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Professor Chen Tien Chi

When Professor Chen Tien Chi became Acting Head of United College at this University in 1980, he was following a family tradition. His father, Dr Chen Ping-Chuan, had been President of Canton University in Guangzhou, and in 1949 had helped to establish Canton Overseas College in Hong Kong. This was later to become part of United College.

Professor Chen's own university education began at National Sun Yat-Sen University before he took up a scholarship to Brown University in the US, where he majored in chemistry. He did a Masters and a PhD at Duke University, working on quantum chemistry. His thesis topic was united-atom theory of molecules. A side-benefit of this research was the fact that he had to learn to use computers to analyze his data. He became interested in them, and that interest led him in a new direction.

In 1956 he joined IBM, where he began work on the new "supercomputers", studying their effect on programming. In the early 1960s the Corporation developed the STRETCH machine, aiming to run 100 times faster than an earlier machine called the 704, but a preliminary test showed, despite the use of programming tricks, only a two-fold gain. Professor Chen showed that the very programming tricks were partly to blame, as unusual machine organizations called for new optimizing programming techniques, which he proceeded to formulate. (Indeed, in special cases the STRETCH machine can be programmed to run 1,000 times faster than the 704.) He became interested in computer architecture and participated in the design of subsequent IBM supercomputers. In a variety of capacities, as Associate Physicist, Staff Mathematician, Development Engineer and Senior Programmer, Professor Chen had a highly successful career at IBM. He won two Outstanding Contribution Awards and five Invention Achievement Awards.

While Professor Chen was a Research Staff Member at the IBM San Jose Research Laboratory, he was invited by Professor Chen Chi-Fan, then Chairman of the Department of Electronics at Chinese University, to be Visiting Professor for the year 1979-1980. He taught computer organization.

This was another turning point in Professor Chen's career. In 1981 he became Head of United College. His main aim at United was to stimulate the students to think for themselves, to develop independence in judgment. He put forward a vision of college life as a holistic "unstructured education" in itself, distinct from formal classroom instruction, in which students are driven by curiosity to independent learning. He made himself approachable and visible to students, creating an atmosphere of warmth and intellectual interest.

He himself became directly involved in College general education, co-teaching a well-known freshman course called "University Life and Learning". This was built around 400 colour slides, touching on the beginning of the universe, the history of life, the history of mankind,

the search for truth and the appreciation of art, all linked to his distinctive vision of college life. At the end of his Headship, the students staged a skit at the College Monthly Assembly, which began with students milling around a dimly lit stage, asking such questions as Where do I find happiness? Friendship? What is knowledge? What is life? Who am I? Then came College life at United, which dispelled the mist of bewilderment, filling the stage with purposeful colour. To Professor Chen there could be no more meaningful tribute to all he had been striving to achieve in his eight years as Head.

In 1980 Professor Chen had been appointed Professor of Computer Science and Electronics. In 1988 he became Chairman of the Department of Computer Science. Under his leadership, there was a greater emphasis on graduate research. He also presided over the move of Computer Science from the Faculty of Science to the new Faculty of Engineering. Professor Chen retired from the University in 1992 and in 1997 he was made Emeritus Professor of Computer Science and Engineering.

In 1993 Professor Chen returned to San Jose, California, but not before he had given a video-tape of his United College general education lectures to the University. This led to his involvement with a new University general education course called The Universe, Knowledge and Life incorporating general systems theory. In 1998 Professor Chen returned to the University to co-teach the course, which he has done annually since then. The course has become a book, *The Systems View, the Universe and Life*, now in revised edition. More recently he has also started another general education course, *Nature and Culture*, with a companion volume which will be published by Chinese University Press.

Professor Chen is a Life Fellow of the Institute of Electrical and Electronics Engineers (IEEE) and a Life Member of the Chinese Language Computer Society. In 1984 he was awarded the IEEE Centennial Medal. He owns 13 US patents and has authored over 70 scientific papers on low temperature physics, quantum chemistry, computer architecture, Chinese language processing and numerical analysis. He has also written essays on Chinese cuisine.

It is a great honour, Mr Vice-Chancellor, to present to you Professor Chen Tien Chi, distinguished computer scientist and academic leader, for the award of an Honorary Fellowship.

This citation is written by Professor David Parker