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My dear friends and family
ABSTRACT

This thesis begins with making glazes for ceramics out of food waste from a local restaurant. The initial idea is to develop specific glaze recipes, but when the work developed the philosophical aspects became more important. The main research question is: what kind of a glaze type of finish with food waste can be created on ceramics? Later on the question arose that is there a poetic connection between the user and the objects created? In this thesis glaze as a concept is quite an open term meaning the different finishes created on ceramics with food waste. Later on in the process coffee waste and coffee powder were studied as a material on ceramics. Wood firing was chosen as a firing method for most of the pieces, which created especially interesting results. This project is divided into two parts, which will focus on the results from the point of view of aesthetics and test table settings to analyze the aesthetic qualities of the pieces. The aesthetics developed here are based on aesthetic theories found in literature combined with the maker’s background in ceramics. In the test pieces the food waste seems to have entered the pieces and they have become relics of the past meals. Some of the results remain art pieces and only intended for un-commercial use.

Keywords: Food waste, table settings, wood firing, glazes, ceramics, aesthetics
TIIVISTELMÄ


Avainsanat: Ruokajäte, kattaukset, puupoltto, lasitteet, keramiikka, estetiikka.
PROLOGUE

The name of this thesis developed from “food glazes” to its current title through a long process of evaluation. What began as a simple study with glaze tests of food waste placed on ceramics developed into a philosophical questioning of the aesthetics of the pieces, and what this term aesthetics actually means.

The simplification of using only coffee as the material for the glazes was the result of a long process of testing and analyzing the pieces fired with food waste materials. What affected the written part very much was also the hands-on process involved in making the thesis project. This is why so many pictures are included, so that the process of making would be a part of the book.

The olfactory element was present in making the tests, as can be read in my personal notes. My working diary entry reads:

Could create abstract paintings
using coffee on bisque-fired
tiles – also smell is an element.
(30.9.2016)

The smells present in the making are unfortunately not included in the book and photographs. What was interesting was that some of the results were almost invisible and some left clear markings on the pieces. The randomness of the results can be seen as the often glittering and colorful markings on the surfaces of the ceramic pieces. The main material I chose to use for the glazes from the food waste materials was coffee powder and coffee waste.
TABLE OF CONTENTS

Abstract 5
Tiivistelmä 7
Prologue 9

1. Introduction 15

2. Recipe creation and food used as a glaze 19
2.1 Randomness of the pieces 21
2.2 Ash glazes and wood firing 22
2.3 Creative process of making the glazes 24
2.4 On aesthetics and functionality 26
2.5 Gas fired pieces and their qualities 28
2.6 Wood fired pieces and their qualities 32

3. Analysis of the pieces & interview as a method 36
3.1 Test table settings 44
3.2 Curiosity in the results 44
3.3 New textures using new materials 47

4. Object design 48
4.1 Cup-shape used for the wood firings 48
4.2 New design for the new tests 49

5. Restaurant waste collection 51
5.1 Interview at SPIS restaurant 51
5.2 Food waste issues 53

6. Final table setting 58
6.1 Beauty of the pieces 58
6.2 A poetic connection and the meaning of objects 59
6.3 A meal as a form of art 62
6.4 A learning process 65
6.5 Discussion

References

Appendices

Appendix A: Interview questionnaire
Appendix B: Recipes
Appendix C: Second dinner interview

List of Figures
1. INTRODUCTION

Creating recipes for food and ceramic glazes seem to be quite similar in their processes, but the ingredients are more toxic in the latter case. I began this project with preparing glazes out of food, such as onion, cabbage, lime and pomegranate cut into large chunks and fired in a gas kiln. The results were encouraging in that the food items formed some glaze on the ceramic surfaces of the pieces.

This thesis project is based on a previous project done in a Material Experimentation course in the winter of 2016, in which I studied the possibility of glazing ceramic pieces with food to create painterly finishes. This project will be divided into two parts which will focus on the results from the point of view of aesthetics and user interviews to clarify the aesthetic qualities of the pieces. The aesthetics will be researched from a practical point of view and a literature search.

The original idea was to just test possible outcomes and see if anything happened. Later the glazes became more “developed” as one would try to control the process more by creating vegetable smoothies, such as the ones seen in figure 3 on pages 16-17. These early developments led also to the discovery of coffee waste and coffee powder as a later focus. The main research question is: What kind of a glaze type of finish with food waste can be created on ceramics? Later on the question arose that is there a poetic connection between the user and the objects created?

Some of the tests described in later chapters were successful in that they produced manifold results. The “recipes” for the glazes could be developed in further detail, but the different firing conditions led to differing results. These results were then tested in real life situations, such as a dinner held at my design studio. I prepared food to be served from the pieces and conducted an interview with the guests after the dinner (see Appendix C).

These dinners became important situations for evaluating the pieces. The term commensality, meaning the process of eating together, encompasses table settings, dishes and the food being served (Stuppes, 2014, p. 103). The dinner was held with the dishes made of pieces glazed with food. Overall, the commensality or experience of eating together became more important. This is one of the aspects of considering the poetic connection between a ceramic object created this way and the user. I will later describe this connection and how people found new meaning and stories in the pieces.
2. RECIPE CREATION AND FOOD USED AS A GLAZE

“There is just one art, one art-as-art....
There is just one aesthetics, just one art idea, one art meaning, just one principle, one force”

Guided by this quote from Ad Reinhardt (1991, p. 70) this project aimed at creating mainly a work of art, through ceramic firing techniques such as wood firing and using unusual materials for the finishes. What is typical for wood firing is that it is a process of surprise and making findings. It’s an artistic method. It has a mind of its own. The flames and ashes paint their own markings on the pieces. These markings are typical for ash glazes and Japanese wood firing. The process is not entirely controllable and requires learning over time. The firing process takes many days and together with the loading and emptying it can take over a week in the case of large wood firing kilns, like the Anagama kiln.

The research considered whether glazes that contain food waste work as aesthetically pleasing finishes on ceramics. And whether they are random or controllable tests remained a question in the beginning. These questions will be researched through analyzing the test pieces and making an unconventional user test or situation, in which one will be able to receive direct feedback.

The following chapter will look at the pieces and their finish qualities in more detail. The randomness of the pieces will be discussed and also the aesthetic qualities. The descriptions will begin with the initial tests made in the gas firing kiln and continue to describe the results from the wood firing kilns.
2.1 RANDOMNESS OF THE PIECES

The research for this thesis project began with an aesthetic study of food items used as a glaze material. The initial tests were quite random and not measured or re-tested. I used mostly food waste from a local restaurant and coffee powder to make glaze tests that were fired in a gas kiln and later in wood firing kilns. I placed the food items in the clay cups and fired them to see, if any results would form in the way of glaze. I don’t mean any traditional glaze, but some visible results on the surface of the piece.

The following chapters will explain the way ash glazes have been used in the past and their specific characteristics. They will also describe the area of wood firing to some extent to explain the firing process, which affects the pieces. Wood firing can be a rather random process in which ashes present in the firing also affect the results.

In this thesis I was also interested in the making process and the qualities of clay. At one stage I made some tests with adding food waste directly into the clay. I added coffee into the clay slip and also did the casting with this clay. The coffee powder stuck to the clay and created lumps, that resemble pop-corn. This coffee mixture was also fired in the Anagama kiln in October 2016. The coffee burned away and left no color traces on the surface of the piece, as it did in the earlier tests of just coffee powder inside the cup.

These initial tests with materials in gas and wood firing were promising enough aesthetically to be continued in further tests. Although the tests were quite random, they proved interesting. The special qualities of wood firing are visible in the pieces made in the Anagama kiln. The glaze tests with food seem to have created versatile results in color and texture, which can be seen in the images included in this book. The figure 3 on page 20 shows the random markings on the pieces made in the first wood firing.

Previous page / Fig. 3: Wood firing results from the first firing in the Bourry box train kiln.
2.2 ASH GLAZES AND WOOD FIRING

The closest example for glazes using food items are ash glazes. However, I decided to focus on using specifically food as a glaze without making a separate ash glaze. This was decided to narrow down the research area at the beginning of the project. There are many examples of ash glazes found in literature and those will be discussed further in this chapter.

Whether the pieces could be used in a commercial setting, such as a restaurant, was uncertain in the beginning. According to Airi Hortling, ash glazes can be used in small-scale production, not in commercial use ceramics. She mentions several wood species of wood and grass used in ash glazes (Hortling, 2017, p. 23-24). This thesis project is similar to some of these materials as they are also plant-based. The chemical structure is also very similar.

According to Hortling (Ibid.), glazes and the way their character can be categorized are divided in the following four categories:

- Shiny, clear, transparent
- Slightly unclear, somewhat transparent
- Half-matt, opal, somewhat transparent
- Matt, un-transparent (p. 8).

Later in the Appendix B I will be describing the recipes and I will be using the above terminology to describe the results of the glaze tests. These descriptions were helpful in organizing and analyzing the pieces in more detail, although all the pieces were interesting on their own. I have translated the descriptions from the original Finnish text written by Hortling.

As mentioned, the closest example of using waste as a glaze material was found in examples of ash glazes. In ash glazes, wood and other plant materials are used, such as straw (Rogers, 1991, p. 33). Rogers states that ash glazes could easily be made of household rubbish materials. The idea would be to create an even recipe or content over time that one could test continually (Ibid, p. 51). This is what has been attempted in this project, to be able to create a content one could measure and re-create as closely as possible.
Kusakabe and Lancet (2005) discuss in "Japanese Wood-Fired Ceramics" the ways Japanese wood fired ceramics commonly uses combustible inclusions, such as sawdust, rice, grains and cereals and anything else that burns to create “crafted effects” (p. 155). Perhaps these food glazes could be compared to these tests made typically in Japanese wood firing. This is why it is suitable to use wood firing as the firing method for the final pieces. The results vary considerably and controlling the firing conditions proved impossible in wood firing. This is why the results are quite random.
2.3 CREATIVE PROCESS OF MAKING THE GLAZES

The original idea for this thesis of using food waste as a glaze on raw clay pieces and then firing them was first discovered when reading a book describing testing of waste materials as glazes. This book was “The Craft and Art of Clay” and the chapter talked about “garbage glazes” (Peterson & Peterson, 2003, p. 179). The firing temperature was not the same in the tests made in the gas kiln, but much higher. There was concern whether there would be any significant results. The results were quite surprisingly varied and interesting even in the very beginning.

Before making these initial random tests made in the gas kiln the original question was: could food waste be developed into a glazing material? After several tests in the gas kiln, the results begun to show some promise. In addition, the idea of making the food items into a smoothie by ceramics studio master Tomi Pelkonen developed the idea further. The use of coffee powder continued to give interesting results.

The incubation period of the creative process as described by Wallas (1926 as cited in Popova 2017) took place after finding the main problem during preparation. During this stage the main ideas of finding the formulas for new tests were developed. This stage consisted of random testing of different food items on ceramics in the gas kiln and discussing the results with others. The final stages according to Wallas are: illumination and verification (ibid.). Through the discoveries made during testing, specific materials were found for use in further tests. In the end, the pieces are judged according to their usability and aesthetic qualities.

A central aspect of the creative process is its vagueness and that the goals are not always so clearly visible in the start (Uusikylä & Piirto, 1999, p. 63). This was certainly true in this project, where many of the paths taken were serendipitously discovered. The wood firing is a technique, in which the results can vary greatly according to the changing elements in the firing. The temperature and ashes present create an element of surprise during every firing, thus making the pieces unique in themselves.

It is important to record every part of the glazing process, as I have done in photographs and notes. Rogers (1991) also advises keeping all of the pieces for further study and not throwing away any test pieces. These pieces might have possessed qualities that could be appreciated later and developed into artistic glazes (Rogers, 1991, p. 73).
2.4 ON AESTHETICS AND FUNCTIONALITY

Narrowing down an area of aesthetics, in this case was an important starting point. I defined the aesthetics from the point of view of analyzing the glaze characteristics, usability and other qualities of the pieces. In describing the results, one can see the different qualities created by the glazes and elements present in the firing, such as ashes in the wood firing. Finding our own terms for describing aesthetic qualities is described well by Naukkarinen (2014) in the following terms:

*When we search for our own answers, it is useful to pay attention to at least three themes: the time, space and content of aesthetics, i.e., to when, where, and what aspects of contemporary aesthetics are significant.*

This means that we should take into account the surrounding factors around the piece being judged. We each are influenced by outside factors that make up our concept of aesthetics. Also, the time we are presently living in requires us to pay more attention to environmental factors.

Whether aesthetics is something innate or learned has been studied by many philosophers and writers. Hannah Arendt (1978) describes the term plurality and how it includes the fact that we are influenced by the world around us and our senses (Location No. 358-363). The plurality in my pieces is part of my own concept of aesthetics, which is highly influenced by a background in ceramics. I have grown to appreciate more random results, such as Japanese wood fired ceramics.

The aesthetics developed here are based mainly on my background in ceramic studies. I expect the results to be aesthetically pleasing and usable for ceramics. I created situations and gave the questionnaire to the interviewees at the table settings. The situations consisted of a table setting at my home, where the pieces were laid out on a large table. Another situation was a dinner held at my design studio, where I served food on the dishes. The questionnaire included a few leading questions, such as letting the reader know food waste had been used as an element in the firing. The aesthetic qualities of the glazes were then described by the users in the interviews. The form of the questionnaire was quite open, but the plan was to narrow down some important points about the aesthetic qualities of the pieces perceived by the users. These aesthetic qualities could pertain to the usability of the
pieces, to the appreciation of the colors and other details.

Another point was to discover the functionality of the pieces. In previous glaze tests a few items were created that are safe to use for dining purposes. One goal of this project is creating a glaze that can be used for dishes for serving food in a restaurant. The wood fired pieces were seen as the more successful ones from this point of view. The ashes in the firing process were also part of the glazing process, which contributed to the glazes created. Perhaps the pieces might have also worked when fired in an electric kiln, but this was not included in this project.

An important question throughout the project was whether to focus on functionality or the artistic qualities. The functionality or the usability of the pieces became increasingly important as the project progressed, but also the meaning of the pieces in how well they communicate ideas. My own view is that an object can be both functional and valuable as an art object at the same time. In later chapters I will consider the aesthetic qualities of the pieces in a table setting and how they communicate ideas to the viewer.

Whiteley (2010) describes the art and the politics of trash by giving examples of artists working with waste materials. For example, the movement called the Art of Assemblage, established in New York in 1961, was dismissed as kitsch by the public. Whiteley coins the term “trash aesthetics” in describing art made in the Western tradition using waste and found materials (p. 8-10). This project also uses trash in creating objects of aesthetic quality. In this case the trash was used as one raw material to form glaze finish on the ceramic pieces.
2.5 GAS FIRED PIECES AND THEIR QUALITIES

The first test pieces were fired in the gas kiln. Some results were more successful and created smoother finishes than others. Coffee and blended smoothies proved to be the most interesting glaze finishes on the pieces. Cups and small plates were tested at this stage. The future tests were to concentrate on smoothies and coffee, which was confirmed later as well in the wood firing. The results from the gas firing can be seen in the figure 6 on page 31.

Analyzing the aesthetics by use of the interviews became important. This will be further explained in the later chapters. The interviews confirmed the success of the tests and also helped to choose future test materials. According to the interviews and discussions the material for the future tests was chosen to be mainly coffee waste and store bought coffee powder.

The objects were fired in reduction firing in the gas fired kiln at the school in 1260 Celsius degrees. The very first tests were made by using solid pieces of food items in the gas kiln and the results were encouraging in that glaze was formed. I continued to make tests using restaurant waste (vegetable peels and coffee grounds) from SPIS restaurant in Helsinki. The use of food waste as a material used in firing was discovered in discussions together with my teacher Anna van der Lei.

The ceramic studio master Pelkonen had the idea of making the smoothies by blending the food items. The use of the gas kiln was decided together with Pelkonen in order to control the ventilation of the firing better. The firing of food items would cause smoke in the electric kiln, which requires better ventilation in the area. The gas kiln is placed in a well-ventilated area to reduce smoke when doing the firing inside. The wood firing has no problem with smoke as the firing is done outdoors.

The special character of gas firing, reduction firing, is a process where the amount of oxygen in the kiln is being reduced during firing, which creates a chemical process, in which the glazes react chemically in a unique way to create stunning results (Coppa, 2016). The chemical process of reduction enables the ceramist to create glazes and finishes that have special characteristics. The clay material might also be influenced by the reduction-kiln atmosphere, which will change the color as can be seen in some of the wood fired pieces that have turned grey. The reduction-kiln atmosphere produces carbon monoxide,
which reacts with the oxygen present in metallic oxides in clays and glazes (Zamek, 2009, p. 122). The brown or orange results in color are due to the iron oxide present in the clay, which is visible in the fired items (Ibid, p. 130).

I also fired a few smaller pieces of the coffee and bentonite mixture in the gas kiln. The results were glistening crystal-like finishes on the surfaces of the pieces, which are not clearly visible.
Following page / Fig. 6: Detail of the first few plates from the gas firing.
2.6 WOOD FIRED PIECES AND THEIR QUALITIES

The first wood firing occurred in August 2016 at Leena Juvonen’s Bourry box train kiln in Puistola, Helsinki. The objects were fired between 1268 and 1300 Celsius degrees. The pieces withstood the heat well and the results were encouraging. The pieces contained food waste and coffee powder placed in clay cups. Some of the cups also had a Shino glaze underneath the food pieces, which is a typical glaze used in Japanese wood firing. This glaze was used only on a few pieces as an addition to see how it would react with the food waste items. There were no significant reactions with the shino glaze.

The second wood firing pieces were fired in the Anagama kiln in approximately 1370 Celsius degrees. In the firing the pieces were placed in the “secret chamber”, which is a separate area located in the back part of the oven. This was the hottest area during the firing and the pieces melted due to the clay-body not withstanding the high temperature. Kusakabe and Lancet (2005) describe this area as special for the firing characteristics present in it. All the ash and flames pass through this area, but only small items may be placed in this section of the kiln (p. 210). My pieces were small, so it was ideal to test them in this space.

The third wood firing took place at Leena Juvonen’s Bourry box train kiln and I used the coffee and bentonite mixture in these pieces. The pieces can be seen in figure 12 on page 50. The pieces were left with interesting results, where the coffee left clear markings on the pieces. This made me decide to continue a new set of tests with coffee in the Anagama kiln later in the spring of 2017. In this fourth firing the pieces were placed in the secret chamber and they added salts to the firing, which might have also affected the results. These cups turned orange in color due to the firing conditions. I also used a different high-fire clay this time, which withstood the heat better.

The flames and ashes that are part of the firing process affect the pieces by creating beautiful effects, which are flame and ash marks called hi-iro and shizenyu (Kusakabe and Lancet, 2005, p. 210). These were not very much present in my pieces in the first Anagama firing since the surface did not react to the ashes and even the food waste burned away inside, not producing such interesting results as in the Bourry box kiln. The second Anagama firing created more results with special markings made by the flames and ashes. The results are visible on the outside as well as the inside on the surfaces of the pieces. For example, the orange color varies as the flames have moved through the kiln and the lighter spots on the underside are the result of the wadding placed on the bottom.
The food has left visible results as well, which create a new type of finish. On some pieces the results are more visible than others.

According to ceramist Aba Luostarinen, the reduction was quite high in the secret chamber during the last firing in the Anagama kiln although this area was not controlled or monitored in detail during the firing. The secret chamber is designed to even out the temperature in the kiln and in Japan this area is often left empty. All kilns are different and this was the first firing of the kiln. It will take time to learn the special qualities and reduction of the kiln over time (personal communication, January 5, 2017).

The first wood fired bowls also bent and became deformed during the firing. In addition, some bending occurred during the gas firing, but only for some materials, such as coffee placed on a plate. In the second wood firing in the Anagama kiln I continued to use the same bowl shape as in the first wood firing and gas firing tests. This way I could create a formula for the future tests, in which I measured the ingredients in the bowls.

In the second wood firing in the Anagama kiln, I measured the ingredients and added 50 grams of different vegetable peels and coffee powder. In half of the bowls I added a clear glaze (KXX5) on the inside and half of the pieces were left raw. There were no significant differences between the pieces with glaze on the inside, so I decided to eliminate the use of a base glaze in future tests. The bowls were made of porcelain used at the ceramic studio, which could not withstand the high temperatures in the Anagama kiln and the pieces were deformed.

In later tests, made in the spring of 2017 in the Anagama kiln, the new cups used a new clay formula that withstood the heat better. The cup-shapes withstood the heat well, but the plates did deform in the firing. It was decided that I would develop the plate further later in gas and electric firing. The small cups contained coffee powder and coffee grounds mixed with 2% bentonite.
3. ANALYSIS OF THE PIECES & INTERVIEW AS A METHOD

The tests began with using solid pieces of food items, which gave interesting results, such as color changes and texture on the surface of the ceramic piece. The following tests made with "smoothies" of the vegetable leftovers were more successful in creating a smoother surface finish. The food items used consisted of vegetable peels, coffee powder and coffee grounds.

The use of food waste as a glaze ingredient offers a possibility to use non-toxic waste materials as glazes on ceramics. This was suggested to me by Anna van der Lei at an early stage of this project as a possibility to approach the development of the glazes. As I decided to focus on coffee waste and coffee powder as the main material for the glaze tests it was suggested by studio master Tomi Pelkonen that I add 2% of bentonite to the recipe. The reason for using bentonite is that it would stick better on the pieces as they were glazed. The coffee and bentonite mixture offers a non-toxic glaze material for ceramics.

I continued using solid pieces of food waste items as well as smoothies in the tests. These types of tests have been done before according to various sources, such as: "The Craft and Art of Clay" (Peterson & Peterson, 2003). The garbage glaze examples in this book were made from various found items, such as aluminum cans, household products and not exclusively food (p. 179). I developed these tests further by using only food waste materials as a finish on ceramics and creating recipes.

The tests I have made in the gas fired kiln and wood fired kiln have produced successful results. The success of the pieces made thus far are mostly based on the usability and aesthetics of the pieces produced in gas and wood firing. The wood firing process produced interesting results that were affected by the ashes and flames present in the firing process. The results were especially visible in the wood firing, where the colors were varied and texture was created on the bottom of the pieces. I will consider this process more deeply and see how much the finishes with food have made an impact on the pieces in the wood firing.

The focus will be on the finish and using a simple cup-shape as a mold for the glaze tests. Throwing the cups was abandoned as it would add another element to the process, whereas a simple casted cup or plate would serve as a good background for testing the different glazes. The next step is to analyze the results more carefully by conducting a test
The method of inquiry included recording my process by free writing about the process in all its’ stages. I also had an interest to get feedback from the items I created. Interviewing the users was followed by an analysis of the answers in relation to my thesis questions. The interview was a sort of art intervention or test table setting where the users answered open-ended questions (see Appendix A). Later, I also arranged a dinner using the dishes created during this project. I created a new handout for the guests and photographed the meal and how the dishes were used (see Appendix C). The final table setting can be seen in figures 18 and 19 on pages 86-89.

The method of interviewing specialists in the field of ceramics or other users would add to the aesthetic analysis of the pieces created. These interviews would prove to be useful platforms for discussion and I was able to focus on coffee waste. I decided to hold the first interviews after the second wood firing in November 2016 and January 2017. The following chapters will explain the results from these interviews. The first interviews were aimed at ceramists and the second ones at friends working in other fields than design. The dinner and table setting at the end also served as a testing ground for the pieces used during a meal.

The feedback from the test audience also served as material for reflection on the aesthetic qualities of the pieces. The interviews were based on people’s perceptions of the glazes made with food and were very open in nature. It was interesting to hear what kind of connections people made about using waste as a material in ceramics. I hoped to find a poetic connection between the item and the user, in which the object creates a new meaning for the user. In later chapters I will discuss the artistic value of the pieces and how this would relate to a larger field of art dealing with commensality.

At the beginning of this project the pieces were assumed to create new type of painterly finishes. The addition of interviews brought a new dimension, where analyzing the pieces became more of a discussion than a personal opinion. As the use of food waste as a glaze material was quite new, it was also interesting to hear what people thought about it.

Following pages / Fig. 8-10: First interview and table setting of all the pieces made thus far.
3.1 TEST TABLE SETTINGS

The test table settings took place at different stages of the project. The table settings consisted in the beginning of the pieces set on a table and a handout for the interviewees. The interviews elaborate on the results from the table settings and open up issues that were raised in these situations. The table settings took place at my home and at my design studio “Poterie & Peinture” located in Meilahti, Helsinki. Please refer to figures 8-10 on pages 38-43 for the first table setting.

The first series of interviews took place at the ceramics studio in Aalto ARTS on the 28th of November 2016 before the table settings. On display were the pieces from the first two wood firings. The two interviewees, who were design students, were given a blank sheet of paper and a few instructions on how to approach the pieces. They were told to consider the aesthetic qualities of the pieces as well as the fact that they were fired using restaurant food waste material. The following will elaborate on these interviews and the results.

3.2 CURIOSITY IN THE RESULTS

The pieces were seen as raising curiosity among the interviewees and other students present in the studio. The use of food waste creates color and other elements, which resemble glaze on ceramics. This was often questioned by my fellow students. One of the interviewees wrote that it was interesting to see that the food enters the dish that will be used for eating. This indeed is an aspect not considered in the research thus far. The different markings created by the food waste in the wood firing were of interest. The haphazard quality and cracking of the pieces created in the wood firing were seen as a positive aspect. The gentle pastel-color pieces were described in detail by one of the interviewees. And some pointed out favorite pieces among the cups. These notions were all delightful and the goal was to create some beautiful painterly glazes and pieces that could withstand time.

The coffee-glazed test pieces were found especially interesting by the interviewed in the early stages. The soft and organic color scheme was described in detail and also words such as earthy and organic were mentioned as possible concepts for the pieces. In addition,
the use of organic waste, such as vegetable peels were seen as a positive factor, as these are often thrown into the bio waste disposal unit. The use of coffee, that is often also a waste material in cafes, was also suggested as a possible material to collect for future tests. Later I used coffee waste collected from SPIS restaurant. After this I decided to focus on the use of coffee waste for the future pieces in order to narrow down the research area.

There seemed definitely an interest in this new type of finish material for ceramics. The tests were continued in wood firing and the focus became coffee as the most interesting material to study in further tests. In chapter 6 I will discuss in more detail the final table setting and results from the interviews done then.
3.3 NEW TEXTURES USING NEW MATERIALS

The project progressed into further tests made in the wood firing kiln. The resulting glazes and their textures were then tested in the interviews. The first fired pieces in the Anagama kiln were made in Orimattila at the end of October 2016. Cups and tiles using the porcelain slip clay at our school were fired with the finishes made from food waste, which consisted of vegetable peels and continued tests using coffee. The vegetable peels in earlier figures 2 and 5 on pages 13 and 25 are details of the finishes used on the ceramic pieces.

Other projects using food as a glaze material were researched and earlier examples of using food as a glaze were discovered. The project by Ekaterina Semenova using out of date dairy products to glaze ceramics is interesting. The project is called “Care for Milk” (“Material Research, Care for Milk” n.d.). I saw this interesting project in Milan at the Design Academy Eindhoven design exhibit in the spring of 2016 and the different brown-colored pieces. The figure 11 on the previous page is an image of this project by Semenova. Milk and dairy products have been used as a glaze in other projects as well. I heard from ceramist Leena Juvonen that they had used milk as a glaze in low-fired temperatures in projects at our school. I decided to continue using coffee waste as a finish on ceramics as this seemed to be quite new and had not been tested before.

Analyzing the interviews the results indicated different qualities, textures and colors of the pieces. Conducting the interviews aimed at finding the pieces to develop further and I was not sure what I would find. The aim was to find a roadmap for future tests to be able to create pieces of value for the user. Coffee was found especially interesting and the future tests included coffee waste and trying to find a recipe to create a finish on ceramics using it.

At one stage I decided to focus on coffee powder and coffee waste from SPIS as the material for the finishes as it had been producing such interesting results thus far according to the interviews. The textures and surface results, such as the color were the determining factors in continuing the tests using coffee as the main material for the glazes.

Previous page / Fig. 11: “Care for Milk” project by Ekaterina Semenova.
4. OBJECT DESIGN

The first tests were made with a small cup that I had a mold for already made for a previous project. This cup served well in earlier tests in the gas firing and wood firing. I began developing a new form for the wood firing and future tests, which will be described in this chapter.

The design of a shape used for the tests was another part of this project. In addition to designing a small cup, I developed a larger dinner plate that could be used as a plate in a restaurant setting.

The different shapes would react differently in the wood firing, which made the test results interesting. This became not only a research of the finishes, but also the form and how it reacted in the different temperatures. Also, the clay slip was developed along the way to better withstand the raising temperatures.

4.1 CUP-SHAPE USED FOR THE WOOD FIRINGS

The cup was determined as a safe shape to use to test the different food items in the different firings. This was requested by ceramist Leena Juvonen for the first wood firing in the Bourry box kiln firing. These factors determined the use of this cup-shape for future tests with a different clay body that would withstand the higher temperatures present in the Anagama wood firing kiln. The later tests used a different clay body, which is designed to withstand heat better in wood firing. The clay body consists of aluminum oxide instead of quartz.

The cup tests made in Juvonen’s kiln were successful and determined the continuation with this type of tests. The resulting pieces had subtle traces of the different food items. These pieces can be seen in the photographs in this book and the various recipes to create them are included in the Appendix B. The conditions in the Bourry box kiln and the placement of the objects was ideal for the pieces to form interesting and subtle results.
4.2 NEW DESIGN FOR THE NEW TESTS

I continued making further tests with the recipes used thus far and testing them in a more controlled way in the wood firing in April 2017. The clay slip was modified to withstand the heat present in the wood firing kiln. The design of a new clay cup was also made for the new tests. This cup is smaller than the cup used in earlier tests. It was designed to be a small butter cup to be used by SPIS restaurant. A plate was also developed and tested in the wood firing. The design didn’t withstand the firing conditions in the wood firing and it was decided to be left as a test version only and will be continued as a separate project in the future. The plate would need to be cast thicker to withstand the higher temperatures.

In addition, another small cup was also made for the tests made in the spring of 2017. These cups were used in the firing of Leena Juvonen’s Bourry box kiln. The recipes and result descriptions are included in the list in the recipe-section of this book (see Appendix B). The figure 12 on page 50 is an example of these cups, which were fired with a coffee powder and bentonite mixture in the Bourry box kiln.

The cup-shape was stronger and easier to use in the high temperatures present in the wood firings. In total I was using three different sized cups and two different plate-shapes. The testing of the materials reacted differently on the different forms. The cup-shape had the most clear results as the food waste could be placed more evenly on the inside of the piece during firing. This was especially true in the gas fired pieces, where the plate would bend and break in the firing. The cup-shape was a more solid test piece for these tests. It withstood the heat better and did not bend as much. Also, the adjustment of the clay slip made the pieces even stronger in later tests.

For future tests I would still use the cup-shape developed for this project and continue adjusting the plate design. The plate was not successful in withstanding the wood firings and became too flat for use in a restaurant setting. Later, I was able to develop the plate further and fired a plate in the electric kiln. This piece did not bend and was a successful design. This plate could be developed to withstand the higher temperatures of wood firing in the future tests.
5. RESTAURANT WASTE COLLECTION

The decision to use restaurant food waste as the material for the glaze tests was made early on in the process. It began as a material research and evolved into the use of food waste. The waste consisted of mostly vegetable peels and later coffee waste, as has been described in more detail in the recipes. The food waste from the restaurant SPIS consisted of a plastic bag full of different vegetable peels each time, that I would then use as a finish on ceramics and also process into a smooth paste using an electric blender. Later I would also collect coffee waste from SPIS restaurant that I could use.

The following chapter will begin with an interview of the owner and cook of SPIS restaurant and continue to describe the chosen material of food waste and issues related to it.

5.1 INTERVIEW AT SPIS RESTAURANT

The following is a shortened and translated version of the interview in Finnish with restaurant owner Jani Kinanen of SPIS restaurant and chef Esa Huttu on the 27th of January, 2017. The topics of the interview were issues around food waste and what type of dishes they would need in their restaurant at the moment. Some of the test pieces made thus far were shown during the interview, which were then judged by them.

1. What are your thoughts about food waste?
EH: Minimize food waste of course and as much as possible would be served as food. We use all the possible pieces of the vegetables in our kitchen.

2. What type of food waste do you have in your kitchen?
EH: Peels, coffee powder and food. When a fridge breaks down for example as happened today. Bread of course.

3. I have used vegetable peels and coffee powder for the glazes. Do you have this kind of waste?
EH: Yes exactly.
4. I have used food waste from a restaurant for the glazes. What are your thoughts about this?
EH: Really great, there is a story.

5. What is important for dishes in a restaurant setting?
EH: Aesthetics is at the top of the list, usability and durability too.

6. Can you see people appreciating a story related to the dishes?
EH: Yes.

7. Do you have an exhibition area in your space for these pieces?
JK: Not at the moment. The restaurant is too small at the moment.

8. What is a possible message these pieces can communicate?
EH and JK: The values in a restaurant, recycling and locality. Also supporting small-scale producers. We think locally and support Finnish producers.

9. Can you see a ritual meaning in dishes?
EH: Yes, but not in a restaurant setting.

10. Any other points on the aesthetics of the pieces in front of you?
EH and JK: C7 is our favorite. White is a good background for dishes most of the time.

The results from this interview led me to develop new forms for the test pieces. I began to design a dinner plate and a small cup for butter served on the side. The question number 9 about the ritual meaning of dishes was unclear to the interviewees. I meant the meaning of the daily meal entering the actual dish being used. How people would perceive this was of interest to me. This was brought about in the earlier interviews of some of the people being interviewed and I found it to be an interesting point. I wanted to see how the restaurant owners would perceive the ritual meaning of dishes, but this was left quite unclear as there was no time to dwell on the question.
5.2 FOOD WASTE ISSUES

This chapter addresses issues relating to food waste and provides an overview about the scale and implications of this problem. I will focus on the waste created by today’s society and concentrate specifically on restaurant waste. A central issue is also to create a usable finish for ceramics and pieces that could be seen as works of art with a message.

I was using food leftovers from a restaurant in Helsinki as the material for the finishes. The idea was to be able to use these finishes later, in dishes designed for a restaurant. So far, I have been in contact with SPIS restaurant in Helsinki and they have showed initial interest in using dishes created with food waste. In the first test pieces I used food waste donated by SPIS and this consisted mostly of vegetable peels of different kinds and coffee waste.

The creation of bio-waste is a serious global problem. As a result, issues around bio-waste have been addressed by several projects that will be discussed further in this chapter. For example, restaurants, such as LOOP, that use food that would otherwise be thrown away. Such projects may become more common in the future. All of these different examples will open up the issues around waste and especially bio-waste.

The food industry creates a large amount of waste in Finland, which is evident in many studies. According to the conference paper written by Doctor of Science Sari Piippo and professor Eva Pongrácz (2015):

“The share of bio-waste is about 20-30% of all the wastes generated in Finnish households. The majority of this is food waste originating from the preparation of food.” (p.1).

Piippo and Pongrácz also account that Finns generate about 50kg of food waste per person annually; this means that about 90 000 tons of food waste is just thrown away each year. Piippo and Pongrácz argue for using bio-waste as a resource such as is done by some restaurants or as fuel matter. Although some waste has been used productively, much more could be done (Ibid, p. 1).

The glaze or finish study proposes that by using a waste material we can make an impact on the discussion on this issue. The poetry and beauty instilled in a piece will create a story that we will not want to destroy, but rather protect. This will help to create a less wasteful society that becomes more aware of issues related to pollution and landfill sites.
The intention of this project has been to raise some questions about the role of design in addressing these problems around waste that we are facing. Each piece instills a memory of a meal and makes us ponder on how we consume earth’s resources. The idea is that the waste has entered the dish and has become a memory of a daily ritual.

Following pages / Fig. 13 and Fig. 14: Coffee waste and bentonite used as a finish on the pieces.
6. FINAL TABLE SETTING

This chapter will deal with the final stages of the process of making the glaze or finish experiments. The pieces will be analyzed in relation to the whole experience of using the pieces in a final table setting. The final table setting was held as a dinner at my design studio in June 2017. The dinner consisted of a table setting using the ceramic pieces I had made and simple wood trays, which was actually an ancient way of dining in Finland (Grönholm, Koivisto, Kumela & Tamminen, 2005, p. 16). The setting included my grandmother’s old textiles, Dora Jung’s napkins, and “Lion” cutlery designed by Bertel Gardberg (Grönholm et. al., p. 124). The figures 18 and 19 on pages 86-89 show the details of this summer dinner party prepared with a Finnish menu.

6.1 BEAUTY OF THE PIECES

The success of the pieces are discussed from the point of view of the interview results. Whether the pieces are seen as ugly or aesthetically pleasing and if they are usable in a restaurant setting are some of the questions discussed here. The success of the pieces can be measured according to many factors. The beauty instilled in the pieces is a key component of this process.

Furthermore, much of what we deem as beautiful or ugly is influenced by exterior factors, such as advertising and mass media. The use of waste for the finishes could be seen as a negative aesthetic factor. For example, using what is a waste product could be seen as something ugly and distasteful. But things are not always so clearly defined. Sometimes one can find beauty in things like dirt and trash. Bayley (2012) described how our concept of ugliness dates back to Biblical times (p. 158). He describes especially “waste” and “dirt” as things of negative association and things such as landfills could be seen as examples of industrial societies negative results (p. 161).

The definition of beauty is as vague as ugliness is. Defining ugliness or its counterpart, beauty, is not an easy task and Bayley stated this very well:

Once you start searching for it, once you try to isolate and define it, ugliness becomes almost as evanescent and as elusive as beauty. The more you bother to
think about it, the more convinced you may become that definitions of ugliness depend not on the surface of things, but on their philosophical substance. (p. 164-165).

At one stage I realized that my own understanding of aesthetics had grown with the experience of making the pieces. Throwing, casting, collecting the materials, preparing the finishes and the firing processes all make up the whole of the experience of the pieces for me. I had also learned the aesthetic appreciation of wood fired pieces during my ceramic studies, which made me see the beauty of the pieces.

The beauty of the pieces is evaluated based on personal and political standpoints, and it can be influenced by many things, that affect the way we interpret the world around us. The aesthetics and beauty instilled in a piece can be hard to define. The following chapter will continue on the interviews and open up the issues that were discovered there.

It was interesting to hear and compare the comments made by fellow students and others. I found the pieces that seemed like “failures” as the most interesting pieces. But this was influenced by the fact that I had been involved in all the different stages of the making process. The figure 1 on page 2 shows a test, where I used bread dipped into clay and placed it on a clay plate. This was personally a delightful result, although quite random. The beauty and fragility of the piece can be touching.

6.2 A POETIC CONNECTION AND THE MEANING OF OBJECTS

It seems people did find a poetic connection to the pieces according to the interviews. They found the pieces as a reflection of their own aesthetics and ideas of beauty. “Using food waste as a material is really amazing”. This was written as a response to the survey held after the dinner by one of the interviewees. The details and colors of the pieces were seen as interesting factors after I had told the users what the finishes had consisted of. “Small wonders”. This was a description in one of the notes written after the dinner. The smallest details were pondered upon and users wrote many comments after the dinner, which helped me to analyze the pieces from a new perspective. I was able to distance myself from the pieces and hear new viewpoints about them.
One of the interviewees wrote in careful detail about the pieces in front of them in their survey paper after the dinner held at my studio:

“On the small cups, the light orange tone and the vivid texture reminds me of sand and the beach.  
The surface reminds me of the seashell.  
Sea shell is also partly smooth and rough in places.  
I like how the cups are smooth from the outside and the surface is rougher on the inside.  
I like that contrast. The moderately glossy sheen of the finish is elegant.”

The example above brings us to the meaning of interviews in design. According to Koskinen (2003) in design one could use things such as interviews to go deeper into the meaning of people-product relationships and use design empathy to interpret the results. This study had the goal of finding answers to questions about the aesthetic qualities of the pieces and found also new sources of inspiration, which is typical for empathic design (p. 119-120). The interviews proved useful in determining the meaning the objects had for the users.

The meaning behind all objects was described by the Japanese curator Mami Kataoke. Kataoke (2016) spoke about the “Awareness of the invisibles” at a lecture series in HAM museum, Helsinki in the fall of 2016. “How do different cultures view the world in different ways?” This was the main topic under discussion during this lecture. What was quite interesting in this lecture was that in Japan they used to have a religious belief system, where they believed each object had a god of their own. This could offer us a new way of looking at the world and the things in it. The objects have meaning and substance invisible to us at first sight, but they can also have a story.

My hope is that such pieces that have a story embedded in them would create more meaning for the user. The pieces could have a new deeper meaning for the user. The finishes created here can also be developed further and some of the pieces are purely art pieces. Their meaning for each user changes according to their interests and background.
6.3 A MEAL AS A FORM OF ART

This thesis approached food, commensality and ceramics in a unique way. Much of my studies have concentrated on material studies and glazes. Then I began to look at the aesthetics of the finishes from the point of view of art.

As an example of food used in art, seventeenth-century Dutch masters painted still lives with vanitas elements: food signaling the brevity of life and imminent death. (Stupples, 2014, p. 104). The ceramic pieces with the burned food elements could be seen as sort of still lives, which encompass this idea of the finality of life.

I wanted to create an experience with the dishes and use them in a dinner setting. In the twentieth century Futurists held food banquets, where the savory-olfactory-tactile theatrical scenarios and culinary performances were held (Stupples, p. 104). The dinner I held with the pieces was a happening and I collected the experiences in photographs and interviews. The dinner was held at my design studio and the table was set using a selection of the food-glazed dishes.

Many artists have involved food and eating and organizing dinners as a form of art. Anne Koch travelled the world documenting herself eating in short film pieces (Ibid, p. 106). She describes her videos as documenting the world around her and the rituals of eating (Ibid, p.106). In my objects, this daily ritual is documented and one creates “memento mori”, which refers to the relics that are created by the food waste (Ibid, p. 106-107).

In one ceramic work made by Yaara Rabinovitch, she chose to use the waste from morning meals as a part of the making of pieces in ceramics. In this piece she used the food waste in the jiggering machine and the food left marks on the outside of the fired pieces. They were sort of memories of the past meals made permanent in ceramics and they remind us of our daily ritual of eating (Rabinovitch, 2016, p. 38).

Meals have also acted as an important ritual and we recall the numerous famous paintings of the last supper. One can see meals as important ritual ceremonies, banquets and as more humble family dinners. Food has been an important part of human culture and it has developed into a huge business.
Ceramics and tableware are closely connected to meals and the culture of food. In this project these two have been merged together. This brings about new philosophical aspects that one might consider when contemplating the pieces. There have been projects that deal with food and waste, such as the Austrian architect couple “Honey & Bunny” (Caplan-Bricker, 2016). Their critical pieces deal with aspects of food culture and how wasteful our habits are. They create parodies and situations, where one can question the normality of one’s eating habits.

Another example of food design that critiques things, such as the pace of life these days, are the projects by Dutch artist Marije Vogelzang. Her projects question our eating habits by creating situations for communication and enjoyment. In one art intervention she re-created an ancient Chinese cooking method, where the food is heated inside clay (Vogelzang, 2013). The message delivered is on a deeper level and creates more meaning for the users as it takes time to prepare.

The practical aspect of creating a glaze or finish with food waste, that has potential also for commercial use, changes ceramics into a philosophical question. The fragile quality of the pieces and the colors and surfaces created by the food create a platform for discussion on the nature of the pieces, their aesthetic qualities and issues around food waste.

What began as a research into materials developed into a testing ground of ideas. The material tests led to the idea of a piece being a vehicle for change and discussion. The interviews and dinners with the dishes became the situations for evaluation. Later, in the exhibition of the ceramic pieces the focus became even more clearly the idea that environmental issues can be tackled by the pieces.
6.4 A LEARNING PROCESS

Many phases during this project were moments of discovery and entering new territory and learning through making mistakes. I had never tested pieces in wood firing before and the results were inspiring.

The interviews were also a new way of exploring the qualities of the pieces and finding out new perspectives and viewpoints on using food waste as a glaze material. Getting feedback from ceramists and friends was a rewarding experience, where I got new information regarding my topic as well as the aesthetic qualities of the pieces, which was one of my goals in the beginning.

The main research question in the beginning was: What kind of a glaze type of finish with food waste can be created on ceramics? These results have been described in the descriptions before. Also, the interviews gave interesting results on how people described the pieces in great detail. Later on a question arose: Is there a poetic connection between the user and the objects created? And during this thesis a new focus emerged: Can coffee waste and coffee powder create a glaze or finish that would create a connection between the user and object? It seems that to some extent this is possible.

The idea was to create a new aesthetic for ceramics and glazes. The goal was to create a sort of new aesthetic that is sustainable. Some things to focus on were the surface, feel, visual look and texture of the pieces.

Some historical examples have incorporated the decoration of dishes in an interesting way. In the 1550’s dishes were decorated for the elite in Faenza with elaborate painted scenes from classical mythology and ancient history; the painted scenes would act as platforms for discussion during and after the meal (Riley, 2015, p. 301). Therefore, the message of a piece on the dining table can be manifold. The historical dishes served as a conversation pieces as well as a background for the food being served.

The study of my own aesthetic was central and the interviews were an additional element to the project. I made an open-ended questionnaire, which was simple and not very demanding. Things like, asking people to write poems inspired by the pieces, was seen as too demanding a task. The results were quite varied and people approached the table
setting from different perspectives. Some focused on the aesthetics from the aspect of the food being served and others focused on the pieces themselves.

The materials used for the finishes were made from local materials, local food waste. This was also an important point for the design according to the interview of the SPIS restaurant personnel. They use mainly local produce for the food they serve. They did mention that they would prefer white dishes as a background for the food, but the results might include some elements of color. This was discovered after the final wood firing in May 2017. The aim was to develop a usable glaze for small-scale production and commercial use. Some of the results remain art pieces and only intended for uncommercial use.

The story behind the dishes and the use of food waste became central to the project and I chose to use coffee powder as the main glaze material. The results from coffee powder seemed the most effective and I decided to narrow down my research area to this material. The use of waste was seen as a contradiction to the cleanliness aspect of dishes used for food consumption by some of the users. But users did suggest improvements if these pieces were to be used in a commercial setting. The wood fired pieces were seen by some as more “clean and smooth” as the waste had burned away.

The environmental impact my project has was also considered during this process. According to Tapio Periäinen one must among other things accept new values, such as aesthetics that is a cohesive force that holds the whole together (Periäinen, 1996, p. 200). Periäinen calls for a new environmental paradigm, where western culture would create a new world culture that respects the environment we live in (1996, p. 203).

My pieces relate to arts and crafts, which is defined by Periäinen as a difficult area to define sometimes (Periäinen, p. 125). In his book “Metropoleista muotoiluun” he defines these type of objects to be “objects of the mind” (p. 124). I like this term as it includes the idea that objects can have a deeper meaning for the user. The area of what was originally known as art is becoming more uncertain and blending between design and art is more common (Ibid, p. 125).

The firing conditions in wood firing create a unique atmosphere for the materials and the extent to which the food waste used for the glazes in wood firing has affected the pieces remains somewhat of a mystery. I leave some questions open and search for answers through a process where I am far removed. The firing process happens with me being
away when the actual results are being formed. It is out of my hands. Just like the beauty of a landscape is out of my reach and lasts for a moment in time.

I repeated using the same type of materials in different firing atmospheres. By sticking to a seemingly simple process I was able to observe the changes more carefully and reflect on the resulting glazes. The process of firing test pieces with food waste in wood firing kilns was a simple way to study the actual results of food waste and their coloring effects on the pieces. Some of the tests were measured and others were more exploratory in nature. The repetitions with coffee and the results it gave were of special interest. Testing the results in a real-life situation made it possible to analyze the pieces in more depth. The situation was a real table setting and meal, where comments reflected the usability aspects of the pieces as well as aesthetics.

This was an interesting enterprise that left much to learn in the future about wood firing and using different materials for glazes. Some of the materials left clear markings on the pieces and some left only some patina on the surface of the clay. The painterly results are visible in the photographs in this thesis and a selection of the results will also be exhibited in a final exhibition.
Although I did not ask for poems from the interviewed I decided to attempt to write a poem that would reflect the photographs in this book.

Shattered pieces on the ground.
Shattered colors reflecting the sky.
The sound of porcelain in the distance.
Look, see through the colors!

Travel a while, let your eye move a distance.
White turns to color.
Smooth surface shattered.

A great escape.

14.7.2017 Mari Tolvanen
6.5 DISCUSSION

The food waste has entered the pieces and they have become relics of past meals. This idea has become central to the discussion about the pieces toward the end of this thesis project. The idea was developed further in a final exhibition with a fellow student Anni Kuula.

For the final exhibition we planned an unconventional table setting in a gallery setting. The common subject area we both explored in our projects for this exhibition had to do with the state of the environment and especially the take-away culture prominent today. We wanted to create something in opposition to this, where the permanence and impermanence of the objects would speak to the viewer in various ways. Some of the objects have been broken during the firing process. The life-cycle of the pieces in the exhibition are to be determined and the message they convey will be judged by the spectators.

The nature relationship, that Finns have, has been explored by artist Taina Riikonen. She used sound-clippings from politician’s speeches and trash as an installation to comment on this (Frilander, 2016). Our ceramic installation does not include sound, but smell has been included by adding coffee beans to the cups included in the piece.

For the final exhibition we discussed the setting of the pieces either on a table or directly on the floor. The different possibilities took us on a new journey in discovering the deeper meaning of the pieces.

The design and development of the plate design for the wood firing continued as I began testing with a new clay slip, where the quartz had been replaced mostly by kyanite. This clay slip was suggested by ceramic studio master Pelkonen and tests were made in the electric, gas and wood firing kilns towards the end of this thesis project.

From an artistic point of view the most successful pieces were the wood fired pieces. It may be that food waste does not create glaze as such, but adds elements of color and texture to the pieces. Especially in the wood fired pieces the element of ash present during firing has a tremendous effect on the resulting pieces. The use of food waste can be further developed, but the pieces remain at this point as small-scale art pieces. Food waste and especially coffee waste creates a finish on the pieces that can be used for small-scale pieces and it does create a poetic connection between the user and the object.
The final exhibition developed further to two other exhibitions to be held in different galleries together with Anni Kuula. The exhibition in November 2017 in Laterna Magica will continue the ideas from the first exhibition at Poterie & Peinture. The name of the first exhibition was “Two Table Settings” and the setting was on pallets painted grey on a grey paper surface as a background for the pieces. The third exhibition will be held in February 2018 in the Mökki gallery in Kaarina.

The themes for these exhibitions made us develop the plans further and future project ideas were born. The process of working with similar themes will be continued in the future. The idea of combining food waste and other organic materials with clay will possibly be tested in later projects. Perhaps the food waste as such will not appear in the future pieces, but the themes discovered here will continue to be developed on another level. Some new pieces will be included in the second exhibition in Laterna Magica. Included will be ceramics that have been wood fired, which continues the process begun in this thesis project.

*Cups with many colors.*
*Stories unfold in shapes.*

*Random markings here,*
*dust there.*

*What stories lie beyond?*

11.8.2017 Mari Tolvanen

Following page / Fig. 17: Detail of the pieces at the exhibition at Poterie & Peinture.
REFERENCES


INTERNET REFERENCES


APPENDIX A

INTERVIEW QUESTIONNAIRE

1. What are your initial thoughts about the pieces in front of you?

2. Which piece is your favorite? Why?

3. Any other comments?

4. The glaze is made of food waste, what are your thoughts about this?
APPENDIX B

RECIPES

FIRST TEST PIECES: Fired in gas kiln, 1260°C.

Recipe #1a Half of a medium sized red onion placed in a 175ml slip clay bowl. Result: Half-matt finish with orange and purple markings.

Recipe #2a Three lime-halves placed in a 175ml slip clay bowl. Result: Half-matt finish with orange and purple markings. The clay has reacted in a way that it has flaked on the surface.

Recipe #3a Half of a pomegranate placed in a 175ml slip clay bowl. Result: Half-matt finish with orange and green markings. A lot of flaking of the clay surface.

Recipe #4a Chunks of red cabbage placed in a 175ml slip clay bowl. Result: Half-matt finish with orange, grey and green markings.

SECOND TEST PIECES: Fired in gas kiln, 1260°C.

Recipe #1 Celery root peels placed on a clay plate. Result: Shiny finish with dark purple and green areas and orange markings.

Recipe #2 Carrot peels placed on a clay plate. Result: Half-matt finish with orange and green markings in the middle of the plate.

Recipe #3 Red onion peels placed on a clay plate. Result: Half-matt finish with green crystal-like areas and orange markings.

Recipe #4 Parsnip peels placed on a clay plate. Result: Half-matt finish with purple, green and orange markings. The clay has bubbled and become deformed.
Recipe #5  Red cabbage cut into large pieces and placed on a clay plate. Result: Half-matt finish with light green and orange markings. The clay has bubbled and become deformed.

Recipe #6  Coffee powder placed on a clay plate. Result: Half-matt finish with orange, grey and purple markings.

Recipe #7  Mix of restaurant waste, mostly vegetable peels placed on a clay plate. Result: Half-matt finish with orange and green markings. The clay has bubbled and deformed in the middle.

Recipe #8  Coffee powder in a 175ml clay bowl. Result: Half-matt finish with dark grey markings and orange uneven surface on the bottom of the piece.

Recipe #9  Bread pieces dipped in clay placed on a clay plate. Result: Matt finish with bread that has burned away, leaving empty shells of the clay they were dipped in.

Recipe #10  Mix of restaurant waste in a 175 ml clay bowl. Result: Shiny finish with orange and dark grey markings.

Recipe #11  Rotabaga smoothie spread on a clay plate. Result: Half-matt finish with an even area of orange and light green markings.

Recipe #12  Celery root smoothie spread on a clay plate. Result: Half-matt finish with an even area of orange, purple and green color markings. The clay has remained smoother during firing.

Recipe #13  Mandarin smoothie spread on a clay plate. Result: Half-matt finish with slight orange and green markings.
THIRD TEST PIECES: Wood firing in a Bourry box train kiln, 1300°C.

Clay body: throwing clay (A)

Recipe #A1  Shino glaze placed in bisque fired small bowl. Result: White shino glaze.
Recipe #A2  Carrot peels smoothie placed in bisque fired small bowl. Result: Matt finish with grey and white markings.

Recipe #A3  Cucumber peels smoothie placed in bisque fired small bowl. Result: Matt finish with white and brown markings.

Recipe #A4  Pea peels smoothie placed in bisque fired small bowl. Result: Matt finish with black ash scattered across the piece.

Recipe #A5  Onion peels smoothie placed in bisque fired small bowl. Result: Half-matt finish with orange, grey and white markings.

(Recipe #A6  Coffee powder placed in bisque fired small bowl. Unfired.)

Recipe #A7  Mixed vegetables smoothie placed in bisque fired small bowl. Result: Half-matt finish with brown and white markings.

Recipe #A8  Shino glaze & mixed vegetables smoothie placed in bisque fired small bowl. Result: Shiny opal white glaze finish with slight orange markings.

Recipe #A11  Shino glaze & coffee powder placed in bisque fired small bowl. Result: Pink and white chipping matt glaze.

Clay body: wood firing clay (B)

Recipe #B2  Carrot peels smoothie placed in bisque fired small bowl. Result: Matt finish with orange, white and green color on the surface.

(Recipe #B3  Cucumber peels smoothie placed in bisque fired small bowl. Unfired.)
Recipe #B4  Pea peels smoothie placed in bisque fired small bowl. Result: Half-matt finish with brown and white color markings.

Recipe #B5  Onion peels smoothie placed in bisque fired small bowl. Result: Matt finish with orange and white color markings.

Recipe #B6  Coffee powder placed in bisque fired small bowl. Result: Matt finish with brown and white color markings.

Recipe #B7  Mixed vegetables smoothie placed in bisque fired small bowl. Result: Half-matt finish with white color markings on orange background.

Recipe #B8  Shino glaze & mixed vegetable smoothie placed in bisque fired small bowl. Result: Half-matt finish with white opal white color and brown markings.

Recipe #C1  Carrot peels smoothie placed in 175ml bisque fired porcelain slip clay bowl. Result: Shiny, clear and transparent glaze surface finish with orange and slightly green marks from carrot smoothie.

Recipe #C2  Coffee powder placed in 175ml bisque fired porcelain slip clay bowl. Result: Half-matt and matt, somewhat transparent grey glaze surface finish with white and brown markings on the bottom.

Recipe #C3  Pea peels smoothie placed in 175ml bisque fired porcelain slip clay bowl. Result: Half-matt, opal markings, somewhat transparent glaze finish.

Recipe #C5  Cucumber peels smoothie placed in 175ml bisque fired porcelain slip clay bowl. Result: Half-matt, opal markings, transparent glaze finish with grey and orange areas.

(Recipe #C6  Carrot peels smoothie. Unfired.)

Recipe #C7  Shino glaze & coffee powder. Result: Shiny, opal glaze from the shino glaze and coffee might have caused the light blue color on the surface.
Recipe #C9  Shino glaze & onion peels smoothie. Result: The shino glaze has formed large droplets on the surface and there are no color markings.

FOURTH TEST PIECES: Anagama wood firing kiln, 1370°C.

Recipe #P1  50g Celeriac smoothie, no glaze. Result: Shiny, clear and transparent finish with slight greenish dot-like markings on the bottom of the cup.

Recipe #P2  50g Yellow root smoothie, no glaze. Result: Shiny, clear and transparent finish with slight brown markings.

(Recipe #P3  50g Celeriac smoothie, no glaze. Unfired.)

Recipe #P4  50g Celeriac whole pieces, no glaze. Result: Matt finish with white and brown color markings.

Recipe #P5  50g Yellow root whole pieces, no glaze. Result: Matt finish with shiny areas and brown markings.

Recipe #P6  50g Celeriac whole pieces, no glaze. Result: Mostly matt finish with green and yellow markings on the bottom.

Recipe #P7  50g Coffee powder, no glaze. Result: Shiny finish with a slightly jade-green hue.

Recipe #P8  50g Mixed vegetable peels smoothie, no glaze. Result: Slightly unclear, somewhat transparent glaze finish with white dots on the bottom of the cup. Result: Shiny finish, bubbly brown and white markings on the bottom.

(Recipe #P9  50g Mixed vegetable peels whole pieces, no glaze. Unfired.)

Recipe #P10  50g Celeriac smoothie and KXX5 glaze. Result: Shiny finish with some brown and white marking on the bottom.
Recipe #P11  50g Yellow root smoothie and KXX5 glaze. Result: Shiny, clear and transparent finish with slight green color areas.

Recipe #P12  50g Celeriac smoothie and KXX5 glaze. Result: Shiny, clear and transparent finish with white crystal-like markings on the bottom.

Recipe #P13  50g Celeriac whole pieces and KXX5 glaze. Result: Shiny, clear and transparent finish with some greenish markings on the bottom.

Recipe #P14  50g Yellow root whole pieces and KXX5 glaze. Result: Shiny, clear and transparent finish.

Recipe #P15  50g Celeriac whole pieces and KXX5 glaze. Result: Shiny, clear and transparent finish with a slightly green hue.

Recipe #P16  50g Coffee powder and KXX5 glaze. Result: Shiny, clear and transparent finish with white crystal-like markings on the bottom.

Recipe #P17  50g Mixed vegetable peels smoothie and KXX5 glaze. Result: Shiny, clear and transparent finish with white crystal-like markings on the bottom.

(Recipe #P18  50g Mixed vegetable peels whole pieces and KXX5 glaze. Unfired)

Recipe #P19  Coffee powder mixed in clay, casted and placed on a tile. Result: Coffee burned away from clay mixture, leaving no glaze finish color. The result looks like “popcorn” in a bowl.

(Recipe #P20-P30 Plain cups used for covers above the pieces during firing)

Recipe #PU2  Mixed vegetables smoothie placed on a tile. Result: Half-matt finish with green and orange dots on the surface.
FIFTH TEST PIECES: Fired in gas kiln, 1260°C.

Recipe #K1  Lavazza coffee powder mixed with 2% bentonite.  Result: Matt finish with some shiny areas.
Recipe #K2  Lavazza coffee powder mixed with 2% bentonite.  (Mixed more water and the glaze was more even on this one).  Result: Matt finish with more even shiny areas.

SIXTH TEST PIECES: Wood firing in a Bourry box train kiln, 1320°C.

Recipe #1  Lavazza coffee powder mixed with 2% bentonite.  Pieces number 1, 3 and 5.  Result: Half-matt finish with orange and brown markings.
Recipe #2  Coffee grounds mixed with 2% bentonite.  Pieces number 2, 4 and 6.  Result: Half-matt finish with orange color surface and markings.
Recipe #3  Lavazza powder only.  Pieces number 7 and 9.  Result: The piece number 7 was under-fired. Piece number 9 had a half-matt finish with grey and orange markings.
Recipe #4  Coffee grounds only.  Pieces number 8 and 10.  Result: Piece number 8 was under-fired. Piece number 10 had a half-matt finish and slight brown markings on the bottom.

SEVENTH TEST PIECES: Anagama wood firing kiln, 1270 °C.

Recipe #1  Lavazza coffee powder mixed with 2% bentonite.  Pieces number 1-4.  Result: Half-matt finish with orange and brown color surface.
Recipe #2  Coffee grounds mixed with 2% bentonite.  Pieces number 5-8.  Result: Half-matt finish with orange and brown color surface.
Recipe #3  Lavazza powder only.  Pieces number 9-12.  Result: These pieces exploded and broke during firing. Half-matt finish and orange color with grey and white markings.
Recipe #4  Coffee grounds only.  Pieces number 13-16. Result: Half-matt finish with orange color surface and some slight markings in yellow and green on the bottom.

Also, two plates were fired. The other one used coffee grounds and 2% bentonite mixture. The other one used Lavazza coffee powder mixed with 2% bentonite. Result: Half-matt finish and orange color surface.

Also, there were pieces left empty to see if there were any results in the firing. Result: These pieces were left under-fired and were very light in color and had a matt finish.
APPENDIX C

SECOND INTERVIEW QUESTIONNAIRE

The pieces consist of clay cups fired in a wood fired kiln (and gas fired kiln) and food waste was placed on the pieces. The larger cups contained mainly vegetable peels from a local restaurant and coffee waste as well as coffee powder.

Please write freely about the pieces you see in front of you below or send by email to irenemari@hotmail.com.
LIST OF FIGURES

Images are taken by author unless otherwise stated.
Fig. 1: “Gas fired bread dipped in clay” p. 2, taken by author.
Fig. 2: “Vegetable peels detail” p.13, taken by author.
Fig. 3: “Vegetable smoothies used as a glaze”, p.16-17, taken by author.
Fig. 4: “Bourry box kiln results, first firing” p. 20, taken by author.
Fig. 5: “Onion peels detail” p. 25, taken by author.
Fig. 6: “Gas fired pieces detail”, p.31, taken by author.
Fig. 7: “Bourry box kiln results, first firing” p. 34-35, taken by author.
Fig. 8: “First interview at home” p. 38-39, taken by author.
Fig. 9: “First interview at home” p. 41, taken by author.
Fig. 10: “First interview at home” p. 42-43, taken by author.
Fig. 11: “Care for Milk” p. 46, courtesy of Ekaterina Semenova.
Fig. 12: “Bourry box kiln results, second firing” p. 50, taken by author.
Fig. 13: “Coffee and bentonite as a finish” p.55, taken by author.
Fig. 14: “Coffee and bentonite as a finish” p.56-57, taken by author.
Fig. 15: “Anagama results from second firing” p. 61, taken by author.
Fig. 16: “Gas fired and wood fired pieces in an exhibition setting” p. 64, taken by author.
Fig. 17: “Gas fired and wood fired pieces in an exhibition setting” p. 71, courtesy of Anni Kuula.
Fig. 18: “Final table setting and dinner held at Poterie & Peinture” p. 86-87, taken by author.
Fig. 19: “Final table setting and dinner held at Poterie & Peinture” p. 88-89, taken by author.