GUEST EDITORIAL

Paying the Piper

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Aphorisms pique interest and smooth reading. But charming folk sayings can also short-circuit mature thinking. One such saying that comes to mind is "Who pays the piper calls the tune." In effect, those who contribute money dictate how it is spent. Having said that, however, anyone who quotes those words leaves much to be determined; hence, these comments about audiologic research.

Except in broadest terms, few if any 'piper payers' would have called for research that had led to most of the great advances in the treatment of hearing impairments. No matter how much money we had to spend, how many of us would have called for the development of electronic hearing aids? The path researchers trod from the invention of transistors through their applications to the improvement of hearing by ever-smaller, albeit more powerful, prostheses has hardly followed a straight line. It encountered a number of cul de sacs as well as oases.

What about surgical treatment for middle-ear disorders? Who would have asked the piper to play the tune that led to the virtual elimination of conductive hearing losses? Rosen (1) revived a surgical approach, stapes mobilization, that had been tried at the turn of the century, but unlike his predecessors, he had the benefit of antiseptic techniques and antibiotic therapies that enabled his patients to survive the operation. The torrent of research he released led to ossicular repairs and other advances in middle-ear surgery that were previously only theoretical (2). Pipers, after all, are expected to tootle something danceable.

The cochlear implant provides an example that sprang first from the researchers, not from the supporters of their research. Historians of science recognize that Volta attempted the first external stimulation of the eighth nerve three centuries ago. Having invented the battery, he attached one of its terminals to his ear—and got the shock of his life! Countless research since Volta's self-inflicted jolt led House (3) to create the first cochlear implant. The research trail that his nascent attempts opened has led to implants that promise to overcome one of rehabilitation's greatest challenges: restoring hearing ability.

In each of these advances—and many more await researchers—a mix of basic and applied science has been essential. Like a relay team, each runner has had to delay starting until completion of earlier runners' laps. Prodigious amounts of research on crystals that culminated in the transistor had to be accomplished before modern hearing aids could become as practical as they now are. Stapes mobilization could not have succeeded without surgical improvements generally, and further advances in middle-ear surgery needed the operating microscope and knowledge of substitute materials, like Teflon, to replace damaged ossicles. And cochlear implants incorporated a number of strands culled from a wide variety of studies, many of which were supported by the Department of Veterans Affairs (4).

Similar twice-told tales of research triumphs should become the daily litany of all who seek support. Those who engage pipers should ask for a tune, but leave the specific choices to the pipers. That suggestion has centuries of validation throughout the history of science. In audiologic rehabilitation, no one knows when and where the next 'miracle,' or even worthwhile, improvement will arise. While neither of the two articles

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in this issue gives the appearance of announcing a major breakthrough, both report sound research—stepping stones that can lead to significant improvements in audiologic rehabilitation. To weary the musical analogy, they represent instances of themes and variations in a symphony of research and development; they sound notes that contribute to overall progress.

Ultimately, the value of research can be measured by its impact on individuals. Let me recount one example that sums it all up for me. Howard "Rocky" Stone lost his hearing in early adulthood. When he retired from the Central Intelligence Agency, he recognized the need for an organization that would represent people who are late-deafened or hard of hearing. He founded Self-Help for Hard of Hearing People, with the provocative acronym SHHH. He led SHHH until he lost his vision three years ago. As a deaf-blind person, he withdrew from active life, initially. Then he elected to have a cochlear implant. He emerged sufficiently encouraged to enter blindness rehabilitation: first, for orientation and mobility and, second, for computer adaptation. The results can be summarized by relating the latest turn in his life's events: he has been elected president of the International Federation of Hard of Hearing People. With blindness in control, with the ability to communicate verbally restored, Rocky's accomplishments, together with his commitments, have expanded from national to international.

Much of the credit for many such rehabilitation successes is due to research and development supported by the Department of Veterans Affairs. VA has paid many a piper over the last two or three decades, but the tune it has called is for better rehabilitation of all types. In audiologic rehabilitation, VA and the veterans it represents can see clearly that they got what they paid for. Said more elegantly, VA's support of audiological rehabilitation research and development has proved to be a remarkably good investment.

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