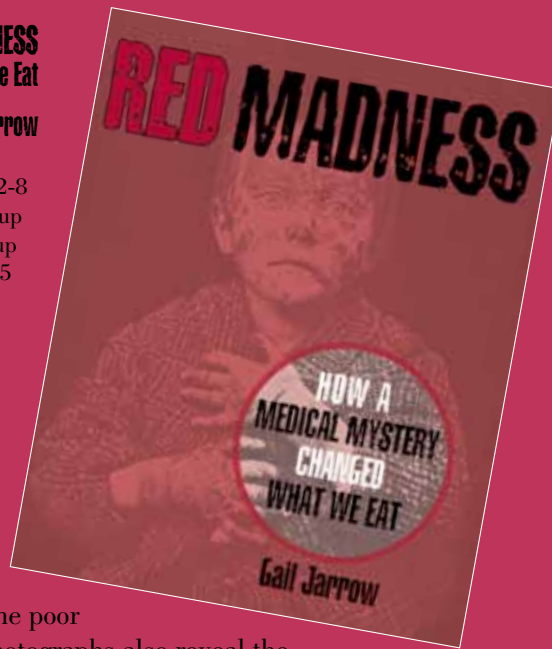


RED MADNESS
How a Medical Mystery Changed What We Eat
By Gail Jarrow

978-1-59078-732-8
Ages 10 and up
Grades 5 and up
\$16.95



★ “. . . This is a highly detailed look at the difficulties of disease control before modern medicine. Jarrow makes clear how societal attitudes hampered efforts to end the scourge as well as the vulnerability of the poor and marginalized. The many photographs also reveal the devastating nature of the disease. . . The attractive, red-highlighted design, lively narrative and compelling subject matter will resonate with readers.” —*Kirkus Reviews*, starred review

★ “. . . This title is descriptive and well researched, with a striking bold-red color scheme. Though the images are graphic and potentially disturbing, they are not sensationalized, and enhance the narrative. This is an excellent addition to nonfiction collections in school and public libraries.”
—*School Library Journal*, starred review

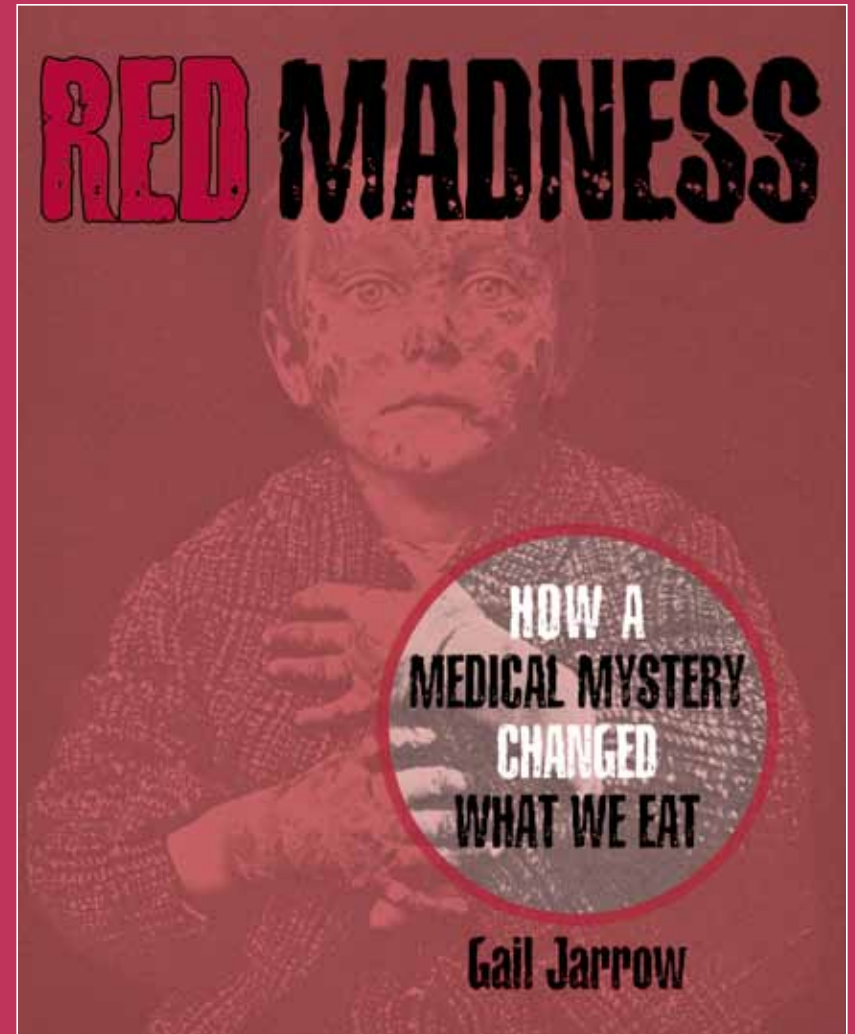
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For the complete Common Core State Standards, visit corestandards.org/ELA-Literacy.

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Educator's Guide



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One hundred years ago, a mysterious and alarming illness spread across America’s South, striking millions of victims. No one knew what caused it or how to treat it. People were left weak, disfigured, insane, and, in some cases, dead. Many were left to worry—would they be pellagra’s next victims?

In this compelling book, award-winning science and history writer Gail Jarrow tracks this disease and highlights how doctors, scientists, and public health officials struggled to stop the epidemic, sometimes risking their own lives in the process. Illustrated with one hundred archival photographs, *Red Madness* also includes *Frequently Asked Questions*, a glossary, timeline, further resources, author’s note, bibliography, and index.

This educator’s guide offers discussion questions and activities that will further students’ understanding of *Red Madness*. Each question is aligned with the Common Core State Standards in English Language Arts. While we’ve noted connections to the Standards for the eighth grade, you can find coordinating objectives for other grades at www.corestandards.org/ELA-Literacy.

Common Core abbreviations used in this guide:

RI—Reading: Informational Text

SL—Speaking & Listening

W—Writing

Before Reading

Divide your classroom into reading pairs. Ask your students to brainstorm a list of diseases that they have heard of, either diseases that currently plague people or ones that have been eradicated in the past or modern times. After the students make their lists, ask them to put a checkmark next to diseases that are curable. *(SL 8.1)*

While Reading

Vocabulary

As students read the text, they can fill out the following chart to discover the meaning of unknown words in context. *(RI 8.4)*

| New word discovered while reading | How it appears in the text | What I think it means based on that context | Dictionary definition |
|-----------------------------------|---|---|-----------------------|
| Quenched (page 7) | He had a constant thirst, and no amount of water quenched it. | Got rid of it | satisfy |
| | | | |
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Discussion Questions

(Discussion questions meet the standards for Speaking & Listening 8.1a and 8.1c, in addition to the Reading standards noted below.)

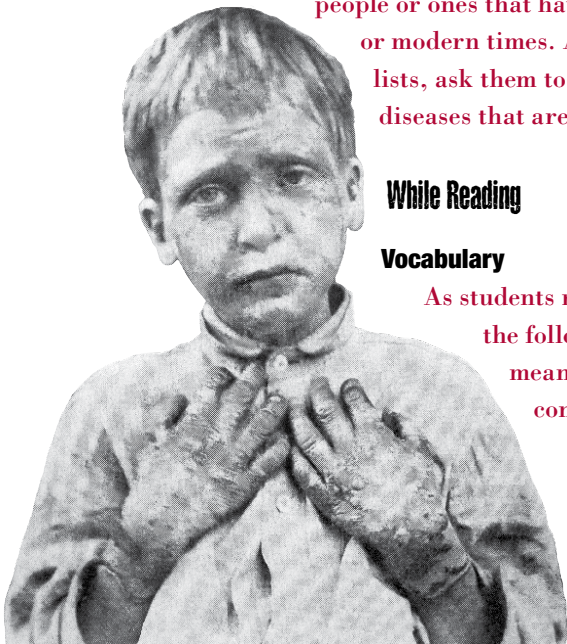
Chapter One: Glove, Boot, Necklace, and Butterfly

- What are the symptoms of pellagra? What parts of the body were typically affected? *(RI 8.1)*
- How did Dr. George Searcy get involved in the investigation at Mount Vernon Insane Hospital? What experiment did he decide to conduct, and what were the results? *(RI 8.3)*
- What made Dr. James Babcock interested in the pellagra mystery? What clues did he follow? Why was the disease so difficult to diagnose? *(RI 8.2)*
- After reading the “Pellagra in Europe” section on pages 20–21, explain why people continued to eat corn in Italy, even if they suspected it was the source of the disease. *(RI 8.3)*
- Find the textual evidence that explains how the U.S. government first began working to understand and control the spread of diseases. *(RI 8.1)*
- Summarize how Surgeon General Wyman tried to discover how widespread the disease was in America in the early 1900s. *(RI 8.2)*
- What is the structure for the “Pellagra in Europe” section? How do you think the author organized her research into this structure? How does it help the reader to understand the material? *(RI 8.5)*

Chapter Two: Baffled by Pellagra

Find textual evidence that shows what the earliest treatments for pellagra were in America. *(RI 8.1)*

Why did doctors still feel “in the dark” after a conference on the disease? List and describe the theories that were explored at the conference. *(RI 8.2)*





Why do you think pellagra madness was the most dreaded aspect of the disease? *(RI 8.1)*

Outline how cotton mills changed the structure of many families in the south after the Civil War. List each main idea of this section with supporting details beneath it. *(RI 8.5)*

Chapter Three: Tackling the Mystery

Why does the author include the maps on page 39 as part of the

book? What conflicting evidence is revealed and explained by their inclusion? What can the reader conclude? *(RI 8.6)*

Summarize the findings that Dr. R. M. Grimm discovered in his travels to communities in Georgia, Kentucky, and South Carolina in 1911 and 1912. *(RI 8.2)*

Compare and contrast the investigation in Illinois to the one in South Carolina. *(RI 8.3)*

List the questions that researchers tried to answer as they studied the disease. Why did they draw so many incorrect conclusions? *(RI 8.2)*

List the possible theories of the disease and its cause. What inferences can be drawn about the proliferation of the disease based on these misguided theories? *(RI 8.1)*

Compare and contrast the system of tenant versus sharecropper farming. Draw inferences about how these systems helped to perpetrate pellagra. *(RI 8.1)*

Chapter Four: Infection!

Why were immigrants, especially those from Italy, blamed for the disease's appearance in America? *(RI 8.1)*

Determine the author's purpose for including the "Who's At Risk?" section. How does she acknowledge the conflicting viewpoints on the dreaded disease? *(RI 8.6)*

Find key quotes from the text that show the patterns that Grimm was able to discern in his research. Why were some of his findings dismissed? *(RI 8.1)*

The section titled "Don't Kiss a Pellagrin" discusses what important aspect of the disease? *(RI 8.2)*

What are the central ideas of the "Doctor's Orders" and "The Blood Treatments" sections? What inferences and conclusions can you draw about the

treatment methods described in these sections? Why were the effects of certain methods unclear? *(RI 8. 2)*

What is "quack medicine"? What types of products were sold that promised to cure the disease? What types of ingredients were included in the products? What was their efficacy based on? *(RI 8.2)*

Chapter Five: Goldberger on the Case

Explain how the disease could push a poor family deeper into poverty. *(RI 8.1)*

What is the key idea behind the section titled "Immigrant Boy"? Why do you think the author included this mini-biography of Dr. Joseph Goldberger? Which sentences best support the point of this section? *(RI 8.5)*

How did Goldberger become an epidemic sleuth? Cite details that best show his passion and dedication to his work. *(RI 8.1)*

Devise a timeline or summarize the steps of how Dr. Goldberger solved the case of the "Itchy Crew Members" in a matter of days. *(RI 8.2)*

Chapter Six: The 3-M Diet

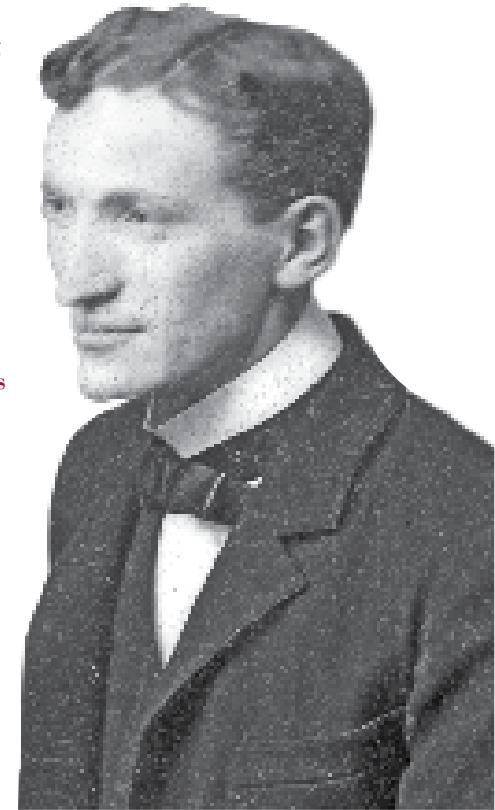
Create a list of important observations that Goldberger made at hospitals for the insane and at orphanages. Why were these close examinations so vital to the discovery? What did he note in particular? *(RI 8.1)*

What did the 3-M diet consist of? What conclusions did Goldberger draw concerning these eating habits? Who typically lived on the 3-M diet and why? *(RI 8.1)*

How did Goldberger experiment on the orphans? What did he deduce from the experiments? Find a key quote that shows how the children themselves felt about his work. *(RI 8.1)*

Explain how Governor Brewer found willing human guinea pigs for Goldberger's plan to infect people intentionally with the disease. Summarize what happened in the experiment. *(RI 8. 1, 8.2)*

What conclusions were drawn and published about Goldberger's experiments? Compare how Goldberger solved the mystery with the attempts of hundreds of doctors and scientists who came before him. *(RI 8.3)*



Chapter Seven: The Filth Parties

Why were people so opposed to Goldberger's theory on a nutritious diet? How did he explain wealthy pellagra patients? (RI 8.2)

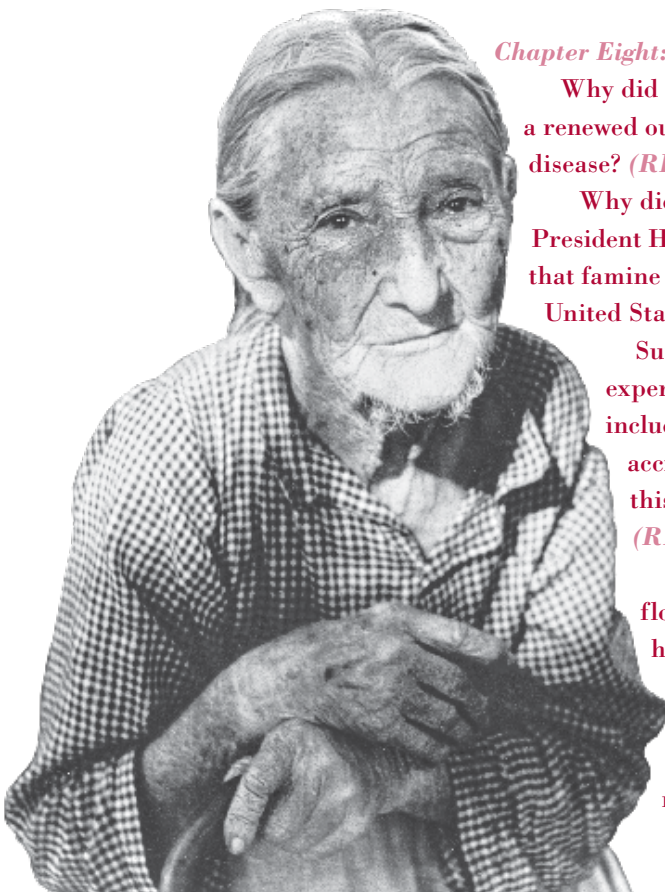
How did Goldberger feel about his opponents and naysayers of his theory? Explain how he tried to fight the backlash. (RI 8.2)

What was the point of creating a pellagra pill and hosting filth parties? Why were so many people (including his own wife) willing to help Goldberger? (RI 8.1)

Why did Goldberger decide to focus on cotton mill villages? Find a key quote that best reflects Goldberger and his team's approach to data collection in the villages. Why was there a discrepancy between Goldberger's conclusions and previous conclusions that had been drawn by studying the same population? (RI 8.1, 8.3)

Compare and contrast the villages where people were free from the disease and the villages that suffered with it. What conclusions can be drawn about crops in the south? (RI 8.6)

The knowledge concerning a balanced diet was still not enough to stop the disease entirely in its tracks. Why? (RI 8.1)



Chapter Eight: The Hidden Factor

Why did the cotton crisis bring on a renewed outbreak of the dreaded disease? (RI 8.1)

Why did the South rankle at President Harding when he declared that famine and plague exist in the United States? (RI 8.3)

Summarize Goldberger's experiments with dogs, including his surprising and accidental findings. Why was this discovery so important? (RI 8.2)

How did the Mississippi flooding in 1926 and 1927 help Goldberger to prove his case using brewer's yeast? (RI 8.1)

What other nutritional supplements

proved excellent in preventing pellagra? Find a key quote that explains how Goldberger felt about his work. (RI 8.2)

Chapter Nine: Conquered

How did the Great Depression make pellagra worse once more? How did the government attempt to aid and educate people? (RI 8.2)

How did Conrad Elvehjem isolate the exact chemical that worked against the disease? What did Dr. Tom Spies do to prove the theory correct? (RI 8.1)

How did the pending war reveal widespread malnutrition? What was done to improve it? (RI 8.3)

Explain why milk was effective in preventing the disease, even though it contained only low levels of niacin. (RI 8.3)

Pellagra Frequently Asked Questions

What was the author's purpose for including the question and answer section? What are the benefits of including information in this format? How does it help the reader? (RI 8.5, 8.6)

After Reading

Research

Ask your students to revisit the diseases brainstormed before reading the book. Then, assign each student a disease to research in the library to discover how the disease was identified and how effective treatments were discovered. Create a timeline of diseases for a hallway display, or have each student devise a single page of a large website that explores the medical mysteries of various diseases. (W8.7, 8.8, 8.9)

Vocabulary

Consulting the Glossary section of the book, ask students to find 10 vocabulary words they are most interested in learning more about. Then, using index cards, have them generate the following information: synonyms, antonyms (if applicable), an illustration to remember the meaning, usage of the word in a sentence, and a definition of the word in their own terms. (RI 8.4)

Creative Writing

Have students write a journal or series of letters from the perspective of a victim of pellagra or one of the scientists or doctors working on discovering the cause and the cure. They should create at least three entries inspired by their reading of the book. (W8.3)