

Mr. Eads' Bridge

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CHAPTER TWO

We Start at the Bottom

Workers drove wagons loaded with metal tubes to the shore where a massive structure lined up with the river piers. Rows of brick arches supported the masonry as it approached the water. From there a web of tubes and braces lifted into the air in a graceful shallow curve much like the suspended metal hanging from the piers.

"Marvelous, isn't it?" A voice said.

Becky turned to see a woman in a long dress carrying a sketchbook. The woman continued, "I come every day to see the progress. In another week they'll connect the span between here and the west pier. Do you know Mr. Eads?"

Becky shook her head. "No, a-actually I just arrived not too long ago. You seem to know a lot about this though. I'd love to hear more."

"Certainly. My name is Laura Ascot. I'm an architecture student and artist. I've been following the construction for about five years now."

"Really," Becky said. "So, when did you start?"

"1868. Most of the work has been out-of-sight, so to speak, until recently. The piers are the key to the bridge design."

"Why is that?"

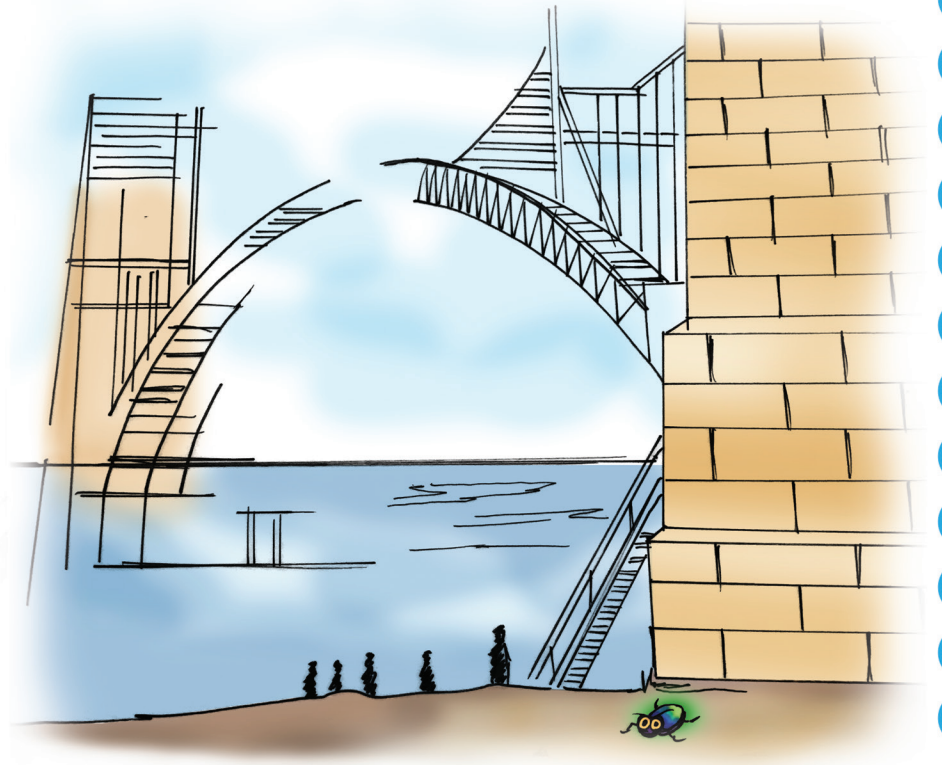
"See how everything rests on the piers. The arms coming out from both sides will eventually meet and form the superstructure where trains and vehicles will cross. You're familiar with how an arch supports weight, surely?"

"I've seen arches before," Becky said, "but I didn't think about how they support weight, I guess."

"That's perfectly alright, dear. An arch supports weight at its top, and the downward force is distributed through the legs to the base. If those legs are not adequately supported, they would simply be pushed out and the entire structure would collapse. Therefore it is critical that the base of each leg is fixed securely so it will not move under pressure."

"Oh, I see. And the piers form the base for the arch that crosses over the river?"

"They are the base for the span that connects the piers in



the middle of the bridge," Laura said. "The outer spans rest both on the pier and are anchored by masonry abutments on the shore. The abutments are easier to build because they are on land, and they use large amounts of brick and limestone to ensure they won't move. There are three spans in total, and all use the principle of the arch to support the weight of the bridge."

"But the piers are in the middle of the river," Becky said. "Why don't they just float away?"

Laura smiled. "That is mostly because of Mr. Eads' ideas. He became rich rescuing sunken ships from the bottom of the Mississippi River. He used diving bells of his own design to go under the water and bring up the valuables that went overboard. No one knows this river better than Mr. Eads!"

"So he used diving bells to make the piers?"

"A very special kind of diving bell. Would you like hear about it?"

Newspaper Connections:

Look through your local newspaper for images and stories about bridges. How many different types of bridges did you find? Are any older than 1868?