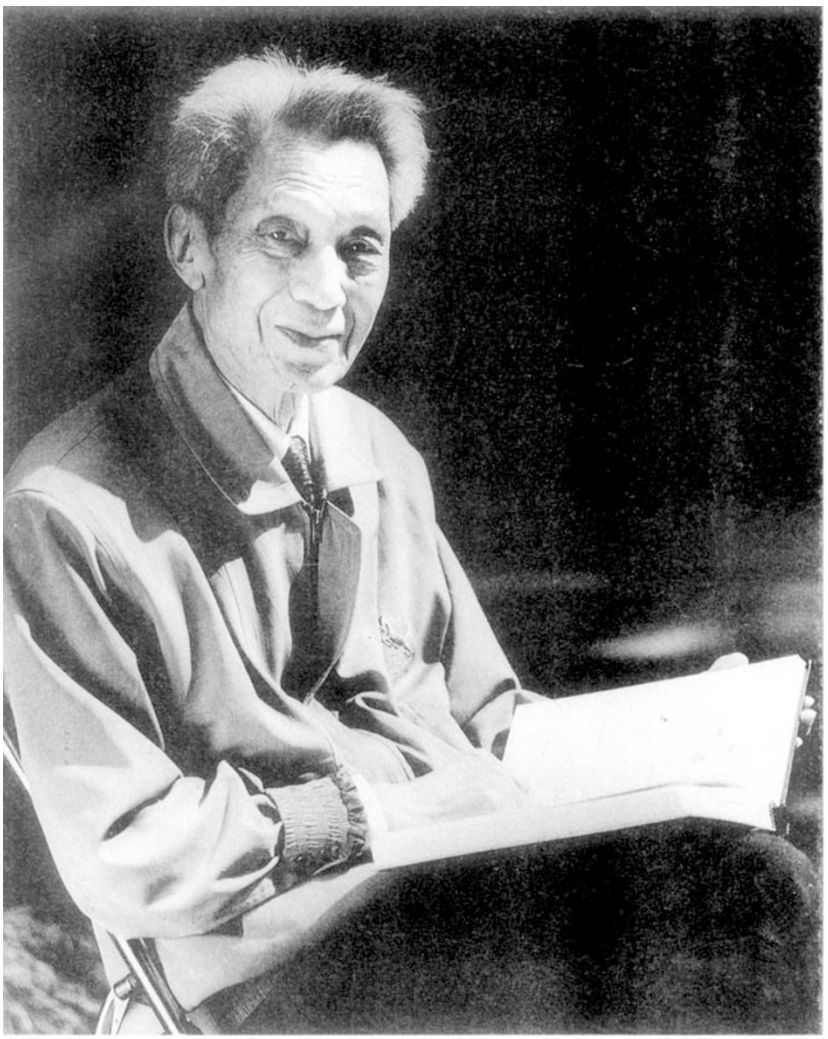

Shi Luji (L. J. 施)

BIOGRAPHY

Born in Yizheng County, Jiangsu Province in November, 1917 and graduated from Horticulture Department, Zhejiang University in 1940, Professor Lu Ji SHI (L.C.Sze) was enrolled in Graduate School of Science, Zhejiang University in 1941. Nurtured by his adviser-Professor Jia Zhen TAN (C.C. Tan), he took a great interest in cytogenetics and published a number of papers on chromosome, thus laying a good foundation for his future research.

Professor SHI went to study at Columbia University, USA in 1946. At first he was a graduate student of the Department of Botany, working on cytogenetics of Zea maize under the guidance of Professor M.M. Rhoades. Later he was transferred to the Department of Zoology. While taking graduate courses, he was research assistant to Professors, F. Schrader and A.W. Pollister in cytology and cytochemistry. In this department he completed his Ph.D. dissertation on chemical embryology under the guidance of Professor L.G. Barth and was conferred the Ph.D. digree in 1951. His dissertation work was concerned with the respiratory gradients of the frog gastrula. He accurately dissected and divided the gastrula into a series of contiguous regions and measured the respiratory activity of each of the regions with Cartesian diver manometry. The results which he obtained clearly demonstrated that the gastrula has two respiratory gradients, namely the animal-vegetal and dorsal-ventral gradients when dry weight is used as reference standard. The verification of these gradients ended the long argument among experimental embryologists. During that period of time, in cooperation with L.G. Barth, he also made investigation on the biochemical gradients of the frog gastrula with ultramicro chemical methods. Morever, he paid attention at the same time to other problems such as the metabolism of amphibian hybrid, DNA synthesis during development etc.

After his return from abroad in June, 1955, Professor SHI worked in the Institute of Experimental Biology, Chinese Academy of Sciences for a short time. Shortly afterwards, he went to Beijing with Professor Bei Shizhang to organize the Institute of Biophysics, Chinese Academy of Sciences, and to set up his own research laboratory. Inspired by the works of bacteria transformation and chromosome studies of B. McClintock, F. Schrader and A.W. Pollister, he proposed the genetic transformation of higher animals and the construction of vertebrate chromosomes as the long-range projects of his laboratory. Perhaps he was one of the first few, if not the first one, who realized that the genetic transformation of higher animals should be done on fertilized eggs rather than on whole animals. While he was trying to import black and albino Axolotls from Russia, using Rana nigromaculata as biological material, he developed techniques of microinjecting DNA and chromatin into the fertilized eggs and made a series of important studies. He first determined the maximum amount of DNA or chromatin which would not interfere in the normal development and tried to find out whether isolated centromeres could be generated from the injected chromatin. One of the results from these studies is that nucleus can be organized from

the injected chromatin by the fertilized Rana eggs. More than twenty years later the same finding was independently obtained by several other investigators. At the end of 1958, his research work was suspended due to some unfortunate circumstance. In 1963 he was assigned to organize a new institution, the Beijing Experimental Center of Biology, Chinese Academy of Sciences, which was dissolved in the middle of the so-called "Culture Revolution".

Professor SHI formally shifted to the Shanghai Institute of Cell Biology, Chinese Academy of Sciences in 1978. He and his wife, Professor Zu Mei NI, formed a research team to restart the study on the vertebrate artificial chromosomes and the genetic transformation of higher animals. In addition, they investigated the proteins of some cellular structures. Since then, they have done a series of studies on the nature of centromeres, the key functional structures of chromosomes: screening the antibodies of kinetochores, developing a separation method for the centromeres, cloning centromeric DNA and cloning telomere DNA. In order to cut the production cost of genetic engineering, in 1985, he proposed using whole domestic animals, especially their mammary glands as bioreactor in stead of mechanical and electric bioreactor. With this idea and in cooperation with other research groups, they have done fairly extensive works on transgenic animals by using rabbit as model. At the same time, using autoimmune antibodies from scleroderma patients, they analysed the proteins of some cellular structures, especially those of chromosome pellicle, and nucleolus. The results from these studies provide a new way for diagnosis of the different types of scleroderma diseases.

Professor SHI has concurrently been Professor in several biological research Institutes of the Academy and Chairman of Department of Life Science and Technology, Zhejiang University, and is concurrently Professor of Fudan University and Hangzhou University . In 1980, he was elected as Member, Division of Biology, Chinese Academy of Sciences. He shows great concern about the development of the cause of science in China. Since 1980s, he has taken part in working out some development plan for China's biological science and biotechnology, and evaluating big achievements in science and technology

From 1978 to 1988, Professor SHI was a member of the 5th and 6th Chinese People's Political Consultative Conference.

Professor Lu Ji SHI has been probing deeply in science and has a wide range of knowledge. He is sharp-minded and bold in blazing new trials. Although he is eighty, he still remains active in academic thinking, and he not only gives instructions to the research group, but also often takes part in the experiment directly. He is upright and always seeks truth. He is one of the founders of cell biology and molecular genetics in China.

Guo Li He
Xue Jin Lun
Yan Yuan Chang

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