The background of the slide features a collection of broken ceramic pieces of various sizes and colors, including shades of brown, tan, and blue. These fragments are scattered across a dark, textured surface, creating a sense of depth and history.

Historic Ceramics Identification

Lindsay Bloch, PhD, RPA

DAACS

Roadmap

- Part I. Introduction
- Part II. Ceramic Materials
- Part III. Glazes
- Part IV. Manufacture
- Part V. Form & Decoration
- Part VI. Summary



Objectives

1. Identify four main ceramic materials
2. Recognize technological change in pottery production through time
3. Recognize decorative change in pottery production through time



Standard Toolkit

- Loupe or microscope (10X or greater)
- Flashlight
- Soft toothbrush
- Tile nippers



Forms



Ceramic Materials: Clay



Sintered vs. Vitrified

Sintered: clay minerals fused by heat, without melting

Earthenware

Vitrified: clay minerals chemically converted to amorphous glass under high heat

Stoneware and Porcelain

Ceramic Materials: Temperature

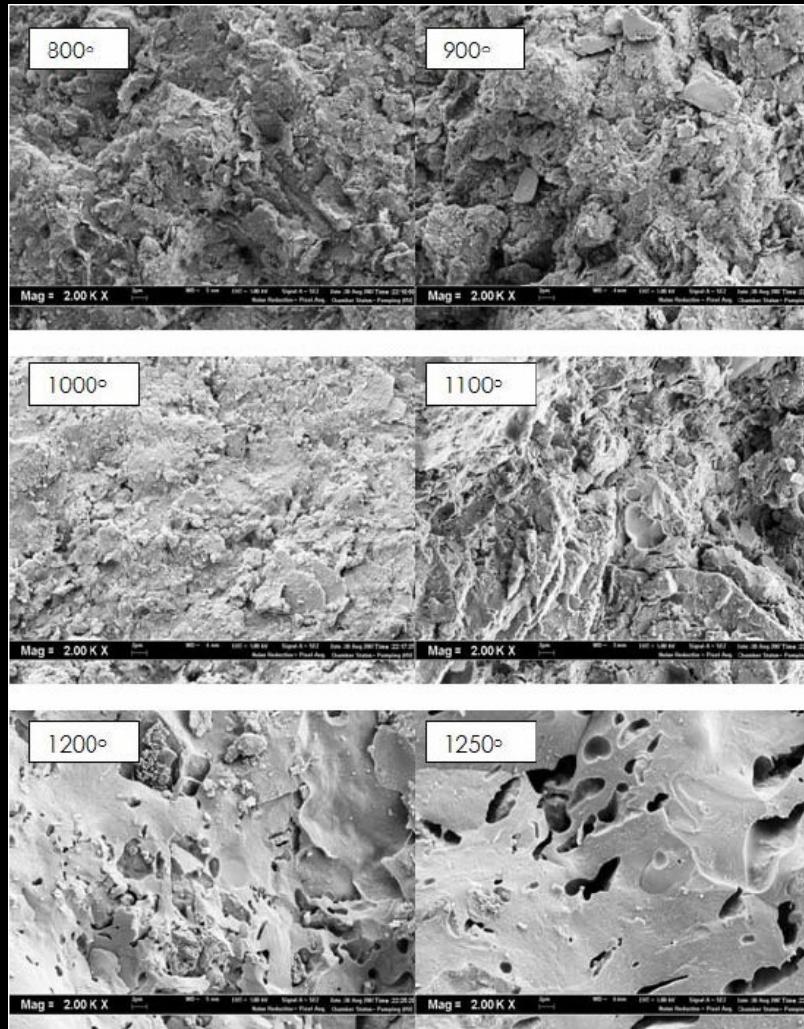
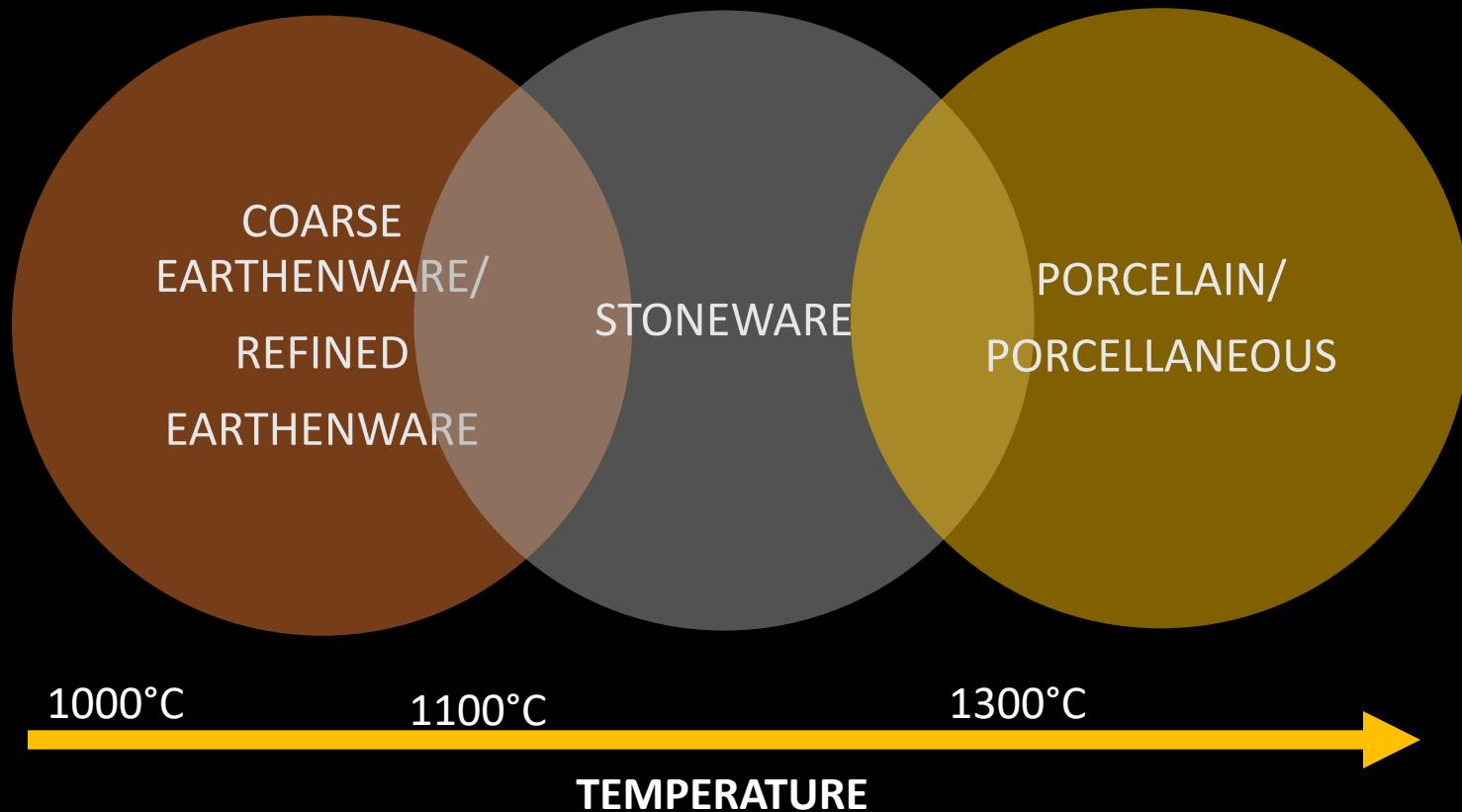


Figure 6. SEM micrographs for the clay fired at different temperatures
Johari, Izwan, S. Said, Badorul Abu, B.H. Bakar, and Zainal Ahmad
2010

Effect of the change of firing temperature on microstructure and physical properties of clay bricks from Beruas (Malaysia). *Science of Sintering* 42.

DOI:[10.2298/SOS1002245J](https://doi.org/10.2298/SOS1002245J).

Ceramic Materials: Material Temperature



Material Temperature



Unvitrified body:

- splintery/uneven breaks
- porous
- stains readily

Vitrified body:

- sharp breaks
- non-porous
- resists staining

Material Temperature



Unvitrified body:

- splintery/uneven breaks
- porous
- stains readily

Vitrified body:

- sharp breaks
- non-porous
- resists staining

Coarse Earthenware

- **Temp:** low (1000-1200 °C)
- **Texture:** grainy; often visible inclusions; porous; spalls readily
- **Paste color:** buff, orange, red
- **Forms:** mainly utilitarian

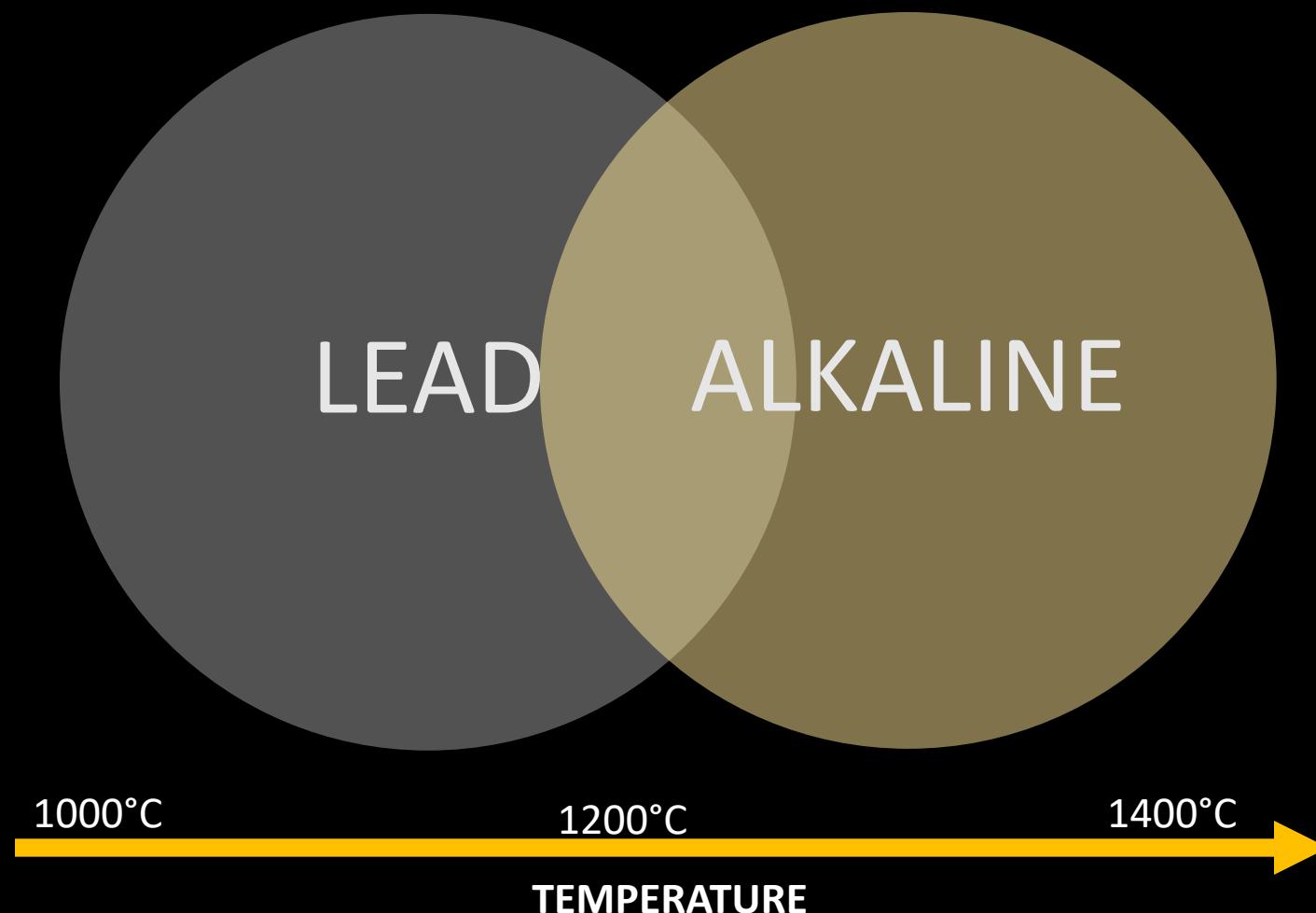


Refined Earthenware

- **Temp:** low (1000-1200 °C)
- **Texture:** sandpapery; porous; spalls readily
- **Paste color:** usually white/off white
- **Forms:** tableware



Ceramic Materials: Glaze Temperature



Lead Glazes

- Low temperature (Earthenwares)
- Glassy appearance
- Fine crazing
- Sits on top of body in cross-section
- “Double” glaze or interior only



Types of Lead Glazes

- Lead (basically pure)



Look for: glossy/glassy appearance, smooth surface, clear or slightly yellow appearance

Types of Lead Glazes

- Lead + colorant



Look for: glossy/glassy appearance, smooth surface, translucent or opaque. Sometimes metallic.

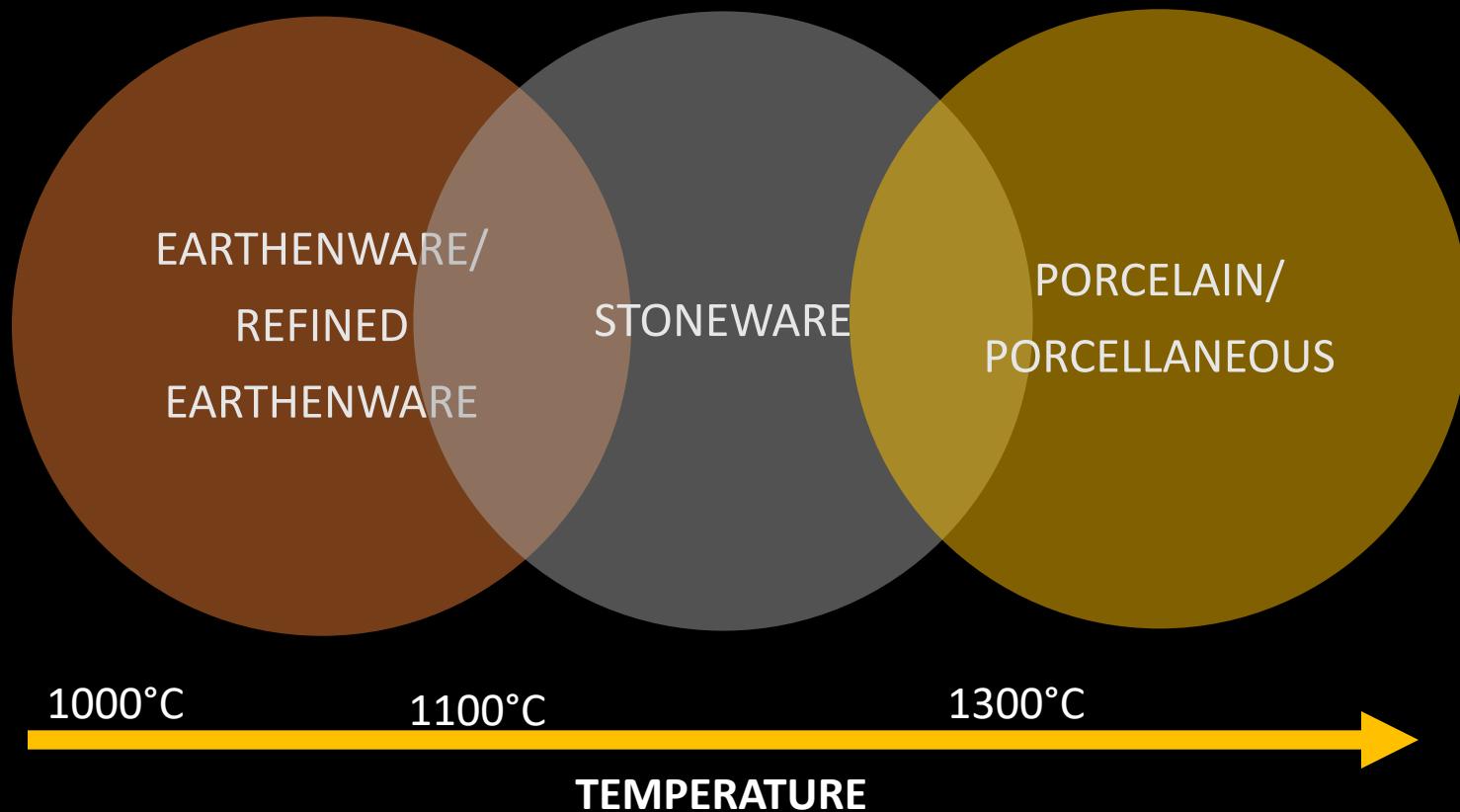
Types of Lead Glazes

- Tin-Enamel (tin + lead) Look
for: matte finish, opaque,
missing/spalled glaze, very
soft, “M&M coating”



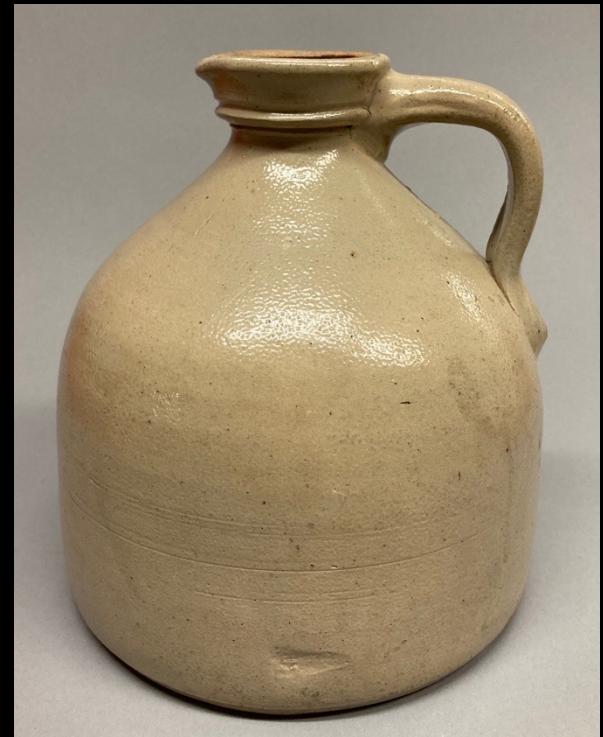
May be known as:
tin-enameled earthenware, delftware,
tin-glazed, faience, majolica

Ceramic Materials: Material Temperature

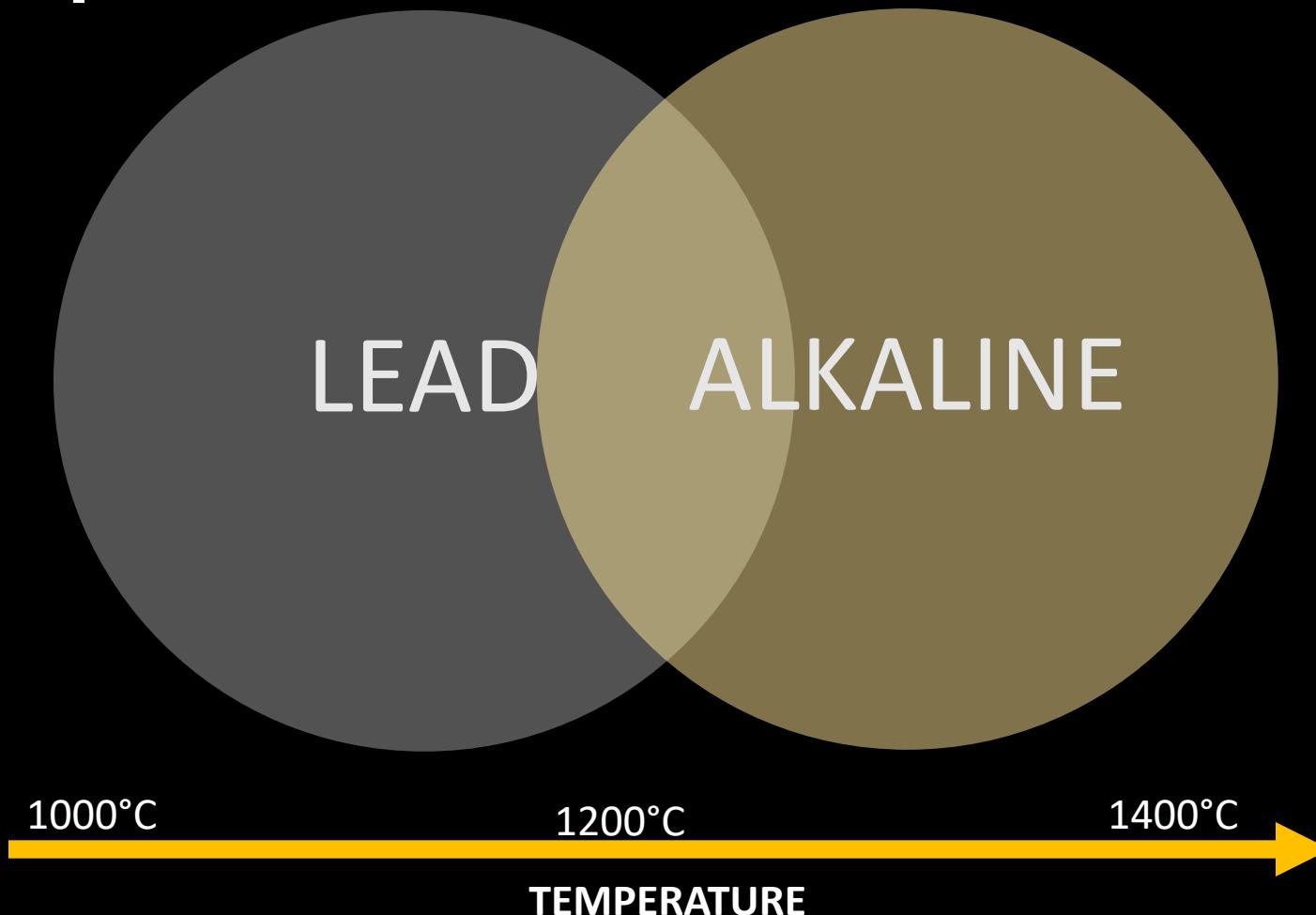


Stoneware

- **Temp:** moderate (1200-1350 °C)
- **Texture:** dense; vitreous
- **Paste color:** buff, gray
- **Forms:** mainly utilitarian non cooking; some tableware and decorative types



Ceramic Materials: Glaze Temperature



Alkaline Glazes

- High temperature (Stoneware and Porcelain)
- Glassy to matte appearance
- May have runs, orange peel texture, or pinholes
- “Double” glazed or exterior-only
- Diffuse margin with body



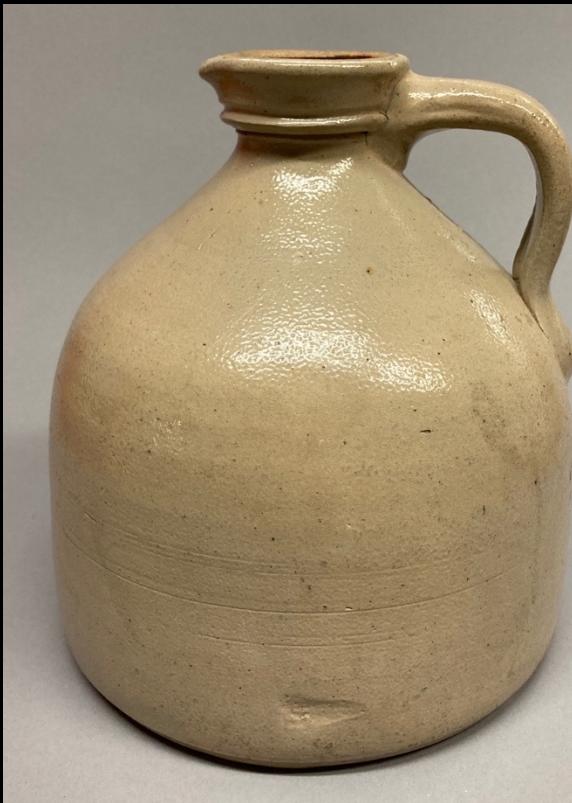
Alkaline Glazes



Types of Alkaline Glazes

- Salt glaze

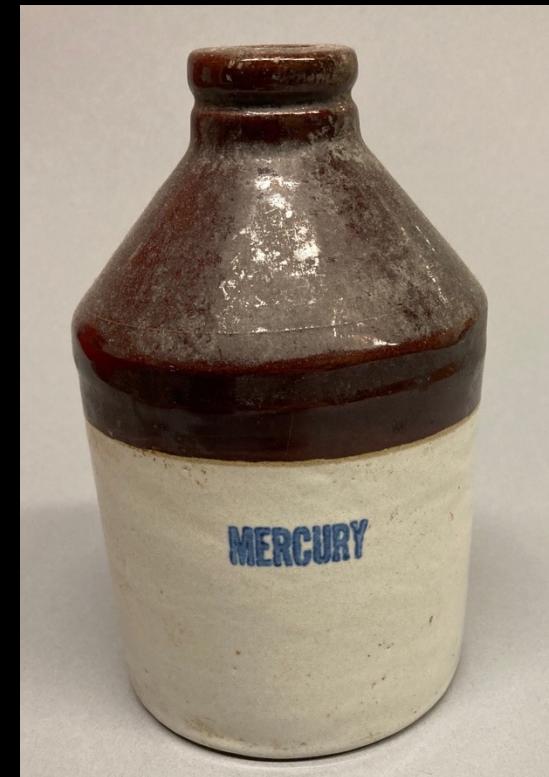
Look for: orange peel texture, glassy surface, glaze only on exterior (may be thin on interior)



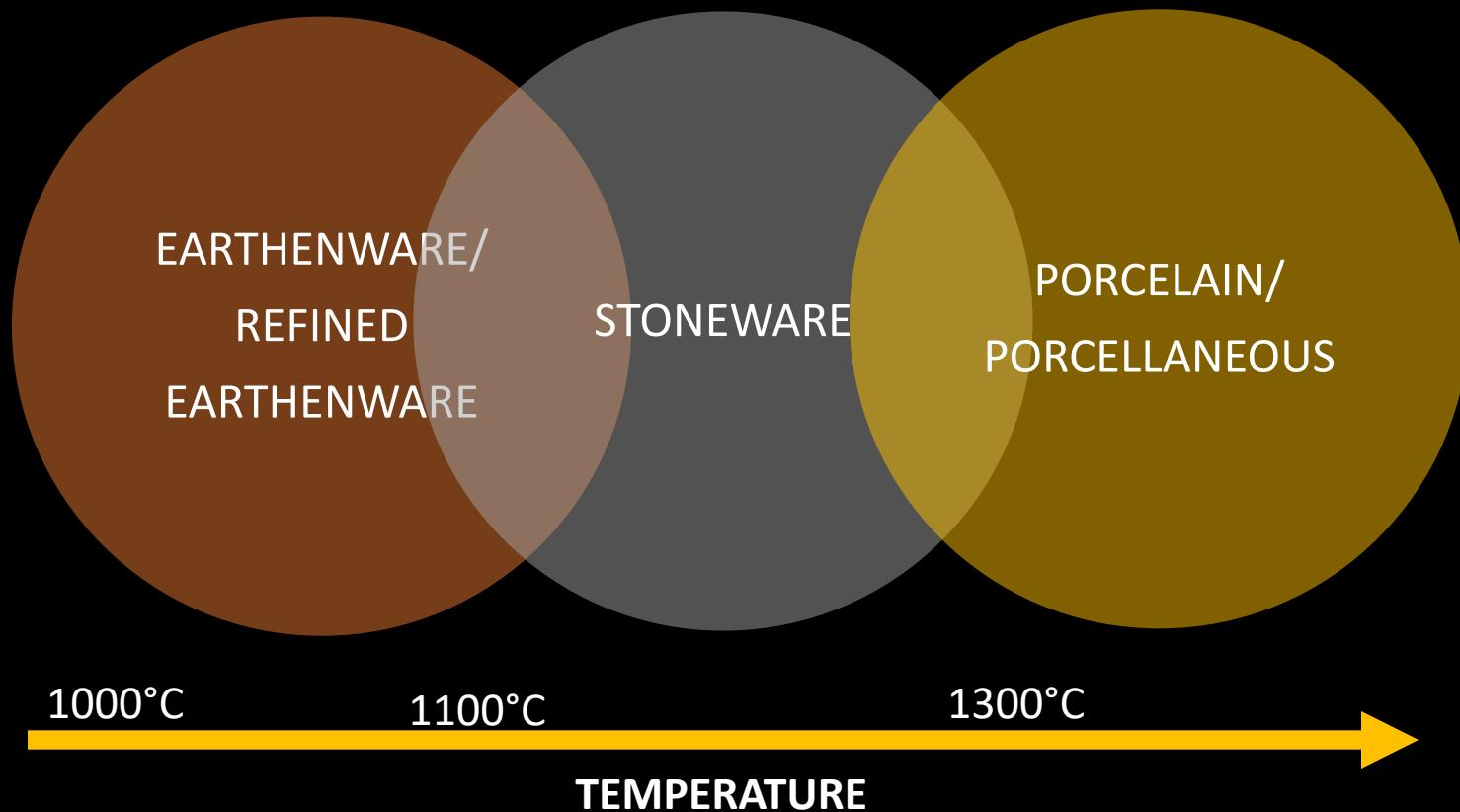
Types of Alkaline Glazes

- Alkaline flux + opacifier: Bristol Glaze and Zinc Emulsion.

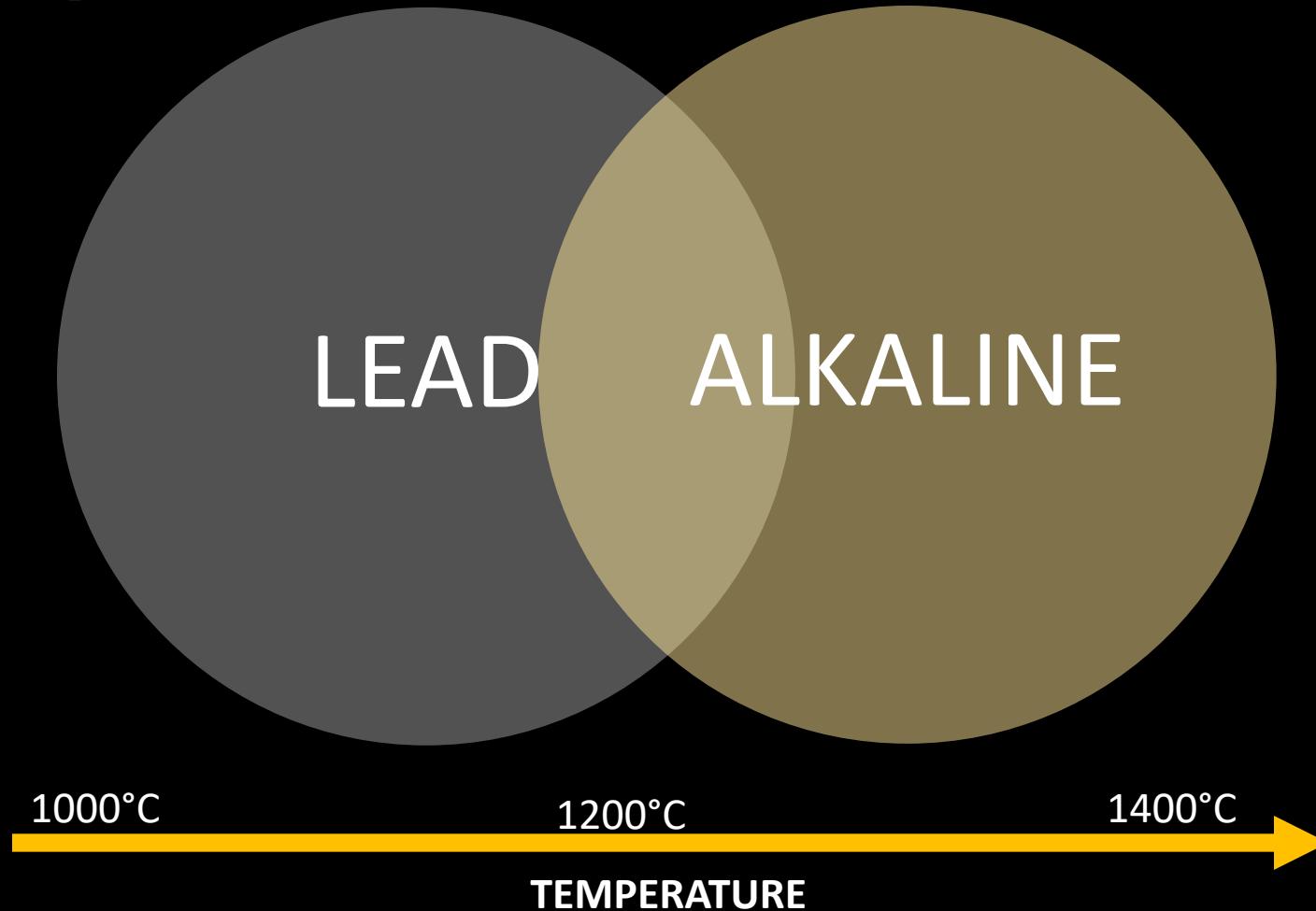
Multiple types may be present on same vessel,
often combined with Albany slip



Ceramic Materials: Material Temperature



Ceramic Materials: Glaze Temperature



Porcelain and Porcellaneous

- **Temp:** high (1350-1450 °C);
-porcellaneous (1200 °C +)
- **Texture:** dense; vitreous; translucent
- **Paste color:** pale gray, white
- **Forms:** mainly tablewares



Types of Alkaline Glazes

- **Feldspathic/ felspathic:** “true porcelain”, AKA Chinese porcelain or hard paste



Look for: smooth shiny glaze, often with tiny pinholes

Types of Alkaline Glazes

- **Alkaline-lead:** 19th C. refined
EW and porcellaneous, AKA
semi-vitrified wares



Look for: Less shiny than pure lead, larger crazing patterns, gray/blue bubbly pooling

Is ceramic
vitrified?

No

Coarse
Earthenware

Refined
Earthenware

Semi

Porcellaneous

Yes

Porcelain

Stoneware

Is ceramic
vitrified?

No

Semi

Yes

Lead

Alkaline-
lead

Alkaline

Manufacturing Ranges

Coarse earthenware

Tin-enamelled earthenware

Refined earthenware

Stoneware

Ironstone

Chinese porcelain

Refined stoneware

Porcellaneous (soft paste and bone china)

European hard paste porcelain

1600 CE

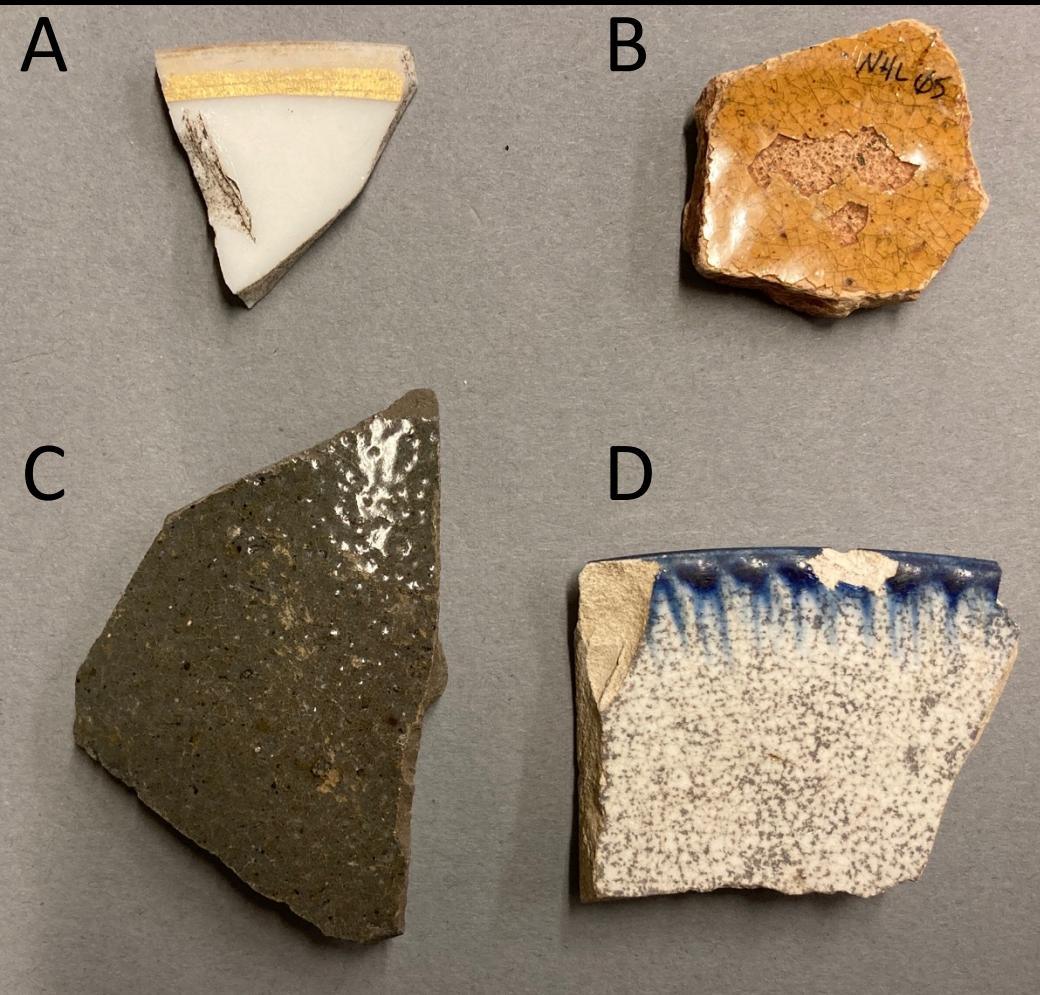
1700 CE

1800 CE

1900 CE



Identify each of the following ceramic materials. What attributes guided your decision?



Production Methods: Throwing



The potter, Jost Amman, 1574

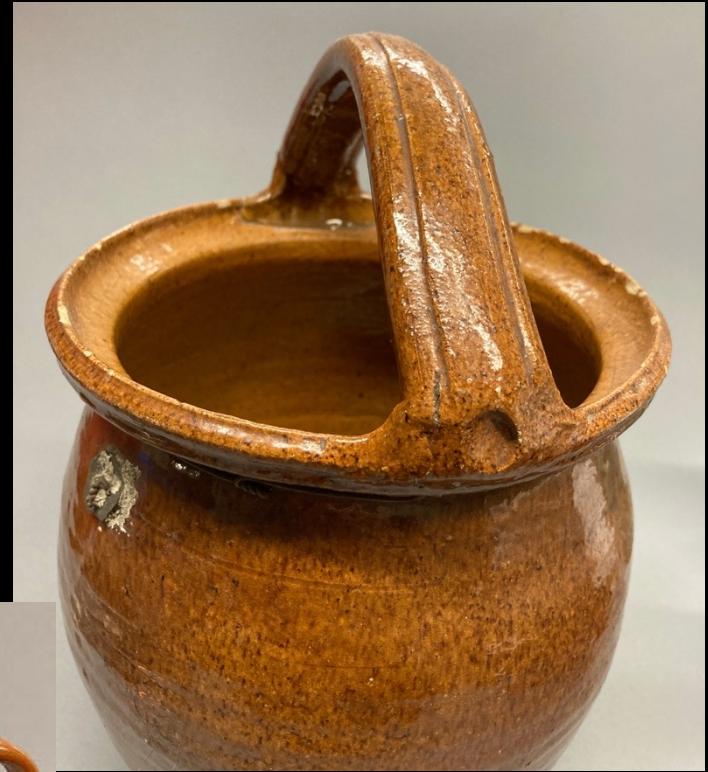
Use of a potter's wheel, most common for utilitarian forms in coarse earthenware and stoneware



Look for: concentric throwing rings, hand trimming tool marks, variable thickness

Production Methods: Modeling

- Hand-formed attachments/mods added to a vessel
- During historic periods, mainly seen as handles on wheel-thrown vessels



Production Methods: Molding



Plaster
molds in the
Gladstone
Pottery
Museum,
Staffordshire

Production Methods: Press Molding

- Forming sheets of damp clay over/into molds

Coarse EWs, refined EWs, fine stonewares and porcelains



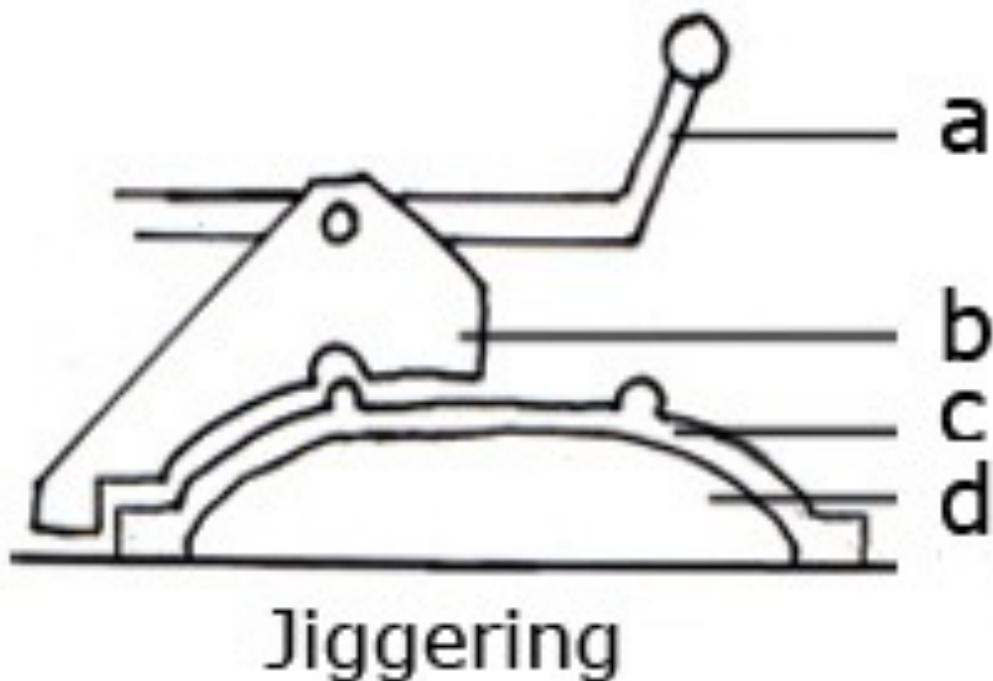
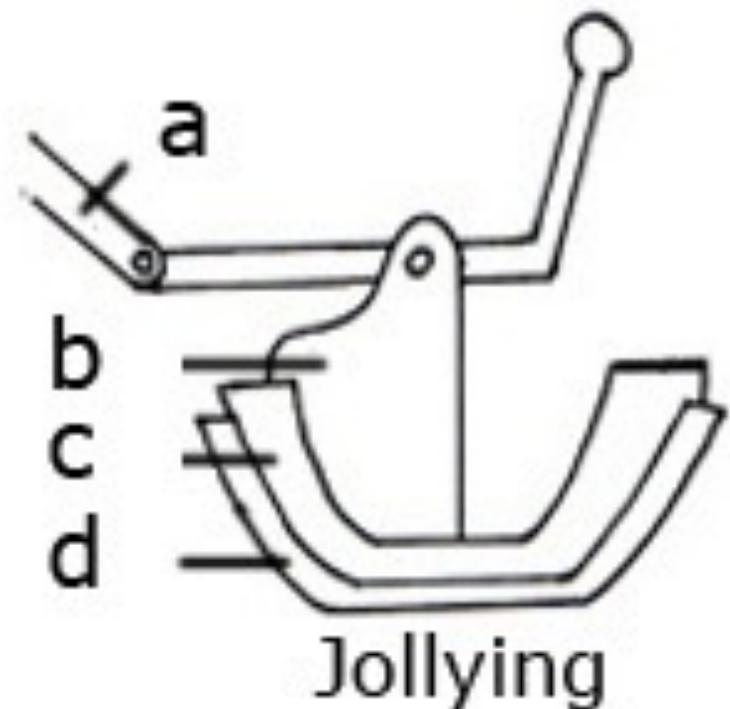
Production Methods: Jigger and Jolly

- Use of mold and die, with wheel or lathe

Refined EWs and porcelains



Production Methods: Jigger and Jolly



Production Methods: Slip Casting

- Liquid clay (slip) poured into mold
refined stonewares, refined EWs and porcelains



Victoria and Albert Museum

Production Methods



Form



Form

Common shape



London shape



Tulip shape



Bute shape



Learn more: <https://apps.jefpat.maryland.gov/diagnostic/Post-Colonial%20Ceramics/Cup%20Shapes/Essay%20on%20Cup%20&%20Bowl%20Shapes.pdf>

Applied Decorative Techniques

- Slip- liquid clay + colorant applied under glaze

Look for: opaque, visible in cross section, can feel under glaze.



Applied Decorative Techniques:

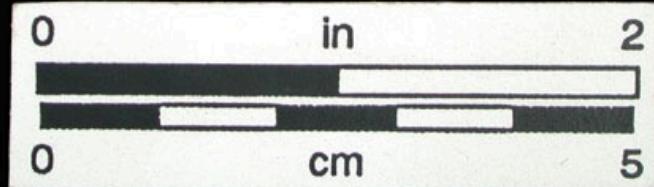
- Factory Made Slipware (Annular)
- Look for: regular banding in opaque colors, geometric
- On refined earthenware (creamware or pearlware)

307



Florida Museum of Natural History

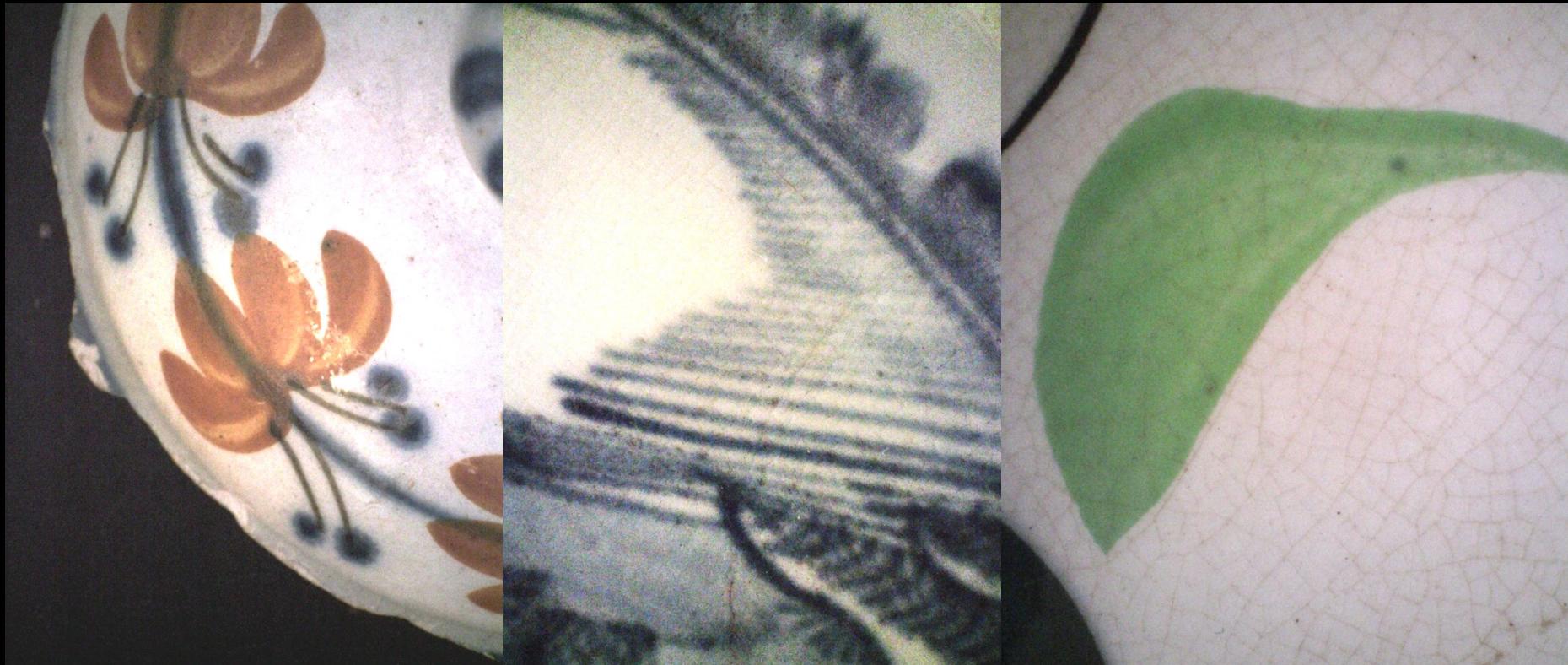
305



Applied Decorative Techniques

- Painting- underglaze

Look for: color diffusion, brush strokes, crazing on top



Applied Decorative Techniques

- Painting- underglaze

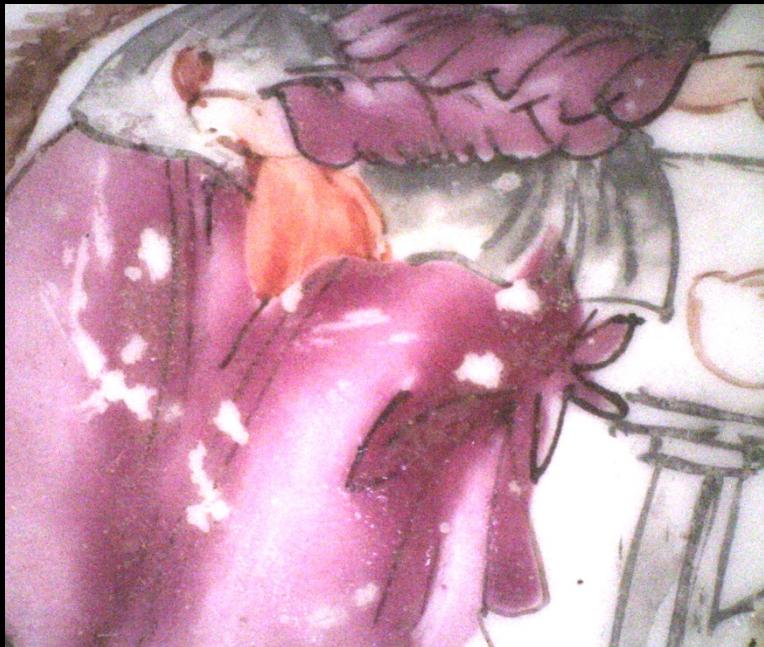
Look for: color palette; limited colors



Applied Decorative Techniques

- Painting- Overglaze (enamel)

Look for: crisp lines, rough/dull spots in paint, flaking paint, noticeable texture above glaze, ghosting



Applied Decorative Techniques

- Painting- Overglaze (enamel)

Gilding and luster are applied over glaze



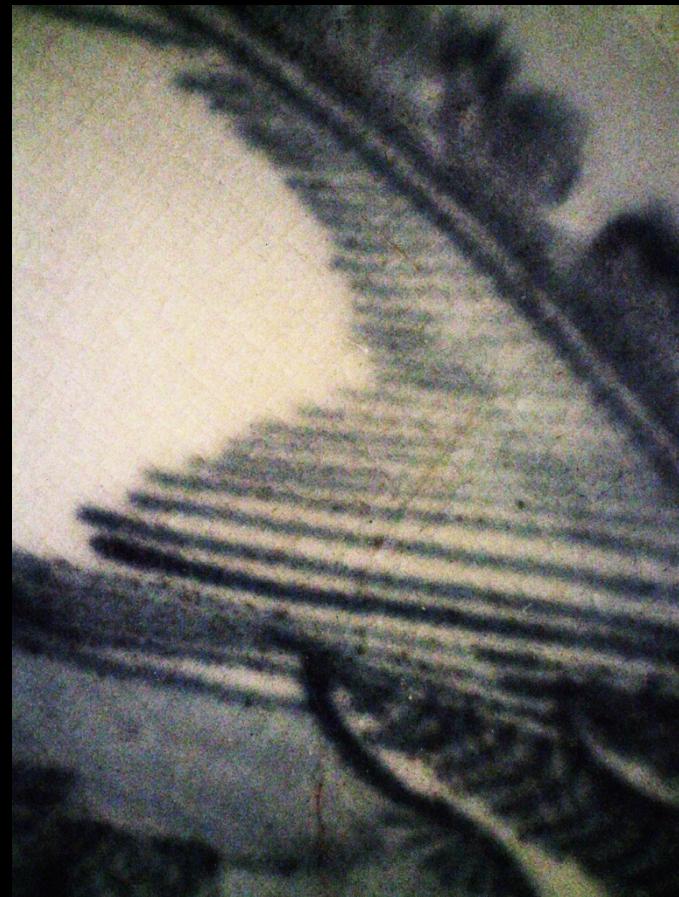
Applied Decorative Techniques: Transfer Printing



Applied Decorative Techniques: Printing vs. painting



Applied Decorative Techniques: Printing vs. painting



Applied Decorative Techniques: Printing

- Earliest: overglaze
- Most common: blue underglaze
- Mid-late 19th C.: pastel colors, black, brown, enameling



Summary



Coarse Earthenware

- **Temp:** low (1000-1200 °C)
- **Texture:** grainy; often visible inclusions; porous
- **Forms:** mainly utilitarian
- **Glaze:** lead
- **Production mode:** wheel thrown
- **Decoration:** slip



Refined Earthenware

- **Temp:** low (1000-1200 °C)
- **Texture:** sandpapery; porous; spalls readily
- **Forms:** mainly tableware
- **Glaze:** lead; later alkaline-lead
- **Production mode:** molded
- **Decoration:** painting (under/over), printing, factory-made slipware



Refined Earthenware

white refined earthenwares

Creamware (ca. 1762 - 1820)

Pearlware (ca. 1775 - 1830)

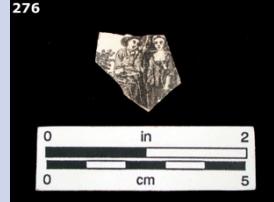
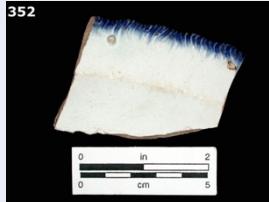
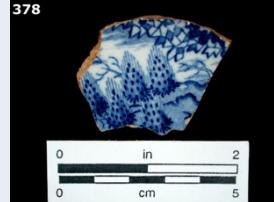
Whiteware (post 1820)

Ironstone/White Granite (post 1840)



Refined Earthenware

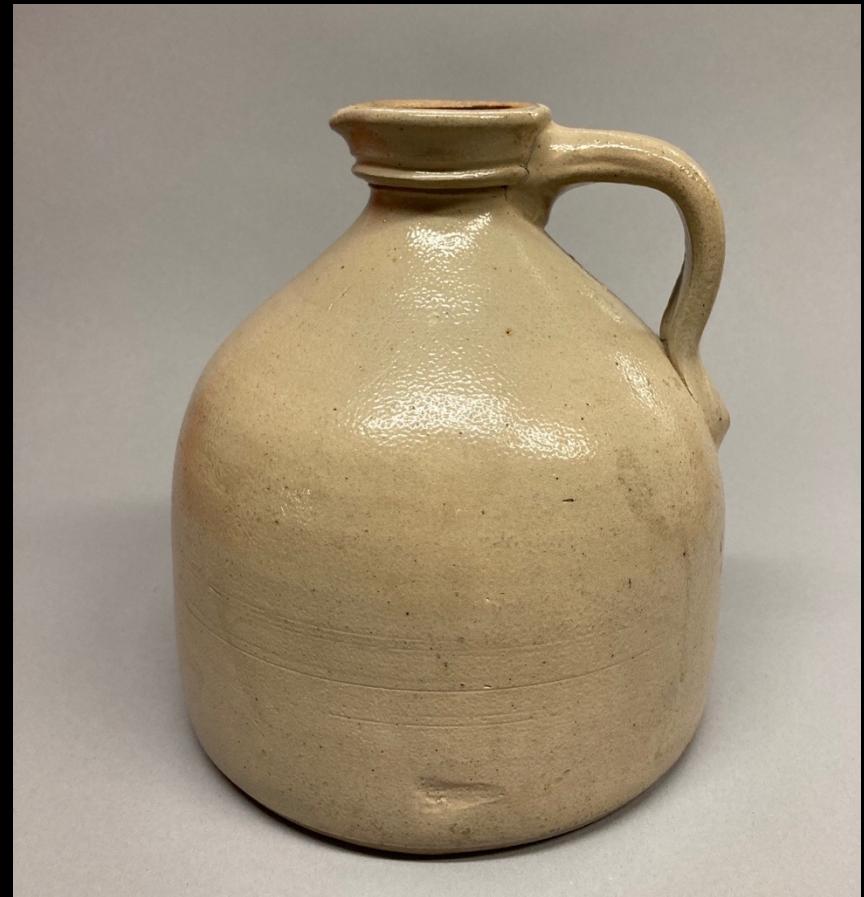
white refined earthenwares

	Molding	Painting	Printing
Creamware	 279	 479	 276
Pearlware	 352	 479	 378
Whiteware / Ironstone	Highly varied; (less crisp, ironstone geometric)	 395	 416

Images: Florida Museum Digital Ceramic Type Collection

Stoneware

- **Temp:** moderate (1200-1350 °C)
- **Texture:** dense; vitreous
- **Forms:** mainly utilitarian
- **Glaze:** Alkaline
- **Production mode:** wheel thrown, molded
- **Decoration:** slipped or painted (under), sprig molding



Porcelain and Porcellaneous

- **Temp:** Moderate to high (1200-1450 °C)
- **Texture:** dense; vitreous; translucent
- **Forms:** mainly tablewares
- **Glaze:** Felspathic (true porcelain); lead (porcellaneous)
- **Production mode:** molded
- **Decoration:** painting (under/over), printing



Identify each of the following decorations.
What attributes guided your decision?



Recommended Digital Resources:

apps.jefpat.maryland.gov/diagnostic/index.htm

www.floridamuseum.ufl.edu/histarch/ceramic-types/

www.daacs.org/about-the-database/daacs-cataloging-manual/

apps.jefpat.maryland.gov/diagnostic/HistoricCeramicTypesChart.pdf

historicjamestowne.org/collections/artifacts/material/

belowthesurface.amsterdam/en

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