
THE AIR OF FREEDOM BLOWS
BY SHOUCHENG ZHANG

Today, I am very happy to attend the welcome party of the Association of Chinese Students and Scholars at Stanford. While new students have just arrived at Stanford, I have been teaching here for 21 years! At such gatherings with the young people, I always try to find things in common. I came to Stanford 21 years ago to teach, in the year 1993; therefore, I myself could be considered a 90s person as well!

Today, seeing the excitement of new students to start their studies, it reminds me of the day I first went to college, the memory of which is still fresh. That year, I was admitted to Fudan University as a member of the Special Class for Gifted Youth. I felt everything was so fresh on the day of enrollment, but what made me most curious was the origin of Fudan's school name. That day, I realized that the school name was taken from the beautiful verse, "Brilliant are the sunlight and the moonlight; after a night a day dawns again." In 2009, I went to Tsinghua University as a visiting professor. When I walked into the east gate of the campus, I saw the school motto of Tsinghua displayed strikingly on the gate, which is translated as follows: "As heaven maintains vigor through movement, a gentleman should constantly strive for self-improvement." It seems that the school name and school motto of the famous schools are often taken from the romance and philosophy of ancient poetry.

Today's welcome party is a gathering of elites. You students have gone through tremendous challenges to be admitted into the world's most selective institute. Before the official start of school, I want to test the new students here: What is Stanford's school motto?

Let's take a look at Stanford's red school emblem, the most striking part of which is a tall pine tree. It takes 10 years to grow a tree but a hundred years to cultivate people; it reflects the profound meaning of education. The full name of Stanford is written on the ring, Leland Stanford Junior University, established in 1891. When we zoom in and enlarge the school emblem, we can see a line of small words around the pine tree, "Die Luft der Freiheit weht." This is Stanford's school motto, "The Air of Freedom Blows."

This famous verse is from a German poet Ulrich von Hutten. He is a fellow townsman and contemporary of the printing inventor Johannes Gutenberg. The invention of printing widely spread the knowledge of mankind and brought Europe out of the dark Middle Ages. Renaissance and religious reform made the wind of freedom blow throughout the continent of Europe. You would be curious about why a famous American university would use a German verse as its school motto? Today, universities in the U.S. can be divided into two categories: Research Universities and Liberal Arts Colleges. Famous universities such as Stanford, Harvard, and Princeton are all research universities. The close integration of education and research is a principle first proposed by the famous German educator William von Humboldt. When Stanford University was founded, today's world famous universities were still unknown. The world's famous universities at that time were all in Germany. The first president of Stanford praised the German-style school spirit. In order to create a culture of freedom in enquiry for teachers and students, this sentence from an immortal German poem was used as the school motto. After merely 100 years, it is this school spirit of freedom and creativity that has made Stanford a world-class institute. This is a miracle in the history of education!

What is the true Stanford atmosphere? For students who have just left their home and flown across the ocean to Stanford, maybe the first reaction would be that this is the atmosphere without pm2.5! Indeed, Stanford's atmosphere contains a taste of innocent freedom. To understand this, we may first look at a kindergarten at Stanford, next door to our gathering today, called Bing Nursery School. Walking into the kindergarten, one feels like stepping into the Garden of Eden. The children there don't have any set curriculum, and they play in the yard without any worries. The ratio of teachers to students is as high as 1:3 or 1:2. Some teachers would be drawing pictures in the yard, some playing Rubik's Cube, some telling children stories, and some working on geometric puzzles. When the kids get tired from what they are doing, they would develop curiosity to do something else. Some would gather around the teachers to listen to stories, and some would start to draw or paint. This curiosity-driven learning style is a good manifestation that the air of free choice that flows on campus. Stanford's undergraduate education also learned from the successful experience of Bing School's early childhood education and introduced the Freshman Introductory Seminars. Senior professors teach these special courses to freshmen; the number of students per class is limited to 18 or less. The teachers develop some interesting courses to stimulate the curiosity of students, such as "physics

in photography,” “molecular gastronomy,” “evolution and love,” and “architecture in Ancient Roman era.” For students who have studied under the indoctrinated and regimented education system in China, their technical knowledge is very solid, but there is a lack of curiosity-driven learning. Some students have not found their true interest or passion. You have now come to Stanford. I advise everyone to breathe in the air of free choice. Choose a few courses that are not related to your major, broaden your horizons, find your childhood curiosity, find your own sparks, and inspire yourself.

Stanford’s air of freedom is also fully reflected in the freedom of teachers to choose their research directions. Research in academic institutions needs the financial support from the government. Sometimes, the government’s policy encourages and supports research that tends to be utilitarian, short-sighted, and with quick results. Because Stanford is a private school, it can make full use of its private donations to provide teachers with a free atmosphere for scientific research, and let their curiosity determine their research directions. When I first came to Stanford, I applied for research funding from a number of research foundations but were rejected. However, when Stanford considered my tenure, it was not concerned with my failure in obtaining research funding. I was promoted to a tenured professorship a year later as an exception to the rule. This is rarely possible in public universities. Only with a long-term vision, can you truly create an atmosphere of freedom. This is why American private universities can do far better than public universities.

You students have now come to Stanford and have the opportunity to learn and work side by side with the masters. What do you need to learn from them? The truth of science is objective, but the process of seeking knowledge is often subjective. Masters often obtain knowledge by seeking beauty! Einstein found the eternal truth precisely because he believed in the beauty of the universe. Harvard University’s school motto is only one word, the Latin word “Veritas,” which means the truth. However, the objective truths of science can often be learned from books, while the character and styles of the masters, as well as their aesthetics and choices, can only be learned by studying and working with them. The combination of truth, goodness, and beauty, I think, is the highest mission of education. Some technical knowledge may be forgotten and replaced. But the passion, character, and style of seeking knowledge can stay with you for life!

In the 1930s, Stanford University was still unknown, and the US economy was in the Great Depression. When the Dean of the School of Engineering Fred Terman saw two outstanding students unable to find a job after graduation, he wrote a \$5,000 check to encourage them to start a business. Today their company is the world-renowned HP Company. With generations of aspiring followers, there have been many other outstanding companies, such as Sun, Cisco, Yahoo, Google, and VMware, all founded by Stanford teachers and students. If the high-tech companies founded by Stanford alumni were grouped together to become an independent economy, its GDP would rank about tenth in the world. This amazing number is a miracle created by the air of freedom. At the end of the 19th century, William von Humboldt proposed an educational philosophy combining research and teaching. Today, the world's top universities are all research universities. What Fred Terman established at Stanford is the "three-in-one" mode of education, research, and entrepreneurship. It is the further development of Humboldt's spirit. Scientific research transforms the invested wealth into knowledge, and entrepreneurship transforms knowledge into greater wealth. Successful teachers and students donate wealth to the university's education. With the promotion of such an air of freedom, the snowball grows larger and larger. You students have come to Stanford today. It is the only university in the world where you can truly experience this "three in one." You can take a course on entrepreneurship, go to a startup company or an investment company for an internship, or even co-found a startup company with like-minded students. Maybe the next miracle will happen from you!

At the most difficult moment of the American Independence War, the U.S. President John Adams wrote to his wife, "I must study politics and war, so our sons can study mathematics and science in order to give their children an opportunity to study arts and culture." Today, being together with you, I truly feel that the 90s generation is a uniquely fortunate one in Chinese history. The hard work of your father's generation has built a rich material civilization, so that your generation can live without any worries, truly make the most free choice, and pursue your own interests and dreams. Looking back at history, the flourishing development of science and culture often follows the rapid growth of the economy. The second part of the quote of Adams is important, as is the third part. The development of science and technology has created a material civilization but sometimes brought a spiritual vacuum as well. With art and culture, our life becomes rich and colorful. Whenever I am lost in research, I often walk to the Cantor Arts Center at Stanford, where there is my favorite Rodin sculpture, "The Thinker." His meditation

gave me the confidence to think independently; from his expectations, I seem to see the smile of the goddess of inspiration! Many times, I got my puzzles solved on the way walking back! The combination of science and art is really miraculous. Since you students have come to Stanford, try it!

“Brilliant are the sunlight and the moonlight; after a night a day dawns again.” “As heaven maintains vigor through movement, a gentleman should constantly strive for self-improvement.” “Die Luft der Freiheit weht.” Today, I would like to welcome everyone to this beautiful campus of Stanford. I hope all of you can grow in this air of freedom and truly find your passion and dreams. With the passion for self-improvement, you will ignite the light of civilization that shines forever as the sun and the moon!