Reflections Project: Herbert Bone

Herbert Bone likes: “Planes, Trains, and Mickey Mouse”

I attended High School in Wilkinsburg, Pa. during 1941-1945, World War II. The big hi-tech machines during that time were the military airplanes, and I learned all that I could about them. I also began building flying model airplanes, which became a lifetime hobby. I designed and built several Control-Line (around and around) racing models. I traveled to downtown Pittsburgh on the trolley to race with the big boys (adults). In my second racing season, I could beat a few.

I was born into a train family. My dad was the Chief Mechanical Engineer at a company that made mechanical and electrical equipment for many railroads. It was the Union Switch and Signal Co. Dad invented Car Retarders that were used in freight classification yards, and many other useful railroad things. When the family traveled long distances, we always took the train. No airplanes.

When I was eight years old, I received a Lionel toy train set. We set it up around the Christmas tree. Each year “Santa” added to the set until it became very elaborate. We built a semi-permanent layout for it in the basement, which my brothers took care of.
Over the years, I have had model trains in many different sizes, including the large Garden Railway size, which I set up inside the house at Christmas time.

My other interest in trains, is in their history. I have visited, and become a member of, many fine Railroad Museums around the country, including the local Northwest Railway Museum, the Colorado Railroad Museum, in Golden CO., and the Friends of the railroad Museum of Pennsylvania.

My interest in Mickey Mouse, and other Disney characters, started with my Mother. In 1933 when I was in first grade, I needed a Halloween costume. My mother bought a sewing pattern and some material and made Me into Mickey Mouse. The costume had a very detailed head piece which included the ears, the eyes, the nose and the mouth. I was a hit at school. From then on, I loved Mickey.

The Grand Event came in 1938, when I was 10 years old, Mother organized a “Snow White and the Seven Dwarfs” birthday party at our new home. The movie had been a smash hit, and there were lots of children’s books about it. Each of the ten guests was assigned to be one of the characters. Mother made crape paper caps or hats for each one. Two of the boys got the girl’s parts, and got ribbons and bows

for Snow White, and a crown for the Queen. There were appropriate games and prizes and food. I was Doc, and little brother Jim was Dopey. It was a great party. My love of Disney characters was firmly established for a lifetime.

Prior to pursuing my education, I served in the US Army in Obersdorf, Germany where I managed a small off-base Post Exchange with three German civilians. Our PX served a Military Community consisting mostly of officer's and their wives. Obersdorf is a Ski Resort, with gondola lifts and a large skiing area. I learned to ski there in my spare time. Skiing became my favorite sport for many years.

Returning to the US in 1947, I entered Carnegie Tech in Pittsburgh PA to pursue a degree in Mechanical Engineering, with an Aeronautical Option. During this time, I resumed my model airplane hobby with a radio controlled (R/C) model, which was a very new hobby. I had a "Rudder Bug" model with a "Good Brothers" radio system, which was state of the art in 1949. Later, I updated the radio system with one that I constructed from a schematic diagram. I helped to organized a club of like-minded modelers. It was named the "Pittsburgh Flying Circuits".

I graduated from Tech in June 1951, and took my first job at the Glenn L Martin Co. in Baltimore MD. I was assigned to the B-57A Canberra Bomber program. I designed fuel system installations, and made metal loft drawings of the main spar firewalls. I learned how a large company operated.

In mid-1952, I was contacted by the Union Switch and Signal Co, and was offered a job. I was told I would like it, so I accepted. I obtained a "Secret Clearance" and joined a small group of engineers who did military projects within the US&S.

My specific assignment was to do the engineering work required for production of the TRIZON Radio Controlled Guided Bomb. US&S had a history of building R/C guided bombs, the AZON during WW2, and the RAZON later. The TRIZON was a smaller, 3000 pound, version of the TARZON R/C bomb designed by Bell Aircraft. The US&S built the bomb's tail section that consisted of rigid tail surfaces to provide stability, motor driven rudders and elevators for guiding the bomb, gyro controlled ailerons to prevent roll, a flare for visibility, a battery, and the radio. The US&S did not build or supply the radio or the explosive parts. They were added later. The US Airforce bought 70 TRIZON bomb tails for their test and evaluation, but there was no follow-on contract. I did like this job.

During this time, I linked up with some of my model airplane friends, and was active in the Pittsburgh Flying Circuits Club, although I did not fly.

After that, I worked with other members of the US&S group on various military projects. The most interesting were the ZEL projects. The ZEL projects addressed the question of "How do you get a manned and fully loaded jet fighter into the air when it's airfield has been destroyed by the enemy?". The answer, was to use the same rocket boosted, zero length launch (ZEL), system in use for the Martin Matador and similar flying missiles.

The US&S was building the production launchers for the Martin Matador, so we got the job to design and build the airplane versions, which would be more complex. The first program was ZELMAL, which used a modified F-84 Thunderjet for the aircraft. The second program was ZEL, which used a F-100 Super Sabre for the aircraft. This was twice the weight of the F-84, and required a huge rocket and a more complex launcher. US&S delivered both launchers to Martin and the Air Force, for tests and evaluation, but there were no follow-on contracts. What remains, are some very remarkable photos of ZEL launches, with lots of smoke and flame.

I followed my boss to a new job at the Crosley division of AVCO in Cincinnati Ohio. We had expected to design an "Alert Pod" which would be a major piece of support equipment for the XB-70 supersonic bomber. Before we got very far, it was cancelled. For lack of significant work, I was laid off, the only time ever.

After a three-month summer vacation of looking for a job, I wound up back where I started, at the Martin Co. in Baltimore MD. This Martin plant no longer built airplanes, but now it did support work for the Titan rockets that were built in the Martin plant at Denver. My first big task was to design two similar truck mounted propellant loading units for the Titan 3 rocket, which was used to launch satellites. This provided for fueling the Titan 3 with both required fuels at the launch site.

As a part of the Saturn V Moon Rocket development, NASA needed a "Hydrodynamic Support System, made up of four hydraulic/pneumatic pedestals, to permit a simulated unrestrained reaction." The Rocket needed to float in four puddles of oil for sideways motions, and to bounce on four bubbles of air for up and down motions. This System would be used in Dynamic and Vibration testing of a full-size 6,500,000 pound Saturn V Rocket, in many configurations. Martin had submitted a proposal to design and build such a system, but it was not accepted. Now, NASA was asking for a new proposal from Martin.

My boss and I decided to reviewed Martin's previous Proposal to NASA. It was based on one of NASA's ideas, and it used lots of air bottles, valves and pipes to provide the required variable size of air bubbles . My boss commented, "What if we put the air bubbles inside the pistons?". What a great idea! That solved many problems. We made a new Proposal to NASA and won the Contract.

In the final design, each pedestal had a large cast iron cylinder and a piston containing the air bubble that provided the soft vertical support. On top of each piston was a flat hydrostatic bearing that was the puddle of oil that provided soft motions side to side. A 400 HP hydraulic system provided flow to the bearings.

When all the tests were done and the support units were shipped off to Huntsville Ala., the engineering group was broken up. I was told, not asked, that I was going to Seattle WA to work at Boeing on the American Supersonic Transport, SST, for several years. This was part of a deal that Martin had with Boeing to get SST construction work. I agreed, and the family and I moved in early 1967.

I was fortunate to be put into a Hydraulics Group, rather than a Structures Group. I learned about things called Power Servos, which were hydraulic, or electro-hydraulic, mechanisms that pushed airplane flight control surfaces around. I also learned that Boeing did not make these Servos. Boeing had specialists who would determine all of Boeing's requirements and formalize these in a specification that would be put out for bids to reliable companies. I learned to do that.

The SST program was cancelled when the Federal Government failed to provide a large subsidy. I had previously been hired direct with Boeing, and was lucky to miss the layoffs. I was moved to the Everett plant and worked on the 747-SP to develop a new Rudder Control System. For the rest of my career, I was a lead engineer specializing in Flight Control Actuators for the 767, 747-400, and others.

During this time, I became active in two Model Airplane clubs, the Marymoor R/C Club with a nice flying field in Marymoor Park, and the Boeing R/C Club with a very nice field on Boeing property in Kent.

I retired from Boeing in July 1992. Some of my co-workers knew about my fondness for Mickey Mouse, so they organized a Mickey Mouse Retirement Party. There were MM pictures, MM toys, a MM cake, and best of all, a very elegant MM watch with the encryption on the back "TO HERB FROM YOUR PALS AT THE MICKEY MOUSE CLUB". I was never happier.