Foreword

Laryngeal voice production has many aspects. It is the sound source for verbal communication. It is unique also in that it can express and convey emotions as in opera singing. The singing voice, in all its diversity, is known to everybody. A specific style of singing can be learned, dependent on culture or geographical region.

Superb singing voices attract many listeners in concerts. Phoniatricians and speech pathologists have to deal with disturbances of the singing voice. This special issue of *Folia Phoniatrica et Logopaedica* presents new results of investigations on several aspects of the acoustics and physiology of singing.

Cultural and metaphysical aspects of the voice will get attention in the first article by Brosch. It shows clearly the mysteriousness of the voice and also the good and evil it gets attributed in the history of art. McCoy discusses breathing, an eternally discussed topic that gets attention here from an unexpected view. Are breathing maneuvers different between the sexes? And does it get a different treatment for sexes in the professional singing voice education?

Breathing can also be studied in a different way. This is described in the contribution by Pettersen, a detailed state of the art on electromyographic investigations of muscles that participate in the act of singing. Miller brings up a topic that many singers and teachers of singing have been discussing over more than 150 years since Garcia. Is the female middle voice a combination or balance of the primary registers, chest and falsetto? In an essay-style of deliberations, based on several observations of different types of female professional singers, he comes to the conclusion that the female middle voice should be considered a register of its own, in which the closed quotient during phonation plays a specific role. Acoustical properties of the sound produced in the western operatic tradition are discussed in Schutte's article, describing the outcome of a study on the resonance strategies used in singing the 'money note' in the beginning of Verdi's opera *Aida*. The high B-flat of Radames is a crucial note for a tenor singing that part of the opera. Although several strategies are possible for tuning the vocal tract to one of the harmonics, it appears that a rather unexpected strategy is the favorite in many cases. The article also shows that reliable measurements can be done on archived sound material. This opens a lot of possibilities for future research. Schutte's study is restricted to one single note, sung by many tenors; the following article by Neumann gives an overview of how different singers deal acoustically with a region of the voice usually called 'passaggio'. Using modern software it seems possible to establish a general rule of how to deal best with

passaggio. This is important information for singers, because now visual feedback from the computer screen can be used for teaching professional singing.

Acoustics of the voice and its spectral representation is the subject of the last article in this issue by Howard. It takes us back to the ears, the other end of the communication chain. Howard presents a new way of displaying spectral information. This new representation is more closely related to the abilities of the hearing organ.

We are convinced that this first special issue on singing in the long history of *Folia Phoniatica et Logopaedica* will give insight into the current possibilities of research on this exciting part of human physiology.

Harm K. Schutte, Groningen