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The vocal apparatus' colonial contexts

France's *mission civilisatrice* and (settler) colonialism in Algeria and North America

Iris Sandjette Blake

Introduction

Manuel García II (1805–1906), a widely influential voice teacher who ascribed to a physiological theory of vocal production, began his 1894 work *Hints on Singing* with a section entitled 'Description of the Vocal Apparatus' that included anatomical drawings of the so-called vocal organs. For García (1894: 1), this 'Apparatus Constituting the Human Voice' was comprised of the following:

Four distinct apparatus which combine their action; but with special functions, each being entirely independent of the rest. These apparatus are:

The BELLOWS *namely, the lungs.*

The VIBRATOR " " *glottis.*

The REFLECTOR " " *pharynx,* and (when words are added)

The ARTICULATOR " *organs of the mouth.*

Extending J. L. Austin's (1962) work on the performative capacity of statements, I understand García's explanation of the vocal apparatus to not just describe 'the human voice', but rather to performatively set boundaries around what counts within its rubric. In particular, I read García's recourse to the discourses and iconography of anatomy and technology as an attempt to mould the practice of voicing into a form that not only would be intelligible to modernity but would allow the human voice to cohere into a technology of modernity.

In this chapter, I examine how mid-to-late-nineteenth-century vocal scientists and pedagogues mobilized both scientific discourse and sound technologies, such as the laryngoscope, to universalize a biomechanical model

of voicing, which they termed the ‘vocal apparatus,’ that understood voicing as a human and sonic activity. In line with this volume’s goals to rethink, reorient and remap sound studies, this chapter de-universalizes this Western conception of voicing, demonstrating its historical and cultural construction as inseparable from histories of colonial occupation.

While García was not the first to bring science and anatomy to bear on studies of the voice – for instance, Zaccaria Tevo’s *Il Musico Testore* (1706) combined anatomical drawings of the vocal tract with a discussion of the effect of the four humours – his work represented a significant turn towards modernity. García’s *Traité complet de l’art du chant* (*Complete Treatise on the Art of Singing* (1840; 1847)) was the first nineteenth-century work in music to address in detail ‘the structures of the vocal tract’ (Carter 2017: 158), and his 1894 work *Hints on Singing* was the first treatise on singing since Tevo’s to include anatomical drawings of the vocal apparatus (158). However, rather than merely a return to, or extension of, this earlier work, García’s use of anatomy as a supposedly descriptive mechanism for understanding the human voice cannot be separated from its shifting nineteenth-century context and position as an organizing schema of scientific racism. For example, diagrams of skulls similar to those included in *Hints on Singing* were used to produce, affirm and circulate the belief in a biological basis to hierarchized understandings of racial difference constructed by what musicologist Nina Eidsheim (2008: 57) describes as ‘medical research, enabled by colonial force and fueled by the need to justify colonial activities’.

The mid-to-late-nineteenth-century elaboration of the vocal apparatus in technological terms was accompanied by the use of technologies to probe, examine, record, transmit and reproduce the human voice. One such technology was the laryngoscope, a small mirrored instrument that García invented in 1854 to observe the glottis and the larynx and ‘confirm’ what García and others had hypothesized regarding the internal structure of the vocal apparatus. As literary scholar Steven Connor (2000: 40) posits, vocal technologies can be understood as ‘actualizations of fantasies and desires concerning the voice which predate the actual technologies.’ The realizations of these vocal technologies, I argue, were conditioned by colonial fantasies and desires for scientific mastery of the body and the senses, which relied on a delimited definition of both ‘the human’ and ‘the human voice.’ In particular, vocal scientists and pedagogues’ belief that the human voice was knowable and replicable because it was essentially a technological apparatus itself led them to overvalue studies of vocal physiology, eclipsing the social contexts of both physiology and vocal practice. In so doing,

their theories of the vocal apparatus centred a genre of the human that Sylvia Wynter (2003) identifies as Man2: the human as a natural organism, a paradigm of the human that pretends to be race-neutral but remains structured by race. In line with natural philosophy's practice of isolating and inspecting each of the senses (Schmidt 2000), literature on the vocal apparatus demonstrated an investment in understanding sound as a distinct sensory category that was associated with the ears – an orientation that I understand as part of the colonial sensorium.

Bringing together (i) a colonial epistemology that located voice and power only in the racialized, gendered and classed figure of Man2 as the human and (ii) a colonial sensory order that insisted on the discreteness of sensory experiences, mid-to-late-nineteenth-century vocal scientists and pedagogues' elaboration of the vocal apparatus enabled the voice to become a technology for asserting colonial difference. Aligned with this particular (human) sensory regime, voice was an apparatus of the intertwined projects of modernity, racial capitalism, heteropatriarchy and settler colonialism by effectively silencing – or attempting to silence – otherwise modes of voicing that exceeded the colonial sensorium and Western constructions of who counts as human. I propose this formulation as my own (re)definition of the vocal apparatus. In this formulation, the 'apparatus constituting the human voice' is understood not just as a physiological accounting of body parts and processes but as co-extensive with the social effects of this definitional project: the suppression of alternative understandings of voicing that were already in praxis and that challenged the colonial, heteropatriarchal power structure by positing decolonial and undisciplined modes of being and relating.

In the first section of this chapter, I examine how the laryngoscope's invention was based on García's surgical experiences in French military hospitals during France's colonial occupation of Algeria. Thus, the laryngoscope's invention reveals the patriarchal and colonial desires that linked the spatiality of the body with the territoriality of conquest. I propose the expression 'voice-as-territory framework' to account for how the internal components of what vocal scientists and pedagogues identified as the vocal apparatus were subjected to colonial spatial ideologies and disciplining projects. In the second section, I examine how mid-nineteenth-century scientific, medical and pedagogical discourse on the vocal apparatus, influenced by and anticipating García's use of the laryngoscope, cultivated and circulated assumptions about voicing as a fundamentally human, sonic and biomechanical process.

The laryngoscope and the voice-as-territory framework

Born in Spain in 1805, García was a member of what voice professor Teresa Radomski claims to be ‘the most important family in the history of singing’ (2005: 25). His father, Manuel Populo Vicente García, was a famous tenor and singing teacher who had trained in the Italian opera tradition and was known for being a cruel disciplinarian in his pedagogical approach, and his sisters Maria Felicia (known as ‘La Malibran’) and Pauline Viardot were some of the most famous opera stars of their times. In addition to inventing the laryngoscope, García taught vocal pedagogy first at the Paris Conservatory from 1835 to 1848 and then at London’s Royal Academy of Music from 1848 to 1895. While I disagree with Radomski’s claim that García’s was ‘the most important family in the history of singing’, as such a claim positions Europe as the centre of the history of singing, the notoriety and reach of García’s family are important to note, as the cultural capital they held was key to the wide impact of García’s texts and teachings on the science of singing.

While contemporary work on García has primarily celebrated his contributions to vocal pedagogy, the larger colonial context that informed his interest in vocal physiology – including García’s participation in France’s 1830 invasion of Algeria and his subsequent surgical experiences in French military hospitals – has remained largely unaccounted for. As Eidsheim asks, ‘what kinds of power are produced when knowledge regarding vocal pedagogy is based on research enabled by colonial force and the rationalization of colonial expansion?’ (2008: 56–7). I read García’s use of the laryngoscope, first on himself and then on others (see Figures 1.1 and 1.2), as enacting a particular form of disciplinary power over the body and particularly the voice that is inseparable from the larger nineteenth-century context of colonial expansion.

According to García’s memoirist and former student Malcolm Sterling Mackinlay, “During all the years of study and investigation of the problems of the voice-emission”, he [García] said, “one wish was ever uppermost in my mind – ‘if only I could see the glottis!’” (1908: 203–4). This scopic desire to see the glottis (the opening between the vocal cords)¹ and bring the scientific gaze to bear on the internal workings of the body is bound up with colonialist logics that, to paraphrase Diana Taylor (2003), value the archive – here, the voice hypostatized via anatomy – over the repertoire – the body’s capacity to move and voice in a multitude of ways. Understanding the voice through science and anatomy as the biomechanical vocal apparatus was a technique to detach the voice from the field of relationalities in which voicing occurs and to discipline the body into a

Figure 1.1 'First attempt at auto-laryngoscopy by the famous singer García.' From an article entitled 'Famous Larynxes by the Dr. Poyet' in the French journal *Musica* (January 1904).

singular practice of voicing. As García claimed in his 1855 presentation to the Royal Society of London, 'the voice is formed in one unique manner, – *by the compressions and expansions of the air, or the successive and regular explosions which it produces in passing through the glottis*' (1855: 404, italics in original).

In this section, I begin with a discussion of García's early participation in acts of conquest and colonial institutions such as the military hospital to argue that French colonialism marks the unacknowledged conditions of possibility for García's desire to produce a uniform theory of the human singing voice by applying the voice-as-territory framework. Definitive records or accounts of García's level of involvement in France's invasion of Algeria are sparse, and in fact it was only when García was effectively on his deathbed that his family released documents pertaining to his colonial pursuits. An April 1905 article entitled 'Manuel García' in *The Musical Times* (1905) noted that 'allusion has not

Laryngoscopic mirrors, half size :—

Figure 1.2 A sketch of García using the laryngoscope to observe someone else's glottis and of two laryngoscopic mirrors. From M. García (1894), *Hints on Singing*, London: E. Ascherberg and Co.

hitherto been made in any biographies of him' (226) to this period of García's life, apart from an article in *Le Guide Musical*. The March 1905 article referred to, 'Le Centenaire de Manuel Garcia' ('The Centenary of Manuel García'), was published in the week preceding García's 100-year birthday celebration with the intention of recounting García's life with the aid of unreleased documents. This article describes '*fait inconnu de la plupart de ses biographes*' (a fact unknown by most of García's biographers): relying on his sister and famed vocalist Maria Felicia Malibran's friendship with the French military's '*l'intendant en chef de l'armée*' (chief army officer, translated as 'commander-in-chief' in *The Musical Times*), García sought and secured an administrative position supporting the French Army's expeditionary forces, embarking at Toulon on 11 May 1830 as part of his 'second plan' following his exit from the opera stage due to vocal fatigue (Sand 1905: 205). García embarked with an army of approximately

37,000 under the command of Louis-Auguste-Victor, the Count de Ghaisnes de Bourmont – presumably Malibran's friend – and landed in Sidi Fredj, Algeria, on 14 June.

Though the accounts in these early-twentieth-century news articles do not give a detailed picture of García's involvement, these secondary sources do provide insight into the larger context and politics of France's invasion of Algeria. García's memoirist attributes France's invasion to a dispute over a debt the French government owed to the Algerian government incurred during 'the Egyptian expedition' (Mackinlay 1908: 97), culminating in the French consul's refusal of payment in 1827 which Hussein Dey, the dey of Algiers, responded to by hitting the French consul in the face with a fly swatter and 'fiercely abus[ing] the king' (98). Per Mackinlay, French soldiers were sent to Algeria to 'revenge the insult' (98), and García took this as an opportunity to escape from living with his father (97–8). However, this 'insult' was just a pretext for invasion, which was actually motivated by a desire for colonial expansion in competition with Britain (Halaçoğlu 2013). That a pretence was used as justification for invasion is not surprising, as according to philosopher and historian Abdallah Laroui:

The history of Algeria from 1830 to 1870 is made up of pretenses: the colons who allegedly wished to transform the Algerians into men like themselves, when in reality their only desire was to transform the soil of Algeria into French soil; the military, who supposedly respected the local traditions and way of life, whereas in reality their only interest was to govern with the least possible effort; the claim of Napoleon III that he was building an Arab kingdom, whereas his central ideas were the 'Americanization' of the French economy and the French colonization of Algeria. (1977: 305)

As Laroui makes clear, the disciplining and acquisition of land was the driving force behind the invasion and occupation, and France modelled its settler-colonial practices in Algeria on those of the recently consolidated settler state of the United States. Another important pretext for France's invasion and conquest of Algeria was the *mission civilisatrice* (Duffy 2018). As Edward Said describes in *Orientalism*, "la mission civilisatrice" began in the nineteenth century as a political second-best to Britain's presence' (1978: 169). Through this framework, the French imagined 'the Orient' as a feminized, exoticized and aestheticized place of 'memories, suggestive ruins, forgotten secrets' (170), whose Arab inhabitants required the French to teach them 'the meaning of liberty' (172) and as Laroui writes, 'to transform... into men like themselves' (1977: 305). The reproduction of a particular genre of the human, North American settler-

colonial ideologies, and Orientalism were thus bound up together in the 1830 French invasion.

According to Mackinlay, García ‘took part in the severe conflicts which ended in less than two months with the bombardment of Algiers and its surrender to the French armament under Bourmont and Duperre, the deposition of the Dey, and the total overthrow of the barbarian government’ (1908: 98). Mackinlay’s depiction frames the invasion as part of a civilizing mission that reproduces ideas of colonial difference between the supposedly civilized French government and what he comparatively frames as the ‘barbarian government’ of Algeria, demonstrating the Orientalist gaze of the West on the East.

I hear echoes of this so-called *mission civilisatrice* in the visual and narrative depictions of García’s 1854 invention and use of the laryngoscope. In *Culture and Imperialism*, Edward Said connects the *mission civilisatrice* to metaphors of illumination, ‘to benevolent as well as cruel schemes to bring light to the dark places and peoples of the world by acts of will and deployments of power’ (1993: 30). According to French history of science scholar Patrick Petitjean, in nineteenth-century France the *mission civilisatrice* was revised, such that ‘science replaced religion as the motive for colonization’ (2005: 113). By continually making recourse to both the language of science and metaphors of illumination, the visual and narrative depictions of the laryngoscope’s invention in nineteenth-century texts discussing the vocal apparatus aligned the laryngoscope with the *mission civilisatrice* and attempted to position the laryngoscope’s invention at the crux of Enlightenment ideals, modernity, colonial scenes of discovery and white patriarchy.

For example, one of the earliest (self-)narrativizations of the laryngoscope’s invention appears in ‘Observations on the Human Voice’, García’s 1855 presentation of his ‘discoveries’ with the laryngoscope to the Royal Society of London, a British society of natural philosophers. García describes his method of observing the larynx:

It consists in placing a little mirror, fixed on a long handle suitably bent, in the throat of the person experimented on against the soft palate and uvula. The party ought to turn himself towards the sun, so that the luminous rays falling on the mirror, may be reflected on the larynx. If the observer experiment on himself, he ought, by means of a second mirror, to receive the rays of the sun, and direct them on the mirror, which is placed against the uvula. (1855: 399)

Here, the use of the ‘luminous rays’ of the sun by the (masculine) ‘observer’ within the ‘experiment’ to observe the vocal apparatus performatively enacts a

literal rendering of Enlightenment ideals of reason and scientific objectivity as a source of light, illuminating and making sense of the body's internal workings. Summarizing García's invention and citing this 1855 communication, Emil Behnke in *The Mechanism of the Human Voice* (1880) writes that after warming the mirror 'to prevent its becoming dimmed by the moisture of the breath. . . . The rays of the sun falling upon the mirror are reflected downwards into the voicebox, the image of which is clearly visible in the mirror' (1880: 73–4). Behnke uses similar language to García regarding the importance of the 'rays of the sun' and, extending the light imagery, cautions against the 'dimm[ing]' of the mirror. While the narrative depictions emphasize the sun as the light source, in the visual representations the light appears to be coming not from the sun but rather, in one image (see Figure 1.1), from a lantern that shines through the centre of the mirror García uses to observe himself and, in another (see Figure 1.2), from a candle which García himself reflects onto the laryngoscope with a mirror attached to his head. This incongruence demonstrates that the emphasis on sunlight performed metaphorical work even if it was not always used in practice.

Reading these narrative and visual depictions of the laryngoscope's invention in relation to the *mission civilisatrice*, the body's interior becomes akin to 'the dark places and peoples of the world' (Said 1993: 30), and the laryngoscope is the tool used to illuminate and 'discover' the glottis and define the vocal apparatus. However, in this voice-as-territory framework, opening the throat to 'receive' the light of Western science is presented as a voluntary act, even as the body's visceral resistance to being disciplined is alluded to as the breath's dimming of the mirror. The colonial underpinnings of the laryngoscope's reliance on illumination become explicit in Mackinlay's 1908 memoir celebrating García's life, *Garcia the centenarian and his times; being a memoir of Manuel Garcia's life and labours for the advancement of music and science*. Mackinlay writes, 'Before its [the laryngoscope's] invention threw light into places which had been dark since the birth of the human race, the larynx was an undiscovered country, and its diseases lay beyond the limits of medical art' (210–11). Here, Mackinlay directly compares García's observations of the larynx to an act of conquest. This memoirist further links the territoriality of conquest with the spatiality of the body, writing, 'While touching general medicine at many points, laryngology is also to a large extent an autonomous territory in the great federation of the human organism' (211), and he proceeds to refer to García as 'the discoverer of the hidden land' (212), presumably the larynx or the glottis.

Conveniently left out from these accounts is the way that placing a mirror in the throat against the soft palate and uvula often resulted in gagging and

even vomiting. To sing and vocalize with the laryngoscope in one's throat required training one's body to accommodate a metal tool and moving one's head in such a way that light would be continuously directed onto the tool's small mirror. Rather than directly observing 'the vocal apparatus', García was observing the effects of using the laryngoscope, primarily on men,² which he then used to 'confirm' and universalize his ideas about the human voice. According to Mackinlay, 'By his examination of the glottis, he [García] had had the satisfaction of proving that all his theories with regard to the emission of the voice were absolutely correct' (1908: 205). Thus, this scene of technological observation and (self-)encounter – and the structures of power that inform its continued reproduction – become narrativized as foundational to the 'correct' definition of the vocal apparatus. In *Sounding Bodies Sounding Worlds: An Exploration of Embodiments in Sound*, Mickey Vallee proposes the term 'laryngealcentric voice' to refer to 'the voice brought through technics into the light of science', whereby 'the voice became a knowable object by virtue of its discovery through the technical tools that isolated the voice in the throat' (2019: 34). My use of the vocal apparatus and the voice-as-territory framework intends to extend this critique to account for the relationship of the 'laryngealcentric voice' to colonialism and modernity. For instance, a component of this usage of 'the light of science' was tied to the idea of awakening the people of 'the dark places' from their so-called deep slumber – an inherently colonialist framing that undergirded France's *mission civilisatrice*.

In addition to the laryngoscope's activation of the *mission civilisatrice* via the project of 'illumination', García's studies of anatomy undertaken in French military hospitals underscore how García's interests in observing and defining the vocal apparatus were linked to systems of colonial violence. Per Mackinlay, 'His [García's] predilections had always been scientific, and he was passionately fond of all such studies, but specially [*sic*] of anatomy and all that had to do with the human body' (1908: 96). In fact, after a failed operatic debut in Naples in 1829, García sent a letter to his father writing that the negative reviews meant he couldn't be an artist and that 'From now onward I am going to devote myself to the occupation which I love, and for which I believe I was born' (García in Mackinlay 1908: 91). Rather than joining his father as a voice teacher, García 'resolved to become an officer in the French mercantile marine . . . [and] began the study of astronomy and navigation' (Mackinlay 1908: 96) – suggesting that García's favoured 'occupation' was not vocal pedagogy but science in the service of militarism and colonialism, and demonstrating García's investment in an ideology of European planetary consciousness (Pratt 1992: 11).

While García's interest in science and militarism thus predated his military experiences in Algeria and anatomy studies in French military hospitals, it wasn't until his work in the military hospitals that he applied this towards the voice. The article in *Le Guide Musical* explains that García remained in Algeria until France had '*prise*' (taken) Algiers (Sand 1905: 205). García returned to France in late July of 1830, at the start of the July Revolution which overthrew King Charles X (Mackinlay 1908: 99). There, he sought out surgical experiences in metropolitan military hospitals in Paris, with the goal of finding out more about the science of the voice. According to *Le Guide Musical*, it was during his employment in these military hospitals that García attended medical courses and clinics and that he realized the importance of the study of physiology for '*l'éducation rationnelle de la voix*' (the rational education of the voice) (Sand 1905: 205). Describing García's work in the military hospitals as 'crowned with success' – language that Mackinlay repeats verbatim – the article states that these experiences contributed to García's conviction to precisely determine the anatomy of the vocal cords (205).

While both the 1905 article and the 1908 memoir verify the linkage between García's medical experiences in French military hospitals and his work to define the vocal apparatus, the systems of colonial violence that these hospitals enabled are not acknowledged. They are treated instead as systems of education and medicine detached from colonial entanglements. An 1838 Paris guidebook describes how the civil hospitals of Paris were supervised by a general administration that was created in February 1801, consisting of an administrative committee and a general council comprised of 'some of the most notable functionaries of the state' including the Prefect of the Seine and the Prefect of Police (Galignani 1838: 93). The military hospitals, on the other hand, were governed by 'the état-major of the garrison of Paris' (93). Minimizing these direct linkages to state and military power, the guidebook lists all of these hospitals under the heading of 'charitable institutions'. In fact, one of the primary areas of research in the military hospitals was the treatment of venereal disease, a reminder of the way that militarism and sexual violence are inextricably linked. While this was still a major emphasis of the military hospitals in the 1830s, García's training in the military hospitals focused on 'medicine and some specialized studies which embraced the physiology of everything appertaining to the voice and the larynx' (Mackinlay 1908: 99).

Though they offer fairly brief accounts, the sources on García's 'specialized studies' in these metropolitan military hospitals confirm that anatomy classes were a central component of this course of study (Mackinlay 1908: 100; 'Manuel

García' 1905: 226), and according to musicologist and voice instructor James Stark, it was in military hospitals that García 'had occasion to study the larynx in cases of neck wounds' (2003: 4). As Michel Foucault argues in *The Birth of the Clinic*, 'Nineteenth-century medicine was haunted by that absolute eye that cadaverizes life and rediscovers in the corpse the frail, broken nervure of life' (1963: 166). García's training in anatomy via dissections, I propose, trained García in this form of medical gaze that he would later apply to his invention and use of the laryngoscope. His sister Pauline Viardot, quoted by García's memoirist in 1908, recalls that García would bring back '[t]he throttles of all kinds of animals – chickens, sheep, and cows' (Mackinlay: 100) – from his anatomy classes, and they would conduct their own experiments on these vocal organs: 'He [García] would give me a pair of bellows, which I would insert in these windpipes one after another, and blow hard. Heavens! what extraordinary sounds they used to emit. The chickens' throttles would cluck, the sheep's would bleat, and the bulls' would roar, almost like life' (100). García's and Viardot's experiments in making the dissected vocal organs of animals sound 'almost like life' relied on a callous disregard for the body (here, of non-human animals; people's vocal organs were also used in this way), which was valued for the functionality of its discrete organs insofar as they might allow for the anatomists to hear 'in the corpse the frail, broken nervure of life'. In *The Philosophy of the Human Voice*, James Rush explains that such dissections were common practice:

They [scientists] have removed the organs from men and other animals, and have produced something like their natural voices by blowing through them. They have inspected and named the curious structure of the cartilages and muscles of the larynx, with the absurd purpose to discover thereby the cause of intonation. . . . In short, they have tried to see sound, and to touch it with the dissecting knife. (1827: 4, cited in Vallee 2019: 37–8)

While Mickey Vallee in his work on sound technologies suggests that the laryngoscope represented a significant departure in scientific studies of the voice in that it 'allowed for non-surgical tracheal intubation and inspection' (2019: 38), I read García's 1881 re-narrativization of his invention of the laryngoscope for the International Congress of Medicine, which took place in London, as linking the laryngoscope to surgical practice. Describing himself as 'preoccupied with the ever-recurring wish so often repressed as unrealizable' – presumably, to see the glottis – García recounts:

suddenly I saw the two mirrors of the laryngoscope in their respective positions, as if actually present before my eyes. I went straight to Charrière, the surgical

instrument maker, and asking if he happened to possess a small mirror with a long handle, was informed that he had a little dentist's mirror, which had been one of the failures of the London Exhibition of 1851. (1881: 197)

That García claims to have retrieved a mirror from the famed surgeon Joseph-Frédéric-Benoît Charrière to fashion the laryngoscope places the laryngoscope within a genealogy of 'surgical instruments'. Rather than a departure from surgical practice, the laryngoscope enabled the eye to function like the surgeon's knife. In his subchapter on the laryngoscope, philosopher Tim Scott writes that to use the laryngoscope 'one had to *learn to see* what could be disclosed by the instrument' (2010: 56), as exemplified by professor of physiology Eben Watson's clarification in his 1865 article 'Laryngoscopy and Its Revelations' that 'the part may be visible, and yet not seen by an unskilled observer; so that the beginner need not wonder if he cannot see all that even ought to be seen, in his first views of the larynx' (1865: 589, cited in Scott 2010: 56). Along with learning to see, the laryngoscope required its users to learn to hear a normative definition of the human voice; as Vallee describes, the laryngoscope's invention quickly inspired an entire industry to arise around the identification and treatment of so-called vocal defects (2019: 40).

García further positions himself and the laryngoscope in a genealogy of modernity and colonialism by pointing out that it was not just any mirror that he used but a dentist's mirror that had been created for the London Exhibition of 1851, the first World's Fair. García thus links his invention of the laryngoscope to the scientific-medical turn, inseparable from scientific racism and contemporaneous ideas about gender and sex. While also delivered to a professional society, this account marks a significant departure in tone and content from García's 1855 narration. Describing his use of the dentist's mirror as laryngoscope, he narrates,

I saw at once, to my great joy, the glottis wide open before me, and so fully exposed that I could perceive a portion of the trachea. When my excitement had somewhat subsided, I began to examine what was passing before my eyes. The manner in which the glottis silently opened and shut, and moved in the act of phonation, filled me with wonder. (1881: 197)

Alongside the usage of the first person 'I', which shifts the focus to García as innovator, García's use of more vivid temporal and affective language ('strolling', 'suddenly', 'impatient', 'joy', 'excitement', 'wonder') resonates with colonial travel narratives of encounter, discovery and sexual conquest ('wide open before me', 'fully exposed') that, as Said (1978) demonstrates, undergirded France's *mission*

civilisatrice and the gendered and sexual tropes of Orientalism more broadly. In addition, I read García's comment that the instrument had been one of the London Exhibition's 'failures' as an attempt to heighten his own standing as a so-called genius – a category that historically has been used to consolidate power for white men and their ideas. In his own hands, García seems to suggest, the 'failure' of the famed Charrière was brought back into usefulness, modernity and progress through his observations of the vocal apparatus.

Mackinlay's narrativization of García's legacy similarly aims to position García as a father figure to the scientific-medical study of the voice – something that Stark reproduces in *Bel Canto: A History of Vocal Pedagogy* when he claims 'Garcia can be considered the father of modern voice science' (2003: xxii). Discussing García's centenary birthday celebration, Mackinlay writes, 'It must have brought the centenarian a great and justifiable pride when on that day he looked on the representatives of the Laryngological societies encircling the world, who united to call him Father' (1908: 213). This passage demonstrates the intertwining of colonialism and heteropaternalism (Arvin, Tuck and Morrill 2013: 13) in the legacy of the laryngoscope and the circumscribed understanding of the human voice it consolidated. While the imagery of the professional societies of laryngology 'encircling the world' evokes colonialism and empire, the positioning of García as a proud capital-F 'Father' to those 'united' representatives speaks to the heteropaternalism of this colonial order. That this heteropaternal colonial legacy was both apparent and embraced by García and his colleagues is further demonstrated by García's appellation, 'the Christopher Columbus of the larynx', given to him along with a floral arrangement by soprano and voice teacher Blanche Marchesi at this centenary celebration (Mackinlay 1908: 301).

The human, the senses and the management of hearing

While García popularized an investment in the 'science' of the voice and the voice-as-territory framework, he was by no means the sole adherent to this colonial ideology of the voice. An overvaluation of vocal physiology and the human also structured texts on the vocal apparatus that both preceded and followed García's use of the laryngoscope. Through their writings and teachings on the vocal apparatus, García's contemporaries in vocal science and pedagogy consolidated a set of assumptions about voicing: that voice was fundamentally human, that it was experienced through the sense of sound and that the voice could be understood and reproduced through the language of mechanics and

technology. Centring Man2 as the human in their reliance on physiology, their work to universalize Western conceptions of the vocal apparatus laid the groundwork for the voice-as-territory framework to be taken up in disparate contexts of (settler) colonial occupation.

Descriptions of the human vocal apparatus by vocal pedagogues, scientists and physicians illustrate how voice was imagined to be fundamental to maintaining the hierarchization of forms of life, including the distinction between the human and the non-human, as is evidenced by García's attention to the vocal organs of non-human animals. However, the human vocal apparatus was consistently framed as comparatively more advanced than the vocal apparatus of non-human animals. For example, after describing the vocal organs of 'man' and birds in his lecture on the vocal apparatus and the voice, physicist and physiologist Carlo Matteucci affirms, 'We shall describe the vocal organ of man as being the most complicated and the most perfect' (1847: 370). Similarly, surgeon and anatomist John Bishop writes, 'It is in the human race that we find the most varied and perfect adaptation of vocal sounds to the communication of ideas, both of material and intellectual subjects' (1851: 10). Such descriptions of the human vocal apparatus as 'the most perfect', 'the most complicated' and 'the most varied' in comparison to the vocal apparatus of other species value the human and the human voice over that which is deemed non-human and reveal a world view that would map onto Darwinian theories of natural selection. While García typically relied on technical rather than philosophical language describing the functionality of the human voice, the laryngoscope was used by others as a means to scientifically verify the comparative complexity of the human vocal apparatus. For example, leading into his agreement with 'Mr. Bishop',³ professor of physiology Eben Watson writes in 'Laryngoscopy and Its Revelations' that his own laryngoscopic observations of the movements of the vocal apparatus in the production of high notes demonstrate 'another among many instances of the complexity of the human mechanism which meet us at every step of the way' (1865: 591). This overvaluation of Man2 as the 'human' within mid-nineteenth-century studies of the vocal apparatus was subsumed into normative understandings of what constitutes voicing.

Moreover, such assertions of the superiority of the human voice over and above the non-human voice map onto what Mel Chen identifies as the animacy hierarchy – a hierarchized ontological scale that is racialized, queer and continuously produced and subject to power (2012: 2) – particularly in their comparative disavowals of the non-human. As these examples demonstrate, ideas about voicing and listening were fundamental to producing and

reinforcing the animacy hierarchy. For example, physician James Copland claimed, 'Voice and speech are functions by means of which the human species claims and maintains an ascendancy over all animated nature' (1858: 1491). Here, Copland points to the capacity to produce voice and speech as what distinguishes the human from the non-human, and aligns human voice and speech with power – in particular, power over 'all animated nature', or that which is non-human. However, Copland's insistence on voice as a method by which 'the human species' maintains its hierarchical position above 'all animated nature' can be read as responding to a categorical anxiety within this notion of 'the human' that recognizes the boundary between the human and the non-human is not already apparent but must be continuously produced and reasserted. As Chen argues:

Recentering on animality (or the animals who face humans) tugs at the ontological cohesion of 'the human,' stretching it out and revealing the contingent striations in its springy taffy: it is then that entities as variant as disability, womanhood, sexuality, emotion, the vegetal, and the inanimate become more salient, more palpable as having been rendered proximate to the human, though they have always subtended the human by propping it up. (2012: 98)

Thus, even as I argue that the voice-as-territory framework was invested in maintaining distinctions between the human and the non-human, these writings on the vocal apparatus simultaneously highlight the instability of the category of the human, which only coheres around categorical exclusions.

Along with such comparative disavowals of the non-human, the racialized regulation and management of the senses, and especially the sense of hearing, were central to the voice-as-territory framework. For instance, the surgical practices of dissecting the larynx to isolate and define the components of the vocal apparatus that García and others engaged in can be placed in relation to natural philosophers' partitioning of the senses into discrete and knowable categories. Focusing on the management of hearing during the Enlightenment, cultural historian Leigh Eric Schmidt notes that for natural philosophers, hearing in particular 'possessed an ambiguous, unstable power that made its careful management especially urgent. Marked as a spiritual, emotional, and superstitious sense, the ear posed a potential danger to the clear-sightedness of reason' (2000: 7).

Nineteenth-century medical, scientific and pedagogical literature on the vocal apparatus contributed to the racialized management of hearing by focusing on the voice's connection to reason and rationality, and by distinguishing between

sound versus noise and desirable versus undesirable types of vocal production. For example, in García's *New Treatise on the Art of Singing*, he asserts early on that 'The first essential for every singer is *mind* [*italics original*]' (1857: 8). In the treatise's second section, he emphasizes the centrality of expression to the human voice while insisting that 'Even while giving himself up to the strongest transports of passion, a pupil must nevertheless retain sufficient freedom of mind to examine those transports, one by one – to scrutinize the means by which they are portrayed, [*sic*] – and to classify them' (67). For García, then, while the voice acts as a vehicle for passion, the mind's ability to subject these passions to a classificatory schema ultimately takes priority – and in fact, his treatise includes an extensive classification of sentiments (martial enthusiasm, deep grief, tenderness, joy) and examples of how to produce the corresponding timbres that each 'requires' (69–71).

The valuation of reason similarly takes precedence in Copland's *A Dictionary of Practical Medicine*, where he claims, 'The sounds produced by the human organs of vocalization and articulation are the manifestations furnished to the species of the finest sentiments, of the deepest as well as the highest states of feeling, of the most profound and abstract results of thought, and the wisest and best revelations of mental reflection and of human reason' (1858: 1491). Along with his comparative valorization of the human, Copland mobilizes language that resonates with Wynter's description of how, with the Renaissance humanist institution of Man1, the Redeemed Spirit/Fallen Flesh master code was transumed into the racialized distinction between reason and rationality on the one hand and sensuality and irrationality on the other, with the humanists proposing that 'human reason had remained "lord over the senses similar to the way in which God is lord over his creatures"' (Wynter 2003: 287). In Copland's assertion, not only is voice directly associated with reason and the human but even the feelings attributed to the human species and which the voice can manifest suggest religio-rational overtones – 'the finest sentiments' the 'deepest . . . [and] highest states of feeling' – perhaps to specify and distance these (human) feelings from the sensuous and the irrational. Moreover, the *sounds* produced by the vocal apparatus take centre stage as a method of manifesting a particular set of ethics, feeling and abstract thinking and as constituting 'the wisest and best revelations . . . of human reason'.

Creating a distinction between sound and noise was another rhetorical technique used in literature on the vocal apparatus in an attempt to align the human voice with Man2. For instance, in a section on hearing following his description of the vocal apparatus, Matteucci clarifies:

By the word *sound*, we strictly understand a sensation which is preserved uniform for a certain time, and which is susceptible of being measured and compared. Sound differs, then, from a mere *noise*, inasmuch as the latter is the effect of a single shock, or of a series of shocks which are repeated without any regularity; whilst the sonorous sensation is that which we experience when the acoustic nerve receives a certain number of successive shakings, separated from each other by a certain and constant interval of time. (1847: 357–8)

Here, Matteucci posits sound in opposition to noise, and while the distinction is proposed in scientific, acoustic and sensorial terms, as numerous scholars have discussed, the discourse that separates sound from noise is a subjective and often racialized and gendered discourse. Matteucci privileges uniformity of sensorial experience over irregular repetitions or ‘a single shock’ and stresses the importance of measurability, comparison and following a predictable temporal schema – values that align with a belief in scientific objectivity and linear time. However, even as Matteucci uses scientific-acoustic terminology, the distinction he makes between them seems to follow a circular logic that ultimately breaks down as he compares ‘repeated shocks’ to ‘successive shakings’, revealing the social construction of the distinction.

García was relatively less concerned with the distinction between noise and sound – in fact, he points to the usefulness of the ‘noise’ produced when articulating the consonants *m*, *n*, *d*, *b* and *c* in prepping the singer for ‘the emission of sound’ (1857: 47). When he does make a distinction between sound and noise, it is typically to discuss ‘the noise of the breath’ (1857: 69). However, he consistently emphasizes particular qualities of the voice as being more desirable (especially ‘freshness and steadiness’) and cautions against the impairment of the voice ‘by too frequently using the high notes . . . ; by exaggerating the timbres . . . ; by loud and continued laughter; by animated discourse, &c’, which García claims can lead to irreparable damage resulting in a ‘broken’ voice (1857: 8). As these examples demonstrate, and as Schmidt, Eidsheim and other scholars have discussed, the sense of hearing – like other supposedly discrete senses – and practices of listening do not exist *a priori* but are produced through the workings of power. Scientific, medical and pedagogical literature on the vocal apparatus was particularly invested in understanding the voice through the sense of hearing as a discrete category because if voice could be understood through sound alone – excising the messiness of multisensory perceptions of voicing (Eidsheim 2015) and of the irruptive potential of the irrational/irregular (noise) – it could be more easily disciplined to cohere around a particular genre of the human and bolster the voice-as-territory framework.

In fact, despite the repeated discursive insistence on the superiority and perfection of the human vocal apparatus, and on the human-ness of voicing, the human voice was also frequently discussed in mechanical and technological terms, and writings on the vocal apparatus often compared its machinations to those of a musical instrument or acoustic technology. For example, influenced by the work of García, professor of elocution and vocal physiology Alexander Melville Bell fantasized about the potential mechanical inventions that an isolation and elaboration of scientific principles of speech might yield in his 1863 text *Principles of Speech and Dictionary of Sounds*:

Scientific men . . . have elaborated theories of optics – and look at the result? Wonderful mechanical adaptations of optical principles, before undreamt of, and which, otherwise, would never have been discovered. Might not an analogous result attend the philosophical investigation of the faculty of speech; and acoustic and articulative principles be developed, which would lead to mechanical inventions no less wonderful and useful than those in optics? A subject so little explored, and so open to operations, is, at least, full of *promise* to science. (41, cited in Mills 2008: 1)

For Bell, understanding the acoustic and articulative mechanics of speech as distinct from and in distinction to optical principles was part of the promise the faculty of speech offered to science. Alongside Bell's colonial vocabulary/imaginary of discovery and exploration in service of science, he imagines the faculty of speech (as well as that of sight) as a physiological process, the principles of which might be studied, delineated and harnessed into the production of mechanical inventions. In Alexander Graham Bell's revision of his father's colonial wish, the production of mechanical inventions related to the faculty of speech – such as the telephone, which he patented in 1876 in the United States and in 1877 in Canada – was not just full of promise to science but also full of promise for profit within the North American settler colonial context.

While Alexander Melville Bell was primarily concerned with speech as opposed to song or other manners of voicing, this quotation was preceded in his work by a section on voice that connects his so-called scientific principles of speech to the teachings of 'scientific singing-master' Manuel García (Bell [1863] 1916: 18). This section on voice also compares what Bell calls the vocal organ or apparatus to the mechanical operations of a musical instrument, one that 'combines the qualities of a wind and of a stringed instrument' (18). Bell suggests that the reader might create 'an experimental sonifier' (18) to verify these vocal principles using the reed of a bagpipe drone or a modified feather

quill as a facsimile for the human glottis. For Bell, such an exercise is intended to demonstrate that the voice can be improved through scientific experimentation. He writes:

It is important to all persons who labor under difficulties in the management of the voice, to be perfectly familiar with the process by which vocality is produced; to make themselves so by experiment; and to aim at the improvement of their vocal powers, by applying the same principles which they find to govern the mechanism of analogous sounds. . . . When the voice is otherwise commenced, much breath is wasted before vocality is obtained, and a clear resonant voice can hardly be produced by the loose expiration. (18)

Here, the vocal apparatus is mechanized, imagined to be an instrument that can be scientifically managed by humans towards the goal of improvement. Bell also links (and limits) the power of the voice to the sonic by suggesting a correspondence between ‘vocal powers’ and the mechanical production of ‘analogous sounds’. However, despite Bell’s claims that ‘the more sonorous the voice, the more easy is its production’ (18), he here admits that the management of the voice in the manners he advocates is not a natural principle but instead an act of labour that presented enough ‘difficulties’ and resistances to management that this passage would be addressed ‘to all persons who labor under difficulties in the management of the voice’.

Bell’s discussion of the need to ‘manage’ the voice reminds me of García’s use of the laryngoscope, which also required the Western, masculine observer to respond to the ‘difficulties’ and resistances of the embodied voice-as-territory. In addition to ‘managing’ the breath’s dimming of the mirror and the risk of the laryngoscope’s expulsion by vomiting, returning to the 1865 article ‘Laryngoscopy and Its Revelations’, Watson discusses several techniques for overcoming ‘frequent cause[s] of difficulty’ such as the patient’s fear and the presence and movement of the tongue. He recommends, for instance, ‘gently taking hold’ of the patient’s tongue and pulling it out of their mouth, keeping the apparatus out of view of the patient and having the patient prep their own throat regularly with a solution of nitrate of silver ‘to accustom the part to the presence of a foreign body in contact with it . . . [and to] gradually diminish its sensitivity’ (589).

Bell’s *Principles of Speech*, insisting on the centrality of the glottis, is likely referencing García’s 1855 assertion cited earlier, that ‘the voice is formed in one unique manner’ (404) by the movement of air through the glottis – a universalizing gesture that localizes the source of the voice within a particular

organ of the vocal apparatus. While Bell does at least allow for the possibility that the voice might be 'otherwise commenced', he still privileges García's model by aligning these 'otherwise commenced' voicings with wasted breath. For Bell and for García, the 'clarity' and 'resonance' of the voice – terms which rely on a listening practice that distinguishes between "clear" (*clair*) or "dark" (*sombre*) sounds' and ringing (*voix éclatant*) versus 'veiled tones' (*voix sourde*) (García cited in Stark 2003: 36) – are valued over and above 'the noise of the breath', which Bell describes as a 'loose expiration'. In a similar vein, Boston-based vocal pedagogue Horace R. Streeter, in his work *A New and Correct Theory for the Mechanical Formation of the Human Voice*, argued against the use of certain vocal timbres, calling the chest register 'that obstructed, wrong, functional use of the parts' and insisting, 'We repeat it, that it is not at all the tone of the human voice' (1871: 37).

Whereas the voice-as-territory framework positions the commencement of the otherwise as breath that has been wasted, or in García's formulation, as noise, I understand 'otherwise commenced' voicings to be those that refuse the disciplinary procedures that would render the human vocal apparatus a technology of and for modernity. Recalling Emil Behnke's caution to work around the 'dimming' effects of the breath to observe the vocal apparatus using the laryngoscope, the framing of the voice in technological terms marks a disavowal of the flesh and messiness of bodies as well as a disavowal of the social context that gives rise to particular techniques of voicing and listening. The universalizing gesture that locates voice only within the (human, sonic) vocal apparatus model thus initiates a colonial disciplining of voice, and of the body through the voice, that attempts to silence the possibility that voicing can be – and is – otherwise commenced.

Conclusion

In this chapter, I have examined how aligning voice with the sonic and Man2 – through the nineteenth-century scientific, medical and pedagogical elaboration of the vocal apparatus model – has been a central component of the colonial project of modernity. In particular, García's use of the laryngoscope and the circulation of the vocal apparatus model more broadly linked voice and knowledge about voicing to science, modernity and heteropatriarchy through a set of assumptions: the human voice was knowable and replicable because it was essentially a technological apparatus itself; the voice was experienced through

the sense of sound, so understanding voice required understanding mechanical and acoustic properties; and not only was the human voice, or the voice of Man, 'the most perfect' (Matteucci 1847: 370), but particular practices of voicing were superior to those that were 'otherwise commenced' (Bell [1863] 1916: 18). Because the laryngoscope influenced understandings of the voice and the vocal apparatus in the fields of science, medicine, elocution and vocal pedagogy, the emergence of technologies to record and transmit the voice in the latter half of the nineteenth century built on this framework.

While I propose that the laryngoscope's invention arose out of the specificities of French colonialism and in particular the nineteenth-century *mission civilisatrice*, interconnections between French colonialism in Algeria and settler colonialism in the North American context (Laroui 1977; Roberts 2015) facilitated settler capitalists' application of the voice-as-territory framework as they attempted to patent and monetize sound technologies in the settler-states of the United States and Canada. As demonstrated by Michael Taussig's (1993) work on the use of 'the talking machine' (victrolas) both in colonial expeditions and in films such as *Nanook of the North*, and via Roshanak Kheshti's (2015) analysis of white female comparative musicologists' recording and listening practices as effecting 'the phonographic subjectivation of the Native American as her necessary inferior' (8), technologies of voicing and listening, as '*instrument[s] of modernity*' (18; italics in original), came to play a central role in early-twentieth-century North American settler colonialism. While García's observations through the laryngoscope framed the vocal apparatus as an 'undiscovered country' among the 'dark places' of the body's interior, settler capitalists in North America extended colonial understandings of land as property to this voice-as-territory framework, such that the capacity to extract value from the biomechanical model of voicing took priority. The vocal apparatus model, with its attendant assumptions about the human and the human voice, impacted the invention and circulation of these technologies and produced the voice as an apparatus of modernity.

Notes

- 1 In García's *New Treatise on the Art of Singing*, he defines the glottis thus: 'the opening between them [the vocal ligaments] is termed the glottis (whence they are often called the *lips* of the glottis;) and to these ligaments, or lips, alone we are indebted for the vibrations of the voice' (1857: 5).

- 2 Musicologist Benjamin Steege explains that 'Garcia himself was primarily interested in the male voice' (2012: 186) and principally used the laryngoscope to examine the vocal apparatus of men.
- 3 Watson is referencing John Bishop's paper 'On the Physiology of the Human Voice', which he delivered to the Royal Society of London. Further demonstrating how studies of anatomy and dissection were central to defining the vocal apparatus, Bishop writes, 'The vocal cords are, as has been seen, rectangular-shaped membranes, and from experiments made on the larynx after death by Ferrien, Müller, and others (which the author has repeatedly verified), are found to vibrate like cylindrical cords' (1846: 555).

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