

Squaring Circles

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Posted by Pat Brandes

Boston's New Year was marked by the much-anticipated unveiling of the Isabella Stewart Gardner Museum's new wing, which the *Boston Globe* called "luminescent." Musical greats including Dame Kiri Te Kanawa and Yo-Yo Ma performed at the debut. Amidst the celebration and praise, however, we should remember that ten years ago, when the need for the expansion first became clear, there were plenty of reasons to doubt it was even possible, and plenty of critics waiting in the wings to pounce. How could the pressing need for change be reconciled with Gardner's insistence that, if anything were altered, her entire collection would be given to Harvard? When the search for the right architect commenced, it was clear he or she needed to understand the magnitude of the challenge. Some say that what made Renzo Piano stand out was his reaction upon first seeing palace was. "This is an impossible assignment," he said.

Flash forward to January, 2012. The *Boston Globe*'s Michael Wise, among other critics, confirmed that early intuition. In Wise's words, with the new wing, "Piano and the museum's leadership team have squared a circle by ensuring future programmatic evolution for an institution Gardner's will dictated must never change....The Gardner remains the Gardner only better."



"Squaring the circle" began with the choice of Piano. He understood that the only way through an "impossible assignment" was a new way of thinking. I want to focus on this notion of "squaring the circle" because I am increasingly coming to see that this is the only way through an entirely different "impossible assignment" – climate change.

For years now, the science has been getting more despairing – projecting temperatures hotter, sea levels higher, and consequences more severe than earlier predictions. Meanwhile, efforts to limit emissions from fossil fuels – the most obvious and agreed-upon solution – are not working as well as needed. Even in the eco-friendly countries of Europe, the battle between economic growth and decarbonization is being lost. Given the political, social, and economic barriers to solving climate change on nature's timeline, we need more climate change architects who can "square circles." We need new ways of thinking.

One possibility appeared in the January edition of the journal, *Science*, in which an international team of scientists makes a compelling case for shifting the spotlight from carbon to methane and soot (a.k.a., "black carbon"). They base their argument on the fact that, over a 20 year period, a molecule of methane or black carbon contributes far more to global warming than a molecule of carbon dioxide. They are the fastest accelerators of climate change – shrinking glaciers in the Himalayas

and melting ice in the Arctic. Soot darkens snow-covered ice, reducing its ability to reflect heat back into the atmosphere. Instead it absorbs heat and melts. Methane, which comes from landfills, farms, coal mines, gas leaks, and oil drilling, traps far more of the sun's heat than carbon dioxide.

So, while carbon dioxide remains the largest contributor to climate change, we may need to turn attention to that which is bringing us most rapidly to the brink. What may support this shift is that addressing methane and black carbon would also have significant benefits to health, prosperity, and food security. Methane and black carbon are responsible for millions of respiratory deaths worldwide. They also cause rainfall patterns to shift, contributing to low crop yields and food insecurity. By taking measures to reduce methane and black carbon, the report's authors estimate that farmers could produce 30 million more tons of food annually, that millions of lives would be saved from respiratory disease, and that we could avert a third of the global warming projected by 2050. The authors modeled costs and benefits of 14 of the most promising mitigation strategies and found that they would pay for themselves in five to ten years through increased productivity and avoided health costs.

The idea that we can reduce projected warming by a third while also addressing significant health and hunger issues represents a paradigm shift. It squares a circle. In Barr's climate portfolio to date, we have focused on carbon reduction. Yet we are also beginning to test this new paradigm. This quarter's board book includes a recommendation to fund work to bring new efficient cook stoves to scale in Ethiopia – one of the 14 strategies detailed in the Science article. In the third quarter of last year, we made a grant to help assess the full scope of methane leaks in Massachusetts. This is an important piece of research. Gas is a cleaner burning fuel than coal and oil and it is championed as the greenest alternative. Yet if methane leaks from gas lines are as substantial as some suspect, expanding use of gas may be the worst possible strategy.

From the Gardner to climate change, from public education in Boston to watersheds in Haiti and cookstoves in Ethiopia – to make these miracles possible, we will have to keep sharpening our intuition, so that when we meet the architects of change we too will recognize those capable of squaring the circles of these impossible assignments.



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