



An address given by Professor Xu Guanhua **Doctor of Technology (Hon), DSc (Hon), Doctor of Public Service (Hon)**

Today, I am immensely proud and honoured to have an honorary doctorate conferred upon me by The Chinese University of Hong Kong. May I, on behalf of all the recipients, express our sincere thanks to the University. I would also like to take this opportunity to wish Professor Sung every success as Vice-Chancellor of this University.

Although The Chinese University of Hong Kong was founded only 47 years ago, and is relatively young when compared to many well-known universities on the Mainland, its achievements have greatly impressed the education and technology sectors nationwide and worldwide. The experience of The Chinese University of Hong Kong in the nurturing of talents and its research and development in technology is a common treasure trove for both Hong Kong and the Mainland. The reciprocal relationship between Hong Kong and the Mainland is not confined to economic development, but may also be seen in education and technology. Hong Kong's experience in both has been regarded as a resourceful reference for the Mainland.

The nurture of talents is a particularly relevant, ongoing issue for modern day China. Its vast population remains a massive problem for the country's sustainable development. Yet at the same time, it also constitutes an invaluable asset. Mankind has been richly endowed: Europe and the Americas have been blessed with vast stretches of land and rich resources, and the Middle East, rich reserves of oil and natural gas under its deserts. What has been given to China, then? I would say our greatest endowment is our 1.3 billion people, a most valuable asset beyond compare. How do we turn the burden of population into human capital? It hinges on raising the quality and inventiveness of the people. At present, China's human capital in technology has reached 51.6 million, while that in research and development is 2.29 million, ranking first and second in the world respectively. Our total number of tertiary students has reached 20 million, of whom the number of research students approaches one million. Our human capital in technology is unmatched in the world, a conspicuous advantage in the building of a strong and prosperous nation. Therefore, the prospect of a modernized China is for large numbers of technologically savvy, innovative and forward-looking talents to be nurtured, turning the population burden into human resources, thereby making China a literal world power in human capital.

In the history of science, all great discoveries have come from great civilizations. The birth of the four great ancient civilizations of the world was possible because the arts and sciences in these civilizations had nurtured a solid and profound cultural basis. To unleash the potential of human capital, we need to unleash people's creativity, advocate and promote the scientific spirit, and foster a culture of innovation. I believe that exchange between Hong Kong and the Mainland in the pursuit of science and innovation will be conducive to unleashing the potential of traditional Chinese culture, as well as the merging of Chinese and Western cultures. I would like to share my views with you on which aspects of the scientific spirit China should embrace, based on my own experience and observations.



First, we must champion the cause of innovation and leadership. Innovation is the innermost core of scientific discovery. All scientific discoveries and inventions involve not merely a process of "knowing", but more importantly, a "quantum transition" and "morphogenesis". Only those who dare to break existing rules and venture into new ideas can get to the truth. Conversely, those who tread the old paths and refuse to think outside the box will not be able to innovate, let alone reach the higher echelons of science. It is especially true of a developing country in that without scientific innovation and breakthroughs, it would inevitably have to follow in others' footsteps and live in their shadow. In this regard, we object to irrational nationalistic fervour, but more importantly, we must ditch readily any wretched, sinking national inferiority complex. If, during the May Fourth Movement, the Chinese people had "look(ed) for innovative ideas from foreign countries", the Chinese of today should be all the more confident about accepting challenges from outside. In fact, the indeterminate nature of scientific investigation and new trends in the forefront of contemporary science has shown clearly that we do not need to be self-deprecating at all, but should rather bust the myth, venture into the unknown, and lead the way to breakthroughs in areas where we have established a sound basis and gained an edge.

Second, we need to advocate the pursuit of truth and the tolerance of failures. The true essence of scientific investigation is the pursuit of truth. The burgeoning world of science of today is the bounty of the persevering, vehement and selfless efforts of countless scientists such as Bruno, Curie and Einstein. The continuous opening up of society and the perennial revision of knowledge require that we maintain a social and cultural environment in which everyone is equal before the truth. An environment where there is equal opportunity for participation and a level playing field is extremely important for the technological development of our country. Be they science administrators or researchers, great scientists or young science novices, they should be on totally equal footing in their scientific discourse. At present, we should be creating more opportunities for young scientists to express their opinions, and to gradually forge an environment which values equal opportunity, rejuvenation and the recognition of new and superior talents. At the same time, we must also be mindful of the fact that science is, after all, a risky business. There are bound to be successes as well as failures. But even the so-called failures have their share of contributions in the grand scheme of things. More tolerance will give rise to more innovative achievements.

Third, we must advocate a competitive yet co-operative spirit. In scientific development, competition and cooperation are the two conflicting faces of a unified whole. Without competition, scientific development will have lost an important impetus; likewise, without cooperation, scientific development would be heading down a robotic and fossilized dead end. It is only through competition within cooperation and cooperation within competition that science will keep its vitality and dynamism. But under the deep-rooted influence of the traditional Chinese mindset, scientific development in China is in need of a systematic form of competition commanding an overview, as well as free-flowing, harmonious cooperation. On the



one hand, under the influence of the “median” philosophical stance, we tend to be unwilling to take risks, accept failures, and lack the courage to challenge the powers-that-be. On the other hand, a culture of individualism, small circle politics and departmental conflict of interest has led to diffusion, duplication and mutual exclusivity among research organizations, projects and researchers. Not only does this situation go against the spirit of science, it also goes against current trends of society.

Fourth, we should encourage placing scientific studies over and above fame and fortune. A reiteration of the value of science does not mean encouraging people to hide themselves in ivory towers and detach themselves from the real world. It means for every person who enters the field of science and technology to put this mantle foremost, and never forget the pursuit of truth, goodness and beauty in scientific investigation. It is because only by internalizing science into our spirit can we conjure up the passion and inspiration for scientific thinking. We need to promote a sense of achievement among our scientists, but that does not mean we encourage scientists in sole pursuit of fame and fortune; we encourage and support scientists with a knack for management to become government officials, but we should avoid making it a norm that academic excellence is the key to a career in the bureaucracy. When the pursuit of fame and fortune, especially the hankering after status and pecuniary interests, surpasses the passion for science, then science will have lost its true meaning and value. One cannot over-emphasize the negative impact that the much-valued civil service in feudal China had on the cultivation of the scientific spirit. It has not only deprecated the inherent value and allure of science but also led to negative dispositions such as valuing instant success, chasing quick rewards, and taking only short-term actions. This is something we need to improve upon.

Ladies and gentlemen, Chinese civilization has a long and enduring history. Its flourishing and its many ups and downs have had a profound impact on technological development. Some of its great discoveries and inventions have made a profound impact on the advance of the civilizations of mankind, and many of these achievements still touch our souls and evoke a sense of wonder. And it is because of this that we believe we will be able to learn broadly from the essence of other cultures, advocate the spirit of science and work towards an innovative and glorious Chinese culture in the future.