

RIGHT TO QUIET SOCIETY

for Soundscape Awareness and Protection

NOISE LETTER

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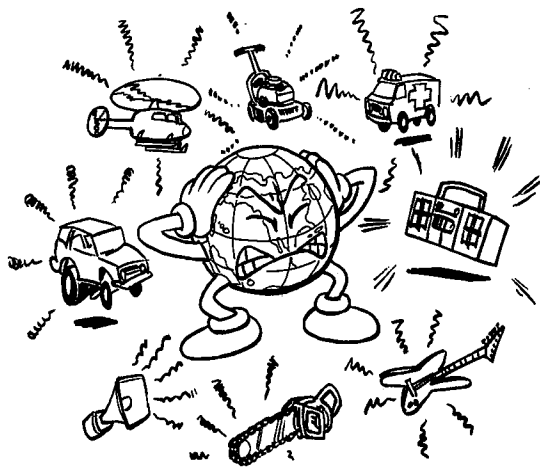
Fall 2017

Silence, please!

Psychologists are increasing awareness of the harmful effects noise has on cognition and health.

By Amy Novotney, American Psychological Association, 2011, Vol 42, No. 7

We've all been annoyed by a neighbour's late-night partying or early-morning lawn mowing. But it turns out that living in a noisy neighbourhood - particularly one plagued by train horns blaring or airplanes overhead - is more than exasperating. It might actually be deadly, according to a report released by the World Health Organization and the European Commission's Joint Research Centre. A steady exposure to "noise pollution", the report concludes, may lead to higher blood pressure and fatal heart attacks. The report analysed a large number of epidemiological studies, most of which were conducted in Europe.



Noise hurts!

The report also confirmed what several psychologists have known for decades: chronic noise impairs a child's development and may have a lifelong effect on educational attainment and overall health. Numerous studies now show that children exposed to households or classrooms near airplane flight paths, railways or highways are slower in their development of cognitive and language skills and have lower reading scores. "There is overwhelming evidence that exposure to environmental noise has adverse effects on the health of the population," the report concludes, citing children as particularly vulnerable to the effects of chronic urban and suburban racket.

As air traffic increases worldwide and politicians consider building noise-producing wind turbines in more residential neighbourhoods, the negative effects of noise will only continue to grow, unless more is done to abate it, says environmental psychologist Arline Bronzaft, PhD, of the City University of New York. Her now-classic study from the 1970s was among the first to report the harmful effects of subway noise on children's learning, and she has advised four New York City mayors on noise policy. New noise research in the United States has been scarce, however, since nearly 30 years ago federal funding for noise pollution research was cut after the U.S. Environmental Protection Agency's Office of Noise Abatement and Control was eliminated during the Reagan administration.

Still, Bronzaft says, as a matter of public health, psychologists must continue to stay involved in efforts to reduce environmental noise. "Noise is a psychological phenomenon," says Bronzaft, a contributor to the book "Why Noise Matters" (2011). "While the ear picks up the sound waves and sends it to the temporal lobe for interpretation, it's the higher senses of the brain that determine whether that sound is unwanted, unpleasant or disturbing, and that's why psychologists need to be heavily involved in this issue."

Trains, planes and automobiles

It was her daily three-hour commute via New York City's transit system that first piqued Bronzaft's interest in the effects of transportation noise on children's learning. Passing homes along the elevated train trips to and from Lehman College, she couldn't help but wonder how residents, especially children, coped with the trains' noise. A student in one of her classes had a child in

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Notice of Annual General Meeting

Date: Saturday, Oct. 28, 2017 **Time:** 3 p.m. **Location:** 2305 West 7th Ave., Vancouver, Kits' Neighbourhood House, Roof Garden Room (north-west corner of W. 7th Ave. and Vine St., 2 blocks north of Broadway or 3 blocks south of W. 4th Ave.)

a school adjacent to an elevated train structure and this provided the opportunity for Bronzaft to find out how students and teachers could cope with the sound of the elevated train passing by every four-and-a-half minutes. So she set out to study it in 1974, and found that reading scores of sixth-grade students whose classrooms faced the train, were a year behind those on the quieter side of the building. (*Environment and Behavior*, Vol. 7, No. 4). "We even talked to the teachers who taught students in those classrooms at Public School 98 and they said they were exhausted at the end of every day," Bronzaft says. "Eleven percent of class time was ultimately lost as teaching had to stop for the train. The kids hated the train noise."

After Bronzaft completed her study, the New York City transit system agreed to install noise reduction materials on the rails adjacent to the classrooms and the Board of Education installed sound-reducing materials in the ceilings of these classrooms. Noise abatements lowered the din in these classrooms significantly, and reading scores on both sides of the building among the two groups were equalized - further evidence that noise was to blame, Bronzaft says (*Journal of Environmental Psychology* Vol. 1, No. 3).

Trains aren't the only noisy culprits to affect children's learning. Several cross-sectional studies have linked aircraft noise to poor classroom performance. One of the most compelling studies in the field of noise pollution is a naturally occurring longitudinal experiment published in 2002 in *Psychological Science* (Vol. 13, No. 9) examining the effects of the relocation of Munich's airport on children's health and cognition. Six months before and 12 months and 18 months after the airport closed and moved to a distant location, researchers - led by psychologists Staffan Hygge, PhD, Gary W. Evans, PhD, and Monika Bullinger, PhD - administered tests of reading, memory, attention and hearing to third- and fourth-graders who lived and attended school near the two airport sites. They found that the reading comprehension skills and long-term memory of children near the old airport improved once air traffic moved to the new airport, while the performance of children near the new airport declined.

The study also suggested that noise-exposed children may be less sensitive to speech, even though their hearing was unimpaired. After the old airport closed, children living near its site showed marked improvements in reading and memory, but their speech perception remained impaired, says Evans, a professor of human ecology at Cornell University. "We think one thing that might be going on is that children who are exposed to noise develop a stress response of ignoring the noise, but not only do they ignore noise, there's evidence that they also ignore speech," Evans says. "So not only are they ignoring the stimuli that are harmful, but they're also ignoring stimuli that they need to pay attention to."

Researchers also found that the Munich students near the working airports had significantly higher levels of the stress hormones adrenaline and cortisol and markedly higher blood pressure readings than children in quieter neighbourhoods. Evidence suggests that elevated blood pressure in childhood predicts higher blood pressure later in life, and higher levels of stress hormones are linked to several life-threatening adult illnesses, including high blood pressure, elevated cholesterol and other lipids, and heart disease. "This study is among the strongest, probably the most definitive proof that noise - even at levels that do not produce any hearing damage - causes stress and is harmful to humans," Evans says.

Beep goes the ventilator

Noise experts are also exploring another place where noise may, ironically enough, impair health: hospitals. The din of motorised beds, ambulance sirens, human voices and 24/7 patient monitoring via alarm-based ventilators and other medical devices make hospitals noisier than ever these days. A 2005 study in the *Journal of the Acoustical Society of America* (Vol. 118, No. 6) suggests that noise levels in hospitals have increased dramatically over the past 50 years. In the 1960s, daytime hospital sound levels around the world averaged 57 decibels; today the average is 72 decibels. Nighttime levels have jumped from 42 decibels to 60. The World Health Organization's hospital noise guidelines recommend that sound levels in patient rooms should not exceed 35 decibels.

The racket of modern medicine can have debilitating effects on patient health and healing by disrupting sleep, raising stress levels and triggering medical errors. In a 2004 unpublished white paper examining noise in neonatal intensive care units, for example, environmental psychologist Craig Zimring, PhD, found that higher noise levels elevated blood pressure, increased heart rates and disrupted patient sleep patterns, possibly enough to impede development and contribute to hearing loss in premature infants. And a set of 2010 auditory perception experiments published in *Social Science & Medicine* (Vol. 70, No. 1) conducted by University of Illinois, Chicago, researchers showed that hospital noise levels led clinicians to confuse similar-sounding drug names with one another. "There's a lot of empirical evidence now that noise impacts patients, and anyone who has spent any time in a hospital can support that," says Zimring, of the Georgia Institute of Technology.

To help hospitals address the problem of noise, Zimring is serving as a member of the multidisciplinary Healthcare Acoustics Research Team, a team of experts in acoustics, engineering, architecture, psychology and medicine. The team is working with health-care officials to reduce sources of noise - from overhead paging systems or unnecessary alarms, for example - and redesign hospitals using building materials and furniture that can help absorb noise. "Installing carpeting and acoustic ceilings in hospitals has always been difficult because they're not easily scrubbable, but recent-

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Sh, Sh, Sh

All my life I have been both blessed and cursed with an exceptionally good sense of hearing. "Blessed" is self-explanatory. Cursed, because extreme noise hurts me physically to the point where I am unable to function.

Let me illustrate this point. I am an avid table tennis player, playing up to five times a week at two Senior Community Centres on the Vancouver North Shore. One facility is a small room with three tables, the other a large room with four tables. Players are predominantly of East Asian and Middle Eastern origin, a few are Europeans, the odd ones are Canadians. The first two groups of players become very excited and noisy, to the level of unacceptable, interfering noise.

Once at the small facility, the noise was so bad that I became disoriented and had to stop playing. As everyone wondered about this, I explained that noise affects me physically. The next time, when the noise level became unbearable, I resorted to hissing "SH, SH, SH". To my great astonishment, the room turned into one complete "SH, SH, SH"-sound from all players, and we all had a good laugh. Ever since, the "SH, SH, SH" is used by all players to control the noise.

How different the response was at the larger facility. I was ridiculed, even told to plug my ears with toilet paper. Now

I mainly endure the noise, except when it rises to such a level that one cannot hear the score at one's own table. Then I calmly ask the four players (usually male) to kindly lower their volume. If I am not ridiculed, the response is apologetic and positive. But that lasts only for a few minutes, then the noise resumes.

The main point here is: noise is not perceived as pollution and as such is considered acceptable. Also, some cultures accept higher noise levels as normal. As well, seniors experience hearing loss.

Our world has become so accustomed to noise - everywhere - be it from uncontrollable sources like traffic, or from imposed but controllable sources like loud music in stores and restaurants, from loud cellphone conversations in public places etc. The acoustic space of others is not respected. The same happened with air pollution that was not perceived a pollution. However, this has changed. Take, for instance, smoking in public places. I can only hope that control of noise pollution follows suit.

Meanwhile, I am so very grateful for my fellow players' "SH, SH, SH"-control of noise.

By Heidi Juergens

In Pursuit of Silence

In Pursuit of Silence is a meditative exploration of our relationship with silence, sound and the impact of noise on our lives. Beginning with an ode to John Cage's ground-breaking composition "4'33", *In Pursuit of Silence* takes us on an immersive cinematic journey around the globe - from a traditional tea ceremony in Kyoto, to the streets of the loudest city on the planet, Mumbai during the wild festival season - and inspires us to experience silence and celebrate the wonders of our world.

In his official director's statement, Shen commented that the documentary "is a meditative film that I also consider a piece of devotional work about a subject that many have tried to encapsulate in some form or another for ages. Rather than encapsulate, we've tried in a sense to free it, paying homage to the ineffable qualities of silence."

"The film was shot and edited in a way that mimics our experience of the world when we are still; you won't see any crane moves, sweeping drone shots, or pans. The overall rhythm of the film was carefully crafted with the human metabolism in mind. Ultimately, I hope that the film challenges audiences to slow down and on some level make the world new again for them."

"Reminiscent of seeing 1982's *Koyaanisqatsi* for the first time... Shen's *In Pursuit of Silence* incessantly inspires and sometimes takes the breath away and can even accomplish both at once." Austin Chronicle

"As much a visual treat as an aural one, the film divides its time between using the tools of cinema to isolate and enhance the beauty of sounds and silence and exploring different schools of thought on the subject." Scott Tobias, NPR

"Fascinating and persuasive." Jeanette Catsoulis, New York Times

Director: Patrick Shen
Country of Origin: USA
Year: 2015
Running Time: 81 mins.
Format: DCP
Classification: G

https://www.viff.org/Online/default.asp?BOparam::WScontent::loadArticle::permalink=fc9372-in-pursuit-of-silence&BOparam::WScontent::loadArticle::context_id=

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ly people have discovered ways to develop panels that are both sound absorbent and that limit the possibility of infection," Zimring says. "These are pretty low-cost investments that can have a pretty high impact on patients."

<http://www.apa.org/monitor/2011/07-08/silence.aspx>

Some vessels honour Port of Vancouver go-slow request to protect killer whales

By Larry Pynn, The Province, Friday, Aug. 18, 2017

Almost 60% of ocean-going vessels are so far honouring a request by the Port of Vancouver to go slow in critical habitat of endangered southern resident killer whales in the Salish Sea, according to preliminary statistics for the program's first week of operation. "We're very encouraged, after week one, with those participation rates," Orla Robinson, manager of the port's Enhancing Cetacean Habitat and Observation program, said in an interview. "They're pretty impressive." She hopes for even better results as the initiative continues through the summer. "We realize it does take time for folks to adjust to these new systems we've put in place."

The port is asking ships this summer to voluntarily slow to 11 knots - up to about a 40% reduction - when transiting Haro Strait to reduce noise levels for the killer whales. Haro Strait is located between Victoria and Washington state's San Juan Island and is critical habitat for the killer whales, that are typically found there in summer, feeding on seasonal salmon runs. During the first week of the initiative, Aug. 7-13, the port learned that 55 of 94 vessels - 58.5 per cent - and all with B.C. pilots on board, voluntarily honoured the go-slow request. Two main shipping groups, bulk and container vessels, each accounted for 21 ships. Agents representing 59 ships had indicated a willingness to participate in the program; the 55 that complied represented 93% of that total, Robinson added. Those that did not participate as they had hoped to, primarily cited the need to meet scheduling commitments.

The preliminary statistics are based on reports from the pilots. The port will confirm those stats, and actual speeds, later using the shipping industry's Automated Identification System. Marine researchers Rob Williams, of Oceans Initiative, and Scott Veirs, of Orcasound, will also be conducting land-based studies to complement the port's go-slow initiative. "Our aim is to measure whether

the whales change their behaviour when ships slow down," Williams said. The port's pilot study seeks to understand the relationship between slower vessel speeds, underwater noise levels and the effects on whales.

In other locales, including San Francisco, ships are asked to reduce their speeds to reduce the chance of striking whales. The port is asking commercial ships and even recreational boats to reduce their speed to 11 knots (20 km/h) in Haro Strait between Discovery and Henry islands through Oct. 6. Container ships and cruise vessels typically travel at closer to 18 knots (33 km/h) through Haro Strait. Just 78 southern resident killer whales are thought to exist in the shared waters of the Salish Sea. Researchers consider them at-risk from depleted runs of chinook salmon - their favourite prey - as well as pollutants such as banned-but-long-lasting PCBs and both the physical presence of vessels and their underwater sounds.

Vessel sounds can interfere with the whales' ability to hunt, navigate and socialise. Slowing to 11 knots could result in delays of 30 to 60 minutes, depending on vessel type and tidal currents. The port urges inbound vessels to adjust their planned arrival time to minimise potential impacts to their scheduled berth or anchorage arrival times. Numerous initiatives also stand to significantly increase the number of ships entering the port. The Kinder Morgan pipeline expansion, approved by the federal government, would result in a seven-fold increase in oil tankers. And the planned, \$2-billion-plus container expansion at Roberts Bank in South Delta, the subject of an ongoing federal environmental review, would add another 2.4 million units of container capacity per year.

<http://www.theprovince.com/news/local+news/three+fiv e+vessels+honour+port+vancouver+slow+request+protect/14245400/story.html>

Tuned in: plant roots use sound to locate water

Oecologia, May 2017, Volume 184, Issue 1, pp 151-160;

Monica Gagliano - Email author,
Mavra Grimonprez,
Martial Depczynski,
Michael Renton

Behavioral ecology - original research

Abstract

Because water is essential to life, organisms have evolved a wide range of strategies to cope with water limitations, including actively searching for their preferred moisture levels to avoid dehydration. Plants use moisture gradients to direct their roots through the soil once a water source is detected, but how they first detect the source is unknown. We used the model plant *Pisum sativum* to investigate the mechanism by which roots sense and locate water. We found that roots were able to

locate a water source by sensing the vibrations generated by water moving inside pipes, even in the absence of substrate moisture. When both moisture and acoustic cues were available, roots preferentially used moisture in the soil over acoustic vibrations, suggesting that acoustic gradients enable roots to broadly detect a water source at a distance, while moisture gradients help them to reach their target more accurately. Our results also showed that the presence of noise affected the abilities of roots to perceive and respond correctly to the surrounding soundscape. These findings highlight the urgent need to better understand the ecological role of sound and the consequences of acoustic pollution for plant as well as animal populations.

<https://rd.springer.com/article/10.1007%2Fs00442-017-3862-z>

Indigenous stories lead scientist to discover plants can hear

Do you talk to your plants? Well, science suggests they might be able to hear you. An Australian scientist was inspired by stories from Indigenous people around the world about how they communicate with plants.

Leigh Joseph, an ethnobotanist with the Squamish First Nation in Canada, is starting her PhD in the fall to study the use of plant food and medicines to treat type 2 diabetes. Part of her research involves gathering wild plants used in traditional medicine. She was taught a certain protocol when it comes to gathering plants, which involves giving a verbal offering to the plants, in the form of a prayer, a thanks, a song, or by introducing herself.

"When you go out into the forest, into an estuary, or a different ecosystem, where you're going to be harvesting a plant, food, or medicine, you want to get yourself into a space of respect and understanding that we are interacting with the plants who are considered our second oldest ancestors that we have after the rocks, which are called

the grandfathers and the plants are referred to as the grandmothers. Those offerings are meant for the plant and meant also for the ancestors who walk beside us when we go out and harvest on the land."

The interesting thing is, science is revealing that in some sense, the plants may actually be listening. A new study by Dr. Monica Gagliano, a research associate professor adjunct in Evolutionary Ecology at the University of Western Australia, has demonstrated that plants can hear. Plants can sense and move towards moisture in the soil - at quite a distance. Dr. Gagliano tested whether they found that water using sound. And she found that plants will send their roots towards the sound of running water, even if the plants only hear a recording of running water.

<http://www.cbc.ca/radio/quirks/hearing-plants-awkward-bees-arctic-gems-farting-fish-and-chicken-bones-1.4234437/indigenous-stories-lead-scientist-to-discover-plants-can-hear-1.4234449>

Watch this blind man 'see' the world with sound

Some blind people have learned to produce sonar clicks to 'see' the world. Born blind, Brian Borowski uses sound to "see".

A Rare Skill

Most blind people manage with guide dogs and canes, but a few have developed what seems to be a kind of superpower: they can echolocate. Like bats or dolphins, these people have learned to generate sounds, and listen to reflections and echoes of these sounds to orient themselves and locate objects in their environment.

Brian Borowski, a computer programmer in London, Ontario, was born blind. As a child he learned that short, sharp clicks of his tongue against the roof of his mouth could be used as a sonar source. Indoors he listens for how these clicks bounce off walls, windows and doors to navigate around buildings, and he can locate objects as small as ten or twenty centimetres. Outdoors, he echolocates buildings, fences, trees, lamp-posts and cars and navigates what he calls his three dimensional world of sound.

Understanding Human Echolocation

Dr. Lore Thaler has been studying human echolocation for more than a decade. In fact, some of her early work in the field was at Western University in Ontario - and Brian Borowski was a volunteer. During her career, she's studied how blind echolocators recruit parts of the otherwise unused visual cortex when using their sonar, and investigated how echolocation adds to the toolkit of skills blind people use to navigate the world. She's also investigated whether sighted people can learn to echolocate - and worked on the skill herself.

In her most recent work she's been focusing on the very characteristic sonar "clicks" that, entirely independently, many echolocators have learned to generate. These clicks are very brief - only three milliseconds - and have very precise frequencies. This, she thinks, means that blind echolocators have independently discovered the best sound that can be produced for echolocation.

<http://www.cbc.ca/radio/quirks/sept-23-2017-1.4302012/watch-this-blind-man-see-the-world-with-sound-1.4302029>

Up, up in the air: flying taxis are taking off

Mercedes-Benz's parent company Daimler has invested in flying taxis start-up Volocopter. Volocopter is working on developing a vertical take-off and landing vehicle (VTOL) that could seat up to five individuals.

Volocopter, a German company located near Mercedes' home city of Stuttgart, wants to create quiet, emissions-free, flying taxis that could circumvent traffic congestion. The company says Daimler's \$30 million investment will "speed up the introduction process of the Volocopter se-

rial model and conquer the market for flying air taxis."

Volocopter plans on carrying out a public demonstration of its electric heli-taxi in Dubai later this year. Dubai has been selected as a test site due to the city's desire to automate 25% of its public transportation initiatives by the year 2030.

Metro, Vancouver; McEachern/autoguide.com

Planning Ahead for International Noise Awareness Day and World Listening Day

In 2013, 2014, and 2016, I hosted exhibitor booths for the Right to Quiet Society at environmental trade show celebrations of Earth Day in New York City and New Jersey. Because International Noise Awareness Day (INAD) is observed the Wednesday after Earth Day, these events provided a chance to let the public know about INAD. People were always interested to learn about INAD, but I wished that I could offer more information about plans to observe the day. I usually knew about planned events overseas, but not in the US and Canada. I wished that I had more to talk about besides the history of the day and the observation of a minute of silence.

I recently hosted an exhibitor table at a local health and resource fair in Brooklyn, New York. Visitors were interested to learn about the work of the Society and others who work to address noise pollution, and many signed up to receive the newsletter or to ask for guidance. They were also interested to hear about the event that we are planning for INAD 2018.

Please visit <http://www.quiet.org/INAD2018.htm> to learn about the quiet literary events that we have planned. If one or all appeal to you and you decide to participate, let us know! Whatever your plans to observe the day, we hope that you will start planning early, let us know about

your plans, and check the web page occasionally for more detailed information about interacting with library staff.

In recent months, there has been a marked increase in well researched articles about the health effects of noise and the healing effects of quiet in mainstream publications, and the film *In Pursuit of Silence* has appeared in movie theaters around North America. There has been a noticeable increase in awareness and concern related to noisy restaurants and retail stores and noise and air pollution related to lawn care machinery. With the holidays approaching, it will be interesting to see if additional retail stores plan to observe quiet shopping times for those who are sensitive to noise - and everyone else who stands to benefit.

World Listening Day presents another opportunity to create programs and activities to educate the public about the value of our soundscape and the benefits of quiet. Stay in touch by visiting our website, or write to info@quiet.org and ask to be added to our mailing list. We will also plan early this year for events to mark World Listening Day, which falls on July 18th, the birthday of R. Murray Schafer.

By Jeanine Botta

Vancouver Police Department rolls out new rides

By Jessica Kerr

The Vancouver Police Department has added two new electric motorcycles to its fleet. The department is the second in Canada to use fully-electric motorcycles for police operations. Chief Adam Palmer said the new vehicles will join the department's existing fleet of 35 Harley Davidson motorcycles, but will serve a specific function. "These new electric motorcycles will work well in high pedestrian and cyclist areas and will allow our officers to safely interact with the public," he said. "And, since there is no exhaust and less noise, the bikes will be less disruptive." The new motorcycles will primarily be used downtown and in the west end, Palmer said. If needed, the vehicles could quickly be deployed to other areas of the city. The department already has two fully-electric cars and eight hybrids, which are used by investigators and administrative staff. Palmer said the department will be adding another 20 fully-electric cars this year. "It's exciting to see VPD be one of the first police agencies in Canada to roll-out clean, green and quiet electric motorcycles as part of their fleet," said Mayor Gregor Robertson. "The

VPD's pure electric motorcycles are a welcome addition to the city, who already has the largest municipal electric vehicle fleet in Canada. These new electric motorcycles will help the VPD keep pedestrian and cyclists safe, while carefully and efficiently manoeuvring through high traffic areas. "Designed by California-based Zero Motorcycles specifically for use by police agencies, the motorcycles have a range of up to 227 kilometres in the city on a full charge and have a top speed of 165 kilometres per hour. They cost around \$30,000 each. The company will be at ElectraFest 2017 on Saturday. Now in its 22nd year, ElectraFest is described as Vancouver's signature electric vehicle event. Electric vehicles are becoming more and more popular. Just this week, Volvo announced that all models launched after 2019 will be electric or hybrid. BMW has also said the company has plans to electrify all its models by 2020, and Volkswagen committed to spending \$2 billion in the U.S. on electric vehicle infrastructure.

<http://www.vancourier.com/news/vancouver-police-department-rolls-out-new-rides-1.21035386>

Rescuers need silence

Silence critical for detecting survivors.

When recent earthquakes shook parts of Mexico and buildings collapsed, there were lots of helicopters noisily buzzing around, much to the chagrin of the rescuers on the ground searching for survivors under the rubble. From

media reports we learnt that the rescuers pleaded for more silence, as they were listening for signals from possible survivors. They even made up makeshift cardboard signs saying "SILENCIO". Silence in that situation was literally a matter of life or death.