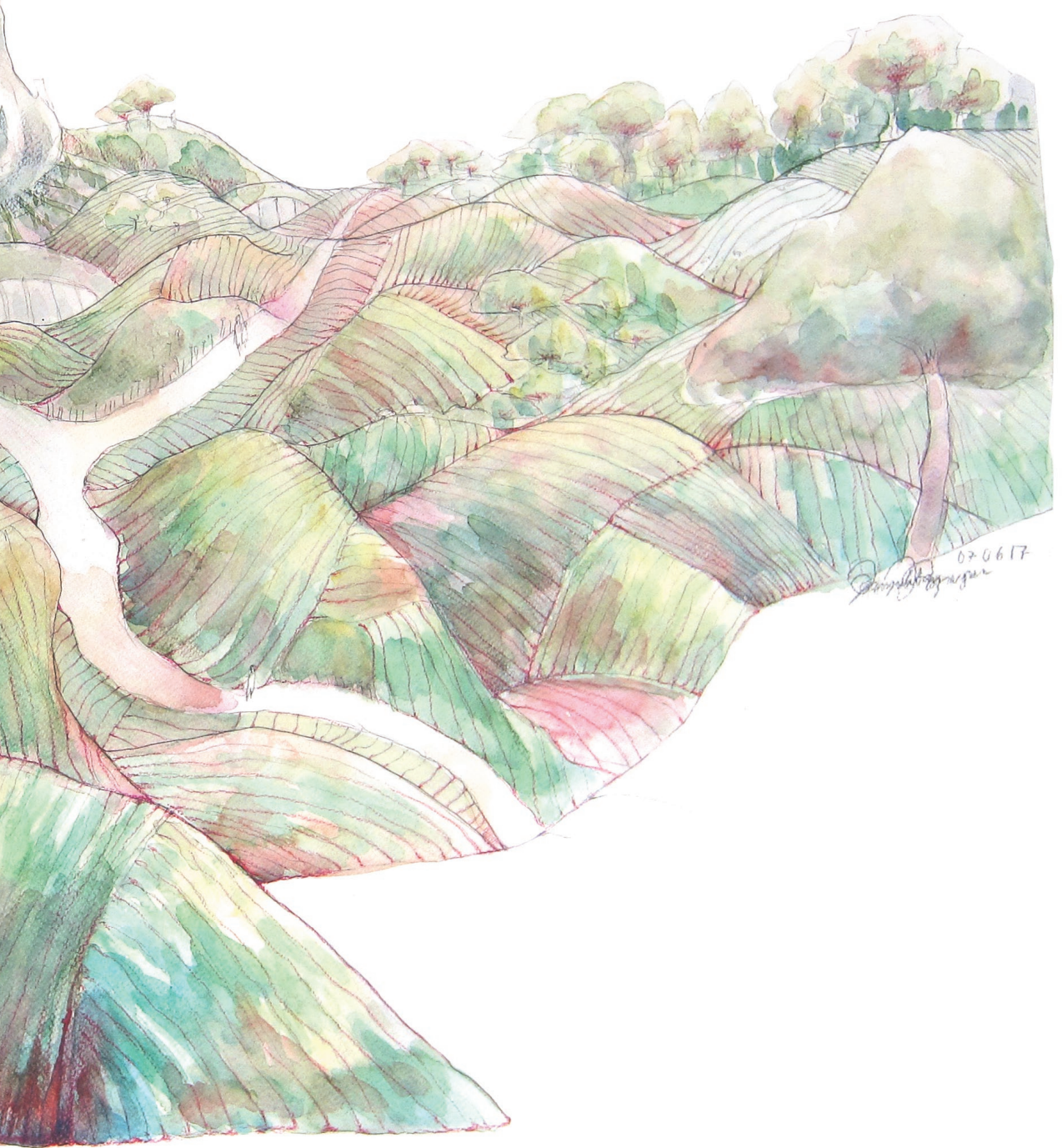
Torten Park

Like Sidsel and Thomas above, 3rd year student Quynh Nguyen's proposal for the site also plays a similar game between an arcadian ground plane, and an accelerated infrastructure hidden below the ground. In Quynh's case, she is intentionally constructing the site as a kind of fiction; she takes inspiration from the intensified and composed 'natures' one might observe in both the Chinese and English Landscape design traditions. In particular, Quynh studied Parc de Buttes-Chaumont, a park in the north-east of Paris which formerly housed a refuse dump and a quarry. Made over in the second half of the 19th century, it contains an artfully composed and artificially constructed lake and island, including grottos and follies—all of which constitute an artificially intensified and romanticized version of nature. Quynh leaned into this artificiality by introducing a rolling landscape to the site. Much of the landscape is devoted to agriculture in order to supplement the site's economy, with most of the housing collected into several towers on site. As much





2.1.15 - Quynh Nguyen, Törten Park





2.1.16- *Emma Helene Rishøj Holm and Rasmus Svane Høj, Bughaus*

2.1.17 *Interior rendering*

as it is a productive landscape, it is also staged to direct attention inward, framing and curating the experience of the landscape for visitors and inhabitants [fig. 2.1.15].

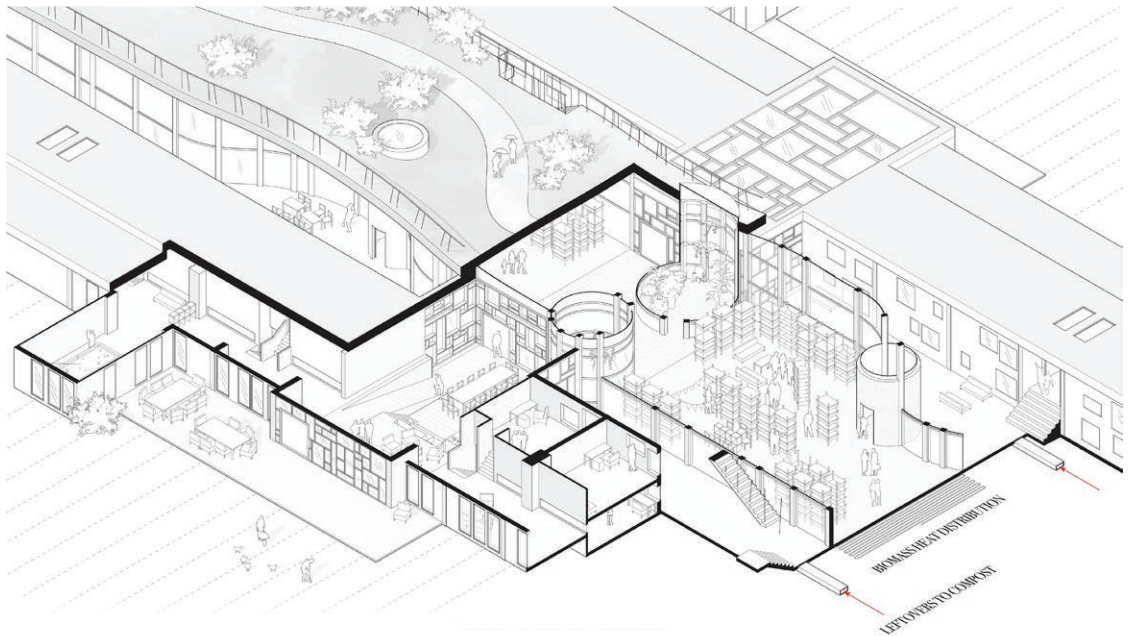


Nguyen's science fictionality is something more like surreality. The landscape is not natural, having been augmented by introducing layers and an artificial topography. She inserts housing into this hyper-real, theme-park version of a landscape, tucking townhouses under hills, and stacking apartments into sculpted, artificial mountains. Following the intuitive desire first explored in her sketches, Quynh continued to use intuitive methods to explore

the subconscious intention driving her project, the project was largely articulated through modeling in clay, painting and collage, all of which takes us into her fantasy of living in a landscape [fig. 2.1.10-13]. These methods allowed her to explore a pre-conscious space of affective desire, and to communicate these to quite a high level. Eventually, as an accommodation to disciplinary protocols, she rationalized the models using 3D scanning to capture the geometry of the models, and these were further developed into line drawings [fig. 2.1.14]. While these do capture some of the spatial complexity of her proposal, one can't help but wonder how much the surreality driving the proposal figures remains in these representations of the project.

BugHaus


3rd year students Emma Helene Rishøj Holm and Rasmus Svane Høj's proposal is predicated on two things, both arising out of a concern for sustainability. First, they preserve and augment the existing buildings rather than building from a tabula rasa condition, and second, they organize the community's collective identity around insect production and permaculture farming. Their proposal is principally organized around insect farming, a method of protein production that is significantly less resource intensive than any other type of animal protein. In order to increase internal economic benefit for community, they imagined that this production could be closely coordinated with a closed system of food production on site—including onsite farming, composting, greenhouses, and a biomass reactor for energy. They organized these new systems as a layer on top of and between the existing buildings.



2.1.18 Axonometric through collective infrastructure. Much of sociability of project collected under a roof covering the former roads. This internal circulation collects the internal spaces of the collective, allowing movement and recreation.

They also reconfigured the individual homes on site and convert them for different levels of collectivity. The existing townhouses are imagined for the individual family, and each contains a kitchen, living room, and depending on the year it is built, either two or three bedrooms. Any notion of collectivity across the whole is only by dint of architectural homogeneity in the estate. Rather than organizing their intervention on the model of the nuclear family, however, they remodelled the existing buildings to accommodate different scales of collectivity within their project, each with its concomitant architectural expression. They call the first level the ‘neighbourhoods’—each containing 6-8 rooms as private space for an individual or couple, while different family units may occupy several adjacent rooms. The neighbourhood includes the immediately adjacent rooms and sharing leisure space and toilet facilities, while the collective includes two neighbourhoods and supplies food preparation space. A pair of collectives are joined across the former road, now sharing responsibility for that stage of insect farming. Finally, the collective as a whole shares a common ‘spine’ including the protein production, bio-mass converter, and common meeting spaces. Thus, Emma and Rasmus use the architecture to define what is individual and what is held in common among different scales of collectivity inside their Bughaus.





2.2 Playing Innocent

*Figure 2.2.0 - Sophie Elizabeth Hutchinson, Oleksandra Ianchenko, Nanna Louise Holmberg
Nielsen, David Bjelkarøy Westervik, Personal Space*

“Playing Innocent: Action, Agency, and Architecture” is a semester-long project for a second- and third-year bachelor students. The project was conceived and conducted by the author together with Naina Gupta in the autumn semester of 2017 at the Aarhus School of Architecture, and is the first half of a year-long project discussing how architecture is implicated in the performance of political bodies, both the individual body and the collective body of the polis. Before a more formalized encounter with ‘performance’ in the design of a theatre in the second semester, the first semester explored architecture’s instrumentality in shaping and staging encounters between subjects and the articulation of micropolitical events. The project emerges from theoretical speculations largely derived from two sources: Hannah Arendt’s “space of appearance,”¹ and Butlerian performativity—both as an individual² and in assembly.³ As a way to ground the theoretical perspective within the language of architecture, students also read and discussed Eyal Weizman’s practice Forensic Architecture,⁴ Robin Evans’ “The Rights of Retreat and the Rites of Exclusion,”⁵ and Tschumi’s “Violence of Architecture.”⁶ All of these texts reveal that no architecture is ‘innocent;’ as Forensic Architecture’s careful analyses show, differences on the scale of millimeters can have a profound implication for how subjects are created and allowed to thrive. Students investigated the relationship of form, materiality, detail, and construction in designing full scale ‘instruments’ staging one or several bodies in space, and thinking through notions of inter-subjectivity, affinity, and political participation, as well as privacy, identity, and individual experience.

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- 1 Hannah Arendt, *The Human Condition* (Chicago: University of Chicago Press, 1958).
 - 2 Judith Butler, *Gender Trouble: Feminism and the Subversion of Identity [1990]* (New York: Routledge, 2006).
 - 3 It is outside the scope of the present project to delve too deeply into this specific argument. From Arendt, we take the constitution of a polis as the space where political subjects meet one another in a mutual recognition—the space of appearance. However, rather than an abstract space, following Butler we also argue that this space of appearance emerges in the physical space of the polis, and is co-constituted by a performance of subjects. Thus it is not abstract, nor static, nor characterized by a balance of authority. Political space in fact constructs and legitimates the political subject at the same time as the subjects construct the space in a performative relation. See: Judith Butler and Athena Athanasiou, *Dispossession: The Performative in the Political* (Malden, MA: Polity, 2013); Judith Butler, *Notes Toward a Performative Theory of Assembly* (Cambridge, Massachusetts: Harvard University Press, 2015).
 - 4 *Forensis: The Architecture of Public Truth* (Berlin: Sternberg Press, 2014).
 - 5 Robin Evans, *Translations from Drawing to Building and Other Essays*, AA Documents 2 (London: Architectural Association, 1997).
 - 6 Bernard Tschumi, *Architecture and Disjunction* (Cambridge, Mass.: The MIT Press, 1996).

The focus of the project is architectural instrumentality, especially as architecture constitutes political subjects—subjects that appear in relation to a polis. While there were strong ambitions within the project to look at how architecture stages the performance of political bodies, the present chapter focuses on how we reached this objective through processes of estrangement and vehicles for speculation as these are most directly relevant for the present work. The political ambitions of the project were activated by a nascent SF pedagogy, which started from the estrangements provoked by selected short stories by J.G. Ballard. These texts became vehicles for speculation supplying relevant estrangements and provocations from experiential *nova*. These estrangements are the basis for polyvocal encounters, first with Ballard and then between students as they work individually and collectively towards their final outcome.

Students worked both individually and in groups of four at different times during the semester, proceeding through several mutations of their story and working towards the construction of a full-scale ‘interruption.’ We chose ‘interruption’ to describe their architectural instrument because we tutors did not want to delimit the possible outcomes, and so chose a descriptor without an immediate connotation within the field—a fuzzy signifier for an as-yet-undefined space of architectural subjunction. Moving in and out of group work invited translation and negotiation into the process, revealing whatever act of translation as contingent and subjectively determined, enacting a political process within the project itself as each individual interacted with their group. This semester finished with: first, a group research report and performative presentation with the full-scale object where students collected, analyzed, and summarized the process of their investigations and observations, and second, an individual essay where students explored the theoretical position implicated by the results of their research.

While there may be other equally appropriate authors, the choice of working from texts by Ballard was far from arbitrary. Ballard was a leading figure in what has later been termed the New Wave of British SF, a collection of writers emerging in the 1960s, whose primary ambition was to increase the literary quality of SF over “juvenile” prose and torpid devices of the earlier generation of SF authors.⁷ Ballard argues that rather than the pseudo-scientific drivel of the generation preceding his own, SF should begin to explore the “inner space” of the near future, including

7 Damien Broderick, ‘New Wave and Backwash: 1960-1980’, in *The Cambridge Companion to Science Fiction*, ed. James Edward and Farah Mendlesohn, 1st edition (Cambridge; New York: Cambridge University Press, 2003), 48–63.

an invention of a language to describe new psychological states, the “synthetic psychologies and space-times, ...the sombre half-worlds one glimpses in the paintings of schizophrenics.”⁸

The psychological and social *nova* are states that Ballard imagines as emerging out of humanity’s confrontation with new modes of social being and new technologies—spatial or otherwise. Ballard’s fiction is an excellent example of SF mimesis⁹—his language occupies a middle space between referents that appear naturalistic but which produce at least some estranging quality. We experience the words in Ballard’s fiction in such a way as to suggest, at least initially, that they might immediately assimilated into a naturalistic reading. But there is dialectic quality within Ballard’s fiction that makes it amenable to both naturalistic and non-naturalistic readings *simultaneously*. It is not just ‘strange,’ its game is to play between the seemingly mundane and the strange. As chapter 1.2 discusses in more detail, this game of cognitive estrangement activates the reader in challenging the seeming inevitability of their everyday experience, but also activates a polyvocal encounter where the reader goes through the process of making sense of that estrangement, domesticating and translating that *novum*, using it to reframe their won contemporary experience of space, technology, even the self.¹⁰

Students groups were each presented with one of nine short stories, each of which contained some relational mechanisms that they were to activate. These initial impossible provocations or estrangements underwent several translations or ‘mutations’ into a final performative artefact in the public space of the school. The demand for a working material prototype necessitated progressive ‘translation’ all the way from conceptual ideation to very specific technological demands. While this process is covered in somewhat more detail in chapter 1.4, multimodal translation implicates the student in ‘translating’ from one mode of expression to another, as for example between a text and image.

8 J. G. Ballard, ‘Which Way to Inner Space? [1962]’, in *Science Fiction Criticism: An Anthology of Essential Writings*, ed. Rob Latham (London ; New York: Bloomsbury Academic, 2017), 103.

9 A feature of all language such that, “to the extent that all representation is in some measure non-transparent— to the extent that it is impossible to establish full mimetic correspondence between referent and representational text— the process of representation is always characterized in some measure by the same dialectic that defines SF, namely, the dialectic between cognition and estrangement.” see: Seo-Young Chu, *Do Metaphors Dream of Literal Sleep? A Science-Fictional Theory of Representation* (Cambridge, Mass: Harvard University Press, 2010).

10 Chapter 2.4, describing the experiment There and Back Again, contains a longer discussion of different

In moving between media, translation here can only be used in a somewhat looser sense than a simple replacement of words in one language with words in another. In moving from word to image, shades of meaning and surplus of signification interfere. This is doubly true of the works of SF discussed here. The gap between the affective states Ballard describes and what the student could produce in the ‘real world’ activates a polyvocal encounter as the student interprets and produces meaning from the source text—starting by speaking with the text, and then increasingly, speaking with their own voice and in concert with their group.

The stories used for the project were:¹¹

- Cry Hope, Cry Fury (1967)
- Escapement (1956)
- Motel Architecture (1978)
- The Last World of Mr. Goddard (1960)
- The Intensive Care Unit (1977)
- The Smile (1976)
- The Enormous Space (1989)
- Prima Belladonna (1956)
- The Thousand Dreams of Stellavista (1962)

We chose these stories from among J.G. Ballard’s stories for various reasons, but chiefly the choice hinged upon the stories containing some meditation on psychological, social, or environmental affective relations, although these often occur together. “Prima Belladonna,” for example, features plants that perform music, and a mysterious golden-skinned woman with insect eyes who can make people see things with her voice. The story suggests the possibility of exploring or creating a kind of synesthesia, where music, voices, colour, vibrations, and emotional states comingle.

Many, though not all, of these stories also contain some spatial or technological intermediary in exploring the estranged psychological states. “The Thousand Dreams of Stella Vista” features a “psychotropic” house that stores and then releases the pent-up psychic energy of its previous inhabitants. Sometimes a desirable trait depending on previous owners, this particular house was previously inhabited by an actress who had brutally murdered her husband. The house first rages with jealousy at the wife of the new owner, and then after she moves out, the rage turns upon the new owner himself—all through manipulating its flexible “bio-plastic” material. “Intensive Care

11 All stories were excerpted from: J. G. Ballard, *The Complete Stories of J. G. Ballard* (New York: W. W. Norton & Company, 2009).



Figure 2.2.1, 2.2.2 – Johanne Kirketerp, *Performative Spatial Collage*

Unit” describes the first physical meeting of a family—a father, mother, and children who have only ever interacted with one another over video call. The story describes the violence that erupts as they meet, unable to reconcile the difference between their carefully curated digital lives and the messiness of physically being together.

The first and most difficult phase is the first ‘translation’ from Ballard’s text into a physical artefact. Individually, students had to understand the relational mechanism at work in the story, and how it might implicate architectural concerns. The intent of this 2-week phase was to produce a “3D performative artifact,” an artifact that enacted some aspect of the story, though some students showed a tendency towards a symbolic representation of some aspect of the story rather than a translation. For example, “The Smile” describes idealized femininities as seen through the masculine gaze. In the story, the protagonist falls in love with a doll, which becomes his companion, and as the doll deteriorates, he calls hairdressers and makeup artists to keep the doll looking as he first found it. Eventually, the doll becomes so worn that he loses interest almost entirely, although he is still intrigued by the “smile.” The story’s rather pedestrian plot and metaphor, however, is layered with a rather more acute investigation of obsession and violence in the protagonist’s psychological state. After first symbolically describing the violence of idealized femininities [fig. 2.2.1], one student’s 3D object expanded to implicate the observer’s position in how the female form—here an image of the Virgin Mary—was obscured or revealed to the observer through other metric devices. While the first is a symbolic representation of the story’s ‘content,’ the second iteration implicates the viewer—to whatever small degree—in actually performing the gaze the story is critiquing [fig. 2.2.2].

“Escapement”[1956] describes one character’s experience of being caught in a time loop, which students extend to an investigation into the way that architecture

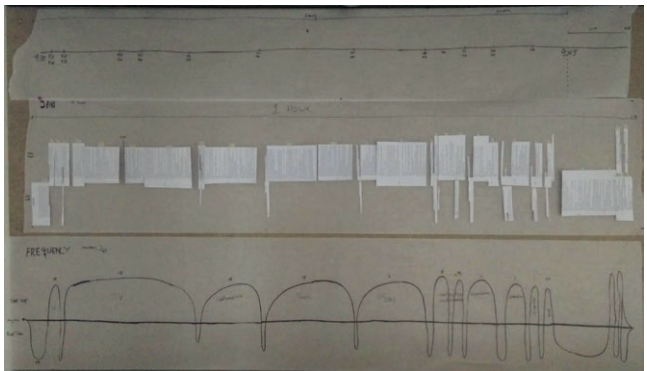
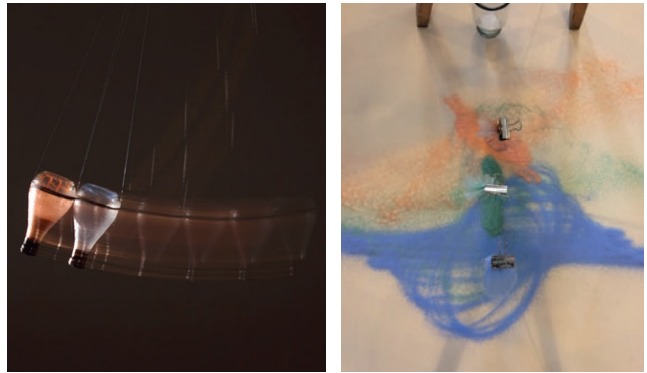
Figure 2.2.3 - Louise Thisgaard Pedersen,
Pendulum Device

Figure 2.2.4 - Jens Toft Madsen, Analysis of time
loops in "Escapement"

produces rhythm and time periods, and eventually the possibility to 'stretch' time in the user's experience. Students began looking at devices such as the pendulum [fig. 2.2.3], zoetrope, Eadweard Muybridge's serial photographic investigations of animal and human movement, or mapping and spatializing the character's experience of time [fig. 2.2.4].

The next phase of the project had the students collect their individual investigations into a single "generic object" together with their group. This generic object was as yet siteless, but introduced some of the physical restrictions to their work—the final dimensions of their object could fill an area no larger than 2x1 meters up to a maximum height of 2 meters. This phase was a way for students to read their own individual translations, to communicate it to colleagues, synthesize the architecturally relevant operations into a singular 'working' object—in a way, to begin to naturalize the initial provocations of the first phase. Translation is implicated here as well, each had invented a spatial and operational vocabulary in their individual encounter with the text, and they now had to invent a patois between their respective interpretations, another poly-vocal encounter as they begin to tell stories with one another.

The next two phases introduced the site for the installation, all nine interventions were located in a heritage listed courtyard behind the administration building at the previous campus of the Aarhus School of Architecture. Each was given a specific 'zone' in which they could work largely based on maintaining space for potential egress and relation to existing installations in the courtyard.¹² Students were within their respective comfort zones as they analyzed the courtyards for views, circulations, and gathering points when, after this first analysis, John Cage's "graphic notation for Fontana Mix" [1958] became a visual estrangement for the project [fig. 2.2.5].



12 At the time, the courtyard contained two pieces of sculpture by Associate Professor Anders Gammelgaard Nielsen.

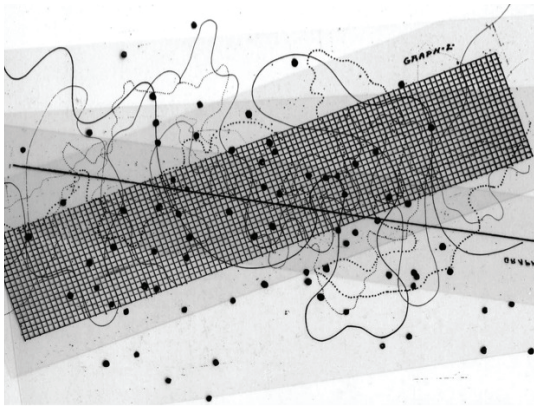


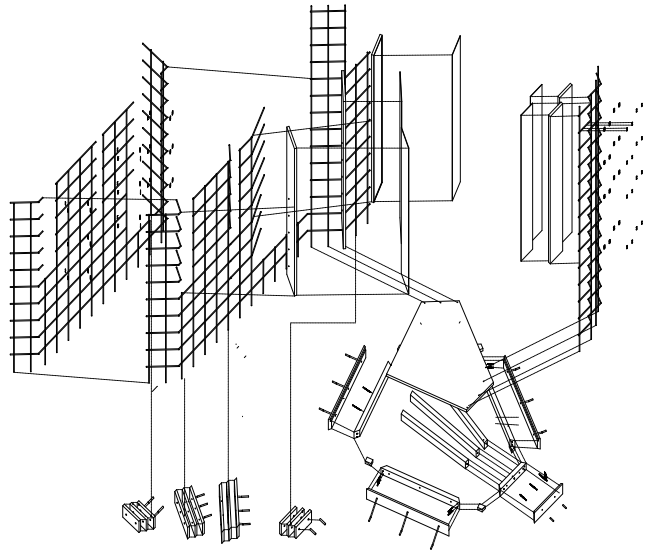
Figure 2.2.5 - John Cage, graphic notation for *Fontana Mix* (1958)

This image, they were told, was a diagram for their project—they just needed to find out how to use it. This mutation, I should note, did not have a significant impact on the outcome of any of the final works.

After this phase, we asked for a further mutation in the ‘in-between’ space between each installation, asking that each “interruption” interact with their colleagues interruptions at a minimum 5 meter radius, meaning that each project had to find a way to collaborate with at least 2 other groups to develop the space between each installation. This phase was less developed visually or diagrammatically, although the final installations usually did include some gesture towards their colleagues, forming some continuity across the installations. The construction phase of the project saw each group of 4 students construct their ‘interruption’ on site, using the workshop facilities at the school.

At each stage of the project, each group’s assigned short story is a touchpoint and discursive antagonist for the continual orientation of the group with each other and with tutors. Maintaining this discursive space throughout the progress of the project is very important. The first phases in every case were very promising. We did, however, notice a tendency to engage too abstractly with the story—at the most extreme, the complex, nuanced, even contradictory narrative could be reduced to a diagram of a specific relation. That is, because of each story’s complex narrative, one tendency we observed is to construct increasingly stretched analogies that *could* be justified according to one reading of the narrative, and leaving the reading as settled rather than a constant provocation.

One group seemed to lay the story aside too quickly. They worked from the story “Cry Hope, Cry Fury,” which contains a number of surreal elements. The group focused on the device of slow painting—Ballard’s SF invention—which involves covering a canvas with “photosensitive” pigments from which an image appears after several days’ exposure. The result is not a photographic, but a surreal collage layering the impression of several sittings including different postures and changes in moods. In Ballard’s story, the device captures not only a likeness, but also discontinuities—an abstract representation of the sitter’s personality over a longer time period. In the story, the paintings capture the deliberate perversions of one ill-willed character who distorts another character’s emerging image, and causing psychological distress. In



top:

Figure 2.2.6, 2.2.7 - Affective architectural element exploring the disintegration of the body image through optical devices of reflection and framing.

Figure 2.2.8 - Exploded axonometric of installation

middle:

Figure 2.2.9 - Site elements reflected into body image

bottom:

Figure 2.2.10 - Site rhythms and impressions translated into the installation

Students: Mathilde Møll Helms, Niclas Heydorn, Anne Sofie Ravnsbæk Geertsen, Student X



deciding too early that the story was *about* presentation of the self, the group ended up producing a chair as a kind of pedestal holding the occupant in a single “power pose,” where they could assert their presence in the public space of the installation. While this was a well executed work of design and construction, one wonders whether they missed some opportunities in empowering an individual’s self expression, or in the story’s rather more sinister mutation of another’s self image in fixing a single, generic posture upon their user.¹³

It must be said that Ballard’s stories often describe uncomfortable psychic states, and this is equally true of “Cry Hope, Cry Fury.” Nevertheless, instead of rejecting or naturalizing the estrangement prematurely, probing the estrangement in detail by maintaining a discursive relation to the story leads to novel architectural fictions. In “Motel Architecture” [1978], Pangborn lives intentionally confined to a wheelchair, naked and bathed in artificial light, while endlessly analysing television, especially the shower scene from Alfred Hitchcock’s “Psycho” [1960]. Pangborn’s total immersion in the space of the screen begins to be disturbed by the regular visits of a cleaning woman. During the course of the story, Pangborn begins to feel the presence of an intruder in his space, evinced by physical traces such as body odour, or footprints on the clean floor. This presence so disturbs the character that he kills the cleaning woman before killing the intruder—his own body.

The group working with “Motel Architecture” focused on its description of the fragmentation of body as it is viewed through the screen. What the story describes as the mediated disintegration of the individual is translated by the students into an architectural device which initiated spatial and social distortions and connections through the apparatuses of the frame and mirror [fig. 2.2.6-10]. The disintegration of the body essentially creates a SF of the viewer’s own body-image. This happens in two ways: first through the device of the mirrors as their reflections are offset from one another, and as they introduce gaps and modulations in angle, breaking the wholeness and symmetry of viewer’s body or introducing a multiplicity of images—usually both of these at the same time. The second device is in how the installation’s patterns and rhythms are working in sympathy with the context, not only does the viewer see themselves as fragmented, they are made visible to others, not to stage the body for others, but to introduce others into the space of one’s body image. The device frames views from adjacent spaces, and within, one is suddenly aware of being

13 Not having collected all of this group’s permissions, I have chosen not to publish a representative image of this groups work.

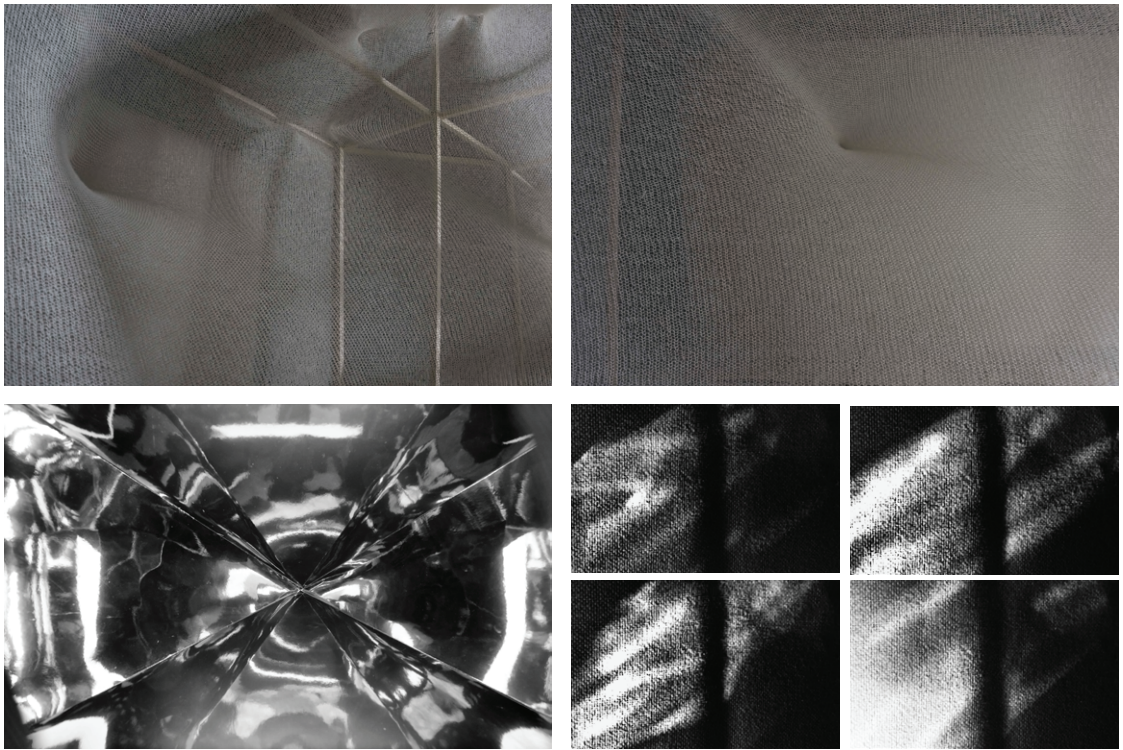


Figure 2.2.11, 2.2.12 - Nanna Louise Holmberg Nielsen, layers of woven fabric stretch and distort space
Figure 2.2.13, 2.2.14 - David Bjelkarøy Westervik, reflections and distortions of reflections on the water

staged. One sees one's self suddenly with another's perspective layered upon one's own as the gaze through the frame is layered with other reflections, both of the self and of the surrounding space, making a chimera of the viewer's own body.

"The Enormous Space" [1989] also starts with an affective mechanism. The story describes the character's gradual withdrawal from social interaction as the literal expansion of space around him. The character's agoraphobia becomes such that he retreats to the smallest closet in his house, eventually watching the grid of tiles expand around him into an infinite space. The group translated this story into an exploration of the subjective experience of space and proximity as it is moderated differently though different senses—touch, sound, and sight.

During the first phase of the project, students focused on the warped experience of space through different media. Nanna made use of layers of woven fabric in stretching and distorting experience of space [fig. 2.2.11-12]. David made a device of curved mirrors within which he projected a video image of waves upon the water, as the immediate experience of space dissolves into multiple, overlapping, warped, and fluid waves of light [fig. 2.2.13-14].



Figure 2.2.15, 2.2.16 - Testing the implication of details at full scale

Figure 2.2.17 - Fabric options

As the project developed over the several different iterations and mutations of the semester, the story they began to tell as a group was about providing intimacy and privacy in a public space. The group's reading of the Ballard story saw them continue to play on the anti-social behaviour of their protagonist in the explicitly social space of their site. They thought about how to construct the illusion of privacy, providing devices for perceptual distance even with physical proximity, and in fact inviting the possibility of a 'surprise' physical encounter between people when they thought they would be alone. They orchestrated their user's experience of the project in quite explicit ways, in the ways a body would interact with their installation, from the way the threshold articulates a sense of entering a new space [fig. 2.2.15-16] to the colour and transparency of the fabric. [fig. 2.2.17]

Their final iteration was a space which became its own SF narrative in that it produced its own estranging experience. On a sensory level, it played upon misaligning sense impressions, playing one sense against the other. It was simultaneously social and isolating with the visual field being shielded inside a womb-like fabric, while the elasticity and porosity of the material allowed the possibility of social experience through sound and touch to the adjacent cell and the courtyard beyond. The estranging experiences of the installation meant it was also a social SF in that it



top:
 Figure 2.2.18 -
 Installation taking on the
 rhythms of the neighbouring
 sculpture

far right:
 Figure 2.2.19 - Exploded
 axonometric of installation
 components.

right:
 Figure 2.2.20-21 - details of
 wood frame connectoin

Students: Sophie Elizabeth
 Hutchinson, Oleksandra
 Ianchenko, Nanna Louise
 Holmberg Nielsen, David
 Bjelkarøy Westervik

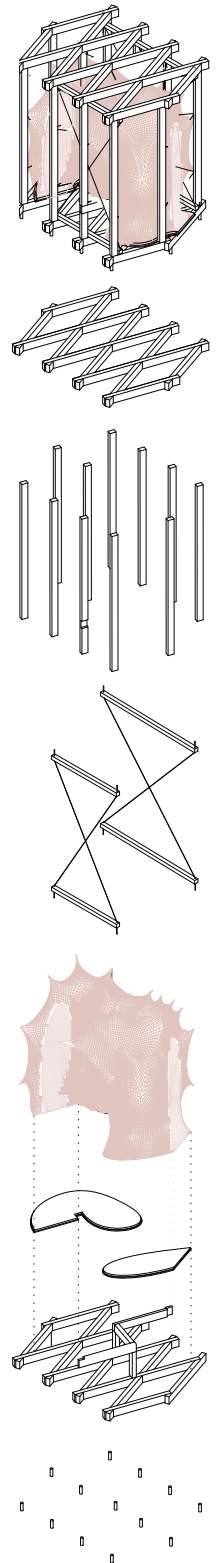




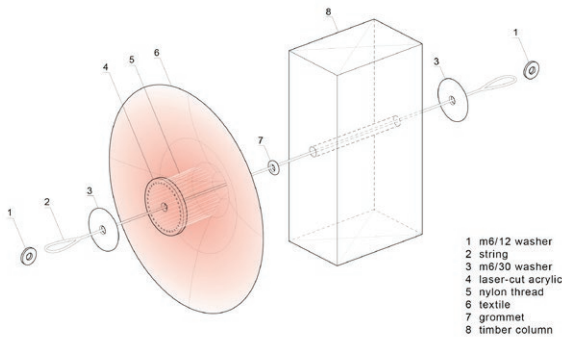
Figure 2.2.24 - "Personal Space" in situ, derived from J.G. Ballard's short story "The Enormous Space" [1989]





Figure 2.2.23 - Detail of fabric connection

Figure 2.2.24 - Exploded axonometric of fabric connection



constructed sociability in new ways—public and private are placed in a dynamic, fluid relation with each other in such a way as to make either extreme illegible and impossible within the installation.

Just as an SF text is largely composed of familiar words, but where threads of reference and interpretation are woven differently,¹⁴ many of the architectural elements of this installation are immediately familiar—they use dimensioned timber and off-the-shelf steel connectors. Nevertheless, while the materials are not strange, they are reconfigured in such a way as to produce an unfamiliar result, but which tells the story of the installation. The

wood frame is something of a chimera, as it is

designed in such a way as to reproduce the ‘orders’ established by other sculptures on site—it is a skeleton reproducing rhythms and dimensions of the existing space [fig. 2.2.18-21]. We’ve seen fabric before, but the colour rather suggests something biological, as does the softness inside the rigid wooden structure. Their SF eventually was resolved to the level of technical issues demanded by the internal coherence of the structure’s story, as for example, choosing a detail of steel washers and bespoke laser-cut acrylic to detail the appropriate joint to distribute stress of the stretched fabric and prevent the point connection from unraveling [fig. 2.2.22-23].

This project used SF as source and provocation, but in effect, made an effort to preserve the science fictionality of the project though to the final instance, preserving a level of storytelling in the project. The SF-ness of the project, or seeing the architectural project as SF, made the tools and methods that we use to make architecture available for reflection in a way that no part of it could be taken for granted. Architecture was made to *do* things that it doesn’t ‘normally’ do. The bits of material and methods of assembly are largely known—but just as known words may combine to make new images, these specific combinations of material conspire to shape unique experience for the visitor or viewer. This means that students learned material and tectonic knowledge, and knowledge of the design process, as well as

14 See my discussion of SF as a reading protocol in ch. 1.2.

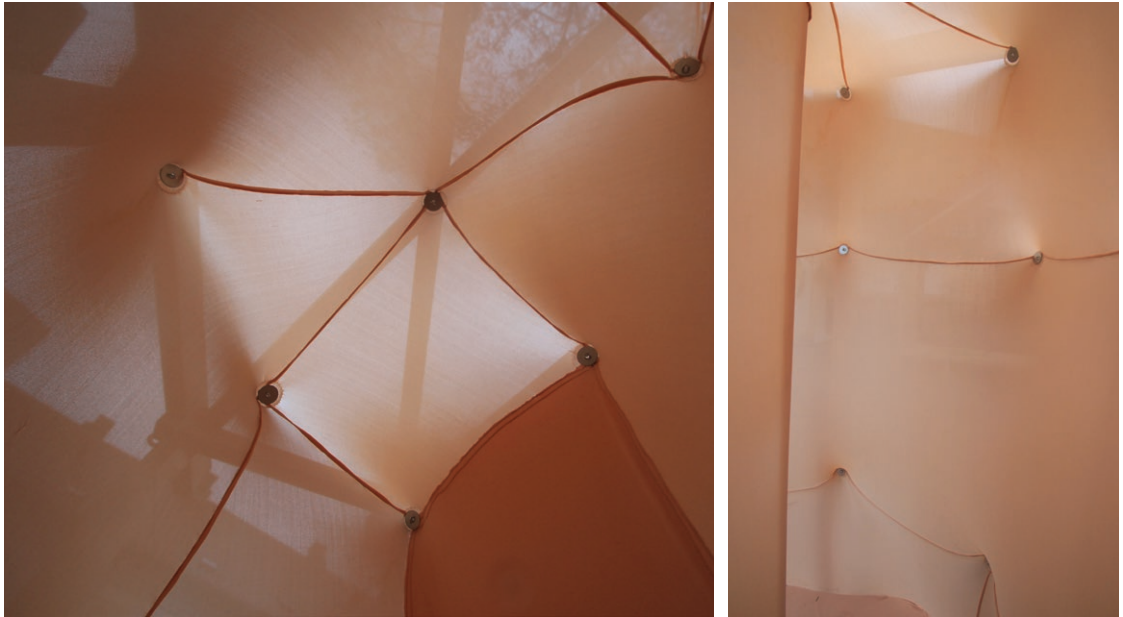
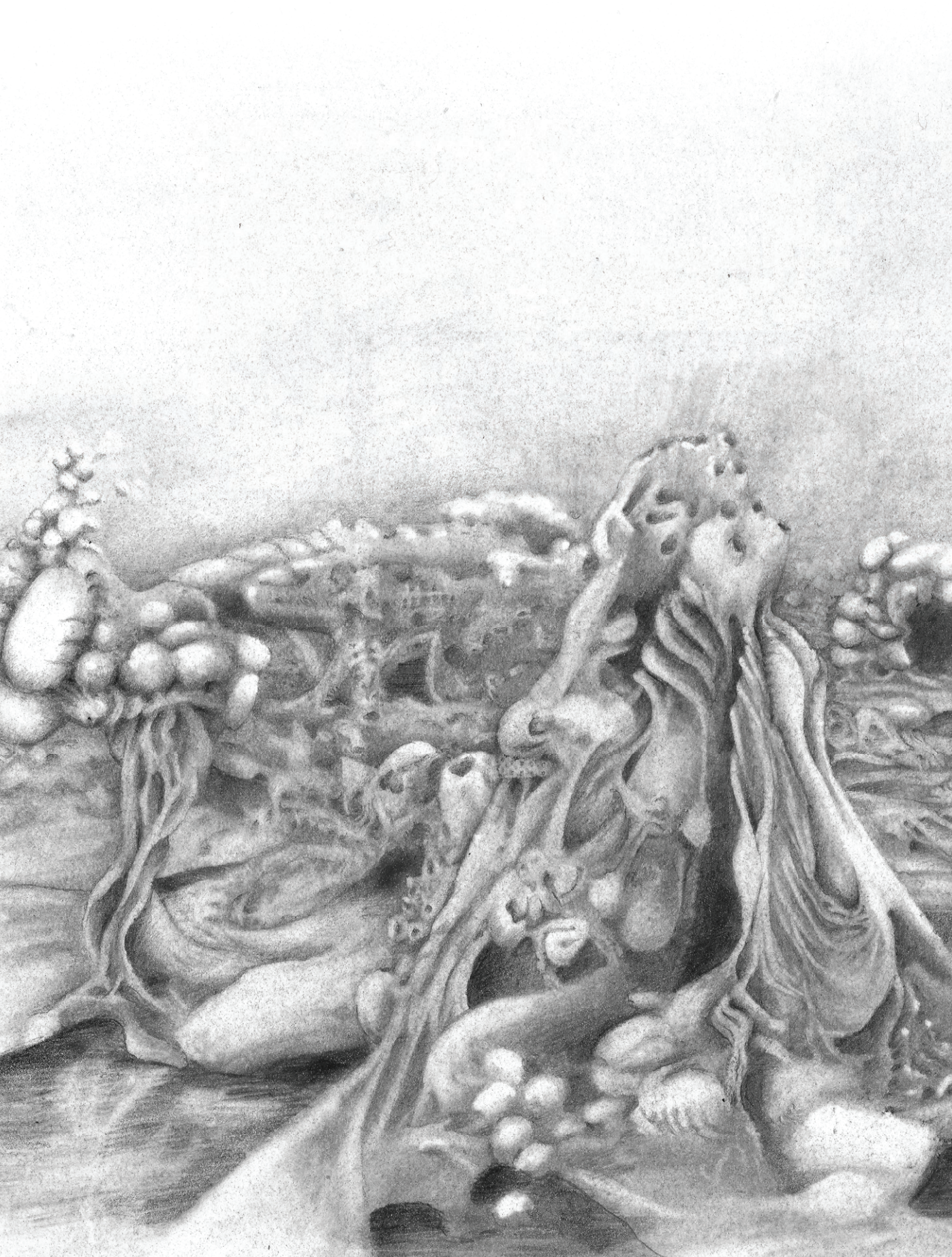


Figure 2.2.25-26 - Interior of installation

more abstract understanding of how architecture shapes political subjects. The SF storytelling of the project holds all of these elements and learnings in balance in the single story; it prohibits leaving any choice unthought, as choices in material, detail, and tectonics are bound up in a semiotic field with a story—a story whose own estrangement cannot be communicated to a viewer without an internally coherent syntax.

Like many experiments in this project, this experiment also considered the question of authorship through the group work involved with the project. Our institution, like many others, demands that every student be evaluated according to their own work, and so we have included several phases of individual work. However, we also felt that we could challenged the representation of the work of architecture as coming from a singular mind. A large part of this project is not strictly in design, but in advocating for one possibility or another within one's group. As an educational strategy, this made students become articulate about why one choice or another would matter, all the while undermining the rather persistent belief in architecture being the work of an individual, and advocating for attention, respect, and care as principle in developing architectural design.



2.3 Making Worlds with Patchers, Bridge People, and Funny Fabbers



Figure 2.3.0 - "what shape it had taken was afterthought, offhand gesture, however remarkably unattractive..." (Detail, 2019)

The Making Worlds experiment coincided with the start of the PhD. It is the only experiment in the project which does not include teaching, and in which I engage directly with SF material myself. This experiment was largely about my coming to terms with the process of making architecture from SF, asking myself how to learn from and with SF, along with coming to terms with the field of SF scholarship. It has often been my strategy as a teacher to explore unfamiliar terrain within a design or creative process on my own before I introduce it to students, and this is my way of establishing the preliminary terms of the project in a practice-based, hand-on way at the same time I was delving into SF scholarship. I entered into the project from the viewpoint of research-through-design—a strategy that has persisted in the other practice-based research documented here. In this case, part of the validation of the research comes from how it builds upon my reading of the work of William Gibson, and how my reading allows me to elaborate on his worlding and to see my own production as a designer differently. As a long-time reader of Gibson’s fiction, I felt I was familiar with the work in a way which would let me explore the multiple possibilities in the worlding, although I also used the opportunity to investigate scholarship around Gibson’s work.

It should be noted, however, that this experiment, at the start of the project, was more about opening than concluding. In the course of this experiment, I was forced to ask myself whether I should continue developing the learnings from Gibson, or whether the pedagogical dimensions of my project should take precedence. In the end, this experiment did not conclude in a singular way, but set up the terms for later exploration in later phases of the project as I brought it to students. This experiment was largely a way to begin weaving together the diverse ambitions and influences of the project, and bring them into connection with one another; in a nascent form, this project already includes discussions of *nova* and worlding, working with estrangements in SF literature, speculation and affective investment. In this way, this phase is somewhat of a document of this initial weaving, as I pulled at threads within the project’s first formulation in the PhD plan, and sowing the potential ground for the continued correspondence between architecture and SF scholarship, and in a small way, contributed a unique perspective to the study of William Gibson’s work.¹

1 Preliminary versions of this chapter’s argument were presented in: Joel Letkemann, “Making Architecture with Patchers and ‘Funny’ Fabbers: Fabrication Cultures in and with William Gibson’s *The Peripheral*” (Annual Conference of the Science Fiction Research Association, Chaminade University, Honolulu, 2019); Joel Letkemann, “Digital Making with Patchers, Bridge

Junk City

Speaking in 1986, SF author and critic Samuel Delany describes W.H. Auden's two visions of modernist imaginary futures, and adds two of his own. Auden's two coordinates are New Jerusalem and Arcadia, each with own its underside: Brave New World and Land of the Flies, respectively. Delany suggests that postmodernism has supplied two further coordinates: the Junk City and the Culture of the Afternoon.² These two particular imaginations of the future were, according to Delany, not available either to the drive towards progress or to the universalizing narratives of modernist fiction. Rather than attaching value judgements to these coordinates, Delany notes the difference in tendency between the figure of the engineer, representing the ordered city, and bricolage, the disordered, chaotic city—characterized by interstitial gaps in urban systems and the surfeit of material culture, especially obsolete technology. As an example, Delany points to the “Lo-Teks” in William Gibson's 1981 short story “Johnny Mnemonic,” a group of luddites who have constructed “Nighttown,” a plywood shanty in the trusses of the rigidly engineered geodesic domes covering a high-tech city, blackening the acrylic surface with cooking fires.³

The tension between the engineered and bricolage city is one that Gibson explores throughout his oeuvre. In a 1993 article for *Wired* magazine entitled “Disneyland with the Death Penalty,”⁴ William Gibson contrasts the sterile urban fabric of Singapore with Kowloon Walled City. The same dichotomy reappears as the central conflict in the novels of his Bridge trilogy (1993-1999), and again in *The Peripheral*,⁵ becoming a key piece of his imaginary futures. In the article for *Wired*, Gibson reveals a considerable antipathy for the “Low-key Orwellian dread” of the city state, which has, for him, erased any trace of individuality, dissent, free expression or creativity from the urban environment. In fact, he writes that it is so managed as to appear as clean and manicured as a virtual reality environment—a theme that recurs

People, and Funny Fabbers” (10th Annual Conference of the Gesellschaft für Fantastikforschung: Das Romantisch-Fantastische, Frei Universität Berlin, September 18, 2019), <https://www.gff2019.cinpoetics.fu-berlin.de/en/index.html>.

2 Samuel R. Delany, “On Triton and Other Matters: An Interview with Samuel R. Delany,” *Science Fiction Studies* #52 17, no. 3 (November 1990), <https://www.depauw.edu/sfs/interviews/delany52interview.htm>.

3 William Gibson, *Burning Chrome* (Ace, 1986).

4 re-published in: William Gibson, *Distrust That Particular Flavor*, E-Book (New York: G.P. Putnam's Sons, 2012).

5 William Gibson, *The Peripheral [2014]* (London: Penguin, 2015).



2.3.1 - Singapore's Gardens by the Bay



2.3.2 Kowloon Walled City

in his descriptions of the nano-fabricated cities of his fiction. A brief paragraph at the end of the article offers a counterpoint in Kowloon Walled City, a now-demolished informal settlement in Hong Kong. Owing to arcane treaty arrangements, this enclave in British Hong Kong was legally under Chinese administration, and from 1898 to 1994, was free from oversight, becoming a dense and unregulated site of habitation and commerce of varying degrees of legality. The opposition between these two urban cultures is translated in the Bridge trilogy to a conflict where the totalitarianism of Singapore is mutated into the smooth, virtual spaces of a nano-fabricated (*ie.* 3D printed) city, while the kaleidoscopic bricolage of the Bridge reflects the dream of bohemia that Gibson invests into Kowloon.⁶

While the popular imagination of SF might often conjure images of idealized, technologically advanced cities—Auden's New Jerusalems—such pulp-era imaginations were, by emergence of New Wave SF in the 1960s, quite suspect.⁷ In one short story published in 1981, "The Gernsback Continuum," Gibson satirizes these "pulp utopias," as the "semiotic ghost" of an America that never was.⁸ It is here that we already see the core of Gibson's critique of architecture, a critique that unfolds through Gibson's oeuvre, and which is briefly traced in this chapter.

Gibson, at least in his early phase, is generally considered the exemplar of "cyberpunk" fiction, and the generally accepted critical position of that subgenre

6 Graham Murphy, "Post/Humanity and the Interstitial: A Glorification of Possibility in Gibson's Bridge Sequence," *Science Fiction Studies* 30, no. 1 (2003): 73.

7 Rob Latham, "The Urban Question in New Wave SF," in *Red Planets: Marxism and Science Fiction*, ed. Mark Bould and China Miéville (Middletown, Connecticut: Wesleyan University Press, 2009).

8 Gibson, *Burning Chrome*.

is of its uncritically validating libertarian impulses, while accepting the inevitability of neoliberal capitalist supremacy.⁹ This tendency is in sharp contrast to a recurring tension that one can observe throughout Gibson's fiction, namely between a city as determined by corporate interests against the life of its lesser citizens. His early work does explore the dystopian dimensions of the neoliberal city, but as we see in the LoTeks of "Johnny Mnemonic," this dystopian dimension is hardly totalizing. Gibson populates these dystopian imaginaries with any number of small oppositional tendencies, signalled through his characters' embodied experience of visceral material reality.

Gibson's work takes on a more explicitly political tenor with the Bridge trilogy. He remarks in an interview that that this work arises from his reading of Mike Davis' *City of Quartz*, a study of class segmentation in Los Angeles, and extrapolated into the more stark divisions of his trilogy.¹⁰ Gibson's Bridge is a Junk City, forming a critique that is directly opposed to the regimentation of modernist planning, worming through the gaps and fissures in the totalizing schemes of his New Jerusalems. It is in this critique that Gibson is at his most architectural as well, building his enclaves out of carefully described materials and textures in unlikely, even startling, combinations.¹¹ While Gibson's portrayals of these enclaves are sympathetic both of the richness and quality of junk, Gibson also probes the oppositional perspectives in the differing subjectivities and alliances cultivated by Junk City's inhabitants.

9 Carl Freedman, *Critical Theory and Science Fiction* (Middletown, Connecticut: Wesleyan University Press, 2000), 197.

10 Ross Farnell, "Posthuman Topologies: Gibson's Architecture in Virtual Light and Idoru," *Science Fiction Studies*, 1998, 462.

11 Gibson's short story "Thirteen Views of a Cardboard City" is just such a fascinating exercise in a literary creation of architecture, describing the interior of a homeless shelter in the middle of a Tokyo subway station. William Gibson, "Thirteen Views of a Cardboard City," in *New Worlds*, ed. David S Garnett (Clarkston: White Wolf, 1997), 338–49.

Gibson's Bridge trilogy¹² is comprised of a short story "Skinner's Room,"¹³ and three novels, *Virtual Light*,¹⁴ *Idoru*¹⁵ and *All Tomorrow's Parties*.¹⁶ In *Virtual Light*, a bike messenger named Chevette Washington steals augmented reality glasses containing plans for a whole-scale renovation of San Francisco using an emerging "nanotechnology." The technology and plans are from of the "Sunflower Corporation," and describe "towers blooming there, buildings bigger than anything, a stone regular grid of them, marching in from the hills. Each one maybe four blocks at the base, rising straight and featureless to spreading screens like the colander she used to steam vegetables".¹⁷ The plans for this "weird cartoon of the city"¹⁸ present a kind of totalizing system in an urban space. Eventually, Chevette becomes involved in a plot to reveal and disrupt these plans, because, as her hacker co-conspirators put it, the regularity and singular expression of these spaces does not admit "a lot of slack" for non-sanctioned activities.¹⁹

In the 1990s, architect Rem Koolhaas explored such an urban space in an essay entitled the "Generic City."²⁰ This essay describes cities and spaces taking on a generic quality both in expression and in spatial articulation: a default urbanism around a normative and reductionist conception of how a city should look and work. The ultimate form of such a superficial urban identity is the airport or shopping mall, totalizing spaces found anywhere in the world and still somehow nowhere, spaces that exists purely to move through and spend money in, under the watchful eye of private security. For Koolhaas, such spaces are overwhelming cities globally, as development outpaces historical or regional articulations of identity and outgrows local economies, particularly in regions undergoing significant demographic or population growth.

12 Incidentally, affirming the continuity of such insurgent agencies across his oeuvre, Gibson's screenplay for *Johnny Mnemonic* (dir. Robert Longo, 1995) also contains Lo-Teks, shown occupying a bridge very like Gibson's Bay Bridge, although the action of the film has them in New Jersey.

13 William Gibson, "Skinner's Room," *Omni*, November 1991.

14 William Gibson, *Virtual Light* (Toronto: McClelland-Bantam, 1993).

15 William Gibson, *Idoru* (London: Penguin, 1997).

16 William Gibson, *All Tomorrow's Parties* (New York: Ace Books, 2000).

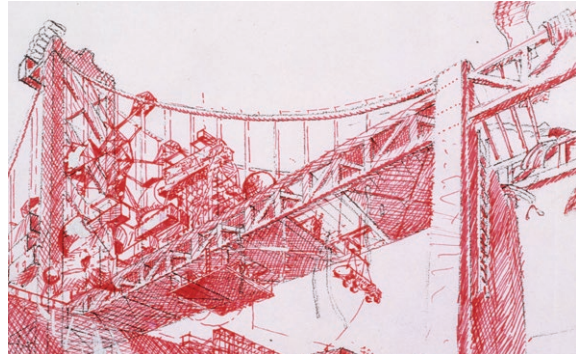
17 *Virtual Light*, 33.

18 *Virtual Light*, 60.

19 *Virtual Light*, 270.

20 Rem Koolhaas, "The Generic City," in *S M L XL*, 2nd edition (New York, N.Y: Monacelli Press, 1997), 1248–64.

2.3.3 - Hodgets + Fung, *Untitled* (1989) Commissioned for Visionary San Francisco Exhibition, SFMOMA.



One might read Gibson's extrapolation of this trend as a satirical anxiety about a tendency that, for Koolhaas, was merely an inevitable consequence of architectural modernism and capitalist urban development.

The antipode to the spaces of domination and control in Gibson's trilogy is the titular "Bridge," the ruins of San Francisco's Bay Bridge after it has been abandoned following an earthquake and occupied by that city's dispossessed. The Bridge, as Gibson imagines it, is a hyper-accelerated version of Florence's Ponte Vecchio, with a bricolage of material forming a crust over the primary construction and home to a full-fledged squatter community both living and working on the Bridge. The Bridge's patchwork of materials, largely scavenged by the inhabitants, already suggests a different building culture for this architectural bohemia invented by Gibson: a material rendering of an economically, socially, and racially diverse counter-culture collapsing the object-ness of the bridge and the evolving subjectivity of its inhabitants into what Ross Farnell calls a kind of perpetually self-renewing "architecture."²¹ Gibson has his visiting sociologist character Yamazaki describe the bridge:

The integrity of its span was rigorous as the modern program itself, yet around this had grown another reality, intent upon its own agenda. This had occurred piecemeal, to no set plan, employing every imaginable technique and material. The result was something amorphous, startlingly organic. At night, illuminated by Christmas bulbs, by recycled neon, by torchlight, it possessed a queer medieval energy. By day, seen from a distance, it reminded him of the ruin of England's Brighton Pier, as though viewed through some cracked kaleidoscope of vernacular style.

Its steel bones, its stranded tendons, were lost within an accretion of dreams: tattoo parlors, gaming arcades, dimly lit stalls stacked with decaying magazines, sellers of fireworks, of cut bait, betting shops, sushi bars, unlicensed pawnbrokers, herbalists, barbers, bars. Dreams of commerce, their locations generally corresponding with the decks that had once carried vehicular traffic; while above them, rising to the very peaks of the cable towers, lifted the intricately suspended barrio, with its unnumbered population and its zones of more private fantasy.²²

21 Farnell, "Posthuman Topologies."

22 *Virtual Light*, 58-59.

2.3.4 - *The Bridge*, 2018.

While Delany's *Junk City* might adequately describe the texture of Gibson's *Bay Bridge*, Evan Calder Williams' "Salvagepunk" might capture more of the *Bridge's* oppositional force. Williams defines *Salvagepunk* as an emerging genre, in another use of the -punk suffix to capture some the counter cultural force of punk music. Gibson is often described as the generic representative of cyberpunk, which Williams describes as the "dream image of the neoliberal world," closely mirroring the argument of Freedman described above, but which Williams also describes as "canny" enough to realize this was no utopian prefiguration.²³ A twee offshoot, also retaining the -punk suffix and also a particular object of Williams' disdain, is

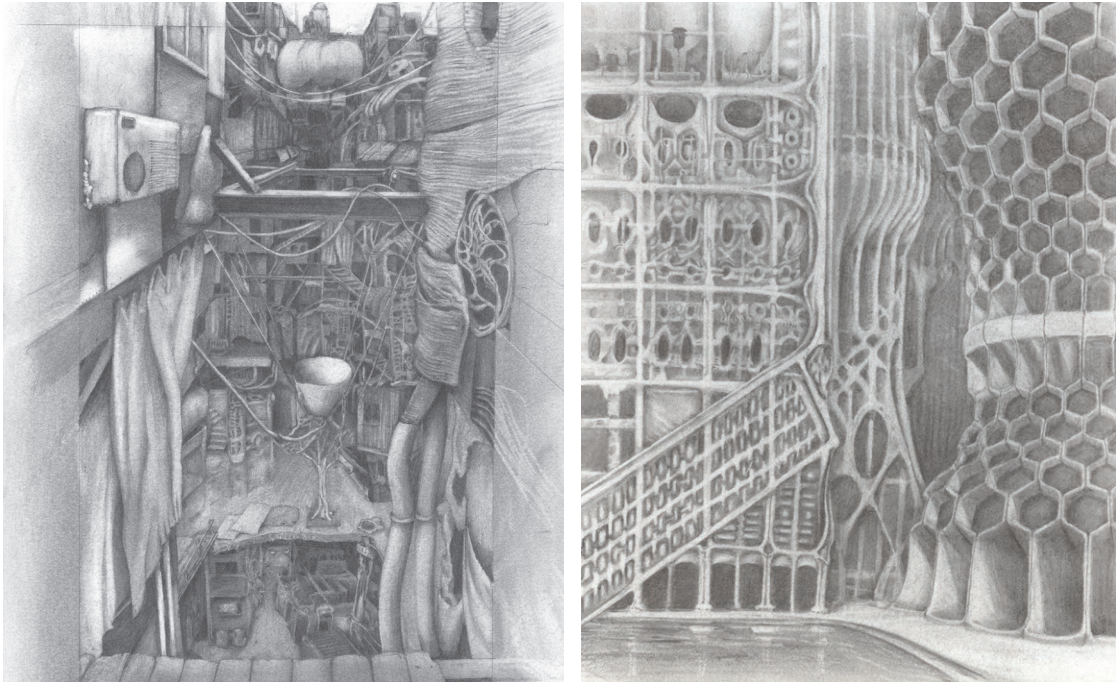
steampunk, a sanitized "do-over" of technology in romanticized Victorian dressing, and which Gibson also had a part in defining in *The Difference Engine* (1991), co-authored with Bruce Sterling. It is perhaps not a surprise, then, that Williams leaves Gibson's later work out of the discussion when describing his observation of a new generic tendency—*Salvagepunk*: "the post-apocalyptic vision of a broken and dead world, strewn with both the dream residues and real junk of the world that was, and shot through with the hard work of salvaging, re-purposing, detourning, and scrapping."²⁴

Nevertheless, *salvagepunk* does not take the apocalypse as the end. The tendency is not only describing the culture of material surfeit, waste, and salvage, but also the work of recuperation and reconstruction of a new order after whatever apocalypse. He locates the tendency in a number of works—from the *Mad Max* movies, to the music of Montreal instrumentalist collective *Godspeed You Black Emperor!*, as well as Dada and surrealist collage. Among this last is an extended discussion of Kurt Schwitters' *Merzbau*, which he retroactively considers a founding generic text, where after the labour of devaluing, introduces a labour of "revaluing... pull[ing] objects from their situated position within circuits of production, consumption, and discarding, and to locate them anew in the position of the artwork."²⁵

23 Evan Calder Williams, *Combined and Uneven Apocalypse* (Winchester: Zero books, 2011), 17.

24 Williams, 19.

25 Williams, 38.



2.3.5 - *The Bridge*, 2019. 2.3.6 - *Idoru's Tokyo*, 2019.

So, why this extended digression though generic pedantry? While Gibson's work escapes Williams' notice, 'salvagepunk' is a useful nomination that most succinctly describes the community of Gibson's bridge trilogy. The new oppositional agency here is an ongoing and active agency that does not appear ex-nihilo, rather but emerges along- and in-side of the extended societal collapse driven by wealth inequality, corporate oligarchy, and environmental catastrophe. *The Bridge* is a figurehead of a new semiotic regime that is not about the recombinatory play of post-modern collage:

*"Fundamentally opposed to pastiche, salvagepunk realizes the eccentricity of discarded, outmoded, and forgotten things still marked by the peculiar imprint of their time of production and the store of labor and energy frozen in their form. A form from which all value has supposedly been lost. Above all, it is that work of construction, not simply gutting to see what can be sold back to the industrial suppliers, but a production of "valueless times" to see what values might emerge outside of the loops of circulation and accumulation."*²⁶

The detritus of modern or industrial culture forms the core of the material system on the bridge—industrial containers, plastics, mechanical systems, and all manner of material—oil drums, the disused fuselage of an airplane, laminated cardboard. The

26 Williams, 41.

discussion of material histories and their persistence is propelled by Gibson's own interest in an artifactual history of technology and culture—his characters revel in dead media, early computing, even watches and army surplus paraphernalia.²⁷ But, the Bridge is not easily passed over as a bricolage of existing signs, rather, Gibson situates this salvaged or repurposed material culture in direct contradistinction to emerging systems of the city of capital, now characterized by the “brutal scale” of buildings enabled by nano-technology.²⁸

The second novel of the trilogy, *Idoru* (1996) features a closer examination of the speculative building practice against which the Bridge stands in its description of a future Tokyo after a massive earthquake. The city is rebuilt with “new buildings,” also grown with the same nano-technology. In this case, they are presented as antagonistic to the scale of human experience, the “streamlined organicism” of these towers is both “banal” and “sinister,” and the size of them is incomprehensible. Clues to their morphology are sparse, described only as “honeycomb” shapes forming “like candles melting in reverse.”²⁹ One character compares them to H.R. Giger's paintings of New York,³⁰ paintings characterized by an overwhelming degree of patterning and a grey palette eluding material expression, but nevertheless singularly oppressive.

As an architect reading these texts, the Bridge is a helpful foil to the imagination of the sterile spaces of digital materiality so common to contemporary building. We are all aware of CGI renderings that appear in media and populate the hoardings surrounding construction sites. As architecture becomes a global and generic practice, it excels in the representation of digitized spaces of idealized smoothness and seamless flows of capital. Gibson reminds us that as digital manufacturing technology enters the building industry, the spaces of smoothness now begin to infest our lived experience, not only representing a space of smoothness, but actually constituting it. In short, Gibson's text is a reminder that technologies of spatial and material expression are not innocent of their socio-political and economic worldings.

27 This obsession over historical minutiae is found across Gibson's work. For those so inclined, it is in fact one of the great joys of reading his work. He translates his own obsession with shopping for vintage watches on Ebay to the character of Fontaine in the Bridge Trilogy, while the Blue Ant trilogy includes extended discussions of arcane topics such as Mechanical Kurta calculators or historical variations in army camouflage patterns. See: William Gibson, “My Obsession,” [1999] in *Distrust That Particular Flavor* (New York: G.P. Putnam's Sons, 2012).

28 Gibson, *Idoru*, 81.

29 *Idoru*, 46, 81.

30 *Idoru*, 81.

2.3.7 - Micheal Hansmeyer and Benjamin Dillenburger, *Digital Grottesque II* (Centre Pompidou, 2017)



It is hard not to read Gibson's nano-cities as a condemnation of the narratives now predominating in the discourse around 3D printing. These are narratives of efficiency and exactitude, what architects call with no apparent irony, “zero-tolerance” building.³¹ In contemporary practices in 3D printing, I would argue that—as much as I might admire their work—Hansmeyer and Dillenburger's *Digital Grottesque* series presents a purely informational process in sand printing, imposing a precise but materially agnostic geometry on the material. For Gibson, this agent of homogeneity suggests that even in spite of the mass-customized revolution the technology promised, there is a singular expression to a technology driven by a singular, supposedly rationalist ideology. However, Gibson's *Bridge* trilogy does not end with a wholesale condemnation of 3D printing. He hints at other potentials for the technology in describing nano-technology as agent of an emergent material form for the AI pop-idol “Rei Toei” at the end of *All Tomorrow's Parties* (1999).³² At the end of this novel, she is able to hijack a global nano-printing infrastructure to continue the self-determined evolution of her being in material form. Rather than the merely informational materialism of digital fabrication, the “nano-fax” machine enables the complex, open, and evolving intermingling of information networks, artificial intelligence, material, and desire in a “strange metamorphosis” in what Berressem, referring both to the *Bridge* and to the *Idoru*, calls the ‘un-representable’ dynamic process of an “intelligent materialism.”³³

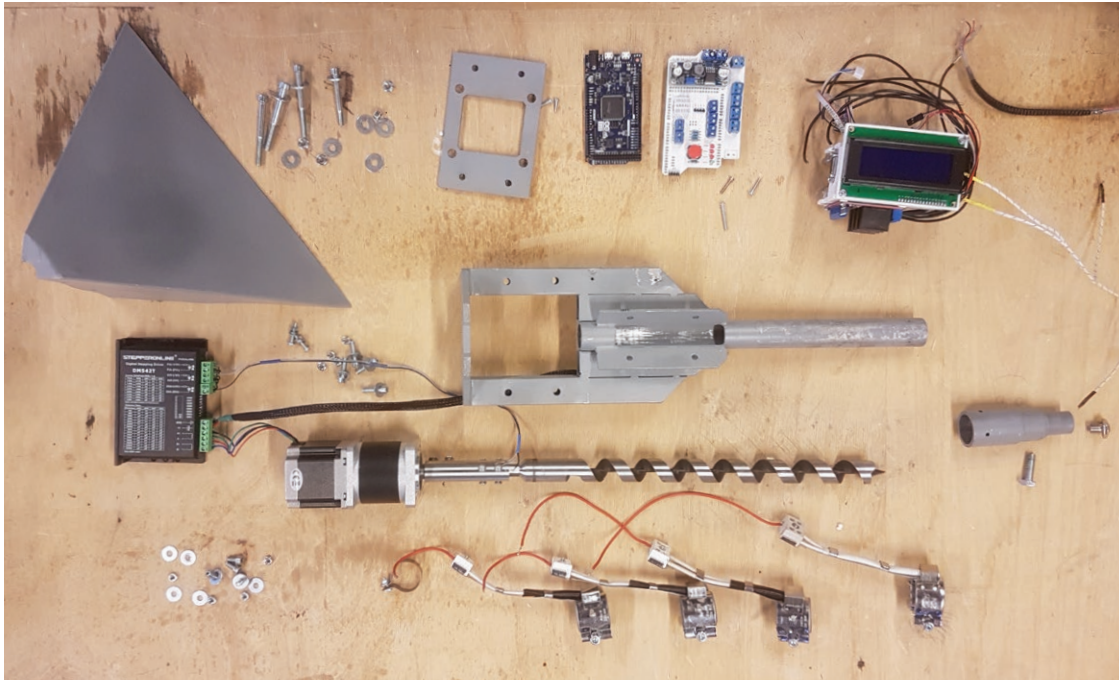
Building Agency: A Bridge Tsool

The sinister banality of the nano-city or the bricolage of the bridge already provide two potential estrangements from a contemporary practice in building technology. As we have discussed, the use of 3D printing as a controlled informational process

31 Bob Sheil, ed., *High Definition: Zero Tolerance in Design and Production*, Architectural Design Profile 227 (London: Wiley, 2014).

32 Gibson, *All Tomorrow's Parties*, 268.

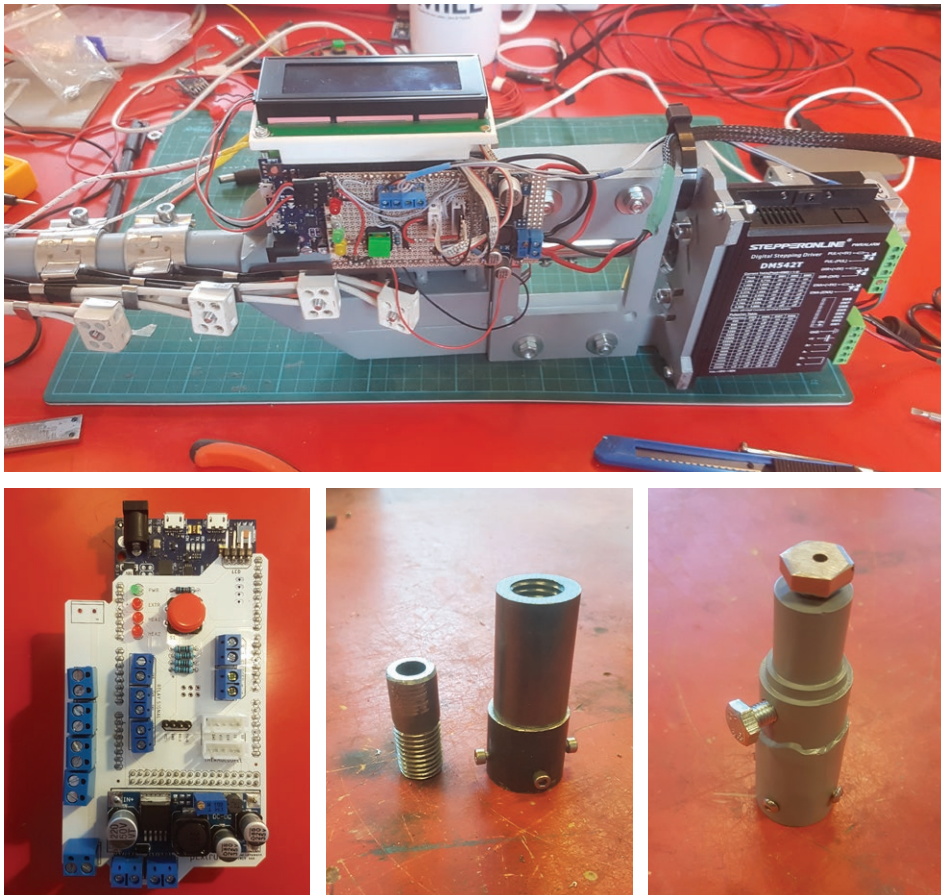
33 Hanjo Berressem, “Of Metal Ducks, Embodied Idorus, and Autopoietic Bridges: Tales of an Intelligent Materialism in the Age of Artificial Life,” in *The Holodeck in the Garden: Science and Technology in Contemporary American Fiction*, ed. Charles B. Harris and Peter Freese (Normal, Ill: Dalkey Archive Press, 2004), 77.



2.3.8 - Disassembled Waste Plastic Extruder - nicknamed the 'pExtruder'

may already be well described within architectural culture. Gibson's sympathies, however, lie with the Bridge as a site of a building agency that is aligned with the collaboration and community of those who build it. The dichotomy the book raises certainly asks us to consider how not only technological and material processes, but also semiotic regimes of architectural technology are subsumed inside of the ambitions of capitalist development, but also asks if it might be a site of resistance with the promise of another building culture.

I ask myself, if I were to make a bridge tool, how would I make it? What would it do? As we will see below, the use of waste plastic also figures in Gibson's *The Peripheral*, but what of the tool itself? And if that tool were a 'bridge' tool, what aesthetic and semiotic *nova* might follow? I set myself the task of exploring how to build something from plastic waste, and seized upon the possibility of making my own 3D printer, starting with a waste plastic extruder. But in this case, I tried to build the tool as if I were a member of the bridge community—this means that the tool was built (partially) with salvaged material—largely pieces of leftover technology and material from around the workshop at the Aarhus School of Architecture. Where necessary, there were a few concessions for off-the-shelf components. Likewise, the knowledge to create and assemble the tool brought me together with community knowledge, also an echo of the kinds of solidarity and community of the bridge. I relied on the community fabrication spaces and generous knowledge of workshop



2.3.9 - Clockwise from top - preliminary assembly of pExtruder, assembled and welded nozzle, alternate nozzle design, milled circuit board on Arduino Due.

staff at Godsbanen³⁴ in Aarhus for the metal work, while the design of the tool is adapted from a design by the open-source community Precious Plastic.³⁵ I have also benefited from the open-source knowledge communities around the Arduino microprocessor.³⁶ Finally, and also based on designs from Precious Plastic and fabricated from leftover corners of steel plate—I also fabricated a shredder to shred plastic coming from the municipal recycling station. Like the extruder, the design of the shredder was adapted both to the new intended use, but also to whatever material was on hand. In these small ways, the development of the Bridge tool is not strictly

34 A municipally managed “cultural production centre,” <https://godsbanen.dk>.

35 “Say Hi to the Precious Plastic Universe,” accessed January 25, 2021, <https://preciousplastic.com/>.

36 “Arduino - Home,” accessed January 25, 2021, <https://www.arduino.cc/>.

outside of a directly capitalist building culture, but could perhaps be said to be *beside* that culture, living off of its scraps while developing community and cooperation where possible.

Patchers and Funny Fabbers

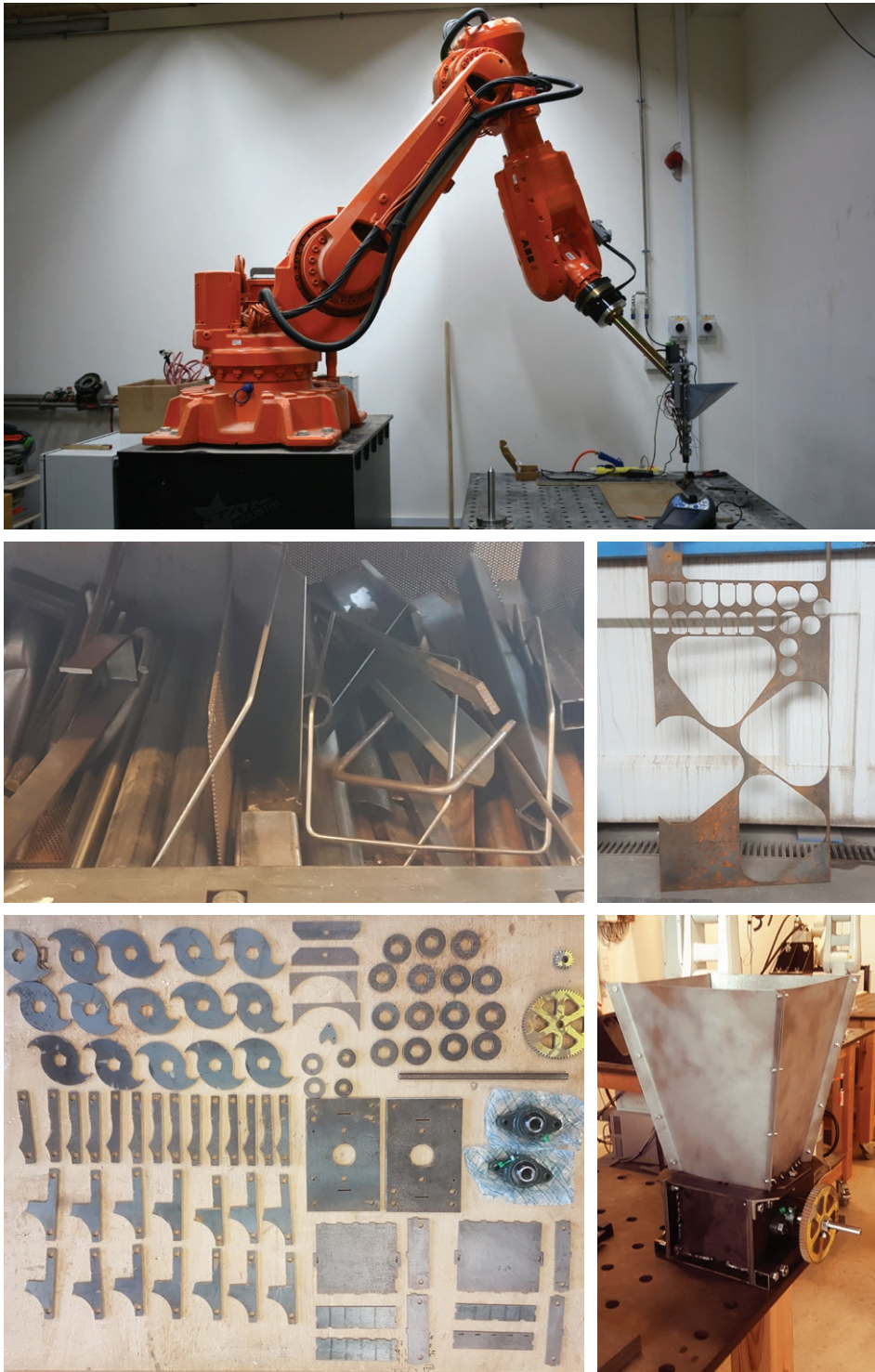
The discussion of 3D printing and intelligent material reappears in Gibson's 2014 novel *The Peripheral*, extrapolating from a thinly veiled present into multiple potential futures for the technology. The novel's mid-21st century timeline features a fabrication process they call "building," a combination of 3D printing or additive manufacturing, and other aspects of maker culture such as electronics and programing. Those who work at 'building' are called fabbers—"funny" if their production might fall on the wrong side of intellectual property protections or other laws; they fabricate everything from drugs, to phones and shoes. By the novel's 22nd century timeline, Gibson extrapolates this technology into two highly distinct streams, demonstrating how the technology and the culture that shapes it are co-implicated. In the novel's 22nd century, after the apocalyptic events of the "Jackpot," the bare outlines of the Bridge trilogy's nano-tech cities are fully rendered in the "spotless sameness"³⁷ of London. Now much lower in population, the city is carefully composed of artificial vistas, and actually constituted by a ubiquitous "assembler" technology rather than inert material—each piece of solid material, from walls³⁸ to iron cuffs binding the protagonist,³⁹ are revealed as so much dust at the service of the kleptocracy or "klept"⁴⁰—bribery, influence, and corruption having become the principle apparatus of political power. Notably, the technology is also deployed in service of the Disneyfication of London—a city still nostalgic for the myth of itself; whole areas of the city have become cosplay zones celebrating, for example, the Victorian era or the Blitz—the German bombing of London during the Second World War. This city is not only constructed by the ubiquitous nanotechnology, its image is maintained by it. The mutability of the novel's material world reveals the environment as pure artifice; form and space, like virtual reality, is deployed as entertainment, and its illusions of fixity and stability directed towards the perpetuation of existing narratives of power and authority.

37 Gibson, *The Peripheral*, 402.

38 *The Peripheral*, 455.

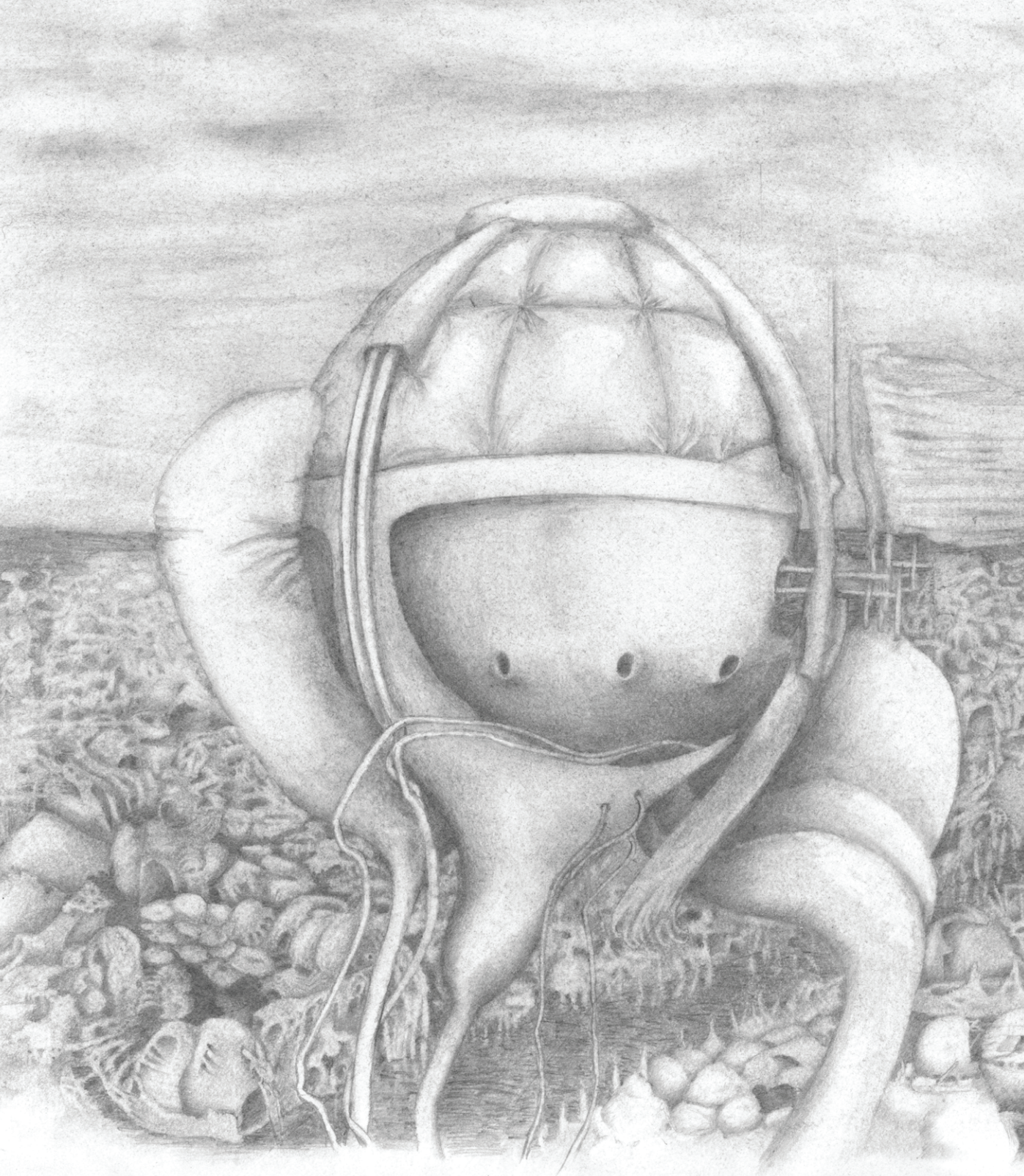
39 *The Peripheral*, 467, 469.

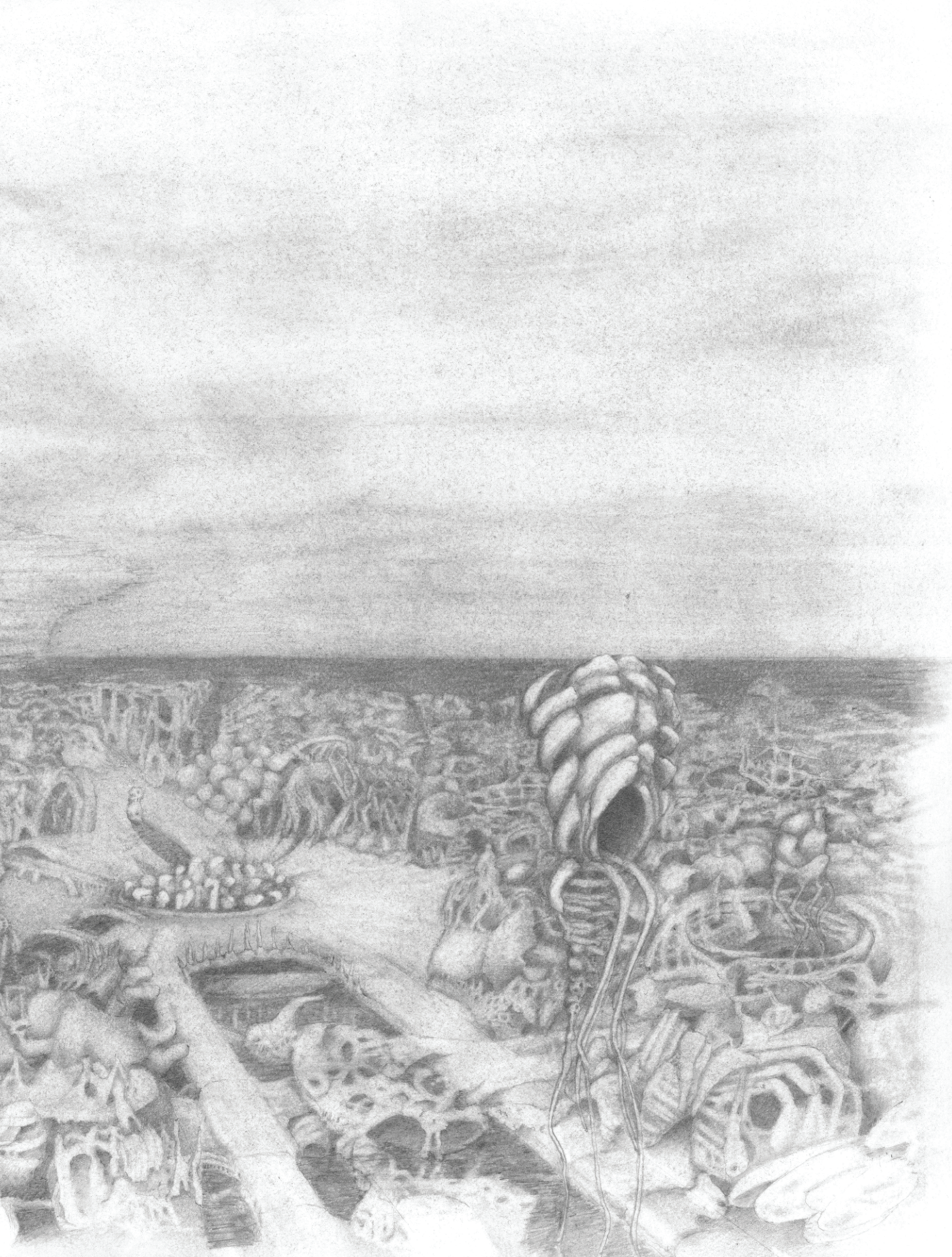
40 *The Peripheral*, 284.



2.3.10 - Clockwise from top: pExtruder mounted on robot arm, assembled plastic shredder, leftover steel plate and scrap pile, assembled plastic shredder, unassembled plastic shredder

Figure 2.3.11- *“The cams were descending through tall, sail-like structures. Everything simultaneously cyclopean and worrying insubstantial. Vast empty squares and plazas, pointless avenues down which hundreds might have marched abreast.”* (2018)





Rather than meeting the overdetermined space of the future London with a non-technical adversary, the opposing number to the oppressive banality and non-materiality of ‘Disneyland’ London is the grotesque excesses of the “Patch,” an island also built by assemblers from plastic floating in the Pacific Ocean, a phenomenon already known to us in the present as the Great Pacific Garbage Patch.⁴¹ As much as the Patch is “not a city... but an incremental sculpture. More properly a ritual object,”⁴² it is also described as containing squares, plazas, and avenues, and is home to a people called the Patchers.

The Patch is not a central location in the novel. As the setting for only 13 of the book’s nearly 500 pages the Patch acts more as a provocation that tickles the bounds of the knowable rather than being fully described. Where it does feature, however, it is exceedingly visceral; Gibson explicitly render the quality of the anthropogenic material: its colour, translucency, the quality of its weathering. While in 22nd century London the technology responds to the whims of authority, the agencies driving the development of the Patch are more mysterious to the reader—Gibson merely calling that agency “whatever continually assembled it.”⁴³ In short, Gibson uses a few flashes of description to estrange the reader, but also to activate the reader’s imaginative investment in imagining the space.

The Patchers, inhabitants of the Patch, are technologically proficient; they are genetically engineered, flaunting superfluous genitalia and decorative cancers, they also “hallucinate in sync in a forest of code,”⁴⁴ and are called by one character “post-human filth.”⁴⁵ However, the Patchers’ technical proficiency is not characterized by the mind/body dualism typically associated with cyberpunk trans-humanism, which imagines minds inhabiting other bodies or flying through the electronic aether; even when the characters’ consciousness moves from their physical body to the novel’s namesake ‘peripherals’, they remain embedded inside a materially focussed sensorium. As Anna McFarlane argues,⁴⁶ the haptic emphasis in *The Peripheral* marks

41 “Great Pacific Garbage Patch,” in *Wikipedia*, December 29, 2020, https://en.wikipedia.org/w/index.php?title=Great_Pacific_garbage_patch&oldid=996949734.

42 Gibson, *The Peripheral*, 16.

43 *The Peripheral*, 16.

44 *The Peripheral*, 6.

45 *The Peripheral*, 6.

46 Anna McFarlane, “Anthropomorphic Drones’ and Colonized Bodies: William Gibson’s *The Peripheral*,” *ESC: English Studies in Canada* 42, no. 1–2 (2016): 115–31, <https://doi.org/10.1353/esc.2016.0007>.

humans as materially embedded in the anthropogenic world, bodily susceptible to ongoing changes in the material world. The Patchers' post-human ontology is marked in different ways. Even while their bodies are decidedly given over to hitherto unimagined modifications, they remain willfully present in the material world, their embeddedness in their environment is reinforced by continuity in description between the Patchers' island and their bodies—similar colours, a crust of salt, their bodies are contiguous and evolving with the environment they occupy. The post-humanism represented by the Patchers is thus an hybridity marked by its contiguity with its environment—and their technical prowess is tuned towards becoming a part of the island's ongoing evolution rather than in departing from it. In marked contrast to the fixity of future London, the Patch privileges process—this ongoing-ness in the mutual exchange of material and bodies—over any determined form: “What shape it had taken,” Gibson writes, “was afterthought, offhand gesture, however remarkably unattractive.”⁴⁷

Making Worlds with Gibson

Along with the Bridge tool to work with recycled plastic, *The Peripheral* also suggests a reappraisal of methods of assembly and logics of construction. That is, as well as working within the horizon of salvage, Gibson's worlding also suggests non-deterministic or materially informed—rather than informationally formed—construction processes. These unfolded in two ways as a part of this experiment: first, a series of drawings exploring how one might wrest formal intelligibility from pseudo-random processes, and second, in working with unpredictable results of material processes within digital fabrication.

First, in exploring how seemingly random processes become intelligible, I produced a series of procedural digital drawings, which I then (re-)interpreted in drawing as a way to estrange the aesthetic production, in a way to draw the unknowable. The object of the drawings is to explore the aesthetics of the Patchers and their island in a way which is not initiated by my own aesthetic predilections, but which still relies on the artist to know through the unknowable—the drawings explore how a human pattern recognition works to make sense of compositions that arrive from other “alien” intelligences. This part of the project arose as I drew the first perspectival drawing of the Patch [Fig. 2.3.11], but somehow had the sense that this was my own

⁴⁷ Gibson, *The Peripheral*, 18.

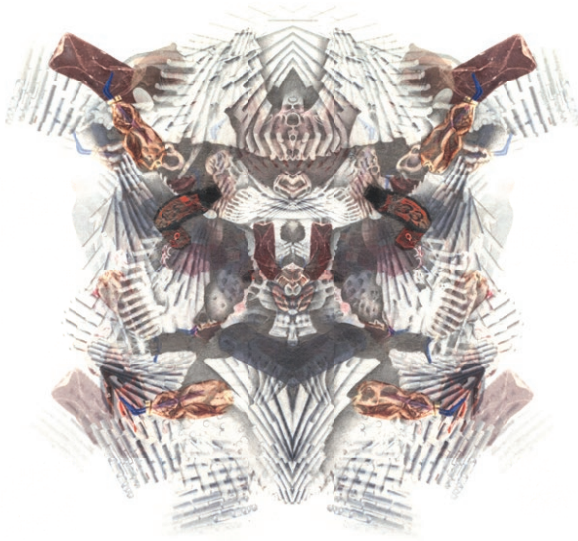


Figure 2.3.12 - *Boss Patcher III (2019)*

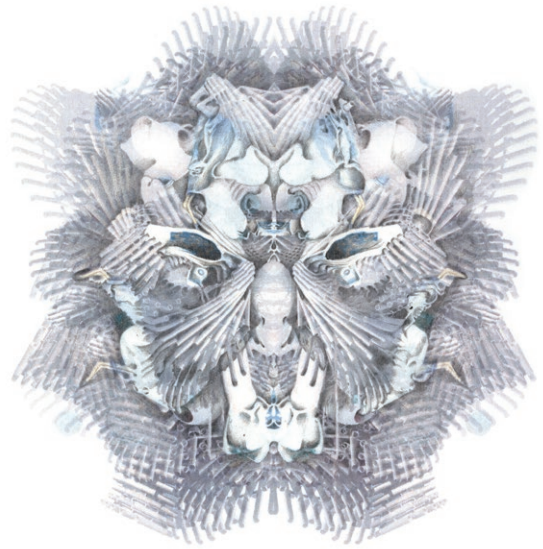


Figure 2.3.13 - *Boss Patcher V (2020)*

construction, and possibly did not leave room for the strange “whatever” that might disturb my own process. The second perspective [fig. 2.3.0] was contemporaneous with and relied on forms from a series of wax experiments, described below, but still composed according to knowable conventions.

Each of these procedural drawings is titled “Boss Patcher” [fig. 2.3.12-14], after the Patcher character the novel follows most closely. These were a kind of digitally-augmented automatic drawing that started with writing a computer program to compose and processes images of plastic waste—in essence, a process to estrange myself from any aesthetic predilections I might start with. The next step involved my intervening in the drawings by selectively highlighting or darkening parts of the drawing with graphite pencil—a kind of human sense-making of the program’s initial composition. This part of the process is very like the surrealist methods of automatic drawing, which invited some elements of chance to initiate the process of drawing. The only accommodation to aesthetic sense-making is to preserve a level of bi-lateral symmetry in most of the drawings, as a way to signal the quasi-biological or peri-human quality of whatever is reproduced. The estrangement of these drawings is never fully naturalized by the artist—forms still slip into and out of sense as one’s eye is drawn across it, and I hope that something of the process of ‘making sense’ of the unusual figures within each drawing is transferred to the viewer.

The second element in exploring non-human design agencies is in exploring fluid material agencies with the medium of wax. These experiments grew out of the realization that it would betray the spirit of Gibson’s text to impose a rigid geometry on the results of any 3D printing. Taking inspiration from “Fluid Cast,” a student

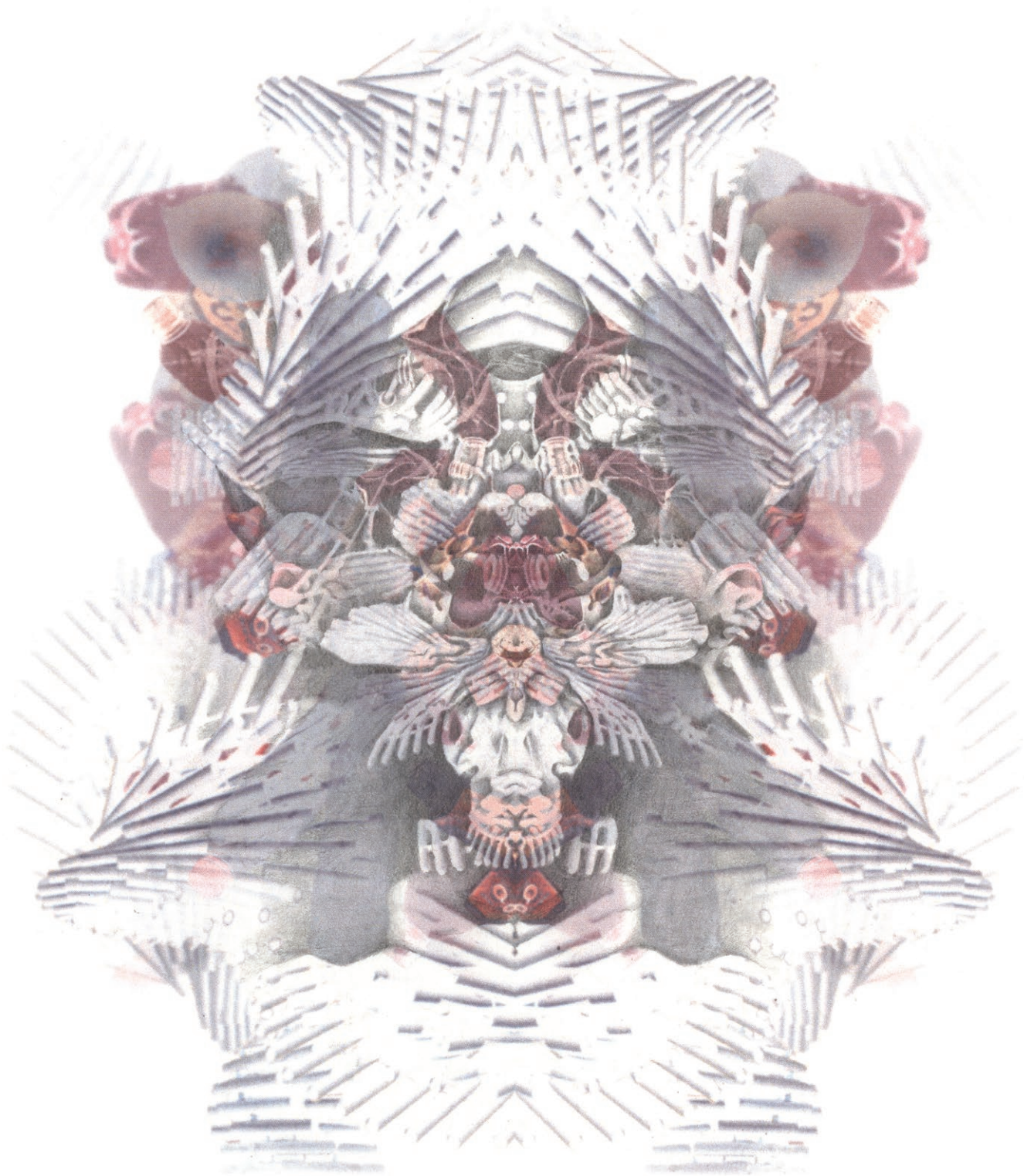


Figure 2.3.14 - Boss Patcher IV (2020)



Figure 2.3.15 - Fluid wax deposition, and aluminum casting of wax object

project at the Architectural Association’s Design Research Lab,⁴⁸ I experimented with fluid depositions in fluid media. I chose wax as a material analogue, reasoning that the manipulation of plastic similarly would be as liquid inside the dynamic liquidity of the Pacific Ocean, and form would emerge within the perturbances of a dynamic system between two liquids.

In order to simulate the interaction of two liquids, I experimented with depositing molten wax into cold water under different conditions, experimenting with density, viscosity, and temperature, as well as static and dynamic conditions for material deposition. While these tests did not cohere into a systematic study—I will not write a technical thesis on this phenomena—the preliminary results did influence the drawing entitled “what shape it had taken...”, and also informed the fabrication strategies I employed as I approached 3D printing with my ‘Bridge’ tool.

Finally, I installed the plastic extruder on a ABB 6620 industrial robot arm. While using an industrial robot is perhaps an allowance to the contingencies of my own situation and I could imagine more far-flung apparatus emerging from the bridge, one could also imagine that Gibson’s funny fabbers would also have access to old industrial robots. I started experimenting with extruding and printing with several types of plastics most commonly recycled in Denmark [fig. 2.3.16].

The quality of extrusions with recycled plastic is highly subject to the type of plastic used—the most commonly recycled plastics do not behave as those usually used in 3D printing. They often have variable viscosities at different temperatures, are subject to warping and shrinking, and are often contaminated by other plastics or particulates. My Bridge tool also had its own imprecisions—enough at least to match

⁴⁸ Catalina Pollak et al., *Fluid Cast*, 2009, Multi Media, 2009, <https://fabbots.wordpress.com/2012/12/09/fluid-cast-3/>.



Figure 2.3.16 - Test Prints of Polystyrene, Polypropylene, and High Density Polyethylene

the imprecisions introduced by the material. However, the object of building this tool and exploring this process was not to instrumentalize this process for an existing architectural industry, but rather to imagine how this process would be inside of the world that Gibson imagines—to build within Gibson’s worlding. The text provides several *nova* to form an initial estrangement, but the aim is not to rehabilitate these *nova* inside confines of contemporary practices, but rather to find ways to challenge these existing practices and the assumptions they make. Architecture, making, tectonics—inside Gibson’s worlds these are radically different, even oppositional agencies, as we have seen.

My own material experimentation with wax, and the experience of working with the various types of plastic suggested to me that in this case, I might have to imagine 3D printing technology less as determined and predictable system, and more as a machinic process involving the complex and non-linear interactions in the diverse elements of the tool and process itself, but also inviting chance from outside the process. My de-emphasis on form runs counter to the promised hylomorphism of 3D printing—proceeding smoothly from ideal or informational form to material, without intervening complications. Instead, I had to imagine a process of material deposition operating without a totalizing teleology. Rather than the inscription of digital materialities onto real stuff, the project investigates how digital processes might invite an interaction with the self-organizing capacity of the material itself. This process invites material operations to supersede their representation as digital information in quite complex and unpredictable ways. The grotesque excesses of the Patch inspire an attention to process, where form is a dialog with material and dynamics in specific environmental circumstances.

The final articulation of this test was an interpretation of Sori Yanagi’s iconic Butterfly stool from 1956 [fig. 2.3.18]. The result is both strikingly familiar in form—if the viewer squints or sees it from a distance—but is also quite unfamiliar in its material expression. While the digital information supplied to the robot consisted of the successive smooth horizontal profiles of Yanagi’s design, as the material fell from the

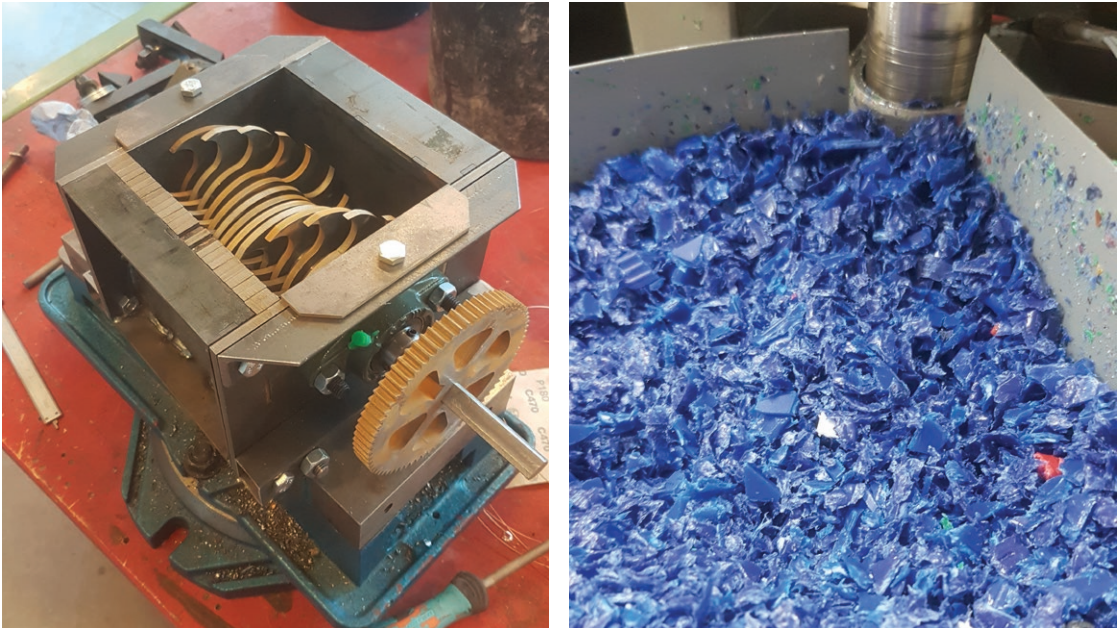


Figure 2.3.17 - Plastic Shredder, Shredded Plastic in Extruder

extruder as it followed these successive layers, the material found its own form as it contended with the temperature, warping, and the layers that had previously been laid down.

As mentioned earlier, these studies were instrumental in defining some of the operations and frameworks in the later phases of the project, but they do not fully satisfy the promise offered by Gibson's worlding. In spite of the considerable opportunities to refigure the way waste is conceptualized, and how process invites openness or indeterminacy, *The Peripheral* also offers a warning that such openness and indeterminacy are not necessarily substitutes for political openness. As much as they might inspire new building agencies, in the novel, they result in the "easy commodification" of the "technological novelty" of the Patch,⁴⁹ when it is eventually revealed as a real estate hustle. While complicit and coevolving with social orders, the novel also reveals the susceptibility of technology to the influence of capital.

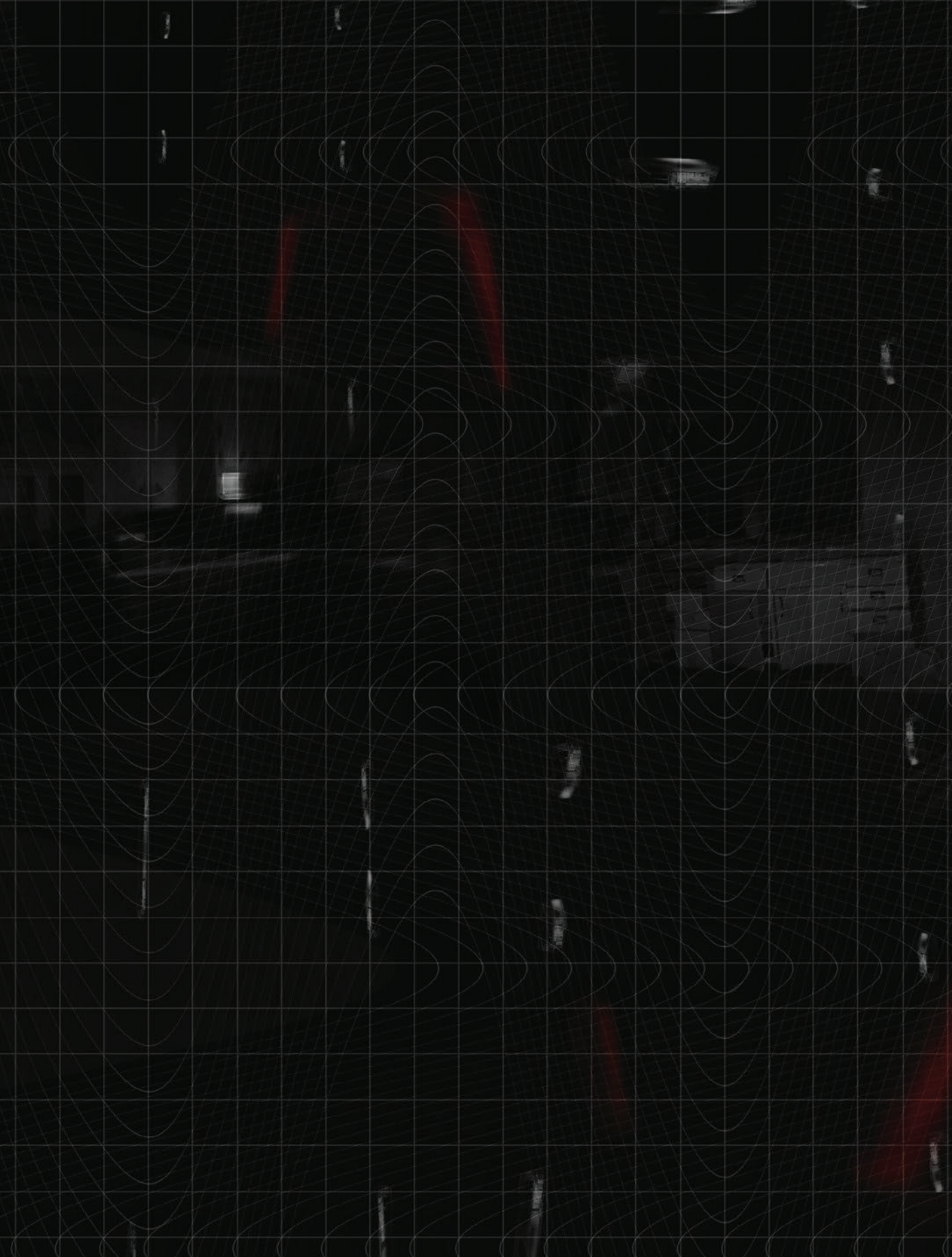
While it might be in some way unfinished, perhaps it is better to have left this experiment in the state it is in. As it is, the various drawings and artifacts do not naturalize and tame the speculative quality of Gibson's worlding. They rather spin-off from Gibson's stories, beginning a science fiction all their own. The fiction resists the idea that architectural fabrication has only one specific end or expression. It shows how to ask other questions about fabrication technology, not how they perform technically, but how they align with diverse socio-cultural worldings. I

⁴⁹ Gibson, *The Peripheral*, 349.



Figure 2.3.18 - Interpretation of Sori Yanagi's Butterfly Chair, from robotic extrusion of recycled polypropylene

do not propose imprecision as a moralizing counter to practices which privilege technological rather than social achievement. What the project helps reveal is how technical processes are not innocent of the culture that privileges one expression of quality over another; “zero-tolerance” building might be more telling of contemporary building practices than might be explained in purely technical metrics. As it is, the various artefacts of this experiment are still the raw materials to tell new fictions with. They also inform later stages in the project: how to read SF closely, the qualities of SF estrangement, and how it can be productive. These artefacts also reveal the necessity of understanding architectural production, whether a drawing or otherwise materialized, as its own SF, that is, as suggestive of worlds that far exceed the meagre material of the artifact itself.



2.4 There and Back Again

Figure 2.4.0 - Vildana Duzel, Pangborn, "Fragmented into the hybrid, his body in displacement..."

The workshop titled “There and Back Again” is an experiment in deriving and developing a nuanced future client and program for a master’s studio project from SF literature.¹ In developing the client and program from literature, students are implicated in their own storytelling with the initial estrangement supplied by SF literature. In this chapter, I describe the multi-modal reading and ‘writing’ with SF literature, as well as how I chose the range of stories for this workshop, and the possibilities and challenges from different stories.

This workshop took place in the week of 21-25 October, 2019, in-between the first and second phases of the semester. In the first half of the semester, students investigated the site of the body, with potential prostheses and augmentations developed and built as 1:1 prototypes. This experiment took place after they had returned from a trip to their site for the semester, the ruins of the Jarlshof Prehistoric and Viking Settlement, near the southern tip of Mainland in the Shetland Islands [fig. 2.4.1],² a ruin acting as the body in need of a prosthesis. The tutors in the studio set a direction for the project in giving the students the site and the rough brief in describing the project as ‘a home for a caretaker.’ The specifics of each program and how that related to the site, however, were defined by each student’s engagement within the workshop. Students were encouraged to develop ideas from the first phase, as well as activating knowledge from their intensive site analysis before and while they visited the site.

Within the aim supplied by the studio, future living on a remote site, my aim within the workshop is to introduce SF literature as a source of estrangement which would present the possibility of living different than they might otherwise consider. The estrangements produced by each text’s *nova* are useful in two ways: in reading, each student becomes aware of how the way of living described is different from their experience, and can be used to develop a critical distance to contemporary housing solutions. Second, in the stages of multi-modal translation they undertake, they not only identify the difference, but begin to assert their authority over the text,

1 The workshop was developed in relation to the semester project of Studio 2B, a master’s studio at the Aarhus School of Architecture, with 23 students enrolled in either their 7th, 8th, or 9th semester of the 10 semester professional program. The theme of this autumn semester, developed by studio tutors Robert Trempe Jr., Claudia Carbone, and Dagmar Reinhardt, is ‘prosthesis,’ followed in the next semester by ‘parasite,’ (see. Ch. 2.6).

2 The site has archeological remains from several different periods. Neolithic era artefacts have been found on site, while the earliest architectural ruins date from the Bronze age. Later Iron Age, Viking Age, and Medieval settlements also appear on site. Those who could not travel to the Shetland islands were given the alternative site of the Hald Castle ruin near Viborg, Denmark.

Figure 2.4.1 - Map of Site on Mainland, Shetland Islands, UK

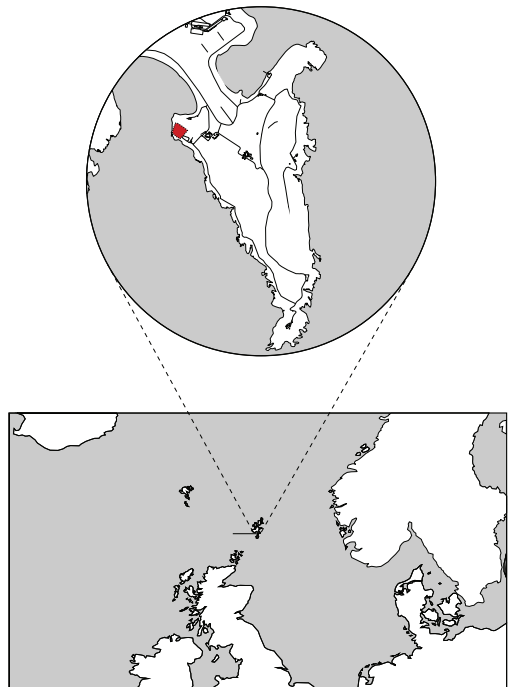
actively stitching the text together with their ‘real’ world encounters on site, and with what they will argue is possible to build on that site. That is, their subjunctive reading of the text makes new possibilities for habitation available to them.

Like the experiments described in chapter 2.2 and 2.3, this experiment works through the initial SF devices of a novum and estrangement towards developing the students’ own authorship in a future scenario. This specific experiment is the last which tries to work directly from SF literature, and in this case, one of my ambitions with this experiment is to see how students respond to different types of text.

The question I was asking is: what would a tutor look for in literary estrangement, especially in the context of the program suggested by the studio brief? I chose a number of works from several authors, each with a different exploration of an individual ‘client,’ and how architecture is implicated in the ways of living of each of these clients, in terms of program, relations to community, technology, isolation/privacy, and existing infrastructure.

This workshop presented a set of SF texts as documents describing future living scenarios. These scenarios were exemplified by a single character or small group of characters, but the intent of supplying these texts is not that students adapt the scenario of the story to a new site, nor to systematize these futures. Rather, the texts are an impetus for students’ storytelling, by extending and building upon these stories in critical relation to their own agendas, site mappings, and personal experiences and hopes for the future. As an exercise in storytelling, the workshop’s pedagogical framework is aimed at activating different modes of analysis and expression and activates students’ individual histories and knowledges as they project potential future modes of living. That is to say, the stages of the workshop are ways of drawing out student’s own polyvocal encounter with the text, the imaginative world they created in their minds as they read, and being able to represent this encounter visually.

During the earlier phases of the workshop, the disciplinary knowledge of architecture was deemphasized, in favour of leveraging students’ own knowledge, motivations, histories, and preconceptions. This model is inspired by the theories of critical



pedagogy in architectural education,³ and largely aimed at developing student's individual perspectives in a co-learning scenario with the tutor. There are, of course, no truth claims that could be made of the futures described in SF, and by extension in the workshop. Rather than right or wrong, the tutor's role is to provoke and challenge the student's development of their narratives through a mutual interrogation of the text. In this way, there was a period of co-learning where student gradually becomes expert in relation to the knowledge they are developing. Thus, rather than presenting narratives as exclusive or authoritative knowledge, students were encouraged to look to their own experiences and to understand them as 'architectural' and to leverage those experiences, either from their own interests or every-day experiences, as the expert knowledge relevant to practice. This has the benefit of empowering the student to make choices about how their narrative will develop, and also understands that the disciplinary canon is inadequate where the question of the future is concerned. The final phase of the workshop re-introduced disciplinary knowledge, largely in the re-articulation of student findings in visual representations.

In spite of the theoretical ambitions of the project, students were encouraged to have fun with the workshop. Such storytelling can also become a liberatory practice for students, especially as it does not privilege specialist knowledge, but acknowledges students' experience in the world, either imaginatively or bodily as relevant knowledge for architectural practice. Moreover, their own individual engagement lets students understand that they have become a part of the conversation around disciplinary futures, an engagement that challenges extant or canonical narratives and modes of expression, and begins to invite new ones. Such a challenge not only articulates students' belonging within disciplinary conversation, but also enlarges the discipline itself, inviting new knowledge in its own, ongoing becoming.

Students were divided into 9 groups of 2 or 3 students, and each group was given a different text, either a short story, or a fragment from a novel. Each of these texts describes a character or group of characters who form the basis of a new client and program for each student's project. There are certain things the texts have in common: they each describe an individual or small group in a relatively solitary living scenario appropriate to the life of a caretaker, but with diverse attitudes, responsibilities and duties of care to a larger community. In each text, the characters and their environment were strongly co-implicated in the respective

3 see: Crysler, C. Greig. 'Critical Pedagogy and Architectural Education'. *Journal of Architectural Education* (1984-) 48, no. 4 (May 1995): 208. <https://doi.org/10.2307/1425383>.

fictions; the authors use the character's environment as a way into the development of narrative, psychic states, physical constitution and other qualities. Students began with this relationship, eventually effecting a kind of reversal, where the qualities of the fictional character—as they became the students' 'client'—began to inform new environmental qualities and demands. The texts themselves are not uniformly oriented towards the future, but each contained a level of estrangement enough to challenge a too 'realistic' reading of the text—that is, none of the texts could be interpreted as mundane fiction.

The workshop was 5 days long and divided into 3 phases. Students had two tutoring sessions, during which they met the tutor together with their story groups in a discussion format. Phases one and two were presented midway through the week as work in progress, and the subject of class discussion with me and the other studio tutors. In phase 1, students produced a visual representation of their individual responses to the text, relying on their individual knowledge and experience. I asked them to extract pieces of the text that they found striking, and to use this fragment as a caption for a new image they composed, a first translation from text to image. In Phase 2, students produced a new caption for this image, resituating the image from estranged position to program elements in their world. This second translation, from image to text also included translation from speculative to real, and included a description of how this element might be a part of the dwelling's new program.

After the intermediate class discussion, students returned to a consideration of the site by projecting the elements of their new program onto the site in the form of a narrative sequence or 'journey' through the site. This site journey is presented as analogous to media such as a story-board sequence used in film or a sequence from a graphic novel. This visual narrative is supplemented by a caption inspired from the previous phase. This stage of the project is intended to develop the students' understanding of the specific qualities of the site, and how they support the program of the 'prosthesis,' and *visa versa*, what qualities from the program might support or develop qualities of the 'host' site.

Future Living

The workshop was presented to the students as an investigation in 'future living.' In much of architectural practice and pedagogy, students, teachers, and practitioners are guilty of an unconscious acceptance of the status quo; the way things are is often taken as inevitable or immutable. Therefore, implicit in the framing of the project as 'future living' is a critique of housing programs as conceived and built in

typical or ‘spec’ housing developments—a normative model which assumes generic requirements for all potential inhabitants and which retains its influence as it is culturally perpetuated. By contrast, the texts presented in the workshop described several different modes of living which are at odds with this normative model, and representing a diverse group of characters, of different genders, ages, and racial or cultural backgrounds. It was also important that the texts were not presented as predictive or futurological. That is, rather than a singular “blueprint” for housing, the discussion inspired by the texts introduced students to the discipline’s ongoing discourse of futurity, to the discipline’s culture of shared narratives or “megatexts”⁴ describing potential futures. Looking at this future from a perspective outside of these dominant narratives—a perspective gleaned from SF—introduced students to their own critical engagement and participation in these ongoing narratives. On the face of it, the assigned narratives made it already necessary for students to critique their own assumptions of what constitutes a house—from the point of view of characters who would not be at home in the normative model typically perpetuated in housing design.

Each of the texts I chose for this workshop did share the commonality of having a central character with a relatively solitary life. This comes from a general consideration of the semester project—the project of the studio after the workshop, a ‘home for a caretaker’ on a geographically remote site. In consultation with the tutors, there was also the desire to keep the scale of the eventual project small enough for students to explore detail, fabrication, and tectonic assembly. To this end, each text develops a central character or two, and outlines the day-to-day patterns or lifestyle that would contribute to describing an architectural ‘program.’ However, in keeping with my aims for this experiment—understanding how students work with estrangements from literary SF—the various texts are notable rather more for their difference than their similarity. It is these differences that become productive when we ask what literary SF can contribute to thinking about architecture. As such, texts describe different subjects, and imply very different architectural programs—the purposes of amenity, provision, privacy that a home should serve.

These characters, also, to varying degrees, are no longer cast as empty, neutral placeholders—this is a particular contribution that literary fiction contributes.⁵

4 Damien Broderick, ‘Reading SF as a Megatext’, in *Science Fiction Criticism: An Anthology of Essential Writings*, ed. Rob Latham (London ; New York: Bloomsbury Academic, 2017), 139–48.

5 For using fiction to imagine the complexity of a specific client, see: Stephanie Liddicoat, ‘Writing the Client: The Role of Fictocriticism and Prose Fiction in the Architectural Design Studio’,

Figure 2.4.2 - Elise Vanden Dool, *Amelia*

Figure 2.4.3 - Matilde Møll Helms, *Mami Gros Jeanne from Nalo*
Hopkinson's *Brown Girl in the Ring* is directly inspired by the author's own Afro-Caribbean heritage.

That is, perhaps for the first time in their education, they were asked to imagine their client as gendered, and of a particular age, background, race, religion, or cultural history. This is in significant contrast to the imagination of the 'client' in such reductive terms as, for example, Le Corbusier's *Modular*—a systemization of inhabitation which implicitly imagined every possible user as an adult, European male.

This being said, not every student explored the potential consequences of race, gender, or age in their projects, preferring instead to focus on other aspects of the character's description. For example, Robinson's "Sax"⁶ is a unique and moving meditation on the eponymous character's aging and memory. Other intricacies, such as characters' age and ability, became present in the discussion of the clients. Robinson's youthful exhibitionist *Amelia* is presented in both the text and in student's visual representations as physically capable and playful [fig. 2.4.2]. *Nalo* Hopkinson's *Brown Girl in the Ring* does not present the character of *Mami Gros Jeanne* as differently abled because of her age. However, her capacity as grandmother and as matriarch for her community became one of the defining characteristics of the 'client' for the students' imagination of her [fig. 2.4.3].

In addition to provocations for client and program, many of these stories produced additional nova. Some of the stories are 'architectural' in very explicit ways, supplying a description of the environment; As I cover in chapter 2.3, William Gibson is well known for his high level of 'granularity' in descriptions of physical artefacts and environments, while Hopkinson approaches the detail of a floor plan in the text from *Brown Girl in the Ring*.⁷ In some cases, architectural technology is also described—*Amelia*'s dirigible, with a semirigid aerogel frame for the pneumatic structure is one of several possible architectural technologies in Robinson's *New York 2140*, while *Nnedi Okorafor*'s "Mother of Invention" contemplates and conflates



Higher Education Research & Development 38, no. 1 (2 January 2019): 77–96, <https://doi.org/10.1080/07294360.2018.1539065>.

6 Kim Stanley Robinson, "Sax," *The Martians* (New York; London: Spectra, 2000).

7 Nalo Hopkinson, *Brown Girl in the Ring* (New York: Warner Books, 1998).



Figure 2.4.4 - Lucia Garcia de la Peña,
*“It’s another day of sun -
 ‘Anwuli, wake up. The storm is gone. The sky is blue
 and the sun is shining as it used to do.’
 ‘Which day is today?’ Anwuli asked.
 ‘Who cares about the time? We are alive.’
 ‘Lift the house up high so we can touch the sky.’”*

sheltering and motherhood,⁸ in describing the relationship of care between a smart house and expectant mother.

Some texts describe characters’ lifestyles in relation to external pressures—climate change, economic change, food insecurity, data privacy, migration—pressures which are often mentioned in relation to challenges facing the future, imagined and articulated in the fictional context by the authors. For example, Skinner and “the Girl,” the two central characters in William Gibson’s “Skinner’s Room,”⁹ are living atop the ruins of San Francisco’s Bay Bridge after

it has been damaged by an earthquake and occupied by that city’s dispossessed in the face of growing economic disparity. A similar economic pressure has hollowed out Hopkinson’s Toronto, where matriarch Mami Gros Jeanne has settled in a park where she grows and prepares folk medicines for her community while attending to their spiritual needs. The effect of climate change and much-overdue laws to protect wildlife habitats and migration changes human’s relationship to the ground of the North American continent in Kim Stanley Robinson’s *New York 2140*.¹⁰

As much as I might have had my own expectations about what was interesting about each of these texts and what they might offer to an architectural imagination, students had their own ideas about each text. I will discuss 4 texts in more detail, and how they were appropriated by the students’ storytelling. As this workshop is only 5 days long, I also include discussion of how these influenced the continued development of the project.¹¹

8 Nnedi Okorafor, “Mother of Invention,” in *A Year without a Winter*, ed. Dehli Hannah (New York: Columbia Books on Architecture and the City, 2018), 213–31.

9 William Gibson, “Skinner’s Room,” *Omni*, November 1991.

10 Kim Stanley Robinson, *New York 2140*, E-Book (Orbit, 2018).

11 I did not continue with the students after this workshop, and students were given the choice how much from this workshop to take into the remainder of semester. Not all projects continued to

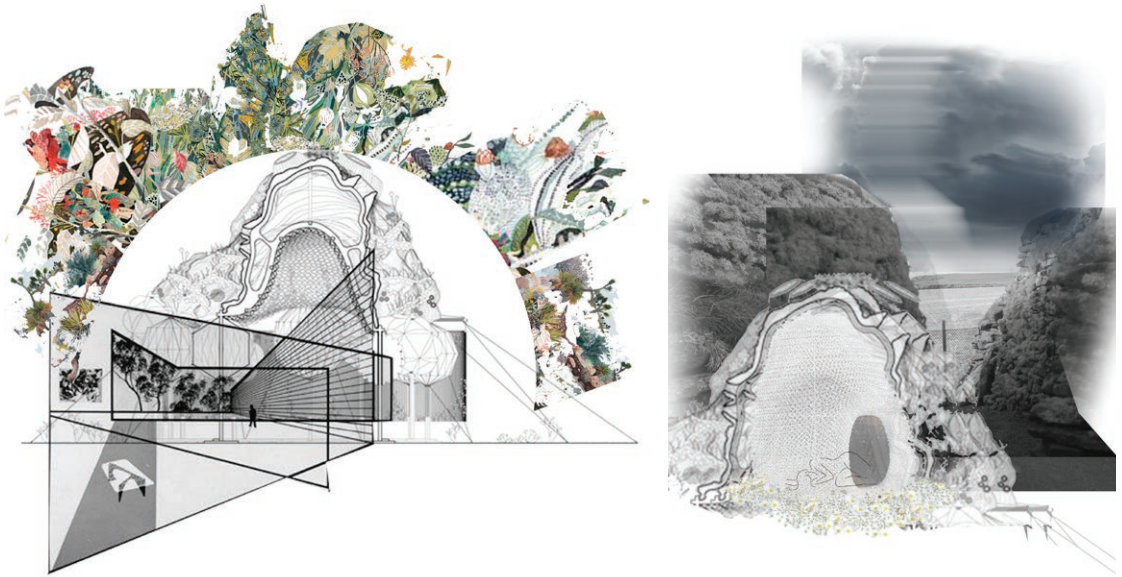


Figure 2.4.5 - Lucia Garcia de la Peña, intermediate collage of Anwuli's house

Figure 2.4.6 - Lucia Garcia de la Peña, "Suddenly Obi 3 transform its shape into a more regular form, similar to an egg and all the separate spaces became one. 'The storm is coming, Anwuli. Let's hide among the ruins. Hopefully, we will be safe there.'"

Anwuli

Nnedi Okorafor's short story titled "Mother of Invention" narrates the birth of Anwuli's child. Anwuli has been ostracized by her community in Lagos as she carries the child of her married lover. Although she cuts off ties with the man, she still lives in a 'smart' house he invented called "Obi-3"—Obi means home in Igbo. This future Nigeria is prosperous because of the invention of a genetically engineered supergrass called "periwinkle grass"—a food and fuel source for the country, but which afflicts a portion of the population, including Anwuli, with a deadly allergy. The story takes place as her baby arrives in the midst of a "pollen tsunami," which would kill her except that her house has been taking care of her, in part by supplementing its construction so that it can surround her and protect her and the baby during the worst of the storm. The story is a meditation on pregnancy, motherhood, sheltering, and care, as well as how artificial intelligence can be an extension of intellectual but also emotional intelligence of the character—Obi-3 is an "extension of herself," it is Anwuli's "chi". In spite of humorous moments where the house misunderstands Anwuli—familiar to anyone who has cursed their own devices' autocorrect or language recognition—the story describes a reciprocal attitude of care between house and woman. During the most challenging moment of the character's life—delivering a child alone during a deadly storm—the house becomes the part of her



Figure 2.4.7 - Lucia Garcia de la Peña, *The Woman Takes Care of the Site, the Site Takes Care of the Woman, Plan.*

devoted to the future, she becomes the child inside the womb of the house, even as she carries the child inside of her.

Although there is a well documented history within the architectural discipline of anthropomorphising architecture this story offers the opportunity to explore a few nuances of that tendency. Rather than taking on a specific physiognomy or sense of proportion, Okorafor's *Obi-3* embodies a range of relationships to Anwuli over the course of the

story, taking the place of different, typically human, relationships. *Obi-3* is, in some senses, an personification of Anwuli's absent lover, but with a faithfulness that can't be achieved by him—a reciprocal faithfulness in so much as she will not leave the house and the house, in turn, is more loyal to her than to its builder. At other moments, the house is a child, as when Anwuli buys and delivers construction material for the house to assimilate into itself. In other moments, the house becomes a womb, an extension of Anwuli's intelligence and an avatar of motherhood itself. One of the collages Lucia Garcia produced for the workshop shows an intimate embrace between two figures, one has a human hand, while the other is clockwork [fig. 2.4.4]. Garcia also uses the collages to take up the themes of sheltering, reciprocal care, and adaptability. While gender is not so explicitly explored in the collage, it is a very explicitly intimate moment between the two figures, and it is not so important whether this is a moment between Anwuli and mother or lover, as much as the embrace it expresses. These are fluid roles, the relationship between Anwuli and the house is not a fixed, instrumental relationship, but one that changes with the characters over the course of the story.

The story also offers the chance to think through unique architectural technology:

“...Obi 3 rested on three mechanized cushioning beams that could lift the house up high when it wanted a nice view of the city or keep it close to the ground. The house could also rotate to follow the sun and transform its shape from an equilateral triangle into a square and split into four separate modules based on a mathematical formula. And because it was a smart home, it was always repairing and sometimes building on itself.”

Reflecting the fluid, perhaps gendered roles the house takes on, the house is also polymorphic, and carries out acts of surgery upon itself as it augments and adapts



Figure 2.4.8, 2.4.9 - Lucia Garcia de la Peña, Collages of final project showing flexibility of the house in the ruins.

its own body. While adaptable architecture has long been imagined in a kind of instrumental sense,¹² Okorafor combines this fever dream of ultimate adaptability with the emotional intelligence of the house and the attitude of care between house and inhabitant, something which Garcia also investigates. However, the adaptability of the house in Okorafor's story did provide some difficulty in the final version of the project, with Garcia struggling to translate the strong desire for adaptability to a mode of representation appropriate to the rest of the studio brief. In the end, the complexity of the occupying the different zones of habitation in a fluid and adaptable way fought against the static structures of the existing spaces and lightweight shell she chose to cover the structure [fig. 2.4.7]

As the assignment is a house for a caretaker, Garcia's final project extends the relationship of care to include both the caretaker and the house, but also the site. She imagines her architecture as an infrastructure to embed the woman in the site, developing the metaphor of site rather than the house as a womb; she imagines the cavities excavated on the site as places to shelter and protect the caretaker as she in turn goes about caring for the site. The collages that she produces for the final version of the project still show some of this quality of sheltering in the womb of the site, and of an adaptable inhabitation of the ruins. [fig. 2.4.8-9].

Pangborn

In the story "Motel Architecture" [1978] by J.G. Ballard, the protagonist Pangborn lives intentionally confined to a wheelchair, naked and bathed in artificial light, while endlessly watching and analysing television, especially the shower scene from Alfred Hitchcock's "Psycho" [1960]. The character's total immersion in the space of

12 See, for example: Nicholas Negroponte, *The Architecture Machine: Toward a More Human Environment*, 1970, <http://catalog.hathitrust.org/api/volumes/oclc/71428.html>; Nicholas Negroponte, *Soft Architecture Machines* (Cambridge, Mass: The MIT Press, 1975).1970, <http://catalog.hathitrust.org/api/volumes/oclc/71428.html>;

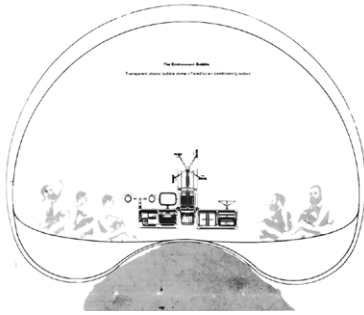


Figure 2.4.10 - François Dallegret, “Environment Bubble,” 1965



Figure 2.4.11 - Diller + Scofidio, “Para-site” Installation, Museum of Modern Art, 1987

the screen is disturbed by a cleaning woman, and he begins to feel the presence of another intruder in his space, evinced by physical traces such as body odour, a half-eaten meal, or footprints on the clean floor. This presence so disturbs the character that he kills the cleaning woman before killing the intruder - his own body.

Somewhat understandably, both students working with this story were uncomfortable with projecting Pangborn’s lifestyle as a model for future living. However, as a result of the story, we were able to have a discussion which situated Ballard’s story in a critical relation to roughly contemporaneous architectural proposals – such as Mike Webb’s “Cushicle” [1967] or François Dallegret’s “Environment Bubble” [fig. 2.4.10] for Reyner Banham’s article, “A Home Is Not a House.”¹³ Both of these projects aimed to be a total infrastructure to supply the body with all its needs, media diet included. Additionally, we were able to discuss how Ballard’s story might reflect and help situate some anxieties of our own present, where information technology dominates our time and attention to a significant extent, perhaps to the detriment of our physical bodies. Nevertheless, the object with such a discussion is not to propose a moralizing counter to the lifestyle Ballard is describing, but instead to see the currency of such a lifestyle, and to look for potentials inside of it.

For Vildana Duzel, this discussion resulted in a program for a caretaker which proposes that much contemporary caretaking might be better accomplished using digital surveillance tools. Thus, the caretaker’s house both accommodates the physical body, but also supports the digital infrastructure necessary to monitor the site’s ruins. However, the student begin to articulate the possibility that the physical and digital spaces might be co-implicated, with each disrupting and augmenting the experience of the other. [fig. 2.4.12] This kind of thinking has antecedents in certain projects, which the student may use to situate and augment her understanding, Diller and Scofidio’s Para-site installation at MOMA (1987) [fig. 2.4.11] and Slow House (1989) are obvious precedents.

Throughout the remainder of the semester, Duzel continued to develop the conceptual terrain of her prior visualizations. These include the ‘client’s’ introverted

¹³ Reyner Banham, ‘A Home Is Not a House’, *Art in America* 2 (1965): 70–79.

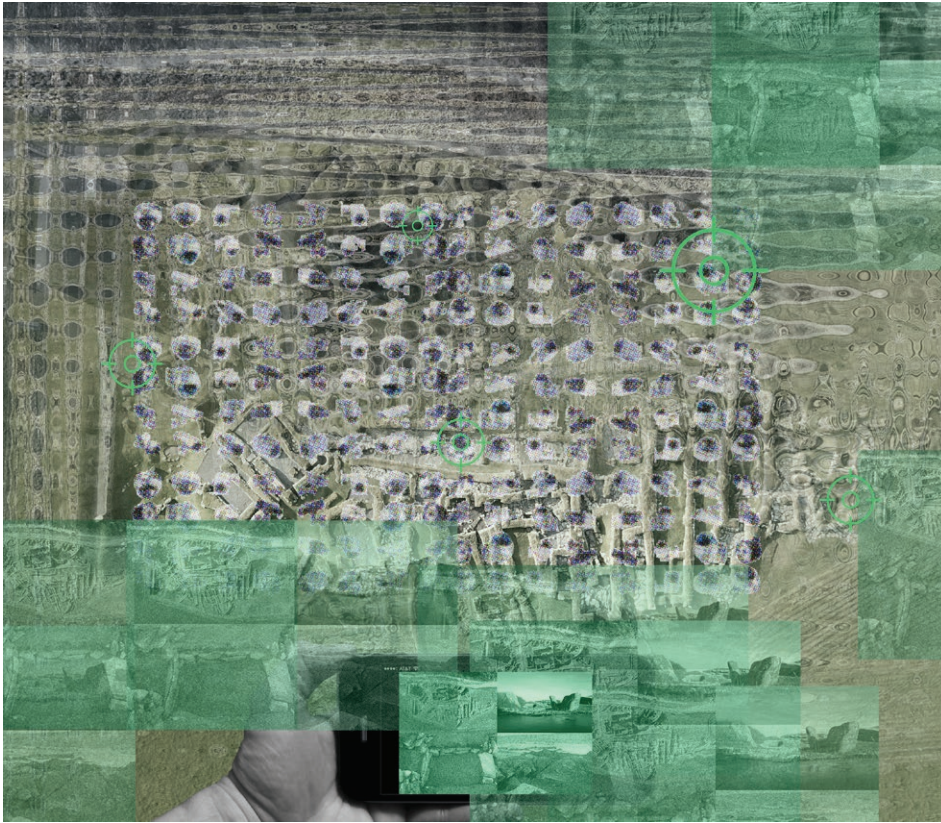


Figure 2.4.12 - Vildana Duzel, speculation on overlapping physical and digital experiences, inspired by J.G. Ballard's character Pangborn from "Motel Architecture."

psychic state but also the simultaneous layering of digital and physical experiences at different parts of the project. The client's introversion translated into the deliberate interiority of the home, especially in the formal gesture of domes and vaults and in the carefully choreographed openings which avoided the possibility of onlookers. Whereas physical openings opened on places which preclude others from looking in, the caretaker is still able to accomplish their task by surveilling the site digitally—the site forming a continuous presence on the interior of the home. The only other humans in the space are digitally reproduced with a camera and screen, and thus the caretaker's gaze is not reciprocated [fig. 2.4.13-14].

Julius Deane

While the previous two characters were the central protagonists of their respective short stories, Julius Deane is a peripheral but memorable character from William Gibson's *Neuromancer*,¹⁴ only appearing on a few pages, all of which were reproduced for this experiment. The novel presents the character as vain. He is concerned

¹⁴ William Gibson, *Neuromancer* (New York: Ace, 1984).



Figure 2.4.13, 2.4.14 - Vildana Duzel, *A Dwelling for a Caretaker*

with his appearance to such an extent as to warrant annual DNA manipulation, a fortune in medication, as well as a wardrobe of bespoke suits—a new one each day—and a collection of designer furniture. However, the character is also paranoid, and conceals the considerable litter of his life behind his public face. There are also suggestions of a criminal enterprise. All of the character’s interactions take place across the boundary of the desk, establishing a spatial boundary, but the desk is also “jammed with a fortune in debugging gear,” suggesting that Deane’s paranoia runs deeper than physical safety.

While the text I supplied develops the character less than some of the other stories, there are many hints for a student to follow in Gibson’s description and in his main character’s brief dialogue with Deane. In his interpretation of the text, Jesper Scheel de-emphasizes the program of caretaker, and instead focuses on the characters need for privacy on what is, in effect, a public site. The character’s determination to be deliberate about how he is seen, but also how to control and shield his private life became relevant to the site’s capacity to reveal and conceal, and the temporarily stable boundary of the ground plane. There is some playfulness in the collage Scheel produced for the workshop, but which largely activated the present ground plane, as well as the cavities excavated within the ground, creating spaces of enclosure and privacy. [fig. 2.4.15]. Scheel develops this story into the final project, developing Gibson’s character into a kind of spy movie villain re-named Deane Julius, whose criminal enterprise necessitates the kind of freedom enabled by a movable capsule that is lifted into the site temporarily, where it expands to hide the private home beneath the ground, and a space for public appearances above. [fig. 2.4.16].

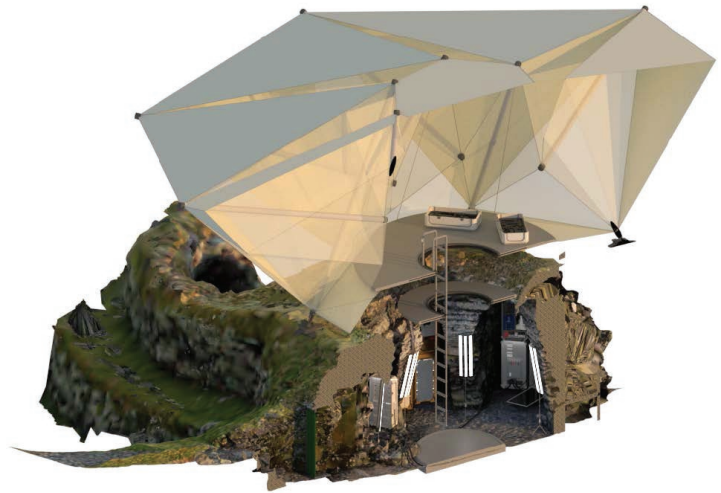
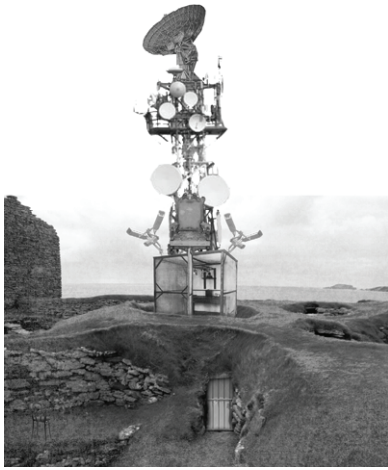


Figure 2.4.15 - Jesper Scheel - *Intermediate Collage*

Figure 2.4.16 - Jesper Scheel - *Safehouse for Deane Julius*

Frank Vanderwall

Frank Vanderwall is one of the central characters in Kim Stanley Robinson's *Science in the Capital* trilogy, the second book of which is *Fifty Degrees Below*, from which I excerpted the text for this experiment. As an excerpt, this text did not benefit from the character's full development across the three novels. Nevertheless, this text reproduces a pivotal moment for the character. The setting of the novel and its time make it the most realistic of Robinson's novels, it is set in a real city, Washington D.C., and very near the author's present—it was written in 2007. As such, the text is a type of SF which might appropriately be called a science fictional or alternative present—that is, the novel describes the fictional future of a past slightly altered from the one that produce the reader's reality. Therefore, the estrangements it produces are of a slightly different order than the other texts I assigned for the workshop in that everything in the novel *could* happen on the basis of what we know of 'reality,' even if it didn't. The text's science fictionality is in a utopian politics for the present, and the characters Robinson creates to play these out produce significant estrangement from the cast of characters then—and now—seeming to dominate political discourse in the United States. In so many words, the utopia that the book imagines is an American administration that listens to its scientists.¹⁵

Frank is a research scientist temporarily working for the National Science Foundation against the backdrop of intensified climate change. In the estranged

15 Tom Moylan, *Becoming Utopian: The Culture and Politics of Radical Transformation* (London, UK ; New York, NY: Bloomsbury Academic, 2021), 146.



Figure 2.4.17 - Andrea Sara Mariel Rados - Frank enumerating his necessities

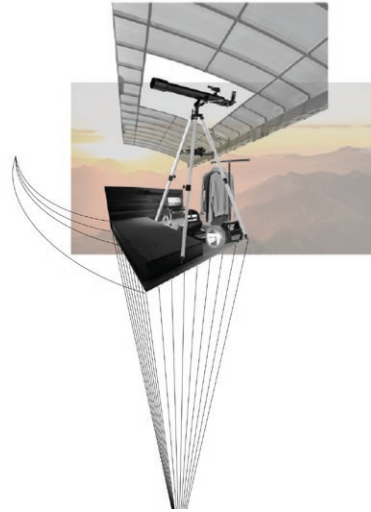


Figure 2.4.18 - Andrea Sara Mariel Rados - "He could always build it again. Change location, even just by a few meters if he felt like it and in so doing change the weather and his mindset."

He had started observing the sky, the moon and the clouds in particular, his dwelling framing the constant process of transformation above..."

moment the text produces, Frank chooses to reimagine his life in a pseudo-paleolithic mode within the city; in a moment that recalls the American Transcendentalism of the 19th century, he builds himself a small treehouse in Washington's Rock Creek Park. In a micro-political gesture to mirror his macro-political engagements, Frank actively contemplates what things he can live without, and disperses many of the functions normally associated with home to other parts of his life, a temporal and spatial rearrangement of domesticity now intruding into his job, his vehicle, and his leisure pursuits.

The three students working with Frank Vanderwall found inspiration in the character's desire for simple living. For all of these students, the program was reduced to a minimal arrangement, providing the client with only the bare necessities [fig. 2.4.17], with the expectation that the client's small living space would be augmented by their everyday excursions with the large site and interaction with the site's visitors. In her collages, Andrea Rados imagined a minimal dwelling for a scientist, thinking about suspending the intervention in the sky as a way to mirror the character's own dissociation from both the ground plane and bourgeoisie living conventions [fig. 2.4.18]. Mathias Klith Hardarson's collages explored tent structures which would allow Frank the experience of being out of doors all the time. [fig. 2.4.19]

In the final project, each student chose to work with structural articulations that allowed them to touch the site lightly while finding ways to articulate Frank's minimal lifestyle. Mathias' relied on compression structures that rested, like Frank's treehouse, on the existing elements of the site, actually giving over much of the intervention to a visitors centre for the site, while only occupying a corner of the structure [fig. 2.4.20]. Andrea imagined a thin-member steel truss covered with fabric [fig. 2.4.21]. As such, the context implied by the story had the capacity to

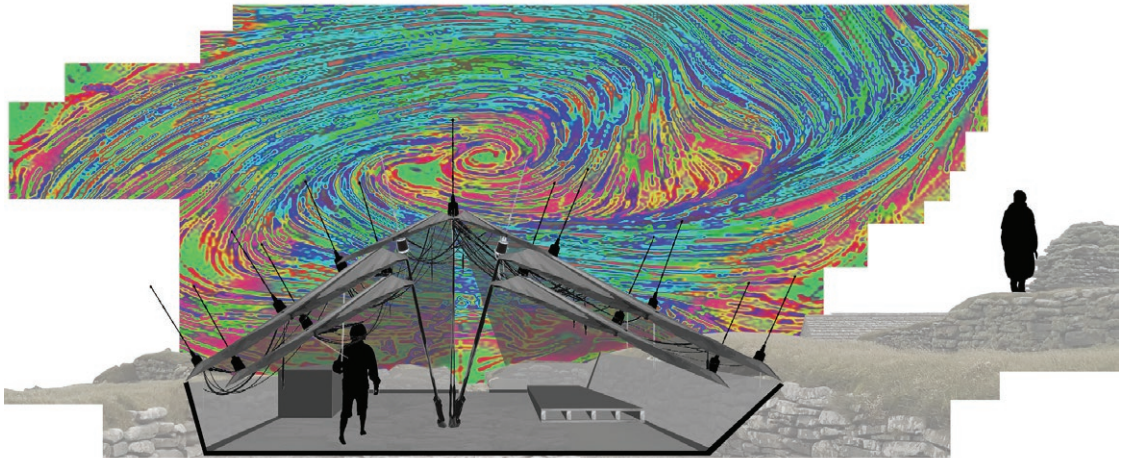


Figure 2.4.19 - Matthias Klith Harðarson

invite a diversity of responses, where choices not only in architectural expression, but in material, tectonics, and appropriate technology are determined by internal coherence with the students' respective developments of the narrative.

Other Characters

Some of the texts in this workshop seemed to be more difficult for students. Hopkinson's Mami Gros Jeanne significantly developed the character's cultural background—the character is a healer and practitioner of Afro-Caribbean religion. This aspect of the character proved quite seductive to the students so that their explorations revolved around a static encounter with the character's ethnic identity rather than exploring the architectural implications of the story's world along with Mami Gros Jeanne's age and cultural background. One rather more successful encounter with the text is when Matilde Moll Helms tries to map the program of Jeanne's home across the project site, looking for encounters with the already existing space and context.

The short story "Sax," from Kim Stanley Robinson's *The Martians* is a thorough and moving character study of a scientist near the end of his life. The text describes Sax as he moves through the public spaces of a Martian coastal city, and the study offers considerable insight into his character, thought process, attitudes towards others in public space. From a literary point of view, this is a more difficult text—its character study is accomplished through the character's internal meditations on the nature of memory and of his life in science, both of which include a specialized vocabulary and discussion of philosophical themes. Even where a narrative does stitch these digressions together, it is through the character's memories of his life and partner; therefore, while the story satisfies the criteria I set out to include, the demands that



Figure 2.4.20 - Matthias Klith Harðarson, *House for a Caretaker*



Figure 2.4.21- Andrea Sara Mariel Rados, *A Caretaker's Dwelling in Jarlshof, Shetland*

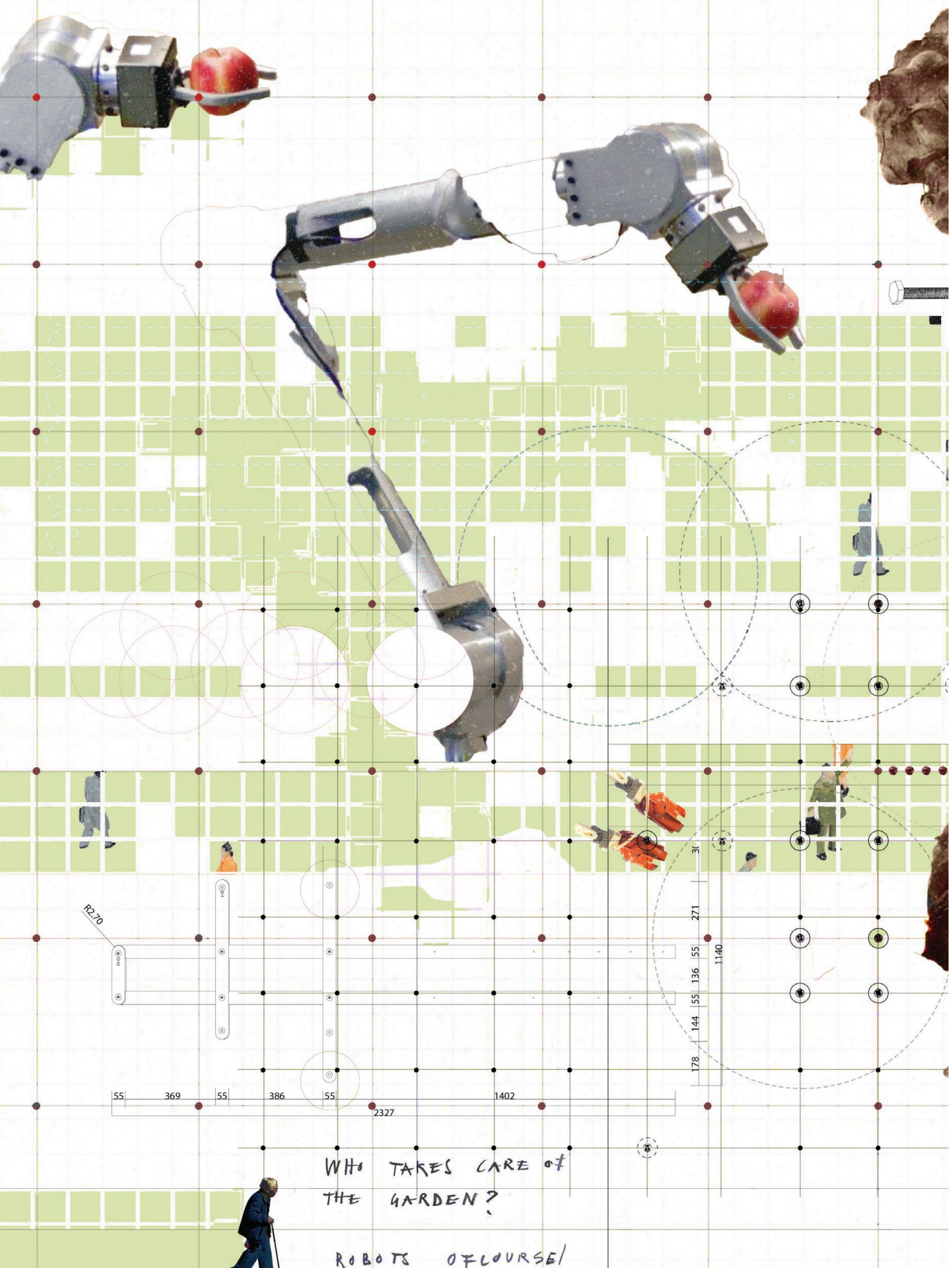
there be a heavy investment in storytelling from the students themselves—they needed to intuit the story of his lifestyle from the scant, though moving, available evidence.

While I suspected that the Sax text might prove difficult for students who didn't have the patience to meditate on it, I did not suspect that William Gibson's "Skinner's Room" would be challenging for students. This story inspired the three novels of Gibson's Bridge trilogy,¹⁶ and tells the story of Skinner, one of the original inhabitants of the bridge who is now nearing the end of his life, and who is being cared for by "the Girl," who attends to his needs while working as a bicycle messenger. Woven into the story is the narrative of how, in this future, San Francisco's Bay Bridge was settled

¹⁶ See my extended discussion of the Bridge trilogy in chapter 2.3

by that city's poor and dispossessed. Gibson, true to form, describes the titular room perched atop one of the suspension towers of the bridge with enough detail that someone could build and outfit it. While Julius Deane, from Gibson's *Neuromancer* is less developed, this story is already a striking, highly detailed vision. Perhaps such a developed scenic encounter would need a student to invest considerable work to overcome the weight of Gibson's own vision.

The question distinguishing this experiment within this project was of how to choose SF texts for students to think with and think from, especially as this aspect of their semester work did not hinge upon technology as much as upon how architectural technology can satisfy the needs of a previously unimagined way of living. As many of the projects show, working from the estrangements of a SF *novum* changes the students' expectations of what might constitute a home, with the remainder of the semester then devoted to understanding how spaces, programs, and technologies of architecture might accommodate these modes of living. Some of the more difficult texts were less successful because of the cognitive investment in reconciling or translating the estrangement of the text to the real world, or on the other hand, in students being able to dissociate from the text. While the subjective encounters that this experiment was meant to encourage mean that a comparative analysis of the students' work is quite difficult, the results show that the teacher must show considerable discretion and insight as they choose texts to explore with in the architectural studio, but that the more difficult texts were those that were too detailed rather more often than those that not detailed enough, the latter leaving much more room for the student's initial investment in the polyvocal encounter of assimilating the world of the text to their own experience.



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WHO TAKES CARE OF
THE GARDEN?

ROBOTS OF COURSE!

2.5 Future Archeology

DYSTOPIA

2020

EXTREME WEATHER

SELF SUFFICIENCY

ELDERLY HOME

ADAPTION TO CLIMATE
CHANGE

FORCED
ISOLATION

SENSORY SPACE



“The first true s-f story, and one I intend to write myself if no one else will, is about a man with amnesia lying on a beach and looking at a rusty bicycle wheel, trying to work out the absolute essence of the relationship between them.”¹

Future Archeology is an experiment undertaken from 13.-28. February, 2020 for a bachelor unit at the Aarhus School of Architecture. This was workshop under the umbrella of the school’s annual ‘digital workflow’ courses, courses which introduce bachelor students to a range of digital software and fabrication tools. For the first time, these courses were planned in collaboration with the unit tutors, and with the intention that the courses support the unit’s semester project with specific practical knowledge or theoretical insights. Unit F, directed in the 2019-20 academic year by Elizabeth Donovan, Sareh Saeidi Derakhshi, and Thomas Hilberth, is part of the Aarhus School of Architecture’s Teaching Program 3, which has an emphasis on emerging, sustainable practices.

The course starts from a familiar trope in SF stories about time travel. In a common estrangement in the time travel story, the reader’s experience of their own time is rendered strange by looking at it from the perspective of a distant time, often as a kind of archeology of the present from the perspective of the future.² In these stories, elements from the reader’s present are introduced from the perspective of characters whose see such elements anew, allowing the reader to view their present as a kind of history, and from this vantage, to question the ideological baggage that might be present in their time, and also to see the historical relation of a speculative future as it might proceed from the latent potentialities of the reader’s present.³

This workshop asked students to imagine that the year was 2688, and that they were an archeological team from the Theophilus Dome University in the New Lunar League of Free Cities. Within the narrative frame of the workshop, an artifact for

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- 1 J. G. Ballard, “Which Way to Inner Space?,” in *Science Fiction Criticism: An Anthology of Essential Writings*, ed. Rob Latham, Reprint edition (London ; New York: Bloomsbury Academic, 2017), 103.
 - 2 The presence of artifacts from the author’s own present in narratives of future time travel is a hallmark of the genre, as a way to establish the estranged position of the narrative, though not always forming a critical dialectic with author’s present. Notable examples include Edward Bellamy’s *Looking Backward: 2000–1887* [1888] or Ursula Le Guin’s *Always Coming Home* [1995]
 - 3 Fredric Jameson, “Progress versus Utopia, or, Can We Imagine the Future? [1982],” in *Archaeologies of the Future: The Desire Called Utopia and Other Science Fictions* (London: Verso, 2007), 286.

each of the 5 teams was found in the shallows of Earth's northern ocean, and each team was tasked with investigating the artifact, ostensibly a part of an elderly care home from the early 21st century—an elderly care home was the program for their eventual semester assignment. Teams were tasked with looking at the material and technological implications of the artifact, but also at broader social or ideological implications that might be understood to have informed the making of the artifact.

Each of these artifacts, in reality, were prototypes and experiments produced in the Aarhus School of Architecture's workshop, either by me or by other researchers at the school.⁴ The premise of the experiment is in describing the artifacts of our own time as an estranged novum, taking advantage of the students' relative inexperience with the technology. In doing so, aspects of each artifact—material choices, tooling operations, and modes of assembly—are presented as contingent, the product of an alien place and time, and thus questioned rather than confirmed as 'fact.' This is to say, the ambition of the course is that each aspect of the artifact needed to be questioned in order to reconstruct what it was and where it came from; from this, the ambition is that students would be able to see the interrelation between the different aspects of technology: how fabrication, material, tectonics, and cultural factors are interdependent with one another.

While previous experiments looked for estrangements within SF literature, within the arc of experiments within this PhD, this experiment asked if there were a more abstract science fictionality that we might ascribe to artifacts of design, and whether we might involve students in that storytelling. As the epigraph from Ballard intimates, the shift in perspective afforded by the SF framing of the project produces a kind of science fictionality in the artifact itself. The question this experiment then asks is how such estrangement might be understood and leveraged as a site for learning about material and technological processes. While I've previously argued for architecture's own science fictionality, this experiment suggests one possible vector of such science fictionality—that there is a surplus of meaning in the material object. If we read the object as science fictional, we can read it as containing its own worlding. While the object exists with a highly determined material and form, without its context within a larger assembly it only contains the suggestion why a designer might have chosen a certain form, material, or tectonic process. And students can turn their creative facilities towards elaborating on that suggestion through their own process of worlding.

⁴ Jon Krähling Engholt and Ryan Hughes also generously lent artifacts.

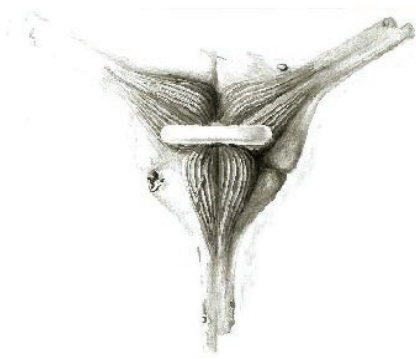


fig. 2.5.1 Selma Lindhardt Blomberg - hand drawing of bronze artifact showing inconsistencies from the casting process.

Structure of the Workshop

Rather than the instrumental instruction usually reserved for practices in technology, the workshop asked students to speculate with technology over three phases, each increasing in scale: The first phase saw students read the artifact through drawing and an exploration of its materiality.

In the second phase, students proposed a fabrication process, and speculated on potential connections and material assemblies—an elementary tectonics. In the third phase, students attempted to fabricate a facsimile of the artifact, while also making a suggestion of the building the artifact came from. Though each of these phases, students were also asked to speculate on the value system or ideological motivations that shaped these artifacts in order to understand the co-implication of technological and ideological determinations. The intention is that, in their future practice, students would consider how choices around material, technology, and tectonics are crucial to the other ambitions of the project, playing a role in social, economic, affective, and ecological relations.

There were 5 groups of students, each with either 5 or 6 members, and each group was assigned an artifact. The artifacts were made of different materials: concrete, wood, bronze, ceramic, or carbon fibre composite, and each of them used a different combination of analogue and digital processes in their fabrication. While digital processes were a part of the formation of each artifact, in the end, each was determined by its designer's own metrics—according to material behaviour, sustainability, or even aesthetics. In the first phase, students understood the artifact through a series of annotated drawings at 1:1, either digital or by hand [fig. 2.5.1]. These drawings should capture the form, determining geometries, and materiality of each piece of the artifact, as well as noting any apparent inconsistencies, imperfections, or marks of tooling. In the second phase, students attempted to describe the way the object was formed, what tool might have been implied, and what “tool path” that tool might have followed. As each artifact was constructed in several stages, they needed to think backwards from the available evidence to describe the steps of the process. At this stage, they were introduced to the word algorithm, as a ‘recipe’ for a multi-stage process, but also, in the explicit expression of each step of each stage. In this phase, they were also introduced to robotic programming within Grasshopper using the Axis plugin,⁵ which aligned closely with the discussion of process and tool motion. In

⁵ <https://axisarch.tech/>

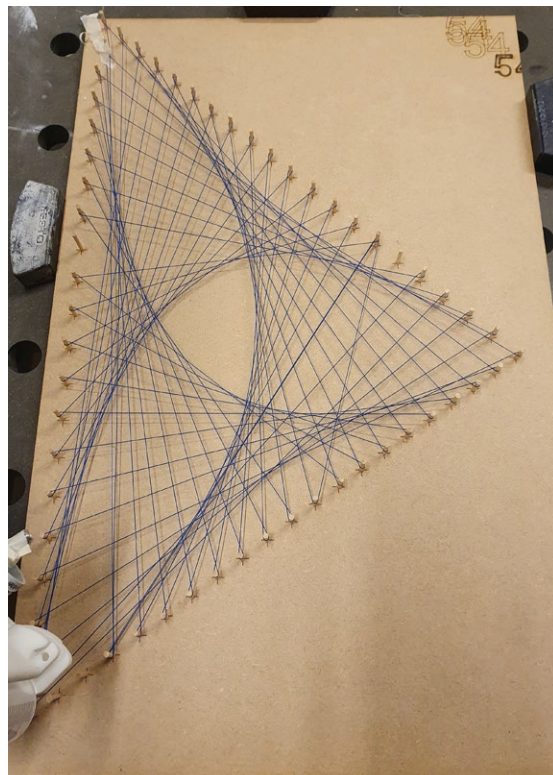
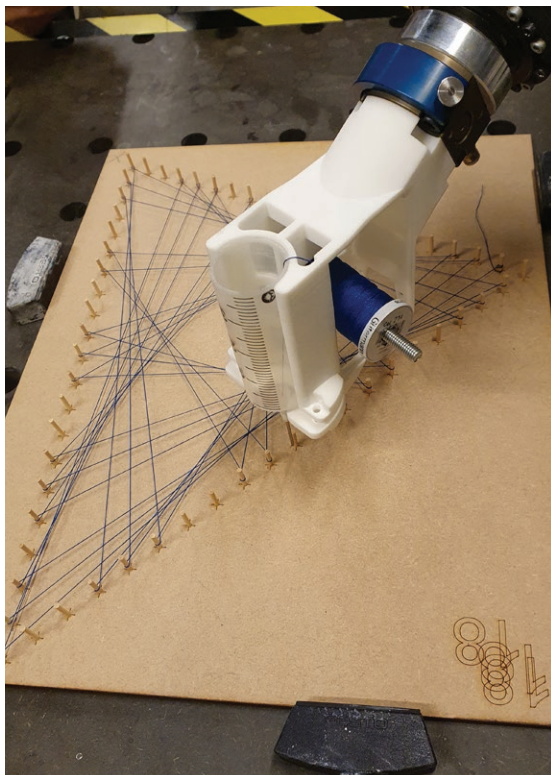
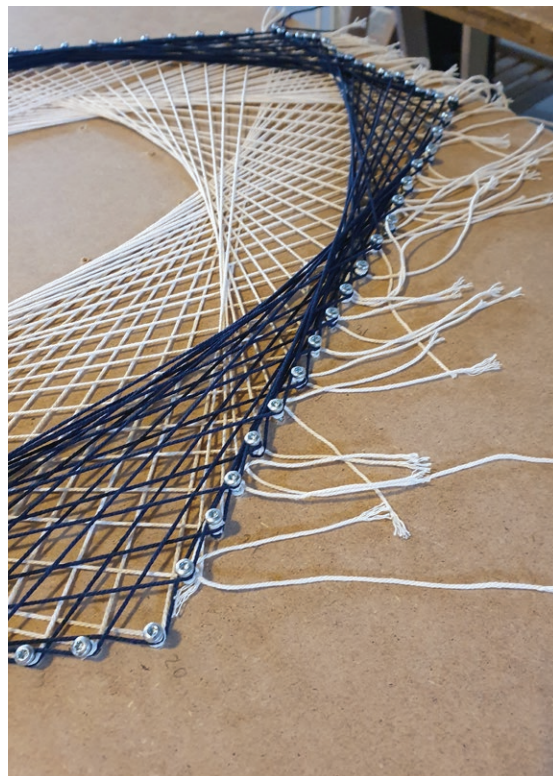
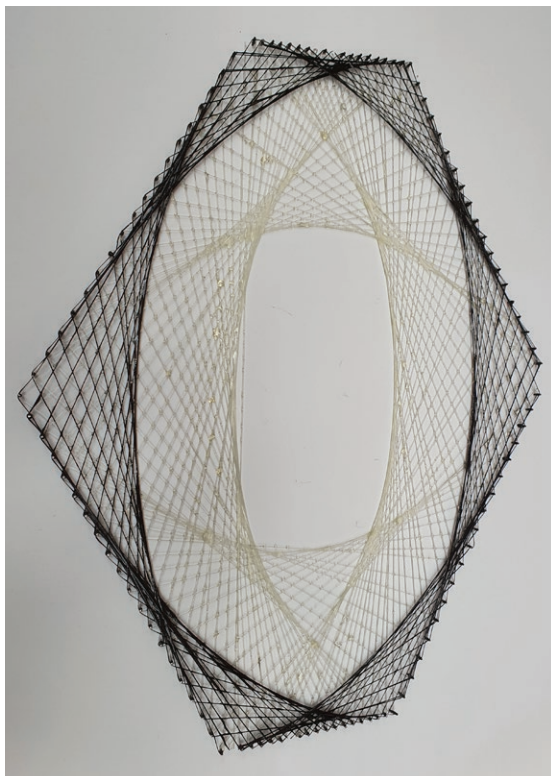
the third phase, students reconstructed the first artifact using the process they had developed, as well as speculating on the larger assemblage of which the artifact was a part, taking into account the tectonics implied by the artifact, but also the value system which informed the designer's choices.

Learning in the workshop happened across several registers: lecture,⁶ desk crits, interim and final reviews, peer discussion, informal back-channeling. Largely, the discursive spaces within the group, either with the tutor or between peers, were the primary mode of knowledge formation in the workshop. Knowing the typical reticence of many students to engage with architectural technology, especially when they do not feel confident in their abilities, the workshop tried to work with different approaches to talking about and using digital technology in architecture. To this end, I asked that students negotiate between themselves as to which role they would take on, choosing between material investigations, computation, and narrative development.⁷

In the week preceding the workshop, students received a brief introduction to Grasshopper, a popular visual scripting plug-in for the Rhinoceros 3D modelling program, with which they already had some familiarity. However, facility with Grasshopper was not presented as the goal of course, but merely one of its means. Desk tutorials and reviews included a discussion of technical elements of the project, but also tried to ask questions about why such choices would be made. In this way, the intention was for groups to approach the artifact from different angles—from the perspective of computation, material processing, or storytelling—the combination of which would elaborate architectural technology as a discursive rather than

6 The lecture was brief. The intention to present to students how materiality and technology is implicated in the conceptual ambitions of architectural projects. One example is the use of steel and glass in the domestication of light and air in Joseph Paxton's Crystal Palace, in an imagination of mastery over the natural world. As a counter example, in Antoni Gaudí's Sagrada Família, form and technology derive from an observation and appreciation for nature, rather than mastery over gravity, as might be observed in how the structure functions as load diagram. A more recent example was Buckminster Fuller's project as portraying a site-less mastery over nature—best exemplified in his cloud-nine floating spheres (see chapter 1.1), whereas Frei Otto, in spite of similar ambitions to lightness and ephemerality, is necessarily sited, forms are derived specifically from their 'grounding' at specific points.

7 In this workshop, I was not as explicit about these specific roles, and did not follow up sufficiently with specific individuals and groups as to who would take on which role. This means that the large groups did not take on or negotiate individual tasks as carefully and consistently as they could have done. This shared and mutual responsibility is something that I developed more explicitly in the project titled Materializing Collective Futures.



Opposite Page, Clockwise from top left:

Figure 2.5.2 - original artifact; Figure 2.5.3 - first student prototype; Figure 2.5.4 - Prototype tool from modified syringe, tensioned spool, and found bracket. Figure 2.5.5 - Thread winding on laser-cut form

prescriptive field. While I do not want to overemphasize my own role in the project, I had the ambition to use the occasion of the desk critique for two purposes, first to stimulate dialogue in the ‘Socratic’ method of leading questions, while second, enacting the kind of discursive speculation that technology can provoke.

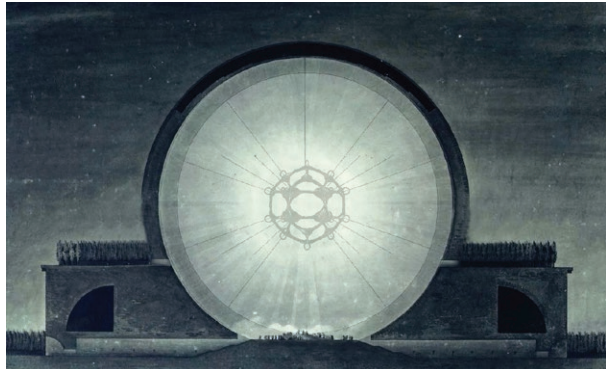
The most unfamiliar material in the project was for the group presented with an artifact of woven carbon fibre composite [fig. 2.5.2].⁸ Instead of being presented with a process they might recognize from more common materials, this group needed to reconstruct the tectonic process from the available evidence of the artifact. They could see that fibre had been pulled across a form made of metal pegs, while drips from epoxy suggested the material that solidified the object. The subtle asymmetry of the artifact suggested that it was not a part of a regular geometry—it could not be reconstructed into a periodic tiling—but instead a bespoke component of an unknown geometry. The group started by reproducing the object by hand, stretching yarn around a frame [fig. 2.5.3]. The movement of their hands and the tension of the yarn between their fingers gave them the initial parameters to start defining a tool for the ABB 120 desktop robots at the school. Using a leftover bracket to attach their tool to the robot, the team modified a syringe, and added a tensioned spool to feed thread through the needle and onto their forms.

While the team had trouble digitally describing the planar polygons of the original, they understood that triangular plates could also combine into complex geometry. The team used the laser cutter to make a form for each piece, as well as a common ‘index’ point so they could all be aligned to the robotic setup. They developed a grasshopper program to order the sequence of poles around which the robot would wrap the thread [fig. 2.5.4]. Although they were able to understand and describe the multi-stage process leading to a reconstruction of the artifact, perhaps because the process was quite involved, this group was not able to make a speculation about the building the artifact may have come from.

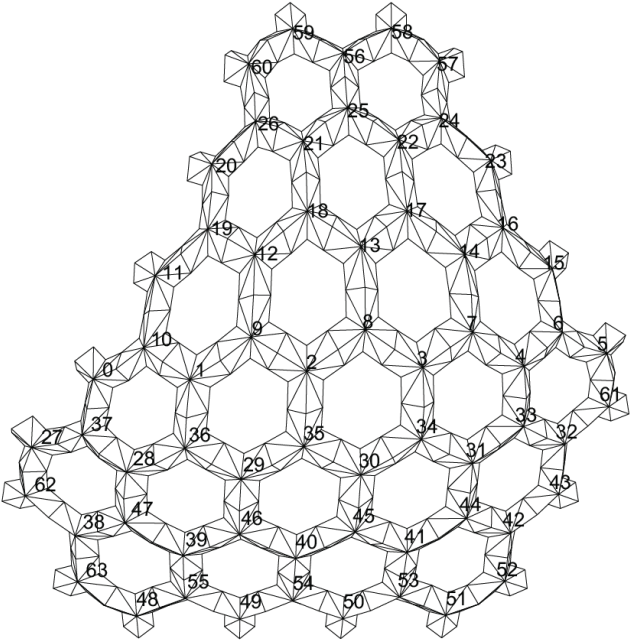
The group dealing with a bronze artifact⁹ also had to come to terms with a new forming process as well as the mysterious artifact [fig. 2.5.6]. In spite of some significant

8 This artifact is developed by Ryan Hughes as a part of his master’s thesis project at the Aarhus School of Architecture, 2016. See: Ryan Hughes: “London Food Bank.” Accessed May 31, 2020. <https://issuu.com/ryanhughesarch/docs/londonfoodbank>.

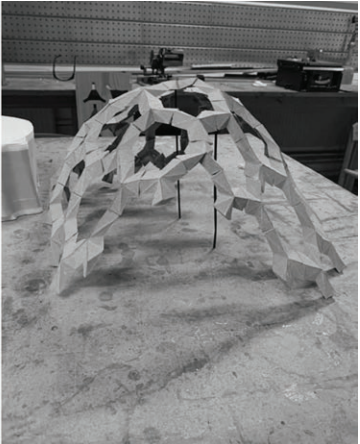
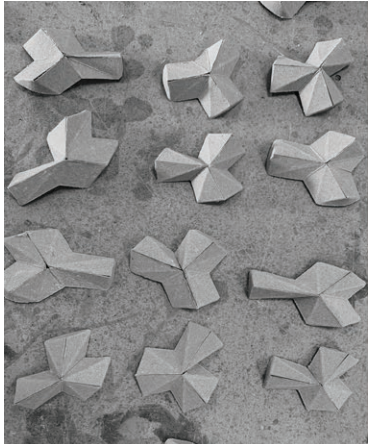
9 see: Letkemann, Joel, et. al. “The Sphere” in *Making Research | Researching Making*, Proceedings from ADAPT-r for Creative Practice Conference ‘Making Research | Researching Making’. Published by the Aarhus School of Architecture, 2015.



Opposite, clockwise from top left:
 2.5.6 - Bronze artifact as given to students;
 2.5.7- re-imagined construction collaged onto Étienne-Louis Boullée’s Cenotaph for Newton, “a centrepiece structurally and spiritually”; 2.5.8 - sand casting process; 2.5.9 - detail of wooden dodecahedron; 2.5.10 - bronze, aluminium, and wooden artifacts; 2.5.11 - Wooden dodecahedron from 20 pieces; 2.5.12- sand-cast aluminum reproduction;



Clockwise from right:
 2.5.13 - assembly diagram for 1:20 model, including indexing; 2.5.14 - traces of folded formwork on concrete artifact; 2.5.15 - laser-etched and -cut cardboard assembled into 1:20 model; 2.5.16 - concrete artifact as given to students;



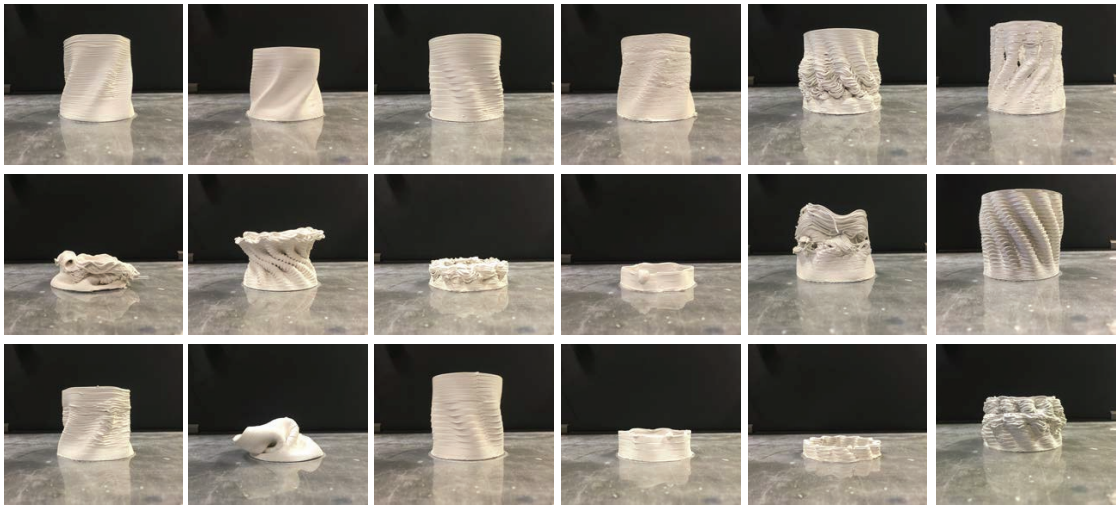


Figure 2.5.17 - Matrix of tests in porcelain 3D printing inspired by the group's source artifact.

hurdles, their study resulted in an exploration of casting, 3D printing, and geometry, as well as developing a unique narrative for their object. Their geometric analysis of the artifact suggested (correctly) that the artifact was one vertex of twenty in a shape which, when joined, would produce a sphere with dodecahedral subdivision. The material choice, to them, suggested an artifact which performed well under tensile stress, but also, given the care and resolution of the artifact, suggested a kind of ritual presence or importance. They suggested the artifact was a part of a spherical lantern which performed a dual role of both resisting the thrust of a dome, while also becoming an artifact of some significance. Their story of the artifact is simply represented in a collage placing it at the centre of an image of Étienne-Louis Boullée's Cenotaph for Newton, suggesting the ritual importance of the artifact and the kind of space in which it might have been found [fig. 2.5.7]. While they ran into technical difficulties with a 'lost-wax' process using 3D printing, they did use sand casting to reproduce the artifact out of aluminium [fig. 2.5.8, 12], while a wooden prototype stood for the larger assembly [fig. 2.5.9,11].

The next group worked with a concrete element derived from a larger concrete frame assembly.¹⁰ Their reading of the artifact revealed the principle form of the

10 This element is a prototype object from a collaboration between Iain Maxwell, Dave Pigram, Ole Egholm Pederson and Niels Martin Larsen. Described in: Maxwell, Iain, *et al.* "Fabrication Aware Form Finding: A Combined Quasi-Reciprocal Timber and Discontinuous Post-Tensioned Concrete Structure." In *ACADIA 2014 Design Agency Proceedings: Proceedings of the 34th Annual Conference of the Association for Computer Aided Design in Architecture, October 23-25, 2014, Los Angeles, California*, edited by David Gerber, Alvin Huang, and Jose Sanchez, 375–84. Toronto, Ontario: Riverside Architectural Press, 2014.

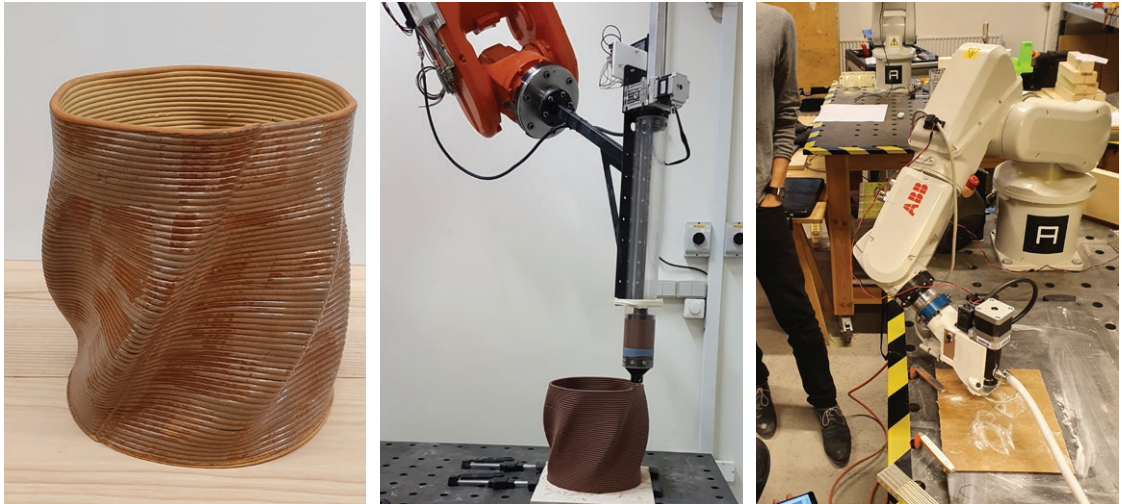


Figure 2.5.18 - Ceramic artifact as given to students; Figure 2.5.19 - Printing the original artifact in a previous course taught by the present author; Figure 2.5.20 - Students' experimental setup;

artifact, a three armed concrete object [fig. 2.5.16], and also revealed aspects of its material composition and making. A few cracks in the artifact revealed that the object had internal reinforcement. The canted and indexed—with pencil—faces of the artifact revealed that the object was part of a larger assembly with the triangular object joined into a larger curved frame. Indications of casting revealed that the formwork was likely cut and folded out of a sheet material [fig. 2.5.14]. The group were quite successful in understanding the logic of a folded formwork, using the laser cutter to cut the formwork for a series of 1:2 plaster reproductions of the artifact. That the formwork was made with sheet material meant that more complex forms and assemblies could be made, with each form cut individually but with a reduced material investment, having been formed out of a sheet rather than, for example, milled out of a massive material.

The group given a clay artefact was very good at abstracting from the object to process. Early in the process, they were able to recognize the traces of a 3D printing technology on the artifact from the tell-tale layered striations. They could also speculate on the tool—including dimensions, and potential materials. The layering of the artifact revealed the volume of material that was extruded in each pass of the printing, while the texture and reddish colour of the clay suggested a terra cotta or stoneware clay.

This group benefited from an already existing tool—a porcelain extruder—which allowed them to test scale versions of their object. That this object needed them to work with an already existing tool reveals one of the considerations in working from estrangement; developing a new clay extrusion device for the robot in this time period would have been too much to ask from even highly skilled engineering

students, as would the expertise to program the robot from scratch. So, rather than leaving the whole process up to students, an analogous process is revealed to the group *after* they had arrived at a set of conclusions and drawn their first suggestion of the tool. Introducing them to the existing process after they had described the process from their own reconstruction of the artifact both allows them to go through the process of trying to understand the process for themselves, while still remaining within the bounds of safety and propriety appropriate to a learning environment.

While I could introduce the tool to them, I also refrained from telling them too much information. After they knew how the tool worked, they still needed to work through several considerations in 3D printing, discovering several aspects and challenges of the process for themselves. This resulted in a series of tests that unfolded—in a way that was new to them—aspects of the 3D printing process that are usually taken for granted. In describing the tool path for the robot, they were confronted with defining the various parameters of the process: the resolution of targets for the robot, the height between successive layers, material behaviour—overhang tolerance, slumping, wall thickness, openings—and overall geometry and aesthetic effects. In further permutations, the group also began to challenge the process, probing the limits of the parameters they had identified [fig. 2.5.17]. The results of the test not only revealed the possibilities and limitations in 3D printing for the group, they could also use the results to confirm their suspicions of the story. The group contended that the object came from a ventilation or heating system, pointing to several reasoned arguments including: the thermal qualities of clay, the hollow object, the suggestion of a vortex in the form, the history of ceramics in heating elements, and the possibility of introducing openings for air diffusion.

A last group was tasked with investigating wooden elements of a larger structure. They identified the pieces as a part of a wooden gridshell structure [fig. 2.5.21] making an association with other well known wooden gridshell constructions such as Frei Otto's Mannheim Multihalle (1975). While part of the group spent time understanding the principles of geodesic lines on a surface, and how they might be produced from straight elements, the rest of the group described a speculation of where this artifact may have come from. Their speculation arose from the qualities of the artifact, being lightweight and quite transparent, they believed that it suggested qualities that would be appropriate for a greenhouse. The initial speculation of a greenhouse led them to begin designing both the building from which the artifact came, but also developed a narrative around it. The project became a response to a

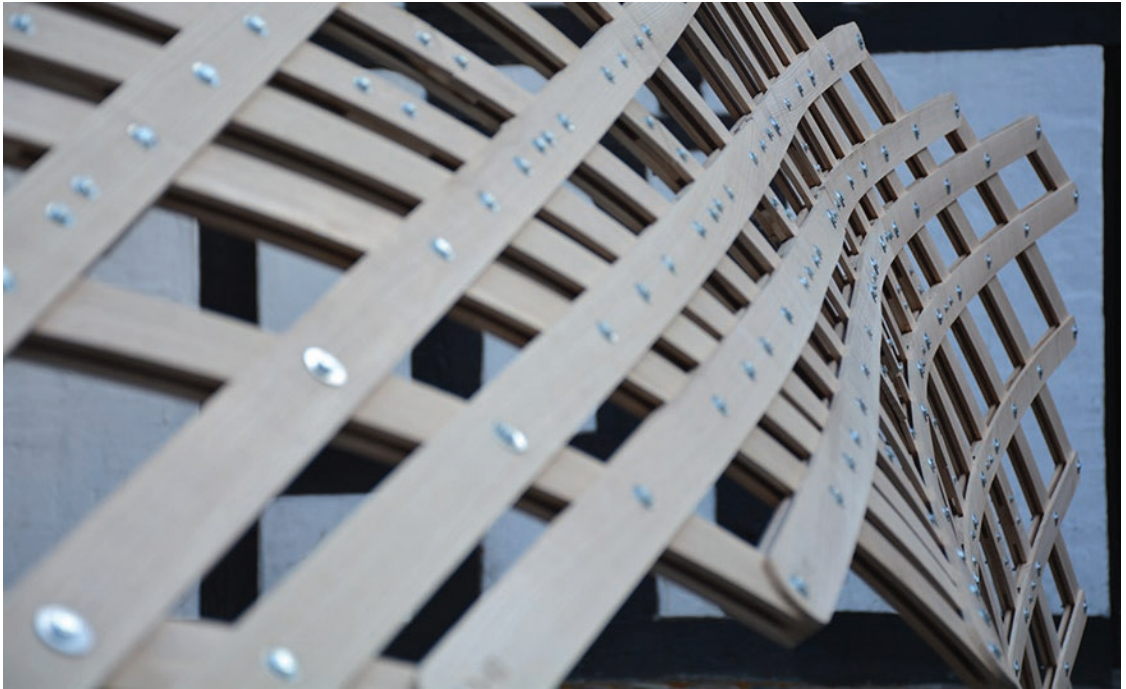


Figure 2.5.21 - Aarhus Geodesic Gridshell, designed and built by 2nd-year bachelor students in June, 2018, under the tutelage of the present author.

self-described ‘dystopia’—a world with toxic air, and these structures as greenhouses/lungs to provide oxygen for human population inside. The artifact’s materiality is as a result of plants harvested from within the lung [fig. 2.5.22,23].

While the group working with the wooden gridshell was most successful in describing a speculative context for their artifact, not every group achieved this level of speculation. On a basic level, each group was able to understand the material and technology and to replicate their artifact, along with a speculation on a larger assembly. However, the object of the course was not only to teach students about specific digital processes, but rather to enable them to ask questions about digital tools. During the course of the project, I acted as a model for how such interrogation may occur by asking questions with the group both with regard to the individual artifact but also in contextualizing the artifact in relation to the presumed ambitions of the artifact’s designer. Some questions were there to lead students to consider aspects of the artifact’s construction—pointing out the trace of formwork on the concrete, or the striations of the 3D printed ceramic, or even how seeming ‘errors’ might suggest something otherwise unseen; for example, the cracks in the concrete artifact made it known that the piece had internal, unseen, steel reinforcement. As well as interrogating the artifact itself, these occasions also allowed the discussion of the unique qualities or characteristics of the piece suggested something of its ‘science fictionality’ or ‘worlding’; we could discuss how such qualities as lightness or

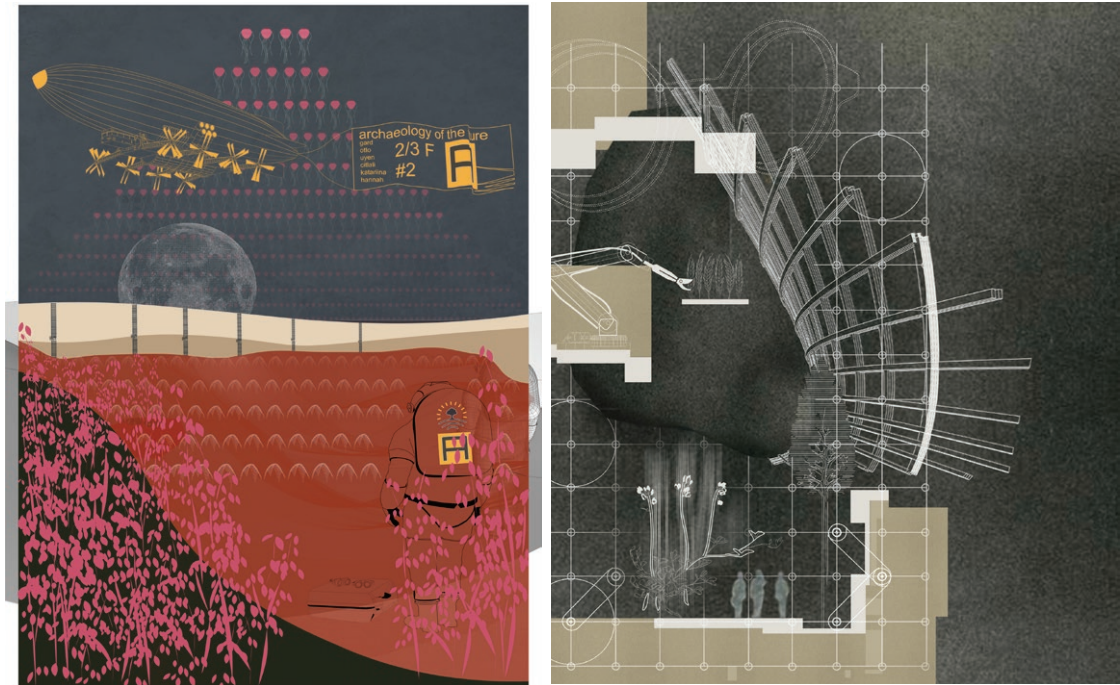


Figure 2.5.22, 2.5.23 - Speculative proposal for “a lung for the unyoung”

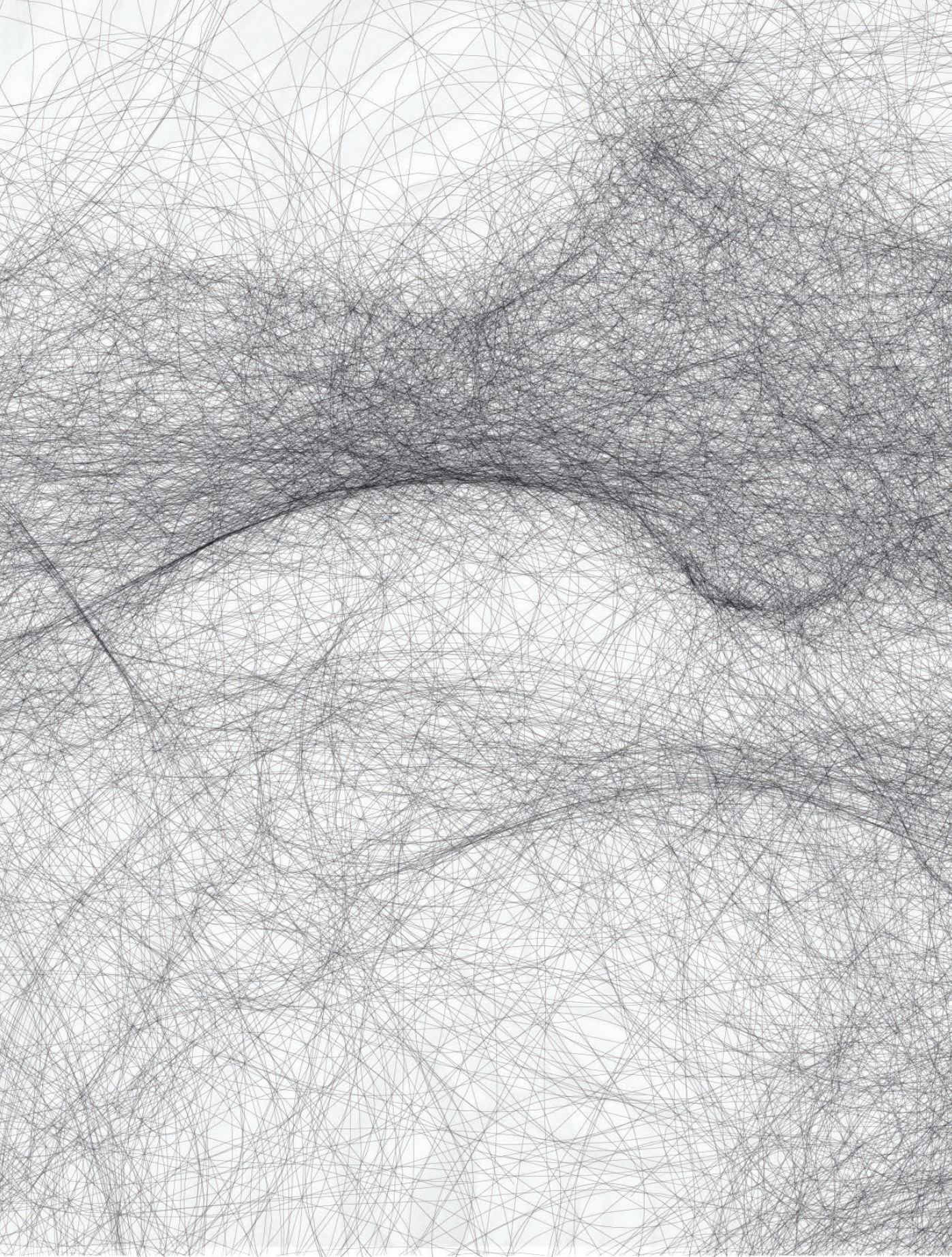
solidity, permanence or ephemerality, or intentions with regard to performance or sustainability might be encoded in the artefact, and thus achieved through the means of the various material and fabrication technologies.

Given the time available for the course, there was very little space for movement between the demands of technical pedagogy—questions of how—and an investigation of a broader cultural implications of a certain choice in material, fabrication technology—questions of why. That being said, there were tantalizing glimpses of how a longer-term course along the same lines might illuminate how a material or technical process would be implicated alongside socio-economic or political agendas of a project. While all groups made a speculation on the source of the artifact, a few of the speculations are notable: The group working with the bronze artefact speculated that the choice of material suggested intentions of heaviness and permanence, while the delicacy of the object’s expression and patina suggested care and perhaps a ritual use. The group working with clay, in spite of not developing their speculation as a ‘story,’ developed on the initial construction of their artifact to investigate possible evolutions of the process towards a potential future air-circulation system. The group working with the wooden gridshell could ascertain that the artifact suggests a kind of lightness or ephemerality, which in turn reveals the intention for material efficiency or performance, as well as possibility of light transmission.

Following Darko Suvin's discussion of the didactic quality of estrangement, this project intended to ask how such estrangement might be produced from a physical artifact, and also how it might be directed towards architectural learning in technology. In the 'fiction' of the project, the artifact is the 'novum,' and while the estrangement arose partially from the science-fictional premise, it arose most directly and intentionally in the space between the artifact and the students' knowledge. In the case of this project, the pedagogy did not aim at remediating the estrangement, but at engaging the process of the student's own naturalization of the technology on their own terms, rather than in terms defined by normative didactics. That is to say, the project aimed at challenging the transmission model of education so commonly found in technical practices, and substituting it with a model where technology becomes discursive, and where different students might find their own way into learning about it.

A second, allied aim of the project, was to challenge the dominant narratives of what architectural technology is and what it might be used for, especially as students take up a practice in such technology. In *Metamorphosis of Science Fiction*, Suvin argues that seeing SF purely as extrapolation of contemporary scientific trends merely reproduces the contemporary predilections, or biases, even lacunae within that practice, limiting the imagination of technical possibilities within the horizon of given attitudes and practices.¹¹ However, in approaching the technology without that knowledge of the given might reveal students' agency inside architectural technology; rather than a technical process that is procedural and fixed, they might see a process that is mutable and open to intervention, depending on how they choose to deploy these capacities within an architectural project—in a word, 'science fictioning' the process by revealing and amplifying their authorship within the territory of architectural technology. The aim was not to impose any specific agenda, but rather to see how, when students' chose such an agenda for themselves as they would within their studio project., and technology and materiality would not be innocent within the choices they make. Rather than risking the closure inherent in representing the field of digital design as a fixed totality, this experiment's ambition is to find a space for a kind of cognitive mapping of the possible in the minds of student, an opening towards potentiality within technology and how it is used within architecture.

11 Darko Suvin, *Metamorphoses of Science Fiction: On the Poetics and History of a Literary Genre*, ed. Gerry Canavan, *Ralahine Utopian Studies*, volume 18 (Oxford: Peter Lang, 2016), 41.





2.6 Parasite

Figure 2.6.D - Lucia Garcia de la Peña, Brauillon 06

Parasite is the theme for the semester project in master's Studio 2B for the spring of 2020. During this semester, I joined the teaching team of Bob Trempe and Claudia Carbone, continuing a year-long teaching program entitled "Of Prosthetics and Parasites." Although the semester theme proceeded from the previous semester, we developed this semester assignment together, in one of many examples throughout this project in which the studio-to-come complicates authorship and works towards collaboration. I joined an existing teaching team, filling in a space where someone left for another institution. However, generous dialogues and collaboration with my co-tutors meant that, notwithstanding the other events of the spring of 2020, this experiment continued to satisfy the aims of all members of the teaching team as well as the learning goals of the students.¹

Within the context of the present project, this experiment asks students to become SF storytellers in imagining futures from their present-day observations of the city of Hamburg. We tuned the early stages of the project to look for often-overlooked energies or agencies in the city, and to make these agencies more present characters in a potential future city—in a SF parlance, we started the assignment by having students search for a novum which would produce its own consequent worlding. The architectural propositions that students make are in answer to that worlding, sometimes with their new agency as client, or sometimes with the agency inviting other urban configurations. The project proceeded over 4 phases, and I took a greater ownership over phases 3 and 4, which is where the science fictional storytelling becomes more pronounced.

Phase 1

In its most abstract terms, this semester the studio asked students to design 'parasites' for sites along the Elbe River in Hamburg. The semester project was broken up into 4 phases, each between 3-4 weeks long. In the first phase, we asked students to develop

1 As this studio took place during the spring of 2020, the switch to online teaching as a result of the Covid-19 epidemic necessitated some adjustments; The country of Denmark entered lockdown from 12. March, 2020, and for the remainder of the semester, all studio activities including meetings, tutorials, and critiques took place over digital media. While this prohibited some of the material and fabrication-based explorations we originally intended, it also opened new avenues for development and representation.

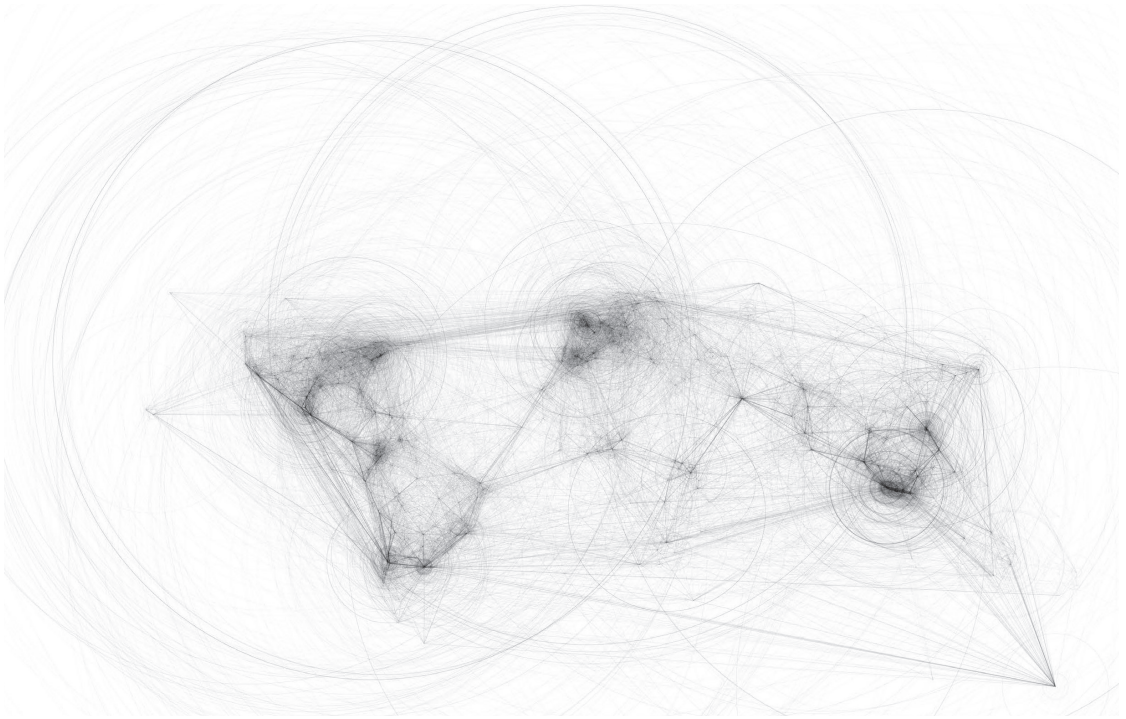


Figure 2.6.1 - Jesper Scheel, Phase 1 Composite Logbook Drawing. In a more naive time, Jesper tracked the early English language information ecology around the emerging Covid-19 pandemic; specifically geo-tagged mentions of 'corona virus' on Twitter. Jesper's group mate during this period had recently returned from China, and had remarked upon the strange phenomenon of looking for information about the emerging pandemic from non-Chinese sources while inside China.

a drawing language appropriate to a “rhizomatic” condition, in combination with an introduction to the theoretical position informed by such texts as the introduction to Deleuze and Guattari’s *A Thousand Plateaus*² and Michel Serres’ *The Parasite*.³

Like many projects here, the device of multi-modal translation is used to help students to internalize quite complex material and develop their own authorial position. The point here is not strictly that the students fully understand the nuances of Deleuze and Guattari; the theoretical texts here are another elaborate strategy of (in)direction or mechanism of estrangement. In the manner of SF estrangement, these theoretical encounters are used to encourage a polyvocal engagement with the text, and an optical device to frame their own experience of the world. In a word, these theoretical texts are read as if they were science fictional. In order for them to learn how to engage with this estrangement, we asked them to translate the concepts described by the texts

2 Gilles Deleuze and Felix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia*, trans. Brian Massumi, 2 edition (Minneapolis: University of Minnesota Press, 1987).

3 Michel Serres, *The Parasite*, trans. Lawrence R. Schehr (Minneapolis: University of Minnesota Press, 2007).

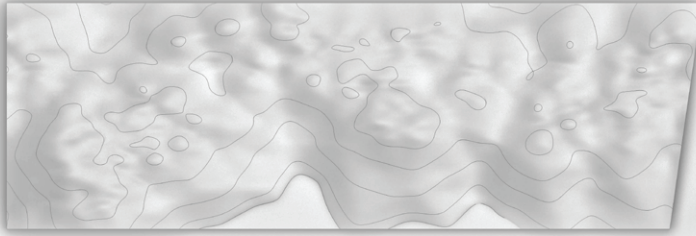


Figure 2.6.2 - Jens Toft Madsen and Naim Dokic, Topological representation of interactions between different 'desires' of different modes of traffic – on this site, vehicular, nautical, and pedestrian (human-powered).

and by filling it in from their own experience. That is, we asked them to describe a memory of a non-linear, relational, and unbounded—that is to say rhizomatic—event or condition to their partner, and then to draw their partner's event in turn. In a process of multi-modal translation, students translated the concept of the rhizome into words from their experience, and in turn, translated their partner's words into a drawing over several iterations. The students tried to draw such diverse events as the interaction between sheep and shepherd on a Macedonian hillside, or the ecology of information around the then-emerging coronavirus pandemic [fig. 2.6.1]. These drawings were submitted weekly, and developed iteratively using a 'logbook' delivery as a pedagogical device.⁴

Phase 2

The second phase started with a study trip to Hamburg, Germany, and introduced students to their sites along the Elbe river. They brought their exploration of rhizomatic condition to their "Elbe Zone," where they began to document and draw specific "energetic" currents on site, based on their observations and recordings during their visit. This is also intended as a dialogic process, where each team of 2 or 3 should first map a rhizome individually, but were then finally responsible for combining each individual map into a hybrid mapping of their site [fig. 2.6.2]. From a pedagogical perspective, this means that each student is responsible to articulate their position and to develop a shared authorship which respects each member's contribution.

In each case, owing to the unique polyvocal collaboration between students, we could be assured of a mapping which, while it represented the territory of the city, did so in a way which was opaque to other modes of analysis and representation.

⁴ One of the pedagogical devices that the studio has used for several semesters, and continued in this semester, is the "logbook entry"—a weekly submission which synthesizes their learning activity for the week. As well as maintaining a document of work in progress, this device ensured a steady pace and engagement through the semester, it recorded the students' development over the semester, and asked them to consider how even work in progress could still be produced for communication and dialogue.

Figure 2.6.3 - Wang Sizhe, Phase 3:
Meteorological machine. Mapping of diverse characteristics of water on the Elbe River as the impetus for a public bath.



This mapping recorded the “Elbe Zone” from the perspective of their unique, rhizomatic agencies, agencies not usually described in normative urban discourse. In order to contend with the difficulty of mapping these kinds of non-linear processes and interaction, we introduced computational methods to develop students’ capacities in dealing with such complexity; although it did not figure largely later in the project, the semester included a discussion of agent-based software tools and paradigms as a tool for mapping non-linear processes.

Phase 3

In China Miéville’s 2009 novel *The City and the City*, the twin cities of Beszel and Ul Qoma occupy the same geographical space, but, under the watchful eye of “the Breach,” citizens from each city are forbidden from noticing or interacting with the other, a condition so long lasting that each city has developed its own fashions, foods, technologies and architecture.⁵ While Miéville’s story is an allegorical meditation on the kinds of class and cultural segmentations that can take root in any city, students’ mapping of the Elbe zones revealed that the same city may be revealed to an attentive parasite in drastically different ways—that the city is *always* multiple.

Students’ mapping of their Elbe zone in the previous phase revealed the intersecting presence and interaction of at least two agencies, and in developing the map, they revealed an aspect of the real world that was previously hidden from a normative mode of site analysis. The unique interaction between two agencies revealed a new landscape or site condition, paralleling the process of worldbuilding or worlding, the authorial process of imagining new worlds in speculative fiction. Having revealed a landscape for the parasite to inhabit, this phase invented a parasite through a series of 3 week-long tasks. The first task was to develop a speculative technology, which can take advantage of the particular ‘energies’ that students encountered and documented. The second task was to inhabit the machinic apparatus—the human agency here cast as the parasite in the parasite. Finally, the third task is to elaborate on the intersection of these programs on the site, an assemblage of parasites and the energies of the city in the triad of city/parasite/human. Perhaps unconsciously evoking the mystery of the trinity, the task presents the figure of parasite both as a

5 China Miéville, *The City & The City* (London: Macmillan, 2009).

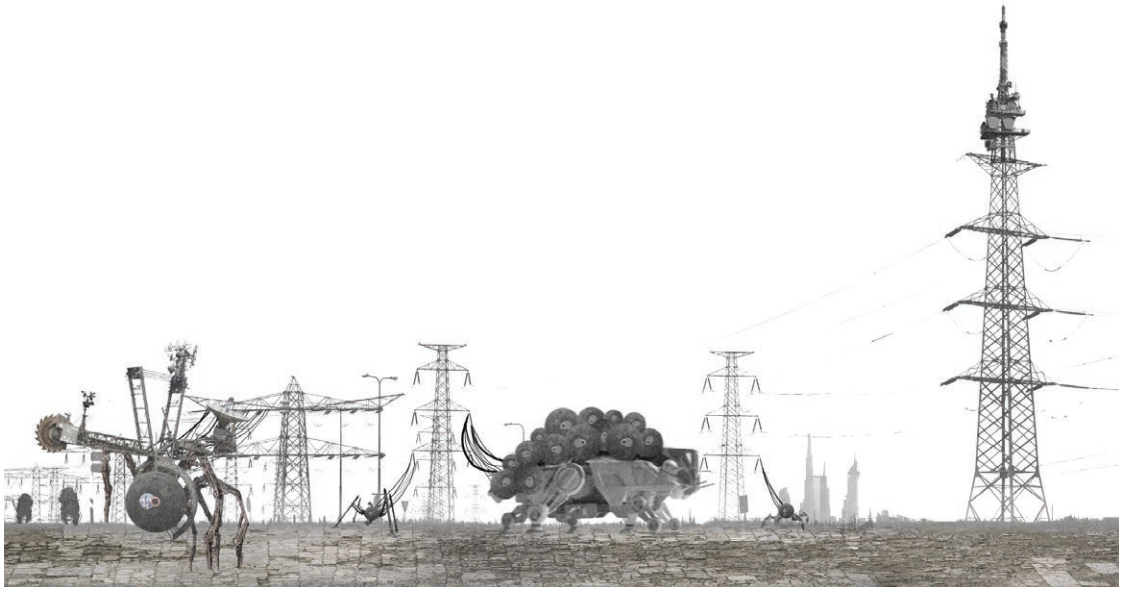


Figure 2.6.4 - Phase 3: Jesper Scheel, *The Scavengers Charging*.

single being, but also a being in relation within this triad. The unboundedness and provisionality of this mysterious being is captured and communicated in the quote from Gilbert Simondon included in the brief:

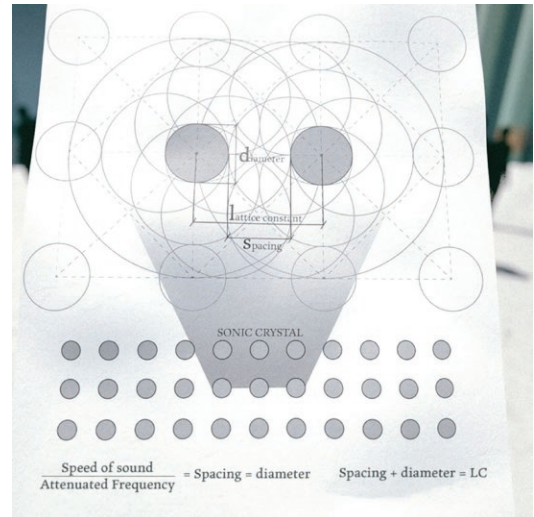
“A being does not possess a unity in its identity, which is that of the stable state within which no transformation is possible; rather, a being has a transductive unity, that is, it can pass out of phase with itself, it can—in any arena—break its own bounds in relation to its center. What one assumes to be a relation or a duality of principles is in fact the unfolding of the being, which is more than a unity and more than the identity;”⁶

In short, the first two phases of the project are setting the stage for the emergence of a relational *novum*, which is unfolded in the final two phases. As I discuss more explicitly in chapter 1.1, the *novum* here is a not about the newness of a specific technology, but rather how the emergence of any *novum* is co-implicated with its own worlding—by necessity, a *novum* recreates the world around it, including social, ecological, and affective relations. The students’ work in this phase begins to build upon the unique worlds implied by the relational mechanisms they had observed.

The paradigm for the last two phases were broadly defined for students as science fictional storytelling with the proviso that, rather than a synonym for unrealistic

6 Gilbert Simondon, “The Genesis of the Individual,” trans. Mark Cohen and Sanford Kwinter, in Jonathan Crary and Sanford Kwinter, eds. *Incorporations* (New York: Zone Books, 1992), 311–312.

Figure 2.6.5 - Jacob Theusen - Diagram of Sonic Crystal



or fantastic, SF was understood as a medium for speculative exploration of future possibilities, while inventing ways to respond to that future. The emphasis in the studio, therefore, was not about ‘guessing’ the future, but rather, that the students remain attentive to the virtualities or possible new ways of living lying dormant in the city which they had ‘uncovered’—this project aimed to make students aware in how futures are constructed from specific perspectives by having them construct that

perspective in the first phases of the project. At this stage, storytelling became the predominant vehicle for synthesizing the various demands of the project into a coherent program for our parasites. Wang Sizhe imagined that the flow of water and energy in the Elbe river might be revealed in a public bath [fig. 2.6.3], while Jesper Scheel imagined scavengers that fed off the material and energetic surplus of the city [fig. 2.6.4].

While other experiments in the context of the present project started with the impetus of specific works of SF as a place to imagine from, in this case, although there was a very direct invocation of SF themes, the project did not start from a specific future. Instead, we tutors suggested that they should imagine the years around 2050, and students brought their own experience and enthusiasm for SF storytelling. However, in our framing the project *as* SF, the students had the liberty to explore their own alternative social, cultural, ecological imaginings, culled from their own experience of the world, and from the worldbuilding they had already accomplished in the first phases of the project. The ambition behind this was first to admit that neither I, nor other tutors, nor students, can know the future, and second, to empower the student as author, or authority—that is, emphasizing their agency in defining the future. That is to say, this was an attempt to make a conversation in which to talk about the future as a space of possibility, rather than starting from any specific future imagination—a project of probing rather than prediction. After all, as Suvin writes, “...SF will be the more significant and truly relevant the more clearly it eschews final solutions...”⁷ Casting the students as the author(-ity) also means the tutor needs to become comfortable with their own not-knowing in relation to the students knowledge of their worlding. In acknowledging that I cannot hope to

7 Darko Suvin, *Metamorphoses of Science Fiction: On the Poetics and History of a Literary Genre*, ed. Gerry Canavan, *Ralahine Utopian Studies*, volume 18 (Oxford: Peter Lang, 2016), 100.



Figure 2.6.6, 2.6.7 - Jacob Thuesen - *Temple of Tritonalism Exterior, Interior*

know the future, I also want to acknowledge that this kind of unknowing might be productive in creating the space for mutual exploration between student and tutor, allowing the pedagogical space to be a space of co-creation, inviting a more diverse discourse about hope, desire, and anxiety for the future.

Phase 4

The work produced in the final phase of the experiment covers a wide range, but in each case, the assignment is for students to develop their own program and consequent architecture for their imagined future parasite. Much like a work of classical SF, Jacob Thuesen's *Temple of Tritonalism* extrapolates from an existing technology to elaborate a potential building type for a new religion or wellness regime in the city of Hamburg—the boundary here between religion and wellness regime is vague in a satisfyingly cynical way. The sonic crystal is a real technology which can selectively attenuate specific sound frequency ranges [fig. 2.6.5].⁸ Thuesen organized and composed a series of these devices to produce different effects of dissonance and harmony in the procession of a 'healing' ritual. The tripteral plan necessitated by the sonic crystal technology means it contains resonances with the plan of ancient Greek temples, especially when organized as an arcade—an association reinforced by layering and staggering these devices, although the final proportions of the plans were worked out from the mathematical proportions needed to produce specific harmonies. As a device that mediates and tunes the sound and rhythms of the city,

8 Arpan Gupta, 'A Review on Sonic Crystal, Its Applications and Numerical Analysis Techniques', *Acoustical Physics* 60, no. 2 (March 2014): 223–34, <https://doi.org/10.1134/S1063771014020080>.



2.6.8 - Jacob Theusen - Temple of Tritonalism Exterior Arcade



Figure 2.6.9 - Jesper Scheel - *Pod City Hamburg*; 2.6.10 - *Scavenger's Pod Interior*

it is a novel use of a geometric principle as an architectural feature, in a way a limited technological novum, the fantastical use of which also produces a limited, but novel, relational mechanism and social program.

On the other hand, Jesper Scheel's project is quite a classical dystopia, animated by a kind of militant pessimism. Following Moylan's definition of a critical dystopia,⁹ the project's degenerate utopian setting is revealed through oppositional perspective of one of that society's discontents, in a way which suggest a non-closure of that dystopian horizon. The project explores a future Hamburg from the point of view of a visitor to the future "pod city" ruled by "The Citadel"—a kind of private governance for the city of Hamburg [fig. 2.6.9]. However, when the visitor's 'pod' glitches, a different city is revealed. In an echo of E.M. Forster's "The Machine Stops" (1909) and "The Matrix" (dir. The Wachowskis, 1999)—among many others—the citizens of "The Citadel" have been living with a digitally rendered construction of a well-cared-for Hamburg, while in reality, the city is in ruins. Our visitor meets the "Scavenger" subsisting on the material detritus of Hamburg, and the design exercise here is as a counter-narrative to totalitarian regime of "the Citadel."

Much of the oppositional potential of the project is contained within the intermediate collage [fig. 2.6.11], and in a perhaps unintentional rhetorical twist, the final images of the project reveal this oppositional agency through the device of a photorealistic rendering and the perspective of a camera eye rather than collage [fig. 2.6.10]. This digital approximation of photo-realism—produced by the rendering software—suggests the artificiality of this "Scavenger" figure of resistance, or perhaps signals

9 Tom Moylan, *Scraps of the Untainted Sky: Science Fiction, Utopia, Dystopia*, Cultural Studies Series (Boulder, Colo: Westview Press, 2000), 195.



2.6.11 - Jesper Scheel, *The Scavengers*

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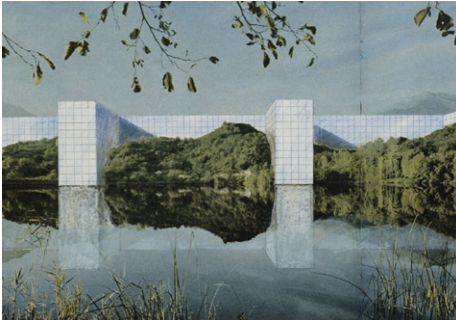
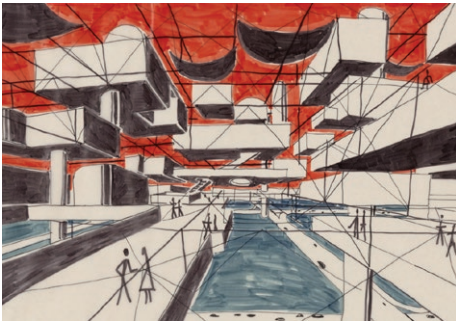


Figure 2.6.12 - Superstudio, *The Continuous Monument: On the River* (1969)

Figure 2.6.13 - Yona Friedman, *Spatial City Project* (1958-9)



the viewer's still-mediated experience of 'reality.' The ambiguity of this image suggests that the project remains cynical about the possibility of counternarratives to hegemonic order, and as a result, does not attempt to describe the kind of design culture teased within the intermediate stages of the project. I admit that I am intrigued by the prospect of a design culture emerging from the arm of a backhoe, pieces of a disassembled crane, and one vicious looking circular saw blade, but perhaps Jesper is right to preserve the contingency of what this oppositional architecture might be, and merely invite us into the driver's seat.

So far, both of these projects are novel premises from which to imagine architectural futures, and there is a level of dialectical complexity in each. As I discuss more in chapter 1.3, Carl Freedman, following Bakhtin, suggests that SF is a more properly dialogic (rather than monologic or authorial) space to imagine futures from. I hesitate to suggest that either one of these projects (at least explicitly) contains anything approaching a utopian novum—although each project produces sufficient estrangement that we cannot accuse either of being in thrall to the reigning ideology. That is, neither project rests in closure, and rather produces “fractional pre-illuminations” of other social, ecological, or affective relations than we currently observe, at the very least challenging the permanence of such relations in the present.¹⁰ While of course the texts had one single author in the end—without discounting the efforts of my fellow tutors—the narrative form offers space to hint at possibilities not explicitly articulated—it becomes “dialogical” in that it allows space to include information that is still tenuous, peripheral, that contains its own antithesis. While Scheel only offers a small glimpse into his fraught future Hamburg, the viewer becomes active in an imagination that is ongoing, and in which we are invited to partake.

Even in the extenuating circumstances of this experiment it must be said that both of these projects show an exceptional level of thoughtfulness, care, and ambition, and both reach a high level of storytelling with a concomitant commitment to exploring the architectural consequences of such narration. The level of this narrative

10 Carl Freedman, 'Science Fiction and Utopia: A Historico-Philosophical Overview', in *Learning from Other Worlds: Estrangement, Cognition, and the Politics of Science Fiction and Utopia*, ed. Patrick Parrinder (Durham: Duke University Press Books, 2001), 90.

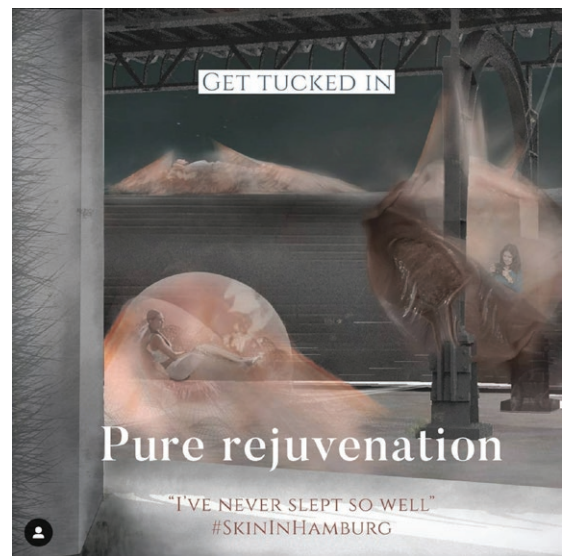
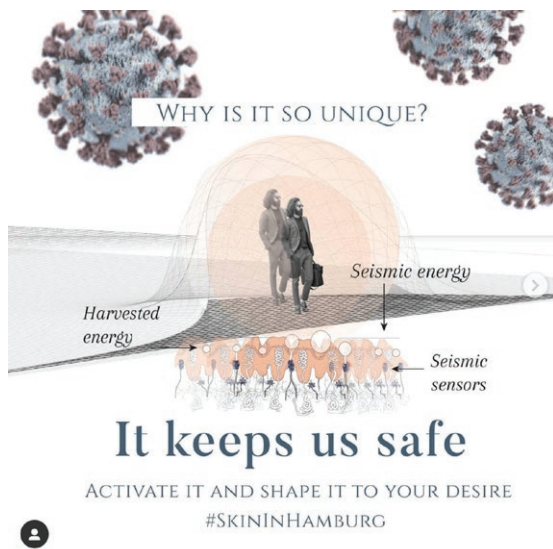


Figure 2.6.14, 2.6.15 - Hafdis Bragadottir, *Skin*

communication—in both cases through text and visual media—is sufficient that the reader can continue to dream into the projects. However, while one appreciates the level of geometric precision in the “Temple,” the imagined experience is linear. Because Theusen chose the point of view of a first-time visitor as narrator, and one wonders how this place might be experienced in longer, or habitual durations, especially as the sound of the city changed. The collages from the middle of Scheel’s project show the enticing possibility of a collage architecture made from the artifacts of an industrial past. As mentioned above, one is almost disappointed by the artifice of the later representations of the “scavenger.”

As well as the dialogical potentials of individual projects, other modes of generating dialogue happened in the way different students attacked similar themes in the studio. The project titled *Skin*, by Hafdis Bragadottir, presents architectural technology as an ambient condition—a continuous urban infrastructure grafted onto the existing fabric of the city. Prior imaginations of distributed architecture might imagine an indifferent infrastructure cutting uniformly across the world—as Superstudio’s *Continuous Monument* [fig. 2.6.12], or located above an existing city—as Yona Friedman’s vision for Paris [fig. 2.6.13]. In contrast, Bragadottir’s *Skin* would remain nearly invisible until deployed, whereupon it would expand to accommodate individual inhabitants, both as therapeutic and as prophylactic—it is imagined as protection against a future “Covid-28.” Once inhabited, the *Skin* would protect the inhabitant inside a moving bubble that would traverse the city around them, fully transparent when necessary, but also opaque and increasing in insulating, protective dimensions when the inhabitant would withdraw for an evening. The *Skin*’s imagined properties were also such as to tune the biochemical environment of inhabitants,



Figure 2.6.16, 2.6.17 - Lars Elseth, *The Porter Project*

providing serotonin during the day and melatonin at night while filtering light and air. Its prophylactic function was emphasized in the ironic conclusion of the project’s final tagline promising safe social relations; “Embrace it, it’s like touching a person” had special resonance in the first semester in lockdown due to Covid-19. The project does retain some ambiguity. Hafdis proposes the project stay nearly invisible, unless otherwise directed, in order to maintain one’s experience of the existing city, and so one wonders if the city around it would remain the same, or whether the skin would start growing to replace the existing city. The imaginative domain of the project well articulated, and there are some tantalizing hints that the city might not remain so unaffected—one image shows a train station now growing flesh-coloured cocoons [fig. 2.6.15], and it is this consideration of how it might reshape the city that invites the viewer in, but which could be developed further.

Lars Elseth’s *Porter Project* also imagines architectural technology that might produce an ambient condition. He imagines delivery robots that can also be assembled into temporary public spaces or events—somewhere between an Amazon warehouse or Uber Eats on one hand and the shanty chic of disused ports and popup markets on the other [fig. 2.6.16]. For Lars, the city is imagined from the perspective of his new technological infrastructure. While it is his intention that the Porters be configured and reconfigured by citizen involvement, the actual mechanics of how this would work are, unfortunately, under-developed. This is especially true of the potential conflict between private enterprise and public ownership of this infrastructure—a tension which is now lurking beneath the representations of the project, but which inspire the reader with its science fictional possibilities. That he has chosen to represent the project from the perspective of his Porters’ robot

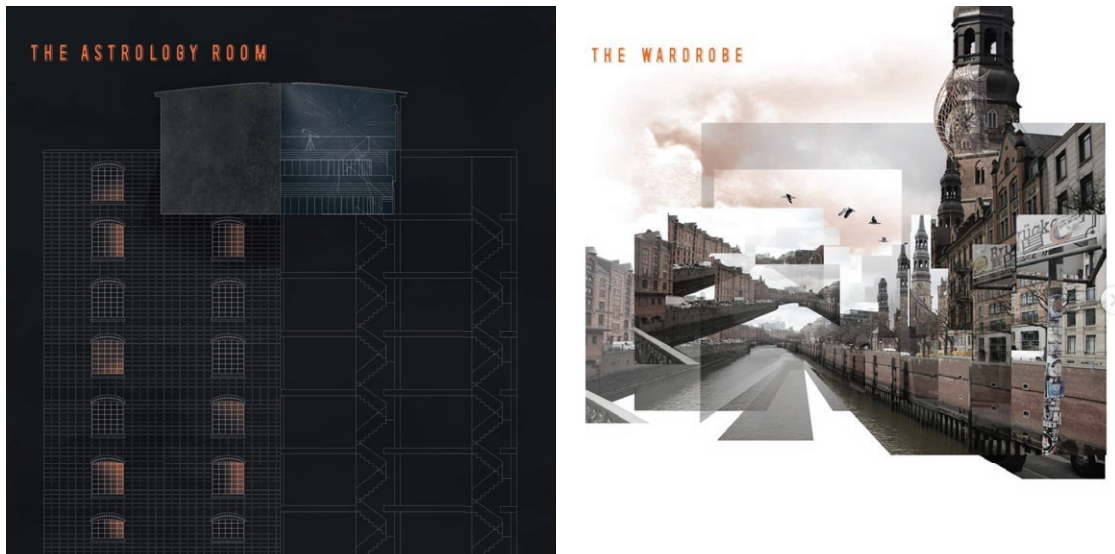


Figure 2.6.18 - Lucia Garcia De La Peña, *The Astrology Room*; 2.6.19 - *The Wardrobe*

vision only underscores this tension, as it is the techno-positivistic data landscape that is drawn in contrast to the messiness of the human-focused city that we would normally experience [fig. 2.6.17].

Lucia Garcia De La Peña's project sees the city of Hamburg remain much the same, only with one's engagement with it changing. Garcia's "The Life of Brian," shows how conditions and phenomena in the existing city might be tuned towards the temporary inhabitation of her elusive titular character. She reads Hamburg from the quotidian, situated persona of a nameless narrator who is searching for "Brian." As they follow the clues left behind by our mysterious phantasm, unique qualities emerge from the city we expect that we already know. Hamburg remains unchanged to the inattentive eye, but we are swept along as Garcia imagines parasitic encounters in the spatial periphery of the city, and suggests radical modes of habitation fragmented and distributed across the various territories of the already existing city [fig. 2.6.18,19, also see: fig. 1.3.1,2].

In addition to the SF premises that each student uncovered and departed from, it is also worth discussing how these projects were presented. This is especially relevant as, in the context of the Covid-19 lockdown and in order to best facilitate online reviews, students presented their work on Instagram leading to some innovations in representation. There was some innovative use of the platform's functionality, such as the use of several images in a single post, either to show related content or to inspect a drawing more closely. Wang Sizhe's "Dancing with Water: Meteorological Architecture," is a harbour bath with a strong emphasis on the phenomenological character of her project. In this case, it is the possible experiences of water, warm or cool, moving or still, vapour, liquid, or ice, that form the backbone of experiences at

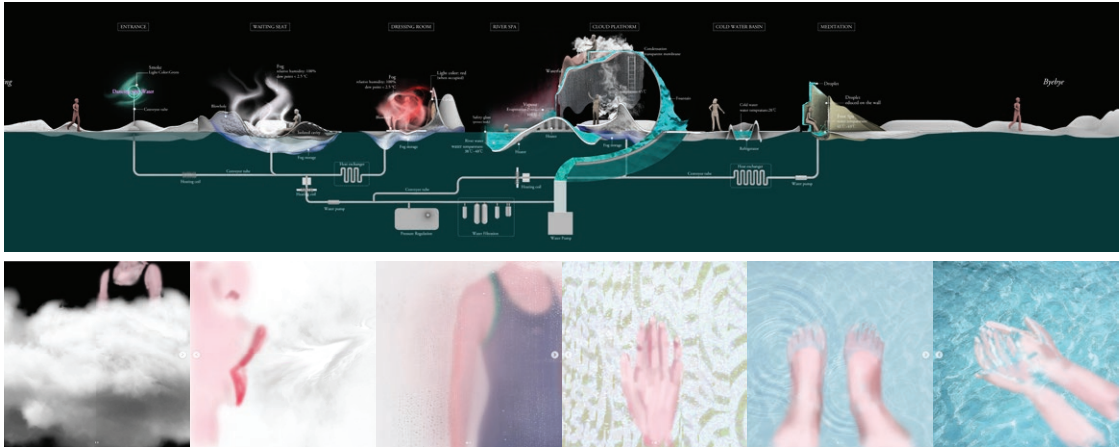


Figure 2.6.20 - Wang Sizhe, *Harbor Bath Section*; 2.6.21 - *Water Phenomena*

the bath, strongly emphasizing the experience over form [fig. 2.6.21]. Wang’s long section took advantage of Instagram’s feature of including several images in one post, allowing the viewer to scroll through the section [fig. 2.6.20].

As a platform, Instagram aims to record the immediate (instant) experience of a user, and many students’ presentations were composed as if being experienced and narrated from the perspective of the account holder, that is, as first-person narratives. Visually, this led to emphasis on perspectival or rendered image, rather than on orthogonal drawing (due to resolution), with one even taking the form of a comic book [fig 2.6.24-26]. As well as students innovative adaptation to visual media, Instagram became a narrative element, allowing a careful staging of information, or more often than not, a vehicle to describe the project both from a specific perspective, but also from a specific narrator’s voice—many stories played out in the captions, even absorbing the so-called ‘influencer’ culture from the platform. Like Jacob Theussen’s *Temple*, Kristopher Holmgaard Gade’s project is described from the point of view of an influencer who has been hired to describe a new remote-work or travel platform tightly integrated with an energy market [fig. 2.6.22-23]. Final presentations used these media as a layer of engagement with the projects, students could take on both a narrator’s and an authoritative voice in discussing the project.

So far, the work of the studio has revealed first, how SF gives us tools and vocabulary to talk about worlding the future and the consequences for imagining architecture, and second, how the narrative form gives students an impetus to imagine different futures more fully, synthesizing diverse and competing demands and challenging existing ideological determinations. This is especially relevant as many of the futures illustrated in these projects are not necessarily hopeful, or utopian. Following Moylan’s discussion of the “critical dystopia,” we might read an oppositional element in the dystopian speculation in the work of Scheel and Garcia, meaning that the

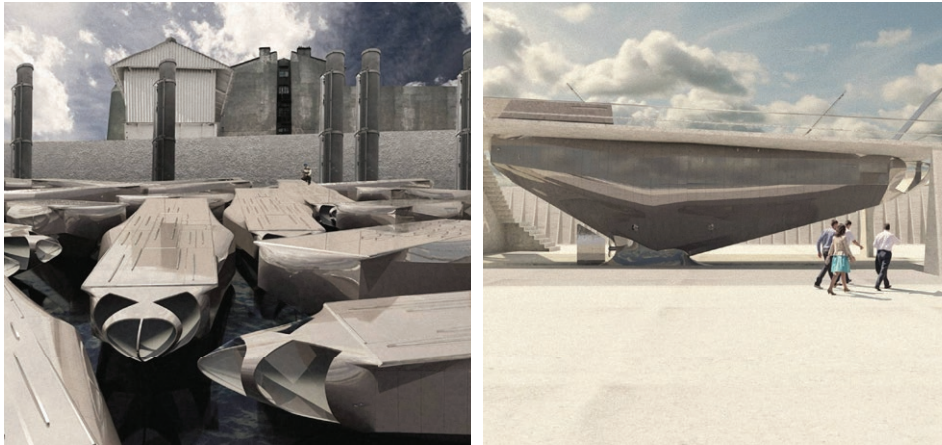


Figure 2.6.22, 2.6.23 - Kristoffer Holmgaard Gade

dystopia of the work is not presented as totalizing, and that other (architectural) agencies might be possible.¹¹ Some projects are more neutral, or even exacerbate contemporary conditions to approach something that the present-day viewer might read as dystopian—for example the increased traffic in Thuesen’s work.

Only one project took a point of view which would be read as something like ecotopian or hope-punk,¹² Ke Liu’s restaurant imagined multiple forms of multi-species coexistence in the intertidal zones of the Elbe river, specifically between humans and the ubiquitous seagulls in a series of charming drawings [fig 2.6.24-26]. In this context, if the futures the students can imagine are not strictly hopeful, how can we characterize the learning? That is, how does this type of project help students imagine architecture differently in the context of an estranged future? And how does it develop their capacity to talk about, think, and do architecture?

Along with the science fictionality of the work, which is unfolded in the discussion above, I would like to suggest that the success of the work might be measured by its capacity for estrangement. That is to say, as well as an impetus that comes from SF in order to challenge our preconceived notions about architecture, the estrangement an architectural project produces—its capacity to challenge or surprise—is a marker of critical engagement and thus a marker of a subject of student’s conscious deliberation.

11 Tom Moylan. *Scraps of the Untainted Sky: Science Fiction, Utopia, Dystopia*. Cultural Studies Series. Boulder, Colo: Westview Press, 2000.

12 First coined in a Tumblr post by author Alexandra Rowland in opposition to “Grimdark” tendencies she had observed in other speculative storytelling, “Hopepunk” looks for moments of hope, kindness, connection, and possibility, even in otherwise difficult or seemingly hopeless situations. <https://www.tumblr.com/blog/view/ariaste/163500138919>. Also see Rowland’s longer essay: Rowland, Alexandra. “One Atom of Justice, One Molecule of Mercy, and the Empire of Unsheathed Knives – Alexandra Rowland.” *Optimistic Indie Roleplaying* (blog), November 17, 2018. <https://festive.ninja/one-atom-of-justice-one-molecule-of-mercy-and-the-empire-of-unsheathed-knives-alexandra-rowland/>.

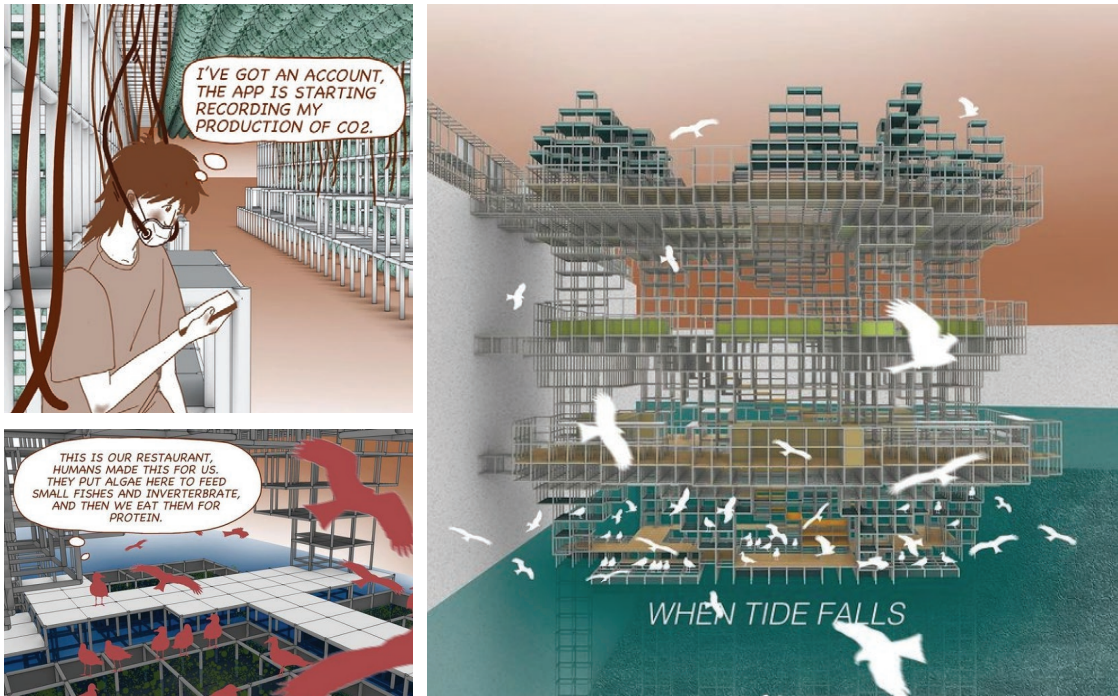


Figure 2.6.24-26 - Ke Liu, *Man-gull Restaurant*

Thus, rather than aiming solely at utopian speculation, these projects illustrate that works we might call dystopian can produce moments of learning and possibility. The estrangement produced by the work is activated and resolved in the world of the work also produces estrangement as object of discourse—as it challenges both the student’s and the viewer’s assumptions about what architecture is and what it could be. The success of the project is first how students are able to read and construct possibilities arising from the material realities of an existing city, and then how they are able to convincingly elaborate on the architectural consequences, in terms that are spatial, material, tectonic, affective, or even programmatic developments of already existing virtualities.

In this way, the technical novum of Thuesen’s temple—a structure composed largely using the principle of the sonic crystals—produces an estrangement which as much as it is an enticing fiction, might also have us reconsider the porosity or permeability of a wall, or perhaps the ways in which sound and vibration might more productively contribute to the experience of a building. We also see modes of estrangement that ask us to consider architecture as phenomenon or program, rather than material, both in the fragmented psychogeography of Garcia’s *Life of Brian*, and in Wang’s articulation of an architecture composed largely of water. Both challenge notions of permanence or solidity and replace them with contingency, even fluidity, a challenge similarly echoed in Bragadottir and Elseth’s schemes to imagine architecture as a

distributed infrastructure. The learning might perhaps be articulated in each project's capacity to work as estranging some already established category of received architectural knowledge—a knowledge often assimilated in earlier years of study, and in understanding the contingency of contemporary practice in order to be able to provoke it.



2.7 Materializing Collective Futures



Figure 2.7.0 - Karoline Bonde Larsen, Magnus Lynge Damgaard, Kasper Carlsen

Materializing Collective Futures is 2-week workshop for a bachelor unit, and like Future Archeology,¹ happened under the aegis of digital literacy courses for 2nd year bachelor students, where the intention is to develop skills and knowledge around digital design processes and fabrication methodologies.² I developed and taught this course together with Ricelli Laplace, in a collaboration between our respective research agendas. The core of this project was what we called the “article of hope”—a vision for the site in 50 years’ time that is developed through collaboration with several stakeholders on the site. The project, however, starts in a place where students individually, together, and with other stakeholders develop their own individual authorship and authority with regard to the ‘storytelling’ of the project. The project concludes with a first gesture towards the article of hope in introducing a material system which can make a first move on the site, while at the same time leaving space for the continued development both of the project and also the community’s interest as it is recorded in the article of hope.

While other experiments as a part of this project have benefited greatly from collaboration with a host of peers, this project was a more intentional collaboration between my PhD research and the PhD research of Ricelli Laplace. In keeping with academic convention, I have written this chapter myself. But also in keeping with academic convention, I am compelled to cite the knowledge that has contributed to and developed within the project. In this sense, my collaborator and I have not each supplied our own research in an additive way; rather, the author of the experiment is not either of us individually, but it is both of us together. The parameters of this teaching experiment thus arose both from many informal discussions about how our individual projects could benefit, in a longer-term respect for each other’s research agenda and worldview, and finally in probing the speculative dimensions that emerge in our discussions. As Silvia Federici writes,³ more informal discussion or “gossip” has often been derided as idle talk—a derision often carrying misogynistic overtones; there may be a similar conceit with regard to academic value of such collaboration.

1 Ch. 2.5

2 This workshop is preceded by a 1-week introduction to Grasshopper, a parametric modeling plugin for Rhino 3D modeling software. While this liberated us from teaching the software specifically, it meant that our workshop was oriented towards instrumentalizing that type of software.

3 Silvia Federici, *Witches, Witch-Hunting, and Women* (Toronto, Ontario: Between the Lines, 2018).

However, much of the ‘gossip’ I shared with my collaborator was very beneficial in developing a more deeply knitted negotiation of a collective worldview and sense of common purpose within the experiment.

As H el ene Frichot, Katja Grillner and Julieanna Preston write, the practice that emerges from the discussions around the kitchen table—about finding time to speak and share with one another is an example of architectural research done differently.⁴ This is true both of how we staged the experiment before it started, within the project itself in developing the space for discussion and collaboration with other stakeholders, and afterwards, making sense out of what had transpired. The knowledge practices in this project are therefore as much about negotiation as analytical or positivistic knowledge, listening to one another and seeing from diverse perspectives. Even in this brief overview of the background of the experiment, I hope there is an intimation of the architect-to-come, or perhaps of an educator-to-come within this collaboration. As this chapter turns upon ‘authorship,’ the author of this experiment is the first hybrid we encounter in my narration, a monster with at least 2 heads staking the first claim to authority in the project.

There are many parallel modes of science fictioning within this project. Developing the image of the future is aligned with the science fictional practice of worldbuilding—an imagination of the future making the project its own kind of science fiction. The structure of the assignments also leveraged modes of estrangement in order to challenge and provoke the imaginations of the future. As well as the futures explored in the specific circumstances of each group’s project, this experiment also works through different conceptions of the figure of the architect, and asks students to define their practice in relation to their own and others’ worldviews.

Project Context

When the Aarhus School of Architecture moved into a new building in the Autumn of 2021, it entered a contested and rapidly gentrifying neighborhood. Godsbanen area is a post-industrial site that was a wetland before being developed into the now disused freight rail terminus for the city of Aarhus. As the school prepared to move, we took the opportunity to propose an architectural intervention mediating between the new institution and the stakeholders already on site. After the closure of the

4 H el ene Frichot, Katja Grillner, and Julieanna Preston, “Feminist Practices: Writing Around the Kitchen Table,” in *Feminist Futures of Spatial Practice: Materialisms, Activisms, Dialogues, Pedagogies, Projections*, ed. Meike Schalk, Th er ese Kristiansson, and Ramia Maz e (Baunach: AADR, Art Architecture Design Research : imprint of Spurbuchverlag, 2017).



Figure 2.7.1 - Aarhus School of Architecture with Institut for (X) in the foreground

rail terminal in the late 1990s, the creative community called the Institut for (X) occupied several of the buildings on the site from as early as 2000. In 2009, they were given temporary permission from Aarhus municipality to remain on the site, but are increasingly being squeezed by development pressures from all sides.

Because the original squatters' emphasis on making and community had produced a shared space devoted to cultural production, the municipality has converted the former terminal into the Godsbanen "Cultural Production Center," including meeting and exhibition spaces, as well as workshop facilities for the citizens of the city.⁵ However, much of the surrounding land is now being developed into offices and housing. After having their temporary tenure period extended in 2018, the Institut for (X) is allowed to occupy a small portion of their previous site until at least 2026. In the previous decades, however, they have become a visible fixture in the city's cultural community, currently hosting several hundred members in over 100 small businesses, creative enterprises, and community organizations.⁶ The members of (X) comprise a diverse group including design firms, restaurants, a bicycle repair shop, a blacksmith, cultural non-profits—including some working with minority ethnic or queer voices, and arts and music collectives. There is also a general consensus that the Institut for (X) provides a vehicle and critical mass for cultural production and experimentation that could not otherwise exist in Aarhus, and, as outlined in a report from Gehl Architects, is therefore valued by not only the members, but the thousands of visitors who frequent the community.⁷

As well as the human inhabitants, the site is also home to a collection of plant species that are not otherwise found on the Jutland peninsula. The industrial past of the site has left a "nutrient poor" post-human landscape condition behind—harder, drier, and with a greater temperature fluctuation than it would otherwise have been. As a former terminus in a rail network that criss-crosses the continent, the site now hosts

5 "Godsbanen," Godsbanen, accessed April 14, 2021, <https://godsbanen.dk/english/>.

6 "Institut for (X) | Culture, Business & Education at Godsbanen, Aarhus," Institut for X, accessed April 14, 2021, <https://institutforx.dk/>.

7 Louise Kielgast, "Innovative erhvervsmiljøer i Aarhus," Gehl Report (Gehl Architects, Aarhus Kommune, 2017), <https://institutforx.dk/uploads/2019/08/Innovative-erhvervsmiljoer-i-Aarhus-Gehl-Final-November2017.pdf>.



Figure 2.7.2 - Aarhus School of Architecture adjacent to Institut for (X), with project area highlighted

a unique ecology of plant organisms from across Europe. A “landscape laboratory” hosted by the Aarhus School of Architecture has the ambition to maintain this unique post-human, anthropogenic ecology as this new urban quarter develops.⁸

This neighbourhood and community which the Aarhus School of Architecture is joining is the case for Ricelli Laplace’s practice-based research. Their project develops participatory processes to involve all community institutions as the site develops, and looks for ways to cultivate shared spaces and senses of ownership and belonging for all inhabitants in the community. The name of Laplace’s project is “Responsible Architecture,” and emphasizes how such collective investment and a sense of ownership can emerge from aligning and developing a collective ecological worldview—a responsive worldview—as the basis for architectural design.⁹ Their research investigates how giving time for stakeholders to articulate their deeply held values can cultivate pro-environmental behaviour in the long-term care and well-being of both human and non-human stakeholders on this site.

Rather than a moralizing imperative, “responsible” in Laplace’s title implies the Latin verb *respondere*, and thus the project is about cultivating a capacity to respond—to be in conversation with others. Therefore, their project invites diverse stakeholders into conversation, reframing the job of the architect to one who mediates and negotiates in response to the collective dialogues between community members. Their project unfolds the different dimensions of responsibility on this site through a series of participatory design experiments with a diverse group of stakeholders in the Aarhus School of Architecture’s new neighborhood. The first workshop included architecture

8 “Vi vil bevare Godsbanens vilde arter,” *Arkitektskolen Aarhus* (blog), October 27, 2020, <https://aarch.dk/vi-vil-bevare-godsbanens-vilde-arter/>.

9 Ricelli Laplace, “Responsible Architecture: Participatory Learning for Sustainable Behaviour in Design” (PhD Dissertation, Aarhus, Denmark, Aarhus School of Architecture, 2023).

students, members of several community organizations, representatives from Aarhus municipality, the Institut for (X), and non-human¹⁰ stakeholders. The experiment described in this chapter is the second within the Responsible Architecture project.

My collaboration with Laplace meant I had to understand my own areas of ignorance, my own unknowing, and welcome development of ideas between the projects—in the carrier-bag metaphor of speculative practice I develop in chapter 1.3, this experiment is one where different practices meet one another and share from their respective carrier bag. It is a reminder that the teacher also only ever a becoming-teacher—speaking for myself, a becoming both in relation to the practice of teaching and in relation the discipline, a becoming in relation to what I do not yet know, and also what I hope to become. It is also a reminder that a PhD is process in education—that these are moments of learning with and from one another in co-creating together where sharing knowledge actively produces new research and new researchers.

The workshop proceeded through 3 phases: the first phase, “aligning futures,” explores the negotiation of shared and contested values between existing and new stakeholders on site. The second phase, “worlding futures,” asks participants to design an “article of hope” for the site 50 years in the future. This article defamiliarizes participants’ expectations for the future while still “staying with the trouble” in acknowledging potential challenges from climate and economic change.¹¹ The third phase, “Materializing Futures,” sets out possible responses and responsibilities in a series of design instigations intended as a first step towards the materialization of collective futures. In each phase, the course emphasized openness, complexity, and contingency as the future of the site is imagined with the ongoing participation of several stakeholders.

Rather than describing the course in its progression through the 3 phases, I will describe the course according to 3 concepts that drove the project and the methods to introduce and develop these concepts in pedagogy. These concepts are: authorship, storytelling, and translation. While these concepts roughly correspond to each phase, the effect is rather more accumulative than discrete; for example, authorship continued to be developed through all three phases of the experiment. Within the

10 Local flora and fauna were represented by specialist researchers.

11 This is one of several invocations of Haraway’s title in this project. What this means for architectural pedagogy is further developed in chapter 1.4. Donna J. Haraway, *Staying with the Trouble: Making Kin in the Chthulucene* (Durham: Duke University Press Books, 2016).

context of my PhD research, the two concepts of storytelling and translation were more developed before this experiment, although the present experiment surely added some more nuance to this discussion. However, the present experiment allowed me to develop the concept of authorship more deliberately, especially as it grew to accommodate a fluid and hybrid authorship that extended beyond the studio.

Authorship and Authority

Much of this experiment hinges upon questions of authorship and authority: what is an architect's authority in the project, and how do they exchange this for a shared authorship—that is, how do we invite others to tell the story with us? On a greater scale, who has the authority to 'write' the future? As I wrote in chapter 1.1, it can often seem as if the future comes to us as passive recipients, this experiment rejects this passivity in favour of looking for the ways that futures could be collectively defined.

On a different level, this project also asked who 'writes' the 'architect-to-come'? That is, in this experiment, as elsewhere, we argue that the figure of the architect is not static or pre-ordained, but rather constructed by its performance in discourse. This figure has historically been limited, and often defaults to a western, male subjectivity. However, this image limits who might fit the image of the architect, but also limits the discipline and the potential futures it might imagine. So this experiment makes the fluidity and hybridity of the figure of the author the first move for students to investigate, in understanding themselves, their place in relation to a group, a discipline, and to those who are implicated in the futures that architects imagine.

As I outlined above, the researchers of this experiment are the first hybrid author. We are not passive observers; we are not neutral and do not intend to be. Our development of the project meant that we had to align both the immediate aims of the experiment, but also the values that drove our respective practices—values including an ecological worldview, a commitment to social and environmental well-being, diversity and inclusion, and a desire for a continued re-evaluation of the discipline we find ourselves in. It was important that we remain transparent about these values through the workshop; these values surely found their way into the way we structured the course, and as we presented lectures on our own research, we were more explicit of why we were making the arguments we were. However, after the organization of the course, the primary exercise of our authority is in how we facilitated and set up the framework for discussion between other stakeholders—setting the stage for other authors to emerge.

In the first phase, students were divided into 5 groups, each with 3 or 4 members. Their first task was for each student to try to articulate the deeply held values that inform their own individual personal and professional lives, understanding their practice as based on values that arise from their life experiences and passions. They answered a series of questions inside logbooks¹² that we provided for them: what is responsible architecture for me? What are my personal values? How can I translate my values to my architectural practice? After answering these questions for themselves, they shared their answers with their group.

The motivation for students to be able to articulate their own motivations and values arises from several sources. For example, as I write in chapter 1.4, the paradigm of critical pedagogy argues that empowering students' subjectivity allows them to see themselves as political agencies, as an individual part of an active political body and a part of the process of defining their own education.¹³ This exercise allowed students to articulate intrinsic values that can drive their practice, and to be aware of which motivations come from outside and which from themselves. This exercise also helped students to identify for themselves where they can activate their values and have an impact on the world, both as individuals and as professionals. This can help students in the negotiation process with other stakeholders, as well as to understand other stakeholder's values and motivations. This process can therefore enhance student's sense of responsibility—their capacity to respond to the intersecting issues within the project. From students' logbooks, we could note that their values are already strongly influenced by sustainability and community—both of which are mentioned by a majority of the class—as well as an appreciation of history and cultural context.

After asking students to consider how an image of their nascent architectural practice might emerge from personal values and not disciplinary norms, we look at how they can begin to collaborate. After sharing their values with one another in their respective groups, they should then look to develop a common identity by agreeing on a name for their group. This self-naming exercise is important in establishing shared group identity, but also in negotiating how one's individual values intersect with other people's values. Some names were rather directly taken as synthesis of

12 These logbooks are an important part of Laplace's research, as they are able to track students' values, motivations, and attitudes through the various workshops. While these did not always form a part of my own research methodology—Parasite Studio also includes a visual logbook component—these did provide a useful record of student learning in this experiment.

13 Paulo Freire, *Pedagogy of the Oppressed*, 50th Anniversary Edition (New York: Bloomsbury Academic, 2018).

group professional aspirations, for example, the “Ethical Environmentalists,” or “Contextual Pragmatism.” Other groups were based on a more abstract set of shared values, such as “Con-Pro-Con,” from the Latin *confido*, *probitatis*, and *consideration* (Trust, Honesty, Consideration).

The personal values and group-naming exercises took up the first morning of the workshop, after which we asked the groups to situate themselves in relation to the ongoing Responsible Architecture project. We assigned each group a value from the 5 values that stakeholders identified in Laplace’s first workshop. These earlier values were grouped into 5 themes: Architecture of Equality, Tangible Architecture, Lasting Architecture, Architecture of Togetherness, and Architecture of Common Ground. Each value produces a perspective on the practice and product of architecture, however they are not intended as an exhaustive taxonomy of a responsible architecture, nor as an explicit directive. Rather, these values function more as an “optical device” —following Donna Haraway, an instigation to thought or a way to see differently than the perspective afforded by one’s own situation.¹⁴ The assigned values were thus not to overrule the groups’ self-articulated value; they were a strategy to provoke an understanding of their practice in relation to the work that had previously gone into the project in prior participatory processes with other stakeholders on site.

After naming themselves, we introduced the students to the other stakeholders participating in the workshop. While the constraints of the Covid-19 pandemic meant all interaction happened online, we had participation from 4 groups: The institution of the Aarhus School of Architecture was represented by Prorector Kristine Leth Juul and Head of Exhibitions Karen Kjaergaard. The Institut for (X) was represented by Mads Peter Laursen¹⁵ and students were encouraged to visit the site in accordance with Covid-19 restrictions, where they could interact with other community members on a safe, informal basis. The non-human occupants on site were represented by Stefan Darlan Boris, one of the researchers who was actively involved in describing and cataloguing the plant species and ecology on site. Students were also encouraged to think of themselves as stakeholders and active in the collective future of their school’s surroundings, speaking both for themselves and for future generations of students. The stakeholders participated in various modes:

14 Donna Haraway, “The Promises of Monsters: A Regenerative Politics for Inappropriate/d Others,” in *Cultural Studies*, ed. Lawrence Grossberg, Cary Nelson, and Paula A. Treichler (New York: Routledge, 1992), 295–336.

15 Laursen is the day-to-day manager and self-described “Many Hat Man” at (X) (personal correspondence, 16. April, 2021).

formal presentations, shared and one-on-one discussions, and informal conversations and visits on site. The continued dialogue with the stakeholders was invaluable in steering the various phases of the project. From student's logbooks:

“The project was also iterative since we talked with the stakeholders so often, and it did in fact shape the project.”

And:

“The stakeholders had some valid points on what would work and what should be changed in order to get the most out of the programming of the space.”

Students were able to approach these communities primed with their assigned value, as a starting point for building a shared worldview. The value ‘lasting architecture,’ for example, came to mean something very different than durability. As this group developed their shared values with the stakeholders, they came to understand that adaptability and the capacity to evolve in response to the community were more important to ‘lasting architecture’ than a lasting materiality. Therefore, they included ‘lasting relationships’ as a main goal of a lasting architecture, and explored how spaces could be designed in a way to ensure longer term relationships could develop between people and with non-human actors on the site.

Throughout the workshop, we also challenged students to think of the potential and limitations of different roles of the architect. While there is no chance that we could represent all potential aspects of the discipline in this workshop, we asked students to negotiate among their group and choose one role: the architect as builder, as mediator, or as storyteller. Each role had unique responsibilities in the different phases. The storyteller would be responsible for maintaining the link between agreed shared values, the article of hope and the final design. The mediator for attending to and bridging the demands of different stakeholders, and the builder for the material and technical expression of the project. Each of these ‘characters’ needed to look at the project from a specific perspective, perspectives which occasionally came into conflict. In this sense, we illustrate there is not a single role for the architect, that the figure is constructed in relation to a variety of factors. Therefore, we ask students to choose how they might situate themselves in relation to the multifaceted discipline throughout the project, with all the difficulties and opportunities that this choice represents and the implication that they stake a position in relation to their future practice as well.

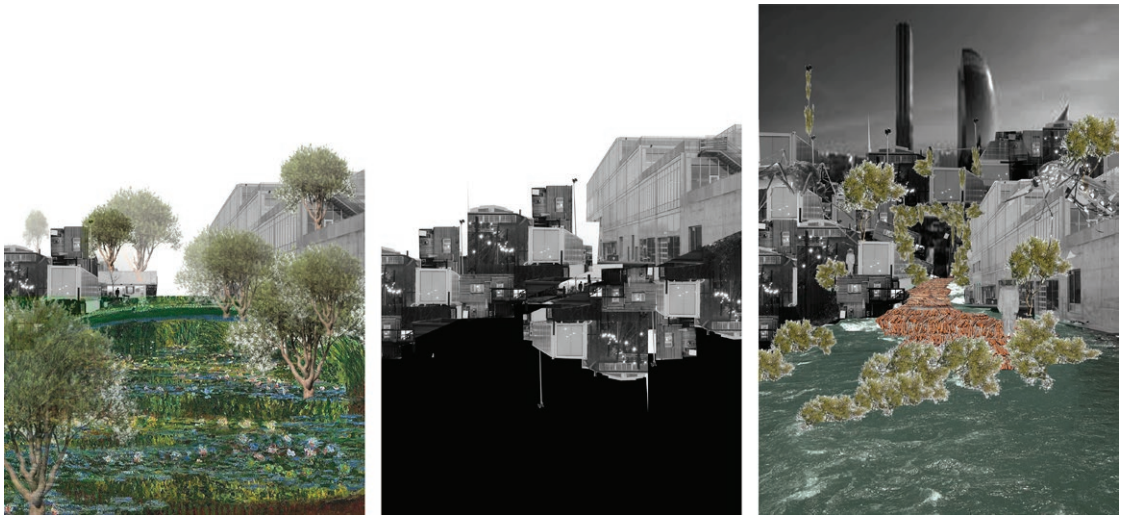


Figure 2.7.3 - intermediate collages for discussions with stakeholders in developing Article of Hope, from “Con-Pro-Con” - Karoline Bonde Larsen, Magnus Lynge Damgaard, Kasper Carlsen

Storytelling

In the next phases, we tested methods that helped us translate the collective values from phase 1 to architectural design. In the second phase, we investigated collective ambitions and differences by setting a frame to negotiate longer-term ambitions rather than short term instrumental futures. These were captured in what we called the ‘article of hope,’ a utopian document which collects stakeholders’ hopes and worldviews, but an articulation that is always aware that utopia is a practice, open to possibilities, not a declaration of finality. As a part of this phase, I introduced students to different discourses around futurism.¹⁶

The main exercise during the second phase is developing what we called an ‘article of hope,’ a vision of the site as it could be in 50 years’ time. The descriptor ‘article’ is used to avoid delimiting the range of expression—it can be any articulation that contains elements of the future that stakeholders inhabit together—drawings, sketches, diagrams, collages, and texts were all used. This article of hope relies on modes of expression that are explicitly science fictional, and like other works in that generic tendency, makes a future vision become visible and thinkable to others. The articles that were produced in this phase emerged over the many exchanges that took place between stakeholders or authors involved as the student groups engaged with other authors regularly. While the constraints of the ongoing Covid-19 related lockdown meant that participants could not draw together, digital communications made collaboration even more convenient, as groups leveraged different platforms to speak with one another and to share images and ideas in progress.

¹⁶ These are substantially covered in chapter 1.1, especially with regard to the diverse possibilities arising from global futurisms.



Figure 2.7.4 - *Intermediate Article of Hope* from “Contextual Pragmatism,” Anne Kristine Haagen, Khoshal Arghestani, Mathias Vang Christensen

As one strategy to balance the competing demands from different stakeholders, one group produced an intensified scenario for each stakeholder individually. These intermediate images show the site variously as: an Edenic paradise where non-human stakeholders take over, a proliferation of the Institut for (X)’s characteristic container and shed architecture, and as a dystopian inversion of the first two images [fig. 2.7.3]. The triptych formed a point of discussion for all stakeholders, imagining how their ambitions might support or conflict with one another. The articles of hope developed from this strategy articulated the tensions between each stakeholder, but the exercise also suggested to the students that there may be a pre-existing power imbalance, and that an architecture of equality must ensure that each agency is equally represented. One member of this group’s logbook asked:

“if it is possible to make the huge school less dominating and let the nature at the site and the Institute for (X) have an important voice?”

In one challenging aspect of this project of worlding, we wondered how to avoid the accusation of escapism usually directed at fantasy, and, following Donna Haraway, ‘stay with the trouble’ in acknowledging and working from the historical and material condition we find ourselves in. That is, it is important to emphasize that the project of imagining the world differently proceeds from the world as it is, with all the attendant challenges that we face—in terms defined by Ruth Levitas, to proceed with concrete rather than abstract hope.¹⁷ To this end, we emphasized that the site and the city will change over the next few years, and that we might consider this as inspiration rather than threat. Some examples of possible changes to the ecology of the site that we presented to students were: increased water on the site due to climate change and sea level rise, a corresponding change in habitats for flora and fauna, social changes due to increased migration and a changing demographic, and in a more abstract sense, changes in technology and infrastructure.

One group chose to focus on changes in food culture and demographic changes, in alignment with some projects happening at (X) that work with urban agriculture. Their article articulates how the shared spaces between the architecture school and

17 Ruth Levitas, “Educated Hope: Ernst Bloch on Abstract and Concrete Utopia,” *Utopian Studies* 1, no. 2 (1990): 13–26.

*Figure 2.7.5 - Map of Flooding Event on Site**Figure 2.7.6 - Mathew Borrett, Future Toronto, 2014*

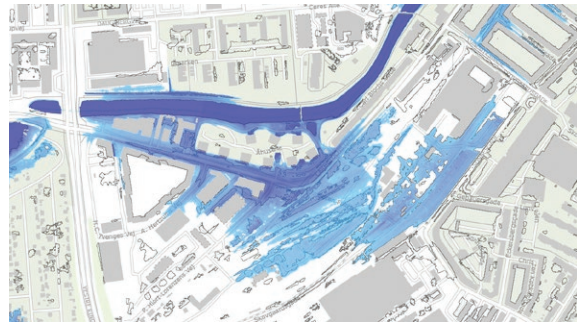
(X) could be used by urban farmers. They proposed to plan these spaces as well as proposing open kitchens and dining areas for food culture exchange [fig. 2.7.4].

However, in presenting a range of challenges that might face the city and site in the future, we learned we must be aware that there is a risk in overdetermining potential futures. In order to not overwhelm the groups with the possibilities for a future Aarhus, we gave them potential topics for a scenario for the year 2071. For example, we suggested that the city will have an aging population with

an increased number of migrants, or that groups might think about the possibility of new collective or human-powered transit systems. However, perhaps the most striking images we present were of potential future flooding on the site—surely the most poignant for residents of a coastal city. While the coming change in sea level acknowledges the issue of the site being a drained wetland and of the proximity to the sea, we found that this kind of emphasis had the potential to dominate many imaginations to the exclusion of other possible avenues of exploration. The analysis of a flood event [fig. 2.7.5] combined with one of the future urban speculations I had shown them, of a flooded future Toronto by artist Mathew Borrett [fig. 2.7.6], attuned them to the possibility of the site flooding, and this became a common refrain for nearly all the groups.

However, even those images that seem to rest solely on an imagination of a changed climate also contain the seed of much more interesting possibilities for the site. For Group1, the possibility of rising sea levels led at first to a radical consideration of the site as water, rather than land, with the different buildings on site becoming islands in a new sea [fig. 2.7.7]. While it was difficult at first to see the gesture as utopian, the creation of this article enabled them to talk about ‘bridging’ in literal and metaphorical terms as they continued developing their ambitions for the site. Their final proposal included a gallery space as a “bridge,” a shared resource for the creative communities at both (X) and the school of architecture.

The group Culture-ecture was assigned the value ‘lasting architecture.’ Like Group1, they also started from the premise of rising sea levels, but also articulated that a lasting



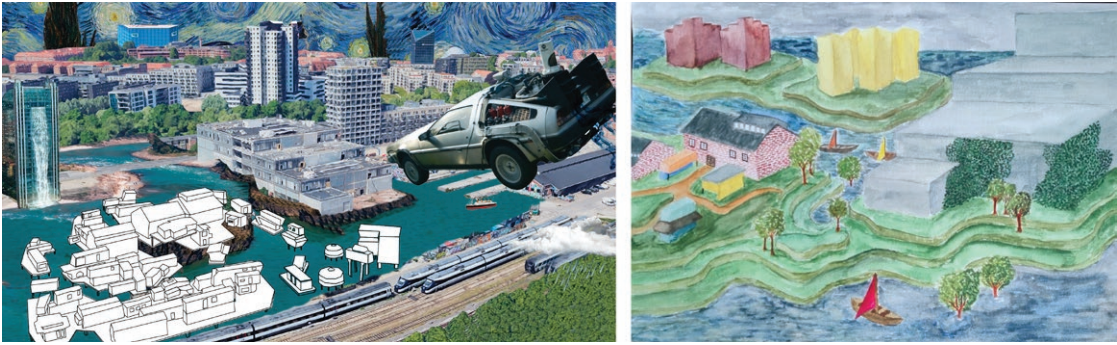


Figure 2.7.7 - Article of Hope, “Group1,” Viktor Lindegren Jakobsen, Oliver Juul Jensen, Ida Leonhardt Jespersen

Figure 2.7.8 - Article of Hope, “Culture-ecture,” Ida Herz Gufler, Jacob Hoé Knudsen, Monique Riis Henriksen

intervention in the space between these two institutions should be characterized by adaptability and evolution as the interaction and community between them develops. In order to maintain this stature of openness, they began to imagine a landscape intervention—their first image included terraced landscape which offered a variety of spatial cues, but without a determined program [fig. 2.7.8]. This strategy, which carried directly into their final intervention, offered a variety of spatial qualities and passages, and would continue to do so as the sea level changed, but was not specifically determined so much as open to continued evolution of the community’s relationship.

In preserving the article of hope’s adaptability, its capacity as guide rather than blueprint, we stressed that the article of hope is never finished, and is rather a document under constant revision. To this end, in the different roles that each group member took, the ‘architect as storyteller’ continued to be responsible for developing the article of hope into the next phase, in continued dialogue with the ‘architect as builder’ and the ‘architect as mediator.’ In the next phase, the article of hope continued to change as the conversation with stakeholders continued and as the spatial, material, and tectonic demands of the project became more apparent.

Translation

Translation is most explicitly implicated in the final phase of the project, especially in the process of materializing the abstract values and hopes that emerge from the collaboration with stakeholders. After the article of hope is used to communicate and synthesize the long-term ambitions of all the stakeholders and the work of design begins, we encourage students to consider maintaining openness and contingency in the project, realizing that no work of architecture is ever finished as complex futures continue to be imagined and reimagined together by a community. In this regard, students were reminded of the Haudenosaunee people’s 7 generation principle—the by-now oft repeated dictum of making decisions today based on the impact 7 generations in the future. With this reminder, we talked about how decisions in the

beginning of the project have a lasting impact on the community. Therefore, one emphasis in this phase is for students to learn how to align the stakeholders' values with strategies in design and construction. The other emphasis is to understand that these proposals are not merely the rationalized version of the fantasies presented in the article of hope. Instead, these proposals remain a stage in the continued storytelling—now a story rather more substantially defined, but nevertheless, even if they were built, still changeable according to the needs and desires of the community.

One unique challenge in this course is aligning the project we assign with the demands of the institution and bachelor unit from which the students came. What is normally a rather more straightforward course in digital fabrication workflows is here complicated in a few different ways. The school usually emphasises a workflow based on the Grasshopper parametric modeling software, which the students had spent the previous week learning. Additionally, the tutors of the unit asked that students learn about wood construction.¹⁸ Our ambition is that students learn how technological choices—whether they are about software, material, or fabrication processes—are never innocent, and can support or undermine the ambitions of a project.

To this end, we introduced an aspect of multi-modal translation. The course is a translation in three parts, from abstract ideas or words, to a language of representation—images, to a language of architectural technique—here understood as an group of techniques including spatial planning and technologies of material manipulation and assembly. Therefore, each team had to take into account how choices in drawing technology, material, joinery and fabrication can reflect—or translate—the values and ambitions encoded in the article of hope. In this way, choices in material and tectonics are implicated in larger narrative of the project, rather than an inconsequential or arbitrary system imposed from outside. That is to say, rather than the transmission model of knowledge usually associated with courses in digital fabrication, in this case, within the limits imposed by our teaching situation, we asked students to articulate what they wanted the technology to do before they would choose which to use.

As such, I prepared a presentation which showed various possibilities in wood construction, and especially how working in wood aligned with other social or

18 Incidentally, our initial formulation of the course included robotic cutting and assembly techniques, but we had to adapt the course about 2 weeks before it started because the Covid lockdown extended into the workshop period.

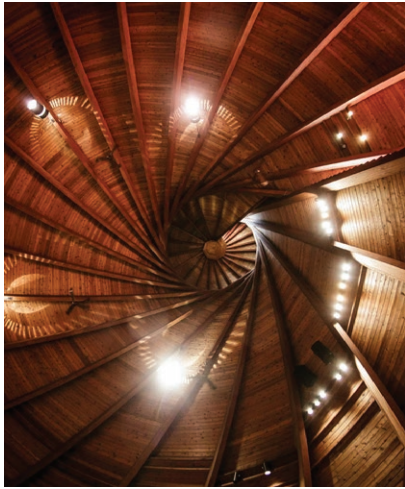
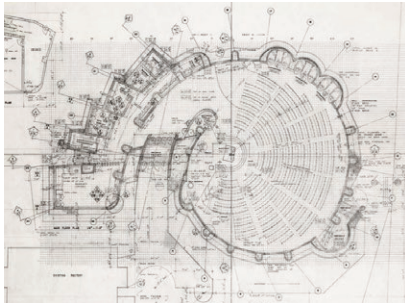


Figure 2.7.9, 10 - Etienne Gaboury, *Église Précieux-Sang, Winnipeg, Manitoba (1968)*



environmental narratives; that is to say, how the choice of material which came to us from the unit carries its own values with it. For example, wood or “stick frame” construction, especially as applied with Walter Segal’s method,¹⁹ is exemplarily in allowing construction armed only with hand tools, empowering non-experts to take ownership of their own habitation. On quite the opposite side, the intricacies of construction at the Ise Shrine in Mie Prefecture, Japan require the life-time dedication of its artisans, with the construction method carrying the weight of ancient cultural values and beliefs. In another example, Metis architect Etienne Gaboury’s *Église Précieux-Sang* (1968) in Winnipeg, Manitoba [fig. 2.7.9,10] combines the indigenous construction methods of the region with the imperatives of the Vatican 2 ecumenical council; the curved form of the reciprocal frame structure collects the congregation around the altar, in direct contrast to the hierarchical form of earlier Catholic churches.

We started this phase with an exercise we called Value-Action-Design Response (VAR) exercise, based upon Laplace’s research. The VAR exercise was developed in relation to Homer and Kahle’s value-attitude-behavior cognitive hierarchy model from 1988,²⁰ and is intended to guide students through an explicit self-mapping of the relation between worldview and behaviour. In the earlier phases of the experiment, we already noted the strong presence of pro-environmental values, and this exercise is to help them bridge this firm foundation of ecological values with their day-to-day choices as professionals.²¹ Therefore, this exercise was developed to assist students to strengthen the link between the individual and shared values created in phase 1, ideas of futurity from phase 2 and their design proposal in phase 3. What this exercise first accomplishes with words and diagrams encompasses the ambitions of the entire workshop – namely cultivating the relationship between values and eventual design decisions.

19 Jon Broome, “The Segal Method,” *Architects Journal* 183, no. 45 (1986): 31–68.

20 Pamela M. Homer and Lynn R. Kahle, “A Structural Equation Test of the Value-Attitude-Behavior Hierarchy,” *Journal of Personality and Social Psychology* 54, no. 4 (April 1988): 638–46, <https://doi.org/10.1037/0022-3514.54.4.638>.

21 Alexander Grob, “A Structural Model of Environmental Attitudes and Behaviour,” *Journal of Environmental Psychology* 15, no. 3 (September 1995): 209–20, [https://doi.org/10.1016/0272-4944\(95\)90004-7](https://doi.org/10.1016/0272-4944(95)90004-7).

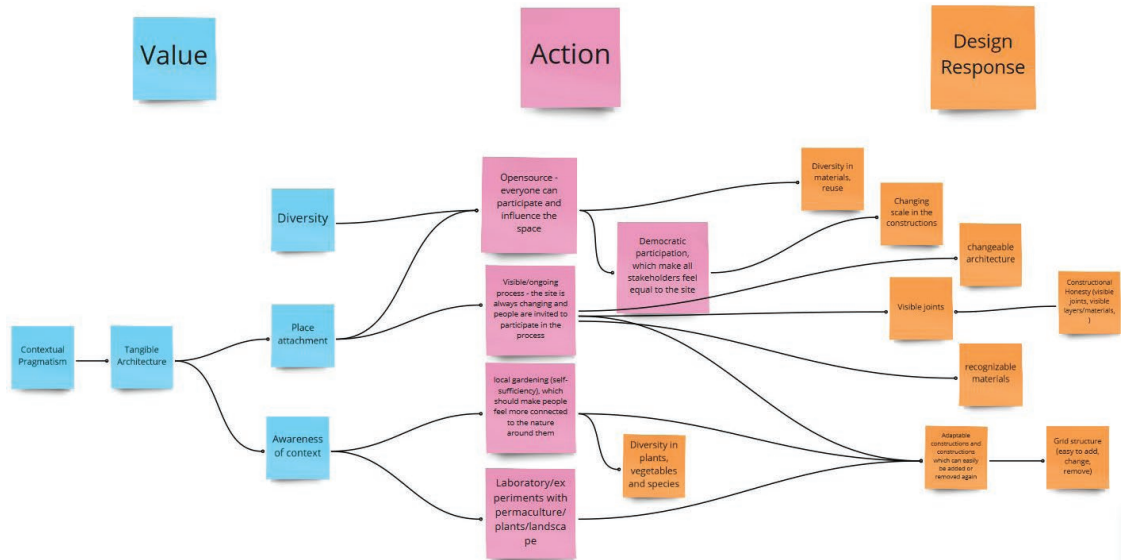


Figure 2.7.11 - VAR Exercise from “Contextual Pragmatism” - Anne Kristine Haagen, Khoshal Arghestani, Mathias Vang Christensen

In the VAR exercise, students divided their work into 3 columns. The first column included the values that emerged from their dialogues with stakeholders. Students choose keywords that best represented those values, and also produced a short text explaining each key word’s meaning. In the second column, they had to think about the attitudes and actions they wanted their design to promote if they wanted to respond to the values. In this case, the attitudes and actions cultivated within the articles of hope was a means to promote this conversation and mutual understanding for the second phase. In the third column, students began to speculate about how design ideas can respond to each action; depending on the desired action, the design response could be suggested by way of references, sketches, or text, but the process emphasised more concrete responses. This helped students in ‘materializing’ conceptual ideas, when changing the medium from the storytelling; its emphasis is translation of the speculative story to another media—specific programmatic elements, spaces, materials, or tectonic articulations. This exercise was a tool to connect all the phases of the projects and help students to arrive at design proposals that actually reply to the challenges and values that they had defined for their specific project. From the logbooks:

“[we saw] how important it is to make an overview of our values and intentions and how it could influence the design, which we always could return to and make sure we are heading in the direction we wanted to.”

The group calling themselves “Contextual Pragmatism” identified a concern with sustainable food production, self-sufficiency, and user collaboration, and they were able to find similar motivations from the point of view of other stakeholders,

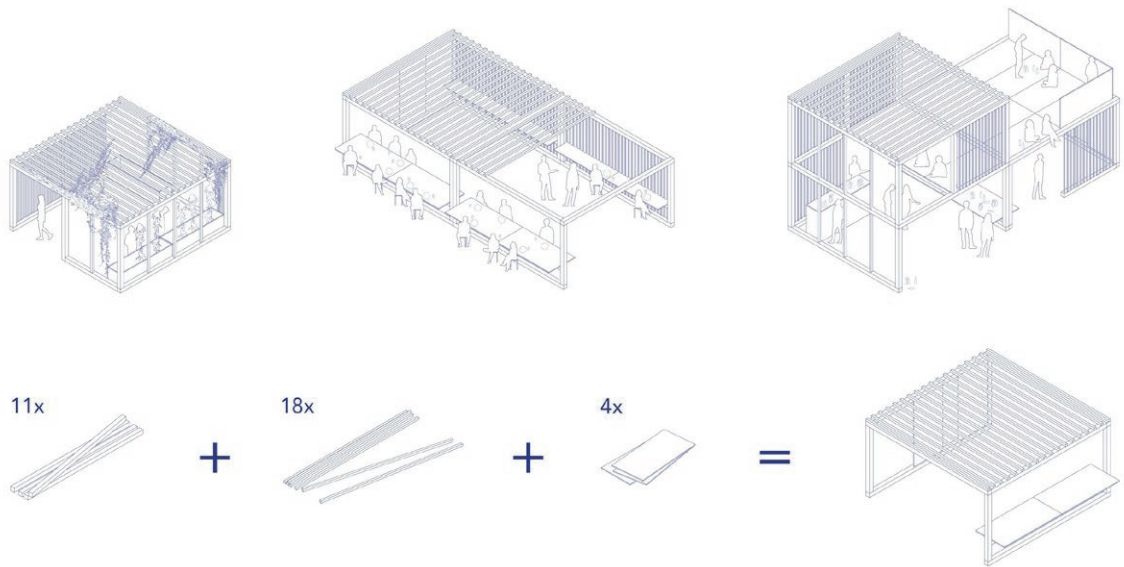


Figure 2.7.12 - “Contextual Pragmatism’s” proposal for materializing a tangible, community oriented building culture

particularly in some of the community members from the Institut for (X). Their article of hope [fig. 2.7.4] imagined that the neighborhood could be transformed into a food-producing garden, with architectural interventions constructed to care for the gardens, and for neighbors to share meals together. As they were assigned a value of “tangible architecture,” they focused on a landscape and an architecture which is legible and manipulable by all stakeholders. From the logbook:

“It was nice to create our different situations of our grid, how it was constructed and designed. We had a very nice discussion of tangible architecture of the grid and how that engages the users.”

Choosing simplicity over elaborate geometries, and rather than proposing any specific architecture, they proposed a building module based on the dimensions of commercially available materials. That is, the translation of their article of hope is not to a specific architectural proposal, but to a building strategy similar to the Segal Method,²² which proposes a strategy for building homes with dimensional timber and hand tools. While the group proposed assembly methods and introduced several use cases for their system, including a greenhouse, sharing table, and bar, their intention was to articulate a building system which remains open to future development by all members of the community [fig. 2.7.12].

One emphasis in this phase is to learn how to align values and choices in design and construction. The other emphasis is to understand that these proposals are not the material expression of the fantasies of the article of hope, rather they are a

²² Broome, “The Segal Method.”

stage in the continued storytelling. That is to say, the article of hope is not static, and the utopian ambitions for the project remain in dialogue with the choices in materializing these future hopes.

The group called ConProCon developed their article of hope through intensifying the individual demands of the different stakeholders—the first images of these show the site variously as an Edenic paradise, as proliferation of (X)’s characteristic container and shed architecture, and as a dystopian inversion of the first two images [fig. 2.7.3]. The articles of hope they developed from this suggested that there may be a pre-existing power imbalance on site. The group realized that an architecture of equality must ensure that each agency has equal opportunity to flourish and where necessary, that their project could build equity from an unequal situation. From the logbooks:

“if it is possible to make the huge school less dominating and let the nature at the site and the Institute for (X) have an important voice”

“nature gives equality—it is there for you no matter who you are. For example, to sit under and get a hug from the tree. That is a nice way to think of equality at our site—that nature could give this place equality—it is for everybody.”

Their proposal translated from the abstract value of equality to a spatial strategy which became the crux of their proposal. They began by literally lifting up the ground, creating a space for the sensitive plant species on site. This first gesture leveraged this stakeholder as the organizing principle behind the intervention, defining the scale and the criteria of materialization. They propose a wooden framework for collaboration which gives prominence the ecology of the site, and which grows according to the ongoing maintenance of that ecology [fig. 2.7.13,14]. They propose that the space becomes a ‘landscape laboratory,’ with each stakeholder responsible to maintain and utilize the space. As the two images show, the imagination is for a structure that evolves as the needs change, preserving two distinct ecological zones, even when flood waters threaten to overwhelm the site. This work shows traces of a post-human social contract when it identifies the non-native plants as the most vulnerable stakeholder and places them atop the mechanical infrastructure maintained by the constant diligence of the other stakeholders.

Further, the group had to come up with a material system that could not only accomplish the initial proposal, but also accommodate the continued growth and



Figure 2.7.13 - 1-year and 50-year visions, from “Con-Pro-Con” - Karoline Bonde Larsen, Magnus Lynge Damgaard, Kasper Carlsen

adaptation of their project. Their idea for an architecture of equality is not a stable structure, but rather one which, by necessity, is constituted by constant negotiation. They needed a simple system which would allow future generations of stakeholders to continue to balance the competing demands of the site’s actors—recognizing that power relationships are never stable. Their solution is based on a single module with a pin-joint, which is assembled into a 3D lattice structure [fig. 2.7.15].

This experiment synthesizes several aspects of science fictioning. Some of these are about the science fictions of the future of the site—these are explored in developing science fictions that arise from the values of the stakeholders as they come into their authority, and begin to articulate their hopes together. In this way, the students’ work mirrors the process of developing and exploring a novum and exploring the implications of that novum. In this case, however, the technical or material system is not the novum, rather a part of the worldbuilding to support a novum that arises from deeply-held worldviews and hopes of stakeholders.

In the first phase of the workshop, the concept of authorship is expanded to include the many authors that can produce a work of design. We started from the personal, intrinsic values of each participant, and then staged a series of conversations which asked stakeholders to create shared values as the starting point of the participatory process. This allowed people to be explicit about their values and worldviews, and articulate common values as their baseline for collaboration. This taught us that participation rooted in shared values can help us respond to long term ambitions of ecological worldviews of a project. From a pedagogical perspective, authorship invited students to understand that the figure of the architect is not predetermined, asking them to consider how their own subjective values and experiences might be productive as they construct their role in relation to the discipline and also other stakeholders.

In the second phase, storytelling, students were able to propose future visions that remained open to continued change together with the ecology of actors on the site.

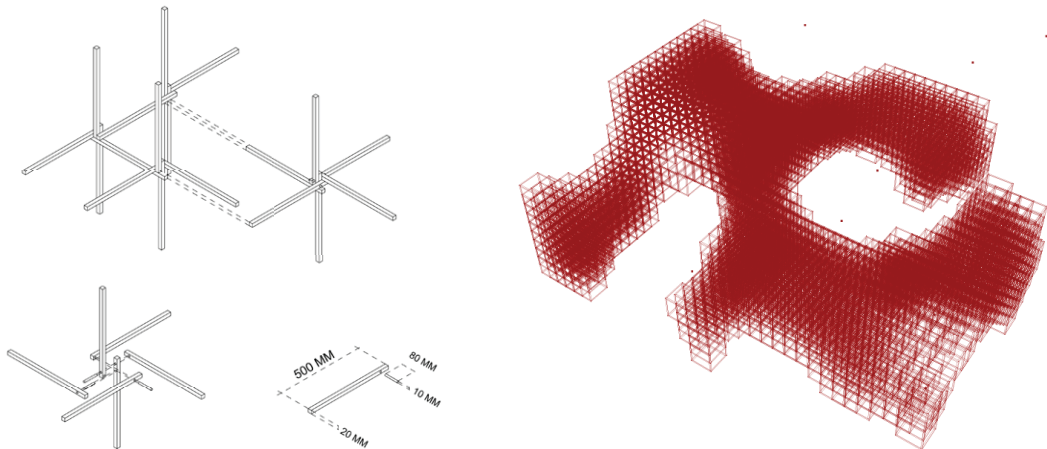


Figure 2.7.14-15 - Speculation on structural system and parametric solution to complex structure

We used science fictional storytelling as a way for stakeholders to communicate their long-term hopes and aspirations for the site. The article of hope that stakeholders create together acts as a signpost, a guide to future action and decision making. The unique possibilities of speculative storytelling is also a way to include actors who otherwise would not necessarily be represented, from non-human ecologies on-site to actors on a global scale, such as climate change. The attention to futures meant that each stakeholder's immediate needs and demands were subordinated to a farther-ranging hopes for the future that could be developed by the stakeholders together, hopes that will continue to evolve, but which can become the basis for continued conversation between all stakeholders.

The course closed with a discussion of translation. We tested the Value-Action-Design Response exercise, which proved to be a valuable guide to design decision making, helping students to translate abstract ideas into concrete design. Students and stakeholders moved from abstract ideas of values and worldviews that were starting to be more tangible with the article of hope, to more concrete and precise design decisions about materiality, spaces, and building systems, while still remaining open to the future evolution of the community of stakeholders. This exercise also revealed to students how choices in design could never be innocent, but a response (*respondere*) aligned with values and future hopes in architecture.

Finally, as well as the more visible work produced by the students, the rather more invisible, but more important work is in the science fictions of the architect-to-come, the studio-to-come, and educator-to-come. In every case, these figures are never whole or complete, and emerge from developing and valuing forms of collaboration, of the search for a practice within the practice—that is, as a speculative practice which acknowledges its own optical devices, respect its own limitations, and welcomes a shared authorship with other storytellers.



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3.1 Image Sources

1.0 Introduction

- 1.0.0 Cover of Archigram Magazine Issue 4 (1964), archigram archival project: <http://archigram.westminster.ac.uk/magazine.php?id=99&src=mg>
- 1.0.1 Nic Clear, Chthonopolis Section, 2017. <http://www.nicclear.com/Chthonopolis-Drawings-2017>
- 1.0.2 CJ Lim, “Humanitarian Relief Infrastructure,” in *Inhabitable Infrastructures: Science Fiction or Urban Future?* (New York, NY: Routledge, 2017), 209.
- 1.0.3 Liam Young, still from “Where the City Can’t See” (2016) <https://artcollection.salford.ac.uk/liam-young-where-the-city-cant-see/>
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1.1 Novum

- 1.1.0 *still from* “The Future,” Samsung Advertisement (2019) <https://www.youtube.com/watch?v=CkuXaXTxqzw>
- 1.1.1 Promotional Image for Tesla’s Solar Roof, https://www.tesla.com/en_eu/solarroof
- 1.1.2 Monsanto House of the Future, *Life Magazine* (1957)
- 1.1.3 Aarhus Ø <https://aarhusoe.dk/>
- 1.1.4 *still from* *Westworld* (HBO, 2020)
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- 1.1.6 Studio Hani Rashid Instagram, (accessed 3. August 2020) https://www.instagram.com/studio_hani_rashid/
- 1.1.7 R. Buckminster Fuller, Dymaxion Map (1954) <https://www.bfi.org/about-fuller/big-ideas/dymaxion-world/dymaxion-map>
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- 1.1.14 Olalekan Jeyifus, Crown Heights Bodega Ecohaven (2020) <https://aap.cornell.edu/news-events/olalekan-jeyifous-process-and-practice-imminence-and-immanence>
- 1.1.15 Olalekan Jeyifus, Bedstuy Chicken Coop(erative) (2020) <https://www.instagram.com/kidcadaver/>
- 1.1.16, 17 Ryan Gorrie & Brook McIlroy, Gathering Circle, Thunder Bay, Ontario (2012) <https://brookmcilroy.com/projects/spirit-garden/>
- 1.1.18, 19 Markus Kayser, Solar Sinter apparatus and 3D sintered glass bowl (2011) <https://kayserworks.com/#/798817030644/>
- 1.1.20, 21 Raumlabor, Floating University Berlin (2018) <https://raumlabor.net/floating-university-berlin-an-offshore-campus-for-cities-in-transformation/>
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- 1.1.24 still from "Walk With Me," *The Walking Dead*, (AMC, 2012)

1.2 Estrangement

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- 1.2.5 Lebbeus Woods, System Wien (2005). <https://lebbeuswoods.wordpress.com/2009/06/05/architecture-of-energy/>
- 1.2.6 Sophie Elizabeth Hutchinson, Oleksandra Ianchenko, Nanna Louise Holmberg Nielsen, David Bjelkarøy Westervik
- 1.2.7 Niclas Heydorn
- 1.2.8 Mathilde Møll Helms, Niclas Heydorn, Anne Sofie Ravnsbæk Geertsen, Student X.
- 1.2.9 Michael Webb, Cushicle, 3 Phases (1969) in *Two Journeys* ed. Simone, Ashley (Zurich, Lars Müller Publishers, 2018) p. 89.
- 1.2.10 Vildana Duzel
- 1.2.11 Jesper Asferg Scheel
- 1.2.12 Kristoffer Holmgaard Gade
- 1.2.13 Mathias Klith Harðarson

1.3 Speculation

- 1.3.0 Emma Helene Rishøj Holm and Rasmus Svane Høj
- 1.3.1-2 Lucia Garcia de la Peña

1.4 Science Fictioning Architectural Pedagogy

- 1.4.0 Lucia Garcia de la Peña
- 1.4.1 Ke Liu
- 1.4.2 Jacob Thuesen
- 1.4.3 Trine Mellemstrand Jarstø and Jens Toft Madsen
- 1.4.4 Quynh Nguyen
- 1.4.5-6 Emma Helene Rishøj Holm and Rasmus Svane Høj

2.1 Torten

- 2.1.0, 3, 10-15 Quynh Nguyen
- 2.1.1 Büro Gropius, Improved 1927 House Type, in *Bauhausbauten Dessau* (Mainz, Berlin: Florian Kupferberg Verlag, 1974), plate 175, page 190.
- 2.1.2 Büro Gropius, Site Plan in *Bauhausbauten Dessau* (Mainz, Berlin: Florian Kupferberg Verlag, 1974), page 160.
- 2.1.4-6 Trine Mellemstrand Jarstø and Jens Toft Madsen
- 2.1.6-9 Thomas Bengtsen and Sidsel Sandholm Valen
- 2.1.16-18 Emma Helene Rishøj Holm and Rasmus Svane Høj

2.2 Playing Innocent

- 2.2.0, 15-26 Sophie Elizabeth Hutchinson, Oleksandra Ianchenko, Nanna Louise Holmberg Nielsen, David Bjelkarøy Westervik
- 2.2.1-2 Johanne Kirketerp
- 2.2.3 Louise Thisgaard Pedersen
- 2.2.4 Jens Toft Madsen
- 2.2.5 John Cage, graphic notation for *Fontana Mix* (1958), Hermmar Press Inc, New York
- 2.2.6-10 Mathilde Møll Helms, Niclas Heydorn, Anne Sofie Ravnsbæk Geertsen, Student X
- 2.2.11-12 Nanna Louise Holmberg Nielsen
- 2.2.13-14 David Bjelkarøy Westervik

2.3 Making Worlds with Patchers

- 2.3.1 Singapore's Gardens by the Bay
https://upload.wikimedia.org/wikipedia/commons/6/66/Singapore_Flower-Dome-and-Cloud-Forest-in-The-Gardens-01.jpg
- 2.3.2 Kowloon Walled City

- https://upload.wikimedia.org/wikipedia/commons/7/7c/%E4%B9%9D%E9%BE%8D%E5%9F%8E%E5%AF%A8_-_Kowloon_Walled_City_in_1991_%282350913856%29.jpg
- 2.3.3 Hodgets + Fung, Untitled (1989) commissioned for Visionary San Francisco Exhibition. <https://www.sfmoma.org/artwork/97.2>
- 2.3.7 Michael Hansmeyer and Benjamin Dillenburger, Digital Grotesque II (2017) Commissioned for Imprimer le Monde, Centre Pompidou. <http://www.michael-hansmeyer.com/digital-grotesque-II>

2.4 There and Back Again

- 2.4.0, 12-14 Vildana Duzel
- 2.4.2 Elisa Vanden Dool
- 2.4.3 Matilde Møll Helms
- 2.4.4-9 Lucia Garcia de la Peña
- 2.4.10 François Dallegret, Environment Bubble, 1965, in Banham, Reyner. 'A Home Is Not a House'. *Art in America* 2 (1965): 77.
- 2.4.11 Diller + Scofidio, Para-site (MOMA, 1987) <https://dsrny.com/project/para-site>
- 2.4.15-16 Jesper Scheel
- 2.4.17-18, 21 Andrea Sara Mariel Rados
- 2.4.19-20 Matthías Klith Harðarson

2.5 Future Archeology

- 2.5.0, 19-20 Karla Citlali Steninge Hernandez, Otto Graabæk Arlien-Søborg, Gard Meisingseth Rognes, Phuong Uyen Nguyen, Hannah Gwenyth Hill-Wade, Katheriina
- 2.5.1 Selma Lindhardt Blomberg
- 2.5.4-5 Morten Hansen, Signe Immerkær Dalgaard, Tina Julianne Marzano, Dilja Sigurdardottir, Rikke Friis Sørensen, Nadia Doriot
- 2.5.7-12 Mathias Gaardsted Braae, Selma Lindhardt Blomberg, Anne Sofie Ravnsbæk Geertsen, Josef Eglseder, Pinru Zhu
- 2.5.13, 15 Alex Juon Yi Quach, Nilagshana Maheswaran, Cecilie Elmholdt Smidt, Nelly Therese Melberg, Alicia Fankhauser, Jiaqi Wang
- 2.5.17 Miriam Reistad, Sika Kirstine Wilhjelm Filemonsén, Mathilde Bjerg Pedersen, Stine Brochmann Jørgensen, Alexander Throm

2.6 Parasite Studio

- 2.6.0, 18-19 Lucia Garcia De La Peña
 2.6.1, 4, 9-11 Jesper Scheel
 2.6.2 Jens Toft Madsen and Naim Dokic
 2.6.3 Wang Sizhe
 2.6.5-8 Jacob Theusen
 2.6.12 Superstudio - Superstudio The Continuous Monument: On the River (1969, MOMA) src: <https://www.moma.org/collection/works/934>
 2.6.13 Yona Friedman, Spatial City Project (1958-9, MOMA) src: <https://www.moma.org/collection/works/104695>
 2.6.14-15 Hafdis Bragadottir
 2.6.16-17 Lars Elseth
 2.6.20-21 Wang Sizhe
 2.6.22-23 Kristoffer Holmgaard Gade
 2.6.24-26 Ke Liu

2.7 Materializing Collective Futures

- 2.7.0, 3, 13-15 Karoline Bonde Larsen, Magnus Lynge Damgaard, Kasper Carlsen
 2.7.1-2 images courtesy of Aarhus School of Architecture
 2.7.4, 11-12 Anne Kristine Haagen, Khoshal Arghestani, Mathias Vang Christensen
 2.7.5 image produced with scalgo.com
 2.7.6 Mathew Borrett - Future Toronto (2014) <http://www.mathewborrett.com/illustration/2014/11/14/future-toronto>
 2.7.7 Viktor Lindegren Jakobsen, Oliver Juul Jensen, Ida Leonhardt Jespersen
 2.7.8 Ida Herz Gufler, Jacob Hoé Knudsen, Monique Riis Henriksen
 2.7.9-10 Etienne Gaboury, Église Précieux-Sang (1968) <https://metisarchitect.com/2015/06/10/interview-with-etienne-gaboury/comment-page-1/>

