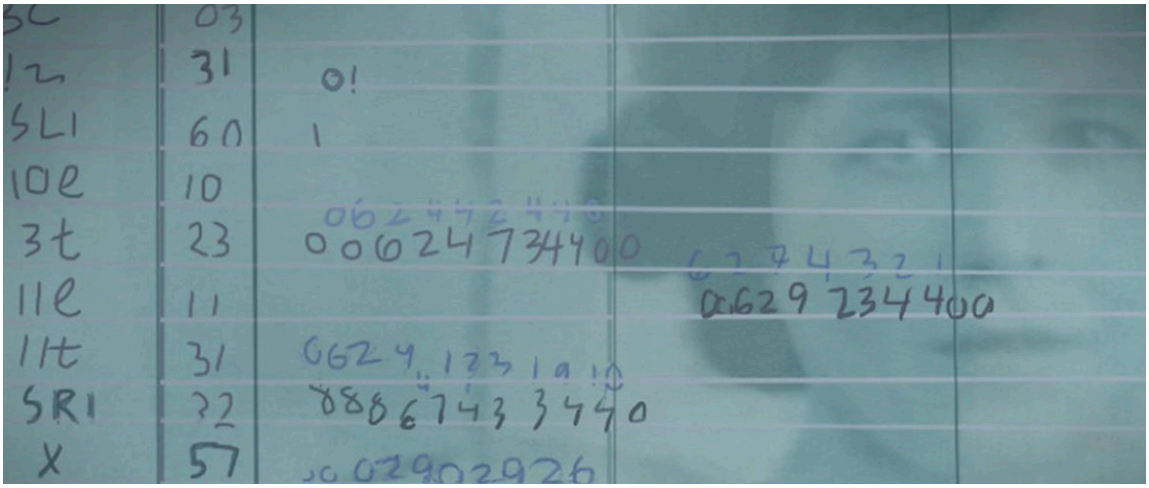
REVEALING LOST WOMAN OF SCIENCE KLÁRI DÁN VON NEUMANN

CHM

DISCUSSION GUIDE



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Unrecognized during her lifetime for her remarkable achievements, Klara (Klári) Dán von Neumann, born in Hungary in 1911, was a talented programmer in the very new field of computing. She wrote some of the first modern-style code and was involved in the Monte Carlo simulations of atomic and thermonuclear explosions immediately after World War II. Like other women in STEM at the time, she worked in the shadow of a brilliant husband, John von Neumann.

Computer historian Thomas Haigh and journalist and *Lost Women of Science* host Katie Hafner shared how they uncovered Klári's life and work with moderator Maria Klawe, president of Harvey Mudd College on the CHM stage.

About This Guide

This guide introduces provocative questions for reflection and conversation to enhance and extend what you learn through watching the video. It is suitable for mature high school students and college and adult learners in an educational, professional, or social setting. It may be particularly interesting for people who are curious about women in tech and the intersections of war and computing in history.

Watch Video

Total viewing time: 1:14:36

For Discussion

Calculated Moves (9:59)

Thomas Haigh describes the motivation for the Army to develop the first electronic computer in the 1940s, displacing "several hundred women" who were doing calculations by hand.

1. What kind of training do you think these women had? Where could they apply their skills when they lost their jobs?
2. How do you think these women felt about being replaced by a machine?

Finding Klári (13:43)
Katie Hafner notes that Klári's papers are archived at the Library of Congress, but they are buried within her husband's 55 boxes and are in Hungarian.

3. What makes Klári's papers particularly difficult for a researcher to discover and use?
4. Why do you think Klári's papers were not processed separately from her husband's?

A Lively Mind (15:05)
Katie describes Klári's upbringing in a wealthy Jewish family, her early life in Budapest, and meeting John von Neumann at a casino in Monte Carlo in the 1930s and later marrying him.

5. What parts of Klári's life seem typical of a woman of her time? Which do not? Why?
6. Describe what you think of as a person with a "lively mind." Did you imagine a man or a woman? Why?

Monte Carlo (20:35)
Thomas explains why mathematical simulations were needed for the atomic bomb and Klári's role programming the new Monte Carlo simulation into the computer.

7. What impact did Klári's work on probability simulations have then and today?
8. How do you think Klári may have felt about working on an atomic bomb? What clues from her life do you have to support your position?

The Spouse Effect (26:08)
Katie explains that women were pulled into computing work to help the war effort and then migrated into computer programming, which was seen as simple, almost clerical work at the time.

9. Do you think women would have had a chance to become computer programmers without the war, their husbands, or misconceptions about what it involved?
10. How do you think Klári's comparative lack of education was viewed by the other spouses? Other men? Herself?

Beyond Coding (32:18)
Thomas describes how Klári's role with the Monte Carlo simulations expanded after the war to include writing reports and briefing Nobel Prize-winners at Los Alamos on the significance of the results.

11. Klári's key role was not unusual among the scientific couples involved with Los Alamos. Do you agree with Thomas that these couples were like "tennis doubles"? Why or why not?
12. How do you think Klári may have felt about being termed the "bonus spouse"? What evidence about her relationship and career aspirations could provide clues?

Finding Women (35:15)
Maria Klawe asked why is it important to dig up stories like Klári's and to celebrate women leaders in computer science.

13. What can these kinds of stories tell us about the culture and society in which we live? What do they tell us about history?
14. Is there a problem with turning historical figures into what Thomas calls "patron saints of representation and opportunities in computing for women."
15. Do you agree with Maria that the reason girls did not become computer science majors was because early personal computer games were aimed at boys' interests?

Great (Wo)Man Theory (43:22)
Katie argues that the "great man" or "great woman" theory of history, which treats past leaders as historical outliers, inaccurately portrays how science is done.

16. Do you agree that it's important to shift mindsets from heroes to teams? Why? What will be gained? What could be lost with that focus?
17. Why do you think the "lone genius" story is so popular in American culture?

Getting It Right (46:26)
Maria asks, "Why do we need the careful, laborious, and expensive work undertaken by the Lost Women of Science team to tell someone's stories accurately?"

18. Do you think the effort put in to unearthing Klári's story was worthwhile? Why or why not?
19. What is the role of storytelling in preserving history? What are the pros and cons of this method?

Additional Resources

There at the Creation: Klara Dán von Neumann and the Birth of Computer Programming (blog)

Programming the ENIAC: An Example of Why Computer History Is Hard (blog)

Establishing a Pattern: Von Neumann at the IAS (online exhibit)