IN MEMORIAM – ALAN H. STENNING

by
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In the fall of 1973 the community of mechanical engineers particularly those involved with turbomachinery received, with the deepest sorrow, the news of Alan Stenning's death.

The event was particularly shocking to me since Alan contributed more than anyone else to my career. A few weeks after I arrived at M.I.T., Alan helped me along as one of his students to bridge the cultural and academic gap at the school. I performed miserably as his graduate student, but Alan continued to provide help. Alan alone was responsible for persuading me not to leave when my scholarship fund ran dry after one semester. He offered me a research assistantship which really launched my career. It was the most important event in my education.

From 1960 to 1961 I worked for Alan at Northern Research. There I learned to admire his talents as an engineer without peer. The continuing growth of the firm can be traced to Alan's contributions during that period. I fondly recall the project we were engaged in that brought us both to McKeesport, Pennsylvania for fourteen days in a dilapidated hotel, surrounded by steel factories. The problem was a belligerent axial compressor that shed its blades every month due to an unexplained surge. Alan represented the user, while I represented the manufacturer. He solved the problem (fouling of the blades).

Alan and I never lost touch, whether it was at an ASME meeting or during his consulting days at Northern Research. I remember one time in 1970 during a boring conference in San Diego when one day we decided to go sailing instead of attending the conference. We toured the harbor in a rented boat and talked about writing books. Alan was philosophical and perceptive in his observations. His wise words then gave me insight I had never thought of. I enjoyed that day and felt it had been worth going to San Diego.

The following papers show examples of Alan's techniques. In broad strokes he identifies the major effects and concentrates on analyzing these. He is able to make the necessary assumptions that render the problem manageable, a rare quality among academicians. Thus without much effort he established analytically what one can expect in practice.

His grasp of fundamentals was phenomenal ("It's all Newton's Law," he was fond of saying). After a few months of study he would become an expert in the many fields he studied. He applied his techniques to such diverse topics as Partial Admission Turbines, Rotating Stall in Compressors, The Starting and Control of Nuclear Rockets (this treatise is my favorite; in only a few pages he marries Nuclear Physics to Turbomachinery to explain the fundamental behavior of Nuclear Rockets), Hydrogen Cavitation and the cause of early chemical rocket failures, and of course the distortion work.

It is true that the following papers do not provide the latest information on the subjects. For example, the collection of papers given at the AGARD Conferences of 1974 (AGARD-LS-72) provide a more up-to-date review of distortion effects and rotating stall in axial compressors. It is even doubtful if Alan would have allowed the publication of the present papers. However, the papers show Alan's technique and should be an inspiration to those who think that technology has become too difficult and one is helpless without the availibilty of a large computer.