

Timothy Scott Chang

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The Life of Timothy Chang

Education Preparation. All education is for personal use and growth. It develops skill, teaches basics, instills discipline, and activates innate ability which most of us use. Education enables us to pay attention to ourselves as developing ideas and to utilize newly discovered knowledge in productive ways.

It is a fact that the most important accomplishments occurs from the environmental factors and opportunities. These factors led to many successful scientific discoveries and career development.

The medical or biological science field was always my lifetime goal in high school. I was enrolled in the premed curriculum toward a medical degree when I started college at Fukien Christian University (China). I was accepted at Beijing-Johns Hopkins Medical School, a joint endeavor with Johns Hopkins in Baltimore but they were occupied by the Japanese Army and I had to change my major and graduated with an Agriculture Economics degree. My future goal was to choose a profession that would be helpful to people in need. Since I missed the opportunity to study medicine, the chance to come to

United States to study Christian religion was given to me via missionaries in China materialized in 1948. I concentrated on my English language lessons while teaching high school chemistry for two years before coming to United State. I graduated from Duke Divinity School and prepared to return to China but the Communists had taken over the country and I was unable to return. Since I was not a U.S. citizen and could not remain in this country and denied entry to China, I was faced with a dilemma of being deported to Taiwan or any South Asian country. Fortunately, by continuing my studies in different, majors, I was allowed to remain in United States where I received four degrees and an honorary degree before 1965. Because of my scientific background since 1951, I was exposed to various scientific disciplines and became immersed in scientific research which evolved into a life-long career.

During the early 1950's I was convinced that poultry disease was a new and exciting field that held great promise as a career. As a graduate assistant at Ohio State Poultry Science Department, I started to study the effect of high level broad spectrum antibiotics on disease resistance of chicks and antispoilage of chicken eggs. An "orange-egg breakfast" drink was an experimental project that found *Salmonella* and *E. coli* organisms can be killed instantaneously by orange juice acid. Another major assignment was to prepare specimens for the Pullorum Testing Short Course. It was here that I discovered the function of the bursa of Fabricius of chickens in antibody production in 1955. This information was welcomed news by hundreds of poultry scientists when I presented conclusive data at the annual Poultry Science Association meeting at Michigan State University in 1955. My research data has been quoted by many speakers at the Annual American Poultry Science Association and AAAP. This discovery has given me satisfaction of being the one to find the answer to the function of bursa of Fabricius and an excellent example for all my graduate students to explore the reason of any unexpected reaction or experimental results that might lead to new scientific discoveries. Many scientific discoveries were the results of an accidental occurrence, not necessarily from a planned experiment. This particular discovery story can be found in the USDA's Poultry improvement Partners in Progress, June 1984 and the Poultry Science Journal, 1955, 1957, 1959 and Ph.D. Dissertation 1957, Ohio State University.

Career development. After my formal education was completed, I was encouraged to accept a pharmaceutical company's offer to become the director of the bacteriological research laboratory for animal drug development emphasizing poultry diseases. I had the opportunity to be at the inception of animal drug development. At the same time I had the great fortune to be of social services to the local community and state associations in Pennsylvania. I learned to appreciate the variety of information presented to me for poultry disease prevention and treatment especially *E. coli*, airsacculitis, coccidiosis and *Salmonella* infections. The emphasis of disease in the private sector vs. academia is very different but rewarding. After eight years of research at the Whitmoyer Laboratories, inc., I was offered an opportunity to run a newly developed animal disease research farm as a

Section Chief of Veterinary Bacteriology at Norwich Pharmacal Co. I had excellent experience with a variety of research animals that included chickens, turkeys, dogs, pigs, sheep and other animals. During my tenure I helped to develop a coccidiostat for chickens (Buquinolate) which enabled another chemical to prevent coccidiosis in chickens. It was here that I had the opportunity to interact/collaborate with many research scientists of many disciplines, academic researchers and F.D.A officials. After several years, I accepted a position as Director of Animal Technology Department of S.B. Penick & Co. a pharmaceutical subsidiary of CPC international, Inc. My responsibilities were to direct research, technical service, product development, PDA submission, industrial and university liaison. This position afforded me much satisfaction until an offer was presented to me in academia. I realized that academic work (teaching and research) was more rewarding but the monetary rewards were not very attractive. I accepted a professorship in the Poultry Science Department to teach and research in Avian Microbiology and Poultry Pathology and Poultry Waste at Michigan State University. Interaction with university professors, technicians and graduate students certainly helped to broaden my research viewpoint. When the Poultry Science Department merged with Animal Husbandry and Dairy Department to become the Animal Science Department, my research perception evolved to a new level of interest. During my research I discovered a chemical compound, Amino-Ureido-Sulfone, is effective to prevent chicken mortality caused by Marek's disease virus.

International opportunities. An invitation to lecture in China on Poultry Production and Management (broiler, layers and turkey) disease prevention and treatment was extended to me in 1979 by PRC Ministry of Agriculture. I did my sabbatical in China and returned to lecture, hold work shops and demonstrations over 25 times at various cities. I received many invitations to lecture on poultry diseases, management and disease prevention in Taiwan, Philippines, Malaysia, Indonesia and Thailand extended by USDA's Feed Grain Council, United Nations, World Bank, several pharmaceutical companies and Michigan State University. These excursions into 17 provinces in China and other countries have made me aware and more observant of the prevalence of poultry disease problems which enhanced my teaching and research at Michigan State. I was honored to be the first recipient to receive PRC's Ministry of Agriculture highest international agricultural meritorious Medal of Honor in 1986. It was also an honor to be invited to The People's Great Hall several times in Beijing, China for national celebrations.

Memberships and associations. As an ordained minister of the United Church of Christ, I had many opportunities to preach in many denominational churches and meet many religious leaders and followers. With my diverse background, I certainly believe that science and religion are complimentary to each other to carry out successful programs as another way to serve the community." As past president of the Haslett/Okemos Rotary Club, I had many opportunities to lead major community programs. I enjoyed being president to several MSU's faculty and staff organizations, advisor to several student

organizations and committees that these interactions enabled me to support my student's studies/careers.

I held Memberships in American Men & Women in Science, American Society for Microbiology, American Poultry Science Association, World's Poultry Science Association, The American Association of Avian Pathologists, New York Academy of Science, Michigan Allied Poultry Industry, Sigma Xi, Gamma Sigma Delta, Who's Who in Midwest, Who's Who in America, Who's Who among Asian Americans. Community organizations include Haslett/Okemos Rotary Club, United Church of Christ, Board member and several social organizations. These memberships created a sense of belonging to the community and interactions with these members developed into many lifelong friendships and professional success.

Biography solicited by the Committee on the History of Avian Medicine, American Association of Avian Pathologists.

Additional biographical materials may be available from the AAAP Historical Archives located at Iowa State University. Contact information is as follows:

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