

# BOTANICAL BULLETIN OF ACADEMIA SINICA

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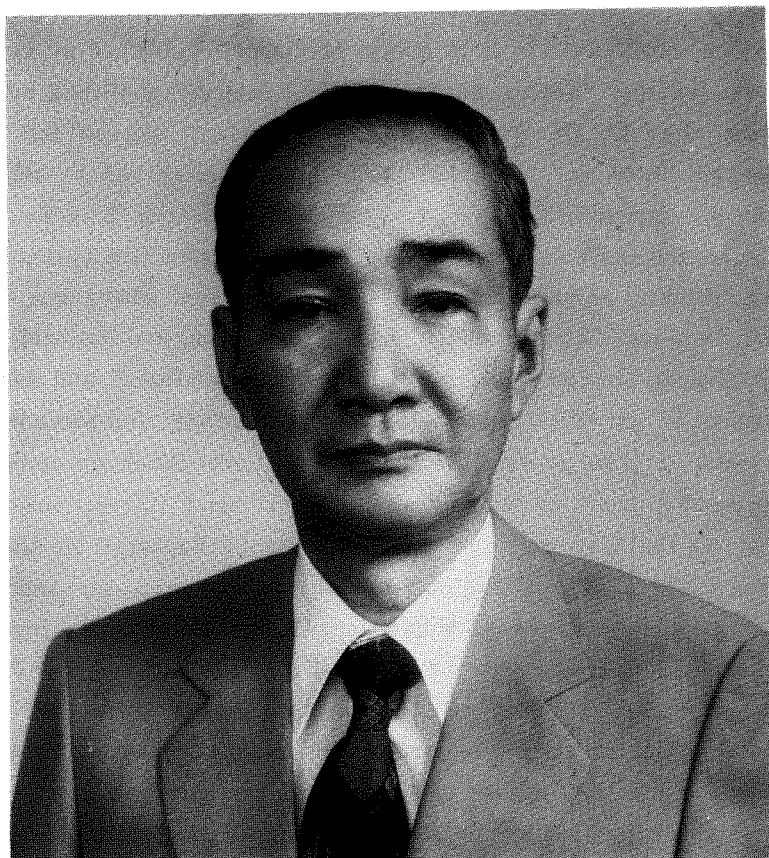
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**IN CELEBRATION OF DR. THOMAS S. C. WANG ON  
HIS SEVENTIETH BIRTHDAY**

Dr. Thomas S. C. Wang (Wang Shih-Chung, 王世中), member of Academia Sinica, was born on July 1, 1913 in Foochow, Fukien Province, China. He received B. S. degree in chemistry from Yenching University, Peiping in 1934. After graduation, he went to Nanking to work at the Department of Pharmacy and Pharmaceutical Chemistry, National Health Experiment Station; then transferred to the Department of Organic Chemistry, Institute of Applied Chemistry till 1937. He then went to Germany to pursue his graduate study at Justus-von-Liebig University, Giessen, and got his Dr. rer. nat. degree in agricultural chemistry in 1940. He returned to China without delay due to outbreak of World War II. Dr. Wang joined in the faculty as professor and department chairman at both National Yunnan University, Kunming, and National Chekiang University, Hangchow. During this period he wrote two

mineral nutrients in various soils and climates. His achievement in this area has built a base upon which later work is developed. Dr. Wang and his associates found a good variety of allelopathic compounds in soil. The article entitled "Soil phenolic acids as plant growth inhibitors" and others written by him and his co-workers received recognition by plant ecologists, agronomists, horticulturists, foresters, etc. all over the world. In Taiwan, monoculture of sugarcane has been practiced intensively in many areas and the yield of sugarcane declines gradually and tremendously without any sign of disease or insect pest. Dr. Wang looked into this problem for two decades and arrived at a hypothesis that it was due to the disturbance of soil microbial balance. His hypothesis was eventually confirmed by experimentations and the yield of sugarcane got greatly improved. This finding has shown to the world that soil microbiology should never be overlooked if hunger problem of the world is to be improved.

In the past, soil was deemed as more or less chemically inert. Its main chemical behavior was adsorption and desorption. Dr. Wang found silt, clay, and amorphous oxides of silicon, aluminum etc. are oxidative catalysts. The whole soil is an active chemical body. Oxygen adsorbed on the surface of these substances is partially activated and apt to induce oxidative reaction. Previously, all alterations of organic matter in soil were attributed to the activity of biological agency. Soil humic substance which had been considered of vital importance to the persistence of life on earth was likewise regarded as biological product formed by microorganisms and enzymes. Dr. Wang has found that all the aforementioned inorganic components of soil can oxidize phenolic compounds into very reactive semiquinones that immediately undergo polymerization themselves and can also concurrently incorporate many other classes of compounds including nitrogenous compounds into the polymer. The formation of humic substance follows a purely chemical process. That his synthetic humic substances are identical to those of natural products has been confirmed by analyses of elemental composition, functional groups, optical density, spectrometric spectra, electron spin resonance spectra, resistance to microbial attack and other physicochemical properties. How extensive and large a field the oxidation process is involved in the chemical reactions and pedogenesis in soil, and how they exert influence upon the growth of microorganisms and plants in soil and other related problems open a large area in which scientists may spend a lot of effort to explore. These findings have

books, the one entitled "The Principle of Manuring" published by the Commercial Press, another "Recent Advances in Soil Science" published by Cheng Chung Press. In 1947, Dr. Wang came to Taiwan and worked for Taiwan Sugar Research Institute. From 1947 to 1978, he has served as Chairman, Department of Agricultural Chemistry, and the Research Director of the Taiwan Sugar Research Institute several times. During this period he also taught intermittently as an adjunct professor at National Chengkung University, Tainan, National Chung Hsing University, Taichung, and National Taiwan University, Taipei. In 1962-1963, he was a visiting professor and taught at the Department of Soil Science, Michigan State University, and was a graduate advisor as well. In 1968 he was invited by the National Academy of Sciences, USA, to present a paper on a Symposium "Biochemical Interactions Among Plants", held at the University of California, Santa Barbara. He then was invited by the University of Philippines as a visiting professor and taught there for one year. After returning from Philippines, he was invited as Council Member, National Science Council and concurrently took the directorship of Life Sciences Division of the Council. During this time, he had exerted great effort in improving the biological researches in Taiwan and helped many research institutions being able to make active research by their own. He resigned the director in 1975 but remained as Council Member till present.

Dr. Thomas S.C. Wang left Taiwan Sugar Research Institute and joined in as professor at the Department of Soil, National Chung Hsing University in 1978. During the past 40 years, he has published more than hundred articles in both domestic and international journals. In recognition of his outstanding academic achievement, Dr. Wang received many academic awards and honors, including awards from the Ministry of Education, the Agricultural Association of China, the Society of Soil Scientists and Fertilizer Technologists of Taiwan, the Chinese Agricultural Chemical Society, etc. Dr. Wang has been a member of Sigma Xi, Soil Science Society of America, on the Board of Directors of Chinese Chemical Society, the Agricultural Association of China, and the Society of Soil Scientists and Fertilizer Technologists for many years. He is also a Council Member of Academia Sinica, Taiwan Tobacco Research Institute, and Taiwan Sugar Research Institute.

At Taiwan Sugar Reserch Institute, Dr. Wang worked toward harmonic nutrition of sugarcane by studying the requirement of sugarcane for various

been recognized by soil scientists in the world and marked the beginning of a new epoch in soil chemistry.

Dr. Wang married to Miss Jean Fan-Chen Tao in 1940. They have three sons all married and five grandchildren. It is a typical Chinese scholar family enjoying both the Chinese and western culture. On this special occasion of his seventieth birthday, I am particularly delightful and honorable to share his happiness and would like to present this issue of Botanical Bulletin of Academia Sinica to his birthday celebration.

*Hong-Pang Wu*  
*Editor-in-Chief*