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Bringing Hearing to the Deaf—Cochlear Implants: a Technical and Personal Account

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Cochlear implants are the first device to successfully restore neural function. They have instigated a popular but controversial revolution in the treatment of deafness, and they serve as a model for research in neuroscience and biomedical engineering. In this talk the physiology of natural hearing will be reviewed from the perspective of a physicist, and the function of cochlear implants will be described in the context of historical treatments, electrical engineering, psychophysics, clinical evaluation of efficacy and personal experience. The social implications of cochlear implantation and the future outlook for auditory prostheses will also be discussed.