## **Tinnitology, a Search for a Modern Identity of Tinnitus**

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he evolution of tinnitus research now in progress is considered to embody three components: a) verbal; b) morphological and c) neurootological functional approaches.

However, modern functional analysis tries to convert numerical data of function into graphs. Thus we have the possibility to graph our minds.

Tinnitus is a basic experience of a sensory disorder. In the years 25 to 35 A.D., the Roman Encyclopedist, Aulus Cornelius Celsus, wrote his encyclopedia on human and veterinary diseases. In this book, the chapter on ear diseases mentions the symptom of tinnitus; however, it is only a verbal description. Tinnitus is described as a ringing or buzzing noise in the ears 2000 years ago and medical experts could only speculate about this subjective symptom.

Dr. Prosper Ménière as late as 1861 introduced a new morphological concept to the phenomenon of tinnitus, when he demonstrated a visible pathology in the specimens of the temporal bones of patients who had suffered from tinnitus shortly before they died. By this event, a morphological aspect given by pictures, added to the anamnestic aspect of tinnitus, reported in words. However, anatomy and words together do not give an explanation for tinnitus. Since 1861, many causes of tinnitus can clinically be identified, such as clogging of the external auditory canal with ear wax or inflammation of the ear drum membrane, the middle ear or the inner ear, but such identification does not reveal the functional background of the noise. Several doctors have reported that tinnitus also may result from an overdose of drugs or that it may accompany hearing loss, particularly in the high frequency range after trauma. X-ray pictures, surgical explorations and post mortem findings are still unable to explain this highly functional symptom of neurosensory dysregulation.

The introduction of modern audiometry and other functional neurootological investigation techniques add a third component for the projection of this highly irritating sign. Function, however, is unheard and invisible. Therefore the results of the measurements in graphs and digits have to be transferred into figures, curves, graphs and charts, i.e., visible, recordable and measurable structures, which can be objectively compared for typical quantitative differences.

As tinnitus is a matter of a dysfunction, our diagnostic understanding needs to combine verbal history data with morphological data from ear inspections, X-rays etc., and especially together with the functional data of the various audiometric tests; as well as of the electrophysiological data analysis of the hearing pathways. At present the combination of the various sources of information are providing a more rationalistic view of what tinnitus means in all its various aspects. We can discriminate different types of tinnitus for the purpose of developing additional modalities of therapy. Plato already has taught that one can never know the truth, but one may only have an opinion about the things perceived. Investigators who attempt to identify tinnitus are approaching an idea but are not yet able to identify the true reality of tinnitus, even when exhibited by a visual image i.e., PET, SPECT, BEAM. Whether tinnitus finally will be completely identified as are circles and triangles in geometry, cannot at present be stated. However, even if some of our paradigms, theories, and models lead into dead ends, we still have to continue our research from three approaches i.e., verbal, morphological, and neurootological functional methods to clarify more and more the secret of tinnitus. In all our approaches, however, we have to understand that science again and again will be questioned by newer empirical findings and further developed models.

Investigators in the field of tinnitology in these days are pathfinders into new lands for the clinical diagnostics and the therapeutic help for our patients, especially those suffering from a severe disabling tinnitus.

Therefore this International Tinnitus Journal (ITJ) is offering space to present and discuss the most recent findings, experiments, theories and models about tinnitus on an international and world wide basis.