■ The Phonetically-based Speech Therapy Methods of Alexander Graham Bell

■ Les méthodes de traitement orthophonique fondées sur la phonétique d'Alexander Graham Bell

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Abstract

Alexander Graham Bell (1847-1922) is best known for his invention of the telephone. This article describes his work in speech-language pathology - then referred to as elocutionary teaching. A. G. Bell based his articulation and stuttering therapies on phonetics, using his father's Visible Speech Alphabet to illustrate to his students the placement of articulators during speech sound production.

Abrégé

Alexander Graham Bell (1847-1922) est bien connu pour son invention du téléphone. Cet article décrit son travail en orthophonie – alors connu sous le nom d'enseignement de l'élocution. A.G. Bell a fondé ses thérapies de l'articulation et de la correction du bégaiement sur la phonétique. Il s'est servi de l'alphabet visuel du langage de son père pour montrer à ses élèves le placement des articulateurs pour produire un son.

Key Words: educational model, history, articulatory phonetics, early versions of the IPA, elocution

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While Alexander Graham Bell's (hereafter referred to as A. G. Bell) main claim to fame was the invention of the telephone, his contributions to future generations went well beyond that. He has been given less credit for his inventive work in designing therapy for people with communication disabilities. This article describes A. G. Bell's therapy methods and the contexts within which they were developed.

A. G. Bell grew up in Scotland in the late 19th century at a time in the United Kingdom when there was a strong cultural interest in obtaining "proper speech" as an avenue for becoming "cultured" (Haberman, 1954). Many people in the Western world, with and without communication disabilities, sought to improve their speech by going to a speech specialist, a person who was then called an elocutionist. Elocutionists of that period developed their reputations and skills from working in the theater as actors, on the performance stage as orators, or through special studies, such as linguistics, rhetoric, or education.

A. G. Bell's father, Alexander Melville Bell (hereafter referred to as Melville Bell), and his grandfather, also called Alexander Bell, were all elocutionists. The male members of the Bell family have been referred to as being part of a "dynasty in speech" (Haberman, 1949). Their work involved not only working with people with normal speech to improve their elocution but also doing speech therapy with people who had communication disorders.

Another family factor that led to A. G. Bell's life-long commitment and interest in speech therapy was his personal experience with people with hearing loss. Both his mother, Eliza Symonds Bell, and his wife, Mabel Hubbard Bell, were severely hearing impaired. They both communicated well orally, and had strong and positive influences on A. G. Bell's personal and professional development. It is not surprising then, given the strength and success in oral communication of these two influential women, that A. G. Bell focused much of his writing and therapy practice on developing ways for improving speech of those with hearing loss.

In keeping with the times, the Bells referred to themselves as "elocutionists" and "teachers" rather than "clinicians" or "therapists." They called their clientele "pupils" rather than "clients" or "patients" and described what they did as "education" rather than "therapy." Today we would characterize their approach as being grounded in an educational

rather than a medical model. They would have probably considered the term speech pathologist a misnomer, even if it had been a term in use at the time. (See Duchan, 2004, for how the educational and medical models affect today's practices in speech-language pathology.)

The particular methods devised by members of the Bell family were based on articulatory phonetics. Melville Bell, A. G. Bell's father, was a devoted student of phonetic sciences. He worked many years to develop a universal phonetic alphabet that was based on speech articulations. Published in 1867, Melville Bell's "Visible Speech Alphabet" (A. M. Bell, 1867) was used by both Melville and A. G. in their various private practices in the United Kingdom, Canada, and the United States (Bruce, 1973).

Visible Speech provided the Bells a way with which to approach their practices scientifically and methodically, proceeding from the individual articulatory element or speech sound to whole words. They used the alphabet to help their pupils who had articulation problems to visualize their incorrect articulations and to provide a means for illustrating accurate phonetic placement when teaching new sounds. They used it to teach articulation to their hearing-impaired students, the components of speech to those who stuttered, and elocution skills to those who wanted to improve upon their normal speech or to become orators.

The Visible Speech Alphabet was both similar to and different from today's popular International Phonetic Alphabet (IPA). Like the IPA, the Visible Speech Alphabet portrayed articulation in terms of place, manner, and voicing. But unlike the IPA the individual characters of the notation system in Visible Speech were not letters — they were picture-like symbols representing distinctive features of a given speech sound. For example, in Figure 1 (from A. G. Bell 1906, p. 71), the first character depicts the "p" sound. It contains a line curving around to the right, representing shut lips (place = bilabial), and a right bracket indicating a puff of air (manner = aspiration), a straight line closing the circle, indicating obstruction (manner = stop). The second character in the figure is a "buh". It is the same as the "p" except for the addition of a line inside the circle, showing that it is voiced (voicing). There is a straight line to the right of the circle indicating that the "b", in this case, has a neutral vowel following it ("uh").

The third character in Figure 1 is an "m". It has the same bilabial curve as the "p" and "b" (place), and a straight line through the middle showing that it is voiced (voicing). But in this case the sound is a continuant (manner), so it does not have a straight line closing the circle. Instead it has a curly line, marking nasality (manner). (The curl is intended to resemble a uvula). The character at the right in Figure 1 is a representation of the "f". It is a continuant (manner),

Figure 1. Consonant articulations represented in Melville Bell's "Visible Speech" system

as indicated by its open circle, it is voiceless as indicated by the absence of a line in the circle (voicing) and the circle this time is bifurcated, showing what the Bells describe as the "lip divided aperture" (place).

A. G. Bell taught his students the different features of sounds depicted in the Visible Speech Alphabet by demonstrating to them the articulatory positioning or by directly manipulating their articulators. As an illustration of his demonstration approach, A. G. Bell described how he taught a 17-year old student, who had been deaf since birth, to articulate the "p" sound.

"The lips must be blown apart," he wrote down. "Hold this feather before your mouth. Now say 'p.' When you open the lips the feather scarcely moves—the air is not trying to come out. I try to keep my lips shut but the breath forces them open and blows away the feather. Bite this ivory plug. Now if you open the mouth the plug will fall out. Keep biting. Now sound 'p.' That is perfect" (Bruce, 1973, p.80).

A. G. Bell's use of physical manipulation or his "hands on" approach to teaching articulation is described by him in the following example, where he tells how he taught the "b" sound to a young child.

"There is really no difficulty in teaching 'b' in combination, for it can be manipulated while the child produces the vowel sound. Let the child prolong an indefinite vowel sound with his lips pretty close together. Now place your thumb and finger under his lower lip and move the lip rapidly up and down so as to close and open the labial aperture… Care should be taken to make the movement an opening not a closing action. The closure should be only momentary" (A. G. Bell, 1906, p. 98).

A. G. Bell spent much of his adult life promoting wider use of his father's Visible Speech Alphabet. He advocated that it be used for the following purposes:

1. "The correction of stammering and other defects of speech; and the communication of articulation to deaf mutes by showing the proper position of the mouth in forming sounds."

2. "The teaching of illiterate adults in all countries to read their own language from books printed in the system."

3. "The formation of a system of raised letters, of universal applicability for the use of the blind."

4. "The writing of hitherto unwritten tongues for missionary and other purposes."

5. "To the comparative philologist Visible Speech is invaluable, as a means whereby fast-disappearing dialects may be preserved for study and comparison, and the affinities of words be exhibited to the eye." (A. G. Bell, 1872, 3-4)

A. G.'s efforts to promote Visible Speech were successful at first. It was used by speech therapists and teachers of the deaf to teach articulation and by classroom teachers to teach reading. Eventually it was supplanted by the International Phonetic Alphabet which was found to be easier to learn due to its use of familiar alphabetic symbols rather than symbols representing articulatory features (The Handbook of the International Phonetic Association, 1999).

While the notation system used by the Bells did not endure, the phonetic placement approaches to teaching speech sound production and to explaining speech mechanisms to people with communication disabilities are still with us today. The phonetic placement approaches to explaining the positions of the articulators are commonplace and part of the therapy repertoire of most practicing clinicians. Methods involving kinesthetic training and physical placement of the person's articulators are also used by speech-language pathologists today, especially when working with individuals who have apraxia of speech (Square, Chumpelik & Adams, 1985).

Summary

Alexander Graham Bell was among the first speech therapists/teachers in America. His speech therapy work in Canada and the United States began in the 1870s and continued into the early 1900s. He died in 1922 at his retirement home in Baddeck, Nova Scotia. Today his life is celebrated often for his invention of the telephone but it should also be celebrated for his invention and careful documentation of speech therapy based on articulatory phonetics. Current historical renderings of our field of speech-language pathology should show that A. G. Bell made an important contribution to the field of speech-language pathology, a discipline he worked in, but a name he never knew.

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