

*REMARKS delivered at the public launch of the Science Barge by Ted Caplow, designer of the Science Barge and Executive Director of New York Sun Works.*

*Friday, May 4, 2007*

Good morning and thank you for coming. This is a cucumber that we grew right over there with no carbon emissions, no net fresh water consumption, no pesticides, and no runoff. This is a pretty cool cucumber.

15 years ago, I was about to graduate college with a degree in sociology. Naturally, I wanted to save the world, and was looking around to figure out how and where I could apply my talents. The Peace Corps caught me eye, so I went to the recruiting office to find out what sort of position I could get. They looked at my resume for a while and then told me that perhaps I could teach English, since I spoke English. I wasn't convinced that lack of English was the world's most pressing problem, so I asked them what else, and they told me I could teach people how to keep bees. How to be a beekeeper. I didn't know anything at all about bees, which I pointed out, but they told me that was ok, they could teach me. "Well," I said, "I've got all this fancy education already, and I don't really want to get stung, so surely there's something else I can do?" "Well," they said, "can you repair a diesel tractor?". No...I couldn't. So I didn't join the Peace Corps. But a year or two later, I did go to engineering school, a decision, that for better or for worse, (and I'm skipping a few steps here) led to the creation of the Science Barge.

20 million people live in and around New York City. The United States has about 3 acres of farmland for each person. So growing the food to feed the people of metropolitan New York City takes 60 million acres - an area the size of Wyoming. An area twice the size of New England. So what we eat here - has a big effect out there.

The average food item in our supermarkets has traveled a couple of thousand miles to get here. Vegetables from California and Mexico, fruit from Florida, beef from

Colorado. Or Argentina. We drink water that was bottled in Fiji. Fiji is a long way from here.

But wherever it travels from, food has a large environmental impact. Agriculture consumes the majority of the world's fresh water. Crop fertilizers and animal wastes are washed into streams, then find their way to the sea, creating dead zones in the Gulf of Mexico, in the Chesapeake, and in our own Long Island Sound.

Producing our food also takes a lot of energy. First, it takes tractor fuel to plant and harvest. Then, it takes energy to process and ship our food. Most of this energy comes from fossil fuels, and contributes to climate change.

Climate change will further stress the world food system. A major United Nations report, issued earlier this month, predicts that both agricultural production and fresh water availability will be negatively impacted in many parts of the world. These food and water shortages are expected not just in Africa, and in Asia, where more than a billion people are expected to be adversely affected - but also in Southern Europe and parts of the United States.

What does that have to do with cities? Well, cities are where the people are -- almost 80% of Americans live in cities, and worldwide, we've just crossed the halfway mark: half of humanity is now urban, and that fraction is expected to rise. Mayor Bloomberg's office expects one million more people to move to New York by the year two thousand thirty.

Let's look ahead several decades and consider our choices as an urban people.

As our city grows, with new people, and new buildings, we will place increasingly huge demands on the countryside for food, for water, and for power. If we do nothing to help, the landscape will struggle to keep up with these demands and will sometimes fail, and then we risk blackouts, water shortages, and even food shortages. Our city will just have to sweat it out. Let's call that place Stressville.

But we have another choice. A growing city can learn to meet some of its own demands - not just for space, but also for food, for water, and for power. Natural resources can be managed and harvested. Waste and pollution can be minimized. Let's call that place Ecoville.

The choice between Stressville and Ecoville is not a hard one, but it may require thinking ahead.

The Science Barge is a sustainable urban farm. We believe that growing food in the city can reduce pollution from conventional agriculture and transportation, and at the same time increase the spread of sustainable technologies like solar power and rainwater catchment.

At the heart of the Science Barge is a recirculating hydroponic greenhouse. We irrigate the plants with rainwater and desalinated river water. We power the whole system with renewable energy. The Science Barge is carbon neutral and emits no waste stream. We grow tomatoes, lettuce, peppers, and cucumbers, using 7 times less land and 4 times less water than it would take out in a field.

The Science Barge is also a platform for environmental science and education. We offer public tours, and we have school groups booked from all five boroughs. Our students learn about the Hudson River, about sunlight, about rain water, and about how these *urban* resources can be harnessed to grow food.

In fact, the very reason why this greenhouse is on barge is to promote public access. But if this idea moves to a larger scale, it won't be on barges. We did some math and discovered that there is enough existing rooftop space in New York City to grow all of the fresh vegetables for the entire population, if Science Barge methods were used. I find that result, while obviously theoretical, to be quite thought provoking, and I hope that you do too.

I need to prevail on you for a few more moments to express my deeply felt gratitude to many people who helped the Science Barge move from vision to reality:

My grandmother, who passed away two years ago, made the Science Barge possible with her generosity. Our talented and sleep-deprived staff -I'm going to ask them to step forward as I introduce them - Emily Waff, our managing director - Jenn Nelkin, our greenhouse director, who has also designed our education program - Zak Adams, our sustainable systems director - Viraj Puri, our program coordinator - and Benjamin Linsley, our community affairs manager. These people have worked incredibly hard for a long time to make this happen, please give them a hand.

I also thank the many volunteers and hard workers who have helped out on the barge over the past year. You are indispensable, and I am very grateful for your help.

On behalf of the entire Science Barge team, I am eager to thank our site hosts, Hudson River Park Trust. Thank you, Connie. We thank Whole Foods Market, our Launch Sponsor. We thank Ports America, who have hosted the barge this past winter. We thank Rod van Deusen at Ocean and Coastal Consultants for technical assistance with the barge. We thank Friends of Hudson River Park, Community Board 4, and the West 44<sup>th</sup> Street Block Association for all of their efforts to welcome the Science Barge to this park and to this neighborhood. We thank the High School for Environmental Studies and the Department of Education for helping with the development of our curriculum. We thank Alex Mathiessen and John Lipscomb at Riverkeeper and Carter Craft at the Metropolitan Waterfront Association for welcoming us to the New York waterfront. We thank Toshiba America Foundation and all of our supporters. And we thank today's speakers, and so many others whom I don't have time to name this morning.

In the movie "Field of Dreams", there is a well-known line, which I will slightly misquote, spoken by a ghost: "If you build it, they will come". Now I think they were talking about a baseball field, but I'm hoping this also works for barges. Thank you!