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LATERAL THINKING

This is the kind of creative thinking we have come to expect from Omni readers. It reminds us of a classic story, originated by Alexander Calandra, professor of physics at Washington University in St. Louis. A physics student complained that he shouldn't have failed an exam question: "How do you calculate the height of a tall building, using a barometer?" The student answered, "Tie the barometer to a long rope, throw the rope over the edge until it touches the ground,

then measure the length of the rope." The answer, according to the teacher, was to use the variation in atmospheric pressure from the ground to the roof.

The student argued that his answer was just as accurate as the professor's. He was given a second chance to answer the question, provided that his answer showed some knowledge of physics.

"There are several ways," the student said. "You could throw the barometer over the edge of the building and time its fall. Then use the formula $S = \frac{1}{2} at^2$ to calculate the height of the building."

The professor agreed that his answer was perfectly valid and was curious to know the student's other possible answers. "There are much simpler

solutions," the student said. "Take the barometer out on a sunny day, measure the height and length of its shadow, measure the building's shadow, and then find the height by a simple proportion."

"I'd have to accept that, too," the professor said, stroking his beard. "Any others?"

"Climb the stairs, marking off barometer lengths on the wall as you go. Or tie the barometer to the end of a string, drop it over the edge, and let it swing as a pendulum. Time the duration of its swing and determine values for g at street level and at the top of the building. In principle, you should be able to measure the height of the building from these differences.

"If you allow me to use psychology—or economics, I would go to the basement of the building, find the superintendent, and say, 'Sir, I have this very fine barometer here, which I'll give to you if you'll tell how tall this building is.'"

The story illustrates the lost art of lateral thinking or, put more simply, the ability to look at things in new ways. The truly creative mind isn't limited by habitual modes of thinking. How creative are you? One way to get out of a cognitive rut is to try to find new ways to measure things.