

Sixty days in China
My experiences through a memoir

Jane Christine Shiu

*“A journey of a thousand leagues
begins with a single step.”*

*~Laoz (Lao-Tzui)
Daode Jing Ching (The Way and Its Power)*

Blowing gently, the wind skimmed across my face as I climbed the last step. Brushing my hair out of my eyes, I proudly stood atop the stairwell. Around me, a group of camera-bearing tourists mingled about, some happily extolling their endurance, others wheezing for breath, while another crowd excitedly peered off the side. With deliberate caution, I walked to the wall's ledge, a few paces from the chattering group.

A smile lit my face. "It's...it's like...Colorado," I whispered, half to myself, half to the world. As far as I could see, hills of green evergreens flourished. Straining to listen, I could hear birds chirping and singing. Closing my eyes, I breathed in the clear air. All that was needed was a campsite, a few marshmallows, and voila, a Girl Scout Kodak moment memory.

I opened my eyes, exhaling. "No, it's not Colorado," I said, this time more assertively. "It's not. Definitely. Nothing, nothing, could ever come close to this..."

I was on the Great Wall of China as a World Food Prize Borlaug~Ruan International Intern stationed at the Peking University.

I smiled, staring into the peaceful trees, reflecting. I had first found out about the World Food Prize as a sophomore attending Capital Project, a bipartisan government awareness program directed at high school youth. Throughout the half-week long duration, two of the sponsors, First Lady Christie Vilsack and Secretary of State Chet Culver, brought in representatives from different areas of the government, the media, and other national or international interest groups.

One of the distinguished representatives was former Ambassador Kenneth Quinn. In an emotional appeal, he told us of his experience as an ambassador, which led to his strong feelings on food security and thus, his position as President of the World Food Prize. He introduced the World Food Prize Youth Symposium to us, mentioning the World Food Prize youth internships. As he closed, he encouraged each of us to apply and partake in the next symposium.

I took him up on his challenge. His talk enthralled me; I knew I wanted to be part of the World Food Prize; I wanted to be an intern. While I didn't—and still don't—know what I want to do in life, I want to make a difference in the world, no matter how small or large. I saw the World Food Prize [and the internships] as an opportunity to try something new, and through the process, make a difference.

I attended the 2001 World Food Prize Youth Symposium. As a result of my attendance, not only had I broadened my views of food security and the security of the human race, I was also eligible to apply and become a World Food Prize Borlaug~Ruan International Intern. With the encouragement of my family, teachers, and friends, I applied, not fully expecting any certain result.

To my amazement, I received a phone call in late February. I had been accepted as an intern, and I was to be sent to the Peking University in Beijing, China.

And here I was, now. I turned to my companion, grinning. "Look at the view!" I said, gesturing to the hills of trees stretching as far as I could see.

*Adam*¹ grinned back, walking over to peer over the wall's ledge. "Would you expect such a view an hour from Beijing, or even in China?!?"

Would I have? Neither Adam, nor I, had any idea what we were getting into when we became the World Food Prize's first interns in China. With no prior interns in China, there was a certain anxiety regarding the situation as a whole. There was also a delicate concern about entering and working in China.

I am Chinese, my parents are from Hong Kong. While I have traveled extensively in Hong Kong, neither I, nor members of my immediate family, have ever entered Mainland China. When I first heard I was going to intern in China, I was incredibly excited for the opportunity to not only learn through a foreign lab situation, but to also learn through the land of my ancestors. It would be a definite cultural experience, for as a southern Chinese, I would be a complete stranger to the different language, food, culture, and even the different way of life of Beijing and the north. Regardless, such an experience in the land of my history would be an experience like none other.

Such excitement and agitation was no preparation for the China I met. I flew out of the Des Moines International Airport on an early June morning. As I sat in the airplane seat, a feeling of "Oh-my-goodness-what's-going-to-happen?" hit me. I didn't know. I whipped my Beijing tour-guide book out of my bag, and began to flip through it, familiarizing myself with the pictures and text I was already well accustomed with.

Regardless of all my tour-guide book preparations and prior Internet research, nothing came close to fully preparing me. As I stepped off the plane and into the Beijing International Airport terminal, the smells and sounds hit me. As I walked out into the 'meeting area,' I was confronted with thirty-some people calling out while holding up signs with people's names written in Chinese. I looked around for a sign with my name, but to no avail. Nervously, I stepped off to the side, scanning the room. No sign.

Taking a deep breath, I looked around again. A small Chinese woman was making her way toward me, and as I noticed her, she looked me in the eye and asked, "Are you Jane Shiu?"

Gratefully relaxing and smiling, I nodded, "Yes, I am."

The woman smiled, extending her hand, "Hello Jane, I'm Hongya Gu."²

Hongya Gu, I thought to myself, a little dazed by the jet lag and rapid turn of events. *Ah, yes, the World Food Prize mentioned a Dr. Gu who would be helping me.*

"Here, we'll take your luggage," Dr. Gu said. She turned to a Chinese man beside her, and rapidly spoke to him, indicating to my suitcase. He turned to me, smiled, picked up my luggage, and headed to a nearby exit. "We'll go this way to the car," she said, walking beside me as we followed the man.

As we headed outside, I was struck with a faint, rather putrid smell. Instinctively wrinkling my nose, I politely didn't comment, until I noticed the gray, cloudy sky. "Gray skies!" I exclaimed. "Does it rain often?"

Dr. Gu gave a little laugh. "It's gray because of the smog and pollution," she explained. "But after it rains, the sky becomes blue."³

¹ Adam Zeldorf of Davenport Central High School was the World Food Prize Intern at the Chinese Academy of Agricultural Science. Through our eight weeks in China, we toured Beijing extensively together.

² Dr. Gu played an invaluable role in my internship experience. Through her guidance, I had a wonderful experience. I gained so much insight regarding the Chinese world from her, and I thank her for her everything she did for me.

We continued to the parking lot, entered a car, and drove off. Throughout the ride to the Peking University⁴, I stared out the window, transfixed with the world I saw. Regardless of the fact that I had been traveling for almost 24 hours, I tried to keep my eyes open; I didn't want to miss a thing.

The next morning, Dr. Gu brought me to Peking University's National Laboratory of Protein Engineering and Plant Genetic Engineering. She gave me a tour of the lab. There were three extensive laboratories, in which the Peking University students worked in. In addition to the three main labs, there were smaller rooms to perform experiments in and rooms to store growing and altering experiments. In addition, there were four indoor and two outdoor greenhouses filled with small green plants in various stages of growth.

I also meet many of the graduate and post-doctorate students I would be working with. I was assigned to work under the guidance of Genji Qin, a post-doc biology student. Over my eight weeks in Beijing, I would learn countless things from Dr. Qin, ranging from laboratory techniques to the pronunciation and comprehension of Mandarin Chinese to random Chinese history tidbits.⁵

For the first few weeks of my internship, I helped Dr. Qin with his many experiments dealing with the *arabidopsis thaliana*, the small flowering plant I had seen in the six greenhouses. Though the December 2000 edition of *Nature* stated "[*arabidopsis thaliana*] will never feed the world," the *arabidopsis thaliana*, Dr. Qin told me, was studied because:

- a) The *arabidopsis thaliana* has a short generation time [two months], thus the experiments could be performed more rapidly.
- b) The *arabidopsis thaliana* is a small, flowering plant so many can be planted in a small area.
- c) The *arabidopsis thaliana* has a large number of offspring [seeds], which are a benefit for genetic analysis.
- d) All the sequences of the *arabidopsis thaliana* genome have been determined, thus genetic manipulations can be more controlled and feasible.

With Dr. Qin and a series of students and lab assistants⁶, I completed a variety of experiments. At the beginning of my internship, I watched and learned how to do each experiment, gradually learning how to complete the entire experiment.

I learned how to extract DNA from the *arabidopsis thaliana*. I learned how to make plasmid cultures and how to extract cloned DNA from E.Coli vectors. I learned how to run a DNA electrophoresis and how to make the special gel the DNA runs in. I

³ The 'faint, rather putrid smell,' was obviously linked to the pollution. After I returned home, I was amazed with how *clean* it smelled—and was.

⁴ The Peking University, also known as Beijing Daxue or 'Beida' is located in the northwest corner of Beijing. Founded in 1898, Beida is currently located on the site of a former imperial palace. The university is considered to be one of the two best universities in China.

⁵ I will always be grateful for Dr. Qin's support and encouragement, along with Cizhen Wu's, [his wife] companionship. I learned so much about China, the Chinese language and culture, myself, and the world from the two of them. Through Cizhen Wu's accompanying me to various Chinese historical and cultural sites, I have learned invaluable lessons.

⁶ I would like to specifically mention and thank Deng Xiaohui, a lab assistant whose assistance I shall always remember and be grateful for. Without her, I don't know how I would have gotten through eight weeks in Beijing. Not only did she help me in practical ways, such as teaching me easier lab techniques or showing me the laundromat, she was also there for me to talk to and 'hang out' with.

learned how to sequence DNA. I learned how to make and prepare special gels in petri dishes for certain seed plantings. I learned how to plant the delicate *arabidopsis thaliana* seeds and how to plant the week old planted seeds into potted soil.

Weeks into my internship, I was given a project of my own. Though I remained under the guidance of Dr. Qin and other graduate students, I established and carried out a project of my own. I began an experiment dealing with the salinity tolerance of the *arabidopsis thaliana* species.

Salt tolerance is an important issue in the field of agriculture. Soil salinity affects about 20% of the world's cultivated land and nearly half of all irrigated lands.⁷ High levels of salt concentration causes ion imbalance and hypersomotic stress in plants.⁸ Thus, the study of plant salinity tolerance is important to food security.

Before I had arrived, Dr. Qin manipulated the arabidopsis genome, creating, with tDNA, a mutant suspected of being salt tolerant. I planted the seeds, first into petri dishes, and then transferred them into pots of soil. When the plants were approximately two weeks old, I divided the plants into four sets of fifteen pots, with each pot containing three *arabidopsis thaliana* plants.

Each set of forty-five plants was set into a carrying box. Each set had a matching box of unaltered *arabidopsis thaliana*, which served as the control. I numbered each box pairs and carefully set them in the indoor greenhouse together.

Every other day for three, I watered each set with a different concentration of salt water. Box set one received 100 grams of saltwater [50 grams per box] containing 150 microMoles [mM] of salt [NaCl]. Box set two also received 100 grams of saltwater, however it contained 50 mM of salt. Box set three received 100 grams of saltwater containing 200 mM of salt. Lastly, box set four received 100 grams of saltwater containing 100 mM of salt.

I daily observed the boxes for any sign of salinity tolerance or intolerance. Throughout the three-week duration, many died, while a few survived. At the end of three weeks, Dr. Qin and I concurred that the *arabidopsis thaliana* plants were pretty much dead.

Whether the plants' deaths were a result of the salt water or of some other force, no sheer evidence exists. The deaths may have been the consequences of human err, a result of my inexperience and over zealousness. The plants may not have received enough salt water to make a difference, and thus, the salinity tolerance didn't play a role.

I only had one trial resulting in the death of almost all the plants. The trial did not prove what I hypothesized would happen [the *arabidopsis thaliana* mutant strain would exhibit salinity tolerant traits], however, as history has shown, one trial is not enough to make a valid case. Many more repeated trials should be done to fully invalidate my hypothesis or to support my hypothesis.

If, through multiple trials, the mutant species does repeatedly tolerate high amounts of salt, the salinity tolerance can be assumed to be related to the inserted gene sequence. With a greater understanding of arabidopsis' salt tolerance, we can further the knowledge and understanding of the salt tolerance of the plant kingdom.

So *Natures'* statement ["...arabidopsis will never feed the world"] can be interpreted in different, opposing views: Arabidopsis will never feed the world, literally,

⁷ Rhoades, JD and Loveday, J, *Salinity in Irrigated Agriculture*

⁸ Jian-Kang Zhu, *Plant Salt Tolerance*

but arabidopsis has the potential to feed the world through its research being applied to other species.

Turning in a full circle, I looked around, preserving the moment in my mind forever. Resting my hands upon the wall, I closed my eyes and inhaled, keeping the feeling of awe and wonder on the Great Wall of China in my mind and soul. I straightened, turning to Adam.

“Wanna go back down now?” he asked.

I nodded. Though we had to go back down, off the wall, I knew I would never forget the memory of standing at the top of the stairwell after I had finished the exhausting climb. I knew I would never forget a single memory of my time in Beijing.

We silently climbed down the steps, each immersed in their own thoughts.

I thought of Beijing, a city I had grown to appreciate. When I first arrived, I was appalled by the pollution and enormous amount of people. As time went on, I began to realize that the pollution and the noise and the people and the bicycles were all an integral part of what Beijing truly was. You couldn't have the Forbidden City or Tiananmen Square without the bicycles. I realized part of Beijing's charm were the factors that irritated me. Beijing is a city like none other. There is so much ancient history interwoven with the present and future. Through my two months here, I began to feel a tie toward the city. Though I didn't speak the language or even fully look like the northern Chinese, I knew I had found a niche. This was where my cultural ancestors were from. I knew, if given the chance, I would return in a heartbeat.

I thought of the lab. Through my strenuous efforts to complete experiments, I realized how laborious the fight to alleviate hunger was. We often hear of new GMOs created; it wasn't until I participated in 'Gene Splicing' that I mentally realized how much effort is exerted to create an efficient, safe GMO. However, through my experience in the Peking University lab and my communications with my fellow interns over the world, the idea of a global fight against hunger solidified. Through hearing other people my age tell of what they were doing across the ocean really struck me. I knew the Peking University was not alone in its fight to help alleviate hunger, I knew I was not alone in my dream to make a difference, no matter how big or small. I knew that if we, the future, were to dream a change, the change could, and would, happen.

I thought of my counterparts in the lab. I thoroughly enjoyed working with the Peking University students. My relationship with each student began with a little, slightly humorous misunderstanding. After chatting for a few minutes, the student would, in sometimes faltering English, ask me either “What university in the States are you from?” or “You're a Biology major, right?” Both questions would lead me to tell them, “No, actually I'm a high school student, next year will be my last year of high school, and I don't have an intended major yet.” [After the first few times, I gave up saying, “I'll be a senior” or “I'll be in grade 12.” The school system is different in China, through saying, “Next year will be my last year in high school,” everyone understood.]

I knew I would truly miss them. Through my relationships with them, my understanding of the world broadened, as I began to see through their eyes. Americans

take so much for granted. I watched as eight college students squeezed into a dorm room the size of bathroom. I joined the students riding bikes as a mean of transportation. I felt a twang of guilt and embarrassment as I showed two students I worked with my room; it was three times larger than the room they shared with six other roommates. Through the students in the lab, my priorities in life changed. As I received emails from friends back home in the states, I noticed complaints about the pettiest things. I couldn't help thinking—we have so many opportunities granted to us, have we ever considered what people around the world don't have?

I saw the United States from another view, from the Chinese view. Portrayed as untrustworthy and deceiving, the United States was torn apart daily in the National English-speaking newspaper. Regardless of all this anti-USA material, my faith and confidence in the principles of the United States did not waver, instead, it was strengthened. Rights Americans have are not the same rights other citizens of other countries enjoy. Americans can freely worship the religion of their choice, can have as many children as they so desire, and can speak their mind without fear of persecution. I realized how grateful I was to live in the United States, enjoying rights and privileges others around the world don't have

Anyone receiving the opportunity to make a difference and getting to intern at a world-renown research center is bound to change. I would be no exception. I saw a new, negative view of the United States and how much Americans take for granted. I saw what it takes, and what it will take, to painstakingly alter plants and other organisms to help alleviate hunger. I realized that with food security is the security of mankind. Obviously, without food there is no man, however, without international cooperation and understanding, whether it is the distribution of food or the disarmament of nuclear weapons, there is no man, as well.

We reached the bottom of the wall. Pausing, I turned to a wall ledge, peering over into the trees.

“We have so much,” I whispered to the wind. I closed my eyes, as I mentally challenged myself—We have such an abundance, what can I, what can we, do to give to others?

I opened my eyes, walking with Adam through the gates of the Great Wall. Whatever was to come, I was ready for it.

We turned, walking from the gates back to the town. I gazed up at the wall, memorizing every detail. I would never forget the Great Wall, nor would I ever forget my experience in China.

