

India, US and China: Tripartite or Trinity in the 21st Century?

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Ladies and Gentlemen:

I am honored that you invited me to give this speech at the 2nd Indian Institute of Technology North Texas Alumni Annual Convention. I am also deeply humbled because IIT system is one of the world's most outstanding and I believe that there are people far more qualified than me to be standing here.

I was asked by the organizers to make comments about India, the United States and China. This is hardly a trivial task and for sure, it is a monumental one for me! My personal belief is that these three nations will play a pivotal role in this century, and, as will be written by historians in the 22nd century, will very much depend on the intertwined relations between them.

As I was preparing this arduous task, I realized that it must have been my background that the organizers were zeroing in on. The more I thought about it, the more I am convinced. Indeed, I am a product of these three great nations and so I may have some unique personal perspectives about them. To this end, please allow me to say something about my background.

All of you have heard much about these three nations on a daily basis. Someone once told me that "if not for China and India, all the international news in the United States would be on global terrorism." It is quite amusing to me that the news about China and India can bring some relief to the general population in the United States. ☺

I began my life in an unusual manner! It was said that two things about your life you have ABSOLUTELY NO control of: One's parents and the place of birth. I was born in New Delhi, India, to Chinese parents who were US educated. My father was an NYU JD alumnus and University of Michigan journalism student and my mother was one of the first Chinese women to study in the Julliard. They were in New Delhi where my father was the Foreign Editor of China's Central News Agency under the Kuomintang (or the Nationalist Party).

Soon after I was born, my family returned to China, and stepped right into the Kuomintang-Communist civil war that ended in 1949. That year, my entire family left China and moved to Singapore.

During my formative years in Singapore, my parents sent me to Chinese schools. That will explain why I absorbed so much traditional Chinese culture. In fact, the elementary school I went to was organized by the Kuomintang, and every morning before classes began, the entire faculty and students gathered in the athletic field to sing the national anthem of the Republic of China (which by then only had sovereignty in Taiwan) and the traditional three bows to Sun Yat-Sen, the father of modern China, as well as the Republic. I should mention that one of my elementary school's alumni who graduated in the 30's was Xian Xin-Hai. While Xian is not known in the West, he was and still is famous in China because he became a composer who wrote the Yellow River Concerto. When the Philadelphia orchestra visited China right after Nixon's historical visit, they performed this piece with a Chinese solo pianist.

Singapore was a British colony (making me a British subject!). For this reason, education in Singapore, even Chinese schools, would have English as one of the subjects. It was in learning English that I had my first real exposure to India. My first teacher in English was a jovial and very very dark skin gentleman of Tamil decent. In fact, because of him, I had the false impression that all Indians are dark skin. I remembered that besides being a great teacher (he taught me the rudiments of this difficult language), he was also enormously proud of his heritage and culture.

In 10th grade, something horrible happened: war broke out between India and China. While the conflict was quite remote from Singapore, I remembered there was a great deal of anxiety about its outcome.

Unfortunately and understandably, there was also demonstration of nationalisms, from both Chinese and Indian communities in Singapore.

I came to the United States after high school and became thoroughly “Americanized”. Several things happened in the past several decades that while on the one hand I became more and more an American, I also became more and more aware of China and India.

First, no sooner after I arrived in the US, China detonated an atomic bomb. As you may have noticed, I said nothing about China after I arrived in Singapore. The reason was simple: There was virtually no news about China in Singapore at that time. China was de facto a blackhole! Therefore, the fact that China was able to explode a sophisticated atomic device, which requires a great deal of technical knowledge, was certainly an eye opening experience for me.

Second, throughout my graduate school days, I befriended a significant number of fellow students from India, both in and out of my field. Outstanding institutions such as University of Delhi, Banaras Hindu University (don’t you just love that name), University of Calcutta, Tata Institute for Fundamental Research and Saha Institute of Nuclear Physics (in Saltlake, outside of Calcutta) started to break into my psyche. Interestingly, maybe because I was in pure science, I did not know about, nor have I heard of, Indian Institute of Technology until much later. I was both pleased and excited to learn about the fact that India, the country of my birth, has a large number of outstanding universities and hope that one day I could visit some of them.

I guess it was perhaps because my parents had spent time in India, and that my father was a senior member of a national news agency in India’s capital, that they had some personal knowledge of Indian leaders. Therefore, as a young boy, I have often heard from my mother describing to me the great “Ni-Ha-Lo”, or the Shanghai pronunciation of Nehru! I also learned about the non-violent revolution of Mahatma Ghandi, whom my mother also often talked about with great reverence.

As I became more educated in physics, I began to learn about how great science flourished in India well before many other Asian countries. Perhaps the most remarkable Indian scientist, and the first Asian, to win the Nobel Prize in 1930 was Sir Chandrasekhara Venkata Raman. I should mention

that the next Asian who received this accolade was Hideki Yukawa 19 years later in 1949. The first two Chinese (and only after they received all their advanced training in the United States) were T D Lee and C N Yang in 1957, some 27 years after Raman.

It is interesting to note that the byline of Raman's prize is

“for his work on the scattering of light and for the discovery of the effect named after him.”

Nearly every scientist would know Raman effect. Perhaps in my mind the most remarkable achievement of Raman was that he received his entire education, and did his ground breaking work in India. If you have not done so, I would urge you to read the Nobel acceptance speech of Raman which you can get from the Nobel website of <http://www.nobel.se> It is the most heart warming scientific writing, and Raman did it without a single equation!

One should remember that while the accolade belongs to Raman and Raman only, it must be underscored that great scientific achievements are seldom solo performances. Raman's achievement must imply that India's scientific conditions - while it may not have been as robust as Europe when Raman was doing his work - the culture of world class scientific research must be quite prevalent for him to achieve greatness. Therefore, if one fast forward to today, it should not come as a surprise that India's technological prowess did not grow from vacuum. It stood on solid foundations.

Third, perhaps one of the most memorable moments in my life in the United States (before the morning of 9-11) was on a cold day in January of 1972 in Beijing, I watched on TV with awe when Nixon descended from his Air Force One, with his hands protruding in order to shake the hand of Zhou Enlai. Compare this with what happened in 1954 when US Secretary of State John Foster Dulles refused to shake the hand of Zhou, and deeply insulted not just Zhou but all Chinese. This single gesture of Nixon was certainly one that initiated the thawing of the icy relationship between these two nations.

As we all know, Chinese “open policy” began after the fall of the Gang of Four in 1977. That also started my deep relations with China. For the past quarter of a century, I have visited China nearly a hundred times. The best way to illustrate my intertwined relations with China is a relationship I developed with a good friend of mine, Fujia Yang, who is currently

Chancellor of Nottingham University of the United Kingdom. I hope you will agree with me after my description of Yang that his life is in many ways a reflection of how China emerged as an economic power in the 21st century.

In the fall of 1979, as a young physics professor, I had the opportunity to spend a year as a visiting professor at the then global center for nuclear physics, the Niels Bohr Institute (NBI) of University of Copenhagen. As a nuclear physicist, this was a dream come true, an opportunity to learn from maestros of the field. I went to Denmark, full of anticipation.

The scientific depth of NBI did not disappoint me. However, little did I know that something even greater than science was awaiting me in Copenhagen.

1976 was a defining year for modern China. Chairman Mao died on Sept. 9, followed immediately by the spectacular collapse of the so-called "Gang of Four", thus bringing closure to ten painful and devastating years of "Cultural Revolution", and ushered the nation into a new era. Someday, historians will undoubtedly consider the new era as the "miracle of the world in the 20th century". In 1976, China was at the verge of a complete "meltdown", economically, technologically and intellectually. Having quarter humanity, and a land size spanning nearly half of Asia, such a meltdown would have horrifying global implications!

Yet, no meltdown occurred.

A fundamental reason why no meltdown occurred was due to Herculean contributions of tens of millions of Chinese intellectuals. In their darkest hours during that era, enduring the hardest of hardships and suffering the deepest personal humiliations, they maintained palpable hope for themselves, their family, their professions and their nation. Indeed, even without personal liberty, both physical and mental, they remained important pillars of the nation, holding up its dignity and searching for dim light at the end of the tunnel. The successes of China of the 21st Century are in no small part due to this group of individuals.

My friend Chancellor Yang Fujia of Nottingham University is one of these individuals. By the time 1979 rolls around, China was awakening, with a pinch of naiveté. With devastations all around, there was wailing in China of "*Ke Xue Jiu Guo*", or "Let Science Save the Nation". It was no wonder

that by 1978, the initial groups of Chinese intellectuals sent to the West were scientists and technologists.

For many decades before and during Cultural Revolution, the great Danish physicist Niels Bohr, and his son Aage Bohr, both Nobel laureates, maintained strong relations with Chinese colleagues. Many Chinese scientists visited the Institute. Indeed, Yang was there in 1962. Therefore it was no surprise that in 1978, a group of physicists from China descended on NBI. Again, Yang Fujia was one of them!

By the time I met him, Yang was already an accomplished scientist. In his home university, Fudan University, he was leading a group of outstanding and enthusiastic scientists in the pursuit of using small accelerators to study solid state structures. Indeed, even before I met Yang in Copenhagen, I could recall that my friends, all distinguished scientists in this field, John Rasmussen of UC Berkeley, Joe Hamilton of Vanderbilt University and the late George Temmer, director of Rutgers University's nuclear physics laboratory, raving about their "Fudan experiences."

Yet, even in those early years, I detected unusualness in Yang's style. Yes, he was deeply interested in the science he was pursuing (no one could do otherwise in NBI!), but he was equally engaging on issues well beyond the realm of science, such as education, economics, and, last but not least, the future of China in particular and the world in general and what roles do universities play in this landscape. Indeed, even among the chorus in China to let science save the nation, Yang was already voicing the need of other just as important, if not more important, dimensions to "save" China. In the language of the day, Yang was already aware that for China to survive, and prosper, it must be reinitiated into the global community. In this respect, he inherently understood the role of research universities, well before such a term was popular. All in all, it was already rather transparent to me that Yang was destined for a career that will have significant impact beyond science.

And indeed that happened.

After leaving Copenhagen, and upon completing his tenure as head of Nuclear Physics Department of Fudan University, Yang palpably increased his interest in education, economics, research universities, and the global outreach for China. Indeed, in the subsequent two decades, he achieved the

prestigious Academician status of Chinese Academy of Sciences, elected as the President and one of China's great research universities, Fudan University, organized the first conference in China for the Association of International University Presidents, initiated the "Lincoln Lecture" in Fudan where political leaders from United States can profess their views, whatever the views, to China. Last but not least, Yang became the first Asian, if not the first non-British, to assume the supreme position of Chancellorship of one of the world's most distinguished research universities: Nottingham University.

At every step of Yang's career, he not only blazed trails, he established new frontiers and new heights. In 2003, I had the opportunity to attend a formal ceremony of Cambridge University where among its pomp and circumstance, I saw its Chancellor, the Duke of Edinburgh, in his full regalia. It was then that I realize how deep and long this tradition has been. In this respect, let me say that, as a Texan and a basketball fan, I am of course enormously delighted to see that a Chinese basketball player, Yao Ming of the Houston Rockets, made NBA history. However, I believe that Yao's achievement pales in comparison with Yang's: breaking nearly a thousand years of British higher education tradition is no mean feat!

I am sure it is Yang's scientific and humanistic prowess that made him a member of the Nuclear Threat Initiative (TNI), a powerful committee set up by the former US senator Sam Nunn and Ted Turner. I should mention also that in this committee, Dr. Amartya Sen, Lamont University Professor Emeritus at Harvard University and Nobel laureate in economics is also a member. There is no doubt that the world is threatened by weapons of mass destruction and nuclear device is one of them. The work of TNI, I believe, symbolizes how India, US and China can work together to ensure that the worse nightmare of the world be mitigated!

Finally, there is one piece of history of the interaction between the United States and China that is not often mentioned, which in my mind, underscores the profound feelings of the people of these two nations. The history of the Boxer rebellion at the end of the 19th century is well known. Indeed, eight foreign powers invaded China as a result and the Chinese government had to compensate these nations with large sums of money. What is not known is that the only nation who utilized this money to build education institutions in China was the United States. Some of the funds to build Tsinghua

University, the so-called MIT of China, came from this source. This to me is a historical fact that should not fade!

As a sidebar, I should say that for the past five years, Yang has been a very critical member of UTD's Research Advisory Board. He has been my mentor and guiding light in my work as the Vice President of UTD.

I can go on and on for another several hours, but let me bring this to closure now.

I hope I have given you my very personal and very limited and narrow experiences about these three great nations. I am upbeat about their futures because I think all three have deep intellectual strengths. From my personal experiences and perspectives, I believe that US, India and China have far more in common than not. All are powerful nations in their own right. However, if they can work together, with mutual respect as the underpinning, the world will show a sigh of relieve.

It is clear to me that the condition, which took the entire 20th century to mature, is ripped for these three nations to regard themselves as a "trinity" and not a "tripartite." Due to their individual successes, I believe that these three nations should and need to shoulder a major part of global responsibilities to ensure that the world can be a better place for all humanity in the 21st and beyond centuries.

Thank you.