The Advances of Otology in the 19th Century. Inaugural Lecture to the Free Course in Otology and Rhinolaryngology for the Year 1900–1901.

Camillo Poli.

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Gentlemen,

If, in beginning this year's course, I have chosen to direct our attention to the path that Otology has followed in its progressive development, it is because I believed it would not be entirely fruitless for our science to reflect with you on the harmonious set of scientific and practical knowledge that this branch of medical learning has acquired—through intensive and, one might say, steadily accelerating work—especially during the final decades of the 19th century, a branch that only a few years ago barely dared to assert itself among us.

Every medical science, indeed—as Littré observes—must concern itself with its own history, if it does not wish to degrade into mere craft. Only through this synthetic work, which sets before us the materials that gradually formed a scientific body, can we appreciate the value of its individual elements and, above all, identify the gaps that demand our future attention. To believe in the present, said Murri, and to have faith in the future, one must not—and cannot—deny the past: for all perfection is necessarily gradual, and no science has ever emerged from a single generation, perfect and complete, like Minerva from the head of Jupiter.

This reflection, I believe, will justify me if, before discussing the advances of otology in the past century, I feel compelled to return to earlier times, to recognize what elements constituted—so to speak—the hereditary foundation of otological knowledge passed down to the 19th century.

A feature that characterizes the earliest origins of scientific otology is the excessive length of its preparatory—or "mystical," as W. Mayer calls it—period, during which an often-reckless empiricism prevailed, based more on a priori speculation than on observation and reasoning. The reason for this lies in the highly complex structure of the auditory organ and the difficulty involved in its study.

Yet even amid the obscurity of such a period—marked by uncertain anatomical and physiological knowledge and a complete lack of investigative method—the progress of otology is, from time to time, illuminated by such brilliant insights that their glow reaches through the darkness of the Middle Ages and into our present time.

A recent study by Körner on Hippocratic Otology has indeed highlighted how much and of what value otological knowledge already existed in that era. It is enough to recall that, beyond certain diseases of the outer ear such as otohematoma, several morbid conditions of the middle ear—whether catarrhal or purulent—were already well understood. In fact, a very particular concept existed regarding the latter. It was believed that among the various routes through which excess humors formed in the brain (whence the term *catarrh*) should be expelled, the aural route was one of the most important. From this

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idea—based on the observation that ear discharge was often preceded by severe cerebral symptoms—came the erroneous conclusion, not yet entirely dispelled even today, that an aural discharge should be encouraged and respected. Despite such incorrect interpretations, Hippocratic inquiry did not miss the connections between diseases of the ear and those of the throat, as well as with certain febrile illnesses—one of which, according to Littré, may correspond to what we now call influenza. But the sharpest Hippocratic insight in otology is evident in the clinical histories, such as the case that clearly delineates the morbid picture we now identify as adenoidal vegetations, and others that minutely detail the gradual course of an otogenic meningoencephalitis.

If I have dwelt a bit on the state of otology in Hippocrates' time, it is because his observations remained for a long time the most significant achievement in the field of our specialty.

Indeed, the contribution of later periods up to the 16th century was quite scarce and mostly limited to the treatment of external ear lesions, since functional disorders were considered abnormal actions of the inborn air—*der implantatus*—through which, according to Aristotle, hearing was to be accomplished.

It will suffice to mention Apollonius's idea of softening cerumen and cleaning the ear with warm water, followed by suction. Nor should this seem an irrelevant note when we consider that even today, in ear cleaning, Celsus's recommendation is often forgotten in favor of painful and sometimes harmful instruments. To Celsus also belong the earliest known attempts at opening the ear canal in cases of congenital or acquired atresia, as well as techniques for lobule reconstruction.

Another otological milestone came with the first description of the auditory nerve by Galen of Pergamon and with the classification of ear diseases proposed by Alexander of Tralles into external and internal types, noting that internal ones were especially dangerous due to their proximity to the brain.

During the Arab period of medicine, otology too came under the influence of the therapeutic methods of that era. Thus, Rhazes recommended the use of hot iron to relieve earaches and cauterize aural polyps, while shortly afterward, William of Saliceto suggested strangling the polyps with horsehair followed by cauterization.

But a major revival in otological studies one that would lay our science on solid foundations—came with the remarkable anatomical research initiated in the 16th century. This glory belongs especially to a distinguished line of Italian anatomists, from Berengario da Carpi to Antonio Scarpa, nearly uninterrupted up to the dawn of the 19th century.

Speaking to Italians, it is hardly necessary to recall how Fallopius first provided a detailed description of the labyrinth and the tympanic cavity, especially highlighting the facial canal, and how Eustachius, shortly after discovering the Eustachian tube, had already glimpsed its considerable medical usefulness.

Meanwhile, Andreas Vesalius described for the first time the two major ossicles—the malleus and incus—leaving to Ingrassia the merit of discovering the stapes. Fabricius of Acquapendente was the first to observe—an insight later revisited by Morgagni—that the tympanic cavity in newborns is often filled with mucus.

But the anatomist to whom otology is most indebted in the 17th century is Valsalva, whose *Tractatus de aure humana* should still be required reading for every otologist today.

Valsalva's anatomical research—based on nearly a thousand dissections—gave us the first description of the membranous labyrinth and the divisions of the auditory nerve, even noting, before Cotugno, the presence of labyrinthine fluid.

On the pathological side, Valsalva identified the frequent perforation of Shrapnell's membrane in chronic purulent otitis media and, during an autopsy on a deaf individual, observed ankylosis of the stapes at the oval window. He also conducted the first experiments on the regeneration of the tympanic membrane in dogs, noting that such regeneration did not significantly impair hearing.

Additionally, Valsalva introduced the well-known maneuver—still bearing his name—for expelling pus from the tympanic cavity through a perforated eardrum.

The 18th century is memorable in the history of otology for the contributions it brought to the pathological anatomy of the ear through

the great Morgagni. Of special importance to us is his *Epistola XIV*, in which, for the first time, the causal links between ear suppurations and their intracranial complications are clearly defined.

Equally significant for ear physiology was the confirmation, in the second half of the 18th century, of the existence of labyrinthine fluid by Cotugno, finally disproving the long-standing error that the labyrinth was filled with air.

Scarpa, shortly thereafter, completed these findings with the discovery of fluid in the membranous labyrinth, extending his investigations across the entire series of vertebrates—just as Andrea Comparetti did for the auditory organ during that same period.

Further contributions to labyrinthine anatomy came from Scarpa with the discovery of the anterior cribriform area and his research into variations in the size of the round window, which he referred to as the "secondary tympanum."

Faced with such a rich body of fundamental research on the auditory organ by a succession of Italian scientists, it is not an idle boast to claim that scientific otology was born in Italy.

Alongside this splendid flourishing of anatomical studies in our country, other important achievements—particularly in the fields of nosology and otological therapy—were taking place in other nations, where the dominance of our science was beginning to be established.

In fact, already in the 17th century in France, a contemporary of Valsalva, Joseph De Verney, made the first attempt in otology to coordinate normal and pathological anatomical investigations with a rational and scientific therapy.

In De Verney's work, the anatomy of the ear occupies a prominent role. There, for the first time, the ceruminous glands are described, along with some specific features of the bony and membranous labyrinth. In the physiological section, it is noteworthy that he hypothesized the spiral lamina to be responsible for perceiving tones of different pitches.

In pathology, he demonstrated that suppuration does not originate in the brain but in the ear, and that ear noises (tinnitus) hold only symptomatic value.

Numerous clinical and anatomopathological observations support this original researcher's treatise, which served as a prelude to the development that otology would experience in France at the beginning of the 19th century with Itard.

Also important for the growth of our studies in France during the 18th century was the work of Leschevin, who was the first to recognize the possibility of infection spreading from the throat to the ear via the Eustachian tube, as well as the tympanic retraction that results from Eustachian tube closure.

At this point, we must also recall that 18th-century France gave rise to two surgical techniques that became essential parts of otological therapy: catheterization of the Eustachian tube, proposed by Guyot, and artificial opening of the mastoid, performed by J. L. Petit.

However, the indications for these surgical procedures were still unclear and poorly defined at the dawn of the 19th century. In fact, the overextension of mastoid opening—particularly in Germany due to Lasser's initiative—as a treatment for deafness led to its disrepute after 1791, when Danish physician v. Berger died from such an operation intended to improve his hearing.

It was left to the 19th century, as we shall see, to better define the indications for this procedure and establish it as a cornerstone of modern intracranial auricular surgery.

As preparations advanced for the otological progress that would follow, England—toward the close of the 18th century—contributed significantly through the work of Sims, who conducted a thorough study on catarrhal deafness, and through the anatomical and physiological research of John Cunningham Saunders.

At this point, I am pleased to recall that exactly one hundred years ago, in 1800, a renowned English surgeon, Astley Cooper, dared to perform the first live paracenteses of the tympanic membrane, indicating it particularly for cases of deafness caused by Eustachian tube obstruction.

However, widespread clinical experience quickly discredited this surgical procedure. Yet, just a few years later in 1803, a French otologist, Alard, more cautiously recom-

mended it in cases of acute otitis with pus retention.

Otology was not equally developed at the end of the 18th century in Germany and Austria, where—apart from a few monographs by Lentin, Löffler, and others—nothing suggested that these nations would soon become the leading centers of our science.

Summarizing the state of otology at the dawn of the 19th century, we find that thanks especially to Italian contributions, it was rich in anatomical discoveries, while research in pathological anatomy was just beginning.

Significant advances in otological nosology had taken place, especially in France, although diagnosis still relied largely on subjective symptoms. Objective investigation was not yet common practice, despite the fact that as early as the 15th century, an Italian, Pietro de la Cerlata, had suggested inspecting the ear "by drawing it toward the sun and enlarging it with a speculum or another instrument," and that in the following century, Fabricius of Hilden had proposed his bivalve speculum—on which, much later, the specula of Itard and Kramer would be modeled.

Therapy had seen considerable advances through the introduction of catheterization, mastoid opening, and paracentesis. The discovery of electricity and galvanism, still recent at the time, was soon applied in attempts to treat deafness—particularly in cases not relieved by the use of hearing horns, which were already widely employed.

From all this, we can see that otology had already entered the 19th century equipped for a scientific reorganization. What was now required was greater precision in objective examination, a clearer understanding of etiological causes and anatomopathological lesions, more accurate coordination of the pathophysiological factors behind various diseases, better-defined therapeutic indications, and a more complete determination of the relationship between aural conditions and general health.

This kind of work, already initiated in France through the efforts of Alard and Saissy, was carried forward with remarkable success by Itard—an outstanding man noted for both scientific integrity and profound philosophical insight. In 1821, he summarized nearly two decades of otological experience in a treatise that stands out, both theoretically and practically, as the most important publication in the field up to that time.

Apart from certain erroneous interpretations—such as that of *cerebral otorrhea*, which contradicted Morgagni's earlier findings—and the absence of objective diagnostic criteria, Itard's work, especially in its pathological section based on 172 clinical cases, reveals an acumen of observation and analytical critique comparable only to that of Hippocratic case histories.

Itard's therapy was rational, straightforward, and at times bold. Catheterization was primarily used to introduce vapors or aqueous and ether solutions into the tympanic cavity. The indication for paracentesis was limited to the need to evacuate tympanic exudates.

Itard's successor in France, particularly in practical aspects, was Deleau the Younger, to whom otological instrumentation owes several innovations. The focus on tubal medication was justified by his clarification of Valsalva's long-standing concept regarding the importance of Eustachian tube patency for hearing function.

French otology also benefited, around the mid-19th century, from the contributions of Menière—whose name became associated with the well-known auditory vertigo syndrome—as well as Bonnafont, whose theory on the role of tympanic muscles in sound accommodation was less significant than his pioneering work on functional testing with tuning forks. Bonnafont also performed autopsies in two cases, identifying ankylosis of the stapes at the oval window.

While the French school was making these advances in objective examination—particularly in nosology and otological therapy—important progress in pathological anatomy was being made by English otologists. Building on the foundational work of Sims, Saunders, Buchanan, Hinton, Patterson-Cassel, and Swann (the latter being the first to establish that the labyrinth remained intact in most deafness cases), English researchers laid the groundwork for auricular disease clinics, most notably through the efforts of Toynbee and Wilde.

Let us not forget that, at the beginning of the century, in 1816, London saw the establishment of the Royal Ear Hospital—the first

dedicated otological clinic in Europe, and likely in the world.

Toynbee's work, driven by the clear goal of filling the glaring gaps in otological pathological anatomy, was monumental. The true scale of his contributions can be appreciated only by those who have seen the extensive collection preserved at the Royal College of Surgeons of England, which resulted from 1,659 ear dissections.

Before him, only Valsalva in Italy and later Hermann Wendt in Germany had demonstrated such patient dedication to the challenging anatomical investigation of the auditory system.

Toynbee's research not only highlighted the high incidence of ear diseases but also confirmed a fact already glimpsed by Swann—that the vast majority of such lesions occur in the middle ear, specifically in its mucosal lining, while the labyrinth is usually intact or affected only secondarily.

Worthy of particular mention is Toynbee's early study of cholesteatoma, which he referred to as a "mollusc tumor," as well as his analysis of several cases of stapes ankylosis and the section dealing with cerebral complications arising from otitis.

It would have been desirable for him to give greater weight to the relationship between functional alterations and the anatomical lesions identified post-mortem, but this task would be left, as we shall see, to later researchers.

Parallel to Toynbee's work in pathological anatomy, William Wilde's equally important contributions to clinical practice were taking shape in Dublin. Objective examination—particularly otoscopy and diagnostic catheterization—was given greater importance than ever before. This made it possible to confirm, in living patients, what Toynbee had observed in the dead: namely, that most lesions are located in the middle ear.

It was on these middle ear pathologies—whether catarrhal or purulent—that Wilde focused his clinical attention, tailoring therapeutic approaches to individual cases.

Given the potential intracranial consequences of chronic purulent otitis media, Wilde formulated the now-famous aphorism: "One never knows if, how, or when such a disease will end."

Wilde's loop polypotome, which remains part of modern otological instruments, became the model for a whole range of loop-holding devices. Likewise, his linear incision technique for the soft tissues of the mastoid region in inflammatory cases was the first step toward more precise indications in modern ear surgery.

The works of Toynbee and Wilde, much of which was published in contemporary English medical journals, led—by the mid-19th century—not only to significant advances in English otology but also to the spread of otological knowledge to North America. However, their influence on the otological scientific movement on the European continent was, at first, limited, where the discipline largely continued to follow the principles of the French school.

Indeed, when one examines the otological literature of early 19th-century Germany—from the contributions of Caspar to those of Lincke, Schmalz, Frank, Beck, and others—one finds, to varying degrees, the clear influence of Itard.

Even a figure who for nearly forty years represented the official face of otology in Germany with tireless activity and energy, Wilhelm Kramer of Berlin, did not escape that influence.

It is curious that precisely when Toynbee, in England, was demonstrating—on the basis of pathological anatomy—the predominant frequency of middle ear lesions, Kramer was passionately promoting the idea that hearing loss was, in the vast majority of cases, due to a nervous lesion. This lesion was categorized as either "erethistic" or "torpid," depending on whether the hearing loss was accompanied by subjective noise (tinnitus) or not.

This superficiality of observation is also evident in the fact that Kramer's statistics were full of cases labeled as acute and chronic "myringitis," which in fact represented a wide array of middle ear lesions.

In therapeutic matters, Kramer failed to diverge from the practices of the French school, which focused primarily—through predominantly tubal medication—on modifying the condition of the middle ear.

There is a strange contradiction between Kramer's therapeutic enthusiasm for the middle ear and his pathogenetic concept of

auricular diseases! It is therefore not surprising that he long dominated the field, only to later experience a precipitous fall. As W. Mayer put it: "Kramer's energy was his strength, his fame—and his downfall" (*Kramer's Energie war seine Stärke, war sein Ruhm, und brachte ihn zum Sturz*).

I cite this example to illustrate that in the scientific realm, neither intelligence nor prolific activity is sufficient if not paired with honest, objective, patient, and relentless pursuit of the truth.

As Tröltsch aptly observed in reference to Kramer's work, "It is easier to build a shack painted in bright and dazzling colors, but time punishes false craftsmen, and their work, once it has lost everyone's respect, falls into ruin." This is a truth, gentlemen, that extends beyond the field of otology!

Nevertheless, alongside these imported currents of thought, an independent German otology began to take shape through the isolated efforts of various researchers such as Kruneberg, Schwartz, Pappenheim, Passavant, and others. As a result, Wilde—upon returning from a tour of Europe—was able to state in his history of otology, referencing the year 1840, that Germany had achieved the highest level of otological advancement compared to other European countries.

However, it was particularly Anton von Tröltsch, professor in Würzburg, who would outline the foundations of modern otology. As he noted in the introduction to his classic treatise, his approach was based above all on three principles: "to cultivate the pathological anatomy of the ear, to analyze through detailed experimentation the physiological functions of each part, and finally to introduce practical and effective methods of examination."

This analytical and rigorous work, carried out without the urge to grasp the whole truth at once—as he himself said, a method well-suited to the study of any branch of the natural sciences—was perfectly in line with the German mindset. It is thus unsurprising that around this great master of Würzburg there arose a constellation of otological researchers who, by dividing the tasks among themselves, laid broad and solid foundations for our science.

A significant contribution to this collective endeavor came from the launch in 1864 of the *Archiv für Ohrenheilkunde*, founded by Tröltsch, Politzer, and Schwartze. This publication became the first and most important affirmation of our specialty within the broader medical sciences and went on to gather contributions from an ever-growing number of collaborators along its illustrious path.

Summarizing the work done—especially during the final three decades of the century—is no easy task, particularly when one considers that, thanks to the groundwork laid by Germany, input began to flow in from nearly every civilized country, including Italy, which—although it rejoined the scientific otological movement later—nonetheless played a part.

On this point, I have deliberately used the term "rejoined the current," because if we briefly reflect on Italy's role in the development of 19th-century otology, we cannot help but regret the long-standing neglect of these studies in the very cradle of medical science.

I will not dwell here on investigating the historical reasons why, after such a radiant dawn—as we saw shine in our country until the end of the 18th century in the field of otology as well as in other branches of medical science—there did not follow a brilliant midday like the one that shone across the Alps, leaving us instead to wait for reflected light to reach us.

I do not know whether this should be attributed to that natural phenomenon by which even intellectual energies are fated to periodically exhaust themselves, or rather to the sad political circumstances that plagued our country in the first half of the 19th century, during which every form of scientific organization seemed to be distracted or hindered.

The fact remains that, after Scarpa, we must cross a long period without finding any sign of a scientific revival in otology. Thus, it is understandable that Petrequin, returning from a trip to Italy around 1840, could state that ear diseases were not studied in our country.

It is only fair to remember, however, that as early as 1818, a surgeon—Professor Mazzoni—performed, apparently with good functional success and using the method recommended by Celsus, the opening of

a congenitally closed auditory canal in an 18-year-old deaf-mute woman.

A contribution more directly related to our specialty came from Fabrizi of Modena, who in 1828 proposed a model of a needle for tympanic paracentesis.

But where Italian genius once again shone brightly in the anatomical field of otology was in the discovery of the terminal auditory organ made in 1851 by the Marquis Corti, who was then an assistant to Hyrtl.

Around the middle of the century, further anatomical contributions were made to otology by Calori, with a study "on the chorda tympani" and another "on the course and distribution of arteries in the tympanic cavity of certain mammals."

Later, in 1864, my late teacher, Professor Zoia of Pavia, devoted a conscientious and meticulous study to the mastoid process.

The merit, however, of having dared to be the first to engage with practical otology in Italy belongs to Demetrio Bargellini, who in 1861 published a paper in the *Gazzetta Medica Toscana* titled *On the Differential Diagnosis and Therapy of Disorders of the Auditory Organ*.

Shortly thereafter, Cerutti of Turin, publishing in 1857 an excellent study *on the catheterization of the Eustachian tube*, rightly lamented "that Italy had no name to rival those of Itard, Kramer, Toynbee, and other esteemed practitioners of this specialty, both French and German."

Drawing attention to the work of these latter authors came just in time when, in 1869, Morpurgo of Trieste published an Italian translation of Tröltsch's treatise, followed in 1875 by Professor G. F. Novaro's translation of Heineke's surgical text, which included extensive coverage of otological surgery.

But the honor of giving organic structure to otology in Italy undoubtedly belongs to a Ligurian, Professor Emilio De Rossi. With a tenacity equal to his intellect, he began his practice in otology among us and, in 1870, published his *Treatise*, which more than any other succeeded in drawing the attention of the medical community to otological studies and securing, with the establishment of a chair in Rome in 1871, official recognition for the discipline.

Nor can I forget here the contributions to our science made by Sapolini with his anatomical and physiological research; by Longhi; Origene Masini; Felici; and Corradi—who, sadly, already represent the necrology of Italian otology.

Thanks particularly to the efforts of these distinguished individuals, a true revival of these specialties began in our country, which managed—almost recovering lost time—to rapidly catch up with the nations where scientific otology was more actively pursued.

This progress was undoubtedly aided by the publication of specialized journals, such as the *Bollettino delle Malattie d'Orecchio, Naso e Gola*, founded by Grazzi in 1882, and the *Archivio di Otologia*, launched in 1893 by De Rossi and Gradenigo, to which were added, in 1900, the *Annali di Laringologia, Otologia e Rinologia* by G. Masini.

As further confirmation of this renaissance in otological studies, in 1891 the Italian Society of Laryngology, Otology, and Rhinology was founded in Siena. Born with 21 members, it now counts, after five congresses, nearly eighty regular members.

Now, if we consider that through a natural process of expansion, otology developed along modern lines in most civilized nations, we understand how much work accumulated during the last thirty years—so much so that, as Politzer observed, the second half of the 19th century must be remembered as the classical era of otology.

Nor should this surprise us, considering that all the natural sciences—and particularly medicine—received their greatest impetus during this time, and their progress could not fail to influence the development of otology.

We must indeed acknowledge the merit of the following contributors to our science:

– Anatomists such as Arnold, Hyrtl, Rudinger, Schwalbe, Zuckerkandl, and our own Calori and Zoja;

– Histologists like Deiters, Hensen, Prenant, Lenoirsek, along with our Ciniselli, Chiarugi, and Sala;

– Embryologists like Reissner, His, Hertwig;

– Scholars of comparative anatomy such as Hasse, Retzius, and our Tafani and Bertelli;

– Physiologists like Flourens, Betcherew, G. Müller, Helmholtz, Goltz, Ewald, Horsley, König, Oscar Wolf, the Weber brothers, and our own Lussana, Stefani, Luciani, and Fano;

– Pathological anatomists such as Abercrombie, Virchow, Lebert;

– Clinicians like Charcot, Oppenheim, and our Murri, Fenoglio, and Maiocchi on the medical side, and Bergmann, Küster, Macewen, and our own Novaro on the surgical side—who, allow me the memory, was the first in our country to initiate modern mastoid surgery involving extensive removal.

The support that all these cultivators of medical knowledge gave to otology helped keep this flourishing branch tied to the great mother trunk and facilitated the task entrusted to otologists by the 19th century.

And this task, in conclusion, was largely fulfilled.

Anatomy, already quite advanced, was enriched with more precise data, particularly regarding the relationships among the organs contained in the middle ear and with those within the cranial cavity, thus preparing the ground for endo- and extratympanic surgery.

Histology meticulously investigated the structure of various auditory elements, such as the tympanic membrane and mucosa, the ossicular joints, and especially the labyrinth.

By associating embryological studies of the tubo-tympanic apparatus and inner ear with comparative anatomical investigations, the morphological problem of the auditory organ was tackled—and partly resolved.

Physiological research highlighted the extremely important fact of the labyrinth's dual static and auditory function. Fewer results were achieved in this regard for the middle ear.

There were numerous and important advances in pathological anatomy, particularly of the middle ear and labyrinth, although the latter's lesions still offer wide scope for study due to the technical difficulties of histological investigation.

Means of objective—especially functional—examination have grown significantly. Otoscopic examination has become highly valuable, and the introduction of a full range of tuning forks helped sharpen differential diagnosis between middle ear and labyrinthine lesions and resolve, to a great extent, the medico-legal problem of simulated deafness.

The etiology of ear diseases became clearer through the study of their relationship to heredity, age, gender, climate, occupation, etc., and particularly to general systemic illnesses such as acute and chronic infectious diseases, intoxications, and disorders of the nervous, respiratory, circulatory, digestive, urinary, and reproductive systems.

But the greatest progress in the etiology of auricular diseases came from the discovery of adenoid vegetations and the recent developments in rhinology. Bacteriology also provided valuable support in etiological research.

From a clearer understanding of the causes and nature of ear diseases, prognosis became more precise—especially general and specific therapies benefitted most.

Without lingering on the external ear—which, as we've seen, was limited to earlier therapeutic measures—I will say that the catarrhal forms, both acute and chronic, of the tubo-tympanic system, which for nearly three-quarters of a century had no other resource than the unreliable and inadequate tubal catheterization and treatment, have now found immense benefits in preventive therapy targeting the nose and nasopharyngeal cavity.

Treatment of the labyrinth has thus far yielded only limited results.

But where otology has had its greatest triumphs—especially in the last decade—is in surgical intervention aimed at the radical cure of chronic intratympanic suppuration and its intracranial complications.

Work in this field has been so intense and so rich in brilliant results that modern otology can rightly take pride in it.

"The otologist," said von Bergmann on this subject, "who came from the ranks of surgery, has returned to being a surgeon."

Thanks to this progress, it is fair to say today that no one should die from an ear disease anymore.

A socially significant issue—deaf-mutism—also turned to our science during this century and not without benefit.

I will conclude this brief journey through the history of otology by telling you that, by the close of the 19th century, beyond Germany, Austria, and Italy, otology had already brought together specialists into professional societies in North America, Belgium, the Netherlands, Spain, and Bavaria;

that the dissemination of otological knowledge was served not only by the three Italian

journals already mentioned but also by three in Germany, six in America, six in France, three in Spain, and one in England; that otology was being taught in 19 German universities, two in France, six in Austria-Hungary, five in Italy, two in Russia and Switzerland, and one each in the Netherlands, Denmark, Norway, and Japan.

As we can see, proceeding in parallel with a branch of medicine with which it shares intimate ties—rhinolaryngology—otology is striving to claim the official recognition it rightfully deserves alongside other medical specialties that preceded it on this path.

Gentlemen,

However great the work accomplished by otologists in the 19th century, a vast harvest still awaits to be gathered in the field. By engaging in this task with honest and sincere intentions, you will be doing something useful for yourselves and preparing—here in the ancient homeland of otology—a fortunate period of renewal.