

## A Looming Shame

If you're reading these words then doubtlessly you're aware that many many people don't like airplane noise very much. On the other hand, a far smaller but also very enthusiastic group seems to think that the complaining is unwarranted and an unfair encroachment on the enjoyment of aviation. To bring expert opinion to this discussion, the Town Board has commissioned a study of the offending noise. Unfortunately, there are grounds to believe that the noise study may not capture just what it is that's so darned disturbing about aircraft noise. The history of the firm that's been hired to do the study, Harris, Miller, Miller, and Hanson, suggests that they'll very carefully identify the geographic and temporal distribution of sound contours and the background sounds levels that surround them. They'll identify patterns of sound level above background that may or may not exceed various engineering standards. Unfortunately, what they probably won't do is measure how it affects the people hearing it. They'll just assume that only very loud noise is bad, and it gets worse the louder it is above background. Unfortunately, the best evidence from ecological psychology and neuroscience is that neither of these assumptions capture what is so particularly disturbing about aircraft noise.

While there is an enormous amount of evidence that high background levels of noise and frequent loud noise events can be a general irritant and even a health hazard, it may not be the noisiness of aircraft that has people screaming. There are many sources of noise in our world that don't provoke the kind of public reaction we've seen to aircraft noise. Leaf blowers, for instance, make a horrendous racket, so loud that the operators wear the same ear-muffs worn by airport employees standing near jet exhaust. Every neighborhood has regular exposure to leaf blowers yet there is no Quiet Lawns Coalition. It may be that some aspects of aircraft noise evoke more than simple irritation, it may be that the dynamic character of noise produced by aircraft speak to a primitive defensive reaction to a threat of predation...a threat of being eaten.

It's common knowledge that we humans instinctively react with distress and fear to a variety of inherently dangerous stimuli such as snakes and spiders. What is less well known is that we react much more strongly when we perceive that such stimuli are approaching us. Ecological psychologists describe this property of scary stimuli as "looming" and they've demonstrated in the laboratory that fear reactions rise sharply with the speed and proximity of approach. If aircraft noise, with its bass impulsive quality, is inherently scary then measuring the intensity contours of aircraft noise source isn't going to get at what's making so many people uncomfortable. Now few of us are going to admit that we're afraid of airplanes, we all know about Orville and Wilber and that the growling noise from the sky is not out to get us, at least not lately in the US. But the unease that we experience comes from a part of the brain into which education does not seep. At this level, we're more like wildlife, which aren't at all sure that looming airplanes are not hungry predators on the attack.

But this may not be the only shortcoming of the sound study being contracted by the Town Board. There is another very well established line of research in neuroscience that shows some paradoxical properties of the startle reflex, one of our natural emotional and behavioral reactions to a threatening stimulus. One would think that the lower the background noise, the more conspicuous and therefore upsetting a noisy stimulus might be. In fact, the relationship is just the opposite. The startle reflex is stronger when background noise is higher and the relative

loudness of the startle stimulus is lower. It is argued that this is because a potentially dangerous noise that can be heard over a noisy background must be coming from a source that is quite close. Thus when a gazelle by a waterfall hears a lion roar, it runs like crazy because, to be audible over the waterfall, that lion could be carnivorously close. Likewise, when the approaching roar of aircraft is only barely heard over the TV, or the kids in the next room, or the wind in the trees, it may be more alarming, not less alarming than otherwise.

I don't know how the Harris et al. firm plans to interpret the sound intensity data they are gathering, but their previous reports suggest that they won't have done much reading in ecological psychology or neuroscience. And if not, we may get a recommendation that will fail to acknowledge the essentially biological disturbance of thousands of people exposed to aircraft noise. I'm even surer that those consultants won't be thinking about how wildlife, which mostly live without a roof over their head or windows to close, interpret the encroaching snarl of aircraft.

As usual, the science that bears on this problem is indirect. There have not been experiments that explicitly address the effects of aircraft approach sound patterns on human or animal emotional fear responses. Worse, since the EPA's 1980 deferral of responsibility for aircraft noise pollution to the states, it's not likely that any such research will be funded. This is not to say, however, that the Town Board is without ample evidence confirming the persistent and peculiar severity of the human reaction to aircraft noise that is strongly suggested by the relevant science. Surely the formation of several groups targeting aircraft noise, more than a few law suits, repeated political campaign planks, innumerable letters to the editor in every local paper, many thousands of calls to a "hot line" that never responds, many published complaint ads, frequent testimony at Town Board meetings, and the actual experience of positioning one's self under any flight path on a summer Friday evening should provide all the evidence necessary to compel government to find a way to spare its citizens and neighbors and wildlife this deeply provocative and increasingly excessive assault on their state of mind.

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