

Bradford Sturtevant

1933 — 2000



Brad Sturtevant passed away on October 20, 2000 after battling pancreatic cancer for the last several months. Brad spent his entire professional career in GALCIT, the Graduate Aeronautical Laboratories at Caltech, arriving as a Master's student in Aeronautics in 1955, receiving his PhD and joining the faculty in 1960, and progressing through the ranks to be appointed the H. W. Liepmann Professor of Aeronautics in 1995. Brad was a dedicated member of the Caltech community, a vigorous athlete, lover of the outdoors, and a proponent of fluid mechanics as a rigorous intellectual activity that spanned across scientific disciplines from medicine to geology. Brad was well-known across the campus for his enthusiasm and the sweeping range of his interests.

Brad's service to the Institute included developing and running the unique freshman laboratory E5 in the 1970s, being Executive Officer for Aeronautics from 1971 to 1976, leading the effort to consolidate the engineering libraries into the Sherman Fairchild library, working to revitalize GALCIT through the development of new facilities such as T5, and recruiting new faculty. He was very active in promoting athletics at Caltech and on a more personal level, won numerous awards for his swimming, particularly in the open ocean. He served terms as the Chairman and Secretary-Treasurer of the Southern California Intercollegiate Athletic Conference.

Brad was best known in the fluid dynamics community for his research on shock waves and nonsteady gas dynamics. Through his teaching of Nonsteady Gasdynamics, he introduced Caltech students to this subject for almost 30 years. Brad interpreted nonsteady gasdynamics in the most imaginative way possible with applications ranging over noise control in motorcycle exhausts, volcanic eruptions, and treatment of kidney stones with shock waves. His projects included experimental and theoretical investigations of the propagation of shock waves through nonuniform media, including shock-excited Rayleigh-Taylor instability; hydrodynamic sources of earthquakes and harmonic tremor; sonic boom, the effects of dissociation relaxation in hypervelocity flow; shock-wave physics of extracorporeal shock wave lithotripsy, including the focusing of weak shock waves; the fluid mechanics of explosive volcanic eruptions, including the explosive evolution of dissolved gas from rapidly-depressurized liquids. Brad was an active participant in the international fluid mechanics community, visiting and lecturing around the world. He was a co-organizer of the 19th International Symposium on Shock Waves and editor of the proceedings. A total of 28 students received their PhD degrees under Brad's supervision.