A Notable Passing: Henry Kloss

By Tomlinson Holman

Maybe you noticed the recent passing of Henry Kloss, since it was an event covered by the New York Times (February 5, 2002) obituaries, and by National Public Radio, a downloadable audio version of which is archived at http://search1.npr.org/opt/ collections/torched/atc/data_atc/seg_137575.htm. But then again, for younger people in the business, and for those with no connection to the consumer side of things, maybe you don't even know who he was.

Henry Kloss probably had more to do with how sound is heard in the home, and how pictures are made for a certain level of home theater, than just about anyone. As a 24-year-old in 1954, he did most of the production work on the first acoustic suspension woofer/box combination, the AR-1, following the theory of his instructor Edgar Villchur. Henry was already in the loudspeaker business, and he saw real market possibilities in this invention, and he and Villchur capitalized the company to exploit the idea. Using the air in a sealed box as a spring relieved the loudspeaker from doing this duty, and as the air was a more linear spring than the mechanical suspension of a loudspeaker, there was lower distortion than prior designs. It also solved the problem of "big bass from a small box," and the acoustic suspension (or sealed box as it is perhaps more commonly called today) became the stalwart of the industry.
"What really caught the public fancy, however, was the fact that the original Acoustic Research AR-1 was a small loudspeaker system having essentially flat low-frequency response down into the 40-Hz region. Other manufacturers were quick to point out that the AR-1 gobbled up about 10 times the electrical power needed by larger, more efficient systems. With 40- and 50-watt amplifiers becoming available, this turned out not to be a major drawback, and the trend toward smaller, less-efficient home loudspeaker systems was firmly established.

It wasn't until 1960s, when Neville Thiele started making sense of those electromechanical analogies in Beranek's book, Acoustics (coincidentally published in 1954), that the vented box was properly quantified. It took years, and Richard Small's work also, for ported enclosures to come into common usage by the late 1970s. Today's loudspeakers having dynamic drivers in boxes have to be said to owe the most credit to Villchur, Kloss, Thiele, and Small.

Henry left AR and formed KLH with partners in 1957. It was here that he ventured into other audio systems, such as a high-quality table radio and those three-piece systems having a record player and electronics in one box and two loudspeakers, all in a suitcase arrangement, that zillions of people took away to college or on vacation. In loudspeaker design, he supported Arthur Janszen in making full-range electrostatics, the

KLH Model 9, as well as making the best-selling bookshelf loudspeaker of the 1960s, the Model 6. To push the theory of loudspeaker design, he experimented with making a loudspeaker with flat power response (100-percent dispersion of flat response in all directions), and discovered that this design was hideously bright on program material — another nice theoretical construct hung up on the grounds that it simply didn't work in the real world.

Moving to Advent after "L" and "H" bailed on him, he heard the first LP that used Dolby A noise reduction on the master tapes, and was so impressed with its dramatic decrease in tape noise that he tracked down Ray Dolby on the phone — in half an hour — and went to see him the next afternoon in London — to talk Ray into making a consumer version of the system to fix the plague of low-speed tape recording, tape hiss. Applying noise reduction first to a KLH open-reel deck, which he built at Advent for KLH, was the introduction of Dolby B to the world.

The logical successor to the KLH 6 was the Advent Loudspeaker. This best-selling model of the 1970s combined quality and reasonable price. One of the ways that the price was kept so reasonable was by doing quite a bit of the process of making the speaker components in-house. For instance, a slurry was made basically by putting grocery bags into a Waring blender with water and chopping them up to the right consistency, then sucking on the mass through a filter to produce a limp cone, then pressing the cone shape, then finally treating the paper cone with orange bulb dye from the hardware store to stiffen it and make it less porous. The cone-shaping dye gives a measure of how good Henry's seat-of-the-pants design engineering was. Here a male and female part mate with the cone trapped between them under pressure. The exact cone shape is determined here, and it is a non-conventional central dome centered within a larger radius annular ring, a kind of top half of a donut sawn through sideways. The idea was that, as frequency goes up and cone losses become greater, the area of radiation shrinks to that nearby the voice coil, maintaining dispersion. On the other hand, the relatively large overall diameter provided good low-end (for a tweeter) response and power handling. Really a brilliant piece.
More brilliant than we knew. After hundreds of thousands of these things had been stamped out, and the original drawing lost, the response changed, and it took months of work to figure out something that Henry had sketched on the back of a napkin some years earlier — the exactly optimum shape.
These would be feathers enough in the cap of any audio inventor, but I was absolutely astonished when I interviewed at Advent in the spring of 1973. What I was shown during my interview was not an audio product at all, but instead, sitting in a darkened room in a dingy part of Cambridge around the corner from MIT, sat a 7-foot diagonal large-screen front projection television! It had brightness that reached motion picture standards, and few theaters of the time even met those

Henry transcended audio then, and did for some years to come, essentially starting the home theater business. Meanwhile, he was up to a few things in audio, too. Henry fully recognized the value of surround sound, but not its quad implementation, which was essentially dead by the time I got there. We built the Advent 400 table radio (and I learned a lot just from that) and the 300 receiver. I remember Henry's joy when I spent a weekend with foam core making a model of how to put together the receiver mechanically using monocoque construction — there was no identifiable chassis as had always been used up until then.

It was an amazing time. Henry had assembled a team that was talented, bright, and loyal. Most of us have never worked again in a place so filled with competent people. While there's a New Yorker article waiting to get out about what it was like to work there, just one story suffices to tell what kind of a man he was:

The company got into trouble — after all, it was a pioneer in the projection television business, and you know who the pioneers are — those guys with the arrows in their backs. A new set of managers bought into the company, but with Henry still there. They cut back salaries by 15 percent, and it was understood that these cutbacks would be paid back when the company was on its feet. Of course, it never was in the consideration of those managers. At Christmas, Henry came around with Christmas cards. Inside each envelope was cash in the amount that the company had cut us, making us whole.