

# The American Otological Society at its Sesquicentennial: Insights Into the Society's Formative Years

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**Objective:** To elucidate the sequence of events which led to the formation of the American Otological Society (AOS) in 1868 and to examine the lives and contributions of the nine founding members of the Society.

**Methods:** Study of primary historical documents, biographical material, and previous histories of the AOS.

**Results:** Earlier treatments of the history of the AOS minimally covered the events and personalities from the Society's formative period. The founders of the AOS were much influenced by recent advances in European Otology and the success of the nascent American Ophthalmological Society which had been founded in 1864. The AOS has long credited Elkanah Williams as its first president of the AOS, although he never actually served in this role and was not a contributor to otological literature. Documents suggest that

30 years old New York physician Daniel Bennett St John Roosa, recently returned from a grand tour of the leading European otological centers, was the principal advocate for the creation of the AOS.

**Conclusions:** The 1860s were a pivotal period in the maturation of American Otology. Previously, most "aurists" were widely considered to be charlatans who practiced unscientifically and often unscrupulously. The AOS founder generation were a group of Ophthalmologists who strove to elevate otology from being a lesser appendage of the mother field to becoming a respected and scientifically based medical specialty in its own right. **Key Words:** American Otological Society—History—Sesquicentennial.

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By the 1860s, ophthalmology had been well established as a specialty both in Europe and America. The specialty's maturation was catalyzed by technical advances, most notably by the invention of the ophthalmoscope by Helmholtz in 1851 (1). By contrast, the majority of "aurists" practiced unscientifically and had little in the way of effective therapeutics to offer. They were widely viewed among the medical profession as quacks. Ophthalmologists focused principally on eye diseases and viewed otology as a sideline at most. Among the profession, otology was widely perceived as a poor step child of ophthalmology. The preface of the first volume of the Transactions of the American Otological Society Volume I (1868–1874) summarized the woeful state of the field of otology at mid-19th century: "Until within a very few years, the science and art of otology had been almost entirely neglected by the medical profession of the United States. In this respect, however, we are not much behind most other parts of the civilized world. In its very best position, otology was an appendage, not always very gracefully worn, to the Department of Ophthalmology." (2)

During the 1850s and 1860s an awakening of interest in ear diseases rose among a group of European physicians who became interested in medicine and surgery of the ear. These pioneers of scientific otology included German (Schwartz, Kramer, von Tröltsch), Austrian (Politzer), British (Toynbee), and Irish (Wilde) who emphasized otology in their practices and who authored textbooks in the field during the 1850s to 1870s. In 1863, the first medical journal dedicated to otology, *Archiv für Ohrenheilkunde*, was founded and began publication in 1864 (3).

The formative period of the American Ophthalmological Society in 1864 to 1865 is well documented (4–7). By contrast, the details of the American Otological Society (AOS) formation in 1868 to 1869 are minimally covered in the two otherwise excellent monographs which chronicle its history (8,9). While the members of the AOS are justly proud at how well our history has been preserved, much of this fascinating story of the Society's birth remains untold. The purpose of this paper is to elucidate the sequence of events which led to the society's foundation and to examine the lives and otological contributions of the nine founding members of the AOS.

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## METHODS

The principal sources were primary historical documents including meeting minutes and scientific transactions of the American Otological Society (1868–1911) and American

**TABLE 1.** *Nine founding members of the American Otological Society (July 22, 1868)*

			Age at AOS	Meeting	AOS President
			Founding	Attendance <sup>a</sup>	
Elkanah G. Williams (Chair)	(1822–1888)	Cincinnati	46	0/5	1868–1869 <sup>b</sup>
Henry Drury Noyes	(1832–1900) <sup>c</sup>	New York City	36	4/5	1870–1873
D. B. St. John Roosa	(1838–1908) <sup>c</sup>	New York City	30	3/5	1875–1876
Oren Day Pomeroy	(1834–1902)	New York City	34	3/5	1890
John Green	(1835–1913)	St Louis	33	4/5	
Charles A. Robertson	(1829–1880) <sup>c</sup>	Albany	39	1/5	
Cornelius Rea Agnew	(1830–1888) <sup>c</sup>	New York City	38	2/5	
Freeman Josiah Bumstead	(1826–1879) <sup>c</sup>	New York City	42	0/5	
Charles Everts Rider	(1839–1909)	Rochester	29	2/5	

<sup>a</sup>First five AOS scientific meetings 1869–1874.

<sup>b</sup>Williams chaired the organizational meeting of 1868, but did not attend meeting in his presidential year of 1869 (the Society's 1st scientific meeting).

<sup>c</sup>Also served as founding members of the American Ophthalmology Society in 1864.

Note: Two AOS founding members also President of the American Ophthalmological Society: C. R. Agnew (1874–1878) and H. D. Noyes (1879–1884). Noyes has the distinction of having been the only individual to serve as President of both Societies.

Ophthalmological Society (1864–1911). Biographical materials for the nine AOS founders were derived from their publications, comments by their contemporaries and later historians, and obituaries in medical journals and newspapers. Earlier historical treatments referring to the formative period of both eye and ear societies were also consulted. The scholarly contributions of the nine AOS founding members to the otological literature were assessed by evaluating the number of publications in the AOS transactions over the initial 14 years (1868–1881) of the of the Society's meetings.

### The Emergence of the American Otological Society from the American Ophthalmological Society

When the American Ophthalmological Society was founded in the summer 1864 in New York it became the first American medical specialty society (4). At the Annual meeting of the American Ophthalmology Society at the Ocean House in Newport, Rhode Island on Tuesday, July 21, 1868, a motion was made to add the term "Aural" to the society's name (i.e., American Ophthalmology and Aural Society). According to Newell, "There was extended debate but the motion finally failed." (7) Interestingly, neither the motion nor the substance of the discussion which followed was recorded in the minutes of the 1868 meeting published in the Ophthalmology Transactions. Having been rebuffed by the membership, a group of nine members stayed on in Newport an extra day (Wednesday July 22, 1868) and held an organizational meeting during which it was decided to launch a separate society dedicated to the ear—the American Otological Society. Those meeting were a young group, even for the day, with one in the 20s, six in the 30s, and only two in their 40s with the senior member at age 46. Most were veterans of the American Civil War (1861–1865) having served in the medical services of the Union Army.

The Chair of this organizational session was the senior member Elkanah Williams of Cincinnati. During the proceedings Williams was elected the first President of the AOS to serve during the 1869 inaugural scientific meeting to be held the next summer. Williams, however, did not attend the AOS inaugural meeting, even though he was the nascent Society's President. He also did not attend the first five annual scientific meetings (Table 1). Williams was listed as an AOS member from 1868 to 1870, but was inexplicably dropped from the

membership list 1871 and 1872, perhaps from non-payment of dues, only to reappear 1873 onward. During his career, Williams did not contribute any publications to the AOS Transactions. As Williams did not appear to have any special interest in the ear, the senior members of the Ophthalmology Society may have asked him to participate in the organizational meeting to monitor the young advocates for otology and represent the interests of the parent Society. Freeman Josiah Bumstead, the only other participant in the 1869 formative meeting over the age of 40, never attended an AOS scientific meeting and resigned his membership in 1870. Bumstead and Williams may have been asked to oversee the proceedings on behalf of the Ophthalmology Society to influence such important formative decisions as having the AOS meet in concert with the Ophthalmology Society and to publish transactions of the two societies together.

### Biographies of the Nine Founding Members and their Contributions to Otology

**Elkanah G. Williams** (1822–1888): Williams was born in Bedford, Indiana (10–13). He graduated from Asbury College (now De Pauw University) in Indiana in 1847 and obtained his medical degree from the University of Louisville in 1850. After 2 years in general practice, Williams left for Europe in 1852 for additional study in ophthalmology in Paris, London, Vienna, Prague, and Berlin. He is credited with introducing Hermann von Helmholtz's ophthalmoscope in London and was an early advocate for the device in the United States (5). His paper "The Ophthalmoscope: The principles on which it is based—The manner of its application—And its practical advantages" helped to introduce the device in America (14). Williams was described by Drury as "Above average height, with broad shoulders, slightly stooped, his genial face and kind eyes inspired confidence in his patients." (11) He became famous in Ohio and surrounding states for expertise in care of eye diseases. In 1856, he was named the first Professor of ophthalmology in the United States at Miami Medical College in Cincinnati. He was a member of the International Ophthalmologic Congress and elected as its presiding officer in 1876. He was also an honorary member of the United Kingdom Ophthalmology Society. Williams chaired the organizational meeting of the AOS in 1868. Although he was elected President



FIG. 1. Founders of the American Otological Society.

for the inaugural scientific meeting in 1869, he neither attended during his Presidential year nor many subsequent meetings of the new Society. While he presented a total of nine papers at the American Ophthalmological Society he never published in the AOS transactions. In an unusual honor, Williams was named an honorary member of the AOS shortly before his death in 1888. The minutes of the meeting explained: "The resignation of Dr. E. Williams of Cincinnati, O., on account of ill health, was presented by the Secretary. The resignation was accepted. Under suspension of the By-Laws, on motion of Dr. W. H. Carmalt, Dr. E. Williams was then unanimously elected to Honorary Membership in the Society." (15) As honorary membership in the AOS was customarily conveyed to distinguished non-members, such as Alexander Graham Bell, this most special honor may have been awarded in recognition in William's chairing the Society's organizational meeting two decades before. (see Table 1, Fig. 1).

**Oren Day Pomeroy** (1834–1902): Pomeroy was born in Somers, Connecticut (16–18). He attended Berkshire Medical College and graduated from the College of Physicians and Surgeons in New York in 1860. He served as Director of the Manhattan Eye and Ear Hospital. He was President of the New York Ophthalmological Society in 1872 and President of the American Otological Society in 1890. Indicative of his primary interest in otology, in the early years Pomeroy read a total of 12 papers at the AOS and only five papers at the American Ophthalmological Society. His papers addressed issues such as auricular abscesses, hemorrhagic otitis, paracentesis of the tympanic membrane, Politzerization, Eustachian tube catheterization, tenotomy of the tensor tympani muscle, and ear problems among the insane. Pomeroy is best known for his book, *The Diagnosis and Treatment of Diseases of the Ear*, which was published in two editions in 1883 and 1886 and was used as a guide by many medical schools at the time (19).

**Daniel Bennet (DB) St. John Roosa** (1838–1908): Roosa was born in Bethel, New York (20–23). He attended Yale

for college, was dismissed due to ill health, and much later received an honorary degree from Yale. He completed medical school at the University of the City of New York in 1860. During the Civil War he served in the New York National Guard and was at the battle of Gettysburg (1863). Roosa practiced at the New York Eye and Ear (founded 1820) and was a founding member of the Manhattan Eye and Ear Infirmary (1869). He also served as a founding member of the American Ophthalmology Society in 1864. While he was very productive as a scholar in otology, he also published important works in ophthalmology. He had 11 publications in the AOS transactions over its early years covering a diverse series of topics including mastoid surgery, myringotomy, external otitis, use of tuning forks, and the effects of quinine on the ear. More on Roosa's leadership role in the formation of the AOS is described in the next section.

**Charles Archibald Robertson** (1829–1880): Robertson was born in Mobile, Alabama (24–27). He graduated from Harvard University in 1850 and from Jefferson Medical College in 1853. He studied diseases of the eye and ear at the Perkins Institution for the Blind, Massachusetts Charitable Eye and Ear Infirmary, and Wills Hospital in Philadelphia. Robertson studied abroad in Dublin and Paris. His memorial describes him as "a man of strong social instincts, and, consequently, had hosts of warm friends." (24) He practiced at the St Peter's and Albany Hospitals in Albany. He also served as a founding member of the American Ophthalmology Society in 1864 and later its President (1874–1878). He published a number of papers in the ophthalmologic literature, with topics ranging from glaucoma to reflex phenomena after eye injury (27). He presented only one paper at the AOS, a case report of malignant disease of the ear. He resigned from the AOS in 1879.

**Cornelius Rea Agnew** (1830–1888): Agnew was born in New York City (28,29). He graduated from Columbia College in 1849 and finished his medical degree in 1852 at the College

of Physicians and Surgeons in New York. He completed postgraduate study in Dublin (under Sir William Wilde), London, and Paris before establishing practice in New York. A biographer commented that Agnew was: “A man of strong marked and wholly natural executive ability” and that “He was gently dignified in a manner and even in serious conversation had a way of smiling softly. . .” (28) Agnew served as a founding member of the American Ophthalmological Society in 1864 and later as President from 1873 to 1878. He was a founding surgeon for both the Brooklyn Eye and Ear Hospital and Manhattan Eye and Ear Hospital. He presented 13 papers at the American Ophthalmological Society but only two at the American Otological Society. His papers on ear disease involved a tumor of the auricle and trephination of the mastoid. He was known for his developments in strabismus surgery and cantholysis (30). He demonstrated an interest in public health throughout his career, serving as Surgeon General of the State of New York, as Secretary of the first New York Society for Sanitary Reform, and as a member of the committee that prepared the first draft of the city health laws.

**Freeman Josiah Bumstead** (1826–1879): Bumstead was born in Boston, Massachusetts (31,32). He graduated from Williams College in 1847 and from Harvard Medical School in 1851. He studied venereal diseases abroad in London and Paris for several months before returning to New York City for practice. Although he was a founding member of both the American Ophthalmological and Otological Societies, he is best known for his contributions to urology. He resigned from the American Otological Society in 1870, only 2 years after its founding in 1868, and never published in the AOS transactions. He published important translations of French urologic textbooks, including M. A. Cullerier’s Atlas of Venereal Diseases in 1868 (33). He later published his own textbook, *The Pathology and Treatment of Venereal Diseases* which was released in five editions (34).

**John Green** (1835–1913): Green was born in Worcester, Massachusetts. He graduated from Harvard College in 1855, and Harvard Medical School in 1866 (35,36). Following travel to Europe for postgraduate medical studies in London, Paris, Berlin, Vienna, and Utrecht, he began practice in Boston before settling in St. Louis in 1866. A biographer described Green as “By nature gentle, refined and retiring, possessing a clear and logical mind, great learning and ability, an exceptionally cultured diction, and an absolute honesty of purpose. . .” (36) He was professor of ophthalmology and otology at the St. Louis College of Physicians and Surgeons. Green served as Chair of the Ophthalmology Society Membership Committee for an impressive 38 years (1868–1906). He was chairman of the St. Louis Ophthalmological Society, and became known for entropion operations, lachrymal duct treatment, and orbital exenterations. He read 35 papers at the American Ophthalmological Society, and three at the AOS on the subjects such as Aspergillus infection, use of salt in the treatment of draining tympanic membrane perforations, and the function of the Eustachian tube subjected to pressure.

**Henry Drury Noyes** (1832–1900): Noyes was born in New York City (37,38). He graduated from New York University in 1851 and completed medical school at the College of Physicians and Surgeons in New York in 1855. After a year of postgraduate study in Europe, he began practice in New York. He was an early advocate for the use of cocaine as local anesthetic in ophthalmic surgery (39). He practiced at the New York Eye and Ear Infirmary for 41 years and was Professor of ophthalmology and otology at the Bellevue Hospital

Medical College. Noyes also served as a founding member of the American Ophthalmology Society in 1864. According to the official history of the Ophthalmological Society, Noyes was the “guiding spirit” who led the formation of the society (7). His memorial in the ophthalmology transactions described him as “a graceful and forcible speaker, and a brilliant teacher.” (37) Noyes was also President of the New York Ophthalmologic Society. He presented 47 papers at the American Ophthalmological Society, the most prolific of any founding member, but only five at the AOS. His handful of ear papers covered topics such as Eustachian tube catheters and bougies, facial paralysis, and Menière’s disease. Noyes was the Ophthalmological Society recording secretary from its founding in 1864 until 1874. He served as AOS President from 1870 to 1873 and subsequently served as Ophthalmological Society President from 1879 to 1884—the longest term of any President. Noyes has the distinction of being the only individual to serve as President of both eye and ear societies, a feat unlikely ever to be repeated. He was well known for his *Treatise on Diseases of the Eye* on which he based his later *Textbook on Diseases of the Eye*, which was published in two editions (40,41).

**Charles Everts Rider** (1839–1909): Rider was born in New Haven, Vermont (42). He attended Oberlin and Middlebury Colleges, and completed his medical degree at the University of Vermont in 1863 before establishing practice in Rochester, New York. Rider was Professor of ophthalmology at Geneva Medical School (New York) and later at Syracuse University. He was not particularly academic having read no papers at the AOS and only one at the American Ophthalmological Society on the subject of the “The Winking Test.” (43) Of interest, he went on to develop the world’s largest hardwood floor manufacturing business and obtained a patent in parquetry, a wood inlay technique.

#### LEADING THE EFFORT TO CREATE THE AMERICAN OTOLOGICAL SOCIETY

The AOS was founded upon the impetus of Daniel Bennet (DB) St. John Roosa (1838–1908) (Fig. 2). Roosa traveled for a year (1862–1863) to Europe to the great centers of European medicine (Vienna and Berlin) during which time he visited many of the leading otologists of his day. Roosa was heavily influenced by the more advanced otological care he witnessed during his European travels and was inspired to champion otology as a worthy field of endeavor among his fellow ophthalmologists upon his return home to America. Wilhelm Kramer (1801–1875) of Berlin was a famous otologist who published two sentinel books in the field: *The Knowledge and Treatment of Ear Diseases* (1838) and *Aural Surgery of the Present Day* (1863) (44,45). Writing in 1864, 4 years before the formation of the AOS, Roosa praised his European hosts: “Through the extreme courtesy of Dr. Kramer, while in Berlin, I had the opportunity of seeing a good deal of his large private practice, and the pleasure of his peculiar views at some length.” (46) In his writings, Roosa paid homage to European authors who made important contributions to the maturation of the field of otology (46). From connections made during his time in Germany, Roosa served as translator

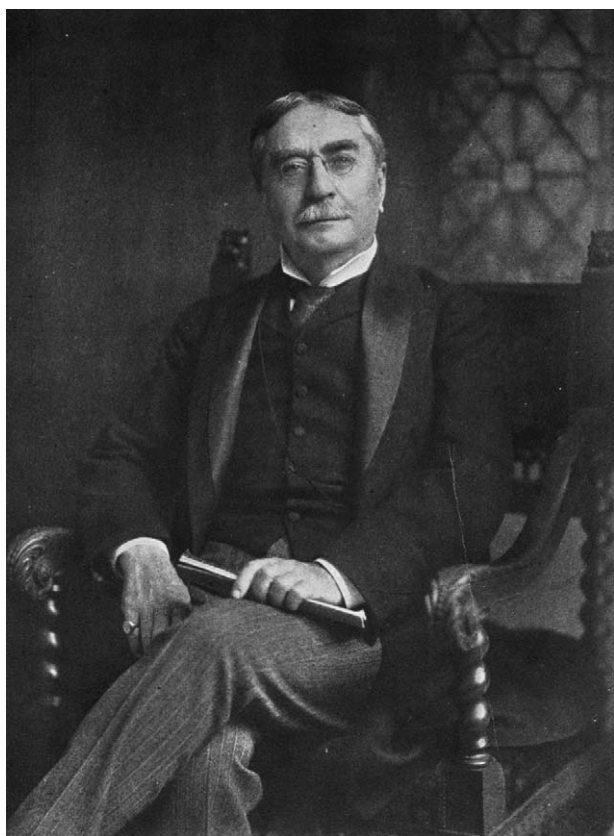


FIG. 2. Daniel Bennett St. John Roosa.

for two editions (1864, 1869) of one major German otology textbook authored by Anton von Trötsch of Würzburg (47,48).

Of relevance to his future role in forming the AOS, Roosa participated in the two planning meetings which led to the formation of the American Ophthalmological Society in January 1864 held in Noyes' medical office on 4th Avenue in New York and in June 1864 during the annual meeting of the American Medical Association in New York (4,5). Through this experience he became familiar with the steps involved in creating a medical specialty society including the elements of a constitution, committee structure, and annual meeting organization. At the time Roosa was less than a year of returning from his grand European tour and a mere 26 years old. Five years after his return to America, at age 30, Roosa attended the fifth annual meeting of the American Ophthalmological Society in 1868. Even though he was still a junior member, he made the motion proposing the addition of "Aural" to the organization's title. Disappointed by the failure of his motion, Roosa and eight other members met the next day to give birth to the AOS.

Observers described Roosa as a forceful and persuasive individual—the type of character to push forward new ideas and persevere to overcome opposition. Roosa's memorial in the AOS transactions of 1909

described him as: "Of strong dominant personality, full of sonorous voice and forceful expression; he made himself felt in all affairs in which he took part." (23) Spaulding described Roosa as "A man remarkable for his vigorous expressions of opinion in the two specialties which began to flourish at the time when he started in practice, specialties which he assiduously and successfully cultivated during the rest of his medical life." (21) Edmund Prince Fowler (1872–1976), writing in the 1968 Centennial History of the AOS, described Roosa's personality: "Dr. Roosa possessed a dynamic personality and dominated, at least for many years, most of the societies and hospitals to which he belonged, especially those he had played a major part in founding. Naturally, some did not agree with his ideas, and whenever he was on the scene many exciting debates and discussions ensued." (8) In discussing Roosa, Fowler went on to describe the dynamic nature of the society's early meetings which was quite different from our more sedate deliberations today. "There were other so-called 'giants' in those days, and they enjoyed "animated" discussions; they pulled no punches at the meetings." Clearly, the courteous and respectful tone typical of today's AOS meetings is a tradition of more recent origin.

One indication of Roosa's prominent role in founding the AOS is that he presented the first paper at the Society's inaugural scientific meeting in 1869 (49). His "Progress in Otology" represented a substantial 22 page long review of the current literature. For decades he was a prolific contributor to the AOS transactions on a wide variety of otological topics. Roosa went on to become the Society's third president serving from 1874 to 1876. Roosa's textbook "A Practical Treatise on the Diseases of the Ear, Including the Anatomy of the Organ." was first published in 1873 and appeared in seven editions through 1891 (50). His text republished in London and was translated into German. In 1876, the nation's centennial year, Roosa served as President of the first congress of the International Otological Society held in New York (51).

A second individual who deserves special credit for his leading role in the formation of the AOS was Henry Drury Noyes (1832–1900). He served as the AOS President from 1870 to 1873 and was the first President to actually preside over an annual scientific meeting. In contrast to Roosa, Noyes' career remained focused in ophthalmology. The great majority of his scholarly output appeared in the ophthalmological literature and his textbooks concerned eye diseases. Noyes was both a founder and of the Ophthalmological Society and its longest serving President.

### The Evolving Attitudes Towards Otology in the 1860s and 1870s

The perception of otology as a field evolved considerably throughout the 1860s to 1870s. This is well illustrated by the writings of D. B. St John Roosa. In the early 1860s he was not shy regarding describing what he perceived as deficiencies in contemporary American

otological practice. In 1864 he wrote: “I believe aural surgery to be a comparatively neglected field, and my own experience has already been ample enough to show that a much larger number of chronic cases come to the surgeon’s eye than in other branches of our art; consequently, we cannot expect the same therapeutic results, as for instance, in ophthalmology, and our reward for labor cannot just now be the dazzling one that falls to the lot of successful practitioners in other departments; but if we but succeed in waking up the profession to the curability of recent ear cases, and to the fallacy of the idea of outgrowing these affections, perhaps our work will be done.” (46) He added the Latin phrase: *Arbores seret diligens agricola, quarum adspiciet baccam ipse nunquam* (translation: the industrious husbandman will plant trees, a berry of which he will himself never behold) suggesting that he anticipated that the full flowering of the specialty will occur beyond his own time.

In 1868, Roosa expressed more optimism: “The science of otology is fast taking its place in the van of the great movement in the ranks of Medicine. Diseases of the ear are now receiving the attention which humanity had vainly demanded of our profession for centuries.” (52) By 1873, Roosa’s tone had become even more optimistic including a somewhat congratulatory tone based upon progress over the previous decade. “The practice of otology in this country was, a few years since, almost exclusively confined to charlatans; but now it is cultivated by a class of men who are equals to any in the profession. Ten years ago, in most parts of the country, those who wished advice upon disease of the ear were forced to seek aid outside of the profession. At the present time, there can be found those in large cities who are constantly and successfully treating aural diseases; and all over the land the old familiar advice, “Not to meddle with the ear,” is growing far less frequent. The day will soon arrive—if indeed it be not already upon us—when otology will take equal rank with ophthalmology, to which department it has so long been a mere appendage, and when some knowledge of the diseases and treatment of the ear, will be required of every practitioner.” (50)

### THE EARLY YEARS OF THE AMERICAN OTOLOGICAL SOCIETY

The meetings of the AOS were scheduled the day before the ophthalmology Society in the same location, most often Newport, Rhode Island. The two societies met together until 1911 when the AOS met in Atlantic City, New Jersey, and the Ophthalmology Society in New London, Connecticut. Thereafter, the eye and ear societies met together every third year as part of the Congress of American Physicians and Surgeons, but this coupling ended in 1933 (7). The first AOS transactions (2<sup>nd</sup> meeting, but first scientific session) were published jointly with the Ophthalmological transactions in 1869 (2). From 1870 onward, the AOS transactions were published separately. The “-ical” naming convention

**TABLE 2.** *Annual meetings of the American Otological Society: the first two decades*

	Members Present	Active Membership	
1868 Newport	9	9	(Organizational meeting)
1869 Newport	9	17	(1st Scientific meeting)
1870 Newport	10	33	
1871 Newport	7	36	
1872 Newport	6	29	
1873 Newport	17	42	
1974 Newport	13	42	
1876 New York City	17	47	
1877 Niagara Falls	4	(No Quorum, railroad strike)	
1878 Newport,	18	47	
1879 Newport	18	46	
1880 Newport	16	48	
1881 Newport	18	51	
1882 Lake George	19	55	
1883 Catskill Mountains	23	59	
1884 Catskill Mountains	23	61	
1885 New London	27	60	
1886 New London	26	65	
1887 New London	25	67	
1888 New London	27	69	

of the Society “Otological” follows that of the “Ophthalmological” and others such as the American “Surgical” Society (1880). By contract, the American Neurotology Society, founded over a century later in 1974, uses the specialty’s name rather than a descriptive term.

The first five meetings (1868–1872) of the AOS were surprisingly small with only 9, 9, 10, 7, and 6 members in attendance (Table 2). Nevertheless, the active membership list progressively grew from the initial nine in 1868 to 36 in 1871, 48 in 1880, and 69 in 1888. Participation was such a challenge in the early years that the quorum reduced from eight to five members in 1870. The initial seven meetings were all held in Newport, Rhode Island. In the early years, the members of the AOS were all from the East Coast except for a few “westerners” from the far away cities of Cincinnati, St Louis, and Chicago. In the minutes of the 1875 meeting a comment appears: “Dr. Williams called attention to the fact that the Western States felt themselves somewhat neglected in the selection of the place for the meeting of this Society.” (53) By western states he was likely referring to mid-western states such as his home state of Ohio as in the early years the AOS had no members from the far west. This is not surprising in that the transcontinental railroad was not completed in 1869, took nearly a week to cross the nation, and ticket rates for one way as of June 1870 were \$136 for first class in a Pullman sleeping car; \$110 for second class; \$65 for third (54). The transactions of the 44th annual meeting in 1911 lists Dr. Joseph Andrews

of Santa Barbara, California, evidently the first AOS member from the west coast.

The 1869 minutes reflect an annual “tax” on members of \$1, equivalent to approximately \$28 in 2017 dollars (2). By comparison, in 1865 the Ophthalmology Society assessed its members \$3 (4). In the mid-19th century physician incomes were comparable with middle class wages, generally under \$1000 per year (55). Financially well off physicians generally had inherited their wealth. In 1872, the AOS transactions minutes reflect the policy of the Society that “any member neglecting to pay the annual assessments for three years shall be considered to have forfeited his membership.” (2) The 1876 minutes of the AOS mentioned that the cost of the auditorium and a clerk for the day at Chickering Hall on 5th Avenue in New York was \$52 (53).

In 1881, the AOS asserted primacy for all papers presented at its annual meetings. “Dr. C. H. Burnett moves that members presenting papers may be allowed to publish them elsewhere, either in toto or in abstract. Dr. H. D. Noyes offers as a substitute, that papers read before the Society shall become its property, and shall, at the discretion of the Society, be published in its transactions. The author of a paper may have the privilege of publication in any other manner, provided he make request to that effect to the Business Committee at the meeting of the Society when it shall have been read. When published in another manner, the fact of having been read before the American Otological Society shall be stated.” (53)

In the formative years, it appears that any member of the American Ophthalmology Society with an interest in otology was routinely accepted into the AOS. Nearly two decades later (1885) the more rigorous selection criteria were applied: “Candidates for membership shall have been engaged in the practice of Aural surgery for at least five years, shall have given evidence of satisfactory scientific attainments, and shall have conducted themselves in conformity with the ethical rules of this Society.” (56)

It is noteworthy that Alexander Graham Bell, the famed inventor of the telephone, who considered himself an educator of the deaf, was an honorary member of the AOS. The transactions of 1885 comment: “Prof. A. Graham Bell, of Washington, DC, honorary member of the Society, addressed the Society with regard to the large number of Deaf-Mutes in the Institutions for Deaf-Mutes, that could yet hear to a certain degree, and therefore were simply hard-of-hearing members of society, also to the possibility of educating the hearing power in these persons and recommended the subject to the consideration of the Members of the American Otological Society.” (56)

## DISCUSSION

The 19th century saw the emergence of medical specialization, although the prevalence of specialization remained far less than it is today. By the mid-1880s, 10 to 15% of physicians in large American cities listed

themselves as specialists whereas specialization in rural settings was rare (57). An 1866 report of the American Medical Association Committee (AMA) on Medical Ethics of Specialties reveals much of prevailing attitudes at the time (58). While recognizing the value of the superior knowledge and skill of specialists, the report cautions that: “There is often seen in specialists a tendency to undervalue the treatment of special diseases by general practitioners.” The report endorses the practice of “partial specialism” as opposed to “exclusive specialism.” In 1869, the AMA took a strong position against advertising by specialists: “That it shall not be proper for specialists publicly to advertise themselves as such, or to assume any title not specially granted by a regularly chartered college.” (59)

One expression of the emerging trend towards specialization in the mid-19th century was the formation of specialty societies. Ophthalmology was in the advanced guard of specialization both in Europe and America. The formation of the American Ophthalmological Society in 1864 represented the first specialty society in the United States with the American Otological Society in 1868 becoming the second. The advancement of otology as a specialty in the United States was clearly catalyzed by its close relation with ophthalmology. The founding generation of the AOS were all ophthalmologists who developed an enhanced interest in otology. Most of the 19th century leaders in otology continued to practice in both fields. The sequence of events leading to the AOS formation derived directly from experience in analogous actions by ophthalmologists in organizing their Society 4 years earlier.

During the 19th century, surgical specialties began to differentiate from the all encompassing field of general surgery. According to Friedenwald, while ophthalmology had a “rapid divorce from surgery” during the 19th century, it remained “wedded” to otology (5). This was exemplified by the creation of eye and ear hospitals. The prototype for eye and ear infirmaries in America was one established in London in 1805 by John Cunningham Saunders (60). The New York Eye Infirmary was founded 1820 with an otology service added in 1824. The name was changed to New York Eye and Ear Infirmary in 1864 (61). The Massachusetts Charitable Eye and Ear Infirmary was founded in 1824 with the word charitable removed in 1924 (60). The Manhattan Eye, Ear, and Throat Hospital was created in 1869 (62). In 1870, the institution treated 1227 eye and 430 ear cases.

A German Otological Society (*Deutsche Otologische Gesellschaft*) was formed in 1881 and a similar Austrian Society in 1895. London otologist George P. Fields gave an address before the Section of Otology of the British Medical Association in August 1883 lamenting the lack of a British Otological Society (63). “I am strongly inclined, indeed, to conclude, from the benefits which I perceive to accrue from our Association meetings, that great good would result from the formation of an Otological Society of Great Britain. Our nearest Continental neighbors, and our American friends, have their

otological societies and journals; and the fault will be ours if we in England, through self-seeking, jealousy, or other failings, do not vie with them in their generous work.” He went on to say that: “Such organisations would naturally tend to foster a spirit of enquiring into yet unsolved problems of aural science.” The Otological Society of the United Kingdom was eventually founded in 1900.

The events surrounding the birth of the AOS illustrates, this “marriage” between otology and ophthalmology was not without some degree of separateness. While the eye and ear are the two most important special senses, the clinical aspects of the two fields have important similarities and differences. Both share the need for illumination and magnification through a small aperture, but the technology used in otoscopy and ophthalmoscopy differs considerably. Aural surgery at the time emphasized bone removal with a hammer and gouge, techniques foreign to the ophthalmologist. As otolaryngology coalesced into a distinct specialty in the early years of the 20th century, otology gradually drifted further and further from ophthalmology until it evolved to become an integral part of the new specialty of otolaryngology (64).

In contrast to the separation of eye and ear societies, organizations arose that converged the entire spectrum of eye, ear, nose, and throat surgeons. Prime examples included the Section of Ophthalmology and Otolaryngology of the American Medical Association (proposed in 1877 and established 1879) and the American Academy of Ophthalmology and Otolaryngology (established 1896). In the case of the American Academy, ophthalmology did not formally separate from otolaryngology until 1978, decades after overlapping membership had become a rarity and the practice of “EENT” lay in the past (65).

While the vanguard of otology in the 19th century was clearly in Europe, during the latter part of the century American Otology established a handful of centers of excellence, notably in New York and Boston. A number of fine American textbooks of otology appeared in the second half of the 19th century authored by AOS members including Albert H. Buck, Charles H. Burnett, Edward B. Dench, D. B. St John Roosa, Samuel Sexton, Oren D. Pomeroy, and A. D. Williams (66–71). Nevertheless, during this era young American physicians seeking advanced training in otology made the pilgrimage to the great centers of Europe. This trend was not reversed until American Otology rose to prominence during the mid-portion of the 20th century elevated by luminaries such as Julius Lempert, John Shea Jr., Howard & William House, and George E. Shambaugh Jr.

The story of the formation of the AOS illustrates why it is important to go beyond traditional rosters of elected leaders to reveal the actual events of the past. For 150 years, the AOS transactions has honored Elkanah Williams as the Society’s first President even though he was only elected to the position but never actually served in the role. If there is an individual worthy of being called the “founder” of the AOS, study of the documentary

record reveals that this credit should be accrued to D. B. St John Roosa who was the leading advocate for the new Society and who for decades thereafter was a distinguished practitioner and thought leader in field.

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