

SEM History

Experimental Techniques Nov/Dec 1998, Vol. 22, No. 6

Prior to the inauguration of *Experimental Mechanics* in 1961, there was very little personal information published about the officers and important contributors to the "Friendly Society." Several articles are being prepared to remedy that shortcoming. One of the important early people in SESA history is J. Hans Meier, who was the eighth president of the Society (1950-1951) and the fourth Honorary Member (1968). We are indebted to Dr. Robert Plunkett for writing the following article about his friend and colleague.

- C.E. Taylor



J. Hans Meier



Robert Plunkett

AN APPRECIATION OF J.H. (HANS) MEIER SEM (SESA) PRESIDENT 1950-1951

by Robert Plunkett

I am privileged to have known 27 of the first 30 presidents of SESA, now SEM. Hans Meier may have been the first one I met. I was an undergraduate in Civil Engineering at MIT in the late 30's when Hans came from Switzerland as a graduate student. He received his doctorate in the early 40's and went to work for Bucyrus-Erie where he set up one of the first comprehensive industrial laboratories for experimental stress analysis. This was most unusual because very few Ph.D.'s in Engineering were being given in those days and most of the recipients went into teaching. Most of Hans' responsibility was for strain gage measurements on the long arms of Bucyrus-Erie's cranes, although he also instrumented other parts and other machines and used techniques such as Stresscoat and Magnaflux. This was very demanding and precise work because the normal failure of the extension arms is by buckling and the constraints on usage involve nonlinear interaction among cab angle, relative crane angle, azimuth and load. The dynamics of load motion and forward rig motion also can affect buckling.

I was away from MIT during the years 1942 through 1945 and so did not take part in the formation of SESA during the 13th Eastern Photoelastic Conference in 1943, but I know

that Hans was active then. When I returned in 1946 he had already left and we lost touch for a few years. We renewed our friendship in the mid 50's when he came to the General Engineering Laboratory of the General Electric Company to be Manager of the Applied Mechanics Section. I was a member of that Section along with Dick DeMichele, Ros Guernsey, Paul Flynn, Jack Lubahn, Bob Felgar, Paul Paslay, Tom Slot and Mort Gurtin among others. Those were exciting times when Hans led our efforts to develop experimental, analytical and computational methods for stress analysis of many GE products. Among our projects we worked on jet engines, steam and gas turbines, electric generators and motors and nuclear power plants. We also had projects involving small products like washing machines and dryers, food mixers, cathode ray tubes and refrigerator thermostatic controls!

Times changed and GE decentralized much of that work to other departments. Many of us left, me to the University of Minnesota and Hans to head up similar activities for C.W. MacGregor in the Development Laboratory of IBM in Vestal, New York. He worked on many of their projects from about 1958 until he finally retired in 1980.

Hans was a real pioneer in experimental stress analysis. He started when the instruments were mechanical such as Huggenberger Tensometers, dial gages, the Beggs deformeter and optical interferometers. He worked with Ruge and DeForest on early electric wire strain gages. He developed some ingenious devices for special applications. One was a non-contacting displacement gage for large displacements using the magnetic fields around equally spaced coils. He started in the era when each experimentalist had to build his own electrical and electronic instruments. He was an adept machinist who had his own machine shop at home and fabricated much of his own small equipment. He was and is a methodical Switzer in the best sense of the word. He could be counted on to get accurate and reliable data under difficult conditions. Among his many accomplishments, he is a remarkably fine photographer. Any SEM member who is visiting the San Francisco Peninsula should look up J. Hans Meier in Foster City and see some of the thousands of flower and nature pictures he has taken during his many trips to the picturesque parts of the world.