

## MUSIC AND SCIENCE

by Paul Oncley

When I was in the fourth grade, back in 1921, I entertained myself by building radios, but I also studied piano and violin. Through school I was interested in scientific activities, but I got more and more involved in music, particularly the violin and viola with my teacher, Dean Bennett, head of the music department at Southeastern College where my father taught chemistry. When I got to college I took many music courses, and graduated in 1931 with an AB in Violin. But the years of the thirties became a deep depression, with jobs and scholarships becoming very hard to find. I won a scholarship at the Eastman School in Rochester, which paid my tuition, and also got a position in the Rochester Philharmonic Orchestra viola section. I earned a Bachelor of Music in viola, and then a Master of Music in Composition under Howard Hanson. I had also been studying voice on the outside and doing well, and I decided to try a year with the Eastman Voice department. My first voice recital was a hit, and the Choral Director asked me to take the leading role in the Faure "Beatitudes", which was the major choral work of the year in the big Eastman Theater. It was a great success, and I chose to go to New York City.

There I auditioned for a voice scholarship in the Juilliard Graduate School, and won it. One the best teachers, Horatio Connell, who had a great background in German lieder, was assigned to me. We got along very well, and I had many opportunities to sing, including a part in the Rimsky-Korsakov opera "Kitezh" that had never been performed in America. We did it in Russian with the Philadelphia Symphony in both the Academy of Music and the Metropolitan Opera House. I looked forward to another exciting year with Mr. Connell the next year, but we had a tragedy. Connell died abruptly and the school brought in, as a replacement, a retired tenor from the Metropolitan who had no teaching experience and hated German. I couldn't stand him and the school authorities discouraged any changes in teachers, so I didn't know what to do until I heard from my good friend and Dean of the Music Department at Southeastern, Dean Bennett.

He had changed jobs, and now was head of the Music Department of the Women's College of the University of North Carolina in Greensboro. He offered me a position as head of the voice faculty and violist in the Faculty String Quartet. With the problem in New York, I was glad to take the offer. It worked out to be a very good situation, where I had plenty of opportunities for singing, playing and conducting besides teaching. In 1942, I collaborated with another teacher to organize a Summer Opera Workshop in Greensboro, lasting eight weeks and giving three operas.

But the war was heating up, and I worried about the draft. Duke University, in nearby Durham, announced a twelve-week course in "Radio and Communication Engineering". Remembering my childhood experience with radio, it interested me, but the Opera Workshop was too far along to cancel, so we went ahead for a successful eight weeks. When it was over, I headed for Durham. With only four weeks, I located the previous class notes and experiments, and studied them late at night. When I came to the final examination, I passed it with honors. Shortly after, I got a notice advising me to go to a Project on Sound Ranging.

This experience I consider the greatest influence in my life, where I went from music to science.

The work on sound ranging was classified, so I can't discuss it freely. I can say that I learned a lot about sound propagation, which was useful to me in later civilian work. I also met Dr. Harvey Fletcher, head of physical research at the Bell Telephone Laboratories, who supervised all government acoustic research during the war, including our work in Durham. As such, he knew my work, and he helped me to get a position at Bell Labs when our project closed.

I moved to the Bell Laboratory in Murray Hill, NJ, near Summit. Although I had another supervisor, Dr. Fletcher often called on me. He was very interested in acoustics, but he couldn't take time to answer the many letters he received from people with ideas about music, such as new notations. My work wasn't exclusively related to music, but Dr. Fletcher did use me quite frequently, and I was

concerned when, after about five years, word came that he was retiring because of the Bell System rule calling for compulsory retirement of all employees at age 65. So when Dr. Fletcher accepted a three-year position with the Columbia University Engineering Department, I went along as his assistant and graduate student. I also taught some classes and finished a Ph.D. degree in Acoustics.

After the degree I had several jobs, but in 1958 I had an interesting offer from the Boeing Company in Seattle. The Russians had just launched Sputnik, and our government was making a desperate effort to match it. The army issued a proposal to Boeing Airplane for a manned orbital vehicle called Dyna-Soar. The company was enlarging its research staff, and called me. Most of my efforts were directed to finding potential uses for Dyna-Soar, but we couldn't find a solution to the problem of dissipating reentry heat, so the proposal was cancelled, and I was transferred to other groups. When the sale of Jet Transport Airplanes became widespread, I was put in the Noise Control group concerned mostly with the FAA certification of the noise requirements of new models. We also dealt with government contracts, one of which related to how the noise from aircraft propagates to the ground. The report on that was based on my study of artillery noise during the War. I retired in 1988.

Word count 991