

DENIS JOHN BYRNE

1935-2000

Scientists world-wide are mourning the death on March 23, 2000 of Dr Denis Byrne, Research Director of the National Acoustic Laboratories (NAL) of Australia. Dr Byrne is well-known for his pioneering role from 1972, in developing methods by which hearing aids can be prescribed and adjusted to provide the maximum help to individuals with hearing loss.

Denis Byrne received a degree in Psychology in 1957. He commenced work as a clinician with NAL, then known as the Commonwealth Acoustic Laboratories, in May 1958. During the following 13 years he worked as a clinician and hearing centre manager at clinics in Sydney, Melbourne, Hobart and Adelaide. During this time as a clinician, Dr Byrne became acutely aware of the need for more effective procedures for prescribing and adjusting hearing aids. Although the widespread beliefs of the day were that there was little benefit to be gained by individual prescription of hearing aids, Dr Byrne became convinced that this was not true. He considered that a scientifically derived and validated procedure was likely to offer considerable benefit to hearing-impaired people, and he developed an interest in research methods.

In 1971, Dr Byrne moved to full-time research with NAL in Sydney, where he was placed in charge of hearing aid research for the organisation. He researched and published on several aspects of hearing aids. In 1976, he and William Tonnisson published the derivation of the first NAL procedure for prescribing the frequency response of hearing aids. This procedure became widely used throughout the world and was influential in the adoption of the practice of prescription itself. Dr Byrne made the astute observation that even critics of prescriptive formula in fact used them - it was just that those who used 'experience and judgement' as the basis of hearing aid selection and adjustment were using formula that were vague, were not visible to others, and could therefore not be examined or evaluated using scientific method.

A quest to find out what worked and what did not was a hallmark of Dr Byrne. While many clinicians around the world were content to simply use the first NAL procedure, Dr Byrne set out to systematically and critically examine whether it accomplished its stated aims. His research over several years during

the early 1980s, which also earned him a Ph.D., showed that the 1976 formula had the correct rationale, but that the formula was not appropriate to meeting this rationale as accurately as was possible. His work led to the revised NAL-R formula published in 1986. Further research by Dr Byrne and colleagues led to an extension of the rule that catered for the special needs of children and adults with severe and profound hearing loss. These rules (NAL-R and NAL-RP) are still widely used today.

In 1989, the National Acoustic Laboratories were re-organised and Dr Byrne became the first Director of Research. Apart from directing the research of others, he continued to engage in research personally. During the last decade his work included experimental investigations into the localization of sound, development of procedures for fitting non-linear hearing aids, and a philosophical rethink of the directions that hearing aid fitting seemed to be taking. Dr Byrne's work was always original; he disliked following the crowd and thought it a waste of valuable research resources. As a result he frequently led the field rather than just responding to it. He was certainly happier when he could challenge beliefs with sound evidence and arguments than when he could only support them. Nonetheless, a guiding principle of his was that research studies must be designed so that something useful is learned no matter which way the findings may fall.

Denis often described some practices in audiology as 'missionary-based', rather than science-based, in that proponents of an idea sometimes espoused the idea with a vigour that exceeded the evidence available. Binaural fitting was a case in point. Based on his results in the 1970s, Denis was one of the earliest proponents for binaural amplification, but never considered that it was the better option for everyone, or the better option in all listening situations. The publications of Denis and his colleagues made a clear distinction between the definite benefits of binaural listening versus the situationally-dependent benefits of wearing two hearing aids.

Denis's success at research lay several key attributes. His beginnings as a practising clinician gave him an acute awareness of what was practical, what was real, and what was valuable. He applied these tests to the design and interpretation of each study. In all things, he was careful, systematic, and thorough. In a world where some people are convinced only by evidence and some are convinced only by reasoned argument, Denis held both in high regard. He held to a belief strongly only when he could see that theory and evidence had fully come together. Each of his 120 or so publications was

painstakingly worked over and over and over to achieve consistency, structure, and clarity. He thought, long and hard, and often talked to himself while he argued back and forth.

Dr Byrne was a founding member of the Audiological Society of Australia, served as its President, and was the founding editor of the Australian and New Zealand Journal of Audiology from its inception in 1979 (as the Australian Journal of Audiology) to the present. His systematic, theoretically sound, evidence-based approach to hearing aid fitting became the philosophy of the public service-delivery system in Australia. This guidance helped clinician and client immensely. Following the introduction of the first NAL prescription procedure into clinics around Australia, annual battery consumption rose by over 50%, mostly because hearing aids became more useful to their wearers.

Dr Byrne was a man of surprises. Denis was a modest man, not one who wanted to be in the social centre of big parties, and was invariably underestimated by people at their first meeting with him. He actually excelled at everything he did - tennis, wine-making, magic (in fact he earned a living from it prior to becoming a clinician), fly fishing, and of course his research career. In the last few years, Denis started learning the piano. He had a quiet but very incisive humour.

Denis had a great sense of perspective, could see both sides of most arguments, and was impeccably fair and honest. Better than the rest of us, Denis could distinguish the essential and the things of lasting value from the trivial and the ephemeral, professionally as well as personally. He detected humbug instantly, and he was frank but courteous to the purveyors of it. He was quick to listen, slow to speak and his words were always well-considered. People who sat near Denis in the audience at a conference and heard a quiet 'mmmmmm' would know that some untruths or faulty logic were being presented from the stage, and would be the wiser for it. Denis Byrne is survived by his wife Morag, and sons Nick and Malcolm. Malcolm has been confined to a wheelchair since being injured in a surfing accident some 16 years ago, and has been cared for by Denis and Morag.

Those of us who worked closely with Denis, those who renewed their friendship with him from time to time, those who have read any of his publications, and those millions of hearing-impaired people who have benefited from his work without ever having heard of him, have all been enriched by him. The closer one got to Denis, the more one valued, appreciated, loved, and was in awe of him.

Harvey Dillon