



Those Who Do Not Learn History Are Doomed to Play It

Renard Gluzman

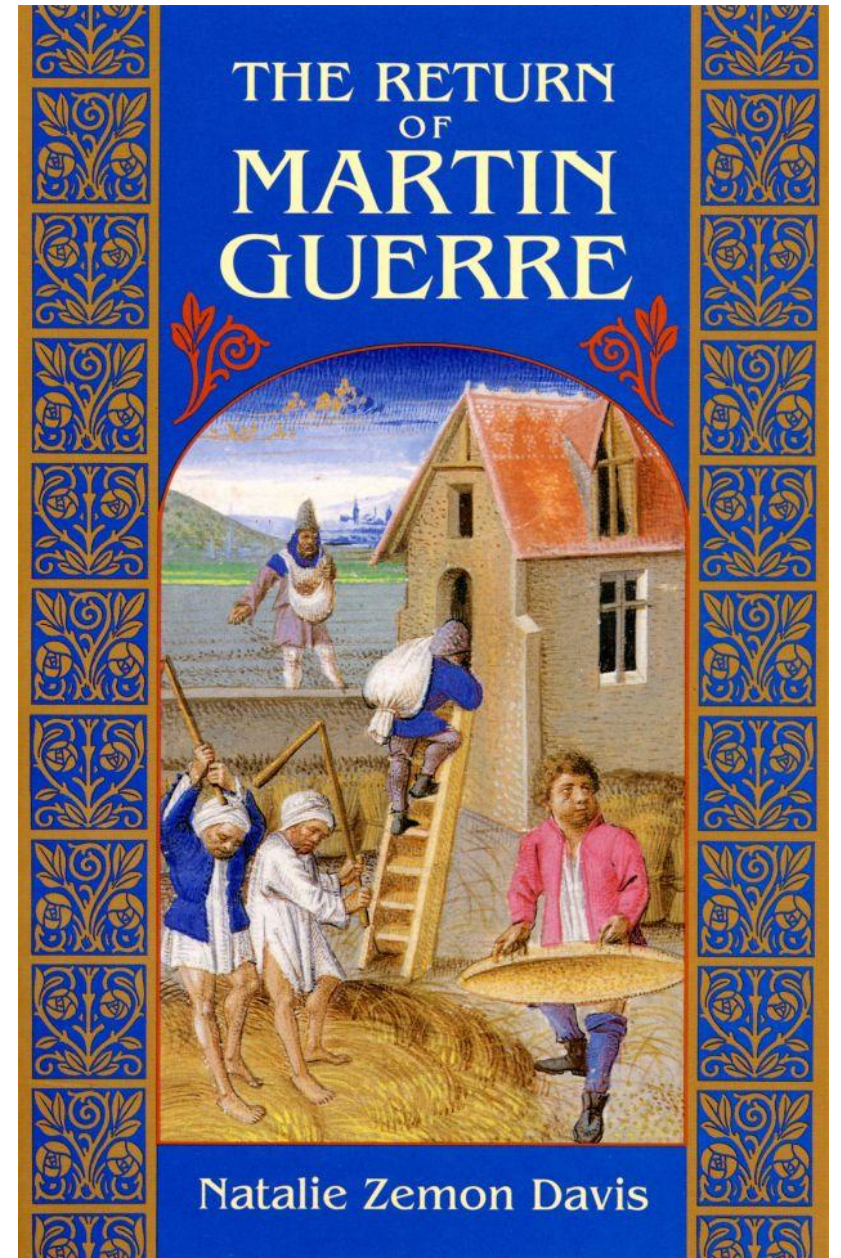
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What if
*The Return of Martin
Guerre* (1983) was
adapted to a popular
videogame?





THE RETURN OF MARTIN GUERRE (LE RETOUR DE MARTIN GUERRE) Daniel Vigne, 1982.

Zemon Davis was inspired to write the book by her work on the film.



It would probably look like this...

This game does not exist.

History has been slow to see video games as a valid medium.

The result: audiences play with history, but historians rarely shape how it's represented.

What if Natalie Zemon Davis was (also) a game creator?

Natalie Z. Davis (1928–2023)



For games to **do history**, historians must go beyond consulting on accuracy.

They should co-create systems that model historical work—not just visual realism.

How might video games present original historical work?

- **Adaptation: transforming a thesis into a playable prototype.** The game itself functions as a medium of historical argumentation Chapman (2016, pp. 4–5), or as a creative endeavor pursued alongside one's scholarly work.
- **Exploration: The game functions as an experimental space** where historians can observe, manipulate, and reflect on historical processes: From citizen-science or participatory games (René Glas et al. 2019), to computational simulations that generate data (McCall 2008; Schmitz, Vogl, Kaye, & Schlattmann 2024).
- **Dissemination**: embedding games within classrooms, museums, or heritage initiatives, where historians collaborate as co-creators to translate research into public-facing interactive experiences (Champion 2021, Giannini & Bowen 2019, Liarokapis et al. 2025).
- **Practice-based research**: drawing on methods from art and design (Bolt 2007, Candy & Edmonds 2018) to frame games as valid scholarly inquiry and hybrid research outputs. **Here, the act of creation itself produces critical reflection**—advancing both (historical) game studies and the historian's own field through argumentation embodied in design (Society for Artistic Research n.d.).

Adaptations



How can adaptations be realized in practice? Very few games attempt this.

Indie projects that engage directly with historical research—“**scholarly games.**”



Outbreak (2009) simulates the 1885 Montreal smallpox outbreak and was co-created by a historian with a focus on **historical accuracy.**



Astrologaster (2019), based on the casebooks of early modern physician Simon Forman, was developed with guidance from a **research team.**



Pentiment (2022), designed by Josh Sawyer, explores **Reformation-era tensions** through the story of a fictional Bavarian town.

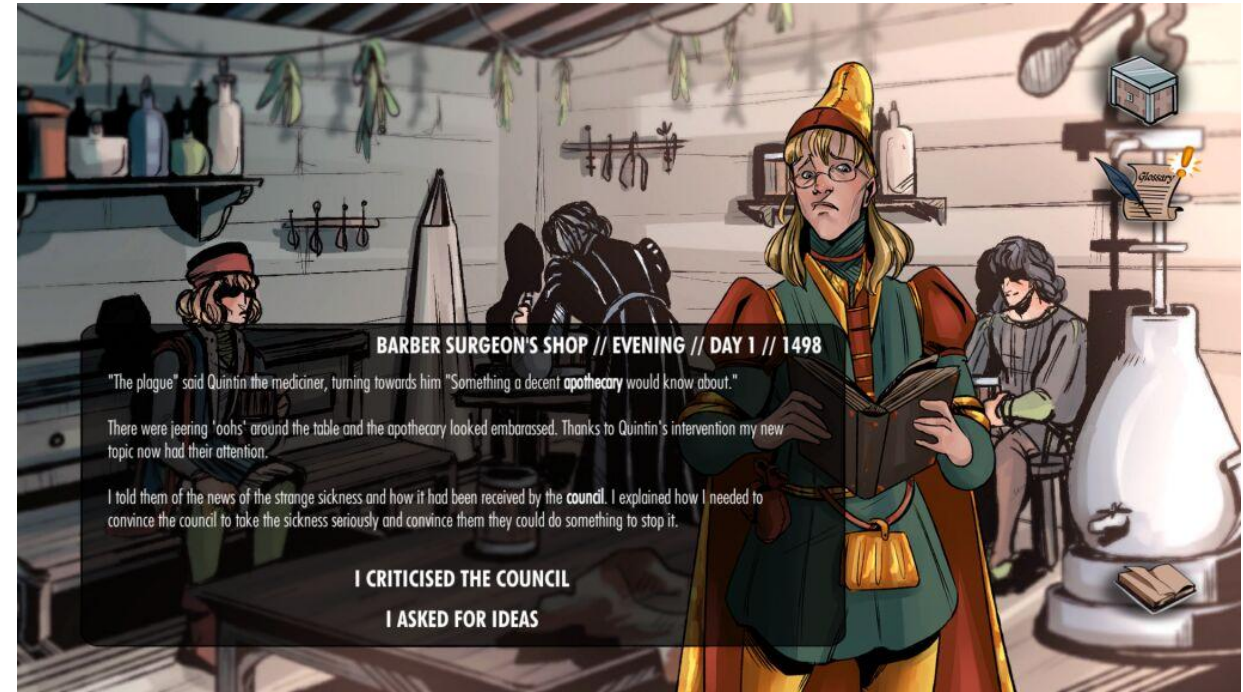


SeaLiT (2022), by historian Apostolos Delis, lets players take the role of a shipowner during the sail-to-steam transition, based directly on his EU-funded research.



Does it reflect Delis's interpretation of 19th-century shipping?

Does its logic align with the **epistemology of contemporary shipowners?**



Strange Sickness (2022) is one of the few games by historians that draws on archival research—in this case, medieval Aberdeen burgh records—and involves players in the **epistemology of history**.

The lead historian-developer wanted players to experience the **research process** as part of gameplay.

This makes it a clear example of a “**historiographical videogame**”—explicitly engaging with historical accuracy and interpretation.

The adaptation of a thesis in history into a game system

Definitions:

- Historiography = *writing history*
- History = *the result of that writing*
- Games that show past settings without interpretation stay **illustrative**, not **analytical**.

Research Questions:

- How can design processes be adapted to meet historiographical standards?
- What would it mean for historians to treat games as vehicles for “writing” history?
- Should there be a framework for integrating historical inquiry into game design?

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Abstract

The field of historical game studies (HGS) has grown significantly, yet its connection to historiography—the study of how history is constructed and interpreted—remains limited. Games are often labeled “historical” based on setting or visual details rather than their engagement with historical inquiry. This paper argues for closer dialogue between historiography and game design, calling for established historians to contribute not as consultants but as co-creators. It introduces a heuristic framework built on two intersecting tensions: *individuality-generalization* (from historiography) and *narratology-simulation* (from game studies). Through this lens, the paper explores hypothetical pairings between canonical works of history (e.g., Bloch, Zemon Davis, Ginzburg) and popular games (e.g., 80 Days, Telling Lies, Everything). These pairings illustrate how core dimensions of historical thinking—perspective, causality, continuity and change, source interpretation, and contestability—can inform game design. The analysis suggests that elements of historical practice, such as handling ambiguity or reconstructing meaning from fragmentary evidence, can be adapted into interactive systems. Yet integrating broader historiographical frameworks into games remains difficult, often constrained by the risk of oversimplification or didacticism. Rather than proposing a fixed typology, the paper offers a flexible tool for mapping connections between historical inquiry and game design. It invites further experimentation at the intersection of these fields.

CCS Concepts

• **Applied computing** → Arts and humanities; • **Human-centered computing** → Human computer interaction (HCI); HCI design and evaluation methods; Heuristic evaluations; Human computer interaction (HCI); HCI theory, concepts and models.

Keywords

Historiography, Game Design, Historical Game Studies, Historical Videogames, Game Adaptation

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1 The Spectrum of So-Called “Historical” Games and History as a Discipline

Since the release of Sid Meier’s Civilization (1991), so-called “historical” videogames have expanded in scope and complexity to create a sense of authenticity among the players. Grand strategy games like Europa Universalis IV (2013) and Crusader Kings III (2020) embed historical themes within data-rich environments. Role-playing games such as Kingdom Come: Deliverance (2018) aim to reconstruct the social conditions of specific historical periods, with a focus on everyday life. Mainstream titles like Assassin’s Creed Origins (2017) and Odyssey (2018) offer open-world representations of ancient Egypt and Greece, marketed for their visual fidelity, often perceived by players as authentic portrayals of the past [1].

Alongside, smaller projects position themselves more explicitly in dialogue with historical research. These games designed with the explicit purpose of conveying historical arguments have been named “scholarly game” [2: pp. 2–3, 5] as opposed to the bulk of so-called historical games or historical-themed games [4: p. 11]. Outbreak (2009), a simulation of the 1885 Montreal smallpox outbreak, was co-created by a historian with an emphasis on historical accuracy [5]. Astrologaster (2019), based on the casebooks of early modern physician Simon Forman, was developed with input from a research team. Penitence (2022), a narrative-driven game designed by Josh Sawyer—who holds a degree in history—incorporates Reformation-era tensions through the lens of a fictional Bavarian town. The board game SealJT (2022), developed by historian Apostolos Delis, places players in the role of a shipowner during the transition from sail to steam, drawing directly from his EU-funded research project. Inkulmati (2023) is a strategy game that draws inspiration from medieval manuscript marginalia.

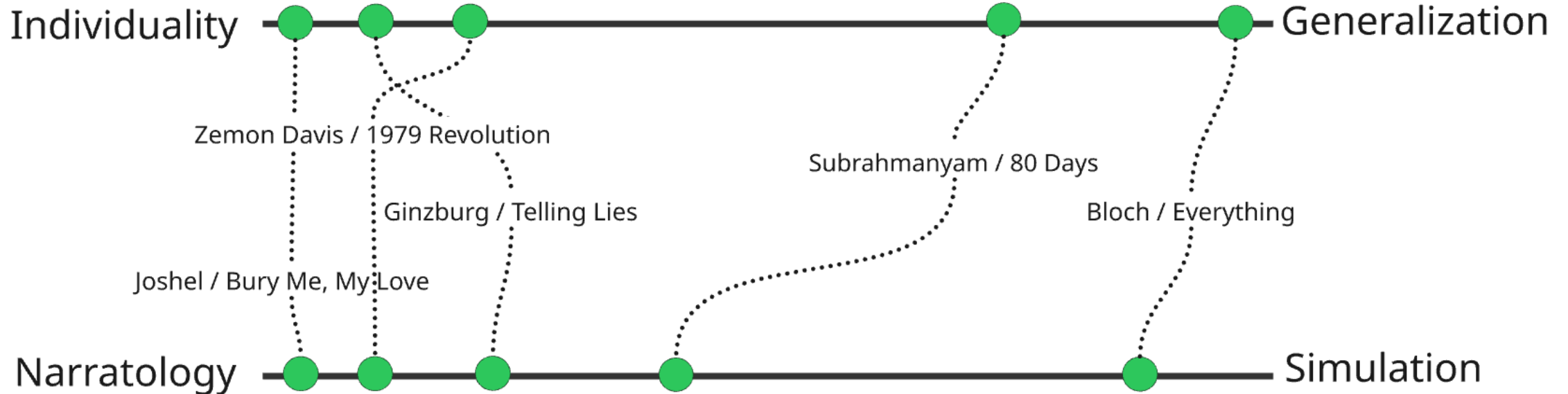
Strange Sickness (2022) may be one of the few games developed by historians that not only draws on archival research—in this case, the medieval burgh records of Aberdeen—but also aims to involve players in the epistemological dimensions of historical practice. According to its lead historian-developer, the goal was for the game “to be perceived as our creation as historians,” foregrounding the research process as part of the gameplay experience [6]. This game meets the criteria for what could be termed a “historiographical videogame” or a “computer game for history” [7: p. 856], given its explicit engagement with historical accuracy and interpretation.

A heuristic tool to bring historiography into dialogue with videogame design

First axis: History's tension between micro-focused studies and broader, pattern-seeking approaches.
Second axis: Game studies' debate—games as stories vs. games as simulations.

Axes run in parallel. They help organize thought, make comparisons, and spark analysis:

- Which games fit certain historiographical logics?
- Which historical approaches align with specific game mechanics?

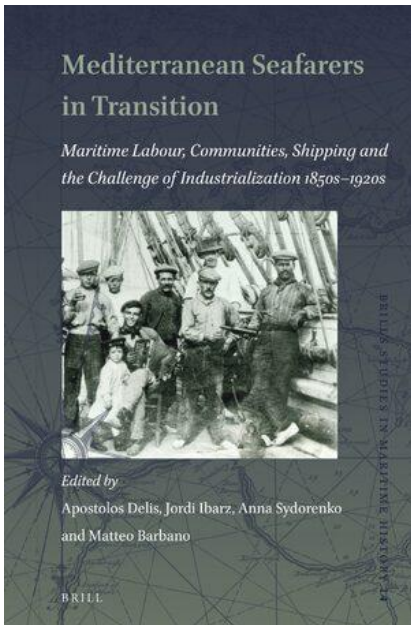


Individuality

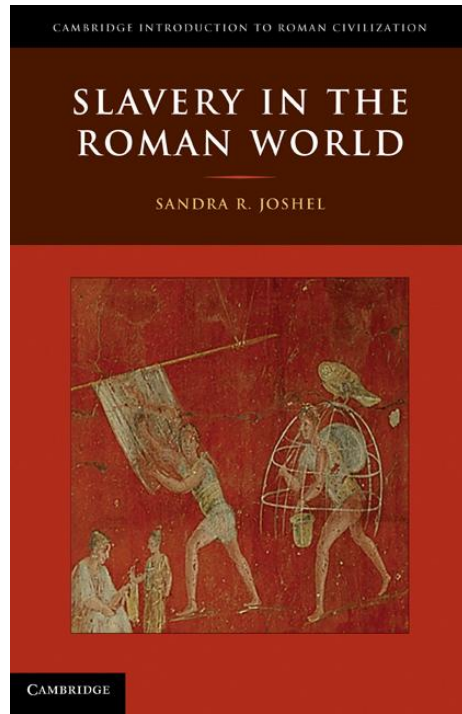
Generalization

Narratology

Simulation



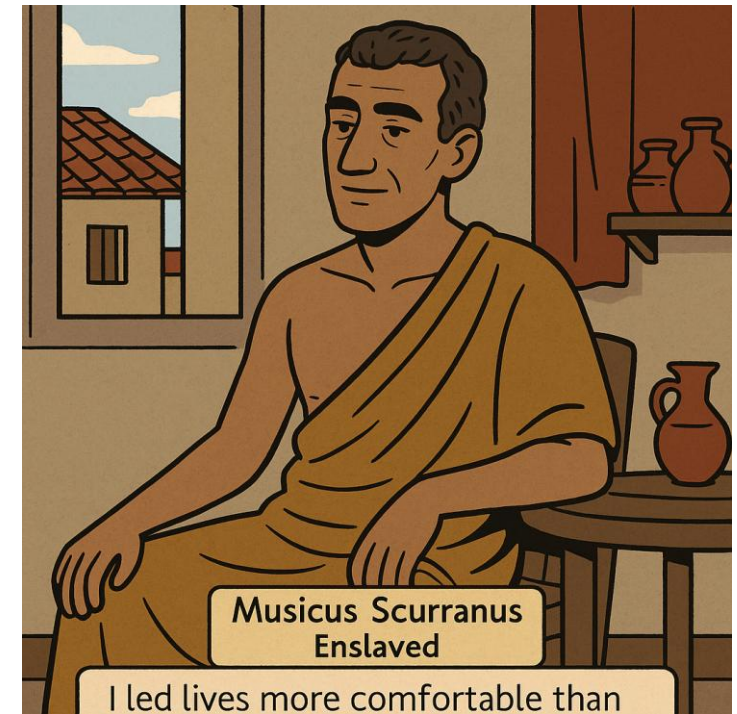
Apostolos Delis, Jordi Ibarz, Anna Sydorenko, and Matteo Barbano, *Mediterranean Seafarers in Transition. Maritime Labour, Communities, Shipping and the Challenge of Industrialization 1850s — 1920s*, Brill's Studies in Maritime History, volume 11, Brill, Leiden 2022



SLAVERY IN THE ROMAN
WORLD Sandra R. Joshel, 2010



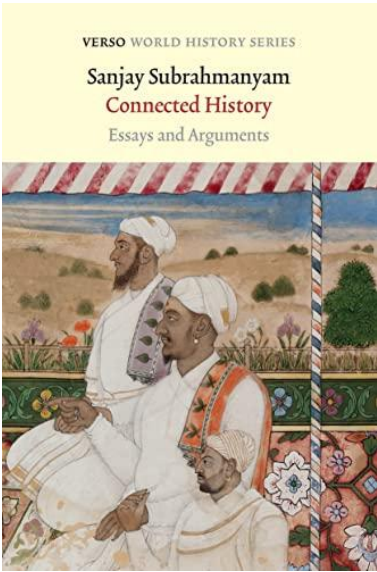
BURY ME, MY LOVE
The Pixel Hunt, 2017



Fictional Visual Novel:
SLAVERY IN THE ROMAN WORLD
Joshel, TBA

My paper applies this framework through hypothetical pairings of classic historical studies and popular videogames.

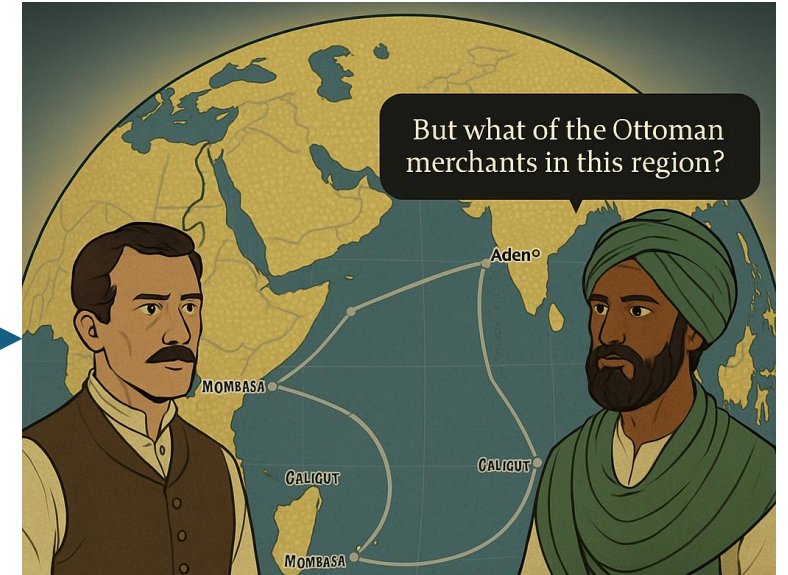
The goal isn't a one-to-one translation, but to explore **if and how games can engage with similar interpretive questions.**



CONNECTED HISTORY... Sanjay Subrahmanyam, 2022



80 DAYS Inkle, 2014



Fictional Game: CONNECTED HISTORY, Subrahmanyam, TBA

For Historiography - I used historians' reflections in their works and published reviews.

For Game Systems - I used game creators' interviews and reviews (written or video), showing player and audience perspectives.

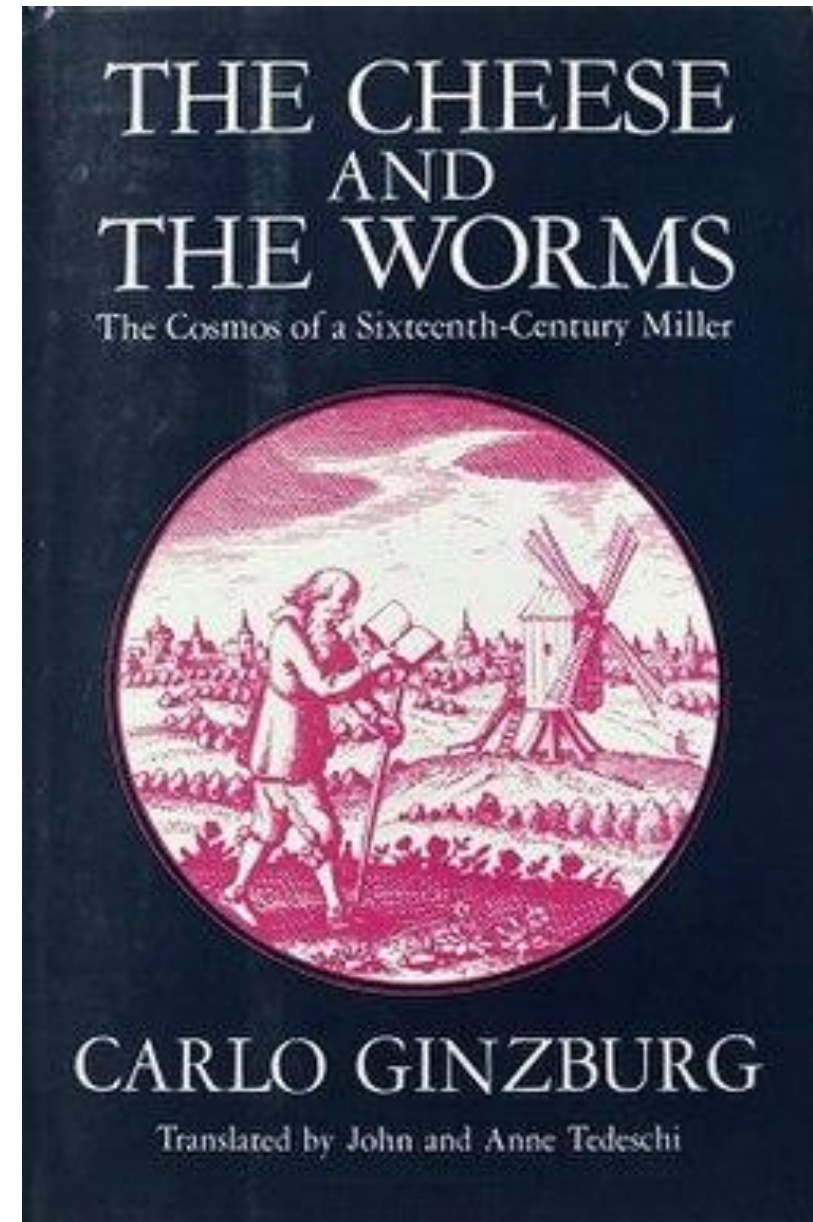
I used key historiographical dimensions: perspectives; causality, continuity, and change; sources and significance; contestability.



HER STORY Sam Barlow, 2015.



TELLING LIES Sam Barlow, 2017.

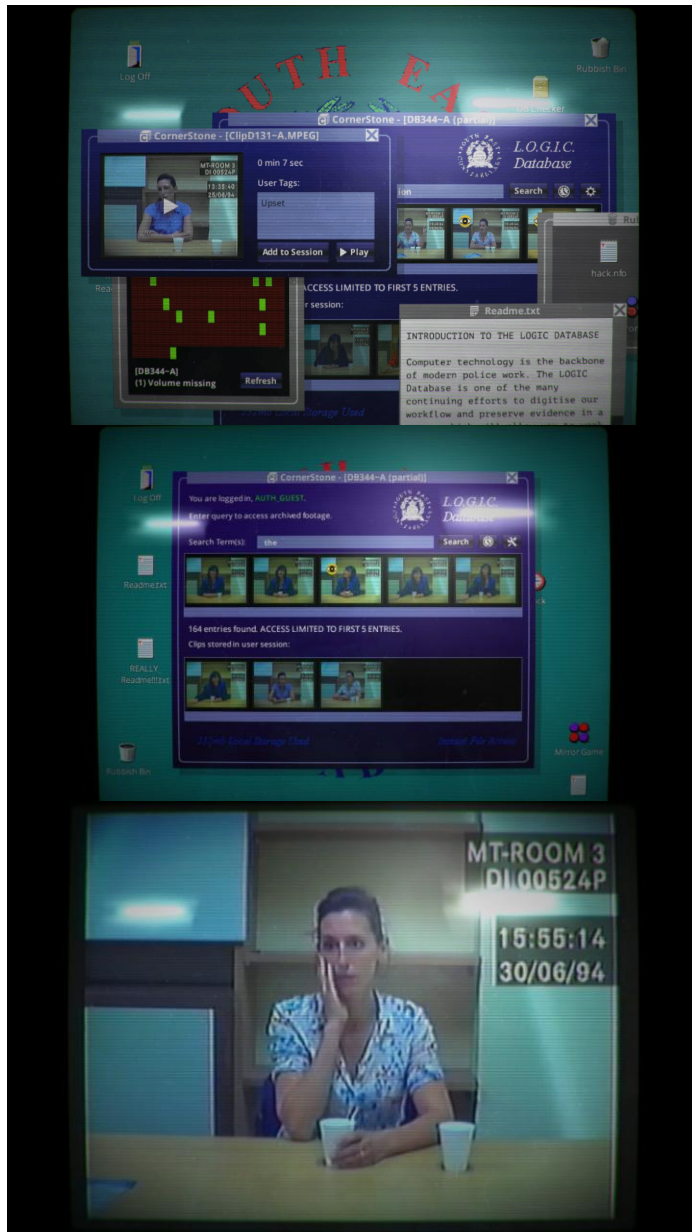




HER STORY Sam Barlow, 2015.

[trailer](#)

Her Story sits you in front of a desktop computer that's logged into a police database of video footage. The footage covers seven interviews from 1994 in which a British woman is interviewed about her missing husband. Explore the database by typing search terms, watch the clips where she speaks those words and piece together her story.



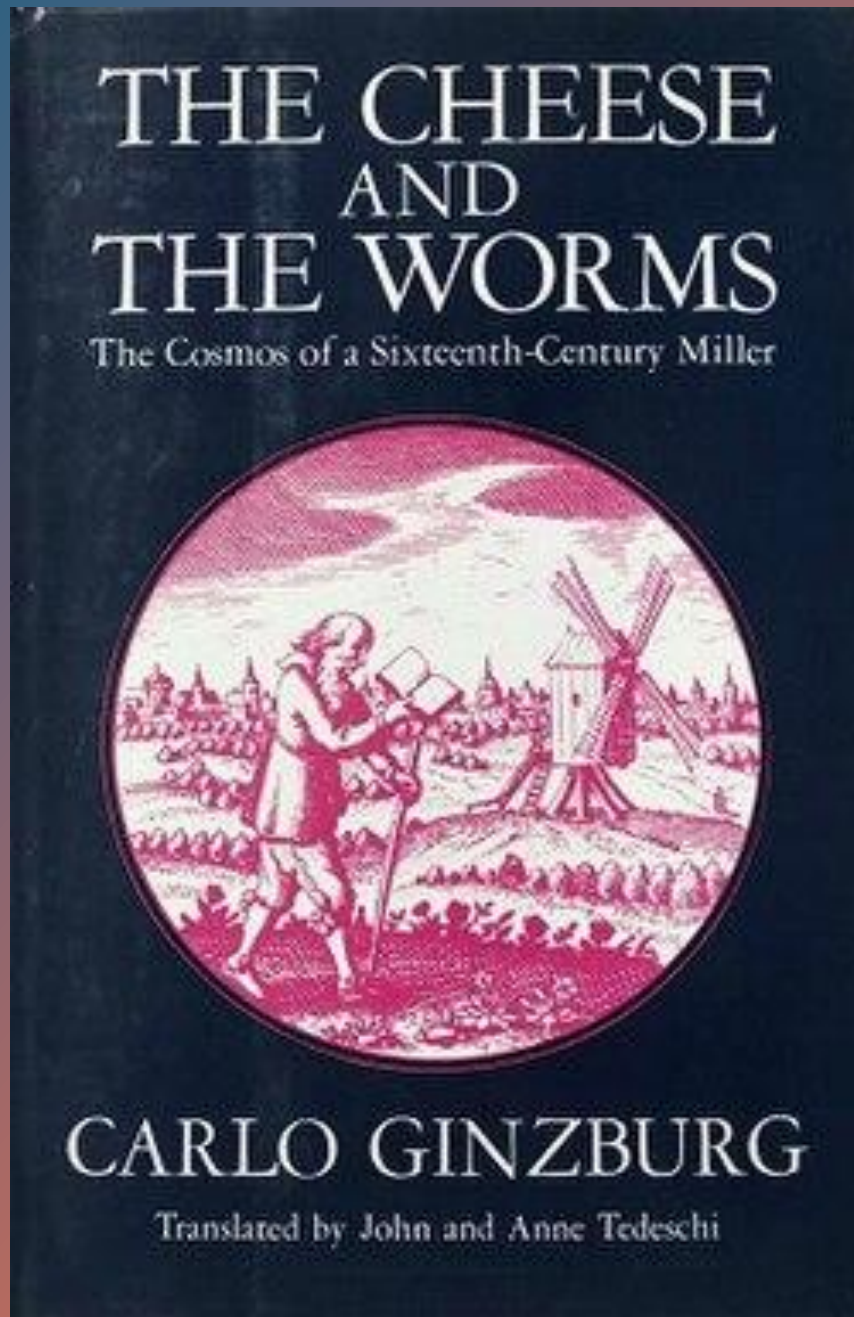
Her Story (Sam Barlow, 2015)

Sam Barlow's interactive films simulate the work of sorting through fragmented data—texts, images, videos—pushing players to infer, cross-reference, and piece together events or identities.

These structures highlight the **subjectivity of sources**—how evidence is shaped by viewpoint and context.

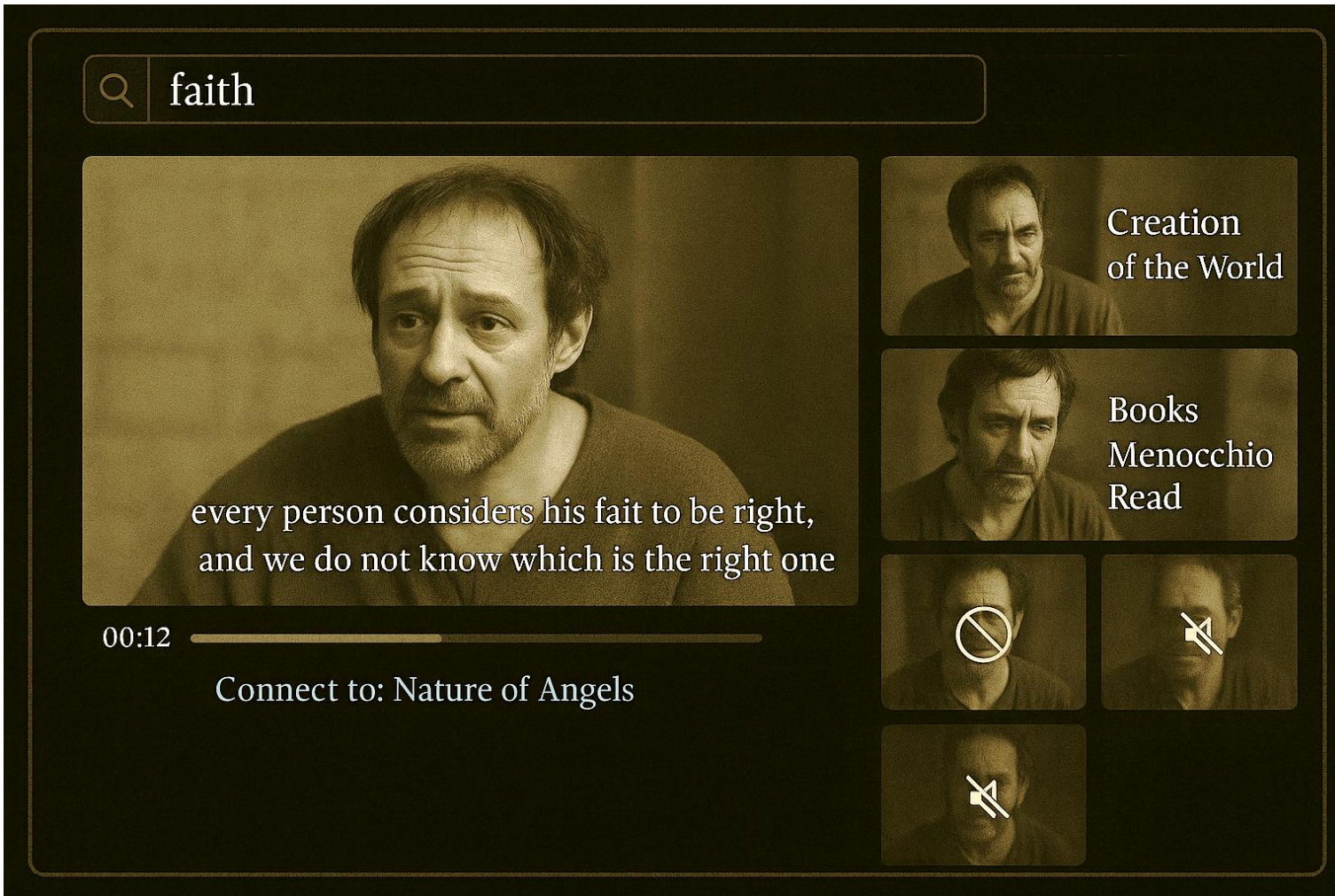
Adapting these models to history pushes us to ask: *Who made this? Under what conditions? What might be missing?*

It sharpens our sense of provenance, intent, and genre—while reminding us that archives often resist clear or final answers.



Carlo Ginzburg's *The Cheese and the Worms* (1980) reconstructs the worldview of Menocchio, a 16th-century miller, from two inquisitorial trials (1584, 1599).

His voice reaches us only through interrogators' notes and transcribed testimonies. This raises problems of evidence—and the deeper challenge of interpretation.

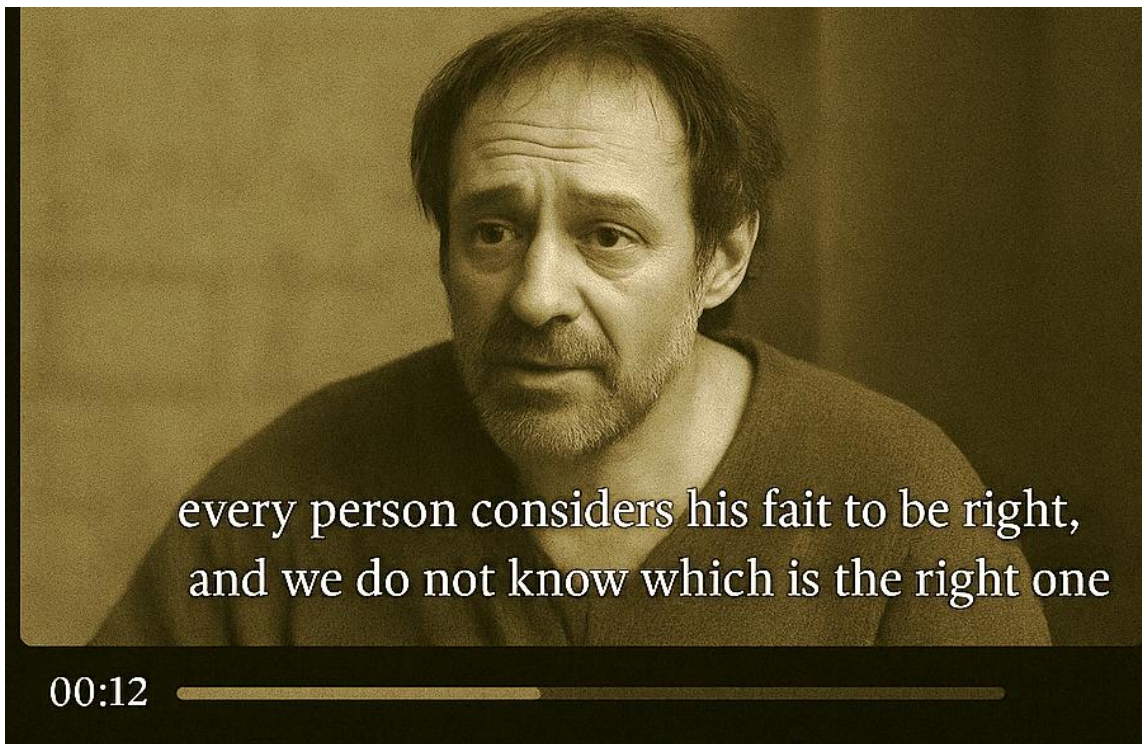


A game based on *The Cheese and the Worms* would need to work on two levels:

As a **primary source**—a narrative built from inquisitorial records.

As a **secondary source**—an interpretation that places one life within wider social currents.

Fictional Game THE CHEESE AND THE WORMS Carlo Ginzburg, TBA.



every person considers his fait to be right,
and we do not know which is the right one

00:12

“every person considers his faith to be right, and we do not know which is the right one” [p. 106],

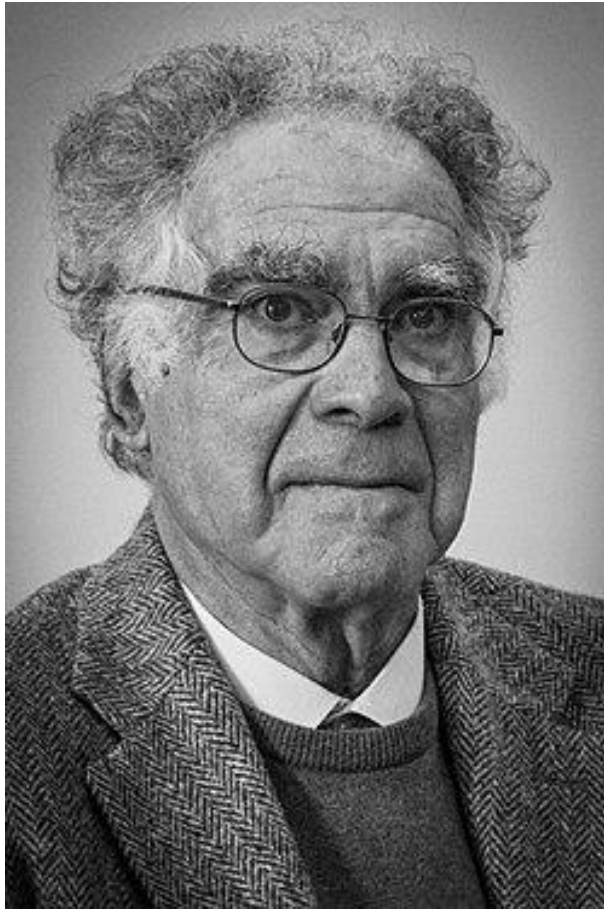
“All was chaos, that is earth, air, water, and fire were mixed together; and of that bulk a mass formed—just as cheese is made out of milk—and worms appeared in it, and these were the angels.” [p. 2]

“I have discussed things with so many people that now I cannot remember who they were” [p. 111],

One design solution is to limit access to documents—so players must read against the grain and reconstruct Menocchio’s beliefs from partial records.

Mechanics like *Her Story* (2015)—where only one side of a conversation appears—could simulate archival asymmetry.

The player’s task: piece fragments into a coherent story, mirroring the historian’s process.



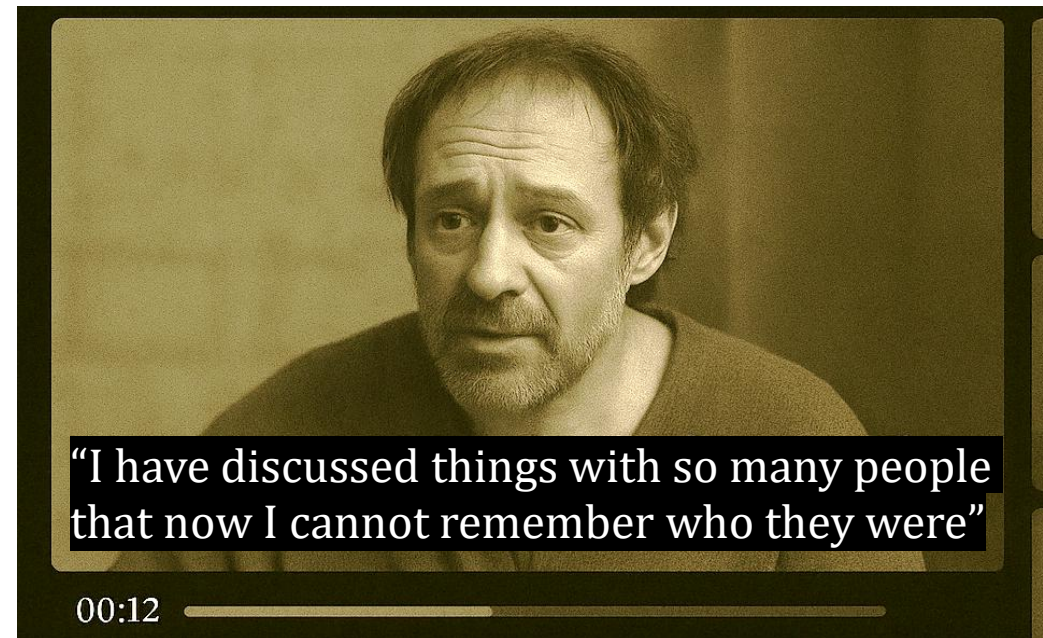
Carlo Ginzburg (1939 -)

The second challenge is tougher: **generalizability** in Ginzburg's method.

Menocchio's story is a window into bigger debates on popular culture—what Ginzburg calls an “autonomous current of peasant radicalism.”

He shows how oral traditions, print, and local beliefs shaped this. Printing gave Menocchio the words to challenge what he knew.

And the Reformation gave him the confidence to voice those ideas—to his priest, his neighbors, and finally the Inquisition.

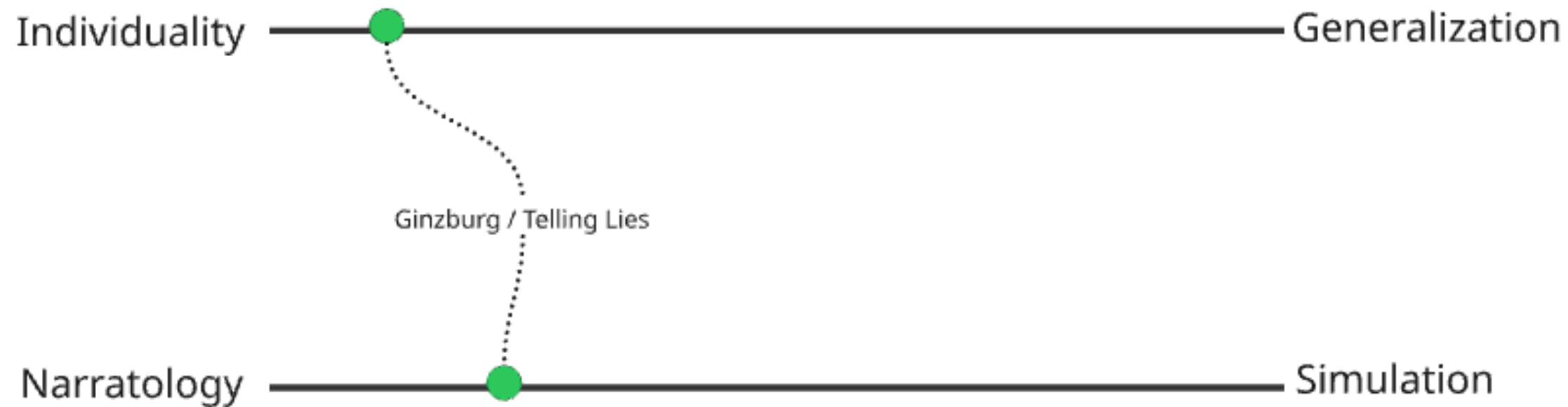


Barlow's games dramatize how evidence is reconstructed.

But they would struggle to capture the wider analytical frame of Ginzburg's microhistory.

Popular consciousness in pre-industrial Europe is hard to turn into gameplay without becoming didactic.

So while a game can simulate inference and archival gaps, it risks losing the historiographical context around Menocchio's testimony.





Historians can make their arguments **playable**—by creating games or using them in/as research—and to treat this work as part of both history and game studies.



This is not easy. Many still see games as trivial, most historians lack design skills, and not every argument works in game form. The risks include oversimplification or lack of recognition.



But these are not barriers. They invite us to ask: **when and how can history be best expressed as a game?**

References:

- Baer, A. (2001). Consuming history and memory through mass media products. *European Journal of Cultural Studies*, 4(4), 491–501. <https://doi.org/10.1177/136754940100400405>
- Bazile, J. A. (2022). An “alternative to the pen”? Perspectives for the design of historiographical videogames. *Games and Culture*, 17(6), 855–870. <https://doi.org/10.1177/15554120221115393>
- Bolt, B. (2007). The magic is in handling. In E. Barrett & B. Bolt (Eds.), *Practice as research: Approaches to creative arts enquiry* (pp. 27–34). I.B. Tauris.
- Candy, L., & Edmonds, E. (2018). Practice-based research in the creative arts: Foundations and futures from the front line. *Leonardo*, 51(1), 63–69. https://doi.org/10.1162/LEON_a_01471
- Champion, E. (Ed.). (2021). *Virtual heritage: A guide*. Ubiquity Press. <https://doi.org/10.5334/bck>
- Chapman, A. (2013). Is Sid Meier’s Civilization history? *Rethinking History*, 17(3), 312–332. <https://doi.org/10.1080/13642529.2013.774719>
- Chapman, A. (2016). *Digital Games as History. How Videogames Represent the Past and Offer Access to Historical Practice*, New York, NY: Routledge.
- Giannini, T., & Bowen, J. P. (Eds.). (2019). *Museums and digital culture: New perspectives and research*. Springer International Publishing. <https://doi.org/10.1007/978-3-319-97457-6>
- Glas, R., Lammes, S., de Lange, M., Raessens, J., & de Vries, I. (2019). *The playful citizen: Civic engagement in a mediatized culture*. Amsterdam University Press. <https://doi.org/10.5117/9789462982276>
- Li, N. (2020). Playing the past: Historical video games as participatory public history in China. *Convergence: The International Journal of Research into New Media Technologies*, 27(3), 746–767. <https://doi.org/10.1177/1354856520967606>
- Liarokapis, F., Shehade, M., Aristidou, A., & Chrysanthou, Y. (Eds.). (2025). *Interactive media for cultural heritage*. Springer. <https://doi.org/10.1007/978-3-031-61018-9>
- Matei, Ș. (2023). The technological mediation of collective memory through historical video games. *Games and Culture*, 20(4), 477–498. <https://doi.org/10.1177/15554120231206862>
(Original work published 2025)
- McCall, J. (2012). Historical simulations as problem spaces: Criticism and classroom use. *Journal of Digital Humanities*, 1(2). <https://journalofdigitalhumanities.org/1-2/historical-simulations-as-problem-spaces-by-jeremiah-mccall/>
- Mochocki, M., & Kot, Y. (2025). Historical consultants in the CEE video game industry. *Homo Ludens*, 17(2). <https://doi.org/10.14746/HL.2024.17.2>
- Schmitz, J., Vogl, M., Kaye, A., & Schlattmann, R. (2025). Simulating historical communication networks in Python. *Programming Historian*. <https://doi.org/10.46430/phen0122>
- S. Dawn. (2015). Gaming history: Computer and video games as historical scholarship. *Rethinking History*, 19(2), 207–221. <https://doi.org/10.1080/13642529.2014.973714>
- Society for Artistic Research. (n.d.). Research catalogue. <https://www.researchcatalogue.net>

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<https://doi.org/10.1145/3749012.3749043>


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VISUALISATION SOLUTIONS FOR DIGITAL HISTORY



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- open-access research tool for primary historical materials.

- [Engineering Historical Memory \(EHM\)](#)
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Aim: Encourage historians to engage with video games as platforms for adaptation, exploration, dissemination, and practice-based research.

For an introduction to video games and historical sciences, refer to [Gluzman, 2025](#).

All EHM items

Historically themed video games, whether explicitly marketed as 'historical' or not, have become powerful mediators of public memory, shaping how players experience and understand the past in ways that often surpass books or museums ([Baer, 2001](#), [Li, 2020](#), [Matei, 2023](#)). Yet while these games are among the most widely consumed forms of history today, the discipline has been slow to recognize them as legitimate historical narratives despite their capacity to function

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"Video Games" redirects here. For other uses, see [Video Games \(disambiguation\)](#). "Computer game" redirects here. For games played on personal computers, see [PC game](#). For other uses, see [Computer game \(disambiguation\)](#).

A **video game**,^[a] **computer game**,^[b] or simply **game**, is an [electronic game](#)

[1r]

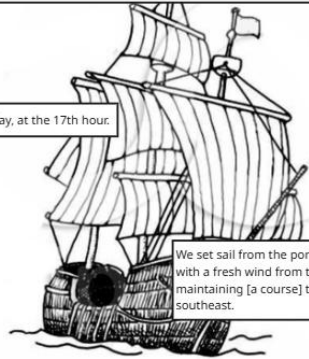
Praise be to God

August 8, 1567



Voyage to Cyprus aboard the *Glustiniana*

Friday, at the 17th hour.



We set sail from the port of Venice with a fresh wind from the west, maintaining [a course] toward the southeast.

[As the day went on,] the wind gradually decreased to a light breeze and shifted to the south-southeast.

From there, we continued with a northeast tack until sunset.

◆ Venice

Afterward, [the wind] shifted to the north, and we changed direction [to southeast].

We sailed for 4 or 5 hours with a fresh wind from the west, maintaining [a course] toward the southeast.

so that by morning, approximately 15 to 20 miles [were made] in that direction.

DAY 2

Saturday, 9 August



Saturday, at sunrise.

The wind turned adverse [to us], coming from the southeast.



We sailed close-hauled towards south-southwest, making headway with a pleasant breeze.

At sunset, the wind shifted to the southwest.

And [while] keeping a course towards southeast-by-east, the wind veered to the west.

so that at sunrise I estimate we made about 40 miles in that direction

SSE 40 miles

A Ship's Voyage to Cyprus, 1567

Based on a 16th-century logbook, the navigation simulator allows players to explore the ship's performance, practice navigation with sixteenth-century tools, and situate their experience within the broader context of maritime geopolitics.

Data produced through gameplay offers a reconsideration of long-held assumptions about Mediterranean navigation techniques and sailing routes.