

CERAMICS

JOURNAL

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ART 1400

Fall 2024

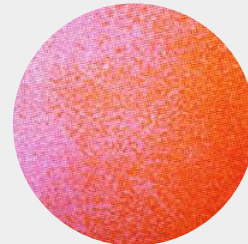
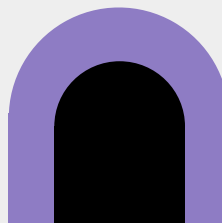
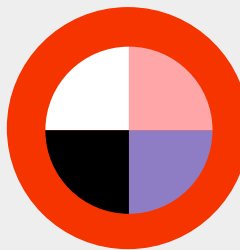
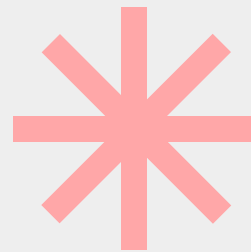
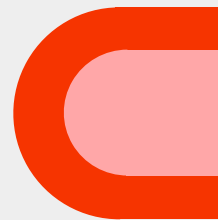
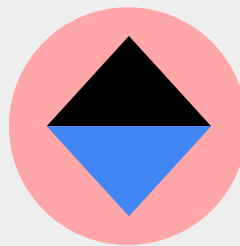


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** The ones bolded are the in-depth topics

Part 1: General Ceramic Knowledge

The chemical formula for clay is $\text{Al}_2\text{O}_3 \cdot 2\text{SiO}_2 \cdot 2\text{H}_2\text{O}$. It is an alumina silicate, meaning it is made of aluminum oxide, silicon dioxide, and water.

The most important qualities of clay are plasticity, strength, porosity, and shrinkage.

The six major stages of clay are:

1. Slip: Liquid clay used for decoration or joining.
2. Plastic: Soft and malleable, perfect for shaping.
3. Leather-hard: Partially dried, ideal for carving and joining.
4. Greenware or Bone dry: Completely dried but unfired; fragile.
5. Bisque: Clay that has been fired once but not glazed.
6. Fired: Clay that has been glazed and fired to its final stage

There are 6 main construction methods in ceramic art: pinch pot, coiling, slab building, wheel throwing, slip-casting, and press molding.

Glaze is a layer of glass fused to the ceramic surface, applied as a liquid bisque, and is quickly absorbed, leaving behind a layer of dry power. It is meant to:

- Add color and decorate pieces
- Strengthen the body
- Make a piece waterproof.

Bone dry means the clay is completely dry with no moisture left. This stage is important because it prevents the piece from cracking or exploding during firing due to trapped moisture.

Wedging clay is an important process before working on a potter's wheel because it removes air bubbles that can cause cracks or explosions during firing, ensures uniform consistency and even moisture throughout the clay, and make more bonds between clay particles, improving its plasticity.

Slip is liquid clay made by mixing clay with water. For example, slip can be used as an adhesive for joining clay pieces like when building a slab box to join edges together.

Leather-hard clay is clay that is partially dry but still firm enough to carve or join. This stage of clay is good for carving intricate designs, sgraffito, adding handles, or scoring and slipping for attachment.

Plasticity refers to the ability of clay to respond to pressure with continuous and permanent change of shape in any direction without breaking apart and holds the shape when released. It is significant because it allows the artist to manipulate the clay into the desired form during the creation process. A clay body's plasticity usually dependent on its water content and bond between particles.

Part 2: Book-Based Questions

Five Essential Tools for Ceramicists and Their Functions:

1. **Potter's Wheel:** Used to shape symmetrical pottery forms like bowls and vases through throwing techniques.
 - Enables precision and uniformity, crucial for professional-grade pottery.
2. **Ribs and Scrapers:** Used to shape, smooth, and refine the surface of clay during throwing or hand-building.
 - Provides clean and professional finishes, ensuring smoother forms and textures.
3. **Wire Cutter:** Cuts large blocks of clay or separates finished work from the potter's wheel.
 - Ensures efficiency in handling clay and prevents damage to pieces.
4. **Needle Tool:** For fine details, scoring clay, and checking the depth of walls.
 - Allows precise adjustments and detailed work that improves the aesthetic quality.
5. **Sponge:** Helps in keeping the clay surface moist and removing excess water during throwing or hand-building.
 - Prevents cracking, ensuring a better-quality final product.

Using appropriate tools ensures efficiency, precision, and high-quality craftsmanship. Poor tool selection can result in uneven textures, structural flaws, or unnecessary difficulty in creating the desired forms.

Different Types of Clay and Their Properties:

Type of Clay	Earthenware	Stoneware	Bone China	Porcelain	Paper Clay
Firing Temperature	1000–1180°C	1200–1280°C	1240–1320°C	1260–1350°C	Dependent on clay base
Properties	High plasticity, very forgiving, wide range of applications, and porous unless glazed.	Very strong with high durability and little porosity, making it ideal clay for general use.	Very strong, high fired clay body used mainly in slip form for tableware and fine china pieces.	Very fine and strong clay body known for its translucency and use in tableware.	Clay base mixed with a paper pulp
Applications	Slipcasting, pressing, throwing, jigger/jolley, slab building, coiling	Slip casting, throwing, jigger/jollye, slab building	Slip casting, dust pressing, and pressure casting in industry	Slip casting, throwing, slab building, press molding, dust pressing, and pressure casting	Slab building, pressing

Plasticity, shrinkage, and firing temperature are crucial in selecting clay as they determine its workability, durability, and suitability for the intended outcome. Highly plastic clays, like earthenware, are easier to shape, while less plastic clays, like porcelain, enable fine, delicate work but require advanced skill. Shrinkage affects size and structural integrity, with high-shrinkage clays needing careful handling to avoid cracking. Firing temperature dictates strength and finish—low-fire clays suit decorative pieces, while high-fire clays like stoneware and porcelain are ideal for functional or refined works.

Part 3: Object Identification and Methods

Venus of Dolní Věstonice

Medium: Fired clay

Culture: Paleolithic Age, discovered in the Czech Republic area. It is believed to represent a fertility goddess and is often associated with the Gravettian culture.

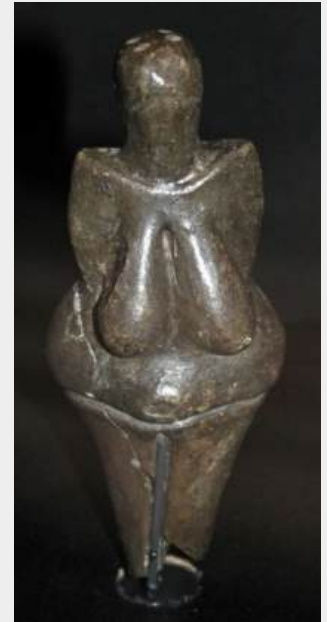
Year: Approximately 29,000–25,000 BCE.

Pot from Jomon Period

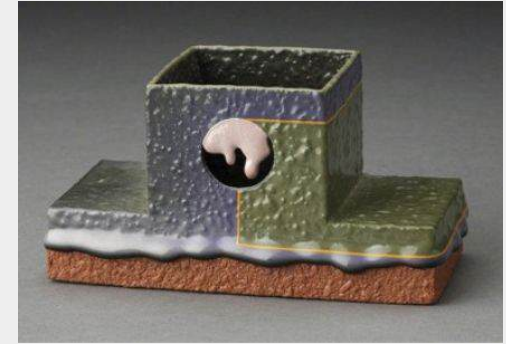
Medium: Fired clay (used chords to make markings and incised lines)

Culture: From Japan, Jomon Period

Year: 14,000-300 BC



Slab Technique: This involves rolling out flat sheets of clay and cutting them into the desired shapes, which are then joined together using slip and scoring. The clean, geometric forms and sharp edges suggest a slab-building process. Additionally, the texture and added elements could have been cut after the primary form was constructed with glaze/underglaze.



Pinch pot: The artist Giselle Hicks specializes in creating hand-pinched vessels. She gradually builds up the walls of the vessel, being careful of the geometric forms and symmetry. She maybe using other tools to explicitly create texture on the clay as well.

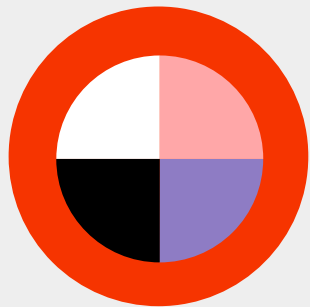
Wheel throwing: The artist Bernard Leach creates jars by throwing on the wheel. The lid and knob also appear to have been thrown separately and then trimmed or refined to fit. The decorative details could have been added using a slip or glaze application after the initial firing.



Extra Credit: Frank, Katherine, Leila, Jocelyn, Olivia, Allen, Amber, Sumira, Tianzi, Koyuki, Venicesa, Kelsey (me)



Journal Entries



01 Elements of Design

Line: A continuous mark with length and direction that shapes the boundaries of form. It may vary in orientation (horizontal, vertical, diagonal), style (straight or curved), and thickness (thin or bold).

Shape: Enclosed areas defined by lines or contrasts in color or texture. Shapes can be geometric (structured) or organic (free-flowing), giving flatness to the form.

Space: The area around and between objects that shapes depth and dimensionality. Negative and positive spaces define how forms relate to their environment.

Value (Light): The gradient of light and darkness that creates contrast and depth within a form. It highlights textures and details.

Color: The visible property of reflected light that enhances a form's vibrancy. It encompasses hue (color type), value (lightness or darkness), and intensity (saturation or dullness).

Mass (3D): The volume or perceived weight of a physical object, giving the form a tangible presence in space.

Texture: The surface quality of an object that interacts with touch or visual perception, adding richness and realism to the form.



01 Principles of Design

Balance: The distribution of visual weight within a form, achieved through symmetry, asymmetry, or radial designs. It provides stability and harmony.

Repetition/Rhythm: The repeated use of elements like lines, shapes, or colors to create movement or consistency within a form.

Focus/Emphasis: The intentional highlighting of a specific area or element to draw attention and establish hierarchy in the form.

Unity/Harmony: The cohesive integration of elements that creates a unified and aesthetically pleasing form.

Proportion/Scale: The relationship between the sizes of various components within a form, contributing to its realism or stylization.

Other Principles (Contrast, Variety, Movement, Depth): Contrast adds dynamics by juxtaposing elements, variety introduces diversity, movement guides the eye, and depth adds spatial dimension to the form.

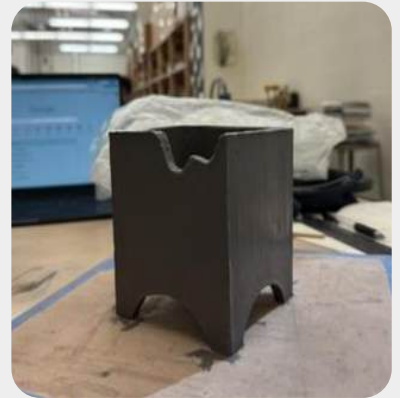
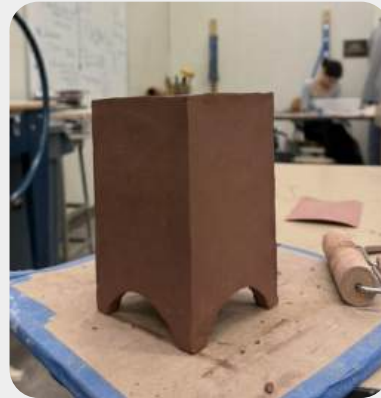
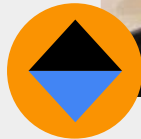


02 SLAB BOX

This box was created using the slab construction technique. Red clay was rolled out into the slabs of around 1 cm thickness. Once it was around leather hard, a ruler and knife was used to cut out 4 4x6 in rectangles and 2 4x4 in squares. A semi circle was cut from the bottom in order add interesting form to the box.

The box was then constructed by scoring the edges, using a 45 degree angle wire cutter to trim edges, and adding slip for adhesive. Plastic clay was also added and smoothed within the inner corners. A rib and flat tool was used to smooth the outside.

I created an abstract handle by rolling out a thick coil and attaching it to the lid. I also cut out the lid of the box in an abstract manner to match the handle.



For the decoration, I applied black slip before the bisque fire to create a gray color around the box. I also carved out abstract shapes inspired by the patterns found below after the slip was dry. I also carved the pattern inside the lid of the box.

After the first fire, I used an assortment of underglazes to create a rainbow pattern all around the outside of the box. Then I used clear glaze all around the inside and outside of the box to give it a shiny finish.

Overall, I am very happy with the outcome of my box and I will definitely use similar carving techniques in the future. The only thing I would change is adding more coats of the underglaze in the lines to make the color more opaque.



03 McDonald's Happy Meal Box



For this personal project, I created matching McDonald's slab boxes using the slab building technique. The inspiration for this project was my love for McDonald's and the joy that comes from eating a happy meal.

Similar to the box project, I rolled slabs of white clay. Once leather hard, I cut out geometric pieces so that I could construct the outside of the boxes. It was quite difficult to adhere the sides of the box since it took more intricate detail. The handle was attached with two coils in the shape of an M.

After the bisque fire, red, yellow, and clear underglaze was applied on the outside, following the original happy meal box design.



04 Raku Clay Pear

For this pear project, I used raku clay and a coil building technique to sculpt a pear. By first creating a base mold of a real pear, I was able to get a realistic bottom. Then I rolled coils of clay, layering them up from bottom to the top, smoothing and shaping the pear as I went. I used a rib tool to smooth out the outside and a pin tool to add detail to the stem and bottom of the pear. I also put a small hole to make sure the air pressure was released from inside the pear to prevent it from exploding.

We then bisque fired the pears and then added white glaze to the outside. Then the pears went to the kiln outside to be fired. Immediately after, they were thrown into a trash can with news paper shreds the burnt when it was in contact with the hot pears. During this process, I listened for the sound of the glaze cracking. The glaze layer cools quicker than the clay body, so the glaze actually cracks. After placing the pottery into the can, the newspaper catches fire. Closing the lid produces smoke that permeates the glaze cracks, yielding Raku's well-known crackle style.

I thought this process of cracking was very cool so I decided to research more into as a extensive research topic. I also really liked how the pears came out, as well as the sculpting process.



04 Why does Raku crackle?



Raku pottery gets its characteristic crackle effect because the glaze cools significantly faster than the clay body during the firing process, causing the glaze to contract and crack as it rapidly cools, often accentuated by a quick immersion in water after removal from the kiln, which further stresses the glaze and creates visible cracks; these cracks then get filled with carbon from the reducing atmosphere in the post-firing container, enhancing the crackle pattern.

Key points about Raku crackle:

Rapid cooling: The key to the crackle is the sudden temperature change when the hot pottery is removed from the kiln and placed into a container with combustible materials like sawdust or newspaper, causing the glaze to cool very quickly.

Glaze composition: Special Raku glazes are formulated to crack easily due to their specific chemical properties.

Reduction atmosphere: The combustible material in the container burns, creating a low-oxygen environment (reduction) that allows carbon to deposit in the cracks, making them more visible.



The Raku clay pears being cooled with water

05 Coil Pot Project

For this pot project, we used a coiling technique to build the pot up in layers. We first started with a terracotta pot as a guide to shape our pot. We used recycled earthenware clay to roll coils, make dots, and flat slabs rolled on different textures.

By combining all these techniques, I was able to create a variety of patterns and interesting textures on my pot, making it look abstract. I was very inspired by free form and abstract shapes for this project. I also added some dry sand to the outside of some shapes, poked holes, and added my own carvings to the pot. After the pot was fired, we added patina to deliberately "weather" the pot and add a shiny color the the crevices.

Overall, I really enjoyed the process of making my coil pot and I plan to gift it to this plant seller lady that I befriended at the monthly Nashville Flea Market. I promised her that I would make a plant pot for her since she gave me and my friends free plants.



Coil pot in progress

06 Glaze: Components

Glaze is a vital material in ceramics that gives pottery and other ceramic objects a decorative and functional surface. It is a glass-like coating that is applied to the surface of a fired clay body and then melted during a second firing, forming a smooth, often glossy, finish. Glazes serve various purposes, such as adding color, texture, and shine, as well as creating a non-porous surface to make ceramics food-safe and durable. A glaze consists of three primary components:

1. **Silica (Glass Former):** Silica is the primary component that forms the glassy structure of the glaze. It melts during firing to create a glossy or semi-glossy finish. It is highly resistant to heat, so it has a melting point above 3092°F degrees.
2. **Flux (Melting Agent):** Flux lowers the melting point of the silica, 1472°F - 2372°F, allowing it to melt at the firing temperature of the clay body. Common fluxes include feldspar, calcium carbonate, and boron compounds.
3. **Refractories (like Feldspar and Alumina):** Alumina adds stability to the glaze, preventing it from running off the ceramic surface during firing. It also influences the glaze's texture, stability, and durability.

Additionally, glazes can include **colorants** (such as oxides of iron, cobalt, or copper) for decoration and **opacifiers** (like tin or zirconium) to make the glaze opaque.



06 Glaze:Application Methods

Several methods are used to apply glaze to ceramic pieces, depending on the desired effect:

1. **Brushing:** Glaze is painted onto the surface with a brush, allowing for detailed designs and patterns. Multiple layers may be applied for opacity or texture.
2. **Dipping:** The ceramic piece is dipped into a container of glaze, providing an even coat quickly. This method is efficient for functional ware like bowls and plates.
3. **Spraying:** Using a spray gun, glaze is sprayed onto the surface, ideal for achieving thin, even coats or blending multiple glazes for gradient effects.
4. **Pouring:** Glaze is poured over the piece, often used for large or complex shapes where dipping might be impractical.
5. **Sponging or Splattering:** These techniques are used to create unique, textured, or speckled finishes.



This is a cup I applied underglaze .

07 Design Technique: Sgraffito

One of my favorite techniques I learned this semester was sgraffito. It is an artistic technique that involves scratching through a surface layer to reveal a contrasting layer beneath. The term comes from the Italian word "sgraffiare," meaning "to scratch." Traditionally used in ceramics, sgraffito can also be applied to other mediums, such as plaster or paint. It is commonly seen in pottery, architectural decoration, and visual art, where it adds intricate patterns, textures, or detailed imagery.

To create sgraffito in ceramics, you apply a layer of colored slip or underglaze onto a leather-hard clay surface. Once the layer has dried slightly but is still workable, you can use tools like needles, knives, or loop tools to carve into the surface, revealing the clay underneath. In wall painting or plaster work, layers of contrasting-colored plaster or paint are applied, and the top layer is scratched away to form designs.

Sgraffito is frequently used in decorative ceramics, such as plates, bowls, and tiles, to create visually striking patterns. I used it on a few projects as seen on the right. In architecture, it has historically been used in frescoes and façade decorations, especially during the Renaissance period. Its appeal lies in its ability to combine color, texture, and design in a single technique, offering artists a way to achieve a dynamic interplay between surface and depth.

Various sgraffito tools



This is a cup I sgraffito-ed on



Sgraffito on my slab box project

08 Potter's Wheel: Cups



One of the most challenging parts about this class was learning how to throw on the wheel. However, it was got easier with time, but I still need practice. What I learned was that centering the clay is crucial for creating a balanced and symmetrical form. Centering involves pressing and shaping the clay on the wheel as it spins, ensuring it is evenly distributed and stable. Without proper centering, my cup's walls may became uneven, leading to structural weaknesses. Once centered, I then open the clay and begins to pull up the walls. Building even walls is essential for both functionality and durability, as inconsistent thickness can cause issues during drying or firing, such as cracking or warping.

After this unit, I ended up making 2 cups with handles, 3 cups with no handles, one vase, 2 belly cups, and one transgular cup. It was very fun experimenting with the shaped and sizes of all the cups and I plan to make more in the future!





This is one my most favorite cups that I made. It is a small belly cup with a frog figuring in the inside. I also put clay on the outside to make the mushrooms 3D. I really enjoyed working on this cup because I was able to sculpt and paint everything with underglazes. The underglaze also turned out really well and vibrant. I hope to make more of these in the future and give them away to friends



Inspiration for the frog cup from Pinterest:



The yellow cup is my most successful cup with a handle. While trimming the cup, I added ridges along the outside of the cup for more texture and interesting form. For the glaze, I used mustard yellow for the outside, and then added white over top, and black for the inside. I really like how the white glaze appears on the yellow and creates a bubble looking effect.





This is a Little Prince inspired cup that I made for one of my best friends for her birthday. I painted on the Little Prince scene with underglaze on the outside. I really enjoyed painting with the underglazes and for the inside, I put shiny black glaze by pouring it in.



This is a Ponyo mug that I made based on the opening credit scene of the animated movie. It is one of my favorite movies so I made it as a tribute. I painted the outside with blue & green underglazes and sgraffito the lines. For the inside I put blue glaze.

Although neither of these cups turned out the way I liked for them too, it was still really fun painting and making them. I was disappointed because of the time I spent on painting them, but I guess it is a lesson learned to be more careful and make sure to be careful when clear glazing.

There were also a few cups that I spent a lot of time decorating, but unfortunately did not turn out well because the underglaze smudged. I'm not entirely sure to as why because for one of the cups I applied clear glaze by dabbing rather than brushing and moving the underglaze, but I think I may ask for guidance the next time I apply clear glaze of fine detail cups.



Inspiration for the cups from The Little Prince and Ponyo::

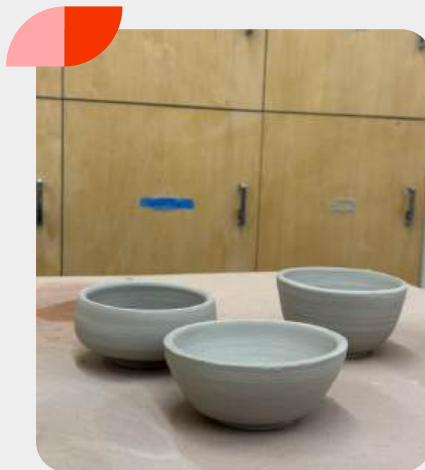


09 Potter's Wheel: Bowls



Similar to throwing cups, throwing bowls on the wheel requires centering and technique. For me, making bowls was easier than making cups because it was easier to bring the walls out rather than upwards like you do when making a cup. I also really enjoyed the trimming aspect of making cups and bowls. It was very satisfying to add a foot and smooth out the sides. For the shape of the bowls, I played with the sizes and form of the outside. I made one typical bowl, another more flat, and one soup bowl.

After this unit, I ended up 3 bowls, two of which I kept and one that I donated. I glazed my bowls with Nebula, Floating Blue, and white.



Nebula glaze bowl:



Floating blue glaze bowl:



10 Drum



For this project we made drums out of 4-5 pounds of earthenware clay. I made one with a hole on one side and a drum skin on the other. Similar to making cups and bowls, we first had to center and make a divot in the middle of the clay, but it was a bit difficult bringing up the structure since there was so much clay to work with. The skin on top was applied by cutting out a circle, then soaking it in water so it can be malleable and stretched, and then using super glue I adhered it to the side of the drum.

For design I carved out a whale and some abstract water and bubble designs. I also added a ribbon to cover the seams between the drum skin and the side of the piece. It was really cool to make these drums and I wish I was able to perform with the rest of the class during the final performance.



BOWL DONATION

This is my bowl for donation. It is glazed with floating blue and white on the inside. I hope they like it!



CITATIONS



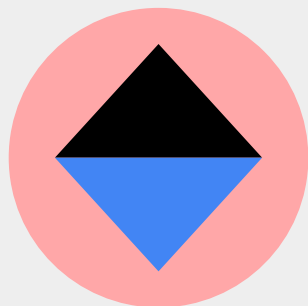
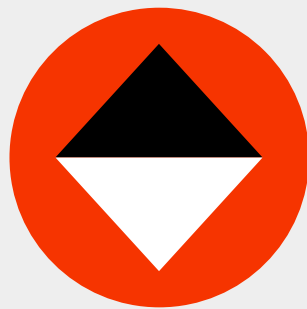
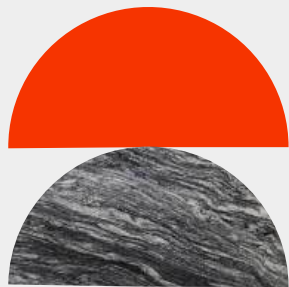
<https://stevesandersraku.com/raku-pottery-color-crackle#:~:text=The%20glaze%20layer%20cools%20quicker,Raku's%20well%2Dknown%20crackle%20style.>

<https://www.lakesidepottery.com/Pages/Pottery-tips/How-to-create-sgraffito-pottery-tutorial.htm>

<https://www.helenwalkerceramics.co.uk/post/how-to-sgraffito-decorate-pottery>

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THANK YOU!

