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Introductory Chapter - Genealogy of Audiology

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1. Introduction

The twenty-first century clinical Audiology has not been very creative in terms of novel breakthroughs, since the majority of clinical novelties, we routinely used today, were discovered in the 1970s and the 1980s. The trend, which can be observed in the last few decades, is an amelioration of our technological approaches/strategies to restore an impaired hearing function with hearing aids, middle ear prostheses, and cochlear implants. New and novel procedural developments have not surfaced yet to clinical practice.

A Scopus literature search within the last 5 years shows, for example, that there are developments in procedures related to (i) cortical-evoked potentials, such as the speech-evoked auditory brainstem responses (see the relative chapter in this volume) and (ii) various protocol developments in the area of steady-state responses (ASSR), with applications to the newly charted area of electrically evoked SSRs [1, 2]. Important aspects of novel hearing restoration strategies including gene therapy [3], stem cells [4, 5], and related intracochlear distribution nanotechnologies [6, 7] are still at best in a preclinical phase.

From my personal experience as an educator, I have found that very few of our colleagues and graduate students have a clear idea about the origins of Audiology. This book deals with the latest advances in this field, which can only make sense if we recall briefly our point of origin.

2. Genealogy of the term “Audiology”

As we start 2017, clinical Audiology celebrates a historical span of 71 years, according to Kenneth Berger. In 1976, Berger published an article [8] in the *Journal of the American Audiology Society (AAS)*, where he presented his findings regarding the time occurrence of the term “Audiology.” The first printed reference of the term originates back in 1946. In the 1946,

Journal of Speech Disorders on page 218 appears a brief announcement that the “Speech Clinic at the U.S. Naval Hospital, Philadelphia, is the permanent Naval center for rehabilitation and for research in Speech and Audiology.”

Interestingly, according to Berger [8] the term “Audiology” cannot be attributed to a specific individual, a notion which contradicts what I have learned in my academic training in the US, where it was considered common knowledge that Raymond Carhart was the father of Audiology. Berger [8] reports the following: *“the original creator of the term (Audiology) remains unknown, but possible originators are considered: (i) Mayer BA Schier; (ii) Willard B Hargrave ; (iii) Stanley Nowak; (iv) Norman Canfield; (v) Raymond Carhart [9]. In a biographical profile by Robert Galambos, Hallowell Davis [10] is credited with coining the term in the 1940s, when he said that the then-prevalent term “auricular training” sounded like a method of teaching people how to wiggle their ears.”* It is interesting to note that from these six pioneering contributors, four (Carhart and Davis excluded) were related to technical fields (electroacoustics).

3. Deviations of the term “Audiology”

From the mid-1970s, several terms have appeared in print, regarding clinical activities which were deviated from the classical categorization of “Audiology.” Typical examples are the following terms: “Hearing Science” [11]; “Clinical Auditory Science” [12]; “Auditory NeuroScience” [12], and so on. It is still difficult to define and discriminate these terms, since the Audiological training is very different around the globe. For example, in most European countries, Audiology is a medical specialization, while the Speech and Hearing Science is associated with communication department curricula. So in an attempt to define all terms, one can assume that activities related to Hearing Science/Auditory Science have a “research inspiration” objective (more research or education oriented) derived from basic Neurosciences, while the terms Audiology or Clinical Audiology refer to a basic clinical activity of assessing the hearing of a human subject.

To summarize, my objective in conjunction with the contributions and collaboration of the participated authors for this “Advances” volume was to collect material from a Hearing Science perspective, which could be applied to the everyday clinical Audiological reality.

4. What “advances” can be?

Considering the long history of Audiology and Hearing Science, it is only natural that numerous and fundamental volumes exist (as the all-time reference by Katz [13]) in English and in many other languages. So it was an interesting challenge to chart the latest “advances” in the field and to find the best way to diffuse the new information to students and professionals.

The term “**advances**” implies a further development on a specific topic. For the area of Audiology, this would mean developments in the following thematic areas: (i) clinical hearing assessment procedures, (ii) rehabilitation strategies, (iii) hardware development (more precise

equipment, better sensors, lower noise, etc.), (iv) telemedicine/teleconsultation concepts, and (v) new methods of long-distance learning and undergraduate/graduate course delivery. Any of these areas could have been the exclusive topic of the present volume.

For practical reasons (and with the hopes that other future books can follow covering the remaining thematic areas), the focus of the present volume is limited to the first two major thematic areas, namely to developments in assessment procedures and rehabilitation strategies (cochlear implants).

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