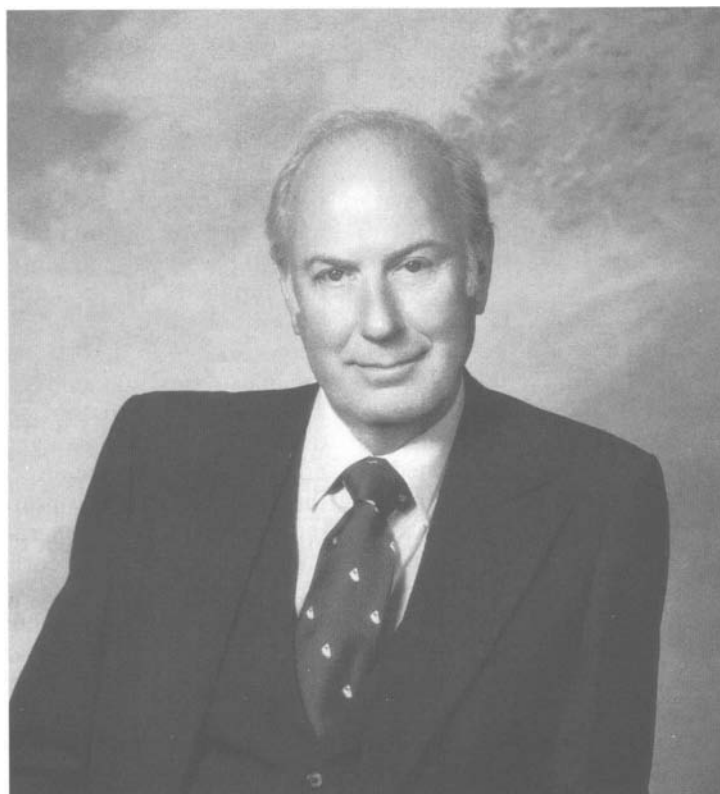


## Obituary



**HAROLD FREDERICK SCHUKNECHT, M.D.**  
**1917-1996**

Harold Frederick Schuknecht, M.D., Professor Emeritus of the Department of Otolaryngology at Harvard Medical School and Chief Emeritus of the Department of Otolaryngology at the Massachusetts Eye and Ear Infirmary, died on 19 October 1996. Professor Schuknecht, who was a world renowned clinical otologist, otopathologist, teacher and scholar was born on 10 February 1917 in the farming town of Chancellor, South Dakota. He received his undergraduate training at the University of South Dakota and graduated from the Rush Medical College at the University of Chicago in 1940. He served a one-year rotating internship at Mercy Hospital in Des Moines where he met his wife, Anne Bodle. Before residency training, he served two years as a general medical officer and two years as a flight surgeon with the 15th Air Force in the Mediterranean Theater in World War II. He was awarded the Soldier's Medal for his heroic rescue of a pilot who was trapped in a burning B-24. He completed his residency training in otolaryngology at the University of Chicago Clinics in 1949. It was

there that he came under the tutelage and influence of Drs. John Lindsay, Henry Perlman, Heinz Kobraak, and William Neff, who profoundly influenced his subsequent scientific career.

Dr. Schuknecht was an accomplished and innovative otologic surgeon. He started his career as a member of the full-time faculty at the University of Chicago School of Medicine. At that time, his clinical activities were largely confined to head and neck surgery and endoscopy. In 1951, in association with Dr. Robert Appleman, he received first prize for an exhibit on the surgical management of carcinoma of the paranasal sinuses at the annual meeting of the American Academy of Ophthalmology and Otolaryngology. His paper on maxillectomy is still a classic. In 1953 he accepted a position as Associate Surgeon at the Henry Ford Hospital in Detroit where he concentrated his clinical work in otologic surgery and pursued basic scientific investigations into the pathophysiology of deafness. He was recruited as the Walter Augustus LeCompte Professor and Chair of the Department of Otolaryngology at the

Harvard Medical School and Chief of Otolaryngology at the Massachusetts Eye and Ear Infirmary in 1961, a position he held until retiring from his administrative and clinical activities in 1987. He was among the first surgeons in the United States to perform the modern stapedectomy procedure. He developed and introduced several prostheses for stapes surgery, many of which are still in use worldwide. His innovations and equipment which he designed for mastoid tympanoplasty are still in wide clinical use. In 1956 he simplified and perfected transcanal labyrinthectomy for ablating vestibular function in Meniere's disease, and also described the use of intratympanic aminoglycoside therapy for this disorder. He expanded the use of streptomycin by describing its use by the intramuscular route for individuals with bilateral Meniere's disease in 1957 and later in 1970.

In addition to his clinical expertise, Dr. Schuknecht was an accomplished and world-recognized investigator in anatomy, physiology and pathology of the ear. His early research work included the determination of auditory thresholds in experimental animals and the use of behaviourally conditioned animals in a series of classical experiments, including the study of traumatic hearing loss, the behavioural effects of partial section of the auditory nerve, and apical lesions of the cochlea. While at the Henry Ford Hospital, he and his associate, Dr. John Churchill, demonstrated that cholinergic nerve fibres were present in the organ of Corti and that these were probably of efferent origin from the olivocochlear bundle. He also demonstrated a system of channels, 'the canaliculi perforantes Schuknechtii', in the osseous spiral lamina by which perilymph comes in direct continuity with the neural supply of the ear and basal poles of hair cells. Other experiments demonstrated the patency of the cochlear aqueduct sufficient to allow passage of red blood cells, the independent origin of endolymph in the auditory and vestibular systems, and the pathologic effects of fistulae of the cochlear duct. At the Massachusetts Eye and Ear Infirmary he significantly expanded his research activities. With the collaboration of his good friend, Robert Kimura, the Electron Microscopy Laboratory was developed. In addition, Dr. Schuknecht supported the research efforts of the Eaton Peabody Laboratory which had very recently been established under the direction of Dr. Nelson Kiang. Dr. Schuknecht's academic accomplishments were described in detail by Beecher and Altschule (1977) in their book.

The principal focus of Dr. Schuknecht's research work at Harvard both during his tenure and following professional retirement was the importance of the underlying anatomy and pathology of the ear to the understanding of pathology of the ear. The clinical problem was underlined by the quote from Joseph Toynbee with which Schuknecht chose to begin the second edition of his text: 'If we carefully survey the history of the rise and progress of aural (surgery), as a distinct branch of scientific surgery, one main cause of the disrepute into which

it has fallen may be traced to the neglect of the pathology of the organ of hearing.' (Toynbee, 1868) His interest in temporal bone anatomy and pathology began under the tutelage of Dr. John Lindsay. Study of otopathology and his active and innovative clinical practice thus became a logical continuity. It can be said that Dr. Schuknecht re-established the histologic and scientific basis for modern medical and surgical otologic intervention, based on his lifelong study and documentation of human temporal bones. His contributions to this area are many, but of particular interests were studies of otosclerosis, Meniere's disease and other vestibular disorders, and presbycusis. Examples of this fruitful marriage between otopathology and clinical practice were many. In 1962 he described his concept of positional vertigo based on sediment of high specific gravity on the cupula of the posterior semicircular canal. In association with his colleague, Robert Kimura, he demonstrated that obstruction of the endolymphatic sac in experimental animals produces endolymphatic hydrops similar to that seen in human Meniere's disease. In the following years there were several articles describing the effects of Meniere's disease in the human including rupture and healing of inner ear membranes and degeneration of the apical spiral ganglion. Based on his earlier research experience in Chicago, he was the first to develop an auditory frequency map for the human. This he developed and perfected over the years in conjunction with his logical and convincing categorization of subtypes of presbycusis, namely, sensory and neural degeneration, atrophy of stria vascularis, and degenerative changes in the supporting structures of the inner ear. As a clinician-scholar, Schuknecht was never content with simply descriptive pathology. Instead, he was always searching for clues to the pathophysiology of disease processes. The second edition of his magnum opus, *Pathology of the Ear* (Schuknecht, 1993), was completed in 1993 and will remain a classic in otopathology, and at the same time provides fundamental information for every otologic surgeon. His scholarly career includes the publication of over 300 original articles, editorials and reviews, and seven books devoted to anatomy, pathology, and surgery of the ear.

In addition to his clinical expertise, Schuknecht was a willing and gifted teacher. His temporal bone collection established at the Massachusetts Eye and Ear Infirmary now contains over 1500 sets of well-documented specimens. This collection and his willing expert mentorship attracted residents and postgraduate students from many nations. Students honoured him in 1973 by the establishment of the International Otopathology Society, also known as the Schuknecht Society. Although originally starting with former research fellows, the Society now includes the students of former fellows and others with a serious interest in human otopathology. The Society has more than 120 members from 30 countries who meet in scientific sessions every three years. In his teaching career he quickly distinguished himself as a no-nonsense individual.

He required all residents in otolaryngology to attend 'Sunday School' for a review of recent otopathologic cases and was among the first chairmen to insist all residents be involved in research projects. Many of his former residents and fellows are now Chairmen of Departments of Otolaryngology worldwide.

During his professional career, Dr. Schuknecht received many prestigious awards, including the Award of Merit from the Association for Research in Otolaryngology, the Shambaugh Prize in Otology from the Collegium Otorhinolaryngologicum Amicitiae Sacrum, the Award of Merit from the American Otological Society, a Presidential Citation from the Triological Society, and the distinguished award for contributions in clinical otology by the American Academy of Otolaryngology – Head and Neck Surgery. He served as President of the New England Otolaryngological Society, Eastern Section of the Triological Society, the American Otological Society, and the American Neurotology Society. He was a member of the Editorial Board for *Acta Oto-Laryngologica*, *Annals of Otology, Rhinology and Laryngology*, *Archives of Oto-Rhino-Laryngology*, *American Journal of Otolaryngology*, *Otolaryngology – Head and Neck Surgery*, and *Laryngoscope*. He was a member of 16 professional societies and an honorary member or fellow of many more, including the Royal Society of Medicine of London, Royal College of Physicians and Surgeons of Glasgow, and Royal College of Surgeons of Edinburgh.

Although there seemed to be little leisure time, Hal knew how to have fun, travelling, golfing, fishing, videotaping the Boston Marathon, and finding time with his many friends.

Medicine in general and the specialty of otology in particular has lost a giant, and many, many of us

have lost a marvellous colleague and good friend. Through his meticulous writings and scientific collections and the training of hundreds of fellows, residents and students, his clinical and scientific contributions will continue to influence scientific inquiry and the practice of otology.

Dr. Schuknecht is survived by his wife, Anne, his daughter, Judy Burness, of Santa Rosa, California, his son Jim of Seattle, Washington, two grandsons, Alexander and Nathan Schuknecht, and his two brothers, Lowell of Dunwoody, Georgia and Arnold of Salem, Oregon.

At Dr. Schuknecht's request, no services will be held. A celebration of the life and professional contributions of Professor Schuknecht will be held in conjunction with the next meeting of the International Otopathology Society (Schuknecht Society) in June of 1997, in Boston. The family suggests a memorial contribution to a favourite charity or to the Harold F. Schuknecht Testimonial Research Fund at the Massachusetts Eye and Ear Infirmary, 243 Charles Street, Boston, MA 02114.

Joseph B. Nadol Jr., M.D.,  
Walter Augustus LeCompte Professor  
and Chairman,  
Harvard Medical School

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