

The Papermaking Quiz



Who caused this drop mark (aka tear) on a sheet being formed on a laid mould?

1

- A. Vatman
- B. Coucher

Windmills

Why did Dutch papermakers need to stop retting their rags (which was made possible by the invention of the Hollander beater)?

A. Wind was too unpredictable, and retting rags could be ruined by over-fermentation if the weather failed to cooperate in beating.

B. The windmill used canvas sails which were too salty to ret.

C. Miasma causing a disease outbreak was traced to a rag rettery, and the practice was banned

2



The vatman is looking at the:

3

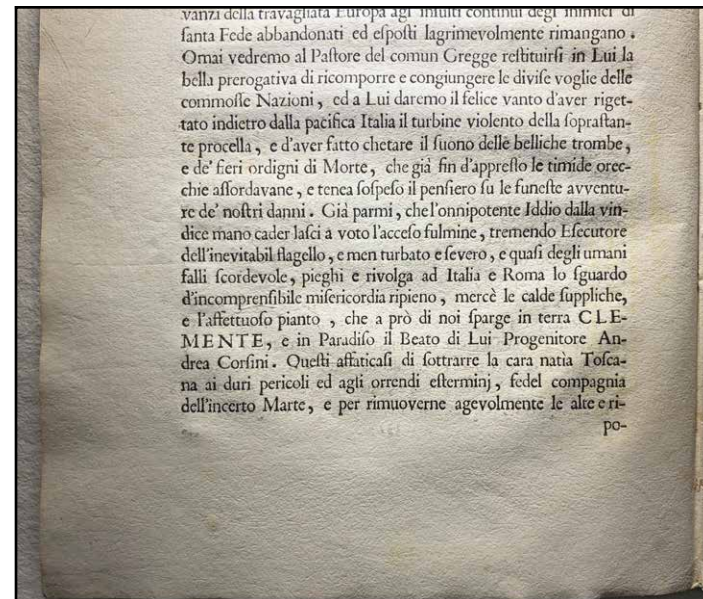
- A. Wire side
- B. Felt side



Which side is face up on this unconstrained, air-dried sheet?

4

- A. Wire side
- B. Felt side



5

Which side of the paper are we seeing?

A. Wire side

B. Felt side



6

Who caused this drop mark?

A. Vatman

B. Coucher

Good Side, Bad Side

In the historical language of sheet formation, which side of the mould was called the "bad side"?

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A. The edge closest to the vatman

B. The edge furthest from the vatman

C. The side with the watermark

D. The short side held in the vatman's left hand



8

Who caused this drop mark?

A. Vatman

B. Coucher



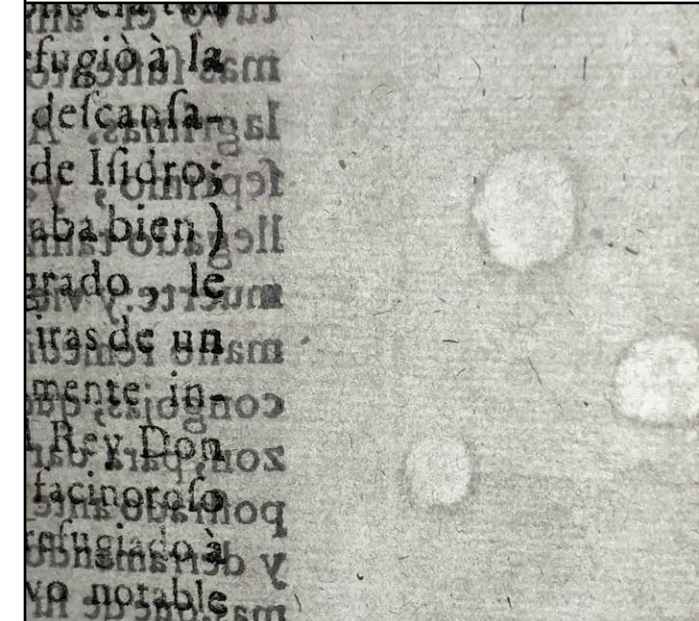
9

We can see a large mould with a layer of furnish on its sieve-like surface.

Which side of the newly formed sheet is facing up?

A. Wire side

B. Felt side



10

Who caused this drop mark?

A. Vatman

B. Coucher

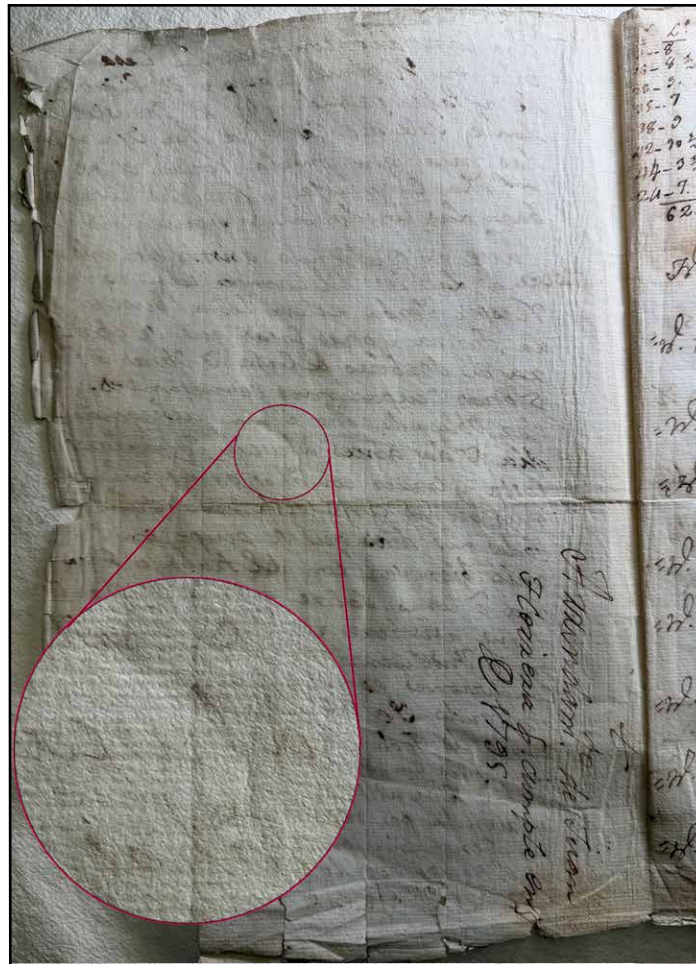


11

The fingerprints found in this sheet; when were they made and why?

A. After pressing, by the parter (to press out a wrinkle)

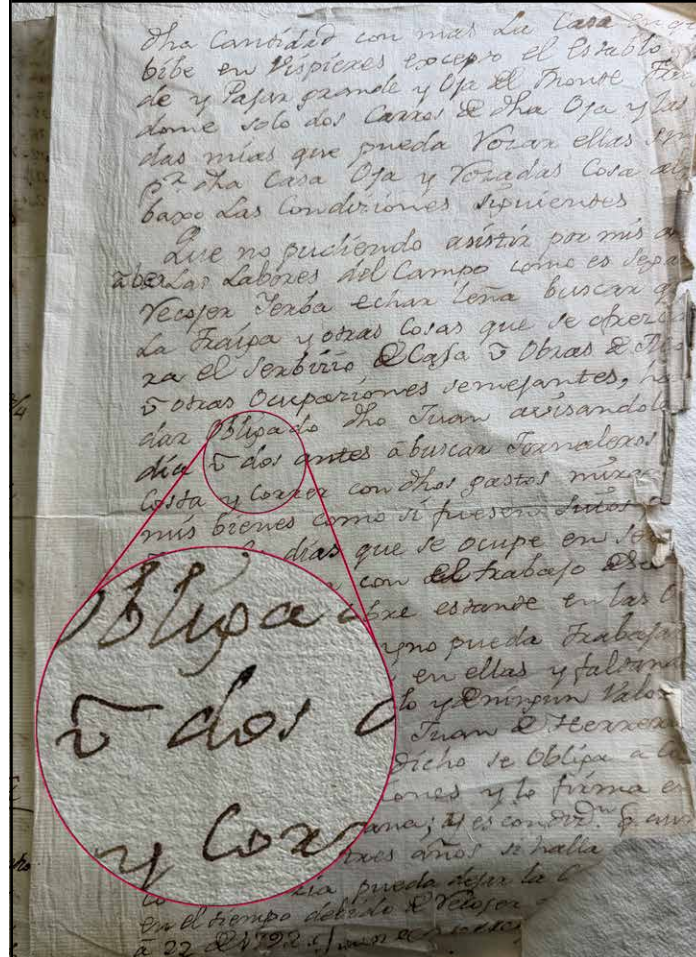
B. After the couch by the upper end boy, pressing out bubbles



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Which side of the paper are we seeing?

- A. Wire side
- B. Felt side



13

Which side of the paper are we seeing?

- A. Wire side
- B. Felt side



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What are these wrinkle marks called?

- A. Wrinkles caused by folding
- B. Back marks



15

All these sheets were air-dried, unconstrained. Which side is facing up on all the sheets?

- A. Wire side
- B. Felt side



16

The French Royal Council's decree of 1739 was remarkably specific about papermaking. According to the decree, boards—that is, book boards were to be made of specific materials.

Which material does not belong on the permitted list?

- A. Old papers
- B. Playing-card trimmings
- C. Rags
- D. Paper trimmings

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What is this disruption?

- A. Vatman's drop (tear)
- B. Air bubble

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Cannon Cartridge Paper

John Dickinson's 1807 patent recommended adding wool to linen, hemp, or flax pulp in cannon cartridge paper. What was the principal purpose of the wool?

- A. To increase the paper's tear strength
- B. To make the cartridges waterproof
- C. To reduce lingering sparks and smoldering after discharge
- D. To make the paper easier to print

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White Broke aka Hard Broke

Which of the following is hard broke?

- A. An unsized sheet rejected immediately after couching
- B. Trim from a newly formed waterleaf sheet
- C. A gelatin-sized sheet rejected after drying or finishing
- D. Loose pulp recovered from the vat wall

20



Who caused these drop marks which fell on a sheet being formed on a laid mould?

- A. Vatman
- B. Coucher

21

The Slaughter House

Why was the sizing room sometimes called the "slaughter house"?

- A. Because animal glue was made there from hides and had a bad smell.
- B. Because so many fragile sheets could be ruined during sizing
- C. Because the vatman and coucher fought there
- D. Because wool fibers were chopped for cartridge paper

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Musettes

In La Lande's description, what were "musettes"?

- A. Little songs sung by the vatman
- B. Small blisters caused by trapped air during couching
- C. Short fibres left after over-beating
- D. Decorative colored wool fibers in the furnish

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A Sheet with a Personality Problem

According to Thomas Fuller's 1662 national paper characterizations, which paper was described as "thick, corpulent, and gross"?

- A. Venetian paper
- B. French paper
- C. Dutch paper
- D. English paper

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How did mill owner and local officials describe the journeyman vatmen, couchers, and other paperworkers in the 16th-18th centuries?

- A. "No emperor nor king, no prince, is able to resist the[ir] will."
- B. "A republic of inferior workers, accustomed to laying down the law to the masters."
- C. "Nothing is more revolting than the tyrannical power that the worker wields with respect to his master, nothing more degenerate than this wretched bunch of urchins"
- D. "Urchins that the Auvergne vomited out to torment the [crown]."
- E. All of the above
- F. None of the above

The Papermaking Quiz

Answers:

1. B. The coucher. As you can see, the wire side was disrupted where the drop landed, immediately after the sheet was couched, before another felt was placed over it and before pressing.
2. A. Since windmills stopped when the air was calm, already-rotting rags could ferment too far and be ruined. Rather than wait for obedient weather, Dutch papermakers abandoned rotting and found that unretting pulp made excellent paper.
3. B. The felt side. The vatman has just formed a sheet and is looking at the surface of the draining furnish that will soon be overturned and transferred to a felt by the coucher, exposing the wire side.
4. A. The wire side. When a sheet is formed, fibers rush across the mould. The fibers touching the screen tend to align parallel to the chain lines. As the sheet dries, these fibers shrink in girth, causing the wire side to contract more than the felt side and thereby produce the curl along the short sides.
5. B. The felt side. When we see indented chain lines, we might assume that we are looking at the wire side, because the chain lines are initially impressed into that side during couching. During drying, however, something remarkable happens: because of stresses within the sheet, the indentation migrates to the felt side.
6. A. The vatman is the guilty party. Because the laid lines remain visible within the circular disruption, the drop landed on the exposed felt side while the sheet was still on the mould, just after formation.
7. A. The edge closest to the vatman was called the “bad side,” partly because it was more prone to clogging and trouble.
8. A. The vatman. Looking carefully, we can see laid lines within the circular disruption.
9. B. The felt side. We can see a large mould with a layer of furnish that has been poured onto its sieve-like surface.
10. B. The coucher. The laid pattern has been disrupted by a water drop, and no laid pattern remains within the circle. The drop therefore landed on the wire side.
11. B. After couching, a bubble formed and was most likely pressed out by the upper-end boy.
12. B. The felt side. See the explanation given in answer 5.
13. A. The wire side. The chain lines are raised; therefore, contrary to what we might expect, we are looking at the wire side.
14. B. Back marks. These parallel ridges form when spurs of paper dry while draped over horsehair ropes.
15. A. The wire side. The sheet curls upward. See the explanation given in answer 4.
16. C. Rags. The penalty for using rags was confiscation of the boards and a fine of 100 livres. A vatman earned approximately 300 livres a year: 10 livres per month in cash, with the remainder of his compensation provided in food and other maintenance. The prohibition against using rags in boards was rescinded in 1741.
17. A. The vatman made these drop marks, most likely while removing the deckle.
18. C. To reduce lingering sparks and smoldering after discharge.
19. C. A gelatin-sized sheet rejected after drying or finishing. These sheets were often softened in boiling water before repulping.
20. B. This air bubble formed when the sheet was couched, and it appears that a small hand—likely that of the upper-end boy—tried to tamp it down.
21. B. Waterleaf sheets were fragile, and many could be damaged when immersed in hot gelatin size.
22. C. Fuller described Dutch paper as “thick, corpulent, and gross,” and said it sucked up ink with a spongy character.
23. B. Small blisters caused by trapped air during couching.
24. E. All of the above.



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