

Root Cause Thinking

The Jefferson Memorial in Washington D.C. was completed and opened to the public in 1943. It was built with the highest quality materials and expected to last centuries. However, just a few years ago the park service notices that the building was crumbling. It seemed to be disintegrating to the point of becoming a hazard.

As the park service investigated they noticed that none of the other monuments or memorials was deteriorating at the same rate. This eliminated their first theory that acid rain was causing the corrosion. They needed to look for another solution.

As they asked *why* they uncovered the following causal chain:

Problem: The Jefferson Memorial is crumbling at a rapid rate.

Why?

It is being cleaned with a strong soap solution and high-power sprayers twice a week.

Why?

It is being cleaned this frequently and in this way because there are lots of pigeons and pigeon droppings throughout the memorial.

Why?

There are a lot of spiders in the memorial and pigeons love to eat spiders.

Why?

There are a lot of spiders because they love to eat the midges that emerge at dusk from the river bank and are drawn to the memorial.

Why?

The midges are drawn to the memorial when the floodlights are turned on.

When they got to the root cause of the midges' attraction to the floodlights they realized that by timing the floodlights to come on just after dusk, when the midges are most active, the midge infestation could be eliminated, thereby reducing the number of spiders, thereby reducing the number of pigeons, and the need to clean the memorial so frequently.