



**REMEMBERING BILL BROCK: CHEMISTRY AND CULTURE**

**Burning Diamonds: 1771**

**Julia Carr-Trebelhorn**

**University of Cincinnati**

**10 April 2026**

**SHAC - Society for the  
History of Alchemy and Chemistry**

**Spring Meeting**

**Maison Française, Oxford**

**BURNING DIAMONDS: LAVOISIER,**

**GUETTARD, AND THE 1771 DEVELOPMENT**

**OF REDUCTION FIRING**

**AND HARD-PASTE PORCELAIN IN PARIS**

## Introduction

### Remembering Bill Brock: Chemistry and Culture

*Burning Diamonds: Lavoisier, Guettard, and the 1771 Development of Reduction Firing and Hard-Paste Porcelain in Paris*

## The Development of European Porcelain

- Western Fascination with Porcelain
- Three Porcelain Research Groups in Paris

## From Porcelain to Diamonds

- Lavoisier and the Discovery of Oxygen

## Conclusion



*Jean-Etienne Guettard*  
by Théodore Charpentier,  
18<sup>th</sup> C



KAOLINITE

# The Development of European Hard-Paste Porcelain: Part One, Germany

GERMAN PORCELAIN was created at Meissen by 1710

This knowledge remained a state secret and the technology did not transfer elsewhere.



Ehrenfried  
Walter von  
Tschirnhaus



Meissen Porcelain, c.1713-20



*Handwritten text in Latin and German, including:*  
... extracti & patellulae in vase uti...  
... notat in venis  
... mind probes quafq.  
... ut. 1. ad. 6. nemp. (36. l. A. 6. l.  
... N. 2. (p. l. A. 7. l. ut. i. ad. 7.  
... N. 3. (32. l. A. 4. l. ut. i. ad. 8.  
... 4. (40 1/2 l. A. 4 1/2 p. ut. i. ad. 8.)

Johann  
Friedrich  
Böttger



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## The Development of European Porcelain

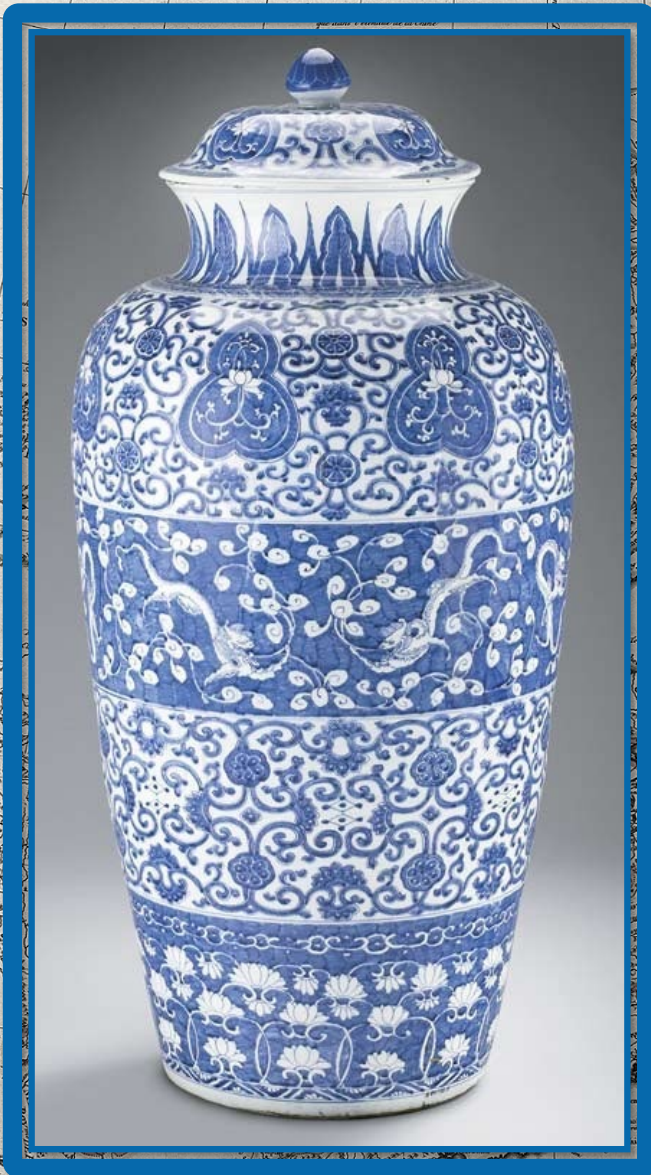
- Western Fascination with Porcelain
- Three Porcelain Research Groups in Paris

## From Porcelain to Diamonds

- Lavoisier and the Discovery of Oxygen

## Conclusion

European  
Fascination with  
Asian Porcelain:  
Espionage



L E T T R E

D U

PERE D'ENTRECOLLES,  
Missionnaire de la Compagnie  
de J E S U S :

*Au Pere Orry de la même Compagnie,  
Procureur des Missions de la Chine  
& des Indes.*

A Jao tcheou, ce 1<sup>r</sup>  
Septembre 1712.

1711 & 1722

*La Paix de N. S.*

Le séjour que je fais de tems  
en tems à King te tching pour les

# European Fascination with Asian Porcelain: Espionage

1722



René Antoine  
Ferchault de Réaumur  
(1683-1757)



L E T T R E

D U

PERE D'ENTRECOLLES,  
Missionnaire de la Compagnie  
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# Three Porcelain Research Groups in Paris

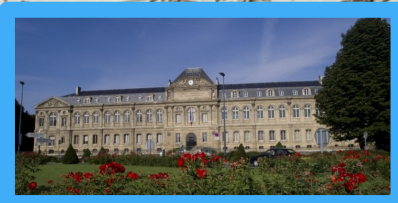
Group Two:  
Hotel de Lassay



Group One:  
Bagnolet



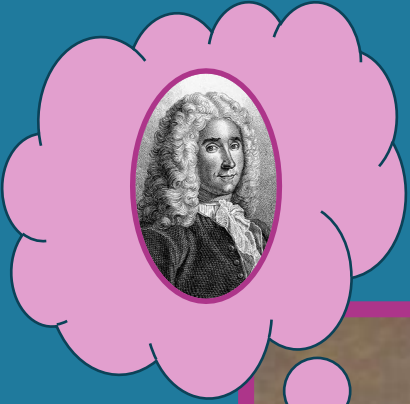
Group Three:  
Sèvres



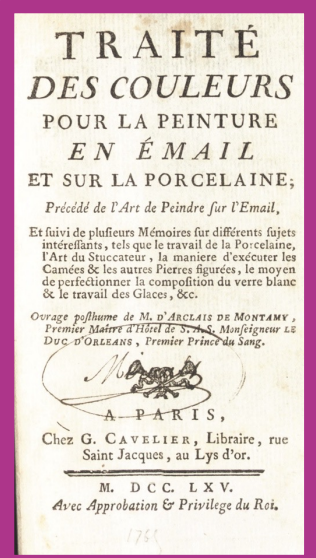
**SLIDE EIGHT**

**CASSINI MAP OF PARIS:  
LOCATIONS OF PARIS PORCELAIN RESEARCH 1750-1780**

# THREE COMPETING PARISIAN GROUPS — BAGNOLET



Louis d'Orléans,  
Duke of Chartres  
(1703-52)



Le Guay,  
Potter

Didier  
d'Arclais de  
Montamy



Discovered  
French  
Kaolin 1751



Jean-Étienne Guettard  
(1715-86)

1751



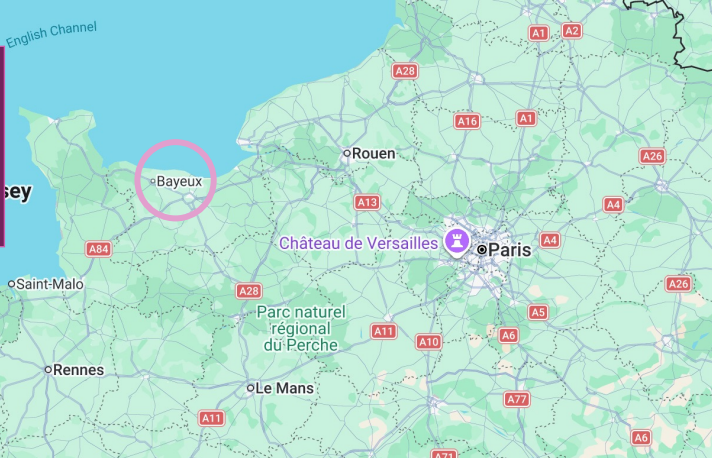
Created  
several  
pieces of  
grey-ish  
hard-paste  
porcelain

# THREE COMPETING PARISIAN GROUPS — BAGNOLET

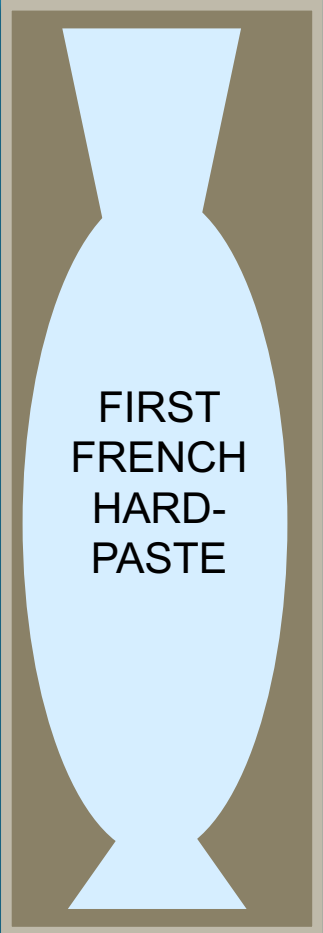
BOUGHT THE LAND WITH THE KAOLIN DEPOSITS



Louis d'Orléans, Duke of Chartres (1703-52)



1751



Discovered French Kaolin 1751



Jean-Étienne Guettard (1715-86)

PROMISED SECRECY

# THREE COMPETING PARISIAN GROUPS — BAGNOLET

BOUGHT THE LAND WITH THE KAOLIN DEPOSITS



Louis d'Orléans  
Duke of Chartres  
(1703-50)

BUT LEFT A NOTE AND SPECIMENS WITH THE ACADEMY!

PROMISED SECRECY

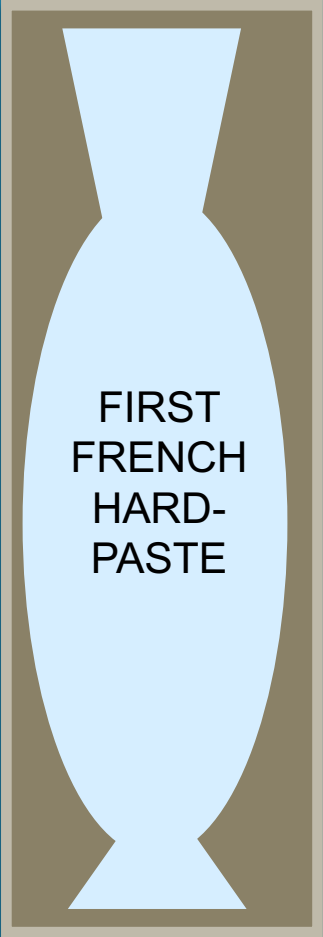


Jean-Étienne Guettard  
(1715-86)



Discovered French Kaolin 1751

1751



FIRST FRENCH HARD-PASTE

# THREE COMPETING PARISIAN GROUPS — BAGNOLET



Died young,  
at age 48, in 1751

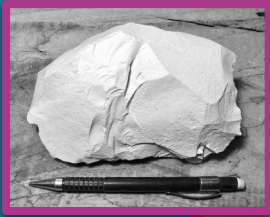
Louis d'Orléans,  
Duke of Chartres  
(1703-52)

AGE 23,  
INHERITED THE  
PROMISE &  
THE KAOLIN  
DEPOSITS, BUT  
FAILED TO  
CONTINUE THE  
RESEARCH

1752



Louis-Philippe I  
d'Orléans,  
Duke of Chartres  
"Le Gros"  
(1725-85)



Discovered  
French  
Kaolin 1751



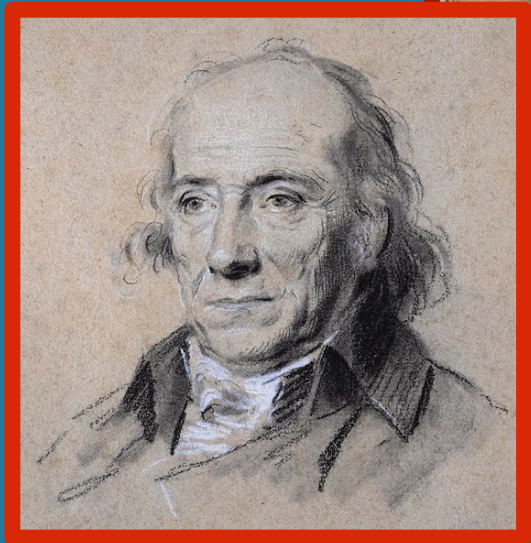
Jean-Étienne Guettard  
(1715-86)

DULY  
KEPT HIS  
PROMISE OF  
SECRECY

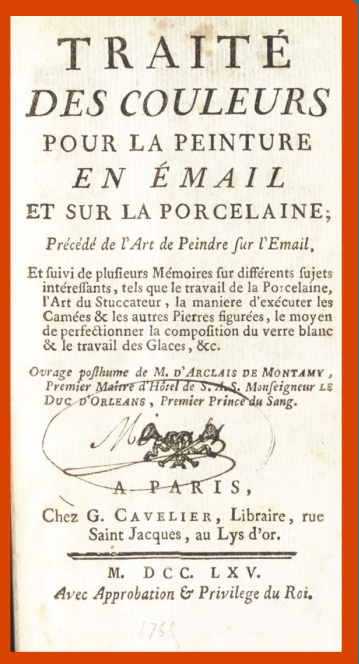
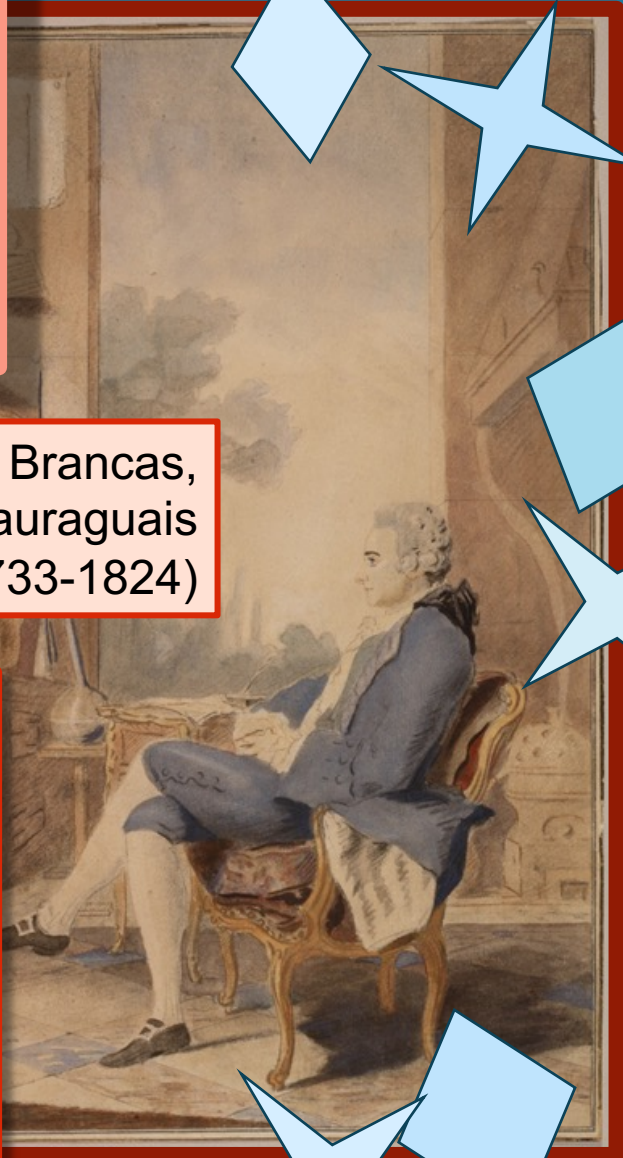
# THREE COMPETING PARISIAN GROUPS — HÔTEL DE LASSAY



Louis-Léon de Brancas,  
comte de Lauraguais  
(1733-1824)



Jean Darcet  
(1724-1801)



Le Guay,  
Potter

TRAITÉ  
DES COULEURS  
POUR LA PEINTURE  
EN ÉMAIL  
ET SUR LA PORCELAINE;

*Précédé de l'Art de Peindre sur l'Email,*  
Et suivi de plusieurs Mémoires sur différents sujets  
intéressants, tels que le travail de la Porcelaine,  
l'Art du Stuccateur, la manière d'exécuter les  
Camées & les autres Pierres figurées, le moyen  
de perfectionner la composition du verre blanc  
& le travail des Glaces, &c.

Didier  
d'Arclais  
de  
Montamy

DOUBLECROSSERS

THREE COMPETING  
PARISIAN GROUPS  
HÔTEL DE LASSA

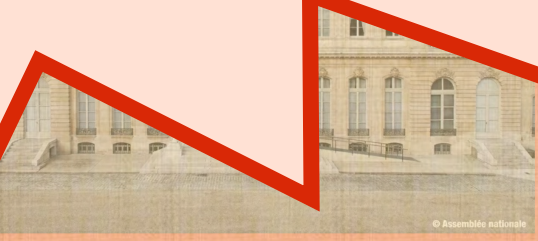
In 1764, Lauraguais declared his group the discoverers of French kaolin & the first to make French hard paste porcelain



TR  
DES COU  
POUR LA PEINT  
EN ÉMAIL  
ET SUR LA PORCELAIN

Précédé de l'Art de Peindre  
Et suivi de plusieurs Mé  
intéressants, tels  
l'Art du Stuc  
Camées  
de perfectionne  
& le travail des Glaces,  
Ouvrage posthume de M. D'ARCLAIS DE MONTA  
Premier Maître d'Hôtel de S. M. Monseigneur LE  
DUC D'ORLEANS, Premier Prince du Sang.  
A PARIS,  
Chez G. CAVELIER, Libraire, rue  
Saint Jacques, au Lys d'or.  
M. DCC. LXXV.  
Avec Approbation & Privilège du Roi.

S,  
Chez G. CAVELIER, Libraire, rue  
Saint Jacques, au Lys d'or.  
M. DCC. LXXV.  
Avec Approbation & Privilège du Roi.



# THREE COMPETING PARISIAN GROUPS — BAGNOLET/GUETTARD vs the COMTE de LAURAGUAIS

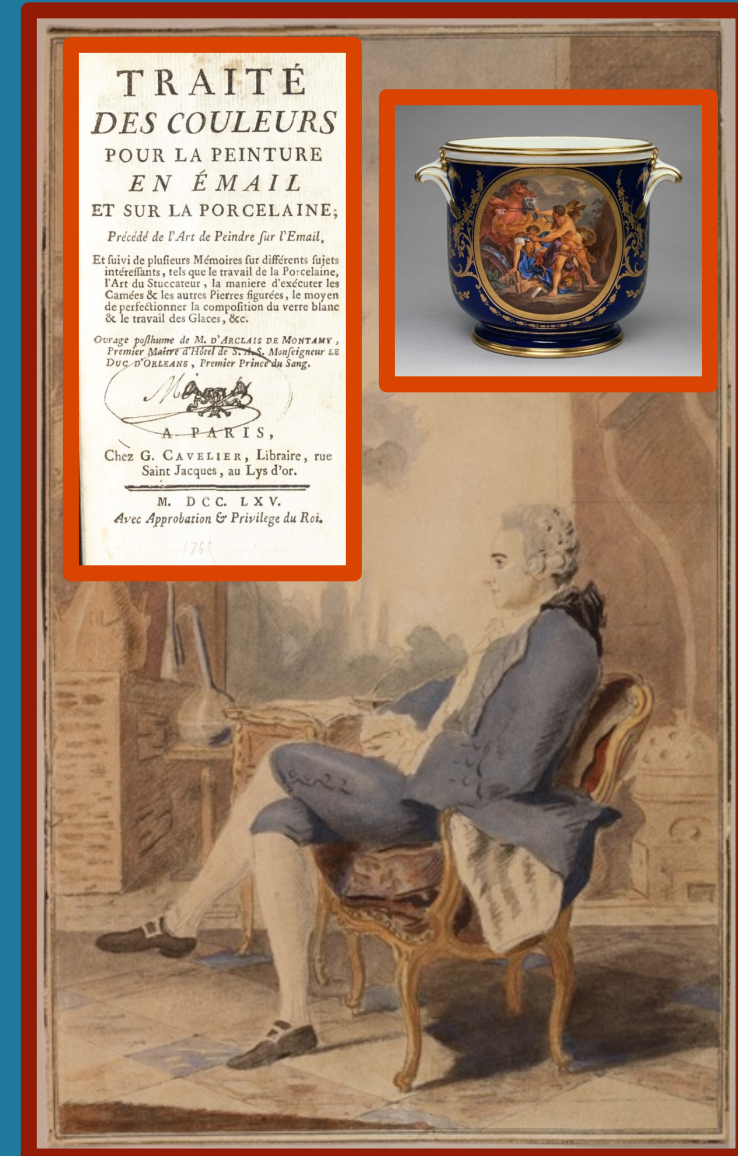
Alexandre Brongniart later reflected that Lauraguais had fought against the reality of Guettard's achievement "in the crudest way, the furthest from what one would expect from the politeness of a man of that rank".



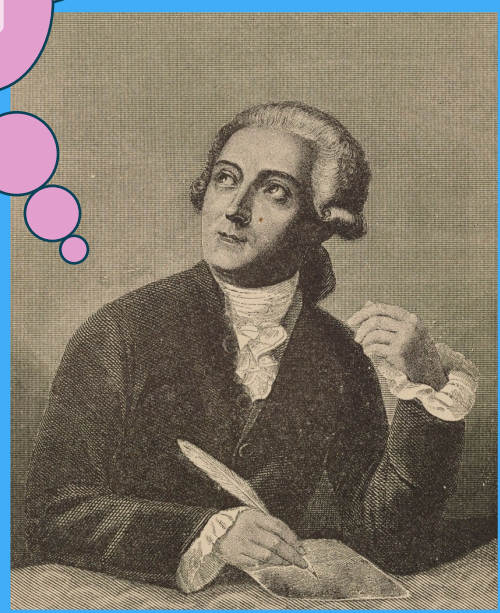
Discovered  
French  
Kaolin 1751



Jean-Étienne Guettard  
(1715-86)



**THREE COMPETING  
PARISIAN GROUPS —  
SÈVRES**



**ANTOINE LAVOISIER  
(1743-1794)**



**PIERRE JOSEPH  
MACQUER  
(1718-1784)**

**CENTER GROUP, CLOCKWISE: ANTOINE  
FOURCROY; ANTOINE BRONGNIART; LOUIS-  
CLAUDE CADET DE GASSICOURT**

# THREE COMPETING PARISIAN GROUPS — SÈVRES



1  
7  
6  
8

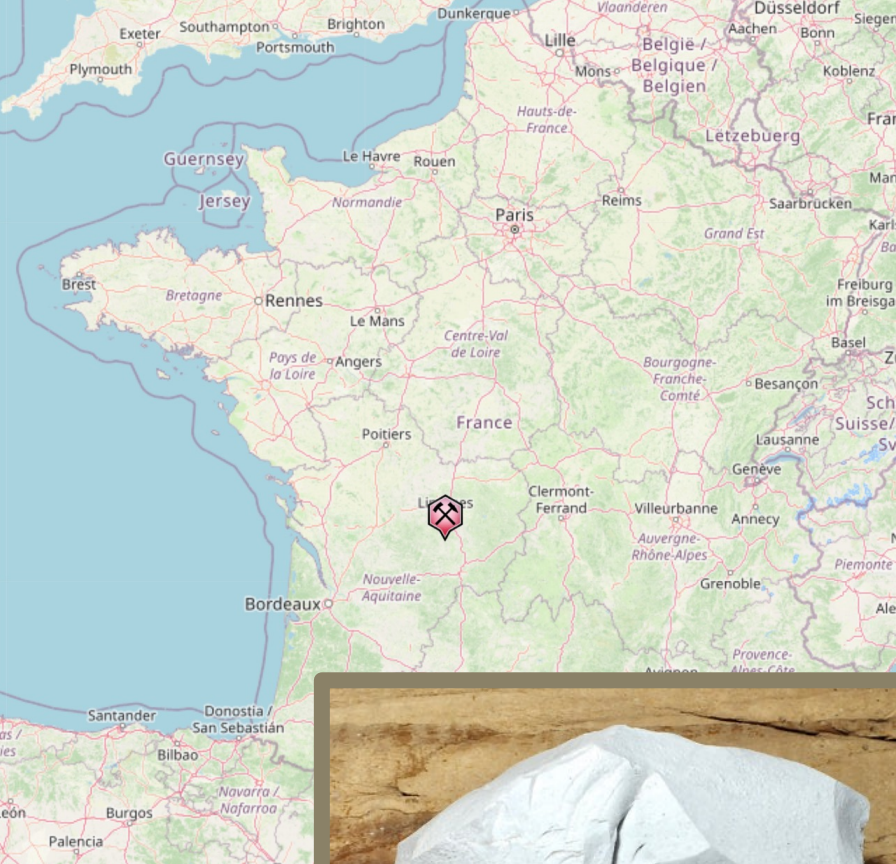


PIERRE JOSEPH MACQUER (1718-84) & HIS ASSISTANT, ÉTIENNE MIGNOT DE MONTIGNY (1714-82) PRODUCED HARD PASTE PORCELAIN FROM THIS CLAY AT SÈVRES IN 1768, BUT IT WAS GREY-ISH RATHER THAN BRIGHT WHITE



DISCOVERY OF  
KAOLINITE IN  
ST YRIEIX IN  
1768





# THREE COMPETING PARISIAN GROUPS — SÈVRES



1  
7  
7  
1



DISCOVERY OF  
REDUCTION  
FIRING  
TECHNIQUES  
IN 1771



DISCOVERY OF  
KAOLINITE IN  
ST YRIEIX IN  
1768

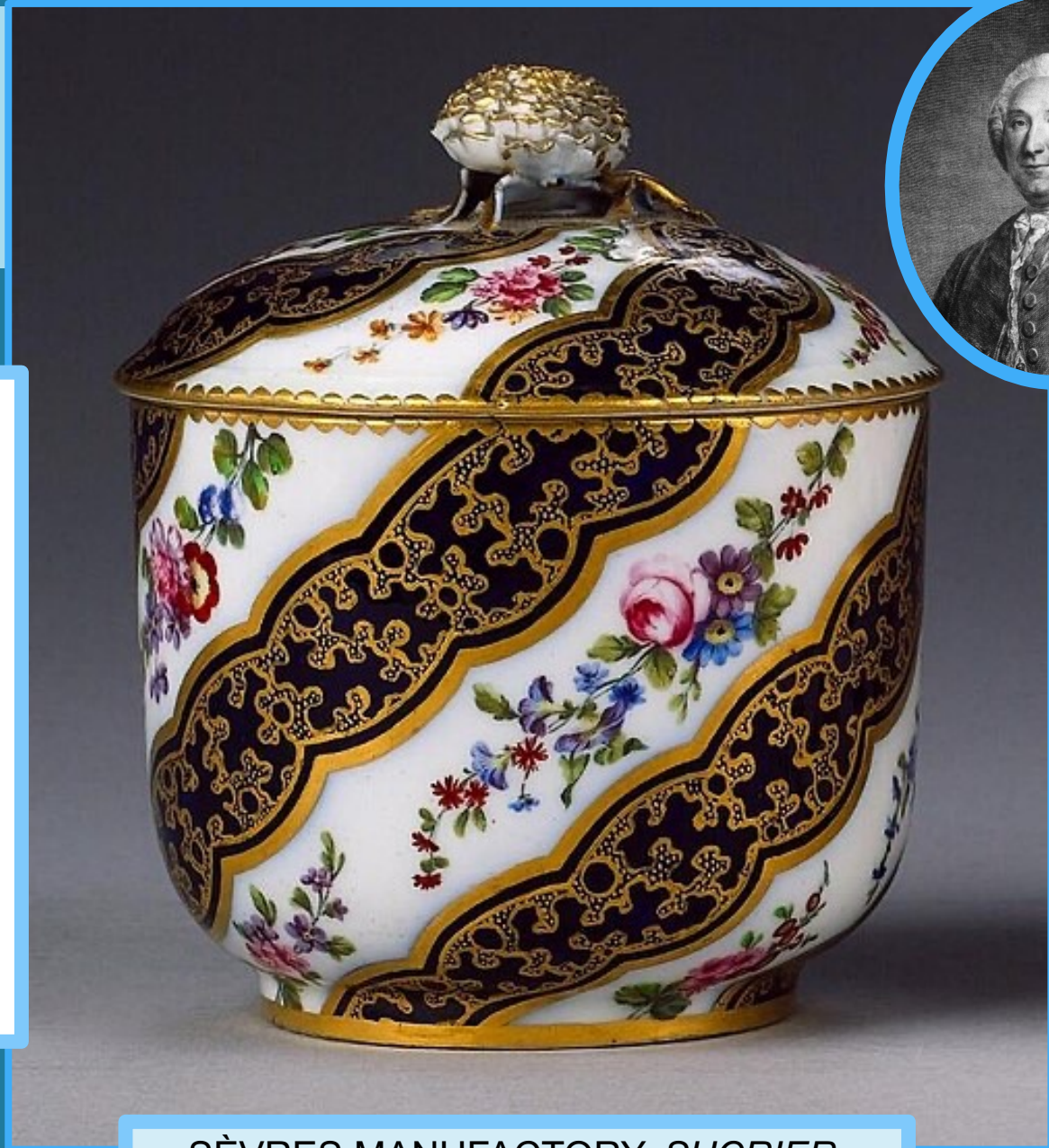
PIERRE JOSEPH MACQUER (1718-84) &  
HIS ASSISTANT, ÉTIENNE MIGNOT DE  
MONTIGNY (1714-82) WERE ABLE TO PUT  
HARD-PASTE PORCELAIN INTO  
PRODUCTION AT SÈVRES

**THREE COMPETING  
PARISIAN GROUPS —  
SÈVRES**

1  
7  
7  
1

REDUCTION FIRING  
BEGAN AT SÈVRES IN  
1771, AND BRIGHT  
WHITE, HARD-PASTE  
PORCELAIN WAS PUT  
INTO PRODUCTION  
FOR THE FIRST TIME

**SLIDE EIGHTEEN**



SÈVRES MANUFACTORY, *SUCRIER*,  
1771

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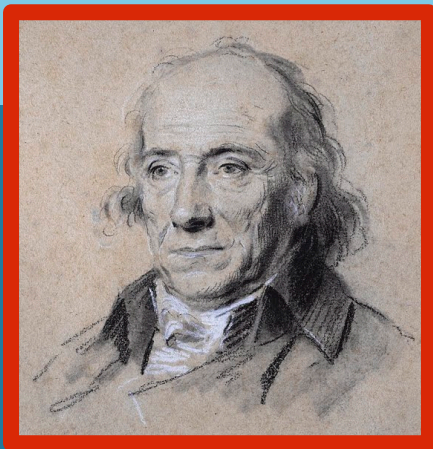
## From Porcelain to Diamonds

- Lavoisier, Diamonds, and Reduction-Firing at Sèvres

## Conclusion

# 1768

DARCET'S  
MEMOIR ON  
PORCELAIN  
INCLUDED HIS  
EXPERIMENTS  
ON DIAMONDS



Jean Darcet  
(1724-1801)



THE EXPERIMENTS WERE  
REPEATED BY THE SÈVRES  
CHEMISTS

CLOCKWISE: ANTOINE LAVOISIER, ANTOINE FOURCROY; ANTOINE BRONGNIART;  
PIERRE JOSEPH MACQUER; LOUIS-CLAUDE CADET DE GASSICOURT

**THREE COMPETING**  
**PARISIAN GROUPS —**  
**SÈVRES**

LAVOISIER AND MACQUER  
DISCOVERED THAT THE FIRED OR  
UNFIRED STATE OF THE CRUCIBLE  
MATTERED TO THE OUTCOME OF  
THE DIAMOND BURNING  
EXPERIMENT



SÈVRES CASTING WORKSHOP,  
UNFIRED PORCELAIN



SÈVRES MANUFACTORY, *SUCRIER*,  
1771

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SÈVRES MANUFACTORY, *SUCRIER*,  
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