

THE CHINESE UNIVERSITY OF HONG KONG

FORTY-EIGHTH CONGREGATION

Conferment of the Degree of Doctor of Science, *honoris causa*

A Citation

Professor Tang Auchin

Just as the city of Delft in Holland is famous for its pottery, so the city of Yixing in China's Jiangsu Province is famous for its teaware. Unlike Delft pottery pieces which have the look of sameness about them, Yixing teaware is distinguished by its infinite variety. The exquisite beauty of Yixing's teaware owes much to the quality of the clay, the controlled combustion inside its kilns and the chemical process which takes place when heat is applied to stable molecular materials. But what happens during that chemical process is a mystery to the layman. The man who has helped to shed light on this and other bonding mysteries during the process of chemical change is probably the greatest theoretical chemist of modern China. By a happy coincidence, he is a native of Yixing.

Tang Auchin was born in Yixing in 1915 and developed an early interest in the natural sciences. Like many scholars of his generation, Tang's education at Beijing University was interrupted by the Japanese invasion and the need to move inland to the safe haven of Chungking. In 1940, he graduated from the National Southwest Associated University with a bachelor of science degree and was retained by the institution which recognized in Tang Auchin the making of a brilliant scientist. Six years later, the war having been won, Tang left China for the United States on a scholarship and pursued postgraduate studies at Columbia University. He was admitted to the scientific fraternities of *Phi Lambda Upsilon* and *Sigma Xi* and graduated in 1949 with the degree of doctor of philosophy.

Like many patriots of his generation, Tang Auchin returned to China soon after graduation and started his teaching and research career at Beijing University. Two years later he was given the challenging task of building from scratch a Department of Chemistry at the Northeast University in Changchun. This was a challenge Tang readily accepted and he discharged his new responsibilities with great distinction. At this new university, which was shortly afterwards renamed Jilin University, he pioneered research into the chemical bonding theory and the potential barrier for molecular rotation. Tang was so successful in this task that he was quickly inducted into the Chinese Academy of Sciences as an Academician in the Chemistry Division. In 1956, four years after his transfer there, he became Vice-President of what was now Jilin University.

A highly productive period followed as the young scientist launched himself into research, teaching and university administration. Also in 1956, he won the Third Prize in the National Natural Science Awards and in the twenty or so years that followed led the most authoritative seminars on molecular structure and

physical polymer chemistry. His work was ground-breaking and his enthusiasm in sharing his research with his students was legendary. Many of China's leading research chemists today had studied with Professor Tang and benefitted from the experience. If it might be said of masters that by their students you shall know them, then Professor Tang must be regarded as one of the greatest in his field.

In 1978, Professor Tang Auchin became President of Jilin University and a host of honours followed. He won the First Prize of the National Natural Science Award twice, in 1982 and 1987, first for his work on ligand field theory and then again for his work on molecular orbital graph theory. He is the first and only chemist to have won the First Prize twice since the founding of the People's Republic of China. His book on quantum chemistry also won the First Prize for National Outstanding Scientific Monographs in 1982. He was elected to the Presidium of the Chinese Academy of Sciences in 1981 and was awarded the honorary degree of Doctor of Laws by Windsor University in Canada in 1986.

Mr. Chancellor, I could go on with Professor Tang's achievements and accomplishments which will run to pages and pages. He has published eight books and some 250 articles in scientific journals, for instance. But to do so is to give but a very inadequate account of this man's enormous contribution to the world of science in general and to the advancement of chemistry in China in particular. In the last forty-five years, scientific research in China has made giant strides, but because the first tentative steps were taken from a low base, there is as yet a gap between China's achievements and international standards of excellence in some areas of scientific research. Theoretical chemistry, however, is not one of them, thanks largely to Professor Tang Auchin. His work on ligand field theory and symmetry conservation of molecular orbitals is central to the understanding of chemistry and chemical processes. His major contribution has been to bring together a body of theories and let them provide a context for each other. In the process of doing so, he has not only afforded the world a solid foundation of the unity in bonding theories but also enabled scientists to extrapolate successfully, resulting in some very useful predictions.

Mr. Chancellor, I am reliably informed that the exquisite Yixing teaware is the happy result of covalent bonding between and among the molecular components which make up the clay and the glazes. We are honouring today a native of Yixing who, while he has played no part in the making of these teaware, has unlocked the mystery surrounding the chemical process that makes that kind of bonding possible. In honouring Professor Tang Auchin, we are giving recognition not only to his work as China's leading theoretical chemist and educator, but also to the high esteem in which he is held as evidenced by his election to the chairmanship of China's National Natural Science Foundation and the Science Award Committee. As head of agencies which deal with the allocation of research funds and national awards, he has to be recognised not only as a scholar of the first water but also as a person of unimpeachable integrity, and this is a fitting description of Professor Tang.

With these words, Mr. Chancellor, I present Professor Tang Auchin, theoretical chemist, life time educationist and renowned author for the award of the degree of Doctor of Science *honoris causa* in absentia.

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