Almost 50 years ago, French and Steinberg (1947) cautioned that theoretical improvements in electroacoustic communication systems should always be confirmed by field trial. In their words, "It is desirable...in applying the results of computational methods or laboratory tests, to check any modifications of speech communication systems by testing them under actual service conditions and determining their effect on overall performance as judged by the users" (p. 91).

Raymond Carhart's (1946a, b) original concept of the hearing aid evaluation, developed at the Deshon General Hospital during the closing years of World War II, was one of the earliest attempts to provide such confirmation for hearing aids. Before dispensing an aid, he sought to measure how well the potential user could understand speech through the device. This concept of confirmation by field trial is at least as important, and perhaps even more important, now than it was in the Carhart era. Modern demands for accountability in the dispensing of prosthetic devices make the evaluation of an individual's performance with the amplification system an ever more critical factor in the dispensing process.

In the half century that has elapsed since the first publication of Carhart's protocol, there have been vast changes in hearing aids and related amplification systems, but the methods and techniques we employ to evaluate the performance of amplification systems are still largely frozen in time. As the measure of speech understanding, Carhart chose to employ the only materials readily available to him, the PB lists that Jim Egan had just developed at the Harvard Psychoacoustic Laboratory. In spite of the many advances in the measurement of speech recognition and understanding since then, however, an astonishing amount of clinical and research effort is still dominated by such monosyllabic word testing. A cursory examination, for example, of the papers concerned with hearing aids published by this journal during the last 5 years shows that about 50 percent used, exclusively, some form of single syllable word testing, either W-22 lists, NU #6 lists, nonsense syllables, or related materials, to evaluate speech understanding.

In the present issue of JAAA, the paper entitled "Recognition of Speech in Noise with Hearing Aids Using Dual Microphones," by Valente et al., represents a refreshing break from the monosyllabic mold. In order to study the efficacy of a new directional microphone system, these investigators employed the Hearing in Noise Test (HINT), a test of sentence recognition in the presence of background noise first described by Nilsson et al (1994). The HINT, one of several new and promising techniques developed during the past decade, uses an adaptive algorithm to find the signal-to-noise ratio for 50 percent correct sentence identification. Valente et al. eloquently summarize the rationale for such a technique in their study: "Considering that daily speech occurs in a context-rich environment, the choice of sentence materials in this study may reflect more closely the real-world potential benefit of this directional microphone system in...noisy situations." A similar argument might be marshaled in the design of clinical protocols and experiments concerned with many other aspects of the performance of amplification systems.

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References