

## Evaluating Evidence

Highlight green = support theory

Highlight yellow = opposes/ does not support theory

### THEORY 1: Bacteria, *Bacillus icteroides*, causes the spread of yellow fever.

First was an idea suggested by Dr Giuseppe Sanarelli. A few years earlier this Italian researcher had announced that a type of bacteria called *Bacillus icteroides* was the cause of yellow fever. That sounded good. But Reed's recent experiments had shown that *Bacillus icteroides* actually caused a pig disease called hog cholera. Now scientists were arguing about which research results were right, and Walter Reed knew that his team would have to find a way of settling the issue. That was a big project, and it was only the beginning.

#### Evidence

#### Evidence Strength (circle)

- |   |                 |                     |
|---|-----------------|---------------------|
| 1. The <i>Bacillus icteroides</i> theory was announced by an Italian researcher, Dr. Giuseppe Sanarelli.          | <i>credible</i> | <i>not credible</i> |
| 2. Reed's experiments had shown that <i>Bacillus icteroides</i> actually caused a pig disease called hog cholera. | <i>credible</i> | <i>not credible</i> |

#### Assess Evidence

- |   |              |                 |
|---|--------------|-----------------|
| 3. Is the information based on facts or opinions?           | <i>facts</i> | <i>opinions</i> |
| 4. How credible is the source of this information?          | <i>5</i>     | <i>4 3 2 1</i>  |
| 5. How important is this info to add support for this idea? | <i>5</i>     | <i>4 3 2 1</i>  |

### THEORY 2: Yellow fever spreads through items used by patients.

Next on the list was an old theory—one that had been around for years. It claimed that healthy people got the disease by touching clothing, bedding, or furniture that had been used by yellow fever patients. That idea was so popular that it had appeared in medical books. Many health authorities believed it. So did many doctors. Of course, no scientist had ever proved the theory to be true. But it was definitely a matter for Reed and his assistants to consider.

#### Assess Evidence

- |   |              |                 |
|---|--------------|-----------------|
| 1. Is the information based on facts or opinions?           | <i>facts</i> | <i>opinions</i> |
| 2. How credible is the source of this information?          | <i>5</i>     | <i>4 3 2 1</i>  |
| 3. How important is this info to add support for this idea? | <i>5</i>     | <i>4 3 2 1</i>  |

### THEORY 3: Yellow fever is carried by mosquitoes.

And then, finally, there was another idea. A very different one. For almost twenty years, in more than one hundred experiments, a Cuban doctor named Carlos Finlay had tried to prove that mosquito bites caused yellow fever. Time and time again, the Cuban scientist had attempted to show that bugs could carry the disease by letting mosquitoes he thought might be infected with the germ bite groups of healthy patients. But none of Finlay's patients ever developed a truly clear-cut case of yellow fever from the bites. The experiments were unsuccessful. Many scientists laughed at the Cuban doctor's failures. The mosquito theory didn't seem to fit the facts, and no one understood why Finlay still continued to believe it. Maybe, some people said, the Cuban doctor was "touched." Others came right out and called him "crazy." Even Reed's boss, the surgeon general of the army, George Sternberg—a leading American bacteriologist—thought that the mosquito theory was a joke. Investigating it was "useless," he told Reed. And there was a good chance that the army surgeon general was right. Most sensible scientists did think the mosquito theory sounded pretty flaky. And *Bacillus icteroides*? Well, because of his own research, Reed privately thought that was probably pretty flaky, too.

#### Assess Evidence

- |   | <i>facts</i> |   | <i>opinions</i> |   |   |
|---|--------------|---|-----------------|---|---|
| 1. Is the information based on facts or opinions?           |              |   |                 |   |   |
| 2. How credible is the source of this information?          | 5            | 4 | 3               | 2 | 1 |
| 3. How important is this info to add support for this idea? | 5            | 4 | 3               | 2 | 1 |

#### WRAP UP:

- Based upon the evidence that you identified and evaluated, which yellow fever origin theory do you think that Dr. Reed should begin to research first? (circle one)

*Bacteria*

*Contaminated Items*

*Mosquitoes*

- What piece of evidence has the most "weight" for you? Explain your answer.

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