

## In Quiet Retrospect

*Ralph Hillquist, RKH Consultants, Benzonia, Michigan*

Some few weeks ago, as this is writ, Associate Editor Lang asked if I would prepare an editorial for the issue specifically aimed at the Society of Automotive Engineers Noise & Vibration Conference. Having been published in this magazine in the past (Volume 1, Number 4), I relished the thought of being “in print” again. Enticing was the mention that I could scribble down anything I wanted. In a short period of time, it became apparent to me that I could contribute little, if any, commentary or insight into the current goings-on in this field. For sure, high-powered mathematics were entirely out of consideration. However, following the credo of “if you can’t dazzle ‘em with brilliance, baffle ‘em with male bovine excrement” that got many of us through in days past, give it a shot I thought.

Shortly after I said that perhaps I could put something together, Editor and Publisher Mowry confirmed the offer. I should point out that Jack Mowry and George Lang have been colleagues, good friends and “sounding boards” for more years than many of the readership of *S&V* have been alive. That speaks to the closeness and respect of those who have been in the sound and vibration vocation for most of their adult life.

2005 is the hundredth year of the existence of the Society of Automotive Engineers. The 2005 SAE Noise & Vibration Conference is the eleventh biannual specialty conference specifically dedicated to this topic, although its roots go back to 1964. The first SAE paper regarding tire noise was published in 1922 – the current conferences have on the order of three hundred papers on a myriad of subjects. The objective of the workshops and Conferences from the git-go was to get sound measurement engineers on neutral turf to become acquainted, share experiences, and frankly get away from the office environment.

The first workshop in 1964 had about 60 attendees and two exhibitors (both good friends whose arms had to be twisted only gently). Those of you in attendance at recent conferences know that the baby has grown up well. This is the result of the hard work and dedication of many individuals over the years – men and women who truly believe in “the mission” and the importance of automotive sound control.

The ‘A’ in SAE initially was for automobile, but as noted above, now stands for automotive. The scope of interests embraces cars, trucks, buses, motorcycles, lawnmowers, earthmoving “tonka toys,” agricultural equipment, and air-

craft – a wide spectrum of products, but for some of us, a common objective.

Why? We all know that noise control and sound quality are essentially consumer and environmentally driven. We also know that the neighbor’s diesel truck is horrendously noisy and a very quiet vacuum cleaner doesn’t pick up stuff on the carpet. Perception, right?

So now a broad segue. Perception is what the listeners hear – if even in a jury setting. In the old days, we would (analog) tape record automotive sounds, rerecord them (losing three dB in output signal-to-noise ratio in the process) into an A-B-A-B format, clamp on some expensive (at the time) headphones, and make judgments on various automotive sound treatments. All pertinent information was carefully gathered into a technical report that was forwarded to the client. Their bean-counters priced the options out and the responsible chief engineer released the cheapest thing that he perceived to be adequate. Sales figures, the ultimate measure, either proved or refuted that decision – but the sample size was limited to those who chose quiet over a few bucks less on the sticker.

I am constantly amazed that new automobiles are released with a noise, vibration, or both, ‘period,’ at legal highway speed. And I am going back some decades here. I drove vehicles from all domestic producers for many years, so the problem is not new or restricted to one manufacturer. My current “daily driver” is a 2004 SUV that has a “tip-in moan” at 55 mph – dadgum annoying. Really a good reason to drive at 65, but a hefty fine when caught and the judge doesn’t understand automotive acoustics, so I live on the ragged edge.

To another viewpoint, in the early 1970s our federal legislators did the necessary machinations to create an Office of Noise Abatement and Control (ONAC) within the Environmental Protection Agency. Depending on your viewpoint, the challenge and accomplishment of this group was either daunting or disastrous. There is no question in my mind that the mission of the group was politically, not professionally, driven or motivated. Reams and reams of paper were produced, most by contract consultants, and yet no cohesive national noise policy ever emerged. From day one (well, a little longer than that, until they got organized), there was an “us versus them” attitude that made everything confrontational – needlessly, to my thinking then and now.

The Institute of Noise Control Engi-

neering has been holding meeting sessions and publishing summaries in its *Noise Control Engineering Journal* (NCEJ) concerning a national noise policy. But I have to wonder if they are “preaching to the choir.” It is curious that the automobile industry asked, way back when, to have a uniform approach to vehicle sound level limits, for very obvious reasons. Only a few made it to regulation – industry was the “bad guy.” A little “arms length” rather than confrontational approach may have been more productive for both industry and the public, but I conjecture.

But, through all of this, SAE Standards and Recommended Practices have been the basis for what regulations exist and for a common understanding in our papers and communications. These documents have also had some recognition in ISO and the EU. What is more important to the SAE standardization efforts is the interaction of involved engineers/technicians, from varying backgrounds and employers, working together toward a common goal. During my active involvement with SAE standards work, there was almost always the spirit of engineers working together to solve a problem (isn’t that what we always wanted to do?). Then some lawyer wannabes would show up and put the train off the track. Nonetheless, the SAE standards efforts have been, and continue to be, representative of the collective knowledge of practitioners of our art and are an important contribution to international standardization.

Lastly, to keep this short (which I have been told many times is not my wont), the above ramblings did not come from a crusty, old curmudgeon. I should admit to crusty; yeah, I’m getting old; curmudgeon stretches credulity a bit. But when I first matriculated (that’s not a nasty word), I carried a slide rule on my hip. Later, I bought an HP-35 at a significant portion of my monthly wage. Still have the slide rule – and sold the HP at a favorable price (long ago, pre eBay). Further details since then will not be divulged, lest my bride read this.

This penultimate paragraph will only point out that modern digital instrumentation, with 8- to 24-bit resolution, is sure slick and fast. But unless your mind works at 2.4 GHz, do you really know what to do next in your test setup?

I leave you with my typical end-of-year holiday greeting: *Peace and Quiet*.

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## Editorial Addendum

George Fox Lang, Associate Editor

It is a pleasure for all of us to have Ralph Hillquist's words grace our editorial page. I like his plainspoken prose mixed with more than a dash of sardonic wit. We are old friends; we first met in 1969 when he hired me to work for the General Motors Proving Ground (GMPG). Now, as back then, he is the kind of 'bankable' fellow you can go to for technical insight or help with a business problem.

We share much more than the experience of simply working together in the Noise and Vibration Laboratory (NVL). We satiated the various passions of youth together in our off hours (and neither will now turn Quisling upon the other!) We also found we had a surprising number of common interests beyond wine, women, noise & Vibration and debauchery.

When Ralph's name was placed in nomination to be installed as a Fellow of the Society of Automotive Engineers, it was my pleasure to state why I thought that honor was appropriate. In June of 2003 I wrote to the Society:

*Ralph Hillquist personally performed technical work of the highest standards in the field of Acoustics as applied to automobiles, other vehicles and civil structures. His efforts were always characterized by a unique blend of practical "horse sense" combined with a masterful understanding of the arcane details of the*

*acoustic and vibratory phenomena. Yet, his greatest contribution to the Engineering process and the Automotive industry may well lie in the accomplishments of others. Ralph was a suburb mentor and his continued contributions to the technical and professional growth of others had a very major positive impact on the capabilities of the Noise & Vibration Laboratory at General Motors Proving Ground.*

*When we first met, I was a young Engineer with a few years experience with Sikorsky Aircraft's Advanced Research Branch. Ralph was a senior member of the NVL staff and managed all of its acoustics activities and about half of the lab's staff. In that era, it was difficult to find trained acousticians. During my interview, Ralph offered me a position with one of his acoustic groups despite my lack of related experience. In short, he offered me the chance to learn automotive acoustics on a "trial-by-fire" basis with the assurance that all of the finest measurement resources were available and that "brain picking" was considered an acceptable research practice in his facility! With the arrogance of youth, I turned him down. I explained my passion for the simulation and analysis of structural dynamics. I wanted to study vibration, not sound.*

*His reaction to my rude deferral was quite remarkable. He immediately introduced me to Tom Harris, saying something to the effect, "This guy really wants*

*to do your kind of stuff. I recommend you hire him." So it came to pass that I joined NVL and enjoying a wonderful working relationship with another of its gifted senior members. Tom was the best instructor and closest friend I've ever had. While neither of us saw the chemistry that would develop between us at that first meeting, Ralph did.*

*Over the ensuing years, I had ample opportunity to observe Ralph's skill at reading people and building synergy between them. Many good engineering careers, both in sound and in vibration were launched and nurtured under his careful guidance and tutelage. There are a lot of people in the automotive acoustics business today who rather proudly state, "I grew up under Ralph Hillquist." While many people contributed to the long history of technical success credited to NVL, I can't think of another who contributed more regularly or more successfully to the development of its staff.*

*Others will laud him for his personal technical work; they will find no argument from me. Many will remember his tireless efforts to publicize and coordinate activities in our field; he was unquestionably prolific. But, if he had done none of these things, Ralph Hillquist deserves your recognition as a Fellow based solely upon the large body of people he identified, nurtured and developed into high-quality professional practitioners of a very special automotive science.*