



The Ear Drum

Virginia Lions Hearing Foundation & Research Center, Inc.
Box 800477 UVA Health System
Charlottesville, VA 22908-0477
434-296-5466

Spring 2013

Message from the President

I feel very honored to have had the opportunity to serve as President of the Virginia Lions Hearing Foundation and Research Center, Inc., the past year and nine months.

I am fortunate to have seen the many dedicated Doctors who serve our Foundation, working to help those people with hearing problems. They have dedicated their lives to ongoing research projects in hair cell regeneration, balance disorders, audiology research, cochlear implants, meningitis, and the list goes on.

Earlier this year, having discovered that our Foundation website was nearly impossible to find, lacked substance, and was out-of-date, I appointed a committee to develop a new and informative website. This committee, consisting of FVDG Ken Quantock, PDG Woody Woodard, and PCC Don Colley, surpassed my expectations. Through their swift and talented efforts we have a website (www.vlhf.org) up and running in less than three months. It is still a work-in-progress, but it is becoming a website all Lions can be proud of. We owe many thanks to this talented committee.

Again, I thank you for your support.

Yours in Lionism,

Doug

Lion Douglas Cross, PDG
President, VLHF

Executive Director's Message

Spring may, indeed, have finally arrived and with it the annual rebirth of the natural world in which we live. Also reborn is the Hearing Foundation's website. I salute PDG Woody Woodard and 2ndVDG Ken Quantock both for their talent in creating an attractive and informative website and their persistence and hard work in assuring that the finished product reflects positively on VLHF and the Lions of Virginia. Check out www.vlhf.org to see the new website.

Spring also signals that the current Lions year is nearing its end. The members of the Hearing Foundation's medical team have worked intensely to serve people with hearing-related problems through patient care and both basic and applied research projects. Our Lions Club contributions to the Virginia Lions Hearing Foundation and Research Center, Inc., assist Hearing Foundation Medical Director Dr. George Hashisaki and his fellow researchers to achieve their projects' goals.

If your club has not contributed to the Hearing Foundation this year, please do so before the end of June. Lions contributions to the Hearing Foundation are a necessary form of service to our communities and beyond.

Yours in Lionism,

Don

Lion Don Colley, PCC
Executive Director, VLHF

Noise-Induced Hearing Loss in Children

The Virginia Lions Hearing Foundation and Research Center, Inc. is working to get a hearing education program for fourth grade students introduced into the public schools of Virginia. To provide a curriculum for the teachers, the Farmville Lions Club and Longwood University have developed an outstanding, interactive program entitled "Lions Club Hearing Conservation Presentation" which has been approved by the Virginia Department of Education and is on its Health website: <http://healthsmartva.pwnet.org/healthtopics/index.php>. We understand that the necessary PowerPoint software has been sent to all of the school districts in Virginia.

This health education program is not currently a part of the Virginia Standards of Learning. Ms. Vanessa Wigand, Principal Specialist for Health Education, Physical Education, Driver Education and Athletics has asked Lions to contact their local elected officials, school board members, PTAs, newspapers, civic clubs, church groups, etc., to encourage them to contact their local school districts. The groups should request that the public schools enlighten their elementary teachers to the great need to present the one-hour program to all of their fourth grade students.

Many studies around the world over the past decades have shown that children are permanently damaging their hearing by listening to unacceptable noise levels for extended periods of time. The Third National Health and Nutrition Examination Survey (NHANES III) conducted between 1988 and 1994, demonstrated that 14.9% of US children aged 6 to 19 years had low-frequency or high-frequency hearing loss in at least one ear. In a NHANES 2005-2006 study, it was found that one in five US adolescents 12 to 19 years old have demonstrated hearing loss. As shown by the two studies, the prevalence of hearing loss has increased by 1/3 in 12 years.ⁱ

Children have been increasing their ownership and use of personal listening devices, MP3s (iPods) since the iPod was introduced to the market by Apple ten years ago. Studies have shown that these devices are a major contributing factor to the permanent loss of hearing in children, along with

other noises at ear-damaging volume levels in the environment. The Farmville Lions/Longwood University hearing conservation curriculum teaches what sound and hearing is, and the permanent damage that can occur to human hearing for a lifetime from not adequately protecting the students' personal hearing from unacceptable noise levels. Hearing, along with sight, is a principal means of education. Anyone that doesn't know about hearing being damaged by personal mistreatment is certainly missing important and well-known facts.

Lions throughout Virginia are urged to help get the children in their localities educated at an early age to minimize the permanent damage that they can do to their hearing through their lack of education on protecting their hearing. Lions' work is dedicated to serving youth: this is a very vital need to serve them. Learn about the dangers and tell others. Experience has shown that it only takes one Lion to sow the seeds in the local community. Will you serve?

John R Deacon
District 24B Hearing Conservation Chair
MD24 General Chairperson of the Hearing
Committee 2011-2013

ⁱ Journal of American Medical Association, Shargorodsky, et al. "Change in Prevalence of Hearing Loss in US Adolescents" JAMA, Aug 18, 2010 Vol 304, No. 7.

A Short History of Hearing Aids

Since hearing loss is one of the oldest of the known physical disabilities, attempts to amplify sound began a number of centuries ago. Over time, hearing-aid producers have tried to improve the quality of sound, to develop a smaller device, and in some instances to conceal the device.

Some of the first hearing aids are described by Giovanni Battista Porta in *Natural Magick* in 1588. These hearing aids were made of wood and shaped like the ears of animals known to have acute hearing.

*(See **Hearing Aids** on page 3)*

Hearing Aids - *Continued*

Several centuries ago, some people used speaking tubes to collect the sounds of others' voices and confine them to the narrow diameter of the tube so that the sounds did not diffuse but traveled through the tube with less loss of energy. Speech went from the speaker to the listener in concentrated form.

Sailors and others who needed to communicate over considerable distances popularized the use of ear trumpets to improve their hearing. Resembling small megaphones, ear trumpets collected and concentrated sound waves at the ear. Wealthy, hearing-impaired individuals then began to purchase custom-made ear trumpets to aid their own hearing in normal circumstances.

Around 1800 companies began to manufacture a great variety of hearing devices, some stylishly designed and constructed of valuable materials and others built of cheap tin or rubber. Most did not work very well.

If a person cups his hand behind his ear, he can increase the strength of sound waves by 5 to 10 decibels (dB). The best ear trumpets could do better than that but could still only help people with mild hearing impairments. Depending on their size and shape, ear trumpets could amplify by about 10-20 dB, with most of this in the range of 500-1000 Hertz (Hz) — only a small part of the 300-3000 Hz range of human speech. Large trumpets could amplify sound in this range by up to 40 dB, but were heavy and difficult to use.

Auricles and cornets were developed as an alternative to the ear trumpet with the hope that the devices would be less observable on the wearer. The auricle, named for the external portion of the ear, was smaller than an ear trumpet; people could wear it around their ear. Another device resembled a musical instrument, the cornet, and was often called by that name.

Some aids such as the Audi-Ear and the Super Ear, developed in the 1920s, had headbands and were designed to fit over and under the ear. People thought that these aids would do the same job as placing the hand behind the ear and cupping it to receive sound.

Sounds are transmitted to the ear not only by vibrations in the air but also by vibration of the

bones in the skull. This process is called bone conduction, and for some people in need of hearing aids it was the best way to transmit amplified sound. Bone-conduction devices had been tested since the 16th century. The first practical one was the 1879 Rhodes Audiophone, which used a vulcanite fan to pick up air vibrations and transmit them to the teeth. Electric bone-conduction hearing aids appeared in 1923 and were a major improvement. Today most bone-conduction hearing losses are corrected surgically.

The transition to battery-powered hearing aids occurred in the early 1900s, bringing sound amplification to a broader audience. The earliest electric aids offered the same amplification as ear trumpets did but covered a wider frequency range — sometimes as much as 500 to 1800 Hz. Initially the battery packs were large and were carried in separate boxes or strapped to the user's leg. These early aids were carbon type. Later models with multiple microphones provided 25-30 dB of amplification. The introduction of amplifiers in the 1920s increased the range to 45-50 dB.

Vacuum-tube aids were introduced in 1939. In 1944, the first vacuum-tube hearing aid was developed which contained the battery inside the aid. The first transistor hearing aid appeared in 1953. With the development of the transistor, hearing aids were able to become smaller and more powerful. In 1985 the use of microchips for programming hearing aids improved the devices further. Hearing aids today can provide substantially more amplification than before and can be individually tailored to address each wearer's particular hearing loss.

VLHF Annual Meeting

The Hearing Foundation will hold its annual meeting on Saturday, July 27, 2013, in Riggs Auditorium, beginning at 10:00 a.m. The main order of business will be the election of Directors and Advisory Board members for the 2013-2014 and consideration of proposed bylaw amendments.

The newly elected Board of Directors will meet following the annual meeting to elect Hearing Foundation officers and conduct other business.

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