

hearing matters

April 2009

SHHH Australia Inc
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Turrumurra NSW



That Buzzing Sound

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Cover Photo:

QuietPro – is a military communication headset with high-level hearing protection

**DEADLINE FOR
NEXT ISSUE:
5th July 2009**



Remember, hearing help is available wherever you see this symbol.

SHHH Mission

SHHH Australia Inc. is a voluntary organisation giving services and support to hearing impaired people throughout Australia who communicate orally.

SHHH Australia

- Operates two Hearing Information Centres
- Produces **hearing matters** as a quarterly newsletter for members and subscribers
- Supports and encourages local SHHH Groups
- Maintains an extensive information service with a series of Information Sheets on aspects of hearing loss and its management
- Provides speakers as part of its extensive Outreach Program
- Administers a Hearing Aid Bank in conjunction with the Audiology Department of Macquarie University in Sydney and other participating providers
- Acts as an advocate to government, industry and other organisations to make them more aware of issues concerning hearing loss

Turn Indicators Need Volume Control

Bill Taylor writes:

"Some years ago I mentioned in SHHH News that I had a louder than normal turn indicator clicking sound installed in my car. Turn indicators in vehicles consist of a flashing light on the instrument panel accompanied by a clicking sound. Good driving practice requires the indicator to be turned off after each turn or lane change. In some vehicles the flashing light is not readily visible, particularly when driving into the sun. It is important therefore that the warning sound is audible to the driver. Whereas the clicking sound is satisfactory for people with normal hearing, it is not so for the many people who are hard of hearing.

For sixteen years I have, at small cost, had the clicking sound in my car increased to a level so that I can hear it on all occasions. Throughout that time I have been a more relaxed and better driver than previously. The one drawback of having the louder sound is that my wife finds it unpleasant when she drives the car.

I have recently made a submission to the Road Safety Committee that vehicle clicking sounds should be capable of being increased above the normal level by each individual driver to suit his or her need. If this was made a requirement of the design rules it would reduce the potential danger caused by turning indicators being unintentionally left on."



PRESIDENT'S MESSAGE

Tinnitus is the dark side of hearing loss. In an age where the technology to overcome hearing loss continues to improve, it is important to consider the many disadvantages of hearing loss that technology cannot overcome. Hearing loss and tinnitus both result from hearing damage. Soldiers, farmers and music lovers are among the high risk groups. Many are young and feel invincible. They may find it hard to accept that the damage they do to their hearing today may result in significant hearing loss and tinnitus one day in the future.

Preventative technology is available, but how many use it? Will soldiers use the QuietPro if they fear it will put their lives at risk? Will farmers wear ear protection if the day is hot and they have uncomfortable ear muffs that make them sweaty? Will young people wear ear plugs at concerts if it embarrasses them in front of their friends?

What we can do to help all these people is to talk about our personal experiences and help others to understand that hearing loss is a normal part of life in Australia for many people. However it is an avoidable part of life and we want to encourage those in risky occupations or leisure pursuits to consider whether they want to join us and wear hearing aids for the rest of their lives (unless they get a cochlear implant).

Richard Brading
President SHHH Australia Inc.

23rd ANNUAL GENERAL MEETING

The 23rd Annual General Meeting of SHHH Australia Incorporated was held on Saturday 21st March 2009. A list of the new officebearers can be found in the SHHH Noticeboard at page 15. Copies of the Annual Report are available at no cost from the SHHH office.

David Hartley, Research Audiologist gave an excellent presentation on the results from the Blue Mountains Hearing Study and future research.

SHHH Community Awards

These are given to members of the community who have supported SHHH or a community organisation that supports hearing impaired people.

Susan Hynes is a hearing impaired nurse audiometrist at Hunter New England Health Service. She is the co-ordinator of the universal newborn hearing screening program in her area which involves a lot of communication with parents of newly diagnosed deaf infants, training of screening staff, managing data bases and communicating with a range of health professionals, face to face, over the phone and at conferences. She has mastered Assistive devices

and embraces loops and mobile phones with induction coils which enable her to be contactable when travelling.

Dr Ray Hare is an agricultural scientist and was the winner of the Libby Harricks Award in 2007. He continues to be a wonderful advocate for hearing impaired people who use and benefit from hearing aids and cochlear implant technology. Ray received a cochlear implant in 2002 with a second implant in 2004 and enjoys a full range of music, travel and often talks with groups and potential implantees. Ray has recently been appointed to a position at Sydney University where he will be teaching young farmers and agricultural scientists and will be in a position to advocate for hearing protection for those working on the land.

Spirit of SHHH Awards

The Spirit of SHHH Award is presented in recognition of significant contribution to the work of SHHH and its membership over many years.

Dr Gitte Keidser has been a senior research scientist at the National Acoustic Laboratory since 1998. She has been hearing impaired since childhood and has been a valued member of the SHHH Board as well

as writing a series of excellent articles for Hearing Matters.

Life Membership

Shirley Green for her outstanding service as a SHHH volunteer over 18 years in particular her responsibility for devices and managing the Hearing Aid Bank

Libby Harricks Achievement Awards

The Libby Harricks Achievement Award was established in the memory and spirit of Libby Harricks. The Award is presented to an adult hearing impaired person in recognition of both public and personal achievement through self-determination and hard work. The person's understanding of the importance of self-help and assistance to others to help them achieve their own potential and ability are recognised and applauded.

The 2008 winner of the Libby Harricks Achievement Award is **Dr Stuart Down** of North Blackburn in Victoria. Dr Down is a leading sports physician and has overcome tremendous obstacles to be successful in a competitive field. We will publish his story in the August issue of Hearing Matters.

tinnitus, *"I didn't have a care in the world—I cut the grass and I played with my granddaughter."* Now, he said, *"My life has come to a halt. I can't do anything. I can't concentrate."* One Sunday, he told me, he went out and stood by a metal flagpole during a storm, hoping that lightning would strike, and that he had gone to the cemetery and *"begged my mother to take me. I wish I would pass away."*

Tinnitus may have been described as early as the Seventeenth Dynasty, in Egypt (1650-1532 B.C.): an ancient Egyptian text, the Medical Book from Crocodilopolis (circa 150 B.C.), contains references to a *"humming in the ear."* Treatment involved pouring herbs, oil, frankincense, tree sap, and soil into the ear using a reed stalk. The earliest undisputed description of the condition comes from Hippocrates, who used three words to describe the problem: *echos*, meaning sound; *bombos*, denoting buzzing; and *psophos*, indicating a slight sound. (Our word "tinnitus" derives from the Latin *tinnire*, meaning to ring.) The Greco-Roman therapy ranged from holding one's breath in an effort to expel offending humors from the ear to placing honey, vinegar, cucumber juice, and radish extract in the ear. Hippocrates did make an observation that serves as the foundation for modern therapy: *"Why is it that the buzzing in the ear ceases if one makes a sound? Is it because the greater sound drives out the less?"*

In the modern era, people with tinnitus were thought to be suffering from anxiety or delusion, or to be subject to the transmission of spontaneous impulses from the nerve within the ear. Researchers have only recently begun to explore the neurological basis for tinnitus. Richard Salvi, a professor at the University of Buffalo, is one of the leading experts in the field. As a graduate student at Upstate Medical Center, in Syracuse, Salvi had set out to identify the *"neurological signature"* for tinnitus by treating rats and mice with drugs that injured the auditory nerve; conventional wisdom held that, after damage to the hearing apparatus in the inner ear, increased output from the cochlea would create the constant ringing or buzzing sound perceived as tinnitus. Salvi recalled, *"Instead of seeing hyperactivity, which was the prevailing opinion about tinnitus, it was just the opposite. Output would actually slow down. You had a severely deafened animal, and nothing coming out of the inner ear—no spontaneous activity at all."*

Salvi moved to the University of Buffalo in 1987. He had begun to consider a new theory, in which hyperactivity originated in the central nervous system rather than in the inner ear. He collaborated with Dr. Alan Lockwood, a neurologist at the University of Buffalo. *"Initially, we were going to do images of the brains of people who are normal and people with tinnitus,"* Salvi recalled. *"But when you are doing any sort of brain-imaging project what you have is all the other confounding variables"*—such as age, gender, and head size. Shortly after Salvi's arrival, he met with a group of local residents who had formed a tinnitus support group. One person, Salvi recalled, got up and said, *"Dr. Salvi, I stick my tongue out and my tinnitus gets louder."* I looked at the person, and my eyes started to wobble around in my head, and I thought, *What's going on with this person?* Then a second person got up and said, *"When I clench my jaw, my tinnitus gets quieter."* Salvi told me, *"A light bulb went off in my head. It seemed like what we should be doing with imaging studies was not comparing normal people to those with tinnitus but, rather, having these people come in and get scanned when their tinnitus was quiet, and then again while doing something like sticking out their tongue, which made it louder. In the same patient we can determine what part of the brain was changing."*

The first PET-scan results were unexpected. Whereas a real sound will activate areas on both sides of the brain, *"we found a big increase in activity in just one side of the brain,"* Salvi told me. If the origins of tinnitus were in the ear, it would activate both sides of the brain; when only one side appeared active, it suggested that the tinnitus originated in the central nervous system. The brain became hyperactive in an effort to compensate for the reduced input, generating phantom sounds. This conclusion, which was published in the journal *Neurology* in 1998, began to change the way that researchers approached tinnitus. Still, there is no convincing explanation for why only one side of the brain shows activity in people with tinnitus, particularly since it doesn't appear consistently on either the right or the left side.

Another oddity is a type of tinnitus called *"gaze-evoked,"* in which ringing in the ears is occasioned or worsened by moving one's eyes to the right or left, or up or down. Case studies reported gaze-evoked tinnitus in patients who had had a tumor on the auditory nerve which was surgically removed. *"The patient goes completely deaf in that ear, and then he starts hearing the phantom sound of tinnitus in the ear which is deaf,"* Salvi explained. *"The ear isn't even connected to the brain anymore."* When patients with gaze-evoked tinnitus were given PET scans, some showed activity in the angular gyrus, an area of the brain near the auditory cortex; others had activity in the brain stem. *"The bottom line was that you perceive tinnitus in your deaf ear but there is no nerve there, no input,"* he went on. *"So it has to come from various parts of the brain."*

Jean-Luc Puel, a professor of neuroscience in Montpellier, France, is not convinced that tinnitus always originates as a phantom sound in the brain. He has studied rats and guinea pigs that were treated with high doses of aspirin or exposed to noise trauma. Puel believes that glutamate, a neurotransmitter, is inappropriately processed in the cochlea, which causes abnormal impulses from the acoustic nerve, and that by infusing the animal's ear with a drug that blocks the action of glutamate he can reduce the tinnitus. More broadly, Puel argues that the disorder may have multiple causes. *"This conflict between peripheral and central origin of tinnitus is simplistic,"* he said. *"To have perception of tinnitus, which is subjective, you need a brain."* Puel allows that his view is contrarian, adding, *"I like to arrive at scientific meetings and disturb people."* But he also believes that different causes of tinnitus may reflect differences in biology. *"There is no one type of tinnitus,"* he told me.

Perry Jefferies, now a forty-eight-year-old retired Army first sergeant, entered Iraq with the 4th Infantry Division in April, 2003, as part of the initial invasion. Although hearing trauma was most intense in combat, Jefferies had been exposed to repeated noise during his many years in the military. During basic training, while on the weapons range, *"we only wore one earplug, so you could hear the instructor when he yelled at you."* While learning how to fire a .50-calibre gun from an armored personnel carrier, he recalled, *"we had no hearing protection. Afterwards, blood was coming out of one of my ears."* He had ruptured his right eardrum. Even so, a close-range explosion was different from anything he had experienced before. *"I felt like I was under water for a few minutes,"* he said. Since that time, he has been afflicted with tinnitus. *"It is a high, steady electronic tone,"* he told me. *"And my ears feel heavy and blocked."*

As a first sergeant, Jefferies acted as an adviser to soldiers during their deployment. *"One of my jobs was to try to find answers,"* he said. *"But I don't remember any discussion about hearing protection."* The soldiers in his unit were required to carry earplugs, but many of them would simply attach the case to the front of their protective vests. *"I had to listen sometimes to three different radios in the Humvee and respond,"* Jefferies went on. No one wore hearing protection, even when machine guns were test-fired on the base.

Jefferies's hearing fluctuates, at times diminishing to thirty-five per cent below normal, and he is now receiving ten-per cent disability compensation for tinnitus. *"It is hard to hear in a bar or restaurant, hard to discern certain words, and I have to turn up the TV,"* he said. At times, the high-pitched drone of his tinnitus wakes him in the middle of the night.

A recent report from the Department of Veterans Affairs estimated that nearly seventy thousand of the 1.3 million soldiers who have served in Iraq and Afghanistan are collecting disability for tinnitus, and more than fifty-eight thousand are on disability for hearing loss. In 2006, the V.A. reportedly spent US\$539 million on payments to veterans with tinnitus. A survey of 141,000 soldiers who were examined in audiology clinics from April, 2003, through March, 2004, showed that tinnitus accounted for more than thirty per cent of post-deployment-related diagnoses. The study, from the U.S. Army Center for Health Promotion and Preventive Medicine, concluded, *"There were not adequate supplies of earplugs to fit all deploying soldiers. There was also failure of an Army medical readiness automation system . . . to provide unit commanders with information regarding troops having adequate hearing protection. . . . Finally, there is evidence . . . that soldiers having blast injuries may not have been referred to audiology for adequate evaluation and treatment."* As with body armor and protective shielding on Humvees, the Pentagon had failed to anticipate the kind of hearing-protection devices that were needed. Even soldiers who were provided with earplugs were given insufficient instruction in their use; mistakenly believing that the earplugs could interfere with low-frequency sounds, like whispered commands during search-and-destroy operations, many chose not to use them.

Theresa Schulz, an audiologist who served in the military for twenty-one years, said that hearing loss accompanying tinnitus is now the No. 1 cause of disability among veterans of the conflicts in Afghanistan and Iraq. *"I think it's probably because of the nature of urban warfare,"* she said, given that gunfire and mortar and grenade explosions occur in relatively confined and often closed areas. For civilians, Schulz noted, extraordinary noise like construction blasts or jackhammering can often be anticipated and protected against, but *"in the military that's not the case. It can come up anytime."*

In the fall of 2004, in an article for Hearing Health titled *"Troops Return with Alarming Rates of Hearing Loss,"* Schulz wrote, *"Unfortunately, the resources required to accomplish the hearing conservation mission throughout the armed forces are diminishing just as the problem worsens."* Positions for active-duty audiologists, Schulz noted, were quickly

being eliminated; since 1990, these positions had dwindled from seventy-three to twenty-five, with six more posts expected to be eliminated in the coming years. Meanwhile, Schulz wrote, *"In the Army . . . only forty-six per cent of those soldiers who require an annual hearing evaluation—because they are exposed to hazardous noise as a part of their routine duties—received one last year."*

The military has attempted to make hearing protection more widely available. The combat-arms earplug currently in use was originally developed in France, in the late nineteen-nineties, and contains a unique acoustic filter that is about the size of a grain of rice. The filter creates acoustic friction to capture potentially harmful sound waves and turn them around, so that the noise doesn't send signals into the ear canal. Schulz described it as low-end, explaining, *"It's basically just a fairly traditional earplug that has a filter in it, that allows through most of the sounds that you would normally hear,"* while blocking sharper noises, like gunfire. A more sophisticated device, called QuietPro, is a lightweight digital tactical-communication headset with high-level hearing protection. Continuous low-frequency rumbling noises above eighty-five decibels, such as those produced by helicopters and armored vehicles, are attenuated by more than thirty decibels. Outer microphones amplify surrounding sound, but very loud impact noises from explosions are instantly blocked by a digital processor; normal amplification is restored immediately after the impact sound has passed. *"It's essentially a hearing aid and a hearing protector in one,"* Schulz said. *"It's a device that allows you to turn up the sound so that you can hear what's on the other side of a door, what's around the corner. . . . It basically shuts down and protects you during the blast and then comes back on so that you can hear what's going on after the blast."* The Marines have adopted the QuietPro, but the Army and the Air Force, Schulz said, are taking a *"wait-and-see approach,"* particularly since each QuietPro unit costs about a thousand dollars. But, Schulz noted, hearing loss and tinnitus can prevent soldiers from being redeployed and qualifies as a disability. *"It's one of those pay-me-now, pay-me-later" situations,* Schulz said. *"Pay-me-now is really less."*

Colonel Kathy Gates, the director of the Army Audiology and Speech Center in Washington, D.C., serves as the audiology consultant to the Army Surgeon General, working to redesign the hearing program in that branch of the service. In 2004, Gates instituted an annual surveillance hearing test for soldiers about to be deployed, and last year mandated a similar evaluation of those returning from service. All soldiers must now be instructed in the use of the combat-arms earplugs. Gates has helped develop a strategy for persuading Army personnel to wear the earplugs in combat by linking their use to success in battle rather than to long-term health. *"A soldier with hearing loss is impaired in battle,"* Gates said. *"We are linking hearing not to quality of life per se but to survivability and completion of the mission."* Gates said that QuietPro is being field-tested in Iraq and Afghanistan, and that the Army had increased the number of positions for audiologists in the battle theatre and in regional hospitals in Iraq. Even so, recruitment was slow, and the military is not yet fully staffed despite the restoration of funding for the hearing program.

The efforts to provide proper training and equipment have had some success. Specialist Joseph McLosky, who is twenty-four, is a member of the military-police reserve; in September, 2006, his unit was sent to Fort Dix to prepare for urban combat, and he was issued the newly requisitioned combat-arms earplugs. Two-sided and color-coded (the green side for use when actively shooting—on a range, for instance—and the yellow side for missions), the earplugs, McLosky said, were to be used in addition to the radio headsets that soldiers wear in convoys. *"A lot of guys thought it was ridiculous to use both,"* he said.

In December, 2006, McLosky was deployed to the city of Bayji, between Baghdad and Mosul, in the north of the country, to train Iraqi police recruits in the use of firearms, surveillance missions, and the pursuit of insurgents. *"We went from police station to police station along the same roads, spending eight to sixteen hours a day in the convoy,"* he said. In June, 2007, his squad was passing a checkpoint when a car bomb exploded. *"Dirt and smoke and debris were flying past my head,"* he went on. *"We had been up all night, and I thought I was dreaming."* Although he was only a few yards away from the explosion, McLosky said, *"My ears weren't ringing."* In October, a mine detonated underneath McLosky's truck. *"I was ejected from the vehicle,"* he said. *"It broke my pelvis, left leg, and ankle. I had to have my left foot amputated."* Despite the severity of his injuries, McLosky emerged with his hearing intact; he now plans to become a physical therapist. Throughout his deployment, McLosky told me, it had been easy to tell which soldiers weren't wearing their earplugs. *"They were the ones saying, 'What? What?'"*

The device currently approved by the US army for tinnitus treatment, produced by a company called Neuromonics, resembles an MP3 player. I put the earbuds in and listened to a soothing piece of classical music. *"That is meant to*

induce relaxation,” Stocking explained, a key component of the tinnitus management strategy. Then I noticed a soft white noise that was programmed to mask my own tinnitus. Again, within moments, the tinnitus was gone. The theory is that when more sounds are fed to the brain sensitivity and spontaneous activity decline—the effect Hippocrates remarked upon.

A simple hearing aid may reduce some tinnitus by amplifying background noises, but other strategies include using sounds in the environment, like soft background music from a stereo or more directed sounds that come from a fan or a small desktop sound machine. Similarly, a device called a sound generator, which is worn on the ear, can supply a white noise that partially interferes with the tinnitus. *“It really provides a sense of relief and control over the tinnitus,”* Stocking said. *“Patients feel they are able to do something about it. And, by providing additional sound, it seems to bring down the sensitivity of the auditory system.”*

Recently, I met with an ear-nose-and-throat specialist who reviewed the tests done in Buffalo and concurred that I needed hearing aids. *“They will certainly help you with what you are missing now,”* he said. *“It’s hard to know how much benefit you will get with regard to your tinnitus.”* He added that hearing aids often act simply as a placebo.

An audiologist entered the data from my audiogram into a computer, then used earbuds to transmit sounds generated by the computer—in essence, programming the hearing aids. I listened to a range of tones, which the audiologist compared with the data provided by the audiogram. Once the hearing aids were fitted, she asked me to turn my back. From about sixteen feet away, she spoke in a normal voice that I heard with no difficulty. *“The aids will amplify background sounds, like the noise from the refrigerator or a heater,”* she said. *“Initially, there will be increased sensory awareness, and then you will adapt. I like to say that we are entering the auditory closet and throwing out what the brain can’t hear. We will fill the closet with a new set of sounds. And, hopefully, your brain will change so that there is less tinnitus.”*

The hearing aids aren’t a cure: in a quiet room, my tinnitus is as persistent as ever. But when I returned to my office, with the hearing aids in place, I could hear the noise of the air vents, which previously had been inaudible. I tried to catch the high-pitched drone that has accompanied me in the past year. I couldn’t hear it.

SHOULD AN INDEPENDENT DISABILITY PROGRAM FOR TELECOMMUNICATIONS BE ESTABLISHED?

Deafness Forum has alerted us to a feasibility study which is being prepared for the Minister for Broadband, Communications and the Digital Economy, Senator Stephen Conroy on possible changes to the disability program for telecommunications. Although the report is not due until December, the deadline for submissions was an unrealistically short April. We are confident that late submissions will be considered.

The discussion paper outlines some of the key issues relating to the supply of specialised telecommunications equipment to people with disabilities and invites interested parties and organisations to make submissions.

This is an important review because it gives consumers the opportunity to comment on the existing program and suggest other equipment that could be added to the program.

Some of the areas that need to be considered in the program include:

- Criteria for future technologies once the program is established e.g. Captioned telephones, Text over IP, Video Relay
- Criteria for new products
- Repairs / replacement of equipment – what if it is broken, vandalised, stolen etc, freight costs for repairs
- What is working well in the current program
- What isn’t working well in the current program
- Additional call costs e.g. mobile text calls, multiple SMS costs etc
- Methods for assistance in the home or workplace e.g. people who need help to find the right solution, or have intellectual issues e.g. dementia
- Delivery costs
- What formats will instructions be provided in – and will multiple formats be on request or included for all or only some products.
- How will the DEP be communicated to those who need it?
- Criteria clients must meet to receive products.
- Quality control of the equipment and of the program

The discussion paper is available on the Department’s website at www.dbcde.gov.au/idepstudy, various print formats, including .pdf, .html and .rtf.

ADDRESSING NOISE INJURY IN FARM WORKERS

By Tim Howle

Deafness Forum Research Officer

Work in agriculture has the potential to be highly dangerous and injury can occur from any number of common farm machinery. However, one of the least recognised health issues for farm workers is noise injury.

The Deafness Forum has been involved in examining the problem and trying to find a solution to this important issue. As part of this, a review of all relevant literature has been carried out. Information on the extent of the problem, risk factors, strategies for farmers, hearing conservation projects and recommendations for the future was collated.

From this review we have learnt the extent of the problem. **Data suggests that as many as two thirds of Australian farmers have a measurable hearing loss.** This is significantly worse than the general population. In particular, there is a disparity in rates of tinnitus and hearing loss in the high frequency range. It is not surprising then to note that many daily agricultural tasks put farm workers at considerable risk of noise injury. Common activities such as using a chainsaw, firearm or uncabined tractor over a sustained period can be enough to cause significant hearing damage.

Despite these dangers, there are actions that farmers can take to reduce their risk of noise injury. Adhering to occupational health and safety guidelines, regularly servicing machinery, 'buying quiet', reducing exposure time, installing a noise barrier and using hearing protection are all ways this can be achieved.

A number of hearing conservation programs have also been initiated to raise awareness of the issue and attempt to reduce its impact on farming communities. Both Australian and overseas initiatives have implemented strategies to educate farmers and provide them with practical solutions.

However, these isolated efforts can only be so effective. We are now aware that there is a definite need for major action on this issue. The Deafness Forum is committed to endeavours that prevent noise injury in farmers and assist those whose hearing has already been damaged. We cannot act alone though. Collaboration with other agencies and organisations is necessary if we are serious about addressing the problem. In recognition of this, the Deafness Forum has recently met with ACAHS (the Australian Centre for Agricultural Health and Safety) in Moree, rural NSW. As a result of the talks the Deafness Forum will be completing a discussion paper to update the Noise Injury Prevention Strategy for the Australian farming community, one of the major initiatives in the area.

Despite the strong inroads that have been made as a result of the current project there is much work that still needs to be done. We must commit to further research to increase our understanding of the problem and resolve to implement what we learn. If we can achieve this, we may well save the hearing of generations of farmers to come.

Protective measures for farm workers

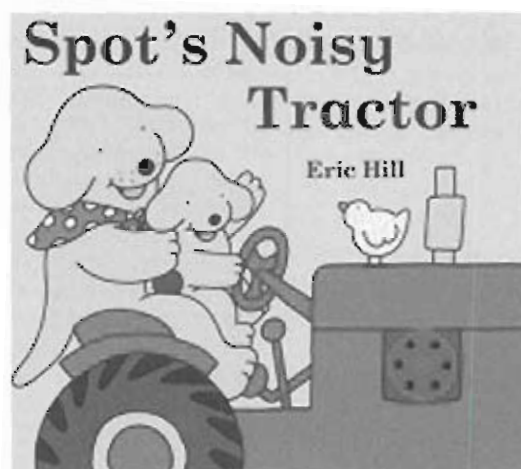
Farm workers are at risk as far as noise induced hearing loss is concerned. The most effective but not necessarily the most practical method of noise reduction is to modify the noise at its source.

If the noise cannot be stopped, the next step is to reduce its impact on people. This can be achieved for example, through moving noise risks such as feed mixers, away from main work areas, partitioning or sound proofing noisy washer units, replacing mufflers or providing hearing protection, preferably in that order.

Hearing protection that is provided must meet with Australian Standards. Approved earmuffs and earplugs should be purchased with a specific noise level in mind. Earmuffs should be comfortable and have an adequate seal round the ear.

The major consideration is to drop the sound level down below 85 dB(A) but not to reduce it to a level at which no sound can be detected. This can present just as greater safety risk due to staff not being able to hear warnings, or possibly being surprised. For example use of a high pressure cleaner, producing 105 dB(A), must only be reduced by 20 dB(A), not down so low as to block out all external noise. This minimises the chance of someone walking up and surprising the user of a potentially dangerous instrument.

Any hearing conservation program based upon the use of personal hearing protection devices should include some form of information for personnel directly affected, since co-operation is far more forthcoming from employees who know the reason behind the use of ear muffs or plugs.



That Buzzing Sound

By Jerome Groopman

The New Yorker, February 9, 2009

I noticed the sound one evening about a year ago. At first, I thought an alarm had been set off. Then I realized that the noise—a high-pitched drone—was mainly in my right ear. It has been with me ever since. The tone varies, from a soft whoosh like a shower to a piercing screech resembling a dental drill. When I am engaged in work at the hospital or in the laboratory, it seems distant. But in idle moments it gets louder and more annoying, once even jarring me from a dream.

Tinnitus—the false perception of sound in the absence of an acoustic stimulus, a phantom noise—is one of the most common clinical syndromes in the United States, affecting twelve per cent of men and almost fourteen per cent of women who are sixty-five and older. It only rarely afflicts the young, with one significant exception: those serving in the armed forces. Tinnitus affects nearly half the soldiers exposed to blasts in Iraq and Afghanistan.

This past August, I visited the University of Buffalo, which houses one of the major clinical and research centers for the evaluation and study of tinnitus. After filling out a detailed questionnaire, I met with Christina Stocking of the Speech-Language and Hearing Clinic, who has a doctorate in audiology and specializes in the condition. Stocking thought that I might have suffered noise trauma during a youth spent on the New York City subways. Sitting in the first row of a rock concert exposes you to between a hundred and ten and a hundred and twenty decibels; the screech of the New York subways can reach about a hundred and fifteen decibels. Moreover, since much of the New York subway system is underground, the noise reverberates in the tunnels, unlike in Boston, where many of the trains are above ground and noise dissipates, or in Paris, where several metro lines run on rubber wheels.

Normally, the outer ear, known as the pinna, collects sound waves and directs them into the ear canal, which carries the sound waves to the eardrum. In turn, the eardrum vibrates, and these tremors are picked up by the three tiny bones in the middle ear: the malleus (resembling a club), the incus (shaped like an anvil), and the stapes (similar to a stirrup). These bones amplify the sound vibrations and transmit them to the inner ear, where the cochlea converts the vibrations into electrical impulses, which travel from the acoustic nerve to the part of the brain that processes sound, the auditory cortex. Tinnitus can be temporary, caused by excess wax, an infection of the inner ear, or the toxic effects of drugs like aspirin (which appears to weaken the neural signals from the ear to the brain) or those used to treat cancer. Some people with normal hearing develop spontaneous tinnitus when placed in total silence; this is believed to be a response of the auditory cortex to the abnormal absence of all ambient sounds. But the majority of people with chronic symptoms develop them in conjunction with hearing loss. With the recent proliferation of MP3 players, rates of hearing loss and tinnitus may rise sharply in the coming years. A recent European Union study has projected that as many as ten million Europeans may be at risk of developing severe hearing loss as they age; and, according to the American Academy of Audiology, noise-induced hearing loss affects about one out of every eight children in the United States.

The range of tinnitus's severity is as wide as the ways of describing the syndrome. Martin Amis, in *"Money,"* characterizes the tinnitus that his character John Self suffers as "jet take-offs, breaking glass, ice scratched from the tray." In *"A Pair of Blue Eyes,"* Thomas Hardy's William Worm complains of "people frying fish: fry, fry, fry, all day long in my poor head." Some patients also suffer from hyperacusis, in which certain sounds are amplified in a painful way. As part of a standard evaluation, patients are given a series of tests: a tympanogram, to determine how the eardrums respond to air pressure; an assessment of the cochlea's response to sound; and a standard audiogram, to test the frequency and intensity of sounds that define the span of hearing.

Last May, David Nowak, a sixty-four-year-old retired machine repairman, had an ear infection that his doctor treated with antibiotics. Shortly thereafter, he heard a loud horn in the street, and has been plagued by tinnitus ever since. "It's so loud that I can't drown it out," he told me. "It is a high-pitched squeal most of the time." Nowak said that, before the

Some reasons Why Hearing Aids are not Perfect (yet...)

By Dr Gitte Keidser

Senior Research Scientist

National Acoustic Laboratories



Photo: Gitte Keidser

Digital technology and Bluetooth (wireless communication) are praised for improving the quality, speed, and convenience of the products in which they are used such as mobile phones. Modern hearing aids are digital, so why aren't they the perfect solution for any hearing problem, and why isn't Bluetooth part of the hearing aid?

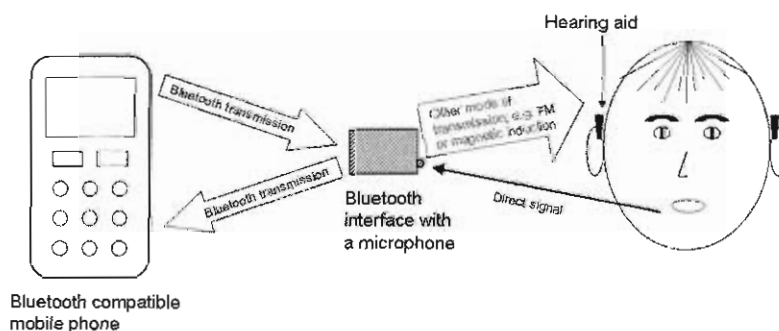
The use of digital technology and Bluetooth requires power; especially Bluetooth which requires lots of power, which means lots of batteries. With hearing aids that means having to change small hearing aid batteries very often or alternately using larger batteries. Most hearing aid users don't want the cost and inconvenience of using lots of batteries, and big batteries are out, because hearing aid users want hearing aids that are as small as possible. Therefore, when designing features for digital hearing aids the developers need to balance effectiveness and complexity of the features and battery life.

Another factor designers of digital hearing aids are juggling with is the fact that it takes time for the hearing aid to process sounds in a manner that makes them audible and as clear and noise free to the hearing aid wearer as possible. This means that there is a delay between the sound being picked up by the hearing aid microphone and the sound being delivered in the ear canal. If this delay is too long, the sound that the hearing aid wearer hears will be out of synchronization with what they see happening around them, which could be very disturbing. Like sometimes happens when you watch a film and the lip movements of the person do not match what you are hearing.

Digital signal processing is still advancing, however, and engineers do believe that in the future it will be possible to deliver more complex sound processing in (small) hearing aids and to integrate Bluetooth in many devices. But it should be clear that the good things are likely to first become available in larger devices before they appear in smaller devices.

The technical minded can learn more about digital signal processing in hearing aids from: James M Kates: Digital Hearing Aids. San Diego, Plural Publishing Inc. 2008.

Hearing aids can not directly receive a Bluetooth transmitted signal from, for example, a mobile telephone. The technology is, however, available to hearing aid users through Bluetooth enabling devices; i.e. devices that can receive Bluetooth transmitted sound and relay it to the hearing aid using some other mode of sound transmission. Most commonly, the Bluetooth receiver is incorporated in the hearing aid's remote control and the hearing aid must have either a proprietary receiver, an integrated FM receiver, a direct audio input port, or a t-switch to work with the Bluetooth enabling device.



“ It was extraordinary... ”



Seven years after being diagnosed with sensorineural hearing loss, Denise Siddons refuses to live a “half-life” and uses a combination of frequency transposition and FM amplification technology to hear.

Like many other people with a hearing impairment, Singapore-born Perth resident Denise, 31, assumed she was a “little slow” until her diagnosis at age 24.

“It was devastating to be told that not only was the cause of my hearing loss unknown, it was permanent and irreversible.”

At first, Denise struggled to come to terms with why she had been afflicted, but a chance meeting with a client who also suffered hearing loss, led Denise to an audiologist - and eventually - the fitting of her first aid, a completely-in-canal (CIC) digital aid.

“It was extraordinary. I was so amazed at the difference it made to my hearing and communication. I found speech a lot clearer and I could continue a conversation even if the other person moved around. I was also elated to hear the click, click, click of the car indicator. I never knew they made a sound. It may sound silly, but these new sounds were delightful discoveries to me, ones that I had never experienced before and which people with ‘normal’ hearing take for granted,” she said.

Denise now wears the Widex Inteo and highlights the frequency transposition as its greatest benefit.


Inteo’s interlacing of advanced technologies secure the user:

- Demonstrable positive effect on speech intelligibility in background noise;
- Clearest awareness of environmental sounds;
- Personalised listening comfort.

The most recent addition to Denise’s amplification artillery is a Scola FM system, which can be connected to a laptop or television.

“I have found that the adoption of new technology has been the key to managing my hearing loss. I’ve always believed that a hearing impairment should not get in the way of living a ‘normal’ life, so I am determined to keep ahead of the curve,” she said.



widex  Inteo™

1800 999 659
www.widex.com.au

Bellman Audio Maxi Digital Communicator

By Ray Piesse

SHHH has recently received a donation of this new communication aid from Word of Mouth Technology of Melbourne. It is essentially a hand held assistive listening device requiring no individual fitting which is suitable for assisting a wide range of hearing impaired people. Digital processing is employed to help listening in difficult situations and provide other advantages not previously available in devices of this sort. It can be fitted with headphones, earphones or stetcloips and has a telecoil (T switch) for use with hearing loops in churches, cinemas, etc. A kit is also available for direct connection to television and audio equipment.

The Audio Maxi has controls for selection of microphone or telecoil and adjustment of amplification and tone. These controls are clearly marked finger-tip size push buttons and lights are used to indicate settings. This together with its light weight, size (a little bigger than the palm of the hand) and larger long-life batteries makes it very suitable for people who have difficulty managing hearing aids, particularly older people in hospital or nursing homes where this is a common problem.

Some people with a T switch in their hearing aid may gain benefit from using an Audio Maxi fitted with a neck loop. When used in this way one -to-one conversations in a crowd situation where many people are talking or in noisy situations such as in a car, for example, can be assisted.

The Audio Maxi can be thought of as an alternative to a traditional hearing aid and without going into technical details it operates in many ways like those that are worn on the head. The device is, in fact, claimed to have dynamic range compression over ten channels, feedback and noise cancellation and battery level supervision. These features are common in good on-the-head hearing aids these days.

SHHH is unable to test the claims of the manufacturer but, limited listening tests indicated very clear speech was provided through the earphones and there was evidence of noise reduction. Anyone can try the device at the SHHH Resource Centre at Turramurra or contact Word of Mouth Technology on (03) 9761 2211. It is priced from \$279.

Oricom ezy100

Information supplied by Oricom

The Oricom ezy100 GSM mobile phone has up to 25dB of earpiece volume boost, loud ringer and vibration alert to assist users with hearing loss with or without a hearing aid. In addition the large high contrast backlit display, large text size and large backlit keypad make the numbers easy to see and use, ideal for people with low vision.

Although easy to use the ezy100 is equipped with essential features including a handy speakerphone, 3 quick dial buttons, phonebook and can send and receive SMS text messages.

It also incorporates an emergency call function for added security. Simply slide the emergency switch and it will activate the speakerphone and dial up to 5 numbers that have been programmed. According to Oricom, the ezy100's integrated emergency call function will help to get assistance quickly in the event of an emergency and provide peace of mind to users and their carers.

The recommended retail price is \$249 and for a limited time comes with a bonus desktop charging base included in the pack, valued at \$49.00.

For further information contact Oricom International on (02) 4574 8888 or visit www.oricom.com.au.



Let Us Hear

By Margaret Colebrook OAM

"Let Us Hear" was founded in 1997 by a small group of parents who realized the need of many hearing impaired and deaf adults unable to access affordable hearing aids, cochlear implants and services. When they reach the age of 21, the services of Australian Hearing cease. Today these adults, between 21 and 65, are still experiencing great difficulties with tertiary education, employment and social and family relationships.

We firmly believe that no matter what mode of communication a person uses, they have a right to an affordable hearing device if they want it.

In May 2008 the **United Nations Convention on the Rights of People with Disabilities** came into force, with the Australian Government ratifying it soon after. The Convention states:

Article 9 Accessibility

Article 9.1 State parties shall take appropriate measures to enable persons with disabilities to live independently and participate fully in all aspects of life.

Article 9.2f State parties shall take appropriate measures to promote appropriate forms of assistance and support to ensure their access to information.

Article 21 Freedom of expression and opinion and access to information

21a Providing information intended for the general public to persons with disabilities in accessible formats and technologies appropriate to different kinds of disabilities in a timely manner and without additional cost.

We have recently met with several members of the government. During these meetings we spoke of our great concern for the audiological wellbeing of former child clients of Australian Hearing. This was accepted at these meetings and they agreed to take this matter forward. Minister Elliott requested that we prepare a submission for her. We ask:

Option 1. That the Australian Government allow all former child clients of Australian Hearing over the age of 21 to be included on the eligibility list for hearing aids.

Option 2. That the Australian Government allow all former child clients of Australian Hearing over the age of 21 to be permitted to continue to be serviced on an affordable co-payment basis with appropriate subsidies for low income earners.

We ask that you demonstrate your support by writing to The Hon. Justine Elliot, Minister for Ageing and Hearing Services and Bill Shorten, Parliamentary Secretary for Disabilities expressing your support for our campaign. Your input will help to reinforce our argument for a very disadvantaged group of deaf people who are unable to access suitable hearing devices and services.

You can write to:

The Hon. Bill Shorten,
Parliamentary Secretary for Disabilities
RG87 House of Representatives, Parliament House,
Canberra ACT 2600
officeofbillshorten@fahcsia.gov.au

The Hon. Justine Elliot,
Minister for Ageing and Hearing Services
PO Box 622, Parliament House, Canberra ACT 2600
Justine.Elliot.MP@aph.gov.au

For more information, contact Margaret Colebrook OAM, Chairperson, Let Us Hear, PO Box 178 Roseville NSW 2069, margaret.colebrook@bigpond.com.

AUSTRALIAN RESEARCHER HONOURED

www.hearingreview.com:80/news/2009-03-09_05.asp

Professor Hugh McDermott, Professor of Auditory Communication and Signal Processing at the University of Melbourne, was recently awarded the first Callier Prize from the University of Texas for inventing a new program for hearing aids.

Professor McDermott, a member of the Co-operative Research Centre based in Melbourne invented the SoundRecover frequency compression program used in the Phonak Naida hearing aid.

Frequency compression generally makes high-frequency sounds easier to hear and easier to discriminate by compressing them into the low frequency range. It achieves this without affecting lower frequencies, enabling users to hear high pitched sounds previously unavailable to them. SoundRecover compresses a wider

range of frequencies for people with a more severe hearing loss. In speech, the fricative consonants such as "f", "s" and "sh" are often perceived more readily with frequency compression. Just as importantly, they are usually also made easier to discriminate. In addition to high-frequency components of speech, certain other



Phonak's Naida

sounds, such as birdsong, can typically be heard better as well. People with "dead" regions of hearing loss are also suitable candidates for frequency compression.

Another benefit of frequency compression is the reduction of feedback. The lowering of high-frequency sounds greatly reduces the likelihood that the amplification of the hearing instrument will result in any feedback oscillation (or whistling). In conventional hearing instruments, feedback is most often a problem at high frequencies when relatively high gains are required.

The SHHH Digest

Libby Harricks Memorial Oration

This year the Libby Harricks Memorial Oration will be presented by Professor Graeme Clark at the GPCE Conference in Homebush (Sydney) on Friday 22nd May. His oration, "Deafness, Technology and the Bionic Ear" will be aiming to inform and update medical practitioners in general practice. There will be limited opportunities for others to attend, but this will be strictly by registration prior to the conference.

For details, contact Deafness Forum of Australia, 218 Northbourne Avenue, Braddon ACT (6262) 7808 (TTY 6262 7809).

SHHH is our favourite name

Thank you for all those who contributed to the survey on change of name. The overwhelming response was to keep our existing name, SHHH Australia.

Hearing Awareness Week 2009

Hearing Awareness Week 2009 will be held on 23-29 August. For details of events go to www.hearingawarenessweek.org.au.

Feasibility study into disability equipment program

The Federal Government is conducting a feasibility study into a new disability equipment program to operate independent of telecommunications carriers. The feasibility study will investigate the efficiency of the current arrangements, an analysis of emerging technologies and demand, projected costs and funding options.

Major carriers currently operate disability equipment programs that provide specialised equipment to enable fixed phone access for people with disabilities. Minor carriers are doing very little. The government is looking to find ways to reduce this indirect discrimination against people with disability and an independent disability program would be allow consumers to choose any carrier without having to consider the quality of its disability equipment

www.dbcde.gov.au/communications_for_consumers

How mouth bugs make food tastier

Gargling, sucking and spitting are the unsavoury actions that serious wine lovers say a proper tasting demands. But the full complexity of taste may come from

something even more disgusting – mouth bugs. These bacteria help give us the rich flavours of wine, onions and peppers. It has long been known that smell plays a big part in the perception of flavour, and Christian Starkenmann and his team in Switzerland had previously found that saliva can turn odourless sulphur-containing compounds from fruit and vegetables into aromatic chemicals called thiols. Now they have shown that bacteria in saliva are responsible. The team's sniffing panel could detect odours from the compounds only when extracts were dissolved in saliva. The aromas wafted up after 30 seconds and faded after 3 minutes. At least one species of mouth bacteria is responsible for the conversion. Starkenmann says the compounds in mouth bacteria could be used to flavour food.

New Scientist November 2008

Up to a quarter of iPod listeners damaging hearing

Researchers at the University of Colorado have found that between 7 and 24% of iPod users have listening habits that can damage their hearing. The US-based study also found asking a teenager to turn down their MP3 player could have the opposite affect, while teens who voiced the most concern about hearing loss often played their music the loudest. Teenage boys generally listened to their personal MP3 players at a higher volume than girls. Teens played their music louder than young adults did, and many inaccurately perceived how loudly they were playing their music.

Risky iPod listening is determined by time as well as volume, plus a third less quantifiable factor - ear sensitivity. Some people were born with "tougher ears" that allowed them to listen safely for longer periods, he said, while others had "tender ears" and could suffer damage even if they followed the recommendations.

Sydney Morning Herald 20 February 2009

Auditor wanted! Can you help?

SHHH has a strong record of financial responsibility and need a person with accounting skills to audit our accounts on an annual basis to ensure that we remain financially accountable to our members. If you have the skills and would like to help hearing impaired people, then please contact Pauline Reidy at the SHHH office on (02) 9144-7586 Mon, Tues, Wed 9-15-2-30pm.

The SHHH Notice Board

SHHH Hearing Information Centres

Turrumurra

Room 25, Hillview Community Centre
1334 Pacific Highway, Turrumurra NSW 2074
Phone & TTY (02)9144 7586
Fax (02) 9144 3936
OPEN: Tue, Thur, Fri 10 am to 3 pm

Canterbury

Canterbury Hospital Outpatients Department
Phone 9787 1088

Goulburn

SHHH assists at the QUOTA Resource Centre. Contact Alena Ward on (02) 4827 3913 for an appointment.

SHHH Support Groups

Local SHHH groups are currently meeting in Baulkham Hills, Chatswood and Newcastle. Contact the SHHH office on (02) 9144 7586 for meeting details of all SHHH Groups.

Google SHHH Support Group

This internet group provides interesting discussion on hearing matters, help for those seeking general advice, passing on the odd (tasteful!) joke, social interaction and a place to have the chance to vent your frustrations with the system. Constructive comments and criticism are most welcome. It is the members' site and relies upon members corresponding by email to an "open forum" of members. Members will endeavour to answer any questions or give advice when it is sought. Please note this is not a "chat room" and does not require much time to participate. Members choose whether to receive emails or read postings on the website.

The URL to locate the Group Home Page is:
<http://groups.google.com/group/SHHHgroups>.

Alternatively, log onto the SHHH website www.shhhaust.org and click on the "links" icon, scroll down and click on the link.

Emails can be sent to the group at SHHHgroups@googlegroups.com

To join and participate in the group, you may prefer to send your name and email address to Barry Collins at barcoll@exemail.com.au who has kindly set up and organised the Group.

SHHH Board 2009

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2009 Annual Membership fees

Full membership \$37

Covers two people with one copy of hearing matters to one address.

Pensioner membership \$27

Covers two people with one copy of hearing matters to one address. Pensioners are those who are holders of the Pension Concession Card.

Overseas subscription rate \$47

(Australian dollars)

Corporate rate \$150

Donations

SHHH needs your financial support

DONATIONS

All donations to SHHH Australia over \$2 are tax deductible.

BEQUESTS

If you wish to make a bequest to SHHH please contact our office on 91447586.

THE BACK PAGE

TRICKS OF THE MIND

A friend of mine confused her Valium with her birth control pills... she has 14 kids but doesn't really care.

One of life's mysteries is how a 2 pound box of chocolates can make you gain 5 pounds.

My mind not only wanders, it sometimes leaves completely.

The best way to forget your troubles is to wear tight shoes.

The nice part about living in a small town is that when you don't know what you are doing, someone else does.

The older you get, the tougher it is to lose weight because by then, your body and your fat are really good friends.

Just when I was getting used to yesterday, along came tomorrow.

Sometimes I think I understand everything, and then I regain consciousness.

Amazing! You hang something in your wardrobe for a while and it shrinks 2 sizes.

Skinny people irritate me! Especially when they say things like... 'You know sometimes I forget to eat!' Now I've forgotten my PIN number, my mother's maiden name and my keys, but I have never forgotten to eat. You have to be a special kind of stupid to forget to eat!

The trouble with some women is that they get all exciting about nothing and then they marry him.

I read an article that said the typical symptoms of stress are eating too much, impulse buying and driving too fast. Are they kidding? That's my idea of a perfect day!

Don't delay, join SHHH today!

2009 Membership Full \$37, Pensioner \$27, Overseas \$47, Corporate \$150

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