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QIAN-XUESEN (H.S.TSIEN), HIS EARLY SCIENTIFIC ENDEAVOR IN ASTRONAUTICS

Abstract

H. S. Tsien is accounted as the most notorious Chinese scientist in Astronautics and the creator of the present Chinese space program. His engineering and doctoral formation is of American and German basis however, as he won a scholarship contest and travelled from China to the United States as early as in 1935. Inception of his scientific work is thus greatly influenced by the American school of engineering, with emphasize on experimental work, while keeping the roots in theoretical research simultaneously. His published work makes profit of the excellent cooperation with Theodor von Karman, recently emigrated to Caltech from Germany, and shows a very wide field of endeavour, a general feature to all basic scientists in Astronautics. Elsevier publishers, through the Academic Press collection, has recently gathered and republished Tsien's entire early scientific papers in an excellent collection entitled "Collected Works of Hsue-Shen Tsien, 1938-1956" that shows his wide area of coverage in problems related to Astronautics. All his early published work has the imprint of a meticulous, rigorous and extraordinarily clear mathematical thinking. This main characteristic of Tsien's creativity is especially visible in the 1951 paper with R. Evans on the variational solution of Optimal Thrust Programming for a Sounding Rocket, although a less cited publication of Tsien. The large area of coverage of Tsien's research work is described in the paper.