



David Alan Bies, a fellow of the Acoustical Society of America, passed away on April 6, 2015, in Cairns, Australia, ending his six-decade career in the physics of vibration and noise.

Born into a poor blue-collar family in depression-era Los Angeles, David worked and saved as a young man to enroll in an undergraduate degree

in the Department of Physics at UCLA. His PhD investigated the puzzle of why sound absorption was so much greater in seawater than in freshwater. Others had suspected chemical reactions, but his experiments with the ionic dissociation of magnesium sulfate proved it and identified a primary mechanism. Along the way, David invented a new technique for degassing seawater that avoided the need to blast it with hazardously loud sirens; his first foray, as he often said, into the world of noise control.

Others followed. His PhD awarded, David left academia for the world of contract research in private industry, helping the US Air Force identify the cause of the combustion instability plaguing early US rocket designs: acoustic vibration in the combustion chambers. Further research led to the design of a silo liner that could reduce the superdestructive vibration of Minuteman missile launches. By way of a side project, David also invented a way to reliably test missile launch effects in a scaled model silo (hitherto impossible), thereby saving the Air Force millions.

David's international reputation as a noise control expert led Adelaide University's Department of Mechanical Engineering to offer him a senior research fellowship in 1972. The opportunity to research optical holography was a godsend but even greater assets, he found, were the students. Many of David's PhD students went on to become mechanical engineering professors at Australian and US universities.

At Adelaide University, David was also instrumental in evaluating the quality of anechoic and reverberant rooms and the introduction of rotating diffusers. He also worked on the noise control of shearing processes in presses and circular saws, the latter by damping the blade. His invention of a hydraulic oscillator became a sonar source, still used by navies today, that fools mines into exploding harmlessly. The same oscillator, hooked up to steel construction piles, proved capable of vibrating them at frequencies sufficient to liquefy soil, allowing the piles to slide into position without laborious pile driving.

It was also at Adelaide University that David and Colin Hansen coauthored their book *Engineering Noise Control*, which went on to become an industry standard.

David spent his retirement researching the vibrational characteristics of the human cochlea. He is survived by his daughter, Carolyn.

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Articles by David Alan Bies

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