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Challenging Conventions : Charging Habitual Movements in Domestic Kitchens

©  
Author  
Nathanael Larsson

Institution  
Chalmers School of Architecture, Architecture and Urban Design

Examiner  
Daniel Norell

Supervisor  
Peter Christensson

Graphic design  
Nathanael Larsson

Paper used for printed version  
Nautilus

Typefaces  
Minion Pro, Minion Variable, Nimbus Roman



“Ora et labora et lege, Deus adest sine mora” - St Benedikt av Nursia (480-543)

*free translation ; “Pray and work and read, God is there without delay”*

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## 0.1.

### Thesis Statement Abstract

This study investigates the potential of kitchen topologies as a tool for stimulating physical activity. The latest recommendations for physical activity in Sweden by YFA (Yrkesföreningar för fysisk aktivitet /Swedish Professional Associations for Physical Activity) state the urgent need for increased physical activity and a lessened amount of sitting still. As a response, this investigation starts at the heart of the home, the vibrant and beating room for activity — the kitchen. Where better to induce motor practice and cognitive skills than in a domestic place intended for work involving all human senses?

A century has passed since the emergence of ergonomics and our western modern kitchen. The normative visions for a good life, functionality and comfort at that time, follow us to this day, yet contemporary problems are rather different. Health issues related to a sedentary lifestyle are most common in western developed countries. Regardless of the causal relationship between ergonomics and human well-being it is significant to question how the built environment shapes human living. In general terms, how can the built environment encourage a long life of healthy habits? More particularly, this study investigates how design interventions in the kitchen can activate a contemporary sedentary lifestyle, encouraging bodily engagement, motor practice and cognitive training.

Through a speculative design, this work presents perspectives on habitual movements inside the domestic kitchen. Can healthy habits be encouraged without impeding on bodily integrity? With a primary focus on actions involving fully embodied movements such as; reaching, bending and twisting, the design attempts to encourage more vibrant, diverse and physically active domestic habits. The investigated actions are posed as a dialogue with a set of design statements including low counter spaces, climbable structures and a strict removal of chairs. The design is motivated by a vision regarding physical engagement as something elegant and an integral part of habitual movement.

*Keywords:*  
*kitchen, ergonomics, domestic, convention, habits, habitual, movement, physical activity*

## 0.2.

### A Long Journey Preface

At the heart of any inquiry driven by curiosity I suppose there lies a portion of naivety. When starting this project I was not certain where this journey would end changing direction many times. Starting from a very ambitious place involving grand visions the investigations led to a more sensitive approach involving values of integrity and agency. However, part of the essential questions that have driven the framework involves the nature of the human /environment relationship. To be more specific, what role does human perception have in bodily actions and on what scale does the built environment affect bodily habits? This has somewhat also been a personal interest since my younger years, when being chained by the educational rituals sitting in chairs made me constantly yearn for physical activity. I still cannot grasp how humanity chooses to cope with such rigid designs as chairs. I continue to quarrel with such frameworks, not to be seldom called out as “standards” which turn them into unquestionable axioms in common tongue. If this dispute is a rebellious response or a genuine fascination for friction I cannot always tell, but I hope a malcontent is not obtained by the reader in such manner.

The past two years of pandemic lifestyle, again sitting a lot still but now additionally restrained to a screen, has certainly provoked many of these inclinations again pressing the topic of this master thesis in architecture. Is the normative vision of human life really as barren as the one by The Wachowskis in 1999 (The directors of The Matrix); i.e. humans lying in pods nurturing a signal network living through an isolated mentally perceived world. Some might consider this utopic, but my personal experience through dance, work and public space tells otherwise. It is ignorant to believe that solely one discipline holds the cure or recipe for “the good life” and maybe this is at the core of the issue? Compensating for sitting still we will drink diet coke, or take an extra 20 minutes at the gym and as treatment for the knee injury we got on the last ski vacation we take an extra advil. Many concerns are involved here but I especially ponder on what is a healthy application of the human driver - ‘convenience? Naturally I do not envy my first teacher Ms. Green who had to cope with a monkey to pupil, frantic by the need to explore. She did the right thing by sending me to the principal at times. With regard to a society in need of agreements I wish to present speculative futures where activity is a norm and not a postulated illness. I hope any potential reader might find these perspectives informing and more optimistically even inspiring.



00.0\_

00.0 PORTRAIT

Mirrored photo from exhibition at The Templet  
Source: Photographer Simeon Frohm April 2022.

Text presented along the line in this manner will throughout the thesis consider images only. I will also give a short note about the image creating a parallel discussion on the presented topics. Here I wish to acknowledge the joy cooking in a physically activating space has meant.

0.3. Student background

Here follows a small selection of the various works by Nathanael Josua Larsson. This is a mandatory part of a thesis booklet filling here the function of presenting to the reader a short retrospect / reflection of the authors former occupations.

EDUCATION

|             |  |
|-------------|--|
| 2020 - 2021 | Aalto University School of Arts, Design and Architecture   <i>Erasmus Exchange</i>   |
| 2019 - 2022 | Chalmers University of Technology   <i>Master in Architecture and Urban Design</i>   |
| 2012 - 2013 | Maslool Bikurei Haitim, Tel Aviv   <i>One of Two years Postgraduate Danceprogram</i> |
| 2009 - 2012 | Balettakademien Göteborg   <i>Professional Degree in Dance</i>                       |
| 2007 - 2018 | Chalmers University of Technology   <i>Bachelor in architecture</i>                  |

EXCERPT FROM OTHER WORKS

|             |  |
|-------------|--|
| spring 2021 | Interplay of Cultures Studio: Sámi   Designs for a Cooler Planet   <i>Exhibition at Aalto University</i>   <i>curator and designer</i> |
| 2018 - 2022 | Bar Centro, Alkemisten, Sykkel og Kaffi   <i>barista</i>   |
| 2014 - 2019 | Spinae Company AS   <i>Art and culture center</i>   <i>co-founder, pedagogue and artist</i>  |
| 2016 - 2018 | Ultra : Forsworks   <i>Dancework by Martin Forsberg, Ice Hot Festival etc.</i>   <i>dancer</i>   |
| fall 2018   | Reversed Obscura   <i>AHA Festival</i>   <i>performative furniture design</i>  |
| fall 2018   | Symposium Atelier an der Donau   <i>Artist symposium, Ybbs an der Donau</i>   <i>artist</i>  |
| 2016 - 2019 | Onz, Skyskráp & I Veien med Deg   <i>Shortfilms for Syntax Terrorkester</i>   <i>director &amp; editor</i>                             |
| spring 2015 | Cykeltjuven   <i>Citycentre wallpiece, for Tour des Fjords, 160m² artwork</i>   <i>artist</i>  |
| spring 2014 | The Golden Cockerel   <i>Opera at Bergen Nasjonale Opera</i>   <i>dancecaptain, dancer, soloist</i>                                    |
| 2012 - 2014 | Define White   <i>shortfilm</i>   <i>director, choreographer, set designer and artist</i>  |
| 2009 - 2014 | Gotlands Hemtjänst   <i>elderly care</i>   <i>summertime home assistant</i>  |
| 2003 - 2008 | Afforestation   <i>treeplanting northern Sweden</i>   <i>summertime forest planter</i>   |



**00 STUDY OF HANDMOVEMENTS**

*With a long shutter time and light sources attached to a test subject's hands, the arm movements while cooking are revealed. Foto taken for Konsumentinstitutet (former HFI) in 1969.*

*Source: Studio Granath. (1969). "A 13092" [Photograph]. Studio Granath/Nordiska museet, Stockholm, Sweden.*

*Here I wish to note the swiftness of movement that is revealed through the thickness of the line. Slower movements have a thickness and glow whereas quick trajectories through space have a thin and crispier feel. Note also that almost no hand movement is out of standing range. Only at a few occasions is it necessary for the subject to bend the knees.*

# 1.0. Introduction

Domestic life involves a great number and variety of habits. It is also a complex task to discern the manifold human movements related to equipment, space, material, environment etc. When then adding the variety and deficiencies bodies bring to habits, further complications arise. As preconceived by Lillian Moller Gilbreth in the early 20th century, it is certain that adaptable kitchens tailored for individuals is the simple answer to the problem when considering human autonomy and diversity (Penner, 2021). However, the change in domestic life and evolution of cooking is maybe a reason to consider other alternatives also environmentally more beneficial. Thus one must question what lies behind the material distribution of space. What rituals should be encouraged in domestic life? How does the architectural form choreograph human behaviour?

Before giving the delimitation with its procedure I wish to clarify the personal background of this investigation. During my highschool years I began nurturing a growing interest in dance. By the time I was studying my second year at the Bachelor's Degree of Chalmers in Architecture I was dancing three to six hours per day. This led me to take a break from Architecture and pursue a career in dance, passing through Ballet Academy in Gothenburg and further to a profession performing on stage. I do not wish to boast about personal endeavours but it is important to understand that my return to studies in architecture did not come with ease. The excessive amounts that are put into designing our environments sitting still behind screens are frightful to say the least. I might be an underrepresented group in the discipline of architecture looking for an active life, nonetheless it is absurd for me how a situation with a crooked back in front of a screen with noise cancelling headphones can produce delicate, caring and sensuous environments. For many, including myself, the years of pandemic adaptation have meant a shift towards a life closer to nature and more qualitative time with close family. But the past years have also meant a greater amount of time behind screens. For a dancer trained to meet a live audience it has been a most crippling situation. The future holds many fascinating things, yet I do not look forward to the recoil in human well being pushed by screen technology. What is really a healthy life?

As introduced by Daniel M. Abrahamson et. al. in Governing by Design (2012) this investigation starts from a similar interest for authorship and architectures innate ability to govern. Following Sara Williams Goldhagen in Welcome To Your World (2017) the focus is put on domestic habits.

*"home—where each of us effortlessly connects the dots among four*

*things: our internal, private experience; a social grouping; a physical construct; and a set of patterned activities."* (Williams Goldhagen, 2017 p. 200)

There were many considered paths before electing the kitchen as a playground for this thesis and the strong interest for cooking was not the primary cause. When looking into patterned activities or habits in general, I grew intrigued by the many stories presented from the kitchen, involving encounters with not only the body with its senses, but also other people and nature. Almost any task can take place in a kitchen and no other domestic space is purposely giving so much nurture to human well-being. It was the encounter with the Swedish studies of the home after WWII that set the stage. In the kitchen human movements, habits and material encounters, have been dissected and purposely fabricated. As presented by Torell et al. (2018) the implementation of standards in the kitchen has taken many forms and for various reasons (Torell et al., 2018). Where better to learn and question habitual movements?

When defining the scope of this thesis much time has been dedicated to literature studies. Although some knowledge regarding movement is self-evident from a background in dance it has been important to find sound arguments with foundation in research and history. The purpose of this thesis is not to reveal proofs for a new standard but rather shed light and show new insights to the issues that previously have not been considered. As the contemporary kitchen shares many traits with the kitchens shaped in the early 20th century I have chosen to especially investigate these. It has been important to find what motivated these design choices and somewhat the previous kitchen typologies. I believe there are elements in the older kitchens that could be of interest for us today.

Relevant to habit's relationship with design is also the simultaneous development of ergonomics as a discipline, which was clearly motivated by a norm and vision of the future. What is presented in here is foremost taken from J. Harwood in Governing by Design (2012). This material is put to test with some of Georges Canguilhem's perspectives in The Normal and the Pathological (1991). With regard to human well-being it is then natural to as a response to the recommendations for physical activity in Sweden (FYSS, 2021) by YFA (Yrkesföreningar för fysisk aktivitet /Swedish Professional Associations for Physical Activity), look into movements that can be encouraged in the kitchen. Found evidence regarding application of movement also shows that activity with motor practice could prevent illnesses related to cognitive ageing (Cai et al., 2014).

When disembarking on the path of studying movements I have catalogued various scales and reasons for movement. With a specific interest for full bodily actions I have linked movements to implementations. In order to give depth and credibility to the observations made I have also studied a series of individuals working in their home or habituated environments. These studies have revealed additional layers to habits that touch aspects of aesthetics and elegance with movement. The design choices made are certainly results of hidden knowledge sometimes difficult to discern. It is therefore valuable to see the outcome not only as a speculative future but also a document of explicit as well as tacit observations.



01

### 01 HISTORIC PLAYGROUND

A playground from early 1900's in Dallas, Texas.  
Source: [Online image] (Early 1900's)  
[https://1.bp.blogspot.com/-cpBT7rxkfJA/V9I-CiWazNI/AAAAAAAAAK\\_M/Y5NwbakjYbMyPQRj9NdeppU\\_CkVwwMMLQCCLcB/s1600/playgrounds\\_in\\_1900\\_1.jpg](https://1.bp.blogspot.com/-cpBT7rxkfJA/V9I-CiWazNI/AAAAAAAAAK_M/Y5NwbakjYbMyPQRj9NdeppU_CkVwwMMLQCCLcB/s1600/playgrounds_in_1900_1.jpg) (collected 06.04.2022)

*It is certainly hair-raising to imagine a sibling, child or even oneself falling down from such heights. But these kids do not seem to care about safety regulations. On the contrary they are enjoying the view and climbing with ease. How many kids brought up behind screens can or are even allowed to perform such acrobatics today?*

### 02 CONNECTED PLAY

"If children don't play enough with other children during the first five years of life, there is a great chance that they will have some kind of mental illness later in their lives."  
Source: Christoffer Alexander. (1977). 68 Connected play, pp 340-342 [Photo]. Oxford University Press, New York City, NY, United States.

*This historic view of play is rather different than today. According to this little quote, solitude behind screens might not be the optimal situation for a child. In the chapter on common land it is stated that open space should provide the opportunity to "form swaths of connected play space".*

### 03 HOUSE FOR ONE PERSON

"Once a household for one person is part of some larger group, the most critical problem which arises is the need for simplicity."  
Source: Christoffer Alexander. (1977). 78 House for one person, pp 389-390 [Photo]. Oxford University Press, New York City, NY, United States.

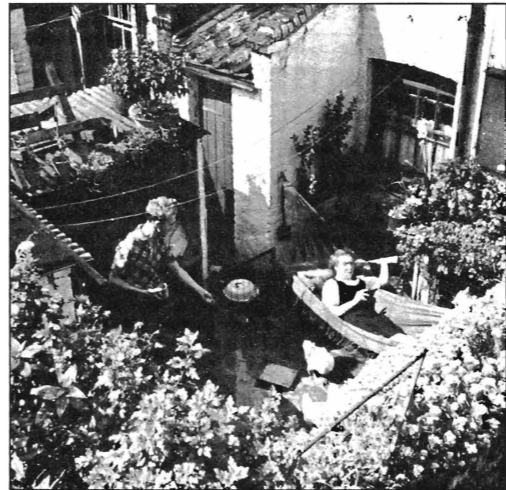
*It is here also pressed on the importance of social living. A single family home should be attached to couple- or family households. Here I would like to comment on the ramble which is suggested as being considered simple. Is a simple life necessarily anaesthetic white rooms of floating sheets?*



02



03



04

## 2.0. Moulding Bodies Overture

Before entering into the subjects of kitchens and domestic habits it is of value to identify an additional underlying interest for this thesis. It might seem obvious to state that architecture shapes lives. Much as such is mesmerising for an architect, I found it mischievous, impeding and also disruptive. The way in which architecture is governing human behaviour is obviously intricate and holds many issues that architects at times should and other situations can not be held accountable for. If someone slips on a wet floor, it was neither the one who forgot to dry up the wet puddle, nor the architect's fault. To put forth a likely scenario it could just be that the person who slipped was unable to behave accordingly on wet surfaces while reading text messages on the phone. This can seem excessive and one can probably argue indefinitely about jurisdiction, ownership and authorship, which is maybe one reason for politics being so vivid at times.

Abrahamson et al. opens the book Governing by Design (2012) with the hypnotic question, 'how does architecture govern?' But in contrast to a powerful monument or symbolic act, they choose to discuss 'mundane matters' and how humanity is 'fashioned' by architecture, economy and politics. They announce a search for mechanisms that regulate society. 'Governmentality' as described by Michel Foucault is presented here as a comparable concept, which also implicates the normative vision of elevating life in society. As pointed out by the authors this is certainly complex, evoking a list of engaging levels (Abrahamson et al., 2012).

Also Sara Williams Goldhagen mentions governing. In Welcome To Your World (2017) she gives a broad view to the many aspects of how design affects human living. She outlines not only the physical limitations but many cognitive and mental aspects of how environments influence the way we behave. Drawing a lot of findings from psychology and neuroscience she reveals some fascinating details, for instance how the height of a ceiling will make us perform better intellectually. What forces me to commit a part of this overture to Williams Goldhagen is foremost her repeated depictions of embodied cognition. It seems our bodies play a much larger part than 'carrying our minds from a to b' (my own words), our bodies and minds are integrally connected. We inhabit the world with an embodied mind and our memories are built from an individual bodily experience. In the same chapter Williams Goldhagen introduces affordance theory by James J. Gibson which is specified later in this thesis. Finally I here bring forth her depiction of action settings which leads to domestic habits and my take in this thesis. 'Action settings' was invented by

Roger Barker and his research group in the 1950s in order to express how an environment made people behave in a certain manner. The environment keeps an action setting which will conduct human behaviour and frame human experience accordingly. Williams Goldhagen describes three cities at the same time of the day and with the same activity performed, shopping. With vibrant descriptions she unveils how radically different these cities are. Different is not only the architecture but also the way in which people behave, - they have different action settings. Her example portrays how important social settings are for our encounters with an environment. To end this little conundrum let us follow Williams Goldhagen's inquiry, how come we experience a place for a set of activities? I will start this investigation with the place foremost surrounding our bodies and the environment most autonomously governed, the home (Williams Goldhagen, 2017 pp. 19-39, 92-205).

The home is inextricably connected to the human body. In a way it can even be seen as an extension of the body. I will not here elaborate on the home as a prosthetic device but instead make a bridge to the coming assessment. Of all the rooms in the home one invites for more activities than any other. This room keeps running water, the opportunity to heat and cool, cook and eat, sleep, sing and dance, no other space is so multifaceted and enabling for the senses as the kitchen. This is the site of the thesis, the vibrant heart of the home.



\_05



\_06

#### 04 YOUR OWN HOME

*"People cannot be genuinely comfortable and healthy in a house which is not theirs. All forms of rental-whether from private landlords or public housing agencies-work against the natural processes which allow people to form stable, self-healing communities."*  
 Source: Christoffer Alexander. (1977). 79 Your own home, pp 392-393 [Photo]. Oxford University Press, New York City, NY, United States.

*Agency is ofcourse complex, yet needless to say autonomy I believe is foundational for living in one's own home. How much do we really govern our private spaces? I do not here intend to embark on a journey discussing the right to the city, nor the economical benefits and problems with social housing. Yet I find it of value to reflect on the quality of living at home.*

#### 05 CHILDRENS PLAY ON THE FLOOR

*A testcopy from the studies made by the Swedish Homes Researchinstitute.*  
 Source: Ateljé Sundahl. (1952). Hemmens Forskningsinstitut, 10323 s, March 1952 [Photograph of photocopy]. From Hemmens Forskningsinstitut, Nordiska Museet, Stockholm, Sweden.

*Clearly the children playing on the floor have not been of interest, when cropping the image for print the cropmark runs straight through the boys head. There are images where children are framed, but then they are politely sitting in chairs eating or doing homework. Raising children was a clear motive when enabling time by making kitchen work efficient.*

#### 06 PREPARING BARK FOR LEATHERCRAFT

*"Det luktar så gott! Barndomsminnen blir det ju, då tänker man ju på mamma. Hon satt ju jämt o skrapa, eller, då var det ju köket hon satt."* - Brita Unnes  
 Source: DUODJI VÄTNOE DUODJI - Det vackra Samiska hantverket. Episode 4 - Brita Unnes, Nutukas (2020). Swedish series from 2020 streamed at SVT Play [Screenshot]. Sveriges Television SVT, Sweden.

*There are plenty of benches in this kitchen but the optimal working situation for this task is apparently on the floor. As Brita suggests in the episode it has been done like this for generations, and she has passed the craft to her daughters. Not further the cast iron stove to the right. Still in use, it is heated with wood. It was a common stove in Swedish homes before the electric stove arrived in our modern kitchen.*

#### 07 STREAMLINING THE KITCHEN

*"Haus am Horn" by Georg Muche (1923)*  
 Source: [Online image] (Early 1900's) <https://socks-studio.com/img/blog/haus-am-horn-georg-muche-10.jpg> (collected 03.05.2022)

*The "Haus am Horn" by Georg Muche (1923) was an experimental house part of the Weimar Bauhaus exhibition in 1923. Each room was designed strictly for its function, not permitting any other use. Separating functions is what drives the kitchen development forward and this inspired peers such as Lihotzky. The L shape of this kitchen follows principles used in factories and work in a production line.*

#### 08 THE FRANKFURT KITCHEN

*"Frankfurter Küche - Overall view" (1927)*  
 Source: [Online image] [https://www.metalocus.es/sites/default/files/styles/mopis\\_news\\_carousel\\_item\\_desktop/public/metalocus\\_margarete-lihotsky\\_09.jpg?tok=0N6hriBH](https://www.metalocus.es/sites/default/files/styles/mopis_news_carousel_item_desktop/public/metalocus_margarete-lihotsky_09.jpg?tok=0N6hriBH) (collected 03.05.2022)  
 Courtesy by Universität für angewandte Kunst, Wien, © Kunstsammlung und Archiv

*The Frankfurt Kitchen as seen from the hallway entrance. The compact kitchen has a side door to the living room. Note the placement of the window in relation to the dirty kitchen work accompanied by an adjustable stool. This is a deskpace rather than a physical working area.*

## 2.1. Historical Kitchens Assessment

The task here is not to cover a thorough categorisation of historical cooking. The part of our human timeline of specific interest starts at the 20th century and the sudden shift of domestic living. This is partly due to the industrial revolution and the technological advancements that were made. Although many kitchen devices from the 20th century are radical and central, the progress started outside the kitchen.

When recounting ways of governing by design, the story of our modern kitchen starts with the shift to cold storing. From grand warehouses to cooling railcars we consequently inherited the indoor kitchen refrigerator. Michael Osman states that the 1890s major topic of all America's big tabloids, cold storage, was declared as the solution for the prevailing economic crisis. The previous dependence on farming and transport of livestock was unpredictable. Stops were necessary for feeding of cattle which could delay deliveries. Transporting frozen meat enabled thus larger markets and on demand delivery. Cooling technology allowed American industry to transform meat into a large-scale industrial product turning it to 'an every man's dinner' (Osman, 2012).

Changing consumer habits were essential for the innovations of the 20th century. Jenny Lee describes the upper class view of the kitchen as a smelly and filthy place best put separately, often in the basement. For those well off there was a strong will to isolate the harsh and hectic working conditions of the kitchen with the rest of the home. One wished to keep the illusion of leisure far apart from the physical work done by the domestics. However, for various reasons it became more difficult to find personnel for domestic tasks. This was frequently discussed in both Europe and America by the early 1900s. Many, mostly women, were thus forced to start working in a space they never had tread their foot in. Suddenly the kitchen had to answer to new ideals, a working class aspiring for modernised equipment and an upper class yearning for less work (Torell et al. 2018 pp. 25-29).

In this midst the early visions of our modern kitchen arose. In the years of 1925-30 the New Frankfurt building programme was constructed with Ernst May as head architect. With a focus on quick cheap provision for the masses the programme was to answer to the great housing crisis in interwar Germany. Along progressive ideas like publicly governed social housing, Margarete Lihotzky was appointed with the task to bring forth a new modern kitchen vision. "Lihotzky was a rarity - a respected female architect in what was decidedly a man's world," writes Gwendolen Webster for the Architectural Review in 2021. Her design was rational and compact, with natural daylight

and closeness to surrounding functions, a kitchen promoted as 'by women, for women'. Making every detail as small, neat and labour saving as possible the total size comprises an area of 1,9 X 3,4m. Although it was at the core of the programme to save production costs, her attention to efficiency is less surprising as she never had interest in cooking herself. This I must say, makes it even more remarkable how well her kitchen functioned, production wise as well as practically in use (Webster, 2021). Although some things common for our kitchens today did not exist at this time there are some aspirations to resolving various technological dilemmas. Included in this kitchen is for instance an early example of a refrigerator made of tin boxes and hay (see image: \_06) Her design for the New Frankfurt programme followed her earlier work in Vienna for the self-help building movement, but now in a much larger scale. More than 10 000 homes were generated through this programme. Further findings by Hochhaeusl show notes by Lihotzky stating:

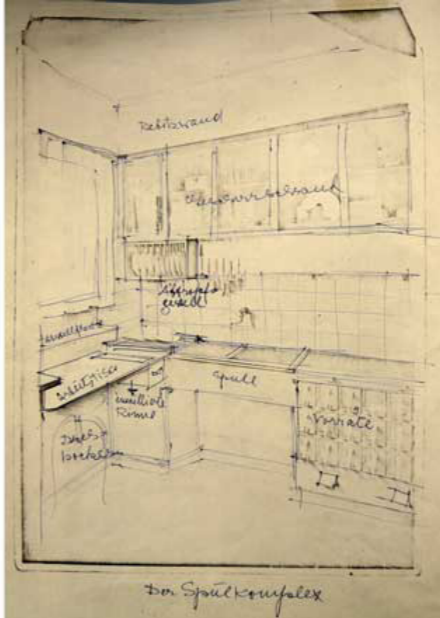
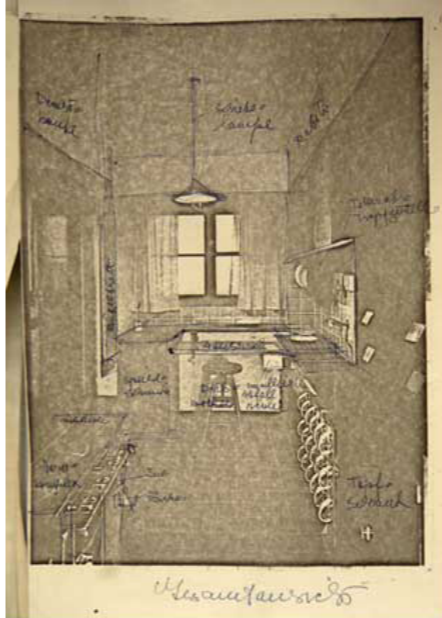
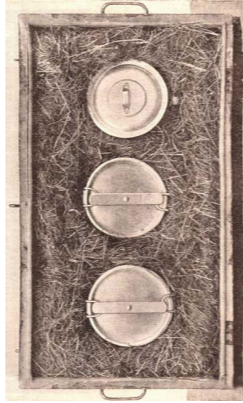
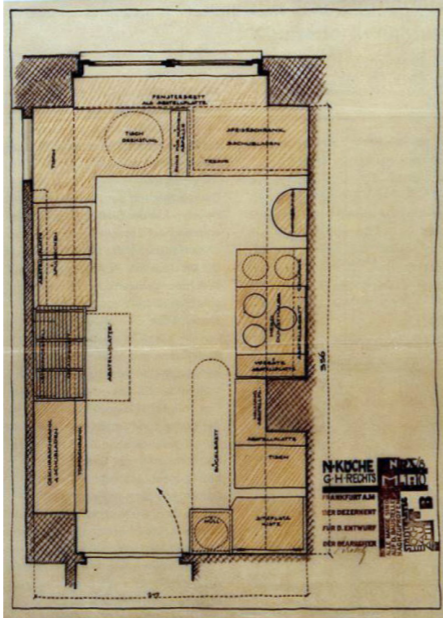
"The standardised kitchen arrangement is built on scientific principles based on the new working methods of rational housekeeping; we shall build small kitchens not only to save space and money, but most of all to save time" -(M Lihotzky, (1922). Beschreibung der Kochnischen- und Spülkücheneinrichtung, Archival Document PR 28/6 TXT, University of Applied Arts, Collection and Archive Vienna)(Hochhaeusl, 2013)

According to Nancy Mitchel writing for 'Apartment Therapy' in 2019 there is a correlation to the kitchen designed by Benita Otte for Haus am Horn in 1923. One trait that is possibly inherited is the undivided countertop, which was something revolutionary. But there are many inventions in the Frankfurt kitchen that are unique. Easy to spot are of course the container drawers with handle, spout and label made in aluminium(Mitchell, 2019).

Keeping streamlining principles as an ideal was not new, the mid 19th century author Catherine Beecher compared an ideal home kitchen to the ones used by the military. Along with this desire is the early 20th century view of the female role in a home, which is paramount and could be discussed for an entire thesis. The norm of the modern housewife was consciously shaped into a rational



07\_



09

#### 09 PLAN DRAWING

"Frankfurter Küche - Floor plan, 1927"

Source: [Online image] [https://www.metalocus.es/sites/default/files/styles/mopis\\_news\\_carousel\\_item\\_desktop/public/metalocus\\_margarete-lihotsky\\_40\\_copia.jpg?itok=gv2d0r4H](https://www.metalocus.es/sites/default/files/styles/mopis_news_carousel_item_desktop/public/metalocus_margarete-lihotsky_40_copia.jpg?itok=gv2d0r4H) (collected 03.05.2022)

Courtesy by Universität für angewandte Kunst, Wien, © Kunstsammlung und Archiv

This drawing is a mirrored version of the kitchen in the previous image. Each module is shaped according to a function accessible from the core path. Is this an elongation of army tank design?

#### 10 EARLY REFRIGERATOR

"Hay Box"

Source: Hochhaeust, S., 2013. From Vienna to Frankfurt Inside Core-House Type 7: A History of Scarcity through the Modern Kitchen. Architectural Histories, 1(1), p.Art. 24. DOI: <http://doi.org/10.5334/ah.aq> Hay Box, ca. 1914, Cookbook for the Hay Box with a Commentary and Tips for Healthy Living, Ida Schuppli and Betty Hinterer, Vienna, Leipzig: Deuticke, 1914, p. 6

Preserving leftovers has been a case in food culture for probably as long as humanity started to cook. Placing the food in these tin containers could keep the food from going bad because of the insulation properties. The box was also easy to build from available leftover materials.

#### 11 & 12 PRE FRANKFURT KITCHEN

"Work In Progress"

Source: ibid.

Photocopies of the Canonical Views of the Frankfurt Kitchen with Remarks by Schütte-Lihotzky, Schütte-Lihotzky Inheritance, University of Applied Arts Vienna, Collection and Archive, Sekundär Küchenmaterial, PRNR 50/46/TXT.

Clear cut, Lihotzky carefully designed the kitchen in order to lessen work and maximise outcome, enabling time. Here is an earlier version of the kitchen in Vienna including annotations.

#### 13 MARGARETE SCHÜTTE-LIHOTZKY

"Portrait"

Source: [Online image] [https://www.metalocus.es/sites/default/files/styles/mopis\\_news\\_carousel\\_item\\_desktop/public/metalocus\\_margarete-lihotsky\\_cocinas\\_01\\_1.jpg?itok=2cLxvxa](https://www.metalocus.es/sites/default/files/styles/mopis_news_carousel_item_desktop/public/metalocus_margarete-lihotsky_cocinas_01_1.jpg?itok=2cLxvxa) (collected 03.05.2022)

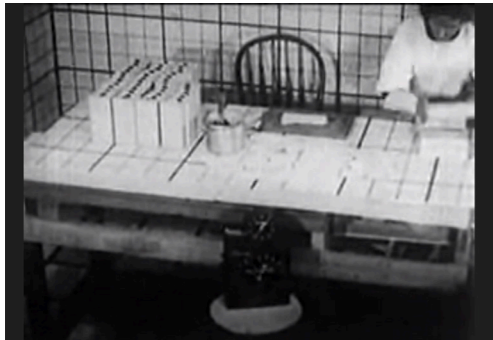
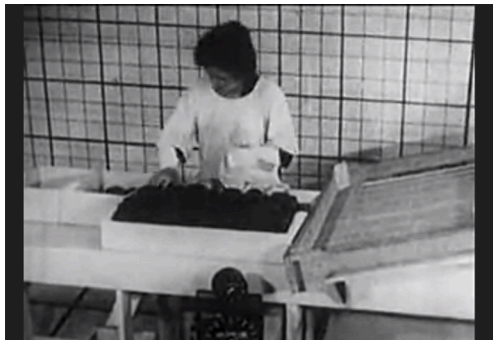
worker but also viewed as the loving mother. She should effortlessly work as little as possible with cooking in order to spend more time comfortably with her family. Note also that the kitchen was in general designated for only one person with carefully tailored equipment. Lillian Moller Gilbreth is another main character of western kitchen modernisation. Together with her husband, time- motion studies were developed using charts mapping kitchen work efforts. Along with Christine Frederick and her home laboratory kitchen, make-to-fit equipment and fixtures was designed all in the orderly fashion of scientific management formerly presented by Frederick Taylor. (Torell et al. 2018 pp. 32-35). The development of what we today call ergonomics is discussed later in this thesis. First, let us briefly look into the work of Lillian Moller Gilbreth.

When speaking of female kitchen visionaries, surely Lillian is not passed by unnoticed. Barbara Penner addresses that her career stretched for six decades and notes Sigfried Giedion mentioning Gilbreth as the founder of industrial psychology. With her great amount of work and contributions including a doctorate in psychology and various celebrated publications, it is funny that even she did not cook at home. She was yet an advocate of work and saw it as something to be valued rather than wasted. Being a humanist, she spent a lot of work investigating and deliberately presenting solutions for disabled and war veterans. An example is the 'Heart Kitchen' designed for people with heart diseases, aiming to remove any exhausting labour. The view that one solution should fit all did however not apply to Gilbreth's work, who favoured user-centred solutions such as varying bench heights. Although her influence was great, her vision for body-centred design is by today still something visionary when it comes to kitchens (Penner, 2021).

In order to understand the shaping of the modern standardised kitchen one must see Lillian's work in relation to the industry. Lillian had an education in literature and first when meeting Frank Gilbreth did her work towards Industrial Psychology start. Frank was a businessman more than an author and with great certainty Lillian wrote most of the books under Frank's name. Prior to their engagement she was already involved with the book Field System, later published in 1908. Before their encounter Frank had been engaged with the bricklaying industry, developing methods with

specific scaffoldings in order to make production fluent and more efficient. The methods by Frank Gilbreth consisted of eliminating unnecessary motions from the process (motion study) and were developed before the encounter with Frederick W. Taylor in 1907. It was the union of Taylor and the Gilbreths that would springboard Scientific Management, then known as Taylorism, into transforming and governing modern industry. What makes Lillian stand out as a great pioneer in an otherwise dominant male choir is her genuine interest for human wellbeing. In contrast to traditional Taylorism Lillian favoured safe, happy and humane working environments. Thus one publication ought to be given special attention, Fatigue Study from 1916. In this book the Gilbreths discuss the ill effects of fatigue in industrial work and consequently risks for injuries. Among the solutions presented are ergonomic chairs, tea breaks, uniforms and even using fire evacuation exercises to stimulate morale and wellbeing, all in favour of measurable production results(Mees, 2013).

The Swedish fairy tale of kitchen studies follows the above mentioned visions. When putting to display the history of kitchens in Sweden one has to mention the studies by HFI (Hemmens Forskningsinstitut, i.e. Home Research Institute). Even if the visions of the ideal citizen and utopian future of rational architecture appeared before WWII the implementation of developed standards in Sweden happened first after the war. The exhibitions Bygge och Bo during the 1920:s, the Stockholm Exhibition 1930 and Gothenburg Exhibition 1923 all presented modernised kitchens, but it was the Swedish building standard formed in 1942 which became the inauguration. In 1944 HFI was initiated with leading experts dedicated to continuing the journey that had started before the war. With governmental support and great optimism, solving the housing situation became the working ground for the new kitchens. The design was adjusted, tailored and turned into a Swedish icon. The kitchen topology became more open in order for the housewife to supervise and educate her children while simultaneously cooking and performing other domestic activities. When promoting the new kitchen, films and manuals for efficient and practical use followed. Also modernised comestibles with ready meals and baking mixtures were created to lessen the cooking time additionally. The monumental



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#### 14 TIME- MOTION STUDIES

"The Original Films of Frank B. Gilbreth" Presented by James S. Perkins, In Collaboration with Dr. Lillian M. Gilbreth and Dr. Ralph M. Barnes." Frames taken from a study of packing soap.

Source: [Online video] <https://www.youtube.com/watch?v=9fQJfap7SAQ> (collected 03.05.2022), CC

Also collected from the Online book; BUS300: Operations Management. <https://pressbooks.nsc.ca/operationsmanagement2/chapter/8-2-motion-study/>

[The Time- Motion Studies were common in the emerging practice of Industrial Management. Although much focus was put on quantifiable results and efficiency in factory work, the Gilbreths had a great concern for the wellbeing of workers.]

These studies revolutionised factory production in their time. In relation to a contemporary society where production is made more efficient and predictable with robots, the human culture and quality of living must be questioned again. Is pure efficiency the answer to well-being? Is the body a vessel for a thinking lump in the skull or an intelligent organism capable of using multiple senses for rich experiences? Note the running chronometer which is helping to keep track of the movement when shooting with more frames per second. Also pay attention to the grid on the various surfaces used to map the trajectory movements in space.

#### 15 KITCHEN PLAN BY LILLIAN MOLLER GILBRETH

"In a plan from New York Herald Tribune Institute Presents Four Model Kitchens, 1930, a service table on wheels creates a circular work space" Source: Penner, B. (2021) "Reputations Lillian Moller Gilbreth" Architectural Review. (Dec 2021 / Jan 2022) 1487 pp.32-35 [Online image] <https://www.architectural-review.com/essays/reputations/lillian-moller-gilbreth-1878-1972> (collected 03.05.2022)

Note the compact placement of Stovetop, Sink and Fridge.

#### 16 LILLIAN MOLLER GILBRETH GIVING LECTURE

"Credit: Purdue University Libraries" Source: Penner, B. (2021) "Reputations Lillian Moller Gilbreth" Architectural Review. (Dec 2021 / Jan 2022) 1487 pp.32-35 [Online image] <https://www.architectural-review.com/essays/reputations/lillian-moller-gilbreth-1878-1972> (collected 03.05.2022)

Did Lillian spend more time lecturing than cooking?

#### 17 PAINTING WITH LIGHT

"Motion efficiency study by Frank Gilbreth, c. 1914. Collection: National Museum of American History"

Source: [Online image] <https://designobserver.com/feature/exposure-motion-efficiency-study-by-frank-gilbreth/39272> (collected 03.05.2022)

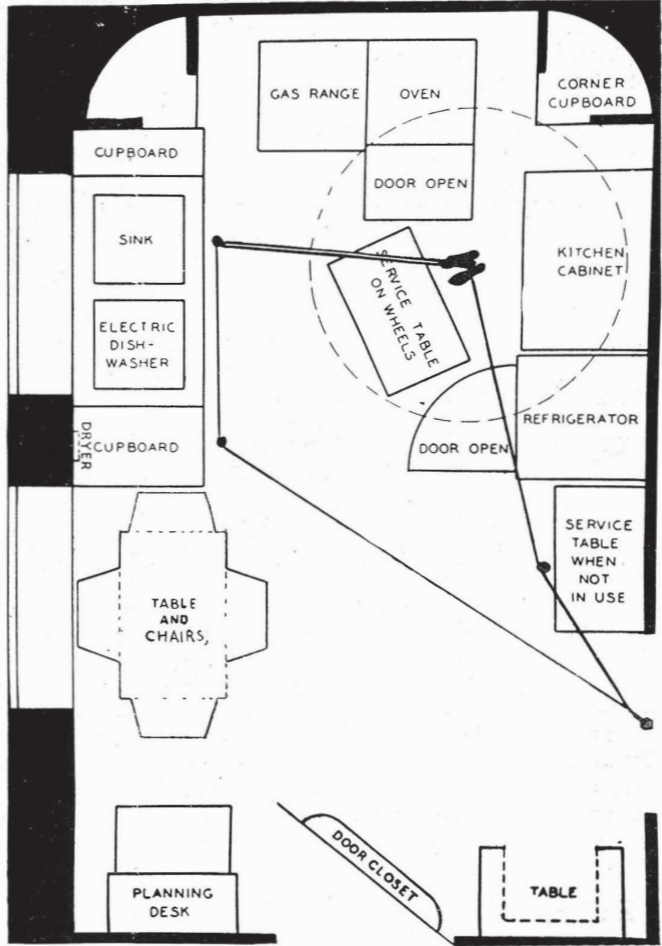
We can somewhat interpret the variation in speed and trajectory in space, but what is the tonus and articulation? How aware is the subject of the feet grounded and stuck to the floor?

#### 18 SOLIDIFIED MOVEMENT

"figure 2. Wire Model of foreman on drill press" Models like these were made interpreting the movement tracked in the time-motion studies, a spatial analysis of movement.

Source: [Online image] <https://medium.com/@s.cho/1910-1924-910693509313> (collected 03.05.2022)

How well does this steel wire represent the movement? Is this a necessary abstraction? Is the act of making the model a tool for understanding rather than the model a tool for communicating the movement? What is gained by the abstraction and elimination of the body? Are dancers capable of understanding the whole body with its many trajectories simultaneously?

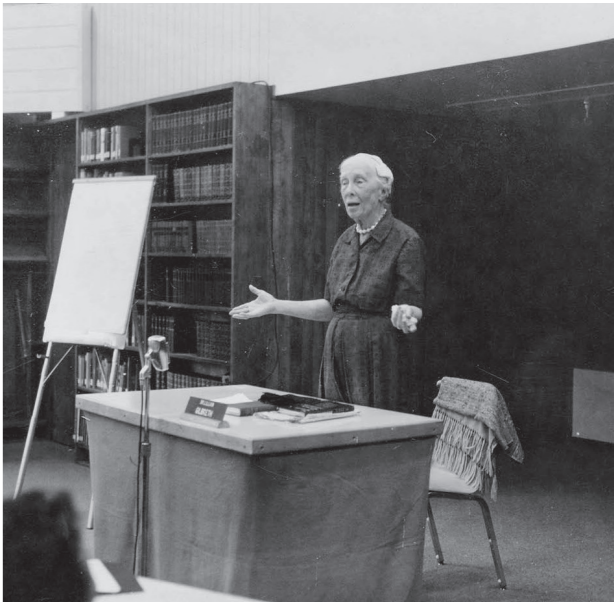


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statement of standards also happened on an industrial scale. The industries which had been committed to war materials, reconfigured to produce building materials with interior fixtures. Suddenly, not only prefabricated blocks with whole kitchens and bathrooms but also ready to enter houses were launched from the assembly line. The new standard enabled a modern kitchen, with refrigerator, electric stove and comfortable working space, for all. This is not figuratively speaking, practically 1 milion homes with modernised kitchens were produced between 1965 to 1974 (Torell et al. 2018 pp. 37-48). As astonishing this may seem it did not happen overnight. Statements such as the Stockholm Exhibition in 1930 points towards Sweden as a strong collective looking for modernisation already before WW2. Words by Gunnar Asplund about the exhibition purpose presented by Atli Magnus Seelow show that the future was portrayed progressive and bright;

"The Nordic exhibition type that we have aimed at here is something quite different. It could be said to have a twofold intention: to give an impetus to development while fulfilling the requirements of beauty and festivity." (Kulturkrönika 1930, Interview with Gunnar Asplund et al. Byggmästaren. Utställningsnummer, 1930, p. 11.) (Seelow, 2016, p. 40)

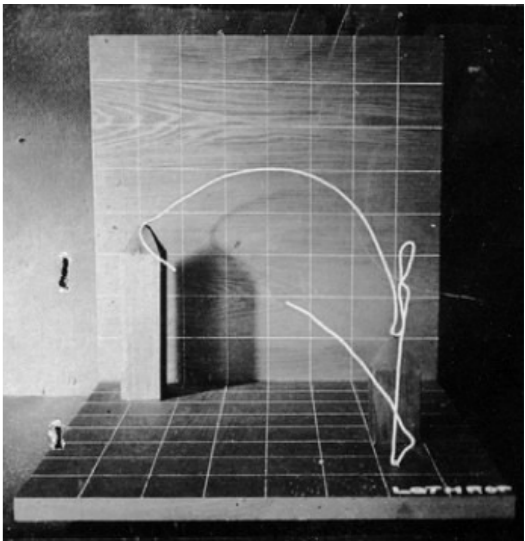
As with the German building programmes the goal was to provide homes that met public demand both in terms of price and quality(Seelow, 2016 p. 122).



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### Aktiv Hushållning

(Skriftserien. Aktiv hushållning utgiven av Statens Informationsstyrelse, Pris 14 öre. 71422. Nordisk Rotogravyr, Stockholm 1940)

s. 2;  
“Denna skrift är inledningen till en serie småskrifter, som utgives av Statens Informationsstyrelse under rubriken AKTIV HUSHÅLLNING. Den avser att ge den allmänna bakgrunden till de praktiska råd och anvisningar rörande konsumtionen, vilka komma att utgöra innehållet i de efterföljande småskrifterna. Den vänder sig till alla konsumenter, i första hand landets husmödrar.”

s. 14;  
“ Innebär att varje enskild konsument, varje familj med man och hustru i samråd, varje ledare av storkushåll stå beredda —

- att överge gamla traditioner och fördomar och att rationalisera sitt arbete och sina konsumtionsvanor;
- att använda alla sina erfarenheter och all sin kunskap och bruka all uppfinningsrikedom för att, enskilt och i samarbete med andra, lösa de nya problem, som avspärningen och försvarsberedskapen ställa dem inför;
- att icke låta slumpen bestämma utan att målmedvetet och med omsorg planlägga sin hushållning så, att individens och familjens hälsostandard tryggas och landets knappa tillgångar bli utnyttjade och fördelade på det ur samhällelig synpunkt bästa sättet. ”

### Active Housekeeping (free translation 04.05.2022)

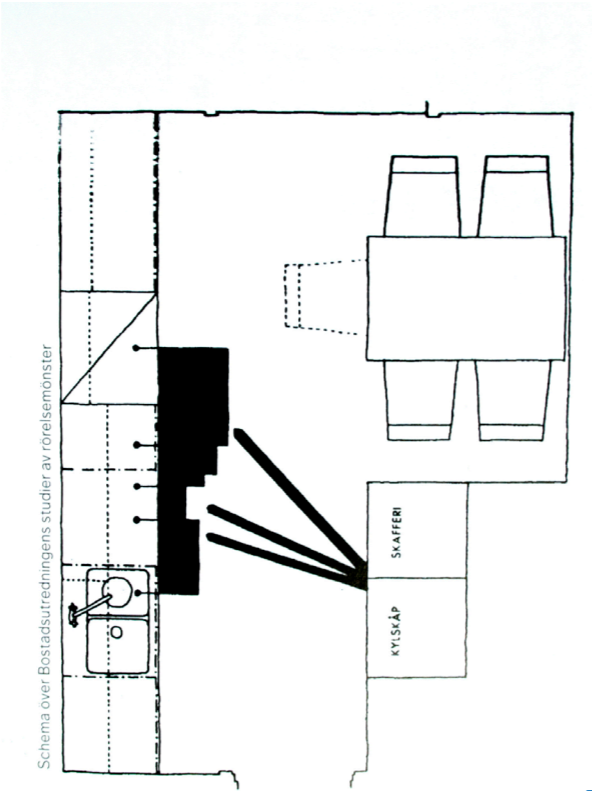
(Writing series. Active housekeeping published by The Government's Information Board, Price 0,14 SEK. 71422. Nordisk Rotogravyr, Stockholm 1940)

p. 2;  
“ This publication is the first in a series of small pamphlets published by The Government's Information Board with the heading ACTIVE HOUSEKEEPING. The purpose is to give the necessary background to the practical advice regarding consumption, which will be the content of the following publications. The target group is all consumers, foremost the country's housewives. ”

p. 14;  
“ This means that every individual consumer, family with husband and wife collectively, housekeeper are prepared —

- to abandon old traditions and superstitions and rationalise the domestic work and consumer habits;
- to use all experiences, knowledge available and ingenuity to, individually and collectively with others, solve the emerging issues which lock down and defence preparation make them face;
- to not let chance dictate but with focus and awareness plan the housekeeping to the degree, that the individuals and family's standard of health is secured and the countries resources are utilised and divided in a societal view most beneficial way. “

From the perspective of war and scarcity the later governing acts in Sweden during 1940, here urging the public into rationalising consumer habits, are not so surprising. What these pamphlets also reveal is a well rehearsed agenda which mirrors ideals from that time, which were certainly not limited to central Europe or America. The influence from these continents is, however, impeccable. In the development of the Swedish kitchen, Time- Motion Studies were used, (see image 00), and the Kitchen triangle as originally observed by Lillian Moller Gilbreth was also interpreted within a Nordic Swedish context (Torell et al. 2018 p. 38).



### 19A & 19B HFI MOTION STUDIES

Diagrammatic movement analysis by Home Research Institute. These studies determined the placement of appliances and the form of the kitchen.

Source: Björk et. al., Tidstypiska kök & bad 1880-2000, editor Ann Pålsson. (AB Svensk Byggtjänst, 2020)

*This certainly looks familiar doesn't it? Diagrammatic orientation of movement is not created by the Gilbreths, but this way of thinking came from scientific management where the Gilbreths were important figures. Today maybe a better response to the schematic study is different? Maybe the space and the body should be used mor holistically?*

### 20 THE UNIVERSAL STANDARD ?

“Man, The Universal Standard” The targeted man as viewed by Ernst Neufert

Source: Ernst Neufert, Architects' Data, edited and revised by Rudolf Herz, translated by G.H. Berger et al. (Hamden, Conn.: Archon Books, 1970)

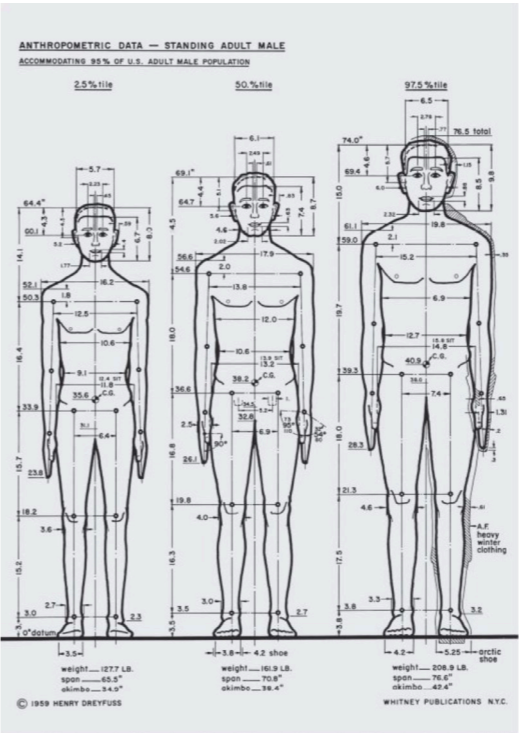
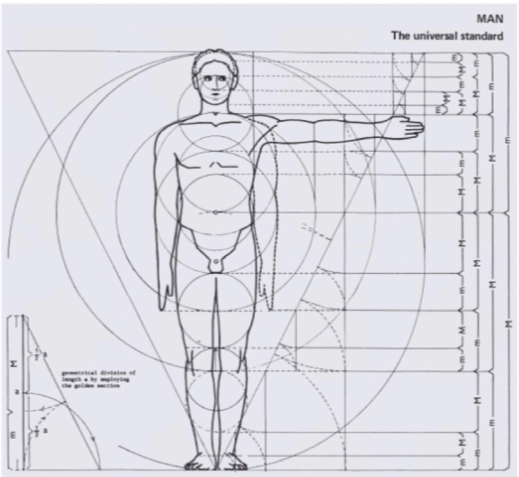
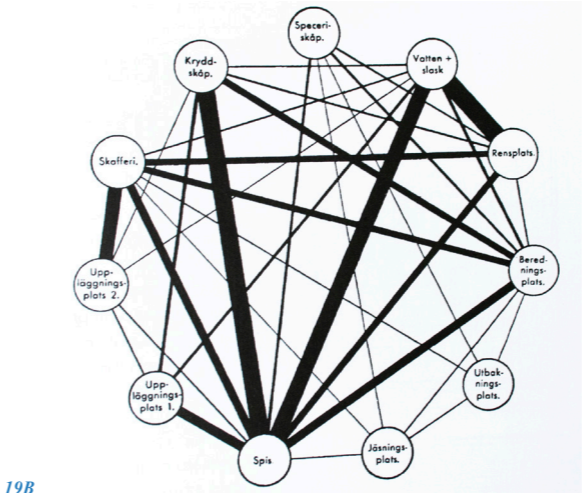
*I argue that If anything is constant about the general man it is change. Are some not universal? Can a person be universal for a part of life? Is it necessary to define the universal? Can bodies apart from the universal deal with the designed by the universal? Are the universal as capable of moving as the smaller or larger compared to the universal?*

### 21 JUST THE AVERAGE JOE

“Anthropometric Data-Standing Adult Male;Accommodating 95% of the U.S. adult male population.”

Source: Henry Dreyfuss and Associates, The Measure of Man: Human Factors in Design, second edition (New York: Whitney, 1960)‘ Collected from Governing by Design by Harwood et al.

*Will the future be this bright, with tall necked, strong postured, feet grounded and tall gazed human beings?*



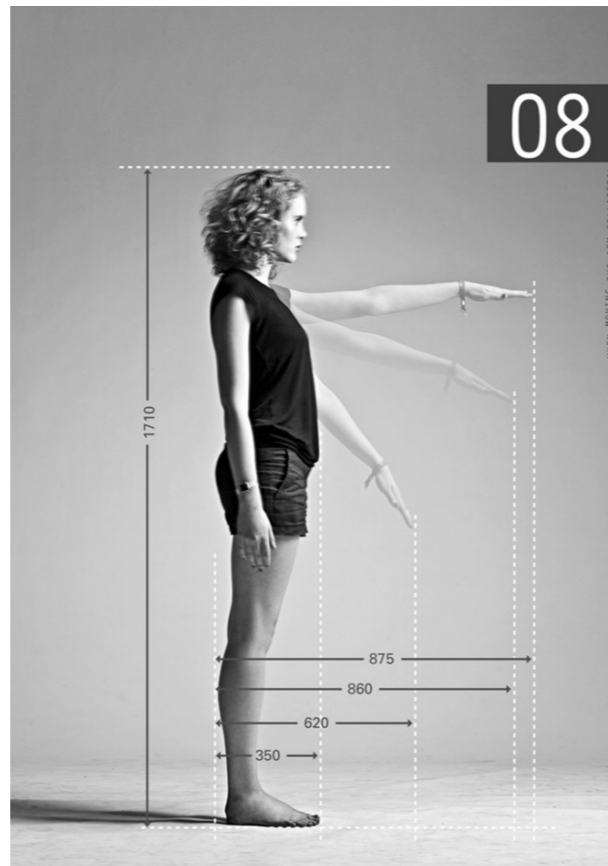
As previously mentioned, the evolving practice of Industrial Management in America took off with the union of the Gilbreths and Frederick W. Taylor. To begin this clause let's continue with the Motion Studies later applied also in Sweden. Frank Gilbreth is the known inventor of motion studies, first used to develop and later in a performativ manner also display efficient work. Where Taylors Time Studies inaccurately utilised a stopwatch Frank Gilbreth was instead an active user of film and photography. Although it can seem boasting with the name 'Advanced Motion Studies' and Frank Gilbreth in every film, the material proved successful and was, as Frank's practice in general, indeed pragmatic and modern. The 'Advanced Motion Studies' evolved from what Frank called 'micro-motion study', a hands-on method of improving bricklaying. Photography was already used for related purposes at the time but in these studies Frank approached the camera rather differently. The worker was placed in a monochrome grid tapestry for accurate spatial mapping (See image series 14). This was filmed with a hand cranked camera which could follow the detail of movement with framerate, i.e. speeding up the cranking. In order to keep track of the elapsed time a micro-chronometer was put in the fore- or background, i.e. a hand running around a wheel at a steady rate. Eventually Frank also started to add light sources to the subject's hand to get a more selective view of the hand trajectory. With great ingenuity the material was used and post-edited in various ways to convey the necessary information. The chronographic images became symbols of Industrial Management and were also used for educational purposes. The inventiveness does not stop with the use of images. The pathways revealed with lightbulbs were also translated into steel wire models for a better spatial understanding(see image 18). Frequently used actions such as 'find', 'grasp' or 'use' were annotated into icons called 'Therbligs', humoristically Gilbreth read backwards. However, what might be most commendable with the Gilbreths is their ability to promote and create a social movement, as they played an important part in spreading Scientific Management globally (Mees, 2013).

The careful study of human work in the 20th century was done also in other ways. In the chapter Interface from 'Governing by Design', John Harwood uncovers the birth of ergonomics. In a growing industrialised society and the human encounter with machines grew a need for human consideration with focus on the in between. With a desire to humanise design Henry Dreyfuss and Ernst Neufert are highlighted as main characters. Although Neufert was earlier accumulating data on human sizes, I will start with sharing some of the work by Dreyfuss which Harwood presents. Similar to

previous examples there was a close relation to industry and war. After WW2, Dreyfuss and his colleagues were working on a war tank instrument panel for the U.S. Army and had drawn a full size drawing of the panel on a wall. Using data from measuring soldiers, in black line drawing, a silhouette had been placed on top of the blueprint of the imagined driver. When looking at the lifesize drawing they realised they had created an estimation of the average man which later would be named 'Joe'. Also a female counterpart was designed called 'Josephine'. Now, instead of digging through a pile of collected data, they could account for one average answering the majority of cases. The book 'The Measure of Man' from 1959 is renamed with "and Woman" added in 1993. Pay attention to Dreyfuss' motive in the book 'Designing for People' from 1955 where he stressed the need not only for adjusting design for 'Joe' and 'Josephine', but to make sure the design does not cause psychological distress or bodily pain. (Harwood, 2012).

The same way Dreyfuss is driven by care for human encounter with design, 'The Architects' Data' (Third Edition) starts with introducing the human relation to design and a specific focus on the measurable scale and space requirements. It is pressed on the importance of knowing these measures as a working architect; "They have to understand the relationship between the sizes of human limbs and what space a person requires in various postures and whilst moving around." (Neufert, 2000, p.1) According to Harwood the 1936 book 'Bauentwurfslehre' (Building design guide) is the text known for establishing ergonomic design. Ernst Neufert started as one of the first students at the Bauhaus school also working for Walter Gropius. When the war came he chose to put focus on automation and mass production leading to the encyclopaedia most architects today have in their bookshelf. It started as a pamphlet called Mensch als Mass und Ziel (Man as measure and target) where he expressively discussed the average as an ideal and norm, in need of protection from the dangerous environment. In a later book 'Bauordnungslehre' (BOL) he states as a solid truth that "only automatism makes perfection possible in living and work." According to Neufert the human body should be seen as a piece in a great system rather than an individual being. In relation to this system the lead word is efficiency, with less effort more is gained and so the ergonomic equation follows; speed equals work over time. In the domestic environment as well as the factory, functions are separate and ergonomics applied. This principle was certainly assigned to The Frankfurt Kitchen and the result is clear, a minimised efficient space and a slick design ready for production (Harwood, 2012).

Today's conventions it seems, were indeed a challenge promoting intense innovation aspiring for a better future. Giving an end to this passage and before discussing present health issues it must be pointed out that the early modernist architects were indeed committed to health and wellbeing. In X-Ray architecture Beatrice Colomina asserts that the modern house, stripped away from excessive ornamentation, was to exhibit the modern lifestyle charged with exercise. The house should not only care for the body as discussed previously, but also facilitate training and fitness. Gymnastic equipment was commonly placed in the newly designed villas of the early 20th century, further amongst many both Walter Gropius and Le Corbusier were earnest designers of gym facilities. In the 1922 'Immeuble Villas', Le Corbusier placed sports rooms in each apartment along with a full kilometre running track on top of the roof (Colomina, 2019 pp. 27-30). What happens with the human body living in such a streamlined world where surfaces do no harm, functions are separate and space requirements are followed by strict rationalisation? Are we today harvesting that future? What are the challenges we face and is it appropriate to challenge these well developed conventions?



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### 22 AN ARMS REACH

"Human Reification; or Ernst Neufert's Definition of Space."

Source: A Photographic Essay on the Reification of Bodies in Neufert's Ergonomics, Written by Mónica Arellano, Translated by Maggie Johnson, July 09, 2019 [Online article] <https://www.archdaily.com/920097/a-photographic-essay-on-the-reification-of-bodies-in-neuferts-ergonomics> (collected 03.05.2022)

*I still wonder what is the actual application of the original map by Neufert. And even with a real human being it is not clear to me what this movement depicts. Are human beings stiff machines only intended to use arms in these selected angles? How often do we reach with stiff arms and immobilised elbows in this manner?*

### 23 ANOTHER ARMS REACH

A Contemporary Dancers Definition of Space?

Source: A Photographic Interpretation of the Essay on the Reification of Bodies in Neufert's Ergonomics; Nathanael Larsson, April 13, 2022, Chalmers Atelier

*As a dancer one practices constantly the meaning of reaching beyond bodily limitations. Even standing still there is an ongoing investigation with reaching and giving more space to joints and limbs. The activity is sometimes so subtle that it merely electrifies the skin. Here the reach clearly indicates that our bodies are capable of much more than the stiff notion portrayed by Neufert.*



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## 2.3. Medical Attention Contingency

Well observed by Architectural theorist Beatrice Colomina the concern for health in architecture has probably existed since the creation of the discipline itself. When Vitruvius commenced architectural theory he strongly promoted medical studies for architects and the necessary concern for health (Colomina, 2019 p. 13). After all, of the many desires within architecture one major is to provide useful spaces for human living. I find this almost nurse-like care for humanity among architects most intriguing. Can architecture really give answers to any problem? Naturally as with medicine, there is in architecture an ongoing search for a more beneficial situation that can enhance human living. This could be viewed as a functioning equilibrium similar to an ecology. In this case (Challenging Conventions : Charging Habitual Movements in Domestic Kitchens), I have chosen to investigate the potency of the aforementioned desires. Further, since the concern for human good is much dependent on normative visions and ideals, it is important to clarify the nature of such a norm. I here follow the line of thought by J. Harwood in Governing by Design and share some of the perspectives on the philosophy behind norms, the normal and pathological as discussed by Georges Canguilhem.

First when introducing the polemic discourse between healthy and sick, normal and pathological, Medical Philosopher Georges Canguilhem uncovers many views on philosophy and medical approaches to cure. It is easy to become mesmerised by the contrasting historical perspectives and get lost imagining how these were manifested. The Normal can be viewed from different angles. One way to see the idea of norm is the general lack of affliction. In the encounter of an anomaly or disease one is made aware of the normal in a search for remedy. But the normal could also be defined by gathering quantifiable measures aiming towards for instance healthy and long life. There is an intrinsic relation to nature and the mechanisms thereof. The human body as a biological entity will calibrate according to its environment, produce heat in the cold and sweat in the warm. The body will create symptoms of disease aiming to cure an intrusive anomaly, and likewise humans will try to return to a seemingly normal state. “To govern disease means to become acquainted with its relations with the normal state, which the living man - loving life - wants to regain.” Canguilhem goes as far to say that the norm exists in its conflicting opposite to the odd, thus creating a potential discourse of settling the problems arising. In searching for an order it becomes clearer what is the disorder(Canguilhem, 1991, pp. 39-46, 237-240). What is the order which we search for? Where does humanity meet the requirements of a functioning normal? One

answer was developed in the early 20th century, but is this the case today?

Studying YFA (Yrkesföreningar för Fysisk Aktivitet) and their publication ‘Fysisk aktivitet i sjukdomsprevention och sjukdomsbehandling’ (FYSS), in english ‘Physical activity in the prevention and treatment of disease’ from 2021, the solution for good life is accomplished through added physical activity. A large group of scientists and practitioners from medicine gathers recommendations and data related to physical activity as a remedy, published and updated yearly. Throughout the book it becomes clear we have a big problem with the present state of affairs and the need for movement is rather urgent. And it is not a complicated science but a matter of simple wellbeing, those who are physically active sleep, function and feel better(YFA, 2021). The book somewhat follows the structure of WHO’s (World Health Organisation) ‘Guidelines on Physical Activity and Sedentary Behaviour’ from 2020 with diagrams, bullet points and easy to read steps. In general the recommendation by this report also found in FYSS is that “doing some physical activity is better than doing none”(WHO, 2020 p. 67) which should be followed by increased amounts according to what is possible. To be more specific,

### 23 KNEADING DOUGH ON A CHAIR

“evelyn-etheredge-late-19th-century-kitchen”  
Source: [Online image] <https://laurelberniinteriors.com/wp-content/uploads/2015/05/10-13125-post/evelyn-etheredge-late-19th-century-kitchen1.jpg> (collected 03.05.2022)

Person cleaning clothes or kneading dough in a kitchen from the late 19th century. The posture is lightly crumbed due to the placement of the bucket on a chair, using locked elbows and straight arms. By moving the upper back and shoulders a pushing movement is repeated. Such tasks performed on a kitchen table would be less ergonomic and more stressful for especially the neck and shoulders. Not only does this reveal the plasticity in our body, but also the environment. What can a chair be used for?

### 25 KID KNEELING ON A CHAIR

“5792s, Hfi 1949, 48-49 2 s. 87”  
Source:Nordiska Museet, Foto Ateljé Sundahl, HFI 1949, Stockholm

A young kid gazing out through the window, using the chair to get high enough. With good manners the kid is not standing on its feet but staying on the knees. Another option for use of a chair.

### 26 A HANDS ON CHAIR

An Acrobats Approach to Furnacing  
Source: A Photographic Interpretation of a Chair, Nathanael Larsson, April 13, 2022, Chalmers Atelier

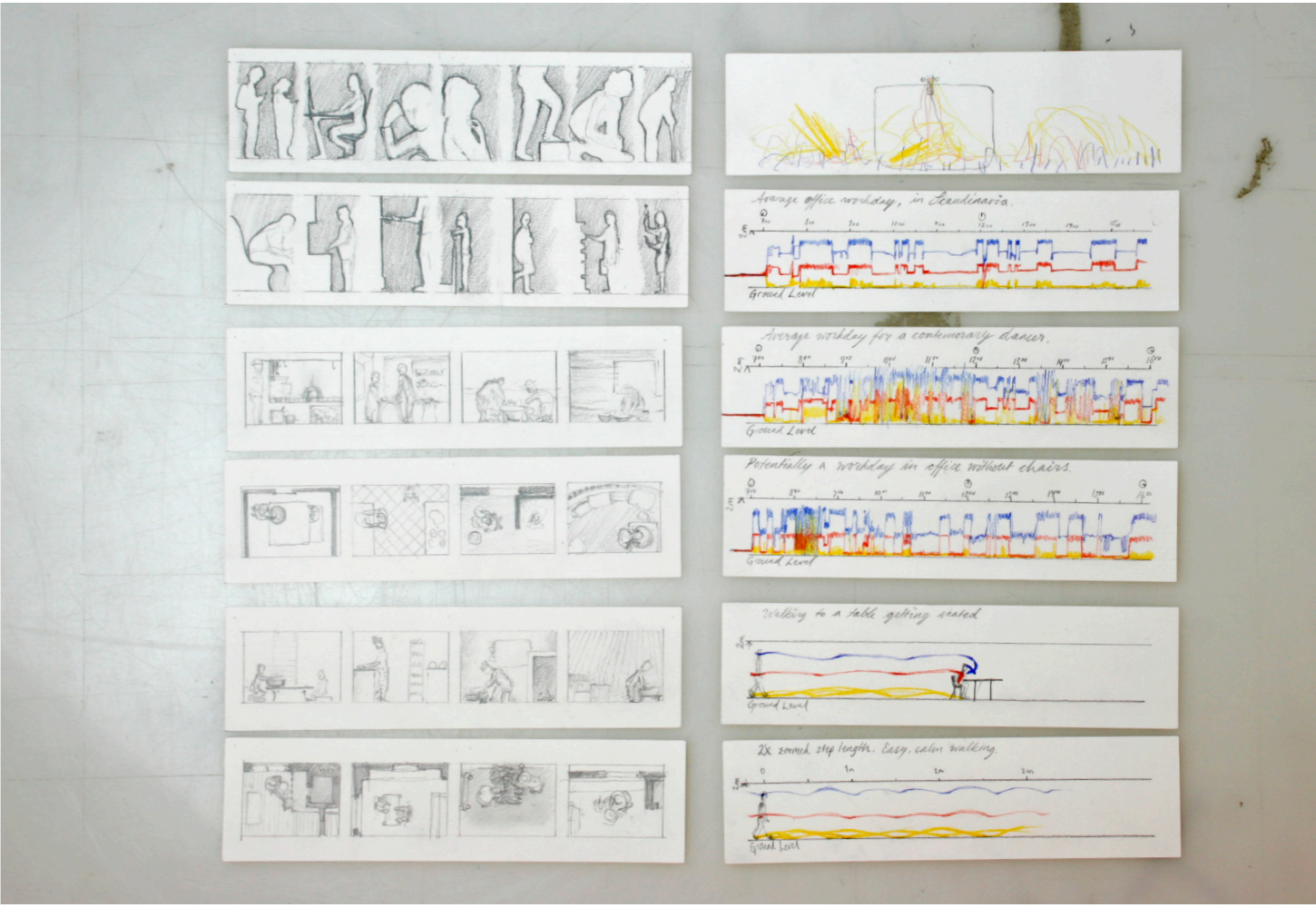
With all the options of using a chair there will always be versions we never consider. Does it make them less real, or less valuable? Can domestic life include majestic bodily actions?

### 27 PRE STUDIES OF DOMESTIC SPACE

Gathered drawings from the emerging thesis.  
Source: Photograph and drawings by author. Drawings from December 2021, Photograph taken April 2022

Drawings 1&2(left column); What is an ergonomic interface? Is this also a matter of preference or even presence? Drawings 2-6(left column); The variation of kitchen space globally and historically stretches far beyond the conventions as seen in Scandinavia. Why do we insist on cooking in a certain topology? Drawings 7-12(right column); What does trajectory mean? And to what extent is it interesting to understand where our limbs move through space?

27\_



any individual disregarding age should perform a minimum of physical activity, i.e. not sitting and the higher intensity the better, between 150 and 300 minutes per week or 20 to 42 minutes per day. Higher levels of physically active lifestyles is proven to lower risks of many cancers, coronary heart disease and type-2 diabetes (WHO, 2020). Following the statements by WHO and YFA is enough to fill the rest of this thesis. In order to stay concise I will thus share just a fraction from FYSS which I have picked up and used as incentive for the following investigations.

Physical activity is a central part of wellbeing throughout the entire human life. The challenge is how one can support those in need of healthier and more physical habits. Among the eight investments presented in chapter 1.1 intended for policy makers and societal interventions, five encompass environments in various ways: Schools, Transportation, Urban Planning, Sports facilitation and Active Workplaces. Here I propose, without interfering with human agency, if activity could additionally encompass the domestic environment? Some of these categories are maybe self-evident but something of value for this thesis is the recommendation for shaping the work environment in a way that physical activity is enabled. Other tools that have proven successful are encouraging working cultures and the spread of knowledge regarding physical activity(YFA, 2021, pp. 18-22). These aspects I am trying to respond with the outcome of this thesis through the kitchen.

The benefits of charging habits does not stop with gaining movement range, strength and stamina. It has been discovered that practising cognitive abilities including motor refinement and

intellectual stimulation has great benefits for the ageing brain. This is at least what Liuyang Cai et al. state in their article ‘Brain plasticity and motor practice in cognitive aging’ for Frontiers in Ageing Neuroscience. They share a long list of evidence for motor practice in order to prevent functional decline in older adulthood. Motor learning, or acquiring skill through repeated practice engaging physically and or mentally, stimulates brain plasticity. It is proven that physically fit adults perform better than those less fit on executive functions. It is proposed that older adults engaging with bodily exercise lessen the cognitive decline and possibly even prevent dementia. Cai et al states; “Exercise improves vascular function, decreases obesity and reduces inflammatory markers to enhance brain health and functioning”. They also push that for older adults physical activity should be reasonable and easy to perform. Last but not least they recommend the use of mindfulness, or more articulate; mind-body concentration practice with attention to the experience of the present time. This will improve memory, brain functions, social communication and physical wellness(Cai et al. 2014). At some point in history cooking may have included all of these now called recommendations. Acquiring food was maybe done by engaging in nature, climbing for eggs, picking berries and diving for shells. The comestible would then be carefully prepared using all the senses in a thick present now. It seems to me at least that the kitchen is an obvious place to intervene.





### 28 SQUATTING IS THE NEW STANDING

Collage of several versions of squatting.

Source: Collage from Google image search 24.04.2022

*Most people from western countries cannot enter this stand. Some when entered cannot leave it. Many will have problems with the knees after a while standing like this. But as the masses show, clearly this is a matter of practice, cultural practice. While we sit in chairs, some will stand in a squat. Is this unnatural, is this abnormal? When are norms healthy or even culturally stigmatising?*

### 29 50 WORDS ON KITCHEN ACTIONS

50 words sorted in 5 categories. Drawn on Esquisse Blanc from Sennelier

Source: Photograph and drawings by author. Drawings from February 2022, Photograph taken April 2022

*Although this task gave a general picture of kitchen activity, the use of actions is also a helpful practice. It engages the mind when considering design rather than function which will comprise us to more stiffening spatial limitations. An action can additionally often be translated to many situations. This forced me to consider a broader perspective before selecting a useful scope. Some notations are more aesthetic in nature as the use of sight is such an important part in cooking. What do the numbers look like on a kitchen apparatus? Does it promote efficient cooking or invite for precise gastronomic experiences?*

### 30 FULL BODY ACTION

Words in category No. 3. Bodily Movements, aimingly the full body. Drawn on Esquisse Blanc from Sennelier

Source: Photograph and drawings by author. Drawings from February 2022, Photograph taken April 2022

*Obviously many full body movements are done already in the kitchen, many that also demand engagement. During this process I have had many individuals come to me complaining about how they had to bend and go to the floor to pick something up, as if they didn't know they already stood on the floor. Somehow they manage to injure themselves as they were not used to such demanding movements. Thus, could the kitchen be a place for obscure movements, exploring the body, heightening the sensitivity and practising bodily presence, creating a culture of elegance involving thick physicality?*



## 3.0. A Bodily Scale Framing

Looking for ways to approach a design stimulating activity in the kitchen it was difficult to move away from the presumptuous images one has been washed with through education and design magazines. The convention made itself present in the most uncanny way. It seemed almost impossible to imagine a kitchen without perfectly aligned horizontal surfaces as counter space and vertical sheets stretching along, floating and covering the potentially messy cupboards. When reading Sara Williams Goldhagen I stumbled upon the concept 'affordance' and felt soothed. In the third chapter; The Bodily Basis of Cognition the theory by J.J. Gibson is shared. The theory of affordance says in simple terms that the general perception of design is goal oriented, looking for what is affordable or possible. Humans search for ways to interact. As Sara points out, although architects favour abstraction using terms like space, people will search for interaction and simulate bodily encounters(Williams Goldhagen, 2017).

In order to clarify a potential quality of human living I have found it important to reflect on the effects of the development and implementation of standards which we see in the kitchen. What are the movements existing in the kitchen today? As a dancer I have learned to look for the multitude of nuances a body can perform. Maybe not explicitly, but throughout a day even non dancers possess a great bodily vocabulary. These can be categorised according to muscle groups, tonus, isolation, intensity, dynamic, mechanical function and much much more. I expect it comes down to the purpose and focus of interest in the choice of such categorisation. There are other important questions regarding habits related to physiological differences in the domestic environment. For one body a countertop can be of perfect height and unnoticable whereas for another it will mean constant friction and being forced to bend or reach beyond the expected comfort within the domestic space. These two bodies will also be conditioned differently because of this. Before digging into more refined notation on bodies let's investigate and focus on the array of actions taking place in the kitchen. How come we imagine certain features included in a kitchen?

From the idea of affordances I started speculating around an outcome designed by considering actions instead of functions. What is the result of a kitchen shaped by "actions" when changing the initial norm that drove the functional home in the early 20th century. I have a great respect for the pioneers and the great amount of research spent on making the kitchen efficient and practical. Yet, I am obliged to question if the norm driving development was correct and if it had been beneficial to include a wider array of cultural practices

present at the time. Cooking was considered smelly and something done by the poor in the basement. In some aspects I believe this drive unintentionally clouded the response to what was necessary and what was healthy. White bread is a good example, once a status symbol and for long considered a comestible of the nobles. Now the white loaf is a cheap unhealthy product known to cause a list of serious diseases(Rubel William, 2011, Bread: A Global History(Reaction Books Ltd., London)).

Aiming to map the many actions taking place in a kitchen I ended up with 5 categories. The latter two are the ones most taken into consideration. Note the difference in scale which also has been central in the building of the framework. I must also clarify that this is not an attempt at building a new universal theory considering Kitchen habits, but rather a practical delineation that could serve as a springboard for new ideas.

- No. 0 Directly referring to ingestion;  
drink, eat, taste, smell, nash, chew, gulp,  
swallow, devour etc.
- Acts of nurturing the body. Actions within this category are limited to the body and not by the Kitchen and can therefore arguably also be discussed within the framework of a sensory experience of place. These actions can be affected by designed interventions stretching from medical equipment to using cinnamon scent to stimulate appetite. Also sight is a crucial part of eating. The design explorations of this thesis are not focusing on such interventions with risk for losing specificity and depth.*

- No. 1 Preparation of comestibles by a bodily movement;  
cut, rinse, pour, bake, peel, grind, blend, whipp,  
brew, crush, stir, mix, manoeuvre, spread, knead,  
roll, flip, fill, stuff, sort, press, decorate, place, wash,  
clean, present, time, plant, pick, stretch, carve etc.
- Managing goods is an act involving simple and sophisticated methods bound to region, cultural influence and practice. Many of these acts also strongly depend on industry and technological devices. That devices will benefit the act itself is a norm pushing technology forward and also keeping consumerism as a powerful habit - "Let the old go and invest in the new". I argue that most of these tasks can be performed manually to stimulate a more vibrant connection to the environment involving all the human senses*

and therefore serving a more ecological and resourceful approach to design. As mentioned before, motor learning has positive effects on brain plasticity and cognitive ageing(Cai et al. 2014).

- No. 2 Handling of comestibles not limited to a bodily movement with an instrumental requisite;  
heat, cool, store, waste, clean, organise, transport  
etc.

*The actions here require technological intervention. They are often functions central in the development of the modern Kitchen. Modern society now enables consuming habits with great diversity in diet also partly no longer bound to a geographic location.*

- No. 3 Bodily movements, aimingly the full body;  
reach, sit, stand, lift, drop, push, pull, bend, squat,  
twist, curve, swing, lie, sway, place etc.

Most vocabulary describing bodily movements can be ascribed to activities performed in a kitchen. They can also to some extent be ascribed to other working environments. Something of great importance when stating actions within this category is firstly the focus on bodily engagement. They are not actions performed out of value in themselves necessarily, although sitting many times is imperative after actively standing up working by a bench. They are rather movements performed by other motives. As an example one will “reach” in order to “pull” out a device from the cupboard. One will then “swing” the arms with a “hold” onto the device and “place” it on the bench with a “sway” shifting the weight from the left to the right foot. I will argue in this thesis that such actions can be done with low effort yet involve a richer cognitive experience resulting in healthier habits.

- No. 4    Actions taking place but not limited to the Kitchen;  
converse, view, socialise, contemplate, write, read,  
napp, sing, dance etc.

The final category gives room for the complexity of habits that make up human living not particular for rejuvenating the body by ingestion. Some of these actions are connected to pleasure and some have no emotional value due to their commonality in everyday life. It is interesting to speculate how actions like these enrich the kitchen and human culture. Further one should ask what happens when tools such as “voice control”, “machine learning”, and other technological developments are implemented into the Kitchen? Will we spend more time on sitting still behind screens or more time on enjoying the vegetables we grew next to the network servers installed in the walls keeping the home warm? There is a potential adaptation to architecture involving many more systems than just the isolated task of making kitchen work and infrastructure more efficient.

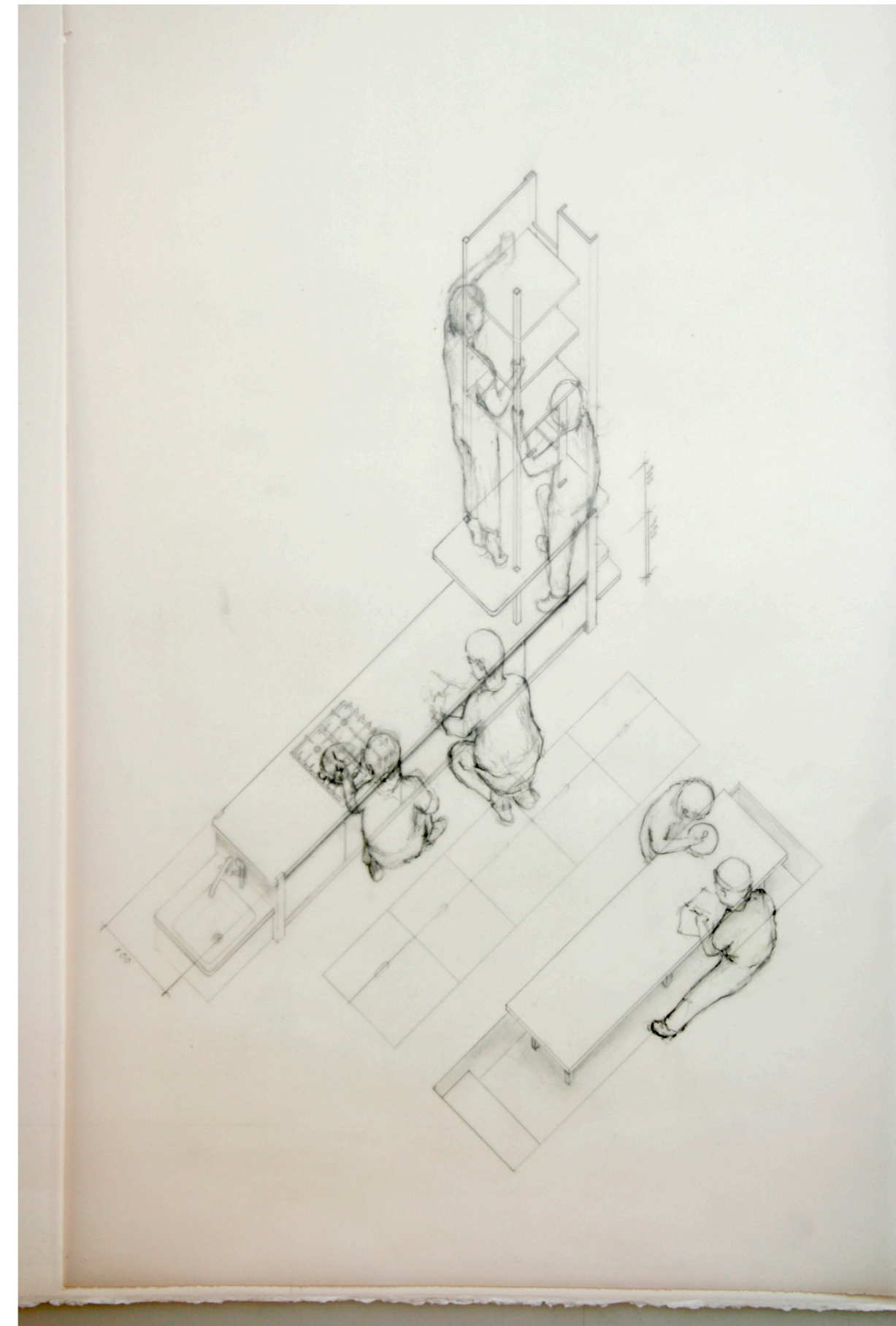
How can the poetry of cooking, moving and experiencing the many riches of the kitchen not be an exciting domestic habit? Like a fresh morning breeze moving through a grassy field we could dance our way over the floor gently managing the comestibles cutting with noble precision and plating with creative ingenuity. As a sailor manoeuvres a boat we could trace our feet like a cat on the floor pulling and pushing efficiently the drawers and pots, yet with a firm foundation on deck. Lightly climbing to the top shelf we could balance the vessels on one hand while smoothly climbing the obscure wall with the other, keeping the feet active like a morphing octopus along a coral reef attentive to any surface fluctuation. The bodily engagement will vary with the many activities along the day, with varying muscular tonus in the morning compared to the evening but it will be using the many intricate muscles in the groyne, stomach and most importantly the brain, beneficially done out of necessity. The practice of complex action will just be culture and not another dream on a screen.

<sup>31</sup> *A NEW OLD KITCHEN*

*Kitchen with 480mm high and 700mm wide counter space.  
Graphite on satin grained aquarelle Paper from Saunders  
Waterford and figures on tracing paper.*

Source: Photograph and drawings by author. Drawings from March 2022, Photograph taken April 2022

*Translating the first ideas into a drawing turned out quite successful. Some things were in need of adjustment after physical level testing had been made. But as the drawing opened new doors, it was left unchanged for next iterations made separate. The floor is here intended as a part of the kitchen cupboard system. Instead of installing a new kitchen one could build up the floor leaving some spaces for sitting.*





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**<sup>32</sup> HABITUAL MOVEMENTS;  
CASE SPANNLANDSGATAN**

*Kitchen from 1964, - Nathanael baking bread  
Source: Filmstrip with Notations by author in March 2022*

*It proves beneficial at times to pursue a task despite knowing what it will lead to. The benefit, sometimes just fractional, is the step towards the unknown. Accepting one does not know, forces one to reconsider and try. Here I am filming myself, baking bread in a most everyday manner. I have given strict annotations on all kinds of things, from placement of peripheral vision to small juggling movements before launching a step. For a detailed view see image \_36. It is clear this body has movement training and the study compelled me to look at other bodies in their own habituated environments, how they related their bodies to the conventional kitchen.*

**<sup>33</sup> LOWERED COUNTER SPACE  
CASE DR. ABELINS GATA**

*Nathanael doing dishes on a stool simulating a low counter space.  
Source: Footage from filmed documentation by author in February 2022*

*The simulation proved useful in some cases. Where postures covered narrow spaces on the floor the stool served well its purpose. But a counter space closer to the floor naturally implies many more possibilities. Another useful observation was the need for space underneath the countertop. In order to get a good working relation with the upper body one needs to touch the edge with the hip. Thus the clearance for the knees, similar to the relation between normal table and chairs.*

**<sup>34</sup> HABITUAL MOVEMENTS;  
CASE SANKT PAULIGATAN**

*Kitchen with standard measures. Cabinet doors and appliances installed after 2000. - Linnea making breakfast and coffee.  
Source: Filmstrip with Notations by author. Original film by Linnea in March 2022*

*As Linnea is taller than the average person, which the kitchen is most sufficient for, she is forced to bend the upper body in order to practically utilise the countertop. One solution could be to bend the knees which is rarely instinctive and demands more clearance beneath the edge of the countertop. Further, being well conditioned and skilled in many sports Linnea has formed some elegant habitual movements, such as the casual and extremely precise tossing of objects to the counter space. For detailed view see image \_37*

**<sup>35</sup> HABITUAL MOVEMENTS;  
CASE BRÄNNÖGATAN**

*Kitchen with standard measures. Cabinet doors and appliances installed after 2000.  
- Jennifer cooking Pasta alla puttanesca.  
Source: Filmstrip with Notations by author. Filmed by author in March 2022*

*Seeing a person of comfortable height in relation to the standardised kitchen makes a lot of sense. There is a general effortless feel in this approach to the workspace. For detailed view see image \_38.*



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## 3.1. Habitual Movement Notation

The meaning of “Charging Habitual Movements in Domestic Kitchens” is twofold. First I wish to charge the body and give energy to our domestic living. Secondly I wish to press charges against the conventional kitchen and the habits it forces us to perform. ‘Is it so difficult? Just put a weight belt on and the effort will be raised automatically. Add a yoga-class or 30 minutes dance activity per day. Why not eat out at a restaurant on the other side of town to which you walk and the activity is added additionally to the social experience along with much better food.’ There are many solutions that exclude interference with everyday habits so why should we investigate the domestic environment? Is this intruding inside the individual autonomous space?

Attending to the topic of domestic rituals I have notices that movements are often done without any consideration to the bodily action. Many habits are performed without any effort and if done with effort they are quickly adjusted, either done less often or more comfortably. Many kitchen devices are responding to exactly this need. After personally spending almost two years of studying, working, cooking, eating and living isolated inside an apartment, I have been reminded of how much our movement vocabulary, bodily and cognitive capacity is influenced by domestic habits. Although I for long have been enchanted by the stories of off grid living or indigenous tribes in the jungle climbing trees all their lives, I think the threshold for a more varied domestic lifestyle can be much lower, and much less escapistic.

I

A meal in my lonely kitchen

After imagining possible dishes and unable to neglect my stomach ache, I decided to rise from my wooden chair to get some food. I had been aching for more than an hour but couldn't motivate myself to leave the workstation, having such a good workflow. Now that I rose up from my curved position by the desk I was made aware of the numb toes that started to buzz. With hesitant steps whilst pulling my elbows back in order to crack my back stiffly I started walking towards the kitchen. Entering the kitchen I realised I was thirsty and went straight to the cupboard. I took



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a glass out from the closest shelf placing it under the tap no more than 40cm below. Holding the glass with my right hand I flexed my right finger away from the glass to check the temperature of the water. A moment later I decided it was cold enough and filled the glass up to inhale it immediately. Now I was ready to start cooking.

Despite the amount one can relate to this autoethnographic observation, its purpose is to awaken a discussion concerning the bodily mental images mostly subconsciously running through our mind. Now let us investigate the same situation more carefully looking into what is taking place in the body;

Firstly the stomach ache has made the posture more curved than the usual sitting position. Often such pain adds a small curve or stiffness to the lower back, yet individual variations will appear. Further the pain makes the lower abdominals and muscles in the diaphragm contract, adding additional tension to the lower back and groyne muscles. The secondary tension created in the shoulders will also add to the experience making the notion of hunger less prominent. The body will also pay attention to the suffering rather than the peripheral limbs that have been still for more than 3 hours.

### 36 HABITUAL MOVEMENTS; DETAILED VIEW OF CASE SPANNLANDSGATAN

Kitchen from 1964, - Nathanael baking bread

Source: Filmstrip with Notations by author in March 2022

There are many levels of habitual movements. From the upper left you find a notation on reaching for a towel, a movement oriented towards an object. Firstly the hand reaches with the most efficient trajectory towards the towel. Secondly the elbow is used instead of the shoulder for lifting the towel as it demands less energy. Already as the towel is grasped, the focus is shifted towards the next action, to open the oven. Here it becomes obvious that this body has been trained in coordination; placing the legs is done with minimum steps and light precision in order for the oven to be opened and tray taken out. There is not a single small foot adjustment. Next page features a similar type of action; as the fridge door is about to open - the right hand is already reaching towards the plate inside the fridge - without any visible orientation with the eyes the path taken by the hand is done with millimetre precision towards the plate inside the fridge. Other notations visible here are regarding different categories such as muscular tonus, focus (if orienting or following the body) and the arms shape whilst placing a plate on the counter. The latter is interesting as it is done with a compromise between where the full body is heading, what the space requires or allows and what is the most efficient path.

It does not matter how much we try to think of the feet while sitting, we will not use the toes actively as when standing or walking where they constantly take care of the shifting weight. So when rising from the chair and contracting the stomach even more it is first by standing up the sensation will appear in the toes as the blood starts running through the feet creating the buzzing experience. The act of rising is the first in 2 hours (for many even longer). In order to receive the weight onto the feet, the head is pushed forward where the core has to work even more just holding the top ten kilogram vertebrae swaying (the head), with more pain added to the stomach. When beginning to rise up from the chair the hip abductors are stretched for the first time since last time getting seated. As they now have to go from almost full flexion into full elongation they will also add tension to the lower back pain we barely notice due to the prevalent stomach issue. The stiffness of the body is not just a passing sensation but a physiological state cultivated since kindergarten sitting in a standard chair. As the walking starts the body will try to find balance with the buzzing toes and stiffened back. The body suddenly needs hydration to move, thirst becomes the new motivation for moving into the kitchen, which happened so quickly we barely recognised it. As stiffness makes the body ache most times heading to the sink we have tactically placed the drinking vessels on the shelf closest to the sink in order to spend least possible effort. We barely have to move the arm. The most complex movement our body has to conjure is the isolated pointing of the index finger feeling the temperature of the running water, which we if possible rather would avoid. After all, who likes to spend time waiting?

The experiences of pain and stiffness are not the only bodily issues that can follow the conventional domestic habits. The lack of complex cognitive ability is another. Firstly, the surfaces our body encounters are mostly smooth and if an edge is introduced it will be perfectly rounded. The sharpest object apart from cutlery or similar tools is the door. Since we only touch the handle the edges of the door never become a threat. The handle might be made from wood but even in cold metal it is intentionally shaped to fit perfectly into the gripping hand. Although our body is capable of performing extremely complex actions our domestic environment is formed to undress any possible obstacle creating simple, effortless and less eventful habits. The lessened time for kitchen work has been driven by an urge to liberate the individual for other activities. The elegance of a perfectly steamed salmon on a plate of slow cooked herbs is only imagined by viewing someone else cooking behind a camera in a studioset. Then it is ordered online from the available food delivery service. The patience and diligent practice necessary to accomplish even such simple meals is beyond most people's imagination as they have barely learned to do anything other than sitting in chairs. Cognitive experiences need to be used not viewed. And as presented earlier it is also a part of long healthy living.

## II

It is easy to become dystopian seeing a whole generation become more sedentary and less physiologically engaged. Postures are crooked and anxiety built up with the pectoralis (breast muscles) shorter than ever. As a response I have here had the privilege to look inside a few individuals' domestic kitchens that can shed light on a vivid life at home. The idea has been that these studies also will give some critical perspectives on the conventional kitchen. All cases involve well physiologically oriented individuals. They present first of all a range of length, muscular tonus, temper and interest. As they are individuals I trust and they hopefully trust me, I have tried to avoid the dilemma of 'feeling overwatched'. The study of subjects is a sensitive task and one undoubtedly runs into cosmetic discussions, which here is hopefully lessened. The subject's sensation of a camera filming is still present to a small part. As society is saturated with Big Brother watching, Social Media and cameras monitoring we

are learning to casually accept it as a part of life. Furthermore, all individuals in the cases presented are adults. The purpose of mapping individuals in their domestic or habituated spaces was foremost to bring forth various issues with the standardised kitchen. However, many other things have surfaced, as each individual has its own elegant way of moving and relating to space. We all have our own nuances, adaptations, instinctive movements and postures. This is most obvious for many, but in relation to how plastic our bodies are it is crucial to point out, also the range of adaptation is varying. The general issue which I bring forth is that we have lost friction in our everyday life. And why couldn't the kitchen answer to this problem, as it is a place already generating encounters that demand us to heighten our senses?

This is a disclaimer. With these habitual movement studies I am building an argument using my background as a dancer and practitioner in teaching and choreography. I am by writing this also made aware of my strict limitation to the subjects that I have encountered, and the limited understanding I have from my personal experience. It may seem much for some and less for others. For those who have no experience in dissecting human movements I am trying to create a bridge and open the window for complexity. For the one trained in the art of dance or skilled practitioner of any other physiological form I humbly present a document in time. As the human body is plastic I believe so is also knowledge. There might be as well as have been periods when I will know/knew more than this document reveals. In accordance with time, focus and interest this is one outcome of many. I acknowledge my lack of knowing and ongoing search for learning, letting some interests go while importing others.

The camera is placed in an upper corner of the room in order to give a good view of the movements. The clothing is casual and a part of the individuals' everyday choices. The tasks are known to the individuals and habituated. Here are part of the key findings from Case Spannlandsgatan, Sankt Pauligatan, Brännögatan and Kyrkogatan;

- The convention has benefits in terms of cleanliness with one solid counter space. The use of focus is clear with a tidy space and anaesthetic environment as anything out of the order will be visible.
- The conventional kitchen allows very little lower body engagement, i.e. pelvis, legs and feet.
- The kitchen triangle is more practical when spread out and not aligned along the same wall as the movement introduces rotation and peripheral perception which further stimulate lumbar disk movement.
- Drawers and cupboards are rarely made of a quality that permeate care or elegance.
- Individuals find their own way of coping with physical dilemmas.
- Culture is a major part of the practice in the domestic kitchen, often apprehended through a self taught practice or interest rather than inherited from previous generations.
- Motor practice is possible in almost every challenge of cooking.
- Functional orientation in the domestic space does not demand bodily presence, i.e. awareness of the body's movements and change over time, unless there are injuries or pathological issues.
- Bending the knees in order to reach the floor is strongly avoided.
- Each individual has a unique language and cultivates habits automatically.
- There are reflexes part of habitual movements. With bodily training reflexes can to some extent be adjusted. Note that physiological reflexes outside of control will

still vary according to the bodily limitations.

- A common habitual movement which is outside our cognitive awareness is the movements we do when focused giving emphasis to thinking. Often this is done with a step aside and focusing with the eyes into thin air or looking around, as if we mentally look towards a fictional world.

[There are more findings intentionally left out from this document.]

III

Revisiting these studies throughout the semester has revealed additional information. It has become evident that the motive when studying gives colour to the findings. One could discuss the energy according to the time of the day, being in a hurry or on a holiday. We have rituals and routines happening on many scales, through seasons, days, weeks and hours. Habits are notions of repetition and we choose to make something out of it. Here the discussion easily gets entangled with motivational speech, ten steps to success, retreats in the forest, mindfulness journeys to the Sahara etc. Without looking through a window of ‘living life to the fullest’ I wish to question the careless way we endure the conventional kitchen. In many observations made, I have found “we could - but we don’t” as the answer to posing dilemmas. We have a body capable of magnificence but limit ourselves to a sturdy countertop. There are pragmatic reasons for creating conventions which should be addressed in order to leave out the potential comment. In the final stage I have built a one to one scale model of the framework and imagined cartesian outcome. Using one type of cross head on the screws is naturally the simple answer to how one easily dis- and reassembles the model. I apologise if this becomes a too distant figure of speech, we are obviously not streamlined products shaped into one singular manner. Today’s effort put into changing the kitchen surfaces (especially since they are merely superficial in their consideration, see Torell et. al. pp. 301-319), rather than investing in healthier habits is disproportionate. Thinking of the good life dependent on anaesthetic spaces but not an engaged body I argue, is arrogance and a cultural norm created by us and society. It seems to me the same thing as using tobacco, which everyone knows is unhealthy but keeps using anyway. Maybe it just feels good to mutilate the body as it enhances the sensation of a present temporariness; “soon I will be dead and gone, and It sure looks good!”

IV

In order to communicate the many observations I have tried to depict some of them in various ways. Using video has proven useful both in terms of pointing out specific things but also as a way to locate and understand where the movements come from. Can drawing share the same information and what does this look like? Can the quality of the movement be described through a pencil? Can the aspired tactility of the body be represented in the texture of the graphite touching the paper? What colour does muscular tonus have? Is this a question about how to create a simulacrum? When is simulacrum journalism and when does it create fiction and a world of its own? I find it unnecessary to state this or that as it is much a relational question to a viewer, first myself. In this way I am obliged to listen rather than perform or execute. Doing written annotations on photography is communicative but demands some active participation of the reader. Looking at an image of a person can instantly and instinctively create the motion inside the mind.

The final assessments using layered images of postures is a thing of its own. I believe at this stage images 43 and 44 barely made it to this booklet. I still believe in the potential of depicting motion over

37 HABITUAL MOVEMENTS; DETAILED VIEW OF CASE SANKT PAULIGATAN

Kitchen with standard measures. Cabinet doors and appliances installed after 2000.  
- Linnea making breakfast and coffee.  
Source: Filmstrip with Notations by author. Original film by Linnea in March 2022

‘Reflexes’ is another topic within habitual movements. It can be outside the scope of habits if it is something we don’t repeat, i.e. burning the fingers on a toast. Fixing the hair is a reflex within habitual movements. Reflexes are also done within the scope of what a body can perform. Linnea has in general an active upper body and a grounded core with a steady placement of legs and feet on the ground. This is a natural consequence from the sports she performs. Thus, when another person will react in one manner, Linnea does it in hers, here lifting the elbows up while contracting the shoulders pulling her hands away from the heat that her fingertips touched. This is attempted to be portrayed in the graphite drawing.

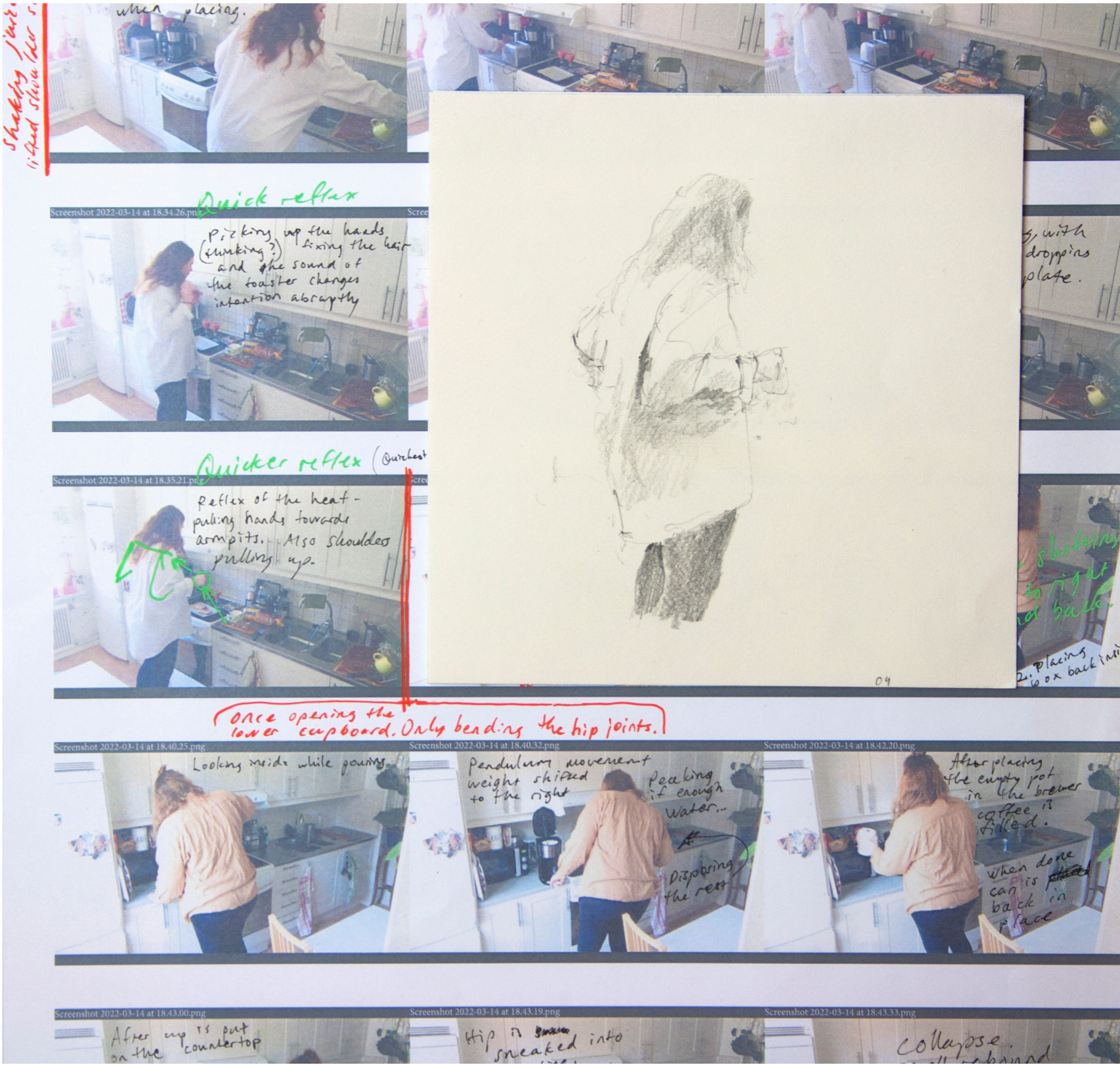
A pendulum movement is done with the core when looking around with the head at the coffee brewer. It is just like a swaying dance. It might be this is the most efficient way for Linnea, a very delicate and cheerful move. As the countertop is too low for her length she has adapted with an individual practice. Although not visible in this extraction from the notation it should be noted that Linnea also uses dropping and tossing in order to leave things on the counter. Done with precise caution it is most magnificent.

38 HABITUAL MOVEMENTS; DETAILED VIEW OF CASE BRÄNNÖGATAN

Kitchen with standard measures. Cabinet doors and appliances installed after 2000.  
- Jennifer cooking Pasta alla puttanesca.  
Source: Filmstrip with Notations by author. Filmed by author in March 2022

There are many correct dialogues between Jennifer’s bodily habits and the kitchen’s design. Moreover, I must assert the exemplary way Jennifer uses gravity to sink into squatting. The hip flexors are relaxed and open, giving enough room even for bouncing at the end of the movement. Giving this kind of breath to the joints is an excellent way to make them endure. Some movements show other qualities, such as the preferred standing on the right leg, leaving the left toe barely touching the floor. It is perceived as casual but in the long run it can lead to stiffening and imbalances in the whole body. Not being educated as a physiotherapist or similar it is difficult to tell when the problem of such character will arise. I can share that as a dancer one learns that repeated activity on one side should be compensated by mirroring the movement on the other side, but even more to condition the body with training, stretching etc.

Finally, Jennifer uses her sight not only to locate but to plan throughout the process. In a contemplative manner it brings a calm energy to the procedures and could possibly be a great source to the precise and excellent outcome.





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time as a mass inside a space. It creates elegant and novel shapes and small worlds of their own. If they give useful information is a more complex question not necessarily leading to a resolution. This will be another thesis work maybe?

Knowing a bit more about the nature of habits and their present character in domestic living, let's continue by discussing some solutions. What if? What if we changed the norm and took a departure from a radical shift in perspective? What if we would sit on the floor as in old, climb and reach up in the trees and balance on the edge reaching new places? What if we could tune this into an elegant act where we revisited culture as an entertaining practice rather than consumed media?

### 39 & 40 HABITUAL MOVEMENTS; DRAWING PROTOTYPES

Studies of Jennifer & Niklas. Capturing movement quality in various manners. Is it journalism or fiction?

Source: Graphite on Sennelier Le Maxi 150x150mm.  
Drawings done by author in April 2022

Focus goes two ways, what is drawn with detail and how much effort is put on the rest? Where are shadows conveying important information? Can the drawing be a tool for depicting adequate clues to the performed motions? These are some of the points driving the drawings forward. The investigation is a tool used to create a new investigation. Is a drawing ever finished?



\_41a



\_41b



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#### 41a & b **HABITUAL MOVEMENTS; CASE KYRKOGATAN**

Restaurant kitchen with varying measures. A compact kitchen with public orientation. - Michele cooking Risotto. Source: Frame from documentation by author in March 2022

Michele is another good example of a functional relation between body and standard heights in the kitchen. Yet, the recent addition of a stovetop is 22.5 cm higher than the conventional 90 cm counter. Despite the dilemma he has adapted with minor effort. He once mentioned that in large amounts of frying he could place something on the floor to stand upon, which has not happened yet. Being an experienced chef Michele has many fascinating habits, which are worthy of a chapter by themselves. With the limits of this thesis I present only a few of these exquisite motions. In 41b Michele is casually leaning towards the shelf behind him whilst waiting for the saucepan to boil. In 41b Michele uses a rotating pelvis in order to pull the arm by the swaying of the spine. This creates a shaking motion in the pan that stirs the rice. When the hand is not placed on the counter, a secondary motion appears. There is a wiggling echo in the relaxed left arm and hand, an elegant habitual and functional dance. But less should not be expected of a legendary bassist and competent chef.

#### 42 **HABITUAL MOVEMENTS; CASE KYRKOGATAN**

Restaurant kitchen with varying measures. A compact kitchen with public orientation. - Niklas preparing breakfast. Source: Frame from documentation by author in March 2022

Niklas being the tallest using this kitchen, experiences the standard rather differently. If it was not for his exceptionally long arms it had been an even more troublesome working flow. First note the curved upper body and the leaning over the bench. Secondly note the tensed neck engaged to keep the head aligned. Operating with a lower bench had maybe been better, but the stove top is of more useful alignment for Niklas' height.

We (me and Niklas) have discussed which is the most efficient way to approach the lowest tray in the oven, 10cm above the floor. In contrast to Niklas I am of the firm belief that a repeated bending of the knees is physiologically less harmful than bending the hip flexor, (this due to our already excessive use of the hip flexor related to sitting on chairs). I let this be a question for future investigation.

In this case the subject is a physical mover but also a practitioner of optimisation in another manner. As a skilled climber Niklas is training planned, imagined and repeated execution of optimised sets of movements. Additionally, being an excellent drummer he has a heightened perception in his peripheral limbs with bilateral and great hand feet coordination. Niklas is almost fully ambidextrous.

#### 43 & 44 **HABITUAL MOVEMENTS; MATERIALIZED MOTION STUDY**

Studies of Nathanael & Jennifer. Capturing movement in a photographic layered simulacrum. What is assessed through an iterative mapping?

Source: Layered frames from Case Spannlandsgatan and coloration of frames from Case Brännögatan, April 2022

The first layered study was made to illustrate the many levels a body will habit space. This image was foremost an attempt to in contrast to a stiff lindrawn scale figure, show the human body as a plastic and capable organism. The traces of several bodies give a notion of layered time, as if the various scenarios give a slow dissolving imprint to the retinal image.

Following this idea I made a test colouring various body parts. When tracing them a shaded strip reveals the body's movement through space, here when walking. In this study I investigated a possible way to depict tonus in real time. But as the image gains imprint subtle variations are muffled by the thick tracing strip. This is better done through accuracy in graphite drawing.

## 3.2. Spatial Exposition Introspection

Throughout the process many forbidden, fictional, entertaining, ultra-conventional and speculative ideas of kitchens arose. In the act of giving the many ideas physical and tangible form I chose to look into those not too far from the convention as those became fairytale creatures within surreal dreams rather than functional and apprehendable projects. For me it has been important to give relevance to functional everyday domesticity. Two other extremes arose: the immaterial and material intervention. One example of an extremely fictional and immaterial intervention could be a conventional kitchen approached as a circus acrobat, performing a three course meal using the feet for chopping and the hands for walking. It would demand practice but no material intervention necessarily. An extremely conventional and material version could be inserting gym machines into a kitchen with heavy drawers and rowing machines for igniting the gas stove. In this manner I started mapping variations with everything from tivoli to prehistoric cooking into a graph. The most interesting versions arose in my opinion at the centre, where the convention was challenged, a small material intervention could be made, measures tweaked and above all the intervention was realistic and possible to implement in an early functionalist home.

In a deliberate and capricious way I used the technological inaugurations of the modern western kitchen and started playing with them as elements without form; stove/oven, fridge, sink and countertops. Storage spaces I found could easily be organically filled in between. I gave the elements measurements close to the standard and started placing them in a conspicuous way. Quickly I asserted hypothetical paths of bodies and limbs moving through various layouts. All versions were studied in plan and section/elevation. The pathways were partially imagined together with the form in an alloyed procedure. Drawing the paths proved most useful to resolve the enigmatic movement patterns that happen in a space. Not so different from Gilbreths time- motion studies and simulacrams, this method gave a quick assumption of potential kitchens before approaching a prototype. Continuing to guide the investigation did also the scale of full body movements. How does the space evoke twisting, bending, stretching, squatting etc?

As the designs matured I scouted for specific qualities rather than perfected outcomes. 'How is the temper of this kitchen?' I was curious what would happen with the space when adding situations with groups of people, various bodies and different types of cooking. This led the inquiry to make a quick mockup with some sheet material. I placed them in a way that selected qualities could be represented. Some features used were following: From 'Inverted



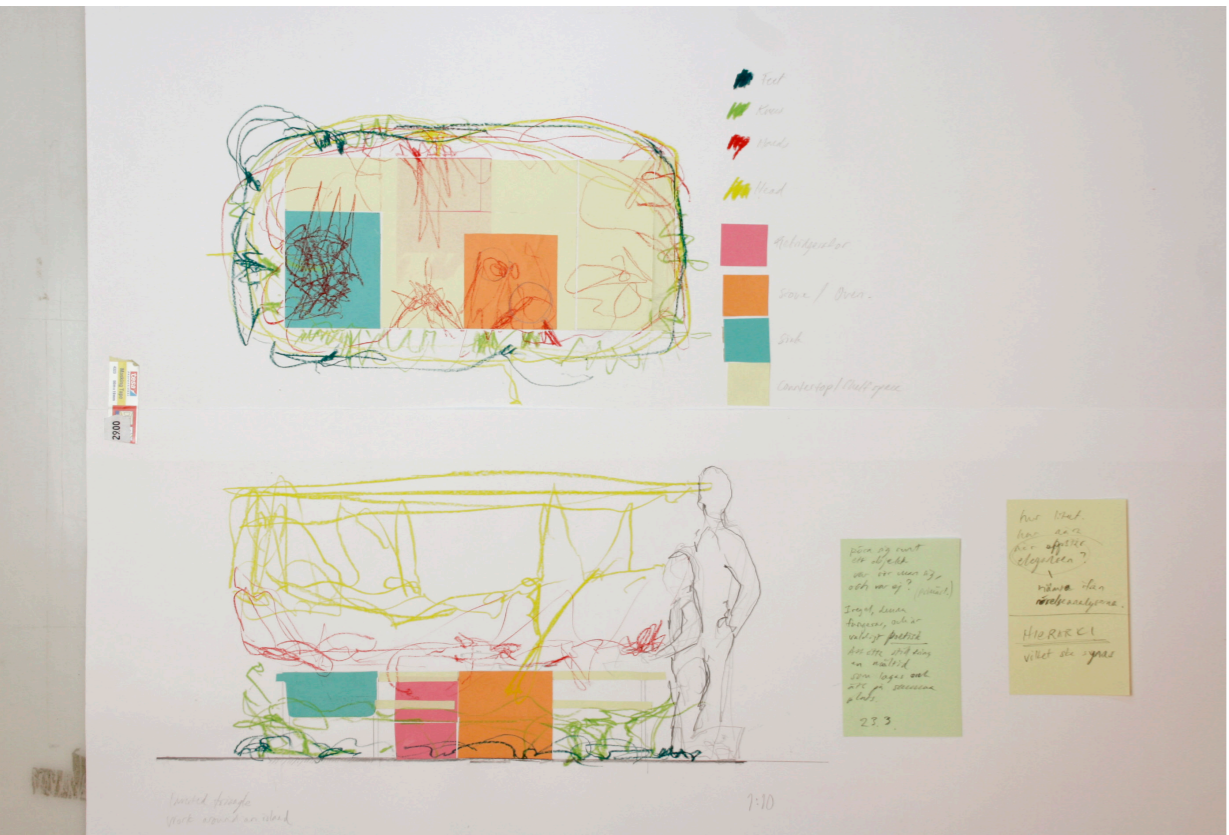
43\_



44\_

'Triangle / The Island' I used the uncomfortable workbench and idea of creating an eternal path, i.e. being able to move around the furniture. From '20:s Kitchen Remade' I continued with the climbing corner which also was part of the early drawings. From 'Kitchen Cabinet' I implemented compact thinking. From 'The Cave' I used especially the feature of 'watching your step' and balancing. The 'Künsthall' made me reconsider using ancient kitchen components, here the cooking pit. This mockup was then translated into a new drawing (see image\_50) and a small scale model in 1:20 (see image\_51). I chose to reveal the intended trajectory of the head in the blueprint just to give emphasis to the bending actions appearing. With this material I then started the next prototype.

Before moving on to the final prototypes I will state that the historical assessment and orienting work regarding actions became a breeding ground for a new offspring of interventions. I have tried to place myself in the mindset present in the early 20th century which has led me to search for evoking structures. The finding of Georges Canguilhem's discussion on the norm has particularly reinforced this path of looking for friction. This is not only in a literal and physiological manner but also in a philosophical and psychological manner. At one point the design becomes unavailable, of course varying by the encountered individual. This border is interesting and of value to map out, partly motivating the emerging prototype.



44



45

**44 POSSIBLE KITCHENS;  
INVERTED TRIANGLE/THE ISLAND**

An inverted kitchen triangle and island orienting movement around. The countertop is lowered to a physiologically difficult height.

Source: Drawing with crayons, coloured paper, graphite and masking tape. Scale 1:10. Recycled plotting paper. Made by author March 2022.

A poetic assemblage of children, grownups, cats and dogs surrounding a table where the meal is cooked and groceries stored. An upgraded lowered countertop. Note the depth which is almost double the convention. Head and upper body will most likely only go up and down when rising for the longer travels around the table. When working close it will be quicker to crawl.

Notations on what to develop, blueprint technique for executive drawings, possible movements.

**45 POSSIBLE KITCHENS;  
20:S KITCHEN REMADE**

An adjusted kitchen using the general layout from Dr. Abelins Gata.

Source: Drawing with crayons, coloured paper, graphite and masking tape. Scale 1:10. Recycled plotting paper. Made by author March 2022.

This is a comprehensible and functioning kitchen. Lowering the counter and introducing climbing is a simple gesture that improves the standard, i.e. if one wishes to be more physically engaged in the kitchen. Could the window sill be adjusted to give value to such a kitchen? What happens if one has to bow when entering the kitchen, similar to a Japanese teahouse (reference lacking).

**46 POSSIBLE KITCHENS;  
KITCHEN CABINET**

What does it mean to cook vertically?

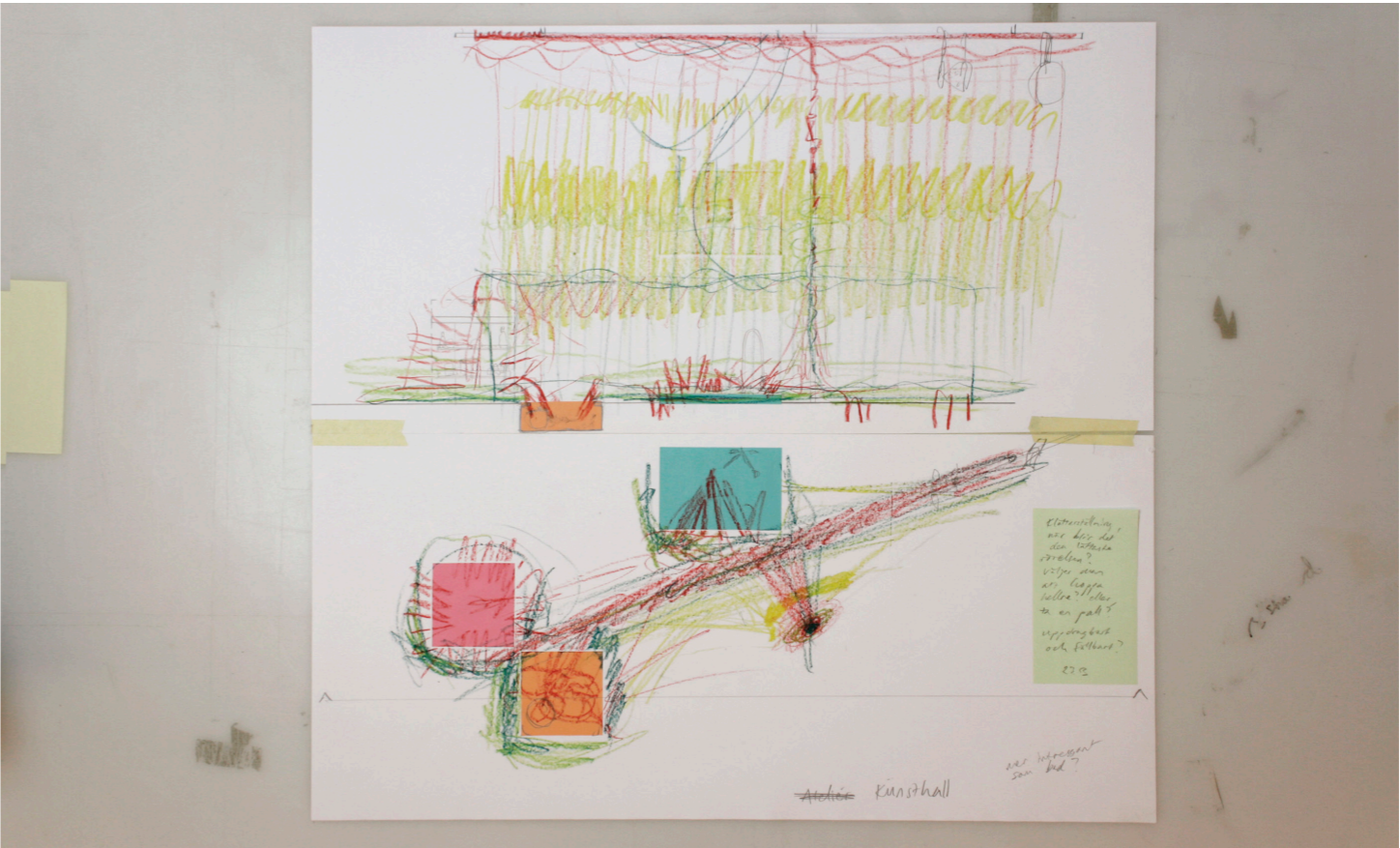
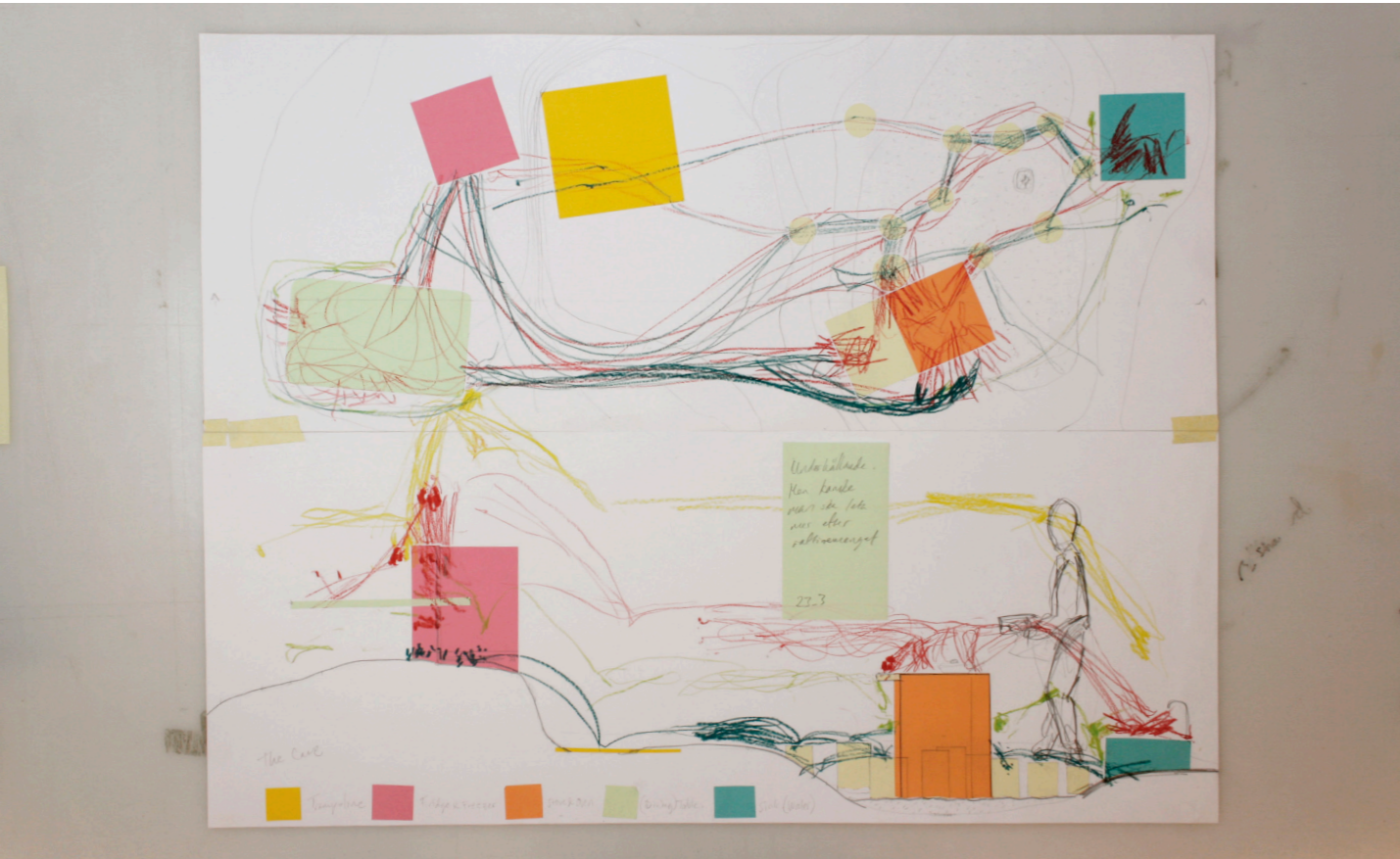
Source: Drawing with crayons, coloured paper, graphite and masking tape. Scale 1:10. Recycled plotting paper. Made by author March 2022.

Is this the future single studio apartment kitchen, compact and just a pillar in a corner, with generous space but disposed vertically? Drawers, modules and shelves could be climbable. As Hugo Henriksson proposed, could there be see through surfaces?

Movement will in this case be oriented along the gripping and carrying surfaces. Note comments on the asset of using a strict framework



46



**47 POSSIBLE KITCHENS;  
THE CAVE**  
Springboard, pillars, sand and hilltop. Skipping, balancing, playing whilst cooking on the stovetop.  
Source: Drawing with crayons, coloured paper, graphite and masking tape. Scale 1:10. Recycled plotting paper. Made by author March 2022.

*A kitchen playground. Not that this is a practical kitchen, but it sure opens questions about play in the kitchen. Could similar elements be introduced without exaggerating to this degree? Ropes in the ceiling, balancing bars or swings?*

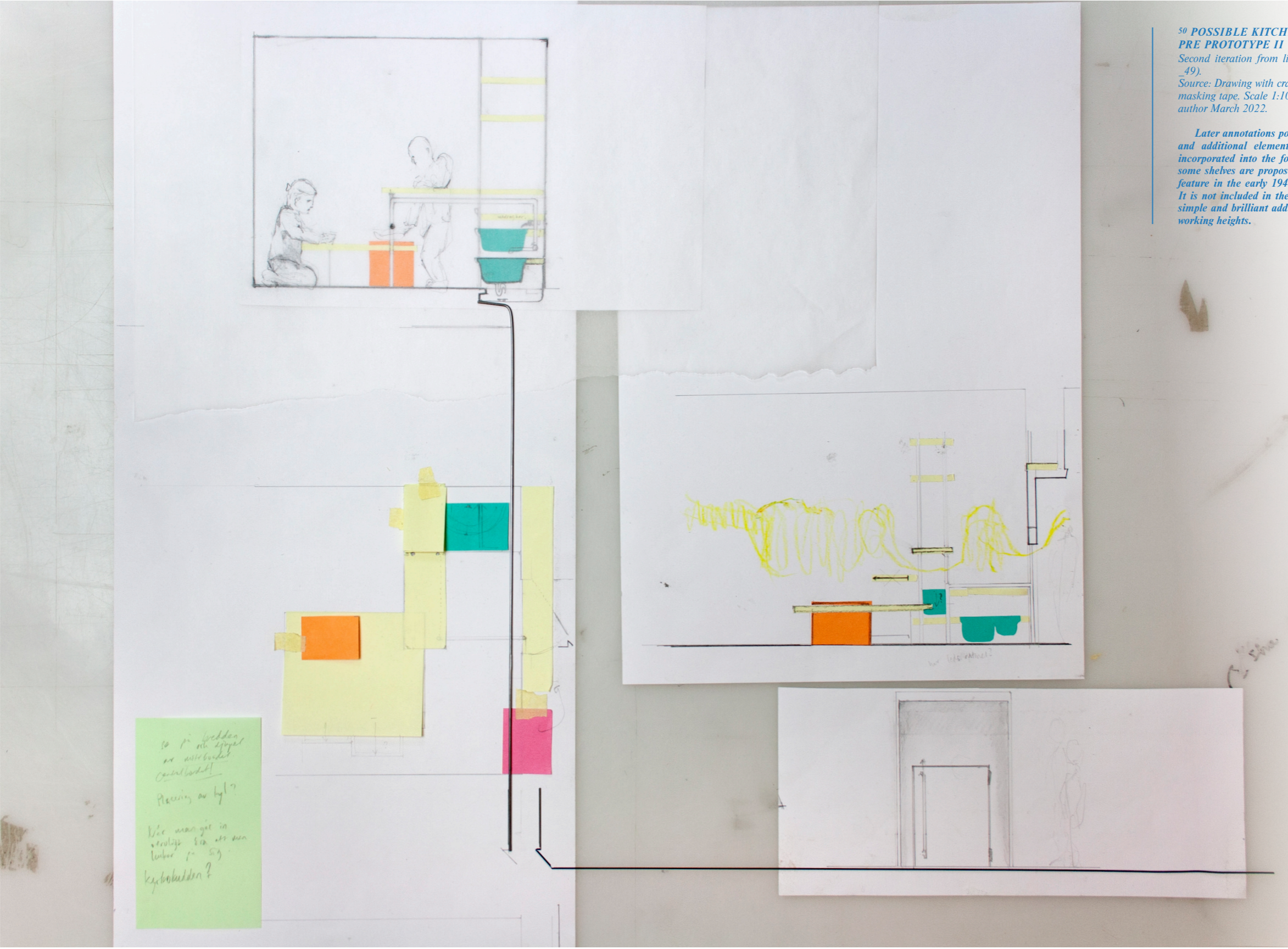
**48 POSSIBLE KITCHENS;  
KÜNSTHALL**  
A wooden deck, cooking pit, a horizontal and a vertical bar. Repeated climbing and dropping.  
Source: Drawing with crayons, coloured paper, graphite and masking tape. Scale 1:10. Recycled plotting paper. Made by author March 2022.

*What is a kitchen like if one removes the whole conventional boxlike structure and just adds a few elements, a pit, a floating high bar, a (chinese) pole and a fridge pulled up from the floor?*

**49 POSSIBLE KITCHENS;  
MOCKUP**  
Assemblage of Possible Kitchens and  
Source: Physical model in Scale 1:1, using tables, sheets and pin-up boards. Made by author in March 2022.

*Making a mockup was important for the embodied experience. It was easy to see new complications but also study the many engaging motions which brought a different life to the kitchen. How is it having a dinner with someone sitting on the floor and another standing up?*







***51 POSSIBLE KITCHENS;  
PRE PROTOTYPE I***

*First iteration from live mockup test model (see image \_49).  
Source: Wooden Scale Model in 1:20. Recycled pieces of  
wasted wood. Made by author March 2022.*

*The use of wood is first of all because it is easy to handle.  
This model was made in a short session trying a few  
different versions. The potato shaped table came after the  
second iteration and has followed to the end. What is the  
hierarchical structure with a table out of the ordinary? Can  
this help heighten the awareness?*

*In this photo of the model the fridge has been placed as a  
surface on the wall to the right. This has been a continuous  
question mark.*

### 3.3. Tuning Elegance Application

There is an ontological discourse within architecture concerning objects and their meaning. Artefacts, tools, products, decorations, gadgets, equipment, machines and various other consumer goods, are indeed objects surrounding our identity and autonomous sphere. When introducing the word elegance it is easy to end up in such a discourse which I am not certain I wish to do. It could be that humans need objects in order to create identity, however, consumers' awareness and the choices motivating objects in the domestic environment is not the question I bring forth here. In order to avoid spreading the thesis too thin I will not discuss values related to objects and things as indicated above. I find it relevant to instead comment on displacement. In order to orient around an object most common to us let us take the spoon as an example. A spoon detached from its context; i.e. not held in the palm of a hand, placed on a table made for dining, or stored inside a drawer ready for use, is just a piece of material formed in a stretched, flat and rounded manner. Our strong symbolic connection to the spoon can thus be seen as a delineation. This can be used as a springboard for elaborating bodily movements, both the norm and the undressing of it. Although a cultural practice of eating with a spoon for most people is just a dull necessity, I choose to recognize even such a part of the discussion. Further a spoon looks different in various cultures and accordingly will be used in different manners. I argue this being a part of the normative ideas that conduct our domestic habits. Similarly the chosen size of a spoon will vary according to the chosen dish and thus induce varying behaviour. This is not much different than the choice of a door handle, door size or any design intervention. When designing the world we shape human bodies. When encountering the world we are shaping our bodies and additionally the remoulded body will change the way we pursue the world again. It is our norm that frames us to the healthy or sick, conventional or abnormal. It is a normative practice to design architecture, even when using the convention. The norm shapes architecture, further our habits and along the way remoulds the norm. To question the norm is healthy and in this case I have many reasons backing up the inquiry.

When approaching the design at an early stage a fellow student, Albin Aldén, mentioned 'Elegance' as a solution to move away from fitness. Surely I was the one most troubled by the idea of gym equipment, rubber floor and drawers as heavy as dumbbells in the kitchen. Elegance it seems was also an important thing for the early modernists who aspired for a fresh and healthy future. Albeit, their answers are not necessarily what is beneficial for us in the end. Yet I have chosen to seek ways to create elegance both in

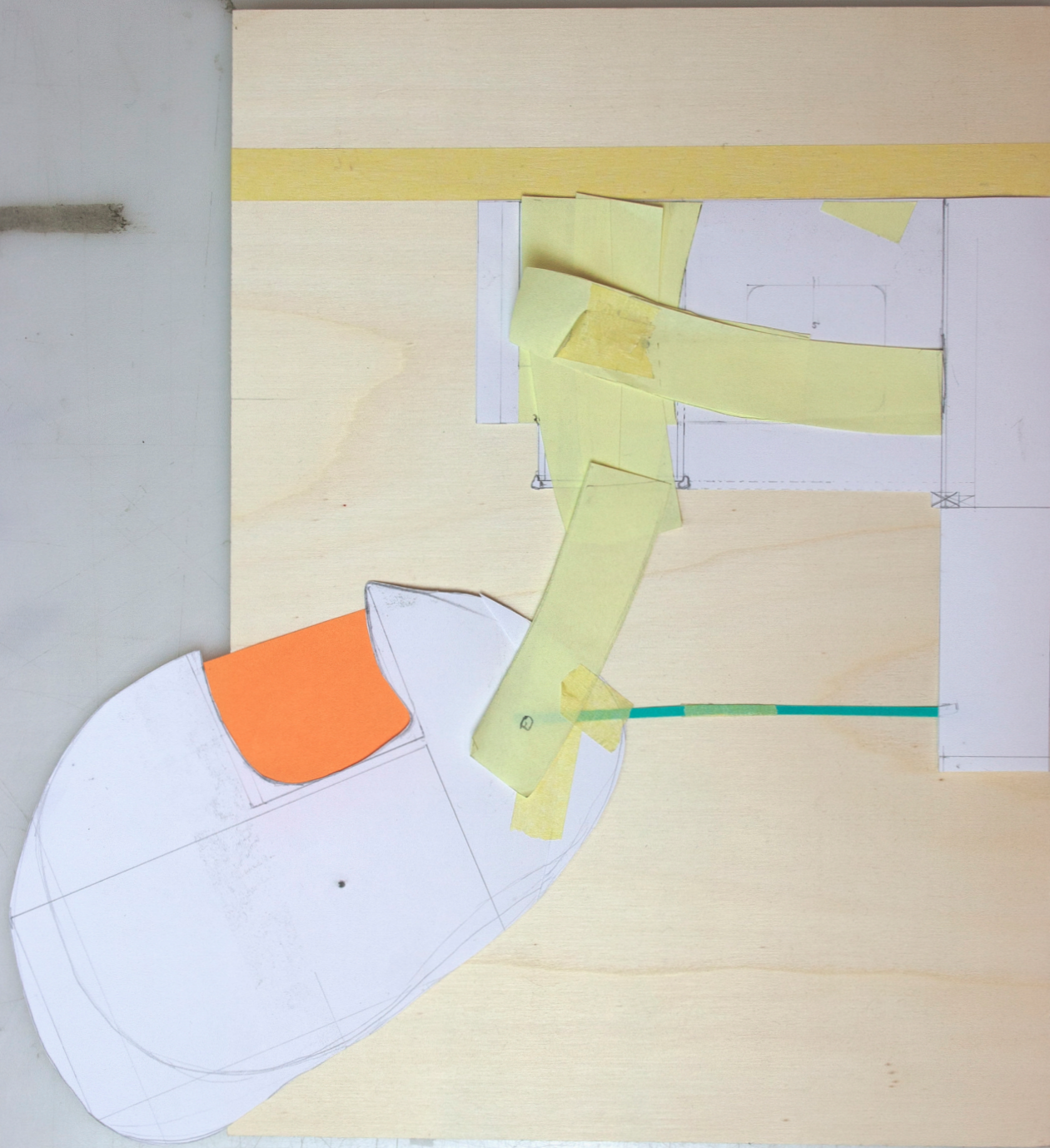
terms of movement and through design. The idea of what elegance is has changed and I am still not certain what elegance fully means. I have revisited ideas previous to this thesis and will present some of them here. These are small anecdotes describing dimensions to elegance involving tacit knowing. In my opinion this is where a version of elegance transcends a cosmetic approach to movement and environment. I believe one could use our visually perceptive abilities to incite and charge habitual movements. But, thinking of the kitchen in a strict cosmetic sense, i.e. changing the cupboards and repainting, as the only way to build an elegant life is rather ungraceful. There must be better ways to build a brighter future. As follows I am questioning our ability to adapt. Adaptation could be a part of shaping delicate and well performed actions in the home to a greater degree than sedentary lifestyles practice a crooked upper back and stiff hip abductors. I have tried to dismantle the convention and reassemble it through a different discourse. Naturally there are conventions I have not bothered to discuss in the scope of a thesis aiming more towards physical engagement. Let me now embroider what elegance can be in a bodily engaged manner.

I

"Can't you see, this is my highway here?" - she shouts at the farm boy standing in the way reaching for water. Running back and forth along the counter Jane is juggling various bowls and utensils for mixing, whipping and moulding. She is famous for this dish and it is done with extreme precision. But not in the way of millimetre ornamentation of clockwork, rather a sensitivity to fine textures and delicate smells. "The hands have to be wet, but not so wet that you are dripping!" She tells the boy as he tries to mimic the movement with his hands. He manages to produce some kind of lump not nearly as polished as Jane's perfectly round buns. Jane aligns each bun in a beautiful array ready to be cooked. By the time Jane has completed the bowl the farm boy has just finished his fourth bun. The running starts again and now Jane is picking up something from the lowest drawer in the fridge. I can't really tell if she is preparing another dish or if she is looking for some missing ingredient. I sit on the kitchen sofa solving some puzzle in the newspaper but keep most of my attention to Jane. She has on a whim placed all the trays in a tower with some towels covering them up. Her running doesn't stop as she now pulls out the big pot and fills it with water. Then she starts to complain about the bad quality of the potatoes these days. She has been forced to start buying pre cooked potatoes from a grocery store in the main city in order to produce anything that can even start to imitate what should be the original dish. She laughs and says "Actually I like this version even better." Eventually the whole farm crew plus a few friends is at the table enjoying the meal. I have witnessed a circus creating a meal worthy of royalty. The rating is indisputable, all the seven men around the table plus Jane's friend Alice, are eating without a single word uttered. I look over my shoulder to the floor and see the discoloration in the pvc matt from all the running in front of the counter.

II

We have been preparing for weeks. I came from the city the evening before with my girlfriend Maisa just for this occasion. Marjo, Maisa's mother, got the flour two weeks earlier from a specific mill a bit up north. According to Marjo, also an educated food technologist, the rye species was the same as the one used in the old days, also not so



### 52 POSSIBLE KITCHENS; PRE PROTOTYPE IIII

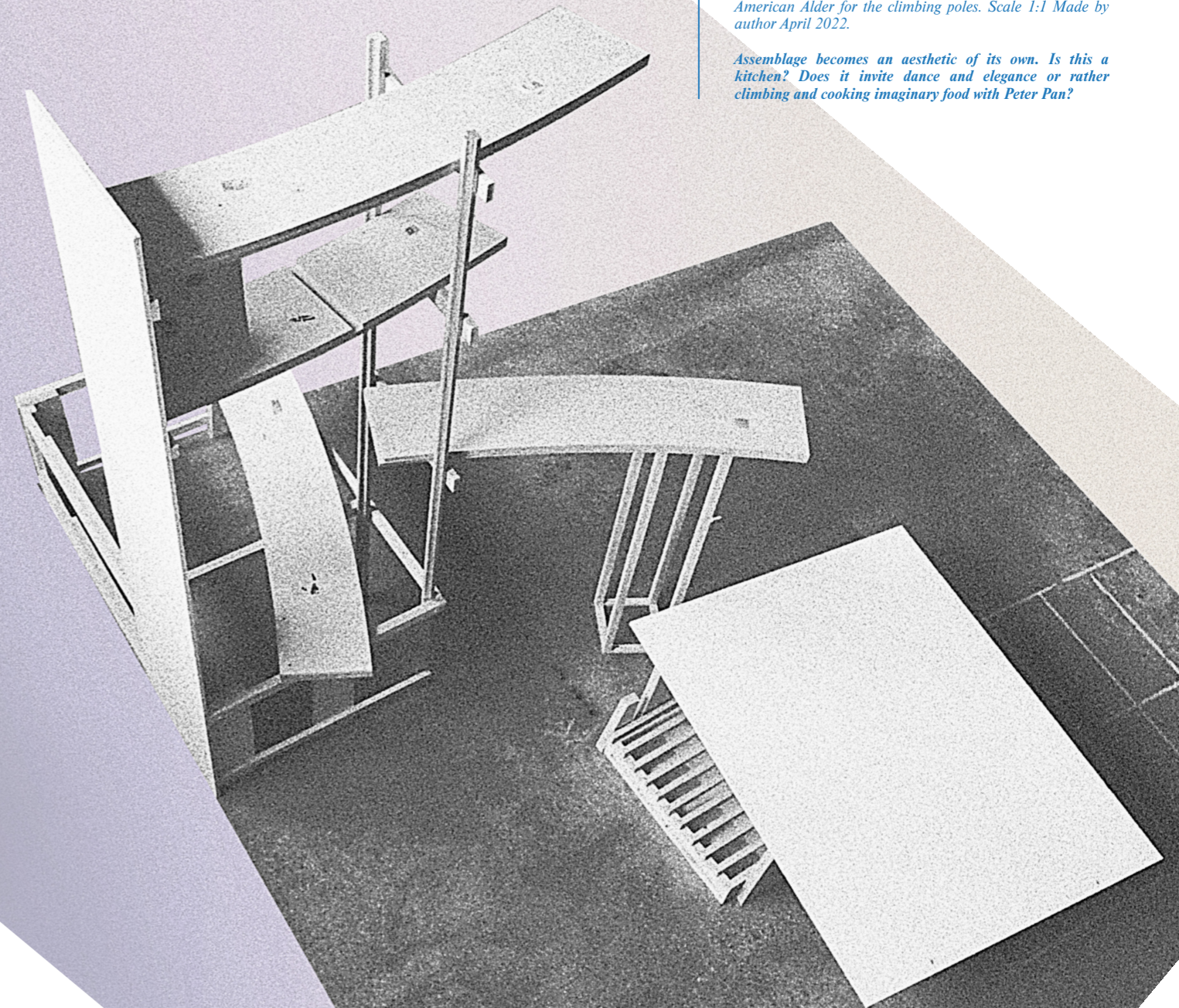
Third iteration from live mockup test model (see image \_49).  
Source: Plywood left over, drawing with crayons, coloured paper, graphite and masking tape. Scale 1:10. Recycled plotting paper. Made by author March 2022.

With the decision to build a live scale kitchen, leftover materials were given to me for use by Tabita Nilsson and Peter Christensson. These boards were then measured and cut out in paper scale 1:20. Finally they were placed similar to the structure I had in mind. The curve was utilised adding additional movement to the structure.

### 53 POSSIBLE KITCHENS; PROTOTYPE

Live scale prototype from left over goods.  
Source: Leftover materials from earlier Matter Space Structure thesis projects, plywood, various planks and American Alder for the climbing poles. Scale 1:1 Made by author April 2022.

Assemblage becomes an aesthetic of its own. Is this a kitchen? Does it invite dance and elegance or rather climbing and cooking imaginary food with Peter Pan?





54

common anymore. We were going to bake bread, Helmi, Maisa's grandmother, was on the team. It was also her bread on the menu. Until her late 50:s she was each morning running to the barn for bearish lumps of firewood. It was this oven we were going to bake in. Helmi mostly sat in a chair commenting on the noise of the working hands. She took some dough on her fingertips, tasted and replied: "more salt!". The methodical squishing in the bowls sounded like a mill, a mother and daughter thudding dough. Eventually Helmi nods, indicating it is ready which she could tell by the clicking sound. We had a pleasant time. Helmi was almost deprived of vision and hearing but she shaped the bread with casual ease. I tried but barely managed and without my sight it had been half the result. Helmi smiles mostly, uttering some words from time to time reminding of details that should be considered. As the breads finally are in the

#### 54 MATERIAL PALLET

Colours and materials intended as a testbed for the final drawing.  
Source: Pastel crayons, graphite, wax and plastic foil on Sennelier Le Maxi 15x15cm paper. Made by the author March 2022, Photograph taken April 2022

Which colours and materials evoke appetite? This is a different scale than previously monitored. It is a natural continuation from a live object when digging into material application and precision. This layout has been driven by the actionsettings intended for the kitchen but also speculating how one can hint towards the early modernist kitchens. The grid patterns were added to question what happens when the colour is used on tiling. Which surface evokes cleanliness?

oven she tells by sniffing, "10 minutes more!"

These shared practices are remnants from historical cultures, before we had fridges and electric stoves. They are treasures much lost and forgotten for the benefit of a streamlined technology. I am not alone in this observation. Also Julia Child takes this stance in her book 'Julia's Kitchen' from 1977. In the first pages of the book she gives a keen eye on the modernisation of cooking. When speaking of the early 20th century she describes the generation growing up: "Daughters stopped learning how to cook from their mothers and a serious decline in the domestic arts set in." (Child, 1977). I do not search for gentrification or reasserting the 'housewife' into the kitchen. I rather wish to spell out the absurd notion we have that cooking and domestic practice should be something distasteful. I believe as Julia Child, that it ought to be viewed as an art, performed by average people in everyday life, as healthy and vibrant domestic habits.

### 3.4. Execution Results

Coming to the end with a live-scale model of speculative future kitchen habits, I was blessed with the privilege to exhibit and have a public discussion in a gallery called 'Templet' in central Gothenburg. A full week was spent in a window looking at people looking at me. I had many encounters and epiphanies, some which I will share in this final chapter. Truly, I was not prepared for what it would become and the challenge proved instructive in many ways.

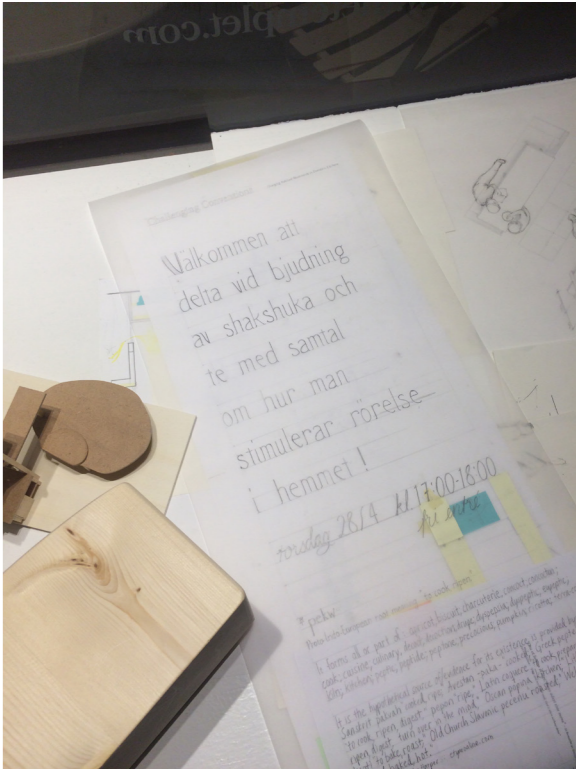
The primary purpose of the model was to test real bodily encounters, my own and others. I was then intending to photograph and film the movements for being depicted in a final drawing, similar to the ones on page 39 and 41. As the model was then intentionally made for a secondary purpose along with a restricted time frame, I chose to be deliberate about the care in details where necessary. If exhibiting had been the original purpose the approach would have been rather different. However, it was potent to exhibit the kitchen mock-up during an ongoing process, which then all architecture and human bodies are, in a durational change. This was my first lesson learned.

Frequent reactions seemed concerned with the attributes: "but it's not done yet, is it?", "why do you show this?". It was clear that the normative idea of what should take place in the central shopping district of Gothenburg did not agree with my obscure sprawling animal. I learned that cosmetics are not just an attribute but a strong expectation of what a designed space should be. This is a big part of the action-setting our standard kitchen format brings. Not only does the kitchen give expectations, but the assumptions of a kitchen are bound to this seemingly innate conception of a kitchen. For instance, even when using construction site materials as furnacing for clothing stores, the lighting, organisation and presentation have to communicate, buy me, sit here, lift carefully, look inside, smell this etc. Somehow I had managed to create a structure which was neither a habitable space nor a fulfilled artwork. The ambivalence even seemed to bring people nervousness. While I was seeing a form that shouted "use me, use me in multiple and innovative ways", many saw "how is this relevant for me?"

Another aspect that troubled many was the obstruction of comfort. Why would you want to change the convenient convention? What I present does not intend to make pathways shorter but invite the body to engage in novel ways. It is also wrong to assume that this intervention should be the solution for all bodies, even though most bodies likely would benefit from such a solution in the domestic space. Naturally the layout I share is inconvenient and impractical for the stiff grown up western human, as is partly the point. If our norm



55.0



55.1

shapes our living into strict stiffening habits we should instead allow more friction. If architecture is the correct discipline to utilise for stimulating bodily engaged lifestyles I leave for the reader to decide. Although it has motivated this thesis, it seems the relevance for the public good is preeminent. Then of course the qualities of movement does not need to be sweatbreaking in order to bring flavour to our domestic habits. The use of refined motor and cognitive precision is not just about precision with the fingers. Clearly our bodies hold much more potential than the conventional kitchen as well as gym equipment might suggest. This is what I propose with this speculative work.

For those who chose to engage with the structure there was a variation in tendencies. Some looked for places to sit, as if the structure was a treehouse to explore and find a reading spot. Some were strongly drawn towards climbing. Some found balancing and an adjustment of the pelvis as intuitive whereas others looked for ways to approach the floor in a comfortable way. As the images 56 to 80 show the action setting of the structure is not definite yet. With a cultural practice I believe the use could become more defined. I also believe there is a potential in the ambivalence in terms of flexibility of a fixed structure. I find this something of value especially in a compact living situation. There are several user groups that would encounter this structure and benefit from the changes, and some that would have difficulties. Children and adults are literally taken to a common ground, also the dog becomes an equal member of the room.

Some activities were suggested along the exhibition by visitors such as making throwing garbage into the bin a sport. Also design interventions have been suggested such as softer floor covers and tatami mats also additional foot support on the wall (see images 62 & 63). The latter came from the idea of placing things in an unreachable place, how far can you reach? This I suggest practising regardless of the structures one resides in as a human being. A stretch of a limb needs anchoring but can happen without a spatial limitation.

Concerning the physical built material the set up limits interestingly formed an aesthetical language. For a future reader I will share some of these guides. As there was a need to quickly and with minimum amount of work be able to assemble and disassemble the structure I used as few screws as possible. The shelves and counters are lessened to the amount needed to illustrate the intended physical engagement but also to make the structure transportable. In order to keep these surfaces functional most screws have been recessed 10mm or more, thus the dark dots or holes, see images 77 and 78 the sink surface. It takes approximately 30 minutes to take down the structure and pack it into a transportable structure. It takes the same amount of time to assemble it from an unpacked situation. The whole structure can be transported in a station wagon or similar sized car. All parts can be carried by an average adult. The structure has withstood the test of all imaginable encounters until the end. I have considered doing a damage test but found it unnecessary as this is an illustrative model for everyday movements and not prison breakouts. The structure is documented in size and material specification but not presented here in order to stay true to the topic. Bringing more detail leads to questions regarding fabrication and touches a different bodily scale which is outside the scope. The model was to a majority built from borrowed or reused material already heading to the trash. The biggest expense has been the plywood for the curved counter on top of the cooking pit and the tall standing plywood carrying the shelves in the back. The structure fits inside a standard kitchen room but is pushed towards an expository wider layout for final seminars and the placement in The Templet. Some edges are milled to become softer as a question mark towards ergonomics. The most care is given to the climbing pole and the foot support visible in image 55.0. The two poles are milled and carved from American Alder. The Support is in laminated pine. To compensate for the uneven cut in the joinery, hemp thread is stuffed between the pole and the foot support. For more specific questions about the structure or any other uncertainties in this thesis contact the author.

55.2



#### 55.0 FOOT SUPPORT

A foot support along the central climbing pole also supporting the shelves. Laminated Pine wood.  
Source: Photograph taken by author April 2022

*How does it feel to touch a support with the ball of the foot? Is there an invitation to sensibility and care? Can one communicate stability and pleasure? Is this a lump on a tree trunk, a rope knot or moulded clay? In a discussion with Hugo Henriksson further iterations were suggested for instance movability and varying materials. How is this functional and not interfering with cleanliness and cooking?*

#### 55.1 INVITATION

Handdrawn invitation for evening in The Templet.  
Source: Graphite on tracing paper Made by the author April 2022, Photograph taken by author April 2022

*A family meal with friends and sceptics. A great thanks to Simeon who forced me to set it up!*

#### 55.2 PRE ASSEMBLY NO2

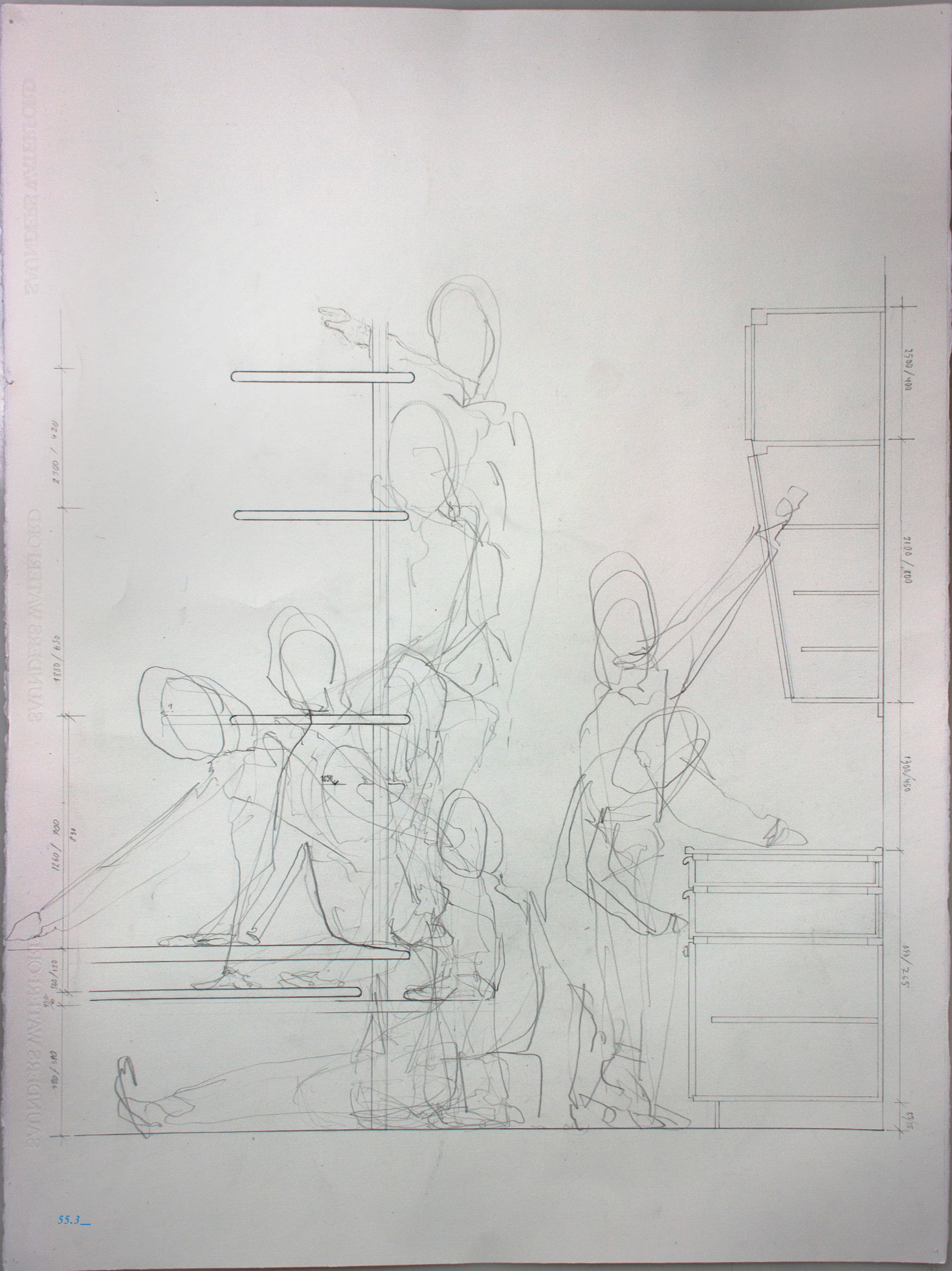
Piled woodpieces on the floor at The Templet before assembly for first exhibition.  
Source: Photograph taken by author April 2022

*It does not look much, a scrambled wood pile, but this has the potential to cultivate rich culinary and sensory experiences.*

#### 55.3 JUXTAPOSITION A1

The heights of the kitchen surfaces in the mock up to the left juxtaposed with the standard kitchen profile from 1950 in Sweden to the right. Source: Graphite on Saunders Waterford aquarelle-paper Made by the author May 2022, Photograph taken by author May 2022

*The stiffening impact is maybe not as extreme as this croquis drawings suggest, but the difficulty to meet an uncomfortable height will push the engagement to another measure. The most evident is the use of a supporting arm and the climbing engaging the core.*



55.3



56



57



58



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63

56-60 **KITCHEN DANCES;  
THE ARBORIST**  
*Isak and his daughter trying the meaning of climbing in the kitchen. Photograph by author April 2022.*

*"Does it hold?-" "I would definately put my daughter up her!" "I would use this for shelves"*

61-63 **KITCHEN DANCES;  
THE DANCER**  
*Arika exploring the potential reach. Photograph by author April 2022.*

*"I would place a support for the foot on the wall!" "Oh, you can hold here."*

64 **KITCHEN DANCES;  
THE ARCHITECT**  
*Julia standing on the counter, Josef (to the left) staring at Viggo. Photograph by author April 2022.*

*The encounters of this space are really poetic. Somehow the tension of using floor and climbing open up for a playfullness and explorative apporoach.*



64



65

Advancing to this final statement I shall claim that I have searched for a critical perspective. Foremost I have tried to convince myself. I am still not certain that the ideas put forth are the correct answers to the existing sedentary situation. Personally it has been liberating to move in the way this structure provides possibilities for. I also agree on the three things pressed as feed forward by David Leite Viana in the Open Seminar on the 30th of May. There is a need to assess aspects of safety and useability when changing the existing premises. Secondly the attention to time and awareness which I personally see as something beyond an architectural framework and probably the greatest asset of this thesis. Designing for such a desired living is an entirely different thing than our rushing environment today. Thirdly there is a continuing discourse of this work that involves policy making. Noted by student opponent Amitis Fouladi, the need to work as a group is essential to make ideas like these accessible for the greater good. I have chosen not to discuss or relate to existing movements in terms of physical practices as it becomes a topic of its own, but I am fully aware that many movers exist that can take these ideas much further. I have lived in this structure for a very limited time and I have just started to touch on the various aspects of moving and inhabiting an unconventional situation. Much is yet to be explored.

**65 KITCHEN DANCES;  
PEER REVIEW**  
*Intense focus, inside and from the outside.  
Adam and Kristin. Photographer Simeon Frohm April 2022.*

**66 KITCHEN DANCES;  
A DIALOGUE**  
*Nathanael and Peter discussing the meeting with the brick wall. Photographer Simeon Frohm April 2022.*

**67-72 KITCHEN DANCES;  
COOKING AND LAUGHING**  
*Jennifer cutting bread and finding her spot in the cupboard. Photographer Simeon Frohm April 2022.*

**73-80 KITCHEN DANCES;  
THE CHEF**  
*Nathanael cooking Shakshuka. Photographer Simeon Frohm April 2022.*



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**81 ASSEMBLY NO3**

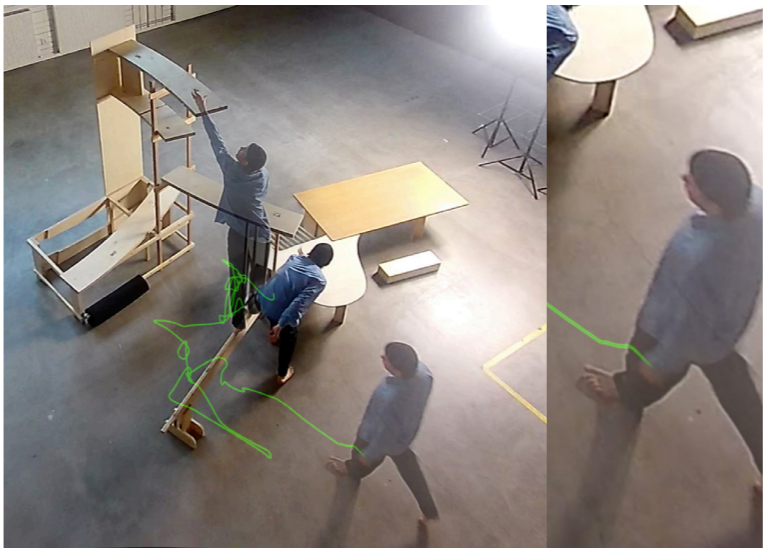
*A Series of movements in the 3rd assembly. GoPro monitoring Nathanael simulating cooking procedures. Source: Film and montage by author May 2022*

*Sharing a table with movement happening vertically is a playful thing. The treehouse was not an intended reference but that is what I see in the structure as such. Is this a table for Peter Pan and his rogue friends? The still figures are in mid action intended to be stimulated by the structure. If this continues to happen after two years of use is another question.*

**82 PATELLA**

*Focus: Patella or Kneecap. Motion traced in AfterEffects. GoPro monitoring Nathanael simulating cooking procedures. Source: Film and montage by author May 2022*

*The left knee is in this stretch only hovering above the ground. Two balancing adjustments appear when walking on the balancing board. In the final movement the knee moves slightly beneath the tabletop. This gap is important as pointed out previously. Note also the little curl happening at each step.*



82



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—86

**83 NAVICULAR**

Focus: Navicular or top of foot arch. Motion traced in AfterEffects. GoPro monitoring Nathanael simulating cooking procedures.

Source: Film and montage by author May 2022

The left foot reveals the height difference to the ground better. When rising to the balancing board there is a knee adjustment. Note also the longer path taken by this peripheral limb. Feet trace space similar to hands but at a much lower level in the room. They help orient, and if allowed they will support with a tactile experience of space.

**84 THIRD METACARPAL**

Focus: Third Metacarpal or mid palm of the hand. Motion traced in AfterEffects. GoPro monitoring Nathanael simulating cooking procedures.

Source: Film and montage by author May 2022

Now it maybe is more intuitive for an untrained mover to understand what is happening. The hand is the limb which always will manoeuvre through space the most. It has a much longer route and its dynamic shifts a lot. Here it is not only used as a counterweight in balancing but also support when needed. It reaches to the far ends of the structure and to the floor. The hand object orientation is maybe the most investigated part of Time Motion Studies in the 20:s. I propose this to be challenged. Not only should one practise Ambidexterity but also use of other limbs for similar purposes. Picking up objects with the feet as one example.

For me as a dancer this was a brilliant tool for investigating unaware movements and learning of the actual spatial orientation of movement, giving precision and awareness. For architects this is also a good tool when learning of the actual movements of a body. We are not vehicles for carrying an observing lump (i.e. head) from A to B but the whole body is a thinking organism.

**85 ASSEMBLY NO4**

Final Seminar. GoPro monitoring Nathanael cooking an omelette.

Source: Film by author May 2022

Going for water demands climbing under bushes at times. It is a peculiar thing to stay true to a task and be habitual whilst performing for an audience. Note the added colored surfaces helping to note the main functions of the kitchen triangle.

**86 ASSEMBLY NO5**

Open Seminar. GoPro monitoring Nathanael flaming pineapple in rum.

Source: Film by author May 2022

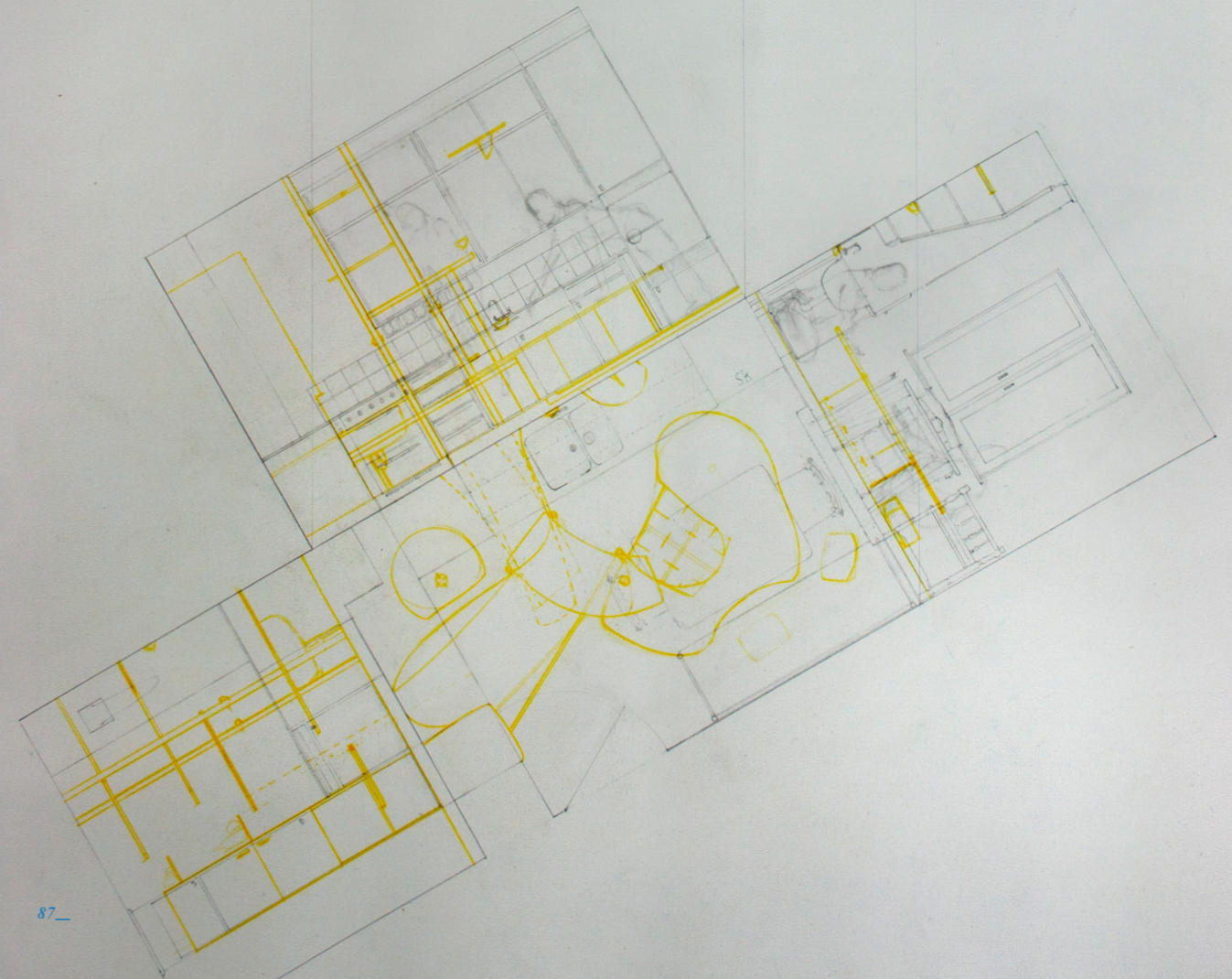
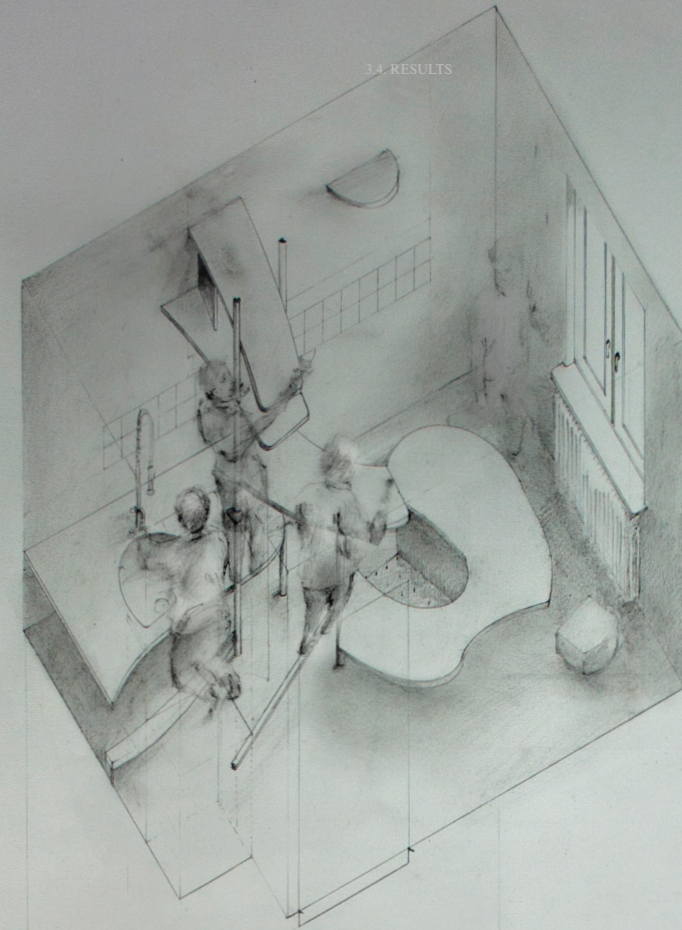
Reaching for rum in an unfamiliar way. This was improvised on the spot. I have never flamed pineapple before this occasion. This demanded caution and attention to the task at a much deeper level than cooking an omelette. This is an example of refined motor practice.

**87 JUXTAPOSITION A2**

The 1947 kitchen exhibited at Nordiska Museet. Drawing is partly following the 1940-1950 kitchen presented by Björk et al. Inspired by the thesis work by Lucy Chen "Perpetuation Through Radical Adaptation" this is then juxtaposed with an iteration of the kitchen mock up as presented in the Final Seminar.

Source: Graphite on Arches aquarelle-paper by the author May 2022, Photograph taken by author May 2022

This study gives a good idea of the bodies residing differently in space. The size of the kitchen is smaller in volume than the existing standard yet the use of space seems larger. The protruding shelves could be more narrow and less prominent for a less crowded situation. One could also use bars for hanging as a way to give more variation to the space. Each fixed element that can be engaged with will attract movement and create a cluster of time geographical bodies.



87\_

## MANUSCRIPT (Revised for Open Seminar) ! *(is this a manifesto?)*

Esteemed peers, teachers, enemies, sceptics, friends and future builders of society.  
I bring to you here a montage of fragments from this semester’s work named:

### “Challenging Conventions : - Charging Habitual Movements in Domestic Kitchens”

I have always been passionate about moving. As you maybe can imagine, I do not envy my first teacher Ms. Green who had to deal with me having ants in the pants. First at the age of 15 and as a hobby I started dancing. A few years later, during my second year of studies at architecture I faced the unpleasant fact that working as an architect meant sitting still behind screens. This made me reconsider and devote myself to a professional career on stage, studying, performing, teaching and choreographing. For many reasons I have now come back to architecture, but still I face this prevailing fact - As an architect one is expected to through a sedentary situation conjure rich and healthy environments that provide human wellbeing.

This work intends to question the present standardised kitchen. In relation to an increased sedentary lifestyle and the growing practice of mind finger coordination with screens I here stress the need for enriched living, filled with complex bodily practice

Further, in the light of a recent pandemia, where the home became a primary residing place I believe it is essential to quarrel with the impact our industry (architecture) has on the human autonomous space.

Many reasons can motivate challenging a norm. In order to strengthen my vantage point I lean on the recommendations for physical activity presented by the Swedish Professional Associations for Physical Activity. Läkartidningen Förlag AB published the latest version of FYSS (i.e. handbook of Physical Activity in the Prevention and Treatment of Disease) during this past fall. The recommendations in this book are evident. Regardless of age or occupation we need to lessen the amount of sitting and increase the amount of movement in our daily lives. The first chapter: 1.1. presents 8 investments on a societal level that can enforce physical activity. 5 of these encompass the environment. I could list a whole bunch of health benefits in regard to an active lifestyle but will here just cite from the physical activity recommendations by the World Health Organisation for adults:

*// physical activity confers benefits for the following health outcomes: improved all-cause mortality, cardiovascular disease mortality, incident hypertension, incident site-specific cancers, 21 incident type-2 diabetes, mental health (reduced symptoms of anxiety and depression); cognitive health, and sleep; measures of adiposity may also improve. //*

A strong recommendation, with evidence of moderate certainty

*Adults should do at least 150–300 minutes of moderate-intensity aerobic physical activity; or at least 75–150 minutes of vigorous- intensity aerobic physical activity; or an equivalent combination of moderate- and vigorous-intensity activity throughout the week, for substantial health benefits. ( 25 - 50 ) min per day of moderate intense activity...*

Could this be done within the domestic space? Of all the places we encounter throughout a day one is above all programmed for engaging the senses. Where better to start this inquiry? Additionally there is no other place in the home that has involved as much research and implementation of standards as the kitchen. The reason to question our intervention as architects is thus maybe here the greatest... ?

My process has run across three stages:

- The first stretched along half of this semester and involved a deepening research in the evolution of the modern western kitchen. It also involved reasons for bodily engagement and somewhat theoretical frameworks considering norms and affordance.

- The second stage meant mapping habitual movements, delineating a bodily scope, exploring various design options and then implementing actions into a framework.

- The final stage has been a reflective and performative stage where I have exhibited a procedural structure and exposed myself along these ideas to a public, where I consider even this particular situation as part of that stage.

Stage no. 1

In short, our modern kitchen was shaped in a social climate aspiring for a brighter future. Then it meant making life easier, more efficient and available for all. The lower-class could suddenly get modernised equipment and the upper-class did not need to cook for hours. The new kitchen was no longer a smelly place with an iron stove in the basement but a central heart of the home where a housewife could multitask and take care of her loving husband while disciplining her kids.!? In order to make this possible, techniques used to revolutionise factory work were translated into the kitchen, both in terms of manufacturing and in terms of labour. For more info see “Time - Motion Studies” by the Gilbreths. Thereupon, a day’s kitchen work was reduced from 9 to 3 hours.

How much we like to believe that Sweden was a pioneer in the industry, it all started in central Europe and America. With defining scientific management, later known as ergonomics the home became a market for consumer goods. New designs should encompass all of humanity by meeting the average Joes and universal human beings. As a cure to an illness design should eliminate discomfort with lessened friction, removed sharp edges and erased obstacles. Good design is ergonomic and invites pleasant and effortless work.

Was physical activity not existing in the early 20th century lifestyles? On the contrary, physical activity was an integral part of the visions put forth by the early modernist architects. As pointed out by Architectural Theorist Beatrice Colomina; Le Corbusier, Walter Gropius and many more were frequent designers of gyms and exercise rooms. What is profound is however the separation of functions. Instead of carrying wood to the furnace we lift weights at the gym.

In contrast to their view I reason differently. Instead of separating the functions which seem to encourage a sedentary lifestyle and saturate laziness, I pose another scenario. Instead of the stiff, upright, unyielding, 2-dimensional, incapable, apathick, universal being I here reconsider with quite an opposite creature - a norm with attributes such as; organic, plastic, flexible, moveable, engaged, struggling, vivid and playful.

Stage no. 2

Charging habitual movements is twofold in its connotation.

- I charge as in; electrify habitual movements and give attention to the whole body, not just flexing some muscles, raising the heartbeat and panting a little.

- I here press charges against the sedentary lifestyle which we all have succumbed to..

Asserting on aspects of habits and convenience, I have throughout this semester studied not only my own kitchen encounters in the everyday but also peeked into a few other’s of varying height, gender, occupation and tonus. Habitual movement includes a whole spectrum of effortless adjustments, fixing the hair, appropriating the body to space and reacting to instincts etc. More specific in relation to the chosen scope; apart from evidence pointing towards the stiffening impact our standard kitchen has on the human body, I have noted a pliability of each individual. It seems that human encounters with obstacles will always take routes towards efficiency to the degree which is possible and most convenient. This is permeated by our individual cognitive, mental and bodily capacity resulting in a constant organic negotiation. Thus, in my opinion, it seems regressive to only look at ways of enhancing efficiency. Despite the proclaimed scientific foundation, my claim is that the streamlined environment becomes harmful in the end. Saturated by our natural abilities, norms and diligent search for comfort our bodies become imbecile and petrified.

Solutions can be found amongst non material interventions for instance with cutlery placed in the lowest drawers and comestibles at unreachable places in the cupboards. But as this is a thesis not in choreography but architecture I speculate on the outcome of a fixed interior kitchen. The obvious response could be inserting gym fixtures or kinetic furniture to flex some muscles. However, as a dancer I have searched for movements in a more expressive and potentially a poetic manner. Not that the kitchen should be a performative stage but there is much the work on stage can offer to habitual movements - especially awareness and refined motor practice. In the article: “Brain plasticity and motor practice in cognitive ageing” for Frontiers in Ageing Neuroscience, Cai et al. state the following:

*Exercise is critical for preventing cognitive decline in older adults. Inner experience of mindfulness (attention focused on the experience of current time) improves brain function, reminiscence and social connections, thereby contributing to better mental and physical wellness.*

A healthy body is not just a moving body but an aware moving body!

Initially I transposed 50 words into this book and then categorised them into 5 subtopics. One of these is of particular interest for this thesis featuring full bodily actions dependent on physical premises -

*reach, sit, lift, swing, push, pull, bend, squat, twist etc.*

- These movements are the framework for this mockup.

While exploring forbidden, possible, theoretical kitchens I have been made aware of my own preconceived ideas regarding “good design”. It first seemed impossible to conjure a kitchen without clean surfaces stretching orthogonally in space, the single countertop and the cupboards covered by clean sheets. Thus in a pragmatic procedure also proposed by my examiner Daniel I started by placing the primary functions of a kitchen so that movement was directed into possibilities. From the various layouts I transposed cooking procedures in lines tracing various body parts forcing new things to emerge. For instance this kitchen cabinet stretches vertically, similar to a spaceship with pullable drawers and a climbable structure. Here the anchored movement will orient around the central pole creating a compact curiosity cabinet. Or the inverted kitchen triangle, where instead of walking across a floor towards counters along the walls one circles around the central worktable. The notations first followed carefully imagined routes but with time I used the tool to investigate specific scenarios,”what about slipping on an unstable element?”-”where do you hold your hand most comfortably?”

These designs and somewhat interpretations of existing kitchens became the springboard for this mockup which involves the set of actions mentioned earlier.

With the great generosity from Tabita, Peter and Peter I was handed some materials left over from previous thesis work. After cataloguing them I assembled them into what you see here.

Together with this final drawing I will now present to you through a juxtaposition to the Swedish 1950:s standard how a fixed domestic kitchen can conceive various movements. Although I have not lived in this structure for long I hope to do this in a rather effortless and possibly elegant way. :) In a contextual style I have placed the 10 by 10 tiling above a standard 85 cm counter. This tiling is also a connotation to the time - motion studies where grids were used to map motion through space.

The video playing in the background is in Swedish presenting the 1950:s kitchen exhibited at Nordiska Museet in Stockholm, also where the journey of this project started.

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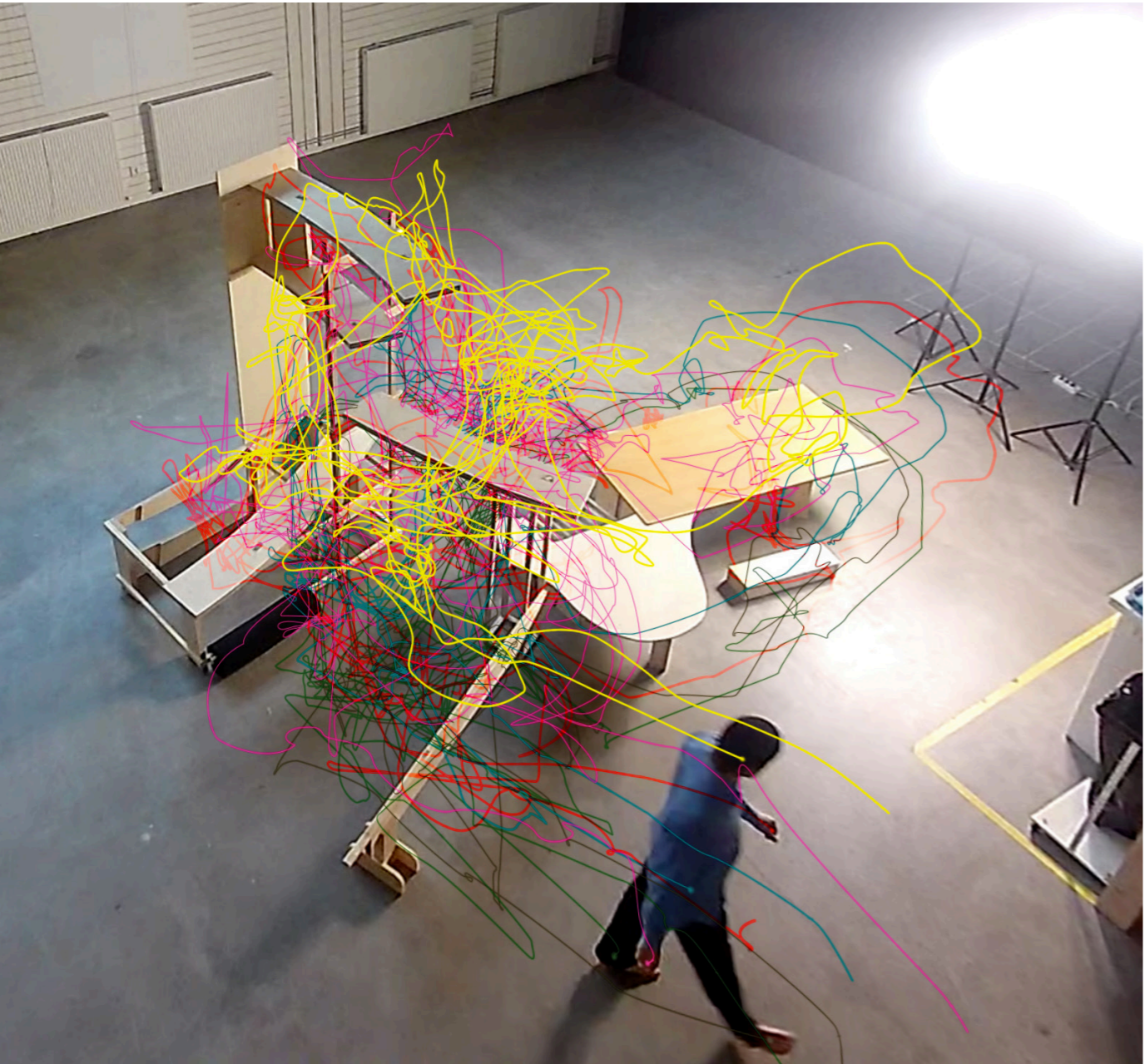
Video playing in background whilst flaming pineapple in rum. Plated with vanilla icecream and Lemon Balm.  
*(Pecan and cardemom is a strong recomendation, left out du to problem with timing.)*

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As a conclusion I here tag along with Albin Aldén, recently referring to Gilles Deleuze drawing from a statement by the seventeenth-century Dutch philosopher Baruch de Spinoza: “We do not even know what a body is capable of...”

How do we imagine the future domestic habits? Kitchen habits?

Is the domestic space a vibrant sensuous and engaging physical interaction with the surrounding, with the body and with others, should it not be?



**88 A CONTINUOUS MOVEMENT**

Tracing of: YELLOW: Pons (between occipital and the temporal bones) - PINK & RED: Third Metacarpal or mid palm of the right and left hand - GREEN & MOSS GREEN: Navicular or top of left and right foot arch - TURQUOISE: pubic symphysis (just on top of the pubic bone). Motion traced in AfterEffects. GoPro monitoring Nathanael simulating cooking procedures.

Source: Film and montage by author May 2022

This spaghetti diagram does not give any idea about the quality of the movement, only the massive orientation around the central table and climbing pole. The kitchen triangle ought to be viewed not as a limitation but the natural way most use the kitchen in a daily practice. Obstructing the triangle does not need to slow down the work, it will rather shape the bodily movement differently. A possible line of iterations include making the same impact with less elements. When do new movements appear and when is the structure not functional anymore?

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