



Imagery
from nature on
Ceramics

Design Research Seminar Report
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Guided by: Prof. Raja Mohanty

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Imagery on the planters done by Prof. Raja Mohanty

Design Research Seminar

Visual Communication
Design Research Seminar Project by
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Guide
Prof. Raja Mohanty

Submitted in the partial fulfillment of
the requirements for the degree of
Master of Design
in Visual Communication

Industrial Design Centre
Indian Institute of Technology
Bombay
2013 - 2015

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Declaration

I declare that this written submission represents my ideas and work in my own words and where other ideas and words have been included, I have adequately cited and referenced the original sources.

I also declare that I have adhered to all principles of academic honesty and integrity and have not fabricated, misrepresented or falsified any idea/data/fact/source in my submission.

I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom permission has not been taken when needed.

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Name : Upasana Gadgil

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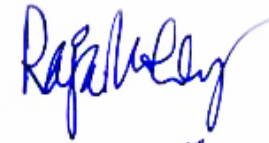
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Approval Sheet

This Visual Communication Design Research Seminar project entitled "**Imagery from Nature on Ceramics**" by Upasana Gadgil, 136250004, is approved in partial fulfilment of the requirements of Master of Design Degree in Visual Communication.

Project Guide :



Chair Person :

Internal Examiner :

External Examiner :

Date :

Place :

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Acknowledgements

First of all, thanks to the Institute for letting me work on the topic of my choice and interest.

I thank my project guide Prof. Raja Mohanty for his constant support and expert guidance at every stage of the project. He encouraged and expected me to maintain discipline in my routine while working on this project. He always said, "dedicated involvement is required to work with clay". I understood, this is not mere a project but a way to inculcate an attitude of discipline and patience in me. Spending time with clay made me more calm and patient.

Thanks to the institute for providing us a well equipped ceramic studio where anyone from the

institute who is interested in working in pottery can enter and use the available resources but efficiently.

I also thank my colleague Gauri for voluntarily lending me all her tools.

Thanks to Vavoshi potters for entertaining me with a welcoming attitude and providing the required help and information.

Lastly, thanks to my family for their love, encouragement and support.

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Abstract

Ceramics has always been a subject of interest to me. Coming across a well equipped ceramic studio in Industrial Design Centre during my masters program raised my excitement to play with clay and make things which otherwise I would only sketch in my notebook.

Imagery from nature on ceramics is a theme taken for design research seminar project with an intention to understand how the things we use today are inspired from nature. Beauty of any aesthetically appealing object made by man is indirectly a creation of God since this whole universe is his creation.

Studio work has been a major part of this project where I experienced myself

the pleasure of doing my own clay objects which can actually be used. Made tiny mugs, tiles, jewellery and other articles.

While exploring the methods and techniques to make quality clay articles, I also thought of how making such usable clay articles would benefit small potters in the villages located around Mumbai city to earn better livelihood.

This report outlines the detailed design process being followed while creating the clay articles.

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Introduction

Ceramics is a term widely used and is nowadays taken to mean objects made from earthy substances.

Pottery has always been an essential activity for a man since his existence. During the 18th century the potter's craft grew into an industry; while some new techniques were evolved and other ancient techniques disappeared.

The end of 19th century saw the rise of the 'Arts and Crafts' movement which reawakened interest in those lost skills. Since then, much encouragement has been given in schools and colleges and Industrial Design Centre at IIT Bombay is one of those.

To begin the project with, I first tried to understand

types of clays available in the market and the glazes.

Every potter is different and has different clays. And in some sense this becomes his identity.

Exploring the elements of nature and adapting them on ceramics is my focus. I met few potters in Vavoshi village in Raigad district to understand their techniques and methods of pottery.

All the details of resources and the techniques used by me are clearly explained in this report and would be helpful to the pottery lovers and explorers.

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1 History of Pottery

Pottery is our oldest handicraft. In prehistoric times, most likely water was carried in woven baskets lined with river clay. After the water was poured out of the container the layer of clay dried. The loss of moisture caused the shape

to shrink and separate from the sides of the basket. When the clay, now shaped like a pot, was removed, and dried in the sun on hot sand, it retained the basket pattern. Early men and women then discovered that they could harden



the molded pottery in hot ashes and make sturdy containers to transport and store foodstuffs.

From these would have been extended the pots formed by hand and decorated with crude tools.

From a very early date in history, some say at least 400 B. C., earthenware pottery was produced on a mass scale by a potter's wheel in many parts of the world.

The Egyptians made kilns to place their clay pots in for firing. The kiln was lined with a kind of insulation brick that was made from a mixture of straw and clay which had been dried in the sun. Later, the ancient Egyptians used a finer clay with a high quartz content for their delicate pottery. They rubbed the pieces with a smooth stone to give the a dull sheen or coated them with a fine layer of another color of clay.

Ancient **Greek** vases are highly valued for form and decoration. The graceful lines an perfect balance speak to our desire for beauty. The pottery was decorated with pictures of the daily lives of the people and stories of their gods, goddesses and heroes.

In medieval times sand was mixed with clay to make cooking pots strong enough to be placed over an open fire.

Around the middle of the thirteenth century **German** potters started to produce stoneware. This pottery was made form finer clays and fired at a higher temperature than earthenware. Stoneware was tan or gray in color, strong and naturally non-porous.

Light, transparent porcelain was first produced in **China**. Porcelain was made from a very plastic and pure clay



called kaolin mixed with felspar. The colorful decoration of the porcelain was accomplished by firing each color individually after it was applied. These delicate china dishes and figurines were in demand all over Europe. In their efforts to unravel the secret of the composition of the Chinese porcelain.

European & Asian potters developed many variations in their glazing techniques.

Indian Pottery - In India, we have had a great tradition of pottery making. In fact, being an agricultural country, pots for storage of water and grains were in demand.

The real beginning of Indian pottery began with the Indus Valley Civilization and the art of shaping and baking clay articles as pottery, earthen ware and porcelain has continued through the ages.

There is proof of pottery making, both handmade and wheel-made, from all over India. In the Harappaan civilization potter's place was quite an important one in society. The craft was well advanced. Rectangular oven for firing the product were in use.

Seals and grain and water containers were made that were put to use effectively. The potter occupies a unique position in the craft

traditions of India. India is home to more than a million potters.



2 Clays

Clays are decomposed rocks colloidal in nature which upon being burned return to their original rocky state. Clay differs from the inelastic earths and fine sand due to its ability to form a cohesive mass when wet with proper amount of

water & to retain its shape when molded. This quality is known as clay's plasticity. 'Clay' is used to indicate natural clays and 'bodies' to indicate a composition of 1 or more natural clays used together with crushed rocks & minerals.



Handmade pot by Karuna C. Ganpath

Types of Clay

Classification of clay into the three categories is based on the fired density of the finished wares. *Earthenware, Stoneware and Porcelain.*

Earthenware clay, is a type of clay with the lowest firing temperature of the three, is relatively porous and soft. It is the most commonly found clay in nature, and is the raw material used to make tiles, bricks, and most pottery products found across the globe. This clay contains a percentage of iron and mineral impurities high enough for it to mature at firing temperatures from bonfire heat at around 1300 degrees F, up to about 2120 degrees F.

In its raw state, the presence of iron oxide makes this clay appear brown, red, gray, or greenish. When fired, it's anything from red or tan to brown or black.

Earthenware has a low shrink factor and is porous, leaky, and stains easily. Because of its porosity, earthenware is a good clay for making planters, diyas.



Stoneware clay, has an absorption factor of about 2 to 5 % and is usually fired to temperatures ranging from 2100 degrees to 2372 degrees F. Fired wares exhibit stone-like characteristics: a hard, dense surface with often variegated color. Stoneware usually bonds well with its glazes, and should be completely leak-proof after firing to maturity. It is tough and forgiving during throwing and firing stages, and is often used for industrial ceramics.

Fired stoneware can yield pleasing colors ranging from buff or light gray to brown or dark gray. Because of its hard, tight qualities, this clay is an excellent choice for functional applications, especially dinnerware. The higher the maturing temperature of the stoneware, the more durable the product.



Porcelain clay, has an absorption rate of 0 to 1 %, is the product of many hundreds of years of development by early Chinese potters. Its main ingredient is kaolin, also known as china clay.

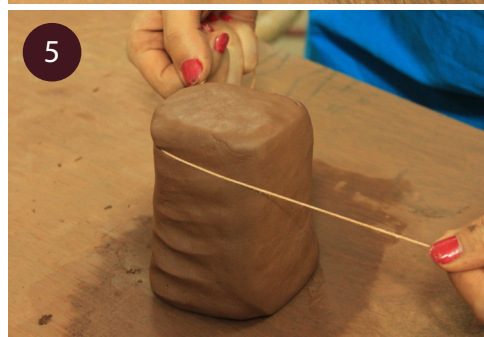
Kaolin has a melting point of around 3275 degrees F, and is difficult to form because of low plasticity. To achieve the dense, hard, white, translucent clay body known as porcelain, kaolin is mixed with other clays to achieve a high degree of workability and to lower the firing temperature. Typically, porcelain is fired at temperatures above 2300 degrees F.

It is difficult to work with porcelain during the throwing stage because of its low plasticity. It cracks and deforms easily during the firing stage.



Clay Kneading

Before using clay for a project, it needs to be prepared by kneading it, also known as wedging. Kneading clay properly will make it easier to work with and will eliminate air bubbles. Upper body strength and strong hands are helpful when kneading clay. Proper kneading will avoid clay objects from breaking while being fired.



Types of Pottery

Pottery is broadly divided into three classes. *Earthenware*, *Stoneware* and *Porcelain*, each having a different body and each bearing qualities of a different nature, yet each having its own aesthetic appeal.



Earthenware, a pottery that has not been fired to the point of vitrification and is thus porous. In texture, it may be coarse or fine. For hygienic purposes it needs glazing with a non crazing glaze, otherwise particles of food, dirt are absorbed into the pores.



Stoneware, which, though dense, impermeable and hard enough to resist scratching by a steel point, differs from porcelain because it is more opaque, and normally only partially vitrified. It may be vitreous or semi-vitreous. It is usually coloured grey or brownish because of impurities in the clay used for its manufacture, and is normally glazed.



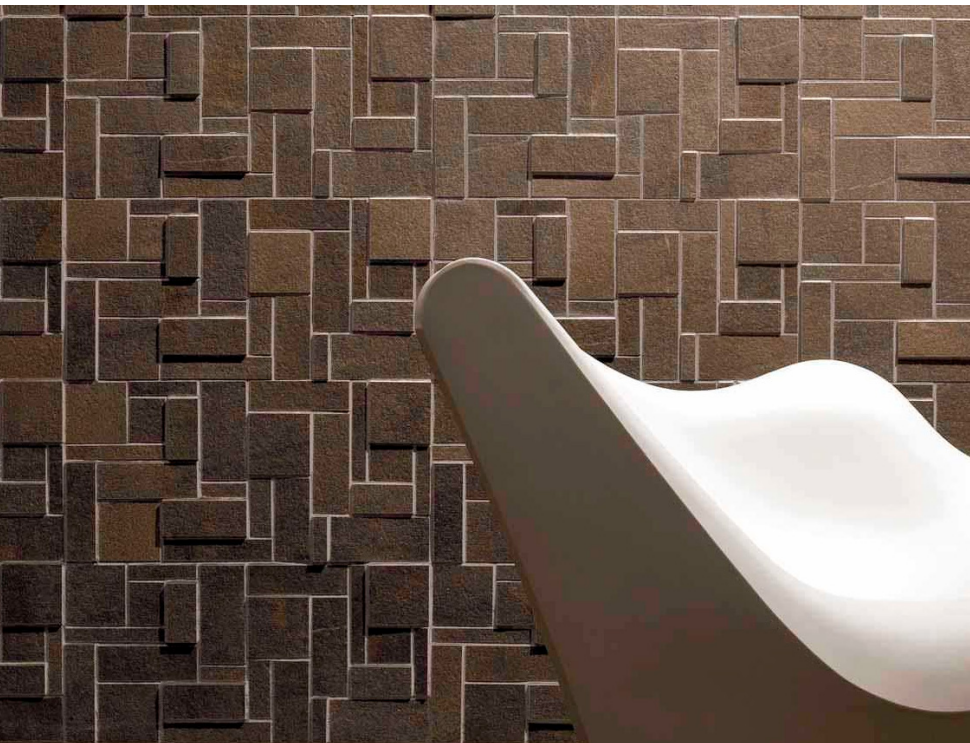
Porcelain, vitrified pottery with a white, fine-grained body that is usually translucent, as distinguished from earthenware, which is porous, opaque, and coarser. No single natural clay will give porcelain, and the mixtures are often less plastic than earthenware or stoneware bodies.



3 Tiles

Tile making forms an interesting part of ceramics and has an extensive historical background. Glazed tiles are made mainly for wall surfaces and unglazed for paving. Ceramic mosaics which are tiny cubes of pottery

material also form interesting patterns when the tesserae are used to form the design.



Tile making process

1. After removing air bubbles from the clay, cut it by means of wire into the thickness and shape required from a block of clay.

2. Clay is pressed into wooden/plaster moulds of varying size and thickness. The depth of the frame should be according to the thickness required.

3. Wooden frame should not be removed until the clay is leather dry.

4. The main difficulty in the making of these plastic tiles is the buckling during drying. All flat pieces of moist clay tend to curl at the edges as these dry first and tensions are set up owing to these unequal rate of shrinkage.

5. This may be overcome by careful stacking and drying

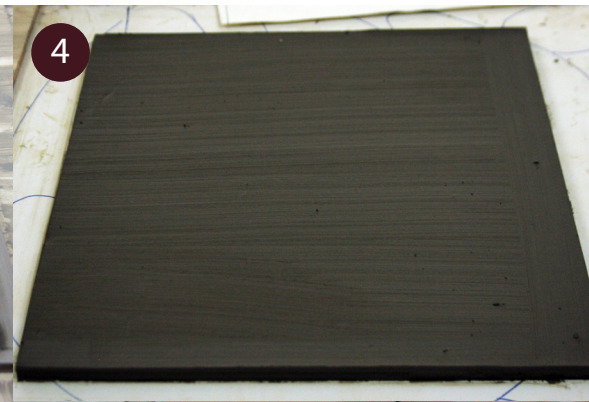
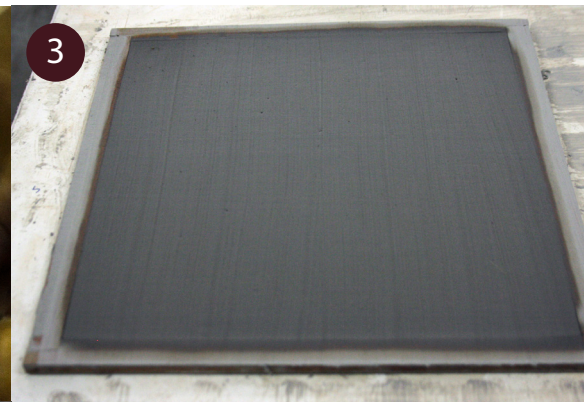
or by putting optimal weight on the vertices.

6. If you see tiles bulging out in the centre, do put some weight on it while it is partially wet.

7. The tile body will contract on drying and firing which might be about one twelfth varying according to the body used. Later, these tiles can be decorated by all the various processes of pottery decorations.

8. Good tiles can be easily made a dozen at a time by constructing wooden frames and filling this with the clay.

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4 Imagery from Nature on Ceramics

Why imagery from nature?

Nature is an inspiration for innovations. Cars, aeroplanes, robots, everything small and big made by man is inspired from nature.

Humans have always looked to nature for inspiration to solve problems. We can say, the present development is due to the two important events, one is apparent diversity of nature and the second one is questioning nature of man about the diversity of nature. Consider varying lengths of fingers of our hand. Its length variations is apparent and at microscopic level all fingers are constituted with same

type of molecules. Apparent diversity provokes the questioning and promotes man to search the microscopic truth for diversity.

Likewise, pottery has always been influenced by peoples' observations from the nature and its diversity. Pottery in different regions have different peculiarities. It is a way to understand the lives of people from different regions.

It was thought to take this topic as a major part of this project to keep following the beautiful natural tradition of putting down the visual experiences on the natural resource - clay.



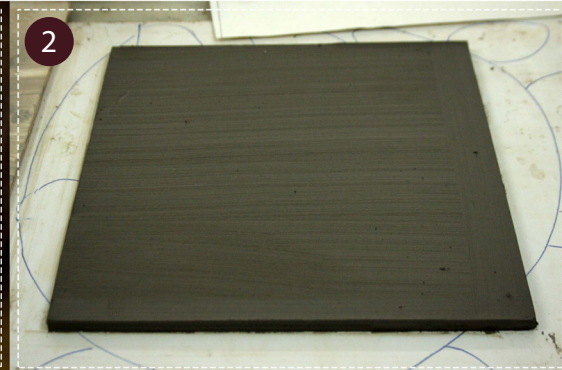
5 My Work

My house in Pune is surrounded by variety of trees. I never observed them in detail until this project got me actually look at them. My house looks beautiful because of this amazing greenery around. Different & colourful insects are dwelling on these trees.

I observed almost every plant and tree around. And am totally amazed with the variety that nature has. Its out of one's imagination.

Its interesting to put those observations on clay in my own style.





Glazed Stoneware Tile 01

This pattern is inspired from the leaves of Papaya tree.

The Process of making tiles from stoneware clay





Glazed Stoneware Tile 02

This pattern is inspired from the Hibiscus flower.



Before firing



After firing



Glazed Stoneware Tile 03

It looks like this pattern is inspired from the rose flower but it is not. There is this unknown leaf like

flower with a stem full of thick thorns around my house which took my attention. The texture on the tile represent these thorns.





Glazed Stoneware Tile 04

Texture around the leaves on the tile is fine strippling.

This pattern is inspired from one of the species of grass which grows anywhere and everywhere.

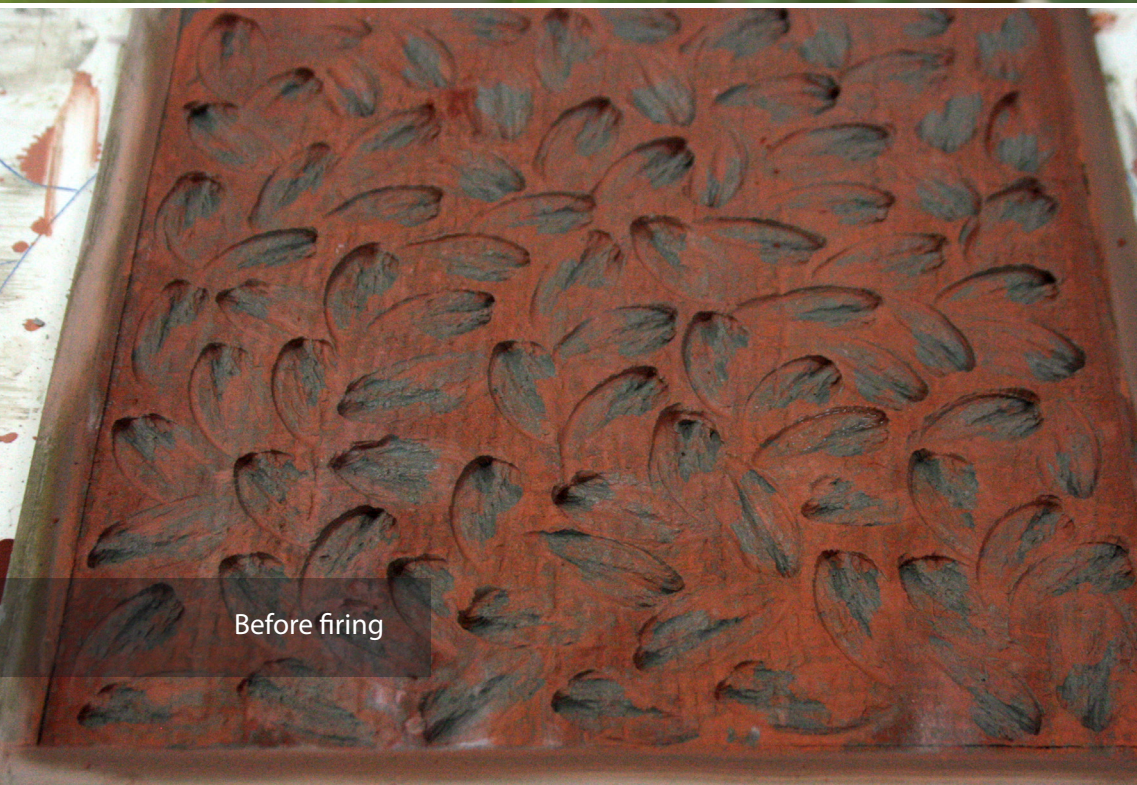




Glazed Stoneware Tile 05

clay using a broken end of a rolling pin.

This is an unusual experiment. The pattern inspired from the leaf of rose plant is carved on the

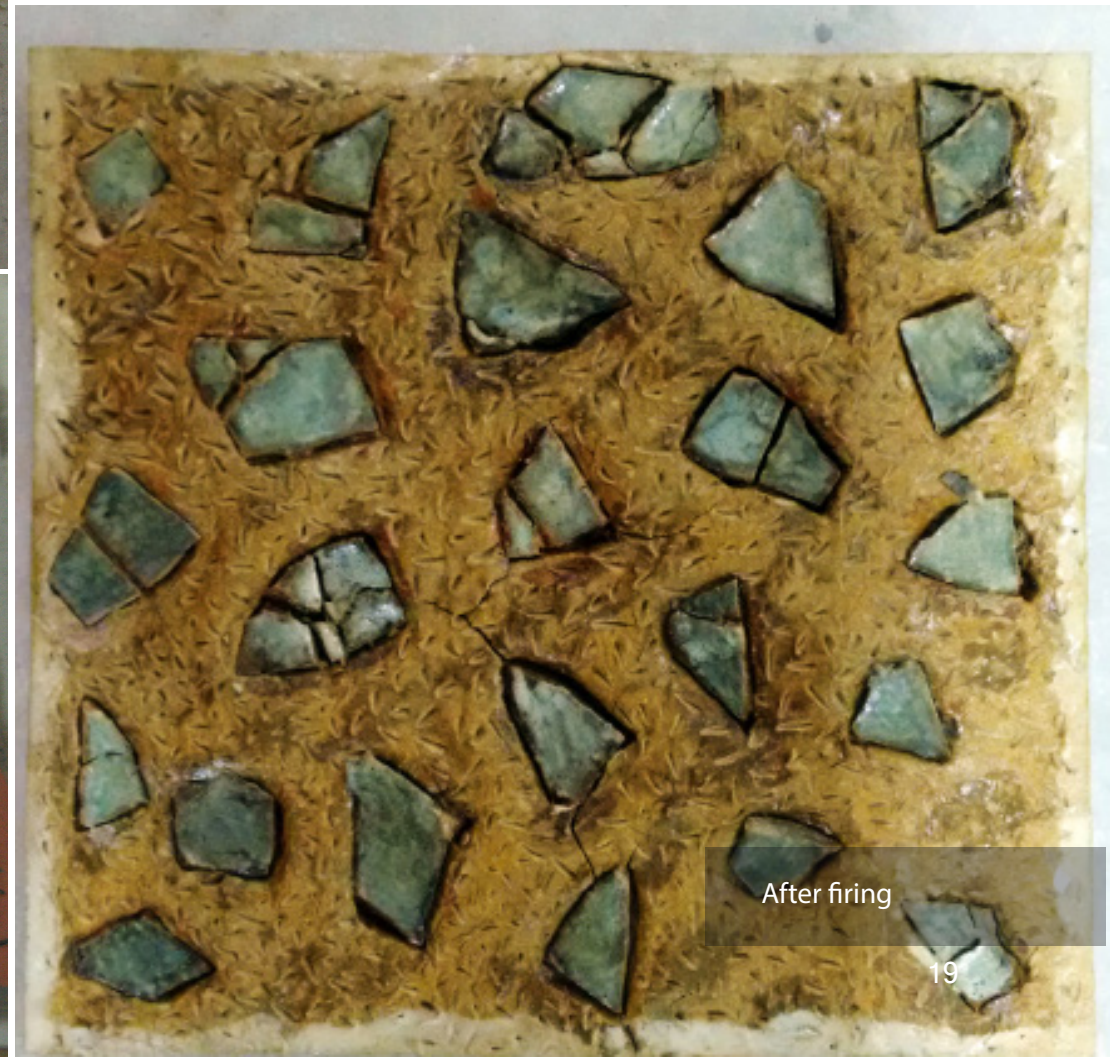
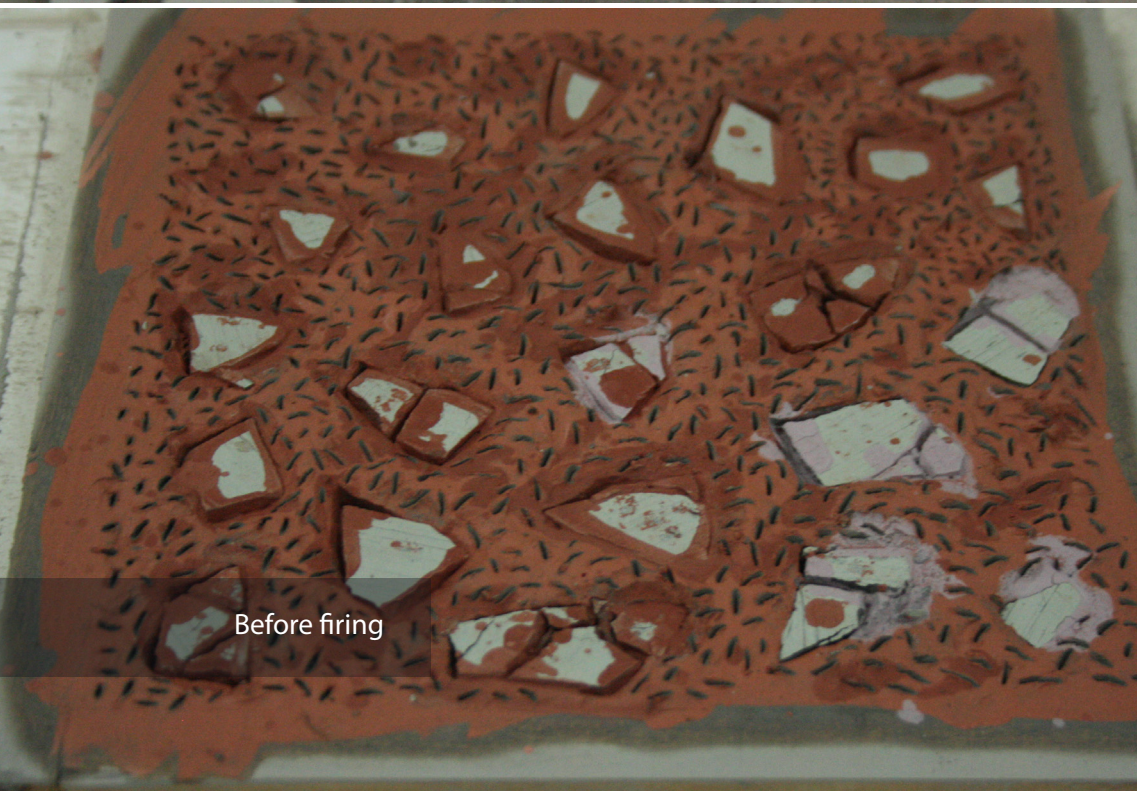




Glazed Stoneware Tile 06

This is again an unusual experiment. The pattern is obtained by fixing the broken pieces of a dry

unfired and glazed stoneware tile into a wet tile. Pieces are fixed by applying slip into the gaps.





Glazed Stoneware Tile 08

This experiment was to understand how 'carving' and 'relief' can go well together on a tile.





After firing

Glazed Stoneware Tile 09

Set of tiles with the imagery inspired from the scenery experienced while travelling in a train.

There are fields, river flowing, rail tracks and roads and pathways impressed on the tiles.



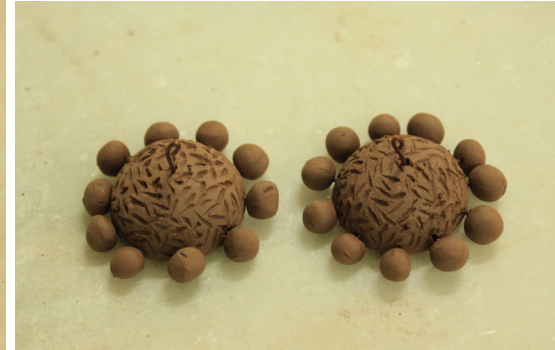
Before firing



Red Clay Jewellery

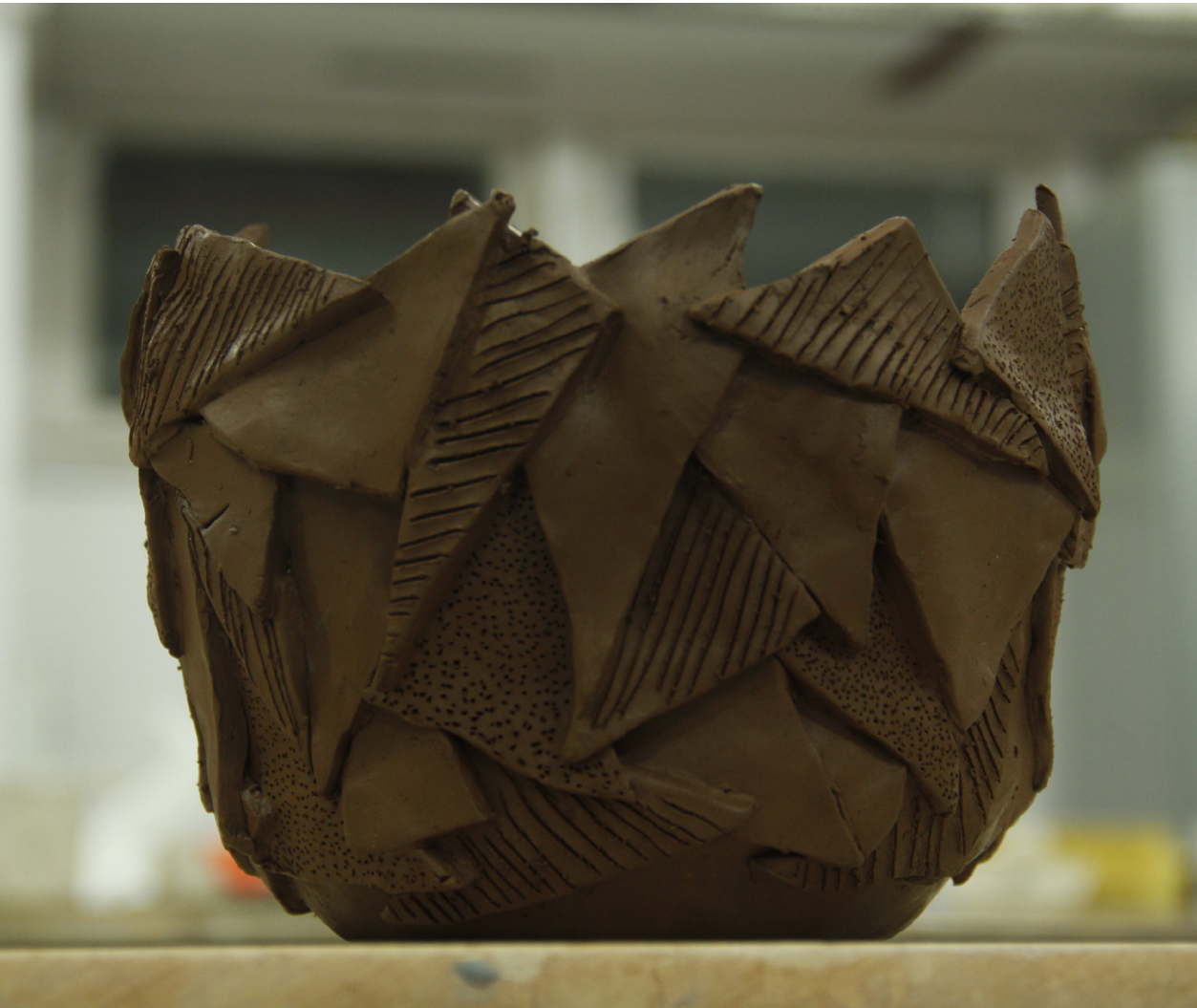
Made a variety of pendants along with its earrings. Once fired, it becomes sturdy and wearable.





Red Clay Pot

Handmade terracotta pot made by sticking triangular patches on one another when wet.



6 Possible use of Clay Articles in Future

These days people are realizing the danger that plastic is going to cause us in near future.

People are becoming more nature friendly and are trying to go organic. Pottery is sustainable and looks like it has a bright future.

Clay madkas can be used to store dahi, cooked vegetable, rice. Kullads at office might be a better option than plastic cups for chai and coffee. Instead of plastic planters, clay planters will add more grace to our home spaces.

Why buy cheap jewellery when girls can look classy

wearing organic ornaments. Clay pendants and earrings with beautiful carvings and glazes would be in great demand in market if marketed properly. It goes well with Indian wear like kurtis and sarees.

Tiles have always been in great demand. Candle holders, penstands, dinner set, dustbin, compost maker, barbeque grills, drinking water containers, and so on are the daily use products which pottery can take care of. One can gift these articles on special occasions.

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