

Allan G. Piersol – 1930-2009

Vesta I. Bateman, Contributing Editor

Allan G. Piersol, 78, of Woodland Hills, CA, died peacefully at home on March 1, 2009 from lung cancer. He was an engineering consultant in the field of mechanical shock, vibration, and aeroacoustics for over fifty years, and an internationally recognized expert in the analysis of random signals, digital data processing, and evaluation of statistical data. His textbook titled *Random Data*, coauthored with his close friend and associate Julius Bendat, has been translated into four languages and will soon be released in its fourth edition. Piersol was also coauthor or contributor to 12 books as well as over 100 technical papers, many of which were sponsored by the U.S Air Force or various NASA centers. He received a special NASA award for his participation in assessing the Space Shuttle certification program prior to first flight.

In addition, Piersol was coeditor of Harris' *Shock and Vibration Handbook*, which is due for release in the sixth edition with his new coeditor Tom Paez. Allan was also coauthor of the Institute of Environmental Sciences and Technology's *Handbook of Dynamic Data Acquisition and Analysis*, now in its second edition, and a recipient of both the Irwin Vigness and Ed Szymkowiak Awards from the IEST.

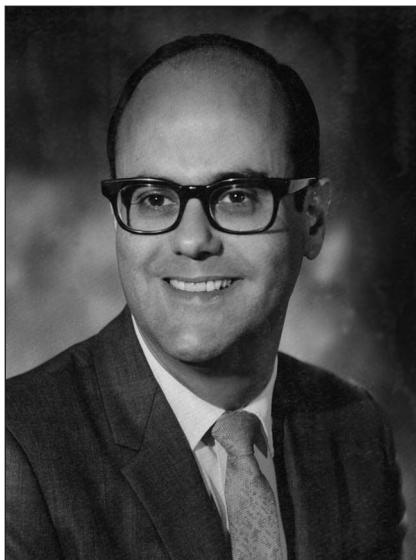
Although Allan was a paid consultant as head of the Piersol Engineering Company, he provided free technical information and advice to hundreds of engineers and scientists who called him from throughout the world. He served as an adjunct lecturer in the Mechanical Engineering Department of the University of Southern California and was a guest lecturer at many universities and symposia worldwide. Allan also taught short courses in over 25 countries, usually with Bendat, as well as the Shock and Vibration Symposium for many years. He was a fellow of both the Acoustical Society of America and the IEST, and a life member of the American Society of Mechanical Engineers.

Allan is survived by his wife of 50 years, Teresia, his three children and their spouses, and five grandchildren.

Marie Crosson and Harry Himelblau

Farewell to a Giant

My view has always been that I stand on the shoulders of giants. By that, I mean that I have learned a great deal from those who have come before me. In the field of shock and vibration that is certainly true, and Allan Piersol is one of the giants. An obituary by Julius Bendat follows my comments and details more of Allan's technical accomplishments. I think everyone agrees

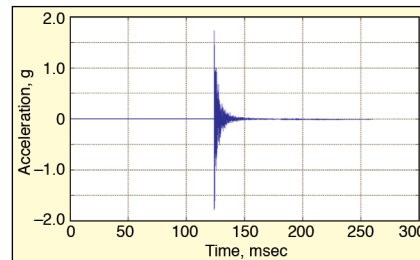


that Allan was a technical giant, but Allan was a lot more than a technical giant.

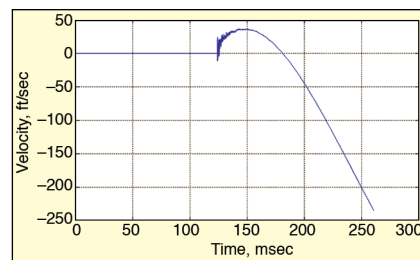
I first met Allan when he and Julius Bendat taught a course on random data analysis at Sandia National Laboratories in the late 1980s. Allan, as well as Julius Bendat, impressed me as instructors who really wanted to make sure that the students understood the material. After the course, Allan continued to answer students' questions and encourage us at conferences. Allan also encouraged other young professionals as well. Allan was clearly a mentor, but he mentored before "mentoring" became the buzz word that it is now. Mentoring was just a part of his personality. I know all of this because Allan mentored me.

I have used his random data concepts in my career, but I will also remember Allan for his contributions to pyroshock data acquisition and analysis. These contributions are detailed in the Institute of Environmental Sciences and Technology's *Handbook of Dynamic Data Acquisition and Analysis*, Appendix A. Allan was one of the first to pull together the characteristics of pyroshock. He recognized the importance of the pulse created by the detonation of explosives and recommended eliminating the pulse from the data analysis. He also recognized the influence of the hardware for recording pyroshock – accelerometer resonances and the need for isolated accelerometers as well as the requirement for low-pass, anti-aliasing, analog filters. In my view, Allan's recommendation to integrate the acceleration time-history to obtain the velocity time-history to assess data quality is a major contribution to pyroshock analysis.

Who can tell that the following acceleration time-history:



Results in the velocity time-history below that will produce a corrupted shock response spectrum?



Farewell Allan, and *thank you!* There will be a special session devoted to Allan's contributions at the 80th Shock and Vibration Symposium, October 2009, and ESTECH, May 2010.

Vesta I. Bateman

In Celebration of Allan G. Piersol

I would like to tell you about some of Allan Piersol's work and contributions. I met Allan in 1959, when we were both working at Ramo-Wooldridge Corp. I had just won a contract from Wright-Patterson Air Force Base to study the application of statistics to flight vehicle vibration problems. I was knowledgeable about the required statistical techniques but knew nothing about aircraft vibration problems. I looked around the company and found Allan, who had previous experience from Douglas Aircraft on testing and vibration problems. This started our association that continued for 50 years up until a few months ago.

In 1963, I left Ramo-Wooldridge to become an independent mathematical consultant and to form Measurement Analysis Corp. I asked Allan to join me, where I was the president and he was the vice president. As such, we were equal to companies many times our size. Over the next five years, we grew to 25 people and did work for various private companies and government agencies on aerospace, automotive and oceanographic projects. We sold our company in 1968 and continued our work

in different ways.

Allan and I were invited in 1965 by the advanced group on aeronautical research and development of NATO to deliver a one-week series of lectures at Southampton University in England. Some 250 engineers from all over Europe attended the event. Preparation for the lectures led to our first book, *Random Data Analysis and Measurement*, which was published by John Wiley & Sons in 1966. We also wrote five more books published by Wiley in 1971, 1980, 1986, 1993, and 2000. These books were translated into Russian, Chinese, Japanese and Polish, and to date have sold more than 100,000 copies worldwide.

One of Allan's NASA projects was to establish requirements for vibration testing of the Saturn launch vehicle for the Apollo spacecraft to send a man to the moon. He was a member of the final certification team to inform Werner Von Braun that it was cleared for launch when the first Apollo mission was scheduled in 1969.

From 1970 to 2000, Allan and I were consultants on many research projects dealing with applications of random data analysis. We travelled extensively and gave educational short courses to engineering companies, universities and government agencies throughout the U.S. and about 25 other countries. From our books, many students told us that they thought that

Bendat-Piersol was one person with a hyphenated name.

A very special short course occurred in 1990, when we were invited by the Soviet Geophysical Committee of the USSR Academy of Sciences to give a three-day series of lectures at Moscow State University. Some 200 engineers from across Russia paid a fee to attend. Many of them had Russian copies of our books. After the lectures, they lined up for us to sign their books, which made us feel like rock stars.

Over the last two years, we have been working on a new, fourth edition of our 1971 *Random Data* book to be published by Wiley in 2010. I will now complete this edition using the latest technical material written by both of us, and Allan and I will be the co-authors exactly as in our previous work. I also plan to dedicate this new book to him.

I was very lucky to have met Allan 50 years ago. He has been the most important friend and engineering associate in my career. I could not have done many things without his help and active participation. I will treasure his memory forever.

Julius S. Bendat

All the Right Answers

Let's go back many years to a Shock and Vibration Symposium in Beloxi, MS, long before hurricane Katrina devastated the

area. The main social event of the conference consisted of a delightful cruise in the Gulf of Mexico. Along with adequate libations, the evening included gumbo, endless peel-and-eat shrimp (locally harvested of course) and a mystery play for entertainment. Harry Himelblau and Allan Piersol were there along with well over a hundred other conference attendees.

The players asked for one of our group to participate in the drama. We unanimously elected (read, strong-armed) Harry to take the role. He did not disappoint us with much comic relief when he refused to stick to the script and gave his own version. This resulted in frequent protestations from the regular players – Harry! Harry! Please stick to the script!

After the mystery drama was over (and Harry was thanked for his dubious contribution), the players handed out a questionnaire to all the attendees to fill out and submit for a prize. We learned that the play was based on the famous drama *Witness for the Prosecution*. The questionnaires were collected and reviewed by the players. Only one person in our group got all the right answers and was awarded a small prize. The winner, Allan Piersol, spent his life getting "all the right answers."

Jack Mowry