The Shortest Path

by Christopher Maag

What happens when you're standing in one spot, and you want to visit a different spot, but there's water in the way? That's the problem people faced for hundreds of years in the area that is now New York City. In New York City, there is a tidal strait called the Narrows, which connects Upper New York Bay with Lower New York Bay. On one side of the water is Brooklyn. On the other side is Staten Island. The Narrows is the place where Brooklyn and Staten Island come closest to touching.

But the Narrows isn't really so narrow. The water is almost a mile wide, and it's more than 100 feet deep. For a long time that wasn't a problem, because only a few people lived in Brooklyn and Staten Island. When they wanted to talk to each other, they climbed into their boats and sailed across.

By the 1800s, people were very annoyed with the Narrows. Lots of people had to travel between Staten Island and Brooklyn to get from their homes to their jobs. Taking a boat every time was very slow and expensive, and in bad weather the ferries couldn't sail at all.

In 1888, the Baltimore & Ohio Railroad announced it would dig a tunnel under the water for freight trains. Tunnels cost a lot of money to build, though, so that plan didn't work. Then in

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the early 1920s, New York's leaders decided to build a tunnel so that subway trains could carry people under the Narrows. They paid workers to start digging the tunnel, but the job was too expensive to complete, and they gave up.

Other people wanted to cross the Narrows by building a bridge. In 1910 Charles Worthington proposed a bridge that would hang 260 feet above the water. Six years later, an engineer named David Steinman proposed a taller bridge. But leaders of the military feared the bridges could block big Navy ships entering New York Harbor. So neither bridge was built.

Finally, after World War II, there were so many people living in New York City that leaders decided Brooklyn and Staten Island needed a direct connection. Since tunnels were so expensive, they decided to build a bridge. They hired engineer Othmar Ammann to design it. Ammann decided the bridge should have two separate roadways stacked on top of each other. Both roadways would hang in the air from thick steel cables, supported by two giant steel towers.

Construction took five years, employed 12,000 workers, and cost $320 million. The bridge was named after the first European who sailed to New York Harbor, Giovanni da Verrazzano. He explored America in 1524. When the Verrazano-Narrows Bridge opened in 1964, it was the longest of its kind in the world. About 190,000 cars and trucks travel the bridge every day.

Sometimes getting from one place to another is easy. You simply walk there. Other times it can be quite hard. In New York, people tried to solve the problem of crossing the Narrows by sailing boats, digging tunnels, and dreaming of bridges. Figuring out a good solution took hundreds of years.

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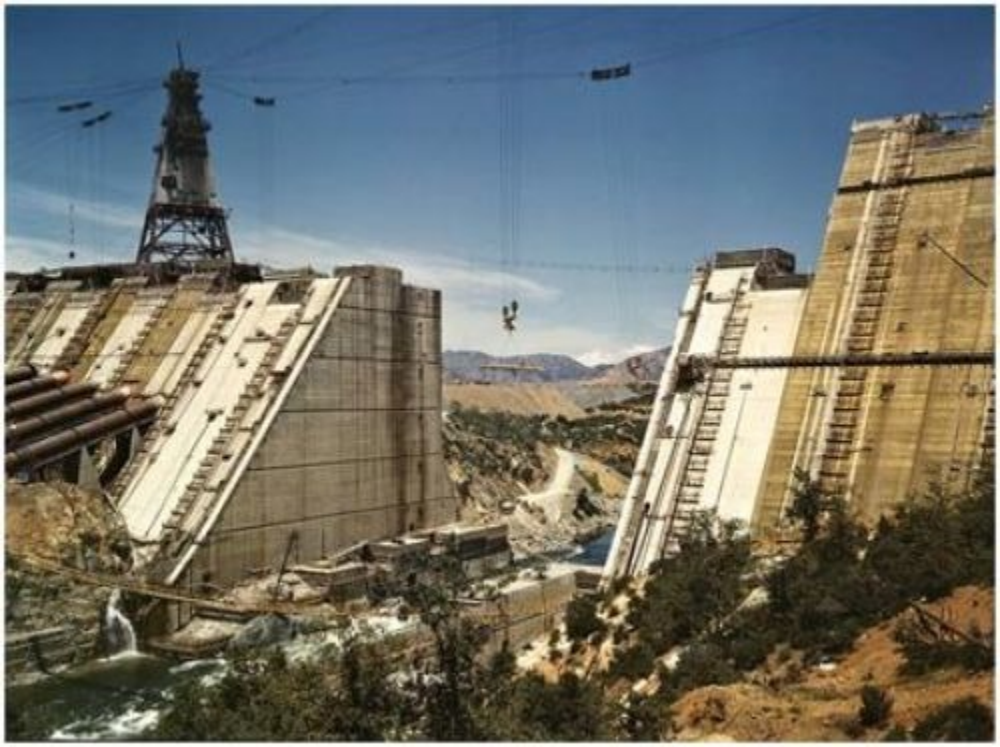
Shasta Dam

by James Folta



Shasta Dam is one of the largest dams in the United States. The dam is 602 feet tall and 883 feet thick at its base. Located in Northern California, it blocks the flow of California's biggest river, the Sacramento River. This dam forms a big lake behind it, Lake Shasta, which has a 365-mile-long shore line.

The dam's main use is to provide water for farms in California's Central Valley. The Central Valley is 400 miles long, and grows over 250 different types of fruits and vegetables. The dam protects farms from floods, and it helps to prevent a buildup of salt water from San Francisco Bay. It also provides water for people in nearby towns to drink and use. It has a hydroelectric power plant that creates electricity.

Shasta Dam isn't the only dam in the area. It is just one part of the Central Valley Project, a huge system of dams and reservoirs that provides water to the farms in the Central Valley. This water system was initially conceived of in the 1870s, after people moved to the area in the 1850s. People flocked to California because of the gold rush, hoping to get rich by mining for gold. While most people didn't strike it rich, many ended up staying in the area and

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farming. But the valley has contrasting rain patterns. In the north, there is more than 30 inches of rain per year, while the south gets less than 5 inches. There are also droughts, when almost no rain falls at all. Additionally, the Central Valley is at a risk to be flooded due to spring rain and infiltrated by saline water coming from the bay. Since farms need water to grow plants, the farmers needed a better, more reliable way to get water. This is why the Central Valley dams were built.

Shasta Dam took many years to build, starting in 1937 and ending in 1945. Many thousands of workers helped build it. In fact, there was so much work to be done that building contractors had to join together in groups to finish it.

The first step was to have 4,700 men dig out millions of tons of granite to make room for the dam. An almost 10-mile conveyor belt ran 24 hours a day to move the rocks away. Next, a railroad brought in dry cement. It was mixed with Sacramento River water, rock, and sand to make wet cement. Before it dried, the workers had to quickly rush the cement to the dam using a custom-built cable system. Once there, the cement was poured into interlocking wooden structures to form the large blocks that make up the dam. After two days, the cement was dry and the wooden structures were broken down and taken away, leaving the dried cement blocks.

Overall, the dam has been a positive addition to the Central Valley, allowing people and farms to thrive. But there are also drawbacks to the dam. The biggest loss is what is now buried under Lake Shasta. When the dam was built, Native American villages and sacred places belonging to the Winnemem Wintu tribe were flooded, and the people who lived there were forced to move. Local salmon were also affected. Because of changes in the Sacramento River from the dam, the salmon have had a harder time living, traveling, and breeding in the river. Fortunately, the dam has a water temperature control system to help the salmon survive.

Shasta Dam is an extremely impressive structure, and is the result of hard work by many people. The dam allows many more people to live and work in the area today. The Central Valley of California would not be the same without it.

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Name: _____ **Date:** _____

Use the article "The Shortest Path" to answer questions 1 to 2.

1. What is the Narrows?

_____

_____

_____

2. The Narrows caused a problem for people in New York City. It was difficult for them to travel from one side of the Narrows to the other. What finally solved that problem?

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Use the article "Shasta Dam" to answer questions 3 to 4.

3. What problems did farmers have with water in the Central Valley?

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4. Has the Shasta Dam solved those problems? Support your answer with evidence from the text.

Use the articles "The Shortest Path" and "Shasta Dam" to answer questions 5 to 6 .

5. Was the problem people in New York City had with the Narrows similar to the problems farmers in the Central Valley had with water? Support your answer with information from both texts.

6. The author of "The Shortest Path" refers to the Verrazano-Narrows Bridge as "a good solution." Was the Shasta Dam also a "good solution"? Support your answer with evidence from one or both texts.

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