

I WAS THERE!

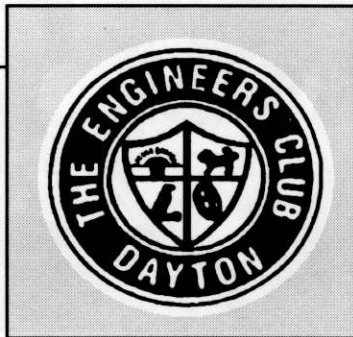
by Wilson Charbonneaux

As you board or leave a commercial airliner, and you glance into the cockpit, you can see a vast array of instruments. In the center console are the suite of engine instruments. In today's airplanes, the engine instruments all look alike, whether they display RPM, fuel flow, exhaust gas temperature, or engine pressure ratio. In fact, they are all made by the same manufacturer, making them easy to read. That wasn't always the case. Before the Boeing 747, each indicator was made by the manufacturer that made the corresponding sensor or signal conditioning unit. This was confusing to the pilots, a nightmare for the maintenance personnel, and a logistics problem for the purchasing function of the airlines.

Captain Scott Flower, chief test pilot for Pan Am, wanted the situation changed. Captain Flower was the type of person who got his way. As a young Engineering Manager with GE Aircraft Instrument business, I made a call on Scott at his office in NYC. He told me what he wanted. I told him the reasons it couldn't be done. He showed me the door and said not to come back, unless I had some ideas as to how to

achieve his concepts. With much chagrin, I started developing ideas with my very capable engineers. I then made a point of visiting Scott every month—first with sketches, then with paper models, and finally with prototypes and specifications. There were enormous hurdles to overcome, not only from the viewpoint of design, but also to work out the technical interface with the competitor's sensors.

With much help from Scott, we held a two-day seminar for all the airlines from throughout the world that had ordered or were about to order the 747. They all came, as well as representatives of Boeing. We built two complete cockpit simulators, one with conventional instrumentation and the other with our proposed concepts. Boeing saw the positive impression the new instruments made on the airlines and decided to provide them. To be fair to all their suppliers, Boeing used our technical information to prepare a procurement specification, and went out for bids. After a pricing battle, GE won the contract and went on to win the L1011, DC8, Airbus 300 and the B1. The basic concepts of engine instrumentation were changed forever.



Valley of the Giants

Ardo M. (Art) Friend

c.1915 - 1969

When you walk through the Engineers Club, it would be hard to miss the A.M. Friend Multimedia Center. Over the years, the A.M. Friend Multimedia Center has been an important area of computer activity for Club members and staff.

Born c.1915, Ardo M. Friend was the son of Mr. and Mrs. Maurice Friend. He graduated from the University of Michigan with a degree in engineering. After college, Ardo joined the Army where he earned the rank of Captain. While serving in the Pacific, he was awarded the Bronze Star for his work with an engineering construction battalion.

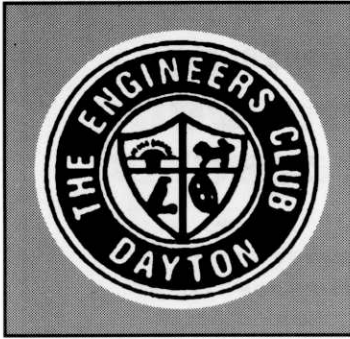
In 1946, he began working for the Ralph L. Woolpert Co. He served as a sanitary engineering consultant to various counties and municipalities in the Miami Valley and served on national committees. His advice was frequently sought on sanitary problems on the federal and local level.

Mr. Friend was a member of the Engineers Club, Temple Israel, Meadowbrook Country Club, American Sanitary Engineering Intersociety Board, American Waterworks Association and The Consulting Engineers of Ohio.

Mr. Friend passed away on August 9, 1969, in West Palm Beach, Florida. At the time, he was survived by his wife, Jeannette; his daughter, Lizette; his brother, Harrison; and his parents, Mr. and Mrs. Maurice (Morris) Friend.

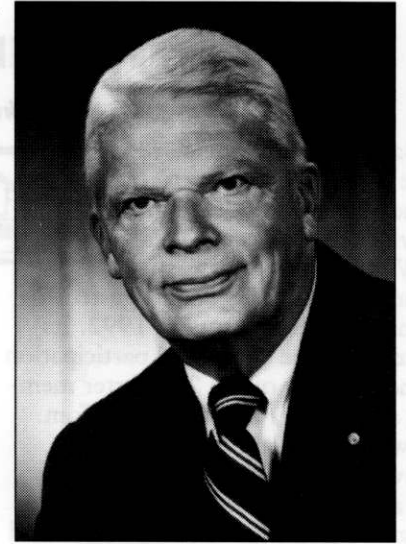
Following his death, an effort was put forth to establish a sanitary engineering library in his memory. The A.M. Friend Memorial Sanitary Engineering Library and the A.M. Friend Multimedia Center can be found on the second floor of the Engineers Club.

It is with pride that we can place the name of A.M. Friend upon the roll of our treasured VALLEY OF THE GIANTS!



Valley of the Giants

Charles Wayne Hayes



Charles Wayne Hayes

Charles W. Hayes was born in Dayton, Ohio, on June 13, 1917, the son of Charles S. and Florence Wayne Hayes. He attended schools in Moraine Park and Oakwood, and took courses in chemical engineering at both Dayton and Cincinnati Universities.

In the summer of 1939, he joined the IBM Corporation in Dayton as its service bureau manager. In 1941, he enlisted in the U.S. Army Air Corps as a student weatherman, and, while at Wright Field, he was sent to the Weather Forecaster's School at Chanute Field in Rantoul, Illinois. He graduated in 1942, and became forecaster at Selfridge Field and Bolling Field, before entering the Adjutant General's School at Fort Washington, Maryland, in July of 1942, graduating in September, and being com-

missioned as a 2nd lieutenant in ADG.

He served as an officer and commanded the 11th Machine Records Unit in the United States and Europe. His unit made the Normandy landing and continued advancing into Europe. He later served with the 9th Army unit, which linked up with the Russians at the Elbe River in Germany in April of 1945. By this time, he had reached the rank of major.

Charles married Marion Burger in 1942 and they had three sons—Charles Stephen, Jeffrey Wayne and Dr. Phillip Wayne Hayes. Mr. Hayes joined his father at Hayes Tool Company in 1946, becoming president of the corporation in that same year. Charles Jr. joined the company in 1968, and son Jeffrey joined in 1975. Plant branches were opened in Lima and

Sidney, Ohio, in 1965 and 1967. Charles Sr. retired from the day-to-day activities of the company in 1984. The company is now owned by IDG Atlanta.

His wife, Marian, passed away in 1983, and Charles married Mary Lange in 1984. Mary is the sister of Julian Lange, our January 1999 Giant featured in our *Valley of the Giants*.

Mr. Hayes has long been an active Daytonian. He has been president, as well as a long-time member, of the following local organizations: the Engineers Club, the Engineers Club Foundation, Rotary Club and its Foundation, the Miami Valley Health Foundation, the Dayton Club, and the Oakwood Athletic Boosters. He has also been an active member of the Society of Manufacturing Engineers, the National Distributors Association, Moraine Country Club, Sigma Chi Fraternity, Spring Run Farms Trout Club, Slagel Trout Club, and the Royal Palm Yacht and Country Club.

Charles W. Hayes has more than met the requirements to be listed on the rolls of our Club's VALLEY OF THE GIANTS! 1385

Corporate Members

Angell Manufacturing
Brown and Bills Architects Inc.
Coolidge, Wall, Womsley and
Lombard
Dayton Daily News
Digital Concepts Inc.
Gem Real Estate Group
General Electric

Hensley, Segal, Rentschler
Kiwanis Breakfast Club
Lockwood, Jones and Beals
Spectral Systems
Systems Research Laboratories
Universal Technology
Woolpert LLP

New Member Reception and Welcome

March 1, June 7, September 13 and December 6, 1999
6 p.m.

Correction

Last month's installment of "I Was There" was incorrectly credited to Wilson Charbonneaux instead of John Bosch. We apologize for the misprint.