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A “Revolution in the Making”: Rediscovering the Historical Sonic Production of the Early Saxophone

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A “Revolution in the Making”: Rediscovering the Historical Sonic Production of the Early Saxophone

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by

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ABSTRACT OF THE DISSERTATION

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by

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Doctor of Musical Arts

University of California, Los Angeles, 2019

Professor Neal H. Stulberg, Co-Chair

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The saxophone was invented in the 1840s by Antoine (Adolphe) Joseph Sax (1814-1894) and immediately received attention from prominent composers like Hector Berlioz (1803-1869.) The work done by the ambitious inventor to promote his new instrument included presentations at exhibitions in Belgium and France, which led to military bands adopting the instrument. In addition, Sax opened a 400-seat theater on the premises of his factory in Paris to present concerts featuring his innovations. Coupled with this, Sax established a prolific publishing house, Chez Adolphe Sax, that published at least 35 works for saxophone with piano accompaniment.

When considering this early repertory, modern performers lack adequate resources that provide specific details regarding the sonic characteristics of the early saxophone. How might these performers form a sonic concept reminiscent of the early saxophone when there are so few

early recordings? The contributing factors that shaped this sonic concept include the design of the instrument and how it influenced the acoustic properties of the same, the intention of the composer in creating it, the performers who adopted it and the performing practices that informed their performances, and the repertoire published by Sax that they performed. These factors are worthy of consideration for the modern saxophonist wishing to perform the repertoire that helped to build the popularity of the instrument.

The dissertation of Matthew Guy Lombard is approved.

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Dedication

This dissertation is dedicated to my wife, Nicole, and my three children, Hannah, Jemima, and Ethan, who have helped to motivate and support me through my research and performance activities, and continue to do so lovingly and sacrificially.

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Introduction

Background and goals

Unlike most other concert instruments, the saxophone has attracted little attention from a performance practice perspective. The practical goal of my research is to unearth the largely forgotten early saxophone repertoire and rediscover the gems so worthy of performance today. As the focus of this dissertation is historical sonic production, this dissertation is accompanied by selected recordings by the author on a nineteenth-century saxophone.[1]

Besides inventing the saxophone in the 1840s,[2] Antoine-Joseph (Adolphe) Sax (1814-1894) published approximately 35 works by other composers for the new instrument with piano accompaniment. The majority of them were composed by Jean-Nicholas Savari (1786-1853) and Jean-Baptiste Singelée (1812-1875). Many of these works were showpieces commissioned for French competitions (*solos de concours*) which served as excellent marketing tools for Sax's inventions. Appendix 1 lists the publications related to this study. Several of Sax's performer colleagues – already accomplished clarinetists, flutists, and bassoonists – promoted the instrument by playing these and other early saxophone works.

When considering the instrument's early repertory and its reception, several questions arise. What were the sonic characteristics of the first generation of saxophonists, and how can that knowledge benefit the modern saxophonist? Can the implementation of an historically-based sonic production provide another perspective on this repertory? How does this sonic

[1] See Appendix 6 for details about the recordings.
[2] The saxophone was first patented by Sax in 1846, even though the first working model appeared between 1838 and 1841, the year that Sax showed his new instrument to Hector Berlioz, who later wrote a review of the instrument and published it in the *Journal des Debats*. Some claim that Sax already completed a prototype by 1838.

conceptualization illuminate the music in question? To what extent can we reconstruct the conditions of nineteenth-century performance?

Since the first saxophone recordings date from the 1890s, direct evidence of nineteenth-century performance traditions is scant. Nevertheless, instruments, published works, method books, treatises, and concert reviews survive from the early era of the saxophone. In this dissertation, I hope to help revive a lost performance tradition and provide performers with a more informed sonic framework for their interpretations.

Survey of literature

Wally Horwood's *Adolphe Sax (1814-94): His Life and Legacy*, Stephen Cottrell's *The Saxophone*, Richard Ingham's *The Cambridge Companion to the Saxophone*, Michael Segell's *The Devil's Horn*, and Fred Hemke's *The Early History of the Saxophone* provide broad overviews and fascinating narratives of the early history of the saxophone, focusing mainly on the development of the instrument and the personal challenges that Sax faced.

Horwood's biography of Sax is a thorough account of the inventor's trials and successes. Horwood points out in his Preface that contemporary accounts by Sax's friends and supporters (including Berlioz and Kastner) must be considered unreliable due to their often self-serving motivation. Horwood contends that there must be some merit to the reputation that Sax established and maintained, and attempts to use his scholarship to set the record straight. The result is an authoritative account of Sax's life and career. While the scope of the biography does not include performance practice considerations of early performers, Horwood provides a valuable context in which to examine these traditions.

Cottrell's work in researching the development of the saxophone includes possibly the most comprehensive biography of the inventor. He provides the reader with a detailed overview of Sax's life and his rise to prominence as a result of his saxophone. He considers how the social and cultural contexts of Sax's life in Brussels and Paris shaped the path of the inventor, and debunks half-truths that have crept into the realm of facts.

Ingham's book has been considered authoritative on the history of the instrument, its invention and development, its early repertoire and the influential performers of Sax's time who promoted the saxophone. Although Ingham traces the technical development of the instrument through its patents, he makes no connection between these improvements and the implications for performance practice. While he provides illuminating biographies of early soloists, he does not consider how they might have shaped their individual sounds. In the two paragraphs where he discusses the repertoire heritage of Sax's time, he does not present any practical performance suggestions that might be adopted.

Segell provides a fascinating and colorful narrative of the story of the saxophone. With a focus on the varied stylistic capabilities of the instrument, Segell provides a broad perspective with interesting, controversial stories taken from accounts in interviews and historical sources. His is one of the few sources that includes accounts from current performers. As the title suggests, the book hones in on the disapproving reception of the instrument throughout its history, even while its popularity grew. While he brings out many interesting facts about the development of the instrument in the nineteenth century, Segell's focus is more on the reputation of the instrument than the practical considerations of performance.

Hemke's dissertation is the most regularly referenced secondary source material relating to the early history of the saxophone. The attention to detail and the sources that Hemke uses

make this the first notable scholarly work on the early history of the instrument. He draws attention to the common misconceptions about specific episodes in Sax's life and career. His thorough narrative provides rich details about how the saxophone was invented, developed, and opposed; as well as how it came to be adopted by the military, was taught in conservatories, and ultimately flourished.

While the history of this great instrument has undoubtedly sparked the attention of scholars, issues relating to performance practice have not attracted the same attention that other instruments have. As the first saxophonists were primarily woodwind players and modeled their own sounds on the voice, woodwind instruments, brass instruments or stringed instruments, it is safe to assume that general performance practice studies are vital in this discussion.

The writings of Clive Brown are particularly significant as they relate to string performance practice. He provides a window into the general practice of the time and indicates how musicians would have formed their performance styles.

Dwight Manning's research about the lack of woodwind vibrato in the nineteenth century is considered definitive and applies equally to saxophone performance practice of the time. Although Manning explores only one aspect of sonic production in his research, it is an important and controversial one. Through the study of various treatises and method books, Manning makes assertions about how performers used vibrato in history, and how ideas differ about how appropriate it is.

Claude Delangle's famous interview with Marcel Mule (1901-2001) supports the theory that Mule pioneered the usage of continuous vibrato on the saxophone. Mule was the first professor of saxophone appointed at the Paris Conservatoire after Sax and was arguably the most influential performer and pedagogue in the history of the saxophone. His performance practice

development, as outlined in the interview by Delangle, established the French school of saxophone playing. The interview lays out Mule's sound concept and how it developed from a model based on nineteenth-century playing to his new, distinctive style.

Dissertation outline

In chapter 1, I explore the design and the subsequent evolution of Sax's instruments and their timbral capabilities into the early twentieth century. It is revealing to compare the acoustic characteristics of Sax's original instruments with modern instruments.[3] Hector Berlioz (1803-1869) is known to have been Adolphe Sax's biggest supporter and close friend and was the first composer who Sax demonstrated his invention to upon the inventor's arrival in Paris before June 12th, 1842, the date that Berlioz published the famous essay in which he introduces the saxophone. In his essay, Berlioz paints a favorable picture of the sonic qualities that the newly designed saxophone possessed at the time.

In the second chapter, I consider how nineteenth-century method books might offer valuable insights in sound production concepts then in current practice. I also explore early recordings and more recent recordings made with older instruments, such as those by Jean Moeremans (c. 1866-1937) and Arno Bornkamp (b. 1959) respectively. One key issue dealt with in chapter 2 is the matter of vibrato pedagogy. When did widespread use of vibrato come into use, and how much vibrato is most suitable to the performance of this earlier saxophone literature? How do we best understand Berlioz's comments about *vibration* in his aforementioned 1842 essay, when he writes about the sound of the saxophone as "full, soft, vibrating, extremely powerful, and easy to lower in intensity" and describes how "the notes of the higher compass

[3] A list of known original Adolphe Sax instruments can be obtained here: http://homepages.ed.ac.uk/am/gdsl.html.

vibrate so intensively that they may be applied with success to melodic expression"? How might we reconcile these statements with those of authors like Carl Weber (dates unknown), who, in his 1897 method, described an ideal sound as "firm, pure, and unwavering"?

In chapter 3, I evaluate selected repertory for the saxophone from the first sixty years of its existence, including works by Jules Demersseman, Jean-Nicholas Savari, and Jean-Baptiste Singelée, and others. These are attractive works that deserve more attention. During Sax's time, a saxophone repertory was necessary to popularize the instrument. Sax not only invented the saxophone but initiated the call for composers to write for the instrument. His establishment of a small publishing house enabled the distribution of the music composed by many of Sax's contemporaries. In this chapter, I focus on this largely neglected repertoire – particularly on the approximately 35 works published for saxophone and piano. I hope that this study will illuminate this forgotten repertory, and my findings will offer new timbral possibilities to performers.

With this in mind, I outline the factors that shaped the sound of the early saxophone: the instrument's origins, its design characteristics, its earliest performers and teachers, the tonal concepts endorsed or neglected by these musicians, and how the instrument's repertoire may have been performed.

Chapter 1

Sax's early instruments: design and sonic considerations

An ambitious inventor, and an enthusiastic supporter

Adolphe Sax lived a life filled with strife. It may seem that he was destined to fail in his innovative endeavors. His early life was extremely difficult. In *The Devil's Horn*, Michael Segell shares fascinating stories about the inventor, summarized by Sax's mother claiming that "[T]he child is doomed to suffer; he won't live."[4] This statement is supported by the many near-death experiences that Sax faced throughout his childhood. These included falling down a flight of stairs as a toddler, resulting in a week-long coma; ingesting harmful poisonous substances on several occasions; swallowing a needle; burning himself severely on a stove; burning himself again by exploding gunpowder; getting hit on the head by a falling slate roof tile (again resulting in a coma); and nearly drowning in a river. According to Segell, "[b]efore he entered adolescence, his head was scarred by the repeated blows, and one side of his body was badly disfigured by burns."[5] Surviving these unfortunate events, Sax learned his father's trade. Charles-Joseph Sax (1790-1865) was a Belgian instrument maker, known for making brass and wind instruments, as well as pianos, guitars, and harps. It was in his father's workshop that young Adolphe discovered his passion for instrument design.[6]

The younger Sax attended the Paris Exhibition in 1839, where he demonstrated an improved bass clarinet design he had worked up in his father's workshop to great success. According to Thomas Liley, during this trip, "Sax met many prominent musicians, including

[4] Michael Segell, *The Devil's Horn* (New York: Farrar, Straus and Giroux, 2005), 11.
[5] Michael Segell, *The Devil's Horn*, 11-12.
[6] Wally Horwood, *Adolphe Sax 1814-1894: his life and legacy* (Baldock, England, Egon Publishers, 1983), 19.

Berlioz, Halévy, Kastner and Meyerbeer."[7] His introduction to Berlioz, in particular, proved to be a turning point in Sax's career. For the next three years, Sax worked hard on his new instruments and made significant progress in showing them to the musical community.

The first time the saxophone was seen in public was in 1841 during the Brussels Exhibition, where Sax presented a most unsuccessful demonstration of his new instruments. According to Georges Kastner, the new instrument "was sent flying with a kick by an unknown person at a time when the inventor, Adolphe Sax, was away."[8] Shortly after this, and despite the exhibit's failure, Lieutenant-General Count De Rumigny asked him to provide the French army with improved instruments.[9] As a result of these circumstances, Sax moved to Paris in 1842 to establish a small workshop.

Upon his arrival in Paris, Sax reconnected with Berlioz. The two men shared similar personality traits that were to cement a long-lasting friendship. According to Horwood, both "were romantic visionaries, liberal idealists with sweeping enthusiasms, quick to give and take offense, both with unbridled self-confidence."[10] When Sax first showed his new inventions to Berlioz in that year, the composer left with a good impression, and according to Horwood remarked that "[t]omorrow, you will know just what I think of what you have just shown me."[11]

An enthusiastic Berlioz proceeded to publish a detailed tribute to Sax and his new instruments in the *Journal des Debats* on June 12, 1842. Sax made various types of instruments, which in the case of the saxhorns and saxophones were invented not as isolated individuals but as extended family groups. In his tribute, Berlioz praises Sax for his "lucid mind," stating that he

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[7] Thomas Liley, "Invention and Development," *The Cambridge Companion to the Saxophone*, edited by Richard Ingham (Cambridge: Cambridge University Press, 1998), 3.
[8] Georges Kastner, *Manuel général de musique militaire* (Paris, Firmin-Didot Frères, 1848), 233.
[9] Thomas Liley, *The Cambridge Companion*, 3.
[10] Wally Horwood, *Adolphe Sax*, 43.
[11] Wally Horwood. *Adolphe Sax,* 43.

is “far-seeing, tenacious, steadfast and skilled beyond words.”[12] In Berlioz’s view, a “revolution [was] about to take place”[13] in instrument construction as promoted by Sax. In a different, later publication, Berlioz referred admiringly to Sax as having been “looked upon as a lunatic,” while having “changed the face of the world.”[14]

The figure below shows the original publication and Berlioz’s entry about Sax and his new instruments, including the saxophone. A translation of relevant parts of this article by Fred Hemke follows the figure.

chaînes. Marié était en voix ce soir-là; il a eu de beaux momens dans le rôle d'Arnold.

Une jolie Suédoise, Mlle Nielsen, paraissait dans le ballet du troisième acte, pour la seconde fois, si je ne me trompe. Sa danse est élégante et correcte, sa physionomie a une expression vague, propre aux beautés du Nord, et fait involontairement penser à *la Seraphita* de M. de Balzac. Mlle Nielsen réussira.

Instrumens de musique.

M. AD. SAX.

L'art de l'instrumentation, long-temps stationnaire, a fait depuis vingt ans de véritables progrès, grâce au mouvement imprimé par quelques grands maîtres. On a étrangement abusé de leurs inventions, il est vrai, et les excès des imitateurs ont souvent fait regretter à d'excellens esprits le temps où cette puissance musicale était encore inconnue. Mais de quoi n'abuse-t-on pas?... et quelle est la force dont l'emploi n'offre des dangers?... Est-ce à dire pour cela qu'il faille regretter l'invention de la poudre, des métaux fulminans, celle des machines à vapeur, et la domination que l'homme est parvenu à exercer sur le fluide électrique? Philosophiquement, la thèse des avantages de l'ignorance peut se soutenir; mais il n'en est pas moins évidemment aujourd'hui dans la nature de l'esprit humain de chercher l'inconnu, d'enregistrer chaque importante découverte et de la conserver à tout prix.

On a donc beau abuser à cette heure des instrumens de musique, les employer hors de propos, sans réserve et sans art, la nature des beaux effets qu'ils peuvent produire étant connue, le public et les artistes sont fatalement entraînés à les désirer, à les exiger même dans toute production nouvelle. Cet art de l'instrumentation devait nécessairement, en se développant, entraîner et déterminer les progrès de la fabrication des instrumens. On peut juger du pas immense qu'il lui a fait faire, en comparant, par exemple, les pianos d'Erard et de Pape aux clavecins du siècle dernier; les flûtes dont on se servait au temps de Devienne à la flûte actuelle de Boëhm; les anciennes clarinettes à celles que fabrique aujourd'hui M. Adolphe Sax, et l'informe et horrible *serpent* de nos cathédrales au magnifique instrument grave que ce jeune et habile artiste vient d'inventer.

Les instrumens à archet sont loin d'avoir suivi la même marche; nous n'avons guère aujourd'hui de luthiers qu'on puisse comparer aux Amati, aux Stradivarius, etc.; cela tient sans doute à la nature même de leur art, qui fut poussé dès l'abord à un haut degré de perfection. La fabrication des instrumens à vent était à peu près, au contraire, demeurée dans l'enfance, elle est aujourd'hui sur une voie qui ne peut manquer de la conduire à de magnifiques résultats. M. Ad. Sax, de Bruxelles, dont nous venons d'examiner les travaux, aura sans doute puissamment contribué à la révolution qui se prépare. C'est un homme d'un esprit pénétrant, lucide, obstiné, d'une persévérance à toute épreuve, d'une grande adresse, toujours prêt à remplacer, dans leur spécialité, les ouvriers incapables de comprendre et de réaliser ses plans; à la fois calculateur, acousticien, et au besoin fondeur, tourneur et ciseleur. Il sait penser et agir; il invente et il exécute. Avant de parler de son nouvel instrument, disons quels perfectionnemens il vient d'apporter à la famille des clarinettes.

En allongeant un peu le tube de la clarinette soprano vers le pavillon, il lui a fait gagner un demi-ton au grave; elle peut en conséquence donner maintenant le *mi bémol*. Le *si bémol* du *médium*, mauvais sur l'ancienne clarinette, est une des meilleures notes sur la nouvelle. Les trilles du *si bémol* au *si naturel* ou à l'*ut* du *médium*, de *la* à *si* du bas, de *mi* à *fa* dièze, les arpéges en octaves de *fa* à *fa*, et une foule d'autres passages inexécutables, sont devenus faciles et d'un bon effet. On sait que les notes du registre suraigu étaient l'épouvantail des compositeurs et des exécutans, qui n'osaient en faire usage que rarement et avec des précautions extrêmes. Grâce à une petite clef placée tout près du bec de la clarinette, M. Sax a rendu ces sons aussi purs, aussi moelleux et aussi aisés que ceux du *médium*. Ainsi le *contre si bémol* haut, qu'on n'osait jamais écrire, sort maintenant sans exiger ni préparations ni efforts de la part de l'exécutant; on peut l'attaquer *pianissimo* sans le moindre danger, et il est au moins aussi doux que celui de la flûte. Pour remédier aux inconvéniens que la sécheresse d'une part et l'humidité de l'autre amenaient nécessairement dans l'emploi des becs de bois, selon que l'instrument demeurait quelques jours sans être joué ou servait au contraire trop long-temps, M. Sax a donné à la clarinette un bec de métal doré qui augmente l'éclat du son et ne subit aucune des variations propres aux becs en bois. Cette clarinette a plus d'étendue, d'égalité, de facilité et de justesse que l'ancienne, sans que le doigté en ait été changé, si ce n'est pour le simplifier dans un petit nombre de cas.

La nouvelle *clarinette-basse* de M. Sax ne conserve de l'ancienne que le nom. Dans celle-ci les trous sont supprimés et remplacés par des clefs qui vont s'adapter aux points correspondans aux nœuds des vibrations; elle a vingt-deux clefs. Ce qui la distingue surtout, c'est une parfaite justesse et un tempérament identique dans toutes les nuances de l'échelle chromatique. Son diamètre augmenté produit un plus grand volume de son sans que l'exécution des octaves et des quintes en soit paralysée ni même contrariée; cet avantage résulte encore d'une clef percée près du bec de l'instrument. Son étendue est de trois octaves et une sixte; mais ce n'est pas à l'immensité de cette échelle qu'il faut attacher beaucoup de prix; évidemment la clarinette-basse n'est pas destinée à figurer dans les registres aigus, et la beauté de ses sons graves lui donne seule un si grand prix. Comme le tube est fort long, l'exécutant étant debout, le pavillon de l'instrument touche presque la terre; de là un étouffement très fâcheux de la sonorité, si l'habile facteur n'eût songé à y remédier au moyen d'un réflecteur métallique concave qui, placé au dessous du pavillon, empêche le son de se perdre, le dirige où l'on veut, et en augmente considérablement le volume.

Le Saxophon, ainsi appelé du nom de l'inventeur, est un instrument de cuivre assez semblable à l'ophicléide par sa forme, et armé de dix-neuf clefs. Il se joue non pas avec une embouchure, comme les autres instrumens de cuivre, mais avec un bec semblable à celui de la clarinette-basse. Le Saxophon serait ainsi le chef d'une nouvelle famille, celle des instrumens de cuivre à anche. Son étendue est de trois octaves, en partant du *si bémol* grave au-dessous des portées (clef de *fa*); son doigté est à peu près le même que celui de la flûte ou de la deuxième partie de la clarinette. Quant à la sonorité, elle est de telle nature que je ne connais pas un instrument grave actuellement en usage qui puisse, sous ce rapport, lui être comparé. C'est plein, moelleux, vibrant, d'une force énorme, et susceptible d'être adouci. C'est fort supérieur, à mon sens, aux notes graves des ophicléides, pour la justesse, pour la fixité du son, dont le caractère d'ailleurs est tout-à-fait neuf et ne ressemble à aucun des timbres qu'on entend dans l'orchestre actuel, si ce n'est un peu à celui du *ni* et du *fa* grave de la clarinette-basse. Grâce à l'anche dont il est pourvu, le Saxophon peut enfler et diminuer le son; il produit, dans le haut, des notes d'une vibration pénétrante qui pourraient même être heureusement appliquées à l'expression mélodique. Sans doute il ne sera jamais propre aux traits rapides, aux arpéges compliqués; mais les instrumens graves ne sont point destinés aux évolutions légères; il faut donc, au lieu de s'en plaindre, se réjouir de l'impossibilité où l'on sera d'abuser du Saxophon et de détruire son majestueux caractère en lui donnant des futilités musicales à exécuter.

Les compositeurs devront beaucoup à M. Sax, quand ses nouveaux instrumens seront devenus d'un usage général. Qu'il persévère; les encouragemens des amis de l'art ne lui manqueront pas.

H. BERLIOZ.

Figure 1: Instruments de musique: M. Ad. Sax. Hector Berlioz’s article in the French Journal des Debats, published June 12, 1842.

> “...A revolution is in the making and Monsieur Adolphe Sax from Brussels strongly contributes to it . . . .The Saxophone (Le Saxophon), named after its inventor, is a brass instrument with nineteen keys, whose shape is rather similar to that of the ophicleide. Its mouthpiece, unlike those of most brass instruments is similar to the mouthpiece of the bass clarinet. Thus, the Saxophone becomes the head of a new group, that of the brass instruments with reed. It has the compass of three octaves beginning from the lower B-flat beneath the staff (bass clef); its fingering is akin to that of the flute or the second part of the clarinet. Its sound is of such rare quality that, to my knowledge, there is not a bass instrument in use nowadays that could be compared to the Saxophone. It is full, soft, vibrating, extremely powerful, and easy to lower in intensity. As far as I am concerned, I find it very superior to the lower tones of the ophicleide, in accuracy

[12] Michael Segell, *The Devil’s Horn*, 14.
[13] Wally Horwood, *Adolphe Sax*, 43.
[14] Berlioz describing Sax in his 1844 publication, *Euphonia: A utopian kingdom where we are all musicians*, set in 2334 Germany.

> as well as in the solidity of the sound. But the character of such sound is absolutely new, and does not resemble any of the timbres heard up till now in our orchestras with the sole exception of the bass clarinet's lower E and F. Owing to its reed, it can increase or diminish the intensity of its sounds. The notes of the higher compass vibrate so intensively that they may be applied with success to melodic expression. Naturally, the instrument will never be suitable for rapid passages, for complicated arpeggios; but the bass instruments are not destined to execute light passages. Instead of complaining, we must rejoice that it is impossible to misuse the saxophone and thus to destroy its majestic nature by forcing it to render mere musical fripperies. Composers will be very indebted to Mr. Sax when his new instruments are generally employed. If he perseveres, he will meet with the support of all friends of music."[15]

This article led to Sax becoming a household name in Paris and resulted in the first public demonstration of the saxophone. The Paris Conservatoire hosted Sax and his new instruments in what seems to have been an informal gathering at the school. Attendees included Daniel Auber (1782-1871), Fromental Halévy (1799-1862), François Habeneck (1781-1849), and Édouard Monnais (1798-1868), all Conservatoire faculty members. This group received Sax with enthusiasm.

In 1844, Berlioz arranged his *Chant Sacre* for six of Sax's instruments and renamed it *Hymne pour les instruments de Sax*[16] for a concert at the Salle Hertz, which marked the first known use of the saxophone.[17] This concert occurred two years before Sax struggled to obtain and retain the copyright for the saxophone, and long before the efforts made by Sax to otherwise promote his instruments through performance and publications. Although not documented, it seems likely that Sax would have presented his bass saxophone at this concert, as this was the first of the family to be completed[18].

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[15] Fred Hemke, *The Early History of the Saxophone* (Ann Arbor, Michigan; 1975), 22-23.
[16] Michael Segell, *The Devil's Horn*, 15.
[17] Sax likely performed in the ensemble on his new bass saxophone, the first member of the saxophone family. The performance was noted in Wally Horwood, *Adolphe Sax*, 52.
[18] Sax's 1846 patent included a bass saxophone only, with prose to the effect that more saxophones were coming.

Sax's appointment to the Paris Conservatoire as professor of the saxophone is a contested truth amongst scholars. While Ingham, Horwood, Segell, and others agree that Sax was the first saxophone professor to be appointed at the Paris Conservatoire, Cottrell presents evidence to the contrary that Sax was not appointed as professor in the traditional sense, and that Marcel Mule was the first professor of saxophone at the famed Conservatoire in 1942.[19] Sax was indeed appointed to teach the saxophone to military musicians in the Garde Republican and was based at the Paris Conservatoire. The contention that he was the first professor of the saxophone can be affirmed based on the fact that these musicians were the only existing saxophone studio musicians at the time.

First design and materials used

As Hemke notes, the precise date of the invention of the saxophone has not been established, mostly because of the inconsistency among sources.[20] Sax patented the saxophone on a few occasions to secure his exclusive rights to manufacture the instrument (even though there were competitors that stole his designs and started making copies of the instrument). The

[19] "Sax was duly appointed [to teach the saxophone at the Paris Conservatoire], although military music teaching was regarded as tangential to the main work of the Conservatoire, and those who taught such classes were not regarded as full professors; Sax's name does not appear on a list of teachers who had worked at the Conservatoire compiled in 1900, and no saxophone class was opened at the Conservatoire proper during Sax's lifetime, in spite of Berlioz's recommendation as early as 1848 that one should be established. This did not prevent Sax rather ingenuously styling his letterhead 'Maison Adolphe Sax, Professeur au Conservatoire national de musique' on his letterheads." From Cottrell, Stephen. *The Saxophone* (Yale Musical Instrument Series) (p. 34). Yale University Press. Kindle Edition.

[20] The closest scholars can get to determining this date is limited by knowing the chronology of events during the years preceding Sax's first patent (June 28, 1846). Firstly, one can assume that the saxophone existed in some form by the time that Sax presented it at the Brussels Exhibition in 1841 (ascertained from Kastner's account). Secondly, we know that Berlioz must have seen the saxophone prior to him writing about it in the June 12, 1842 article published in the *Journal des debats*. According to Hemke, despite the different accounts from various authors as to the precise year of invention, the most plausible comes from Maurice Hamel, who indicated that his father, Henry Hamel, was a close friend of Sax, indicated 1838 as the date Sax created the instrument

first patent (see the image below for sketches from the patent) filed by Sax was in 1846 and was handwritten.[21]

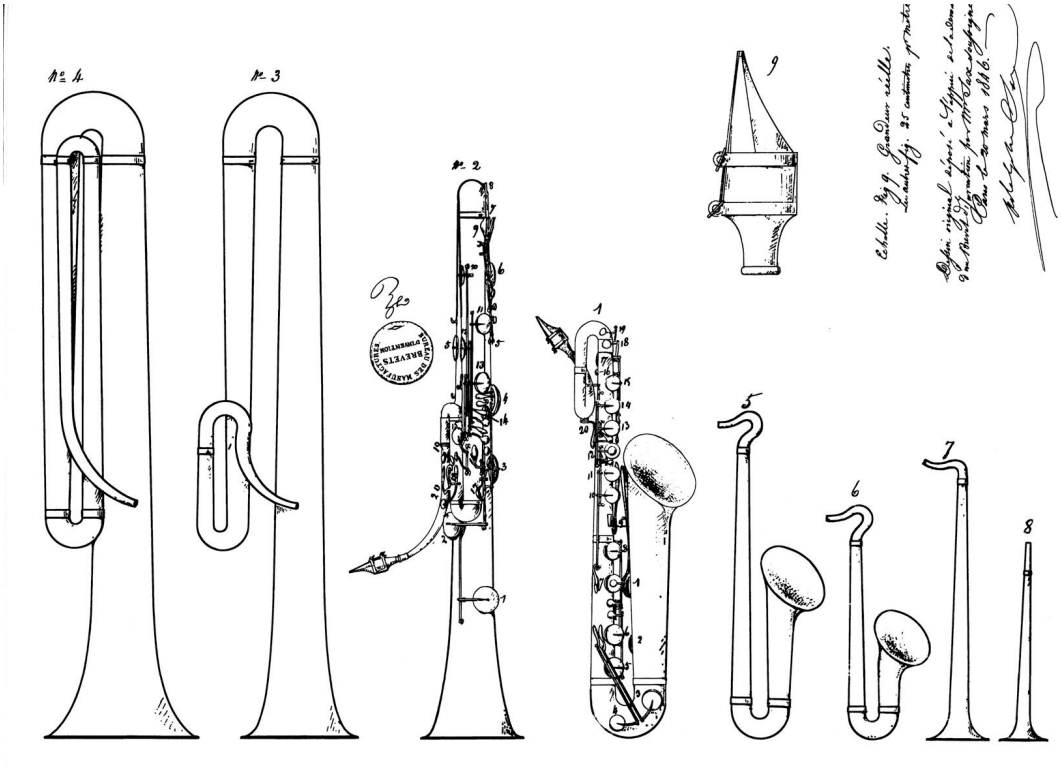


Figure 2: Sketches of the first saxophones patented by Adolphe Sax in 1846, with a mouthpiece. The handwritten pages from the rest of the patent can be viewed in Appendix 2.

According to Hemke, Sax was involved in many lawsuits with competitors who attempted copies of his instruments.[22] For this reason, his first patent did not include a detailed description of a whole family of instruments but rather included provisions for the design protection of the entire family. The only detailed image of a saxophone in this first patent was of the bass saxophone, and Sax modeled this from the ophicleide, known to have been the inspiration behind the saxophone when combined with a clarinet mouthpiece.[23]

[21] Sax signed the patent but seemingly did not write the patent himself.
[22] Fred Hemke, *The Early History of the Saxophone*, 46.
[23] Also, see https://www.jstor.org/stable/841237?seq=11#metadata_info_tab_contents for patent comparisons and technical developments.

Jean-Baptiste Singelée, who met the inventor as a fellow student in Belgium, was particularly influential in encouraging Sax to develop the entire family of instruments. Singelée was the most prolific composer of music written for Sax's new invention, and wrote what was probably the first saxophone quartet in 1857. This influence led to the inclusion of detailed drawings of four saxophones in Sax's second saxophone patent of 1850, all with detailed keywork (as opposed to the first patent of 1846 that only featured a bass saxophone with detailed keywork.)[24] This opened up possibilities for composers like Singelée to write music that required more technical finesse than the original bass instrument would allow.

Sax's ambitions to produce a family of saxophones could also be linked to orchestrational trends of the time, particularly those promoted by Richard Wagner (1813-1883). Wagner met Sax in October 1860 in the early stages of the premiere of his opera, "Tannhauser."[25] A translation of Wagner's impression of Sax is provided by De Keyser: "Regarding this problem, I had to deal with a terrible man, the famous musical instrument maker Sax, who tried to help me with all kinds of surrogates such as *Saxophones* and *Saxhorns*. Moreover, this man was in charge of the music behind the scene."[26] These new families must have appealed to Wagner in the way that they aligned with his extensive use of "chorales" of instruments in orchestrations, most significantly in the brass section. Peter Latham notes the following: "…it is in the brass that we notice the most conspicuous advance. Not only does Wagner pursue the same plan here as in the wood-wind, using four (or more) horns regularly, three trumpets, and reinforcing the three trombones with a bass tuba, but he is able, owing to improvements in the mechanism of some of

[24] William McBride, "The Early Saxophone in Patents 1838-1850 Compared," *The Galpin Society Journal* 35 (March 1982): 120-121.
[25] Ignace de Keyser, "Adolphe Sax and the Paris Opera" *Brass Scholarship in Review. Proceedings of the Historic Brass Society Conference, Cité de la Musique, Paris 1999* (New York: Pendragon Press, 2006), 146.
[26] De Keyser, 146.

these instruments, to treat them with far greater freedom than had been possible hitherto."[27] Many of these improvements in mechanism are a result of Sax's innovations.[28]

There have been recent (unsupported) speculations that Sax made the first saxophone prototype of wood, rather than brass.[29] It seems far more logical that the inventor used brass, the material used for an ophicleide, the saxophone's model. As mentioned previously, the first saxophone to be patented was the bass saxophone, with the subsequent growing family of instruments being patented in 1850. The repertoire that Sax used to promote the instruments was being composed during this period, and therefore, the composers had the instruments from this patent in mind.

It is revealing to compare the acoustic characteristics of Sax's original instruments with modern instruments. The evolution of mechanical aspects of the saxophone is significant in that the expansion of range influenced the nature of the sound of the instrument. Nineteenth-century saxophones differed in sound from modern saxophones due to materials used and mechanisms adopted in the key work, as noted by Richard Ingham and Michael Segell in their books, *The Cambridge Companion to the Saxophone*, and *The Devil's Horn*.

Mouthpiece and reed design

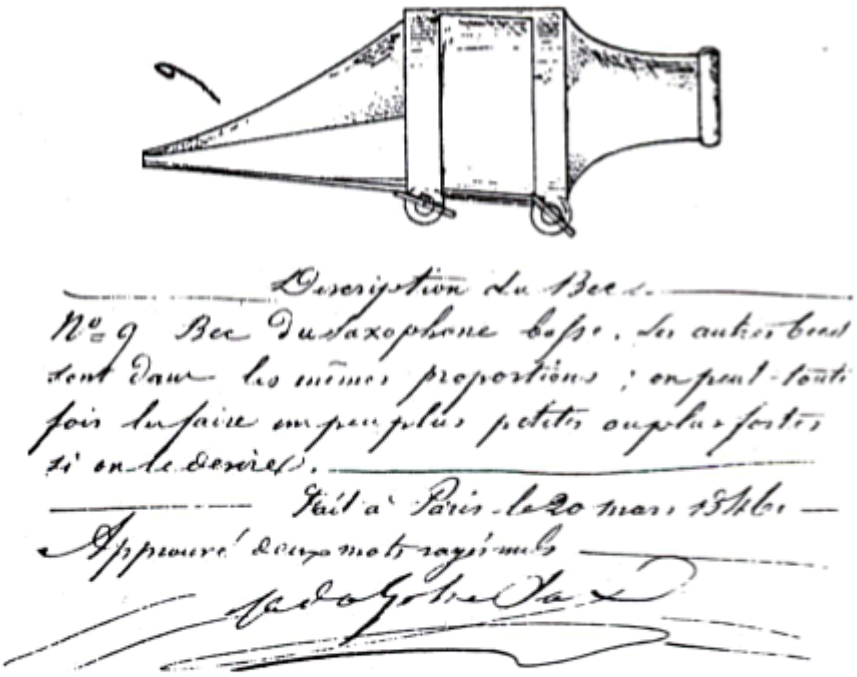
Before considering the pedagogical aspects of performance, it is important to address the mouthpiece and reed combinations used by Sax and his contemporaries that shaped the sound of the early saxophone. As noted in Wolfe, Fletcher, and Smith's article, two broad elements

[27] Peter Latham, "Wagner: Aesthetics and Orchestration," *Gramophone*, June 1926. (Latham, P. (1926)
[28] Wally Horwood, *Adolphe Sax*, 29.
[29] https://www.smithsonianmag.com/smart-news/first-saxophone-made-of-wood-180962541/ makes this particular claim, but has no credible sources and produces an image of a saxophone made in 1857 by Sax that is not made of wood, as the article indicates.

influence the sound of the saxophone: the construction and design of the instrument, mouthpiece, and reed; and the player's breathing technique, articulation method, and airstream manipulation.[30] The former elements deal with issues that influence what timbres are possible for the performer, while the latter deal with the performer's role in a practical way. The mouthpiece and reed design are possibly the most significant determining factor of timbre on the saxophone.

While access to nineteenth-century reeds is not possible today, the mouthpiece design is something that can be emulated reasonably well based on knowledge of what Sax would have used at the time. Sax designed the saxophone with the clarinet mouthpiece in mind (evidenced by looking at the illustrations of his patent applications, pictured below with text translation by Raschèr).

[30] Wolfe, J; Fletcher, NH; Smith, J. "The Interactions Between Wind Instruments and Their Players." 2015, doi:10.3813/AAA.918820.



—— Description of the Mouthpiece ——

No. 9 [*This number refers to the sketch of the mouthpiece on the patent letter.*]
The mouthpiece of the bass saxophone. The other mouthpieces are
then of the same proportions; one can of course make them
a little smaller or a little bigger, if one should so wish.
Paris 20 March 1846
Adolphe Sax

Figure 3: The translation of the mouthpiece description from Sax's 1846 patent by Sigurd Raschèr.

The difference between a saxophone and a clarinet mouthpiece can be summed up by Sax's description of the mouthpiece on his 1846 patent: "... a simple reed spout with a very flared interior that tapers to the part that adapts to the body of the instrument."[31] Essentially, this means that the mouthpiece is a clarinet mouthpiece that fits onto the crook of the saxophone, rather than inside it. It also indicates that the inner design is large. In today's terminology, we

[31] Translated from McBride, 1982: 117 – "... un bec à anche simple dont l'intérieur très évasé va en se rétricissant à la partie qui vient s'adapter au corps de l'instrument."

would call it a large chamber. The picture on the patent also indicates that the mouthpiece was fairly short compared to modern mouthpieces (this was a necessary design issue due to the large chamber, which aided intonation.)

For the performer, harder reeds make it easier to play on this mouthpiece. For my recording project I first tried to use a Raschèr mouthpiece, which still had a similar design and was modeled on Sax's mouthpieces and boasted a round, large inner chamber, but found that the intonation was too problematic to record with the historical instrument I had access to. Instead, I have performed the recorded samples accompanying this dissertation on a modern Selmer mouthpiece with Selmer reeds.

Information regarding reeds that performers used during Sax's time is scant, but it seems likely that reeds were made by hand, much like double reeds still are today. One source indicates that the first machine-made reeds were produced around 1869.[32] The Henri Selmer Paris company was established in 1885 and started by manufacturing reeds and mouthpieces.[33] Made from Arundo Donax (a type of cane found in the south of France), the reed significantly affects the sound of the saxophone, as the source of the sound is from the vibration of the reed against the mouthpiece. Since reeds were hand-made during Sax's lifetime, the finish of the reed could be adapted to the liking of the artist. This level of customization still exists today, although the manufacturing of reeds provides more variants for specific uses. While the reed is the source of the sound, the mouthpiece chamber and tip opening define the quality of the sound and are, therefore, more relevant when considering sonic production.

[32] Gregory Barrett, *Development of the Clarinet*, 1999 (accessed from https://www.niu.edu/gbarrett/resources/development.shtml)
[33] http://www.selmer.fr/histdetail.php?id=4

Chapter 2

The establishment of early saxophone pedagogy

Early method books for the saxophone

The saxophone boasts many method books from its early adopters. Saxophone pedagogues wrote them as early as 1846, the year the saxophone was patented. The authors of these books provide valuable insights into how to teach the saxophone and hints about how the authors played the instrument. A significant topic of these books is how performers produce sound. Principally, these discussions involve breathing and embouchure techniques, and generally do not mention vibrato, as would typically be discussed in modern methods.

The first three saxophone method books were published in Paris in 1846. Their authors were Georges Kastner (1810-1867), Jean-Francois-Barthelemy Cokken (1801-1875), and Hartmann (identity unclear, but likely the bassoonist JPE Hartmann). Hyacinthe Klosé (1808-1880) and Louis Mayeur (1837-1894) published the next methods for the saxophone, both in 1866. These methods show an evolution in the performance practices of saxophonists and provide more detailed technical discussions on articulation in particular.

Kastner wrote his 142-page *Méthode complète et raissonné de saxophone* in collaboration with Adolphe Sax. It is written from a composer's perspective, and advocates for the saxophone with the same enthusiasm that Berlioz did.[34] Due to its comprehensive nature, it is the most useful method book when considering general teaching methods of the time. In Gail Levinsky's dissertation, Kastner's method is the most regularly cited source for the earliest

[34] Pascal Terrien, *A history of the saxophone through the methods published in France, 1846-1942* (France: Éditions Delatour, 2015), 100-103.

technical information on how to play the saxophone. The fundamental technique that any wind instrumentalist requires is breathing technique. Kastner provided details on this and other basic sound production techniques in his 1846 method book. As Gail Levinsky notes, "the instructional material provided in *Méthode complete et raisonnie de saxophone* with basic performance concepts, such as embouchure, breathing, articulation, posture, and the holding of the saxophone, are equally applicable to students of Sax's era as well with present-day teaching practices."[35] On breathing in particular, Gail Levinsky notes the following about breathing based on what Kastner indicated in his method:

> As with any wind instrument the process of creating sound is initially generated by the releasing of air through the instrument. Kastner includes many comments about breathing in this method. He maintains that the air must flow evenly from the mouth without puffing the cheeks; that the performer must not push the air from the chest; [that the performer] must always calculate the amount of air required; and the releasing of air should be a consistent stream in order to produce an even sound. The information Kastner furnishes still remains an accepted practice in modern teaching pedagogy.[36]

Cokken, a bassoonist by profession, was listed as the saxophone instructor at the Gymnase Musical Militaire in Paris from 1845-1850, after which he was appointed by the Paris Conservatoire as professor of bassoon in 1852.[37] Gail Levinsky notes that his saxophone method of 1846, *Méthode compléte de saxophone*, was published in Paris and adopted by the Gymnase Musical Militaire. In the method, Cokken echoes Kastner's instructions pertaining to sound production in breathing and embouchure technique. Unlike Kastner, who provided Sax's alternative opinion about forming a single-lip embouchure, Cokken asserts that the single-lip

[35] Gail Levinsky, *An analysis and comparison of early saxophone methods published between 1846-1946* (Ann Arbor, Michigan: UMI, 1997), 18.
[36] Gail Levinsky, *An analysis and comparison*, 19.
[37] Gail Levinsky, *An analysis and comparison,* 27.

embouchure harms the sound.[38] At no point does he mention vibrato as an element of sound production.

Hartmann's method, *Méthode élémentaire de saxophone,* is more elementary than both Kaster's and Cokken's, and provides just three pages of text with musical exercises on preliminary performance skills. Unlike Kastner and Cokken, Hartmann advocates for a single-lip embouchure. Also contrary to his peers, he points out that the embouchure could be tightened or loosened for the upper and lower extremes of the instrument (an unconventional technique then and now.)[39]

Klosé's method is particularly useful because he was influential in the work he did to develop the Boehm clarinet system in 1830-40. According to Terrien, Klosé's *Méthode complète des saxophones* is still a standard source of methodological material today.[40] His clarinet method of 1879 is considered to be "a versatile 'bible' that, to this day, accompanies many students through their study of the instrument."[41]

Mayeur's *Grande méthode* includes a detailed description of fundamental sound production techniques, including "embouchure formation, tongue position, sound production, rhythm, articulation, and dynamics."[42] Mayeur gained his expertise from Klosé, who learned the saxophone from Sax himself. Both method books reinforce what earlier methods emphasized in terms of fundamental sound production techniques.

Regarding articulation, Levinsky notes that early saxophonists executed the attacks of notes in the same way that modern saxophonists would. Also, Levinsky points out that double

[38] Gail Levinsky, *An analysis and comparison*, 33.
[39] Gail Levinsky, *An analysis and comparison*, 42.
[40] Pascal Terrien, *A history of the saxophone*, 105-106.
[41] Pascal Terrien, *A history of the saxophone,* 86.
[42] Gail Levinsky, *An analysis and comparison*, 48.

and triple tonguing were commonly discussed in early saxophone pedagogy (Kastner refers explicitly to this technique in his method book,)[43] contrary to claims in modern method books that these are contemporary, "extended" techniques.

Kastner mentions the formation of the embouchure in his method book, where he notes that "Sax himself suggested that in some cases positioning the top teeth on the mouthpiece might reduce fatigue."[44] According to Cottrell, the double-lip embouchure was a technique employed by many clarinetists of the time (used mainly by double reed players, where both lips cover the reeds.) The implication is that saxophonists may have been using this same technique. Despite this, there seems to be no other evidence of this technique being the standard way to form an embouchure in saxophone pedagogy. Cokken and Mayeur referred to the single-lip embouchure (standard today, and produced by placing the top teeth on the top of the mouthpiece) in their method books. While some performers may have adopted the clarinetist's double-lip embouchure, it seems probable that most saxophonists would have learned the instrument with a single-lip embouchure, as this was the popular teaching method of the time.

According to Levinsky, the concept of vibrato[45] was not taught in the early saxophone method books by Kastner (c. 1846), Cokken (1846), Hartmann (1846), L. Mayeur (1867), A. Mayeur (1896), Klose (1866), and White (1887).[46] Although they did not address vibrato explicitly, these authors – by their avoidance of the topic – indicated that vibrato was not a technique inherent in the saxophone sound of the time. Levinsky notes that Carl Weber, in his method book of 1897, specifically describes the ideal saxophone sound as "firm, pure, and

[43] Gail Levinsky, *An analysis and comparison*, 22.
[44] Stephen Cottrell. *The Saxophone* (Yale: Yale University Press, 2012), 5.
[45] Particularly, continuous vibrato, as opposed to ornamental vibrato.
[46] Gail Levinsky, *An analysis and comparison*, 153.

unwavering."[47] This seems to contradict Berlioz's comment (mentioned above) that the sound of the saxophone was "vibrating," with particular reference to the upper register of the instrument.[48] It is important to remember that Berlioz would have had the sound of the early bass saxophone in mind at the time of his comments. It can be assumed that Berlioz described the *timbre* of this particular register on the bass saxophone this way, as there seems to be no evidence to support the contention that he was referring to what we now commonly call vibrato. Levinsky's evidence makes it clear that early pedagogues did not consider vibrato to be a vital or expected component of saxophone performance.

Levinsky also discusses late nineteenth-century saxophone method books, which essentially reinforce her findings about the earliest method books. Her findings about saxophone method books over time are summed up in her conclusion, and are particularly relevant to the present study:

> An analysis of early European and American saxophone methods exhibit similar fundamental pedagogical practices regarding embouchure, breathing, tonguing, posture, and fingering… Therefore, viewing the methodology appears to indicate that the characteristic styles of good performance practices have not radically changed through time… The nineteenth-century European methods reveal that the environment in which a saxophonist would perform was in the military band setting and to a lesser degree the symphony orchestra. Comparatively, the European and American methods published after 1920 indicate that saxophonists of this period were playing jazz and popular music. With this new performance venue new techniques and specialized sounds, such as vibrato, slap tongue, key clicks, and a wide range of other effects, which in modern times are considered "contemporary" techniques, have their roots in the halls and stages of vaudevillian productions. The use of altissimo and multiple tonguing was first discussed by Sax and Kastner, but was of limited use until the early twentieth century. There is little question that early jazz and popular music influenced how the saxophone would be played in modern times.[49]

[47] Carl Weber, *The Premier Method for Saxophone* (Philadelphia: J.W. Pepper Company, 1897), 7.
[48] Hector Berlioz, "Instruments de musique: M. Ad. Sax," *Journal des Debats*, 1842, translated by Fred Hemke.
[49] Gail Levinsky, *An analysis and comparison*, 188-190.

So what role, if any, did vibrato play in nineteenth-century saxophone performance? The early method books certainly provide no evidence that the technique was used. Levinsky's assertion that it was introduced with the advent of jazz seems congruent with Marcel Mule's contention that he introduced it to the orchestral saxophonist's palette.[50] Thus, the early saxophone repertory would have been performed without a continuous vibrato to color the sound.

Non-saxophone teaching methods considered

The performance traditions of vocalists and instrumentalists naturally influenced the development of early saxophone pedagogy. The use of vibrato in performance has always been a common sound-shaping factor for both these traditions. Several authors in the historical performance practice field have considered this and found valuable insights based on their research. However, the history of vibrato remains controversial in academia, leading to publications like Judith Malafronte's *Vibrato Wars* in Early Music America.[51]

Today, scholars generally accept that nineteenth-century orchestral musicians did not use a continuous vibrato, but rather used vibrato as an ornament to the sound when appropriate to the music. While the intention of this dissertation is not to explore the non-saxophone methodologies of the nineteenth century, it is important to consider scholarship concerning general performance practice issues regarding vibrato.

Judith Malafronte highlights the controversy regarding vibrato in the previously mentioned article from Early Music America, "Vibrato Wars." Malafronte refers to an article by

[50] Claude Delangle, "Interview with the Legendary Marcel Mule on the History of Saxophone Vibrato," *The Australian Clarinet and Saxophone Magazine*. March (1998): 5-11.
[51] Judith Malafronte, "Vibrato Wars," *Early Music America* (Summer 2015)

Beverly Jerold asserting that early string players did not use continuous vibrato in the nineteenth century, a view that was subsequently contested vehemently by various scholars. To support Jerold's view, Malafronte includes references to Bruce Haynes' book, *The End of Early Music*, in which "continuous vibrato-where every note is evenly enriched with pitch and intensity oscillation-is a 20th century phenomenon."[52] From an earlier publication, Malafronte notes the following:

> In his seminal 1963 *The Interpretation of Early Music*, Robert Donington arbitrarily distinguishes between what he calls "tremolo"—defined as "a fluctuation of intensity"—and "vibrato," which he calls "a fluctuation of pitch." When the pitch fluctuation is a semitone apart, he dubs this a "trill," and if larger than a whole tone, he uses the word "tremolo" again, muddling the matter entirely, as he muddles quotations from early authors about the trillo, finger vibrato, the sting, and thrumming on plucked instruments.[53]

There are obviously different views regarding the use of vibrato in the eighteenth and nineteenth centuries, mostly due to terminology not being standardized. Through it all, there seems to be a consensus that vibrato was used more sparingly in the past, and gradually became more intentional and integral to sound and less ornamental.

When considering the saxophone, one has to ask why the saxophone adopted continuous vibrato when the clarinet never really seemed to. Considering that the instruments are so similar in the way they produce sound, should this concept not be more alike in practice? Perhaps the difference in the harmonic series (due to the shape of the bore) of each instrument makes the sounds of the two so vastly different that continuous vibrato works on one and not the other.

[52] Judith Malafronte, "Vibrato Wars," *Early Music America* (Summer 2015), 31.
[53] Judith Malafronte, "Vibrato Wars," 32.

Early performers and their performance backgrounds

The key performers who were promoting Sax's publications will be discussed here, including how they might have performed. Also, I will survey and analyze recordings that claim to feature informed performance practice on the early saxophone. The early saxophone struggled to find the place desired for it by Sax, partly due to the reality that the performers of the instrument in orchestral contexts were other woodwind players who had to learn the new instrument, therefore producing sub-standard performances quickly. Fred Hemke notes the following, quoting Berlioz:

> Mr. Sax has created another instrument, the saxophone, a delightful brass instrument with a clarinet mouthpiece, which possesses a new timbre and lends itself to the most delicate and vaporous effects of shading as well as the majestic accents of religious style. Mr. Sax had made an entire family of saxophones and if composers do not as yet appreciate the value of this new organ, which they owe to the genius of the inventor, the inexperience of the performers can be the only reason.[54]

Despite these problems, there is much evidence to suggest that early virtuosos were indeed performing as soloists on Sax's invention and succeeding in winning over audiences. Sax knew that the reception of his new instrument depended mainly on its promotion by performers. The first performer of his instrument was Sax himself, whose first noted performance was at the Paris Conservatory in 1842.[55] In 1847, Sax opened a 400-seat concert hall in the same building as his workshop in order to promote his instruments to audiences.

Sax originally intended his instrument to be used in military bands and in the orchestra, and to bridge the gap between woodwinds and brass in terms of finesse and power. However, the inventor intentionally published early works specifically for solo saxophone with piano, or for

[54] Fred Hemke, *Early History*, 177.
[55] Thomas Liley, "Invention and Development," *The Cambridge Companion to the Saxophone* (Cambridge: Cambridge University Press, 1998),

saxophone within a chamber setting, to showcase the virtuosity and versatility of the instrument. While Sax may have originally intended the instrument to be used in large ensembles, it was being used more and more for soloistic purposes. The solo performances of the works Sax published enabled the spreading of the instrument to countries outside of Europe.

An article from the *Revue et Gazette Musicale* (1852) mentions the ease that woodwind players would have in learning the saxophone (eight days to familiarize oneself with it) due to its similar fingering systems to the flute, clarinet, oboe, and bassoon.[56] However, Berlioz had a different view in the previously cited report written in 1851 while serving as a judge at the London Exposition, noting that "the saxophone is a difficult instrument; the player can learn its technique only after long and serious study, but it has, up to now, been only too imperfectly played and too little practiced."[57]

While Adolphe Sax found great success in promoting his saxophone through performers who became influential in the adoption of the instrument, Sax himself was the first significant, influential soloist and pedagogue of the saxophone. He was appointed as the first teacher of saxophone at the Paris Conservatoire in 1857, providing evidence of the acceptance of the instrument.[58] There is remarkably little written about the repertoire Sax performed to demonstrate his saxophone before this period, but it was at this time that Sax established his publishing house, which actively commissioned composers to write solo pieces for the instrument. These composers included friends and colleagues of Sax, including Jean-Baptiste Singelée, Jules Demersseman, Jérôme Savari, and Joseph Arban.

[56] Matthew Ferraro, *The Missing Saxophone Uncovered* (Youngtown State University: 2012), 32.
[57] Fred Hemke, *Early History*, 177.
[58] Paul Harvey, *Saxophone* (London: Kahn & Averill, 1995), 12

Jean-François Cokken (1801-1875) took up the saxophone as a second instrument but was primarily a bassoonist, composer, and pedagogue. He studied bassoon with Thomas-Joseph Delcambre (1762-1828) at the Paris Conservatoire. He was the first saxophone instructor at the *Gymnase Musical Militaire*, being listed as such from 1846 until 1850, after which he was listed as teaching bassoon (from 1852-1875).[59]

Henri Wuille (1822-1871) is known to have "...produced marvellous [*sic*] effects on the saxophone and possess[ed] the true sound of that instrument, an advantage often denied to clarinettists [*sic*]."[60] The Belgian-born clarinetist studied with Valentin Bender (1801-1873), who also taught Sax and was known as the "king of clarinettists [*sic*]."[61] Wuille was hired by French conductor Louis Antoine Jullien (1812-1860) from 1852 to 1856 to tour with his orchestra as clarinetist and solo saxophonist.[62] Following this period, Wuille was appointed to teach clarinet and saxophone at the *Conservatoire de Strasbourg*.

Charles Jean-Baptiste Soualle (1824-1899), known more widely by saxophone historians as Ali Ben Sou Alle, is a significant early performer whose profile is encompassed by mystery. This mystery is related to his name and his having "adopted the orientalist stage persona of 'Ali Ben Sou Alle', performing on a modified version of the saxophone which, in keeping with his stage act, he renamed as a 'turkophone'."[63] Stephen Cottrell points out that even though scholars have referred to Soualle by Charles Valentin, Augustin Edouard, and Alexandre Soualle, his identity is confirmed by his record of birth as Charles jeanbaptiste Soualle (Cottrell changed his

[59] Matthew Ferraro, *The Missing Saxophone Uncovered*, 31.
[60] Thomas Liley, "Invention and Development," 13-14.
[61] Géry Dumoulin, *Valentin Bender's Sax clarinet* (Music Instruments Museum), http://www.mim.be/valentin-bender%E2%80%99s-sax-clarinet. In 1833 Bender personally received a clarinet made by Charles Sax.
[62] Ingham, *The Cambridge Companion*, 13.
[63] Stephen Cottrell, "Charles Jean-Baptiste Soualle and the Saxophone," *Journal of the American Musical Instrument Society* (2018), Permalink: http://openaccess.city.ac.uk/19911/, 1.

middle name to a modern orthography).[64] Soualle studied clarinet under Hyacinthe Klose at the Paris Conservatoire, graduating with the first prize in 1844.[65] He traveled internationally and performed on various instruments, including the aforementioned modified version of Sax's. Soualle patented his modification of the saxophone in 1860, with a revision in 1861, eliminating the second octave key from Sax's design, thus making the instrument more comfortable to play. This concept has been carried through in the modern design of the saxophone.

Edward A. Lefebre (c. 1834-1911) was another important saxophone soloist during Sax's lifetime. Originally a clarinetist, Lefebre became one of Sax's fiercest promoters of the saxophone worldwide. Lefebre's path was similar to that of many other prominent soloists of the time: he met Patrick Gilmore (1829-1892) in 1873 and was featured as part of the Twenty-second Regiment Band that Gilmore directed as saxophone soloist. Lefebre went on to tour Europe and America, and even introduced the saxophone to South Africa. (Gee: 14).

Jean Moeremans (c. 1866-1937) was a Belgian saxophonist who emigrated to Canada in 1892 with his wife, Marie, and was naturalized as a US citizen in 1900, according to federal census records. Before he immigrated to Canada, Moeremans lived and worked in Belgium as a saxophonist in the Belgian Guards Band at some point and was a recognized artist. Stephen Cottrell also notes that Moeremans either worked or studied in Paris in the early 1890s.[66] He may have immigrated to the Americas for better employment opportunities, as is evidenced by his recruitment to the famous Sousa Band. Moeremans was the soloist in the band who succeeded Edward Lefebre. It is highly likely that Moeremans would have been immersed in the tradition of performance practices of Europe.

[64] Stephen Cottrell, "Charles Jean-Baptiste Soualle," 25.
[65] Stephen Cottrell, "Charles Jean-Baptiste Soualle," 1.
[66] Stephen Cottrell, *The Saxophone*, 160.

Moeremans has left one of the most valuable resources for saxophonists in his early recordings on wax cylinders dating from 1897.[67] As a national of Belgium, the same country as the instrument's creator, and studying and working in Paris, where Sax spent most of his life and established a saxophone culture in the Paris Conservatoire, Moeremans' recordings provide the most accurate (albeit limited) glimpse into the performance practice of saxophonists of the latter half of the nineteenth century.

Early recordings

The challenge in identifying nineteenth century performance practice styles rests largely on the lack of recorded material during that period. Thomas Edison (1847-1931) invented the phonograph in 1877, followed by the invention of the wax cylinder phonograph by Alexander Graham Bell (1847-1922), Chichester Bell (1848-1924), and Charles Tainter (1854-1940) in 1886.

The first recordings of saxophonists appear in the 1890s. When considering these recordings, it is essential to note the limitations of the technology at that time. Daniel Leech-Wilkinson puts it succinctly when considering historical recordings in general:

> Reading through this description, it's not hard to see that some quite serious compromises are made in order to produce sounds the machine is capable of recording. Both what went in and what came out were far from representative of ideal music-making at the time. Moreover, there were very significant distortions in the recording and playback of the sound, as we shall see in a moment. Clearly, if we are to use these recordings for study it is essential that we understand what these compromises and distortions are, how they arise, how they affect what we hear, and how we might be able to compensate for them.[68]

[67] Some of these recordings are available for perusal on the Library of Congress website, www.loc.gov.
[68] Daniel Leech-Wilkinson, *The Changing Sound of Music: Approaches to Studying Recorded Musical Performance*. (London: CHARM, 2009,)

Analysis of the earliest recordings requires the listener to bear in mind that the speed at which the cylinder was recorded needs to match the speed that it is played back in order to maintain the accuracy of pitch. The faster the cylinder turns, the higher the pitch. Referring to Adelina Patti's famous early recordings, Leech-Wilkinson comments that "what you think she sounded like depends on the speed at which you play her recordings."[69] He goes on to describe how singers would have had to perform into the phonograph by over-emphasizing their annunciation to be heard during playback. Also, the arrangements of ensembles were dependent on the positioning of the phonograph and loudness of the instruments. The result may be less an accurate representation of what live performance might have been like, and more what the recording process was like. Still, insights can be gleaned from these early recordings.

The first person to record the saxophone as a solo instrument was Bessie Mecklem (1876-1942), who released 12 Edison wax cylinders with piano accompaniment on April 23, 1892.[70] Unfortunately, these recordings appear to no longer exist. Thus, I will examine the earliest surviving recordings of classical saxophone, by Eugene Coffin (c. 1848-1907) and Jean Moeremans (*c.* 1866-1937/8[71]).

Columbia Phonograph Company used Edison cylinders, and Eugene Coffin (notable tenor saxophonist so well-known that he was one of the performers for the inauguration of President William McKinley in the 1980s) recorded on these discs for the "Creation of Storyville" in 1896 (Sea Flower Polka).[72] Coffin's recording[73] of *"Sea Flower" Polka* by T. H. Rollinson, dating from 1896 is probably the earliest surviving recording by a solo saxophonist. In

[69] Ibid.
[70] Hoffmann, Frank, ed. Encyclopedia of recorded sound. Routledge, 2004.
[71] National Archives and Records Administration (NARA); Washington D.C.; Roll #: 1454; Volume #: Roll 1454 - Certificates: 126500-126875, 06 Jan 1921-07 Jan 1921
[72] See http://www.personal.psu.edu/users/t/w/tws4/TSMusic/index.html for early American recordings.
[73] Cohen, Paul, Lois Anderson, and Daniel Gordon. 1993. *Paul Cohen's vintage saxophone revisited*. [Teaneck, N.J.?]: Classax.

this recording, Coffin performs with piano accompaniment (his brother, Harry Coffin on piano.) The piece was originally composed for solo cornet and marching band, and was transcribed for tenor saxophone and piano. The recording opens with an announcer introducing the piece and artists. The work opens with a short piano solo, followed by a brief saxophone cadenza (performed in a rather rushed fashion, understandable due to the length of the cylinders.) Throughout the recording Coffin plays with no vibrato. His use of continuous triple tonguing emulated the sound of a cornet very well, and his execution was exceptional. Also, particularly notable is how Coffin stays in front of the beat, pushing the tempo of the pianist forward. This could be due to the rush when recording to wax cylinder, so should not necessarily be considered a definitive practice of the time.

Also particularly interesting is the lightness that Coffin achieves in the recording, despite performing on a tenor saxophone, which tends to sound clumsier on modern instruments with works of this nature. In addition, the use of dynamics is not particularly prominent in this recording (although this too could be attributed to the method of recording discussed before.) It is interesting to note that as Coffin ascends to the upper register of the instrument, he seems to get softer in dynamic level. This thinning out of the color towards the upper extremes is a trait I noticed when producing the recordings accompanying this dissertation.

Jean Moeremans' recordings on wax cylinder are particularly informative to the listener. The University of California Santa Barbara Wax Cylinder Library holds a few of these surviving recordings.[74] The most interesting recording is his rendition of "Carnival of Venice"[75] by Julius Benedict (1804-1885). Moeremans plays the alto saxophone in this recording. Like Coffin, he

[74] https://adp.library.ucsb.edu/index.php/talent/detail/14689/Moeremans_Jean_instrumentalist_saxophone
[75] *Discography of American Historical Recordings*, s.v. "Berliner matrix 3900. Carnival of Venice / Jean Moeremans," accessed May 23, 2019, https://adp.library.ucsb.edu/index.php/matrix/detail/2000148880/3900-Carnival_of_Venice.

does not use a continuous vibrato and he has a general tendency is to play on the front of the beat, slightly ahead of the piano. Moeremans' technical proficiency in this recording rivals that of many modern saxophonists. It can also be observed that his upper register has a distinctly different tone color from the lower register, which is far more full-bodied.

A 1904 recording[76] of Moeremans performing "The Gypsy's Serenade" with piano by an unknown composer reveals the same sonic characteristics, marked by an avoidance of vibrato, with the exception of the very end, where he produces a shallow vibrato on the last high note of the work. Also, in this recording, Moeremans plays with considerable freedom in rhythm, more noticeable due to the slower tempo of the composition.

Modern "historically informed" recordings

The work of Dutch saxophonist Arno Bornkamp in revisiting early repertoire for the saxophone on period instruments has been recorded on compact disc and brings the practices I consider here to listeners.[77] To my knowledge, there is no other saxophone recording that attempts to recreate nineteenth century performance practice techniques to this extent. Bornkamp makes particular effort to play without any vibrato on period instruments, emulating a sound that he believes is characteristic of the instrument in the nineteenth century.

When comparing to his signature sound to the sound he produces in this recording, the listener can hear a marked difference in the way Bornkamp approaches this repertoire. Because he is performing on period instruments, the lightness of color over the entire range can be

[76] *Discography of American Historical Recordings*, s.v. "Victor matrix B-1469. The Gypsy's serenade / Jean Moeremans," accessed May 23, 2019, https://adp.library.ucsb.edu/index.php/matrix/detail/200002624/B-1469-The_Gypsys_serenade.

[77] Bornkamp, Arno, *Adolphe Sax revisited*. The Hague: Ottavo Recordings, 2001).

observed. In addition, he takes considerable liberty with time, stretching phrases to emphasize the straight tone of the instrument. The challenges associated with performing on a period instrument can be heard in his recordings, particularly as they relate to the primitive technical facilities on the instruments he uses.

Claude Delangle, celebrated French saxophonist, released a compact disc titled "Historic Saxophone," on which he records using many of the techniques that Bornkamp uses, but to a more subtle degree, and on modern instruments.[78] Delangle is rooted in the performance tradition of Marcel Mule, who established the technique of using continuous vibrato as a quality of the sound of the saxophone. For him to restrict his usage of the technique to the extent that he does in this recording is a significant departure from his regular performance style. Vibrato is certainly used in this recording, but it is limited when compared to Delangle's typical style of playing. There is no significant pattern that he applies when using vibrato, but intentionally omits the technique on the first of a repeated long note on some occasions. This is arguably a more modern approach to the utilization of vibrato.

Another 1998 compact disc, "The Sax Players," is a collection of original nineteenth-century repertoire performed on original Adolphe Sax instruments by various artists. In the accompanying booklet to this recording, Christian Debecq notes that the original instruments used, along with mouthpieces that closely matched the original mouthpieces, enabled the artists to recreate a seemingly close representation of the sound of Sax's instruments. Interestingly, Debecq also notes that they performed without vibrato, and with a double lip embouchure (a technique that early clarinetists employed, which darkens the sound somewhat). He also notes that the thinness of the brass used in the original instruments contributes to a more "'felted'"

[78] Delangle, Claude, *Historic Saxophone*. (Sweden: BIS, 2003), http://www.naxosmusiclibrary.com.

sound.[79] This description is appropriate when considering the differences between modern and period instruments, as can also be heard in the recordings accompanying this dissertation by the author.

Debecq's recording of Singelée's "Fantaisie Pastorale Op. 56" for soprano saxophone and piano is particularly interesting. The use of the double lip embouchure causes the sound of the saxophone to be somewhat unfocused, especially in the upper register. It becomes clear why Sax and others suggested a single-lip embouchure instead in order to focus the sound more. In addition, the sound of the soprano saxophone is certainly less direct than a modern sound would be, and the "felted" nature certainly adds much to the nature of the work. In fact, the omittance of vibrato in the sound here is well suited when coupled with the darker and lighter sound of the instrument. The recordings by Debecq and his colleagues provide the listener with a window into early performances of the saxophone.

[79] Christian Debecq, Program notes to *A Tribute to Sax*, Performed by Christian Debecq (Out There Music, 1998,) CD. Accessed from https://outhere-music.com/en/albums/a-tribute-to-sax-ric-341/booklet.

Chapter 3

Early repertory for the saxophone

35 works published by Sax in the nineteenth century

Beginning in the 1850s, Sax established a publishing house in Paris (according to Bruce Ronkin, this business was started in the late 1850s and lasted into the 1870s[80]) to help promote his new instrument by producing a solo repertory for it. Sax issued at least thirty-five works for saxophone with piano accompaniment. These pieces offer a revealing and underestimated resource for performers today. As Sax was teaching the saxophone at the Paris Conservatoire, and needing to provide adequate repertoire for its emblematic *solos de concours* competitions, he established Chez Adolphe Sax to commission composers to write for his instrument. The majority of these works were composed for the Paris Conservatoire's *solos de concours* and served as well to bring attention to Sax's new instrument.

The seven composers who contributed to this body of works were Joseph Arban (1825-1889), Friedrich Baumann (identity is unclear, according to Ronkin – pg. 30), Léon Chic (1819-1916), Jules Demersseman (1833-1866), Hyacinthe Klosé (1808-1880), Jean-Nicholas Savari (1786-185x[81]), and Jean Baptiste Singelée (1812-1875). Bruce Ronkin's exhaustive search for original manuscripts of these 35 works for saxophone and piano led to the discovery that eleven do not exist in their original form.[82] The works of Baumann, for example, have not yet been

[80] Bruce Ronkin, *The Music for Saxophone and Piano*, 8
[81] According to Ronkin, Savari's death date is obscured between various sources.
[82] Three of these works have been found in their original form by the author, thanks to the assistance of the *Biblioteque de Nationale de Paris.*

uncovered. Ronkin's dissertation contains biographical information about these composers and their respective compositional styles.

Before the publication of these works, little is documented about what repertoire was being performed when the instrument was being showcased at exhibitions and fairs. Sax himself played his instruments to promote them and demonstrate their capabilities to composers and audiences as early as 1839. Hector Berlioz, an avid supporter and promoter of the saxophone, allowed Sax to use his *Chant Sacre* in an arrangement for an ensemble that included Sax's saxophone in 1844.[83] This arrangement was sadly lost, or never written down for publication.

Using a similar analytic process adopted by Ronkin in his dissertation, the following section deals with the three lesser known works in the repertory that were not dealt with in Ronkin's work, as they were previously unobtainable. It is particularly notable that the form used in each of these compositions is theme and variations, used in different ways by each composer. The use of this form is reminiscent of some of the clarinet compositions of Carl Maria von Weber (1786-1826), whose use of it and other virtuoso variation forms proved popular well into the nineteenth century. Weber applied his experience with opera to his writing for instruments and his clarinet works in this genre were well-known. This link with the clarinet repertoire heritage and the influence of opera certainly carried through to the saxophone, as shown in the forthcoming analysis of three lesser-known works published by Sax. Thanks to the help of the *Biblioteque de Nationale de Paris*, I have acquired scanned images of the original publications I consider here.

[83] Stephen Cottrell, *The Saxophone*, 104.

Three lesser-known works considered

Jules Demersseman's "Premier Solo pour Saxophone Alto Mi♭"

Instrumentation: E-flat alto saxophone and piano

Written saxophone pitch range: c^1 - e^3

Saxophone dynamic range: *p* - *ff*

Piano dynamic range: *pp* - *ff*

Premier Solo was sold through Sax's publishing house in Paris in 1866. The listed price for the work is 5 francs, and the publisher adds that it was performed at the Paris Conservatoire competition in the same year. The dedication on the cover page is to a *Monsieur Staps*, the chief of staff in the music division of the Guides Regiment in Belgium. No more biographical information could be found.

The work is in theme and variations form, with an introduction played by saxophone and piano. The work opens in common time with a solo piano *allegro* passage of 7 bars consisting of a syncopated falling chromatic line in the right hand with a tremolo on what seems to be the tonic in the left hand but ends up being the dominant chord of E-flat minor. Following this, an *andante* section begins, comprising a recitative by the alto saxophone in the home key of E-flat minor, including a *piu vivo* marking in the fourth bar of the section.

The next section is marked *andantino* and serves as the theme in E-flat major. This theme comes after the relatively free introductory section described before. The section ends with a short saxophone cadenza, after which both instruments conclude in the tonic (E-flat major) with an arpeggiated cadence. The final section is a variation on the original theme, and is marked

allegretto piu vivo, now in compound time and in A-flat major, ending with a short *presto* section reiterating the tonic and dominant chords to conclude with a strong cadence.

Interestingly, the composer chooses to write the opening with the same key signature as the transposed saxophone part. Where necessary, the composer adds accidentals to fulfill the correct key of E-flat minor. This only happens in the *allegro* opening and *andante* section. Beginning with the *andantino*, the key signature is printed correctly for the remainder of the work.

Demersseman's expressive markings deserve particular attention due to the implications they have on the sound. The first, *Récit.*, is the first material played by the saxophone and is a direct reference to the operatic vocal style. The lack of specific rhythmic material in the piano accompaniment at this point and the tremolo between E-flat and G-flat under the saxophone part indicate that the soloist is at liberty to take considerable time. In the second bar of the saxophone part, the composer includes a *crescendo* to *fz* with a range from the lowest note in the work to the penultimate highest. This extreme range and dynamic variation provide the performer with an indication of the quality of the desired sound very early in the piece.

In the third bar of the *andante* section, in the saxophone part, the composer's direction is *piu vivo*, with rising staccato sixteenth notes followed by falling slurred eighth notes. Towards the end of the *andante* section in the same part, Demersseman adds a descending chromatic passage marked *doucement* (meaning gently or soft).

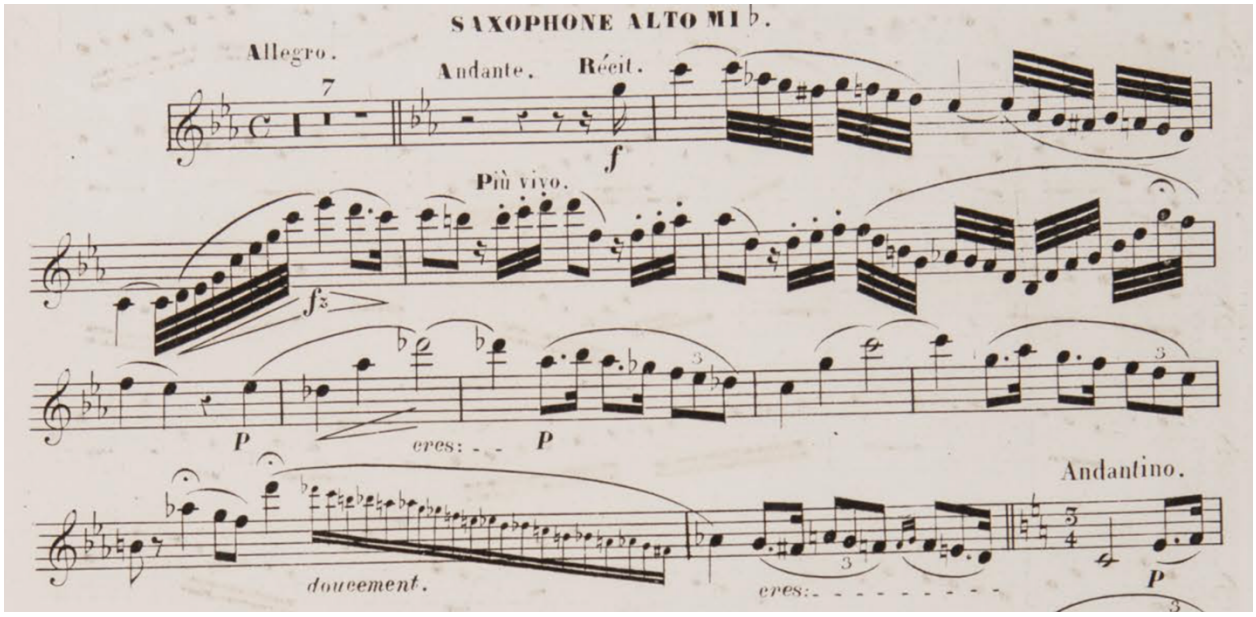


Figure 4: Opening of Demersseman's Premier Solo for also saxophone and piano, saxophone part. The low B in the last bar of the second staff should include a natural sign.

The *andantino* is interesting in terms of dynamic contrasts. The theme starts as a pickup to the second bar in the saxophone part, and is marked *piano*, with *crescendi* and *decrescendi* that follow the contour of the melodic line. There are several instances where abrupt *forte* markings are found, indicating a desire from the composer to have these sections stand out dramatically, as might occur in the operatic culture. In the tenth bar of this section, the composer adds the expression *passionato* to an upper register passage in the saxophone part, which is placed directly after a *forte* lower register figure (see illustration.) This register change is significant, and naturally produces a different tonal color without much manipulation required of the performer.

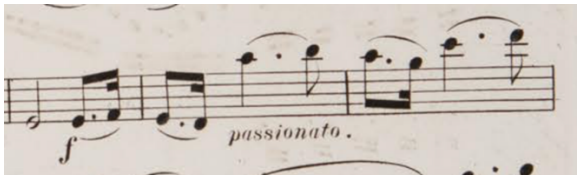


Figure 5: From Demersseman's Premier Solo for alto saxophone and piano, saxophone part.

In the *allegretto* section, Demersseman includes hairpin-style *crescendo* and *decrescendo* on the ascending melodic lines, adding to the lilting nature of the compound time signature. In the *Piu vivo* section, the composer adds an alternative technical passage that is more challenging to execute on a period instrument, due to the register change over the dual octave mechanism switch. The ending is similarly challenging on a period saxophone, due to the changeover between the octave keys in simple-looking scalic passages.

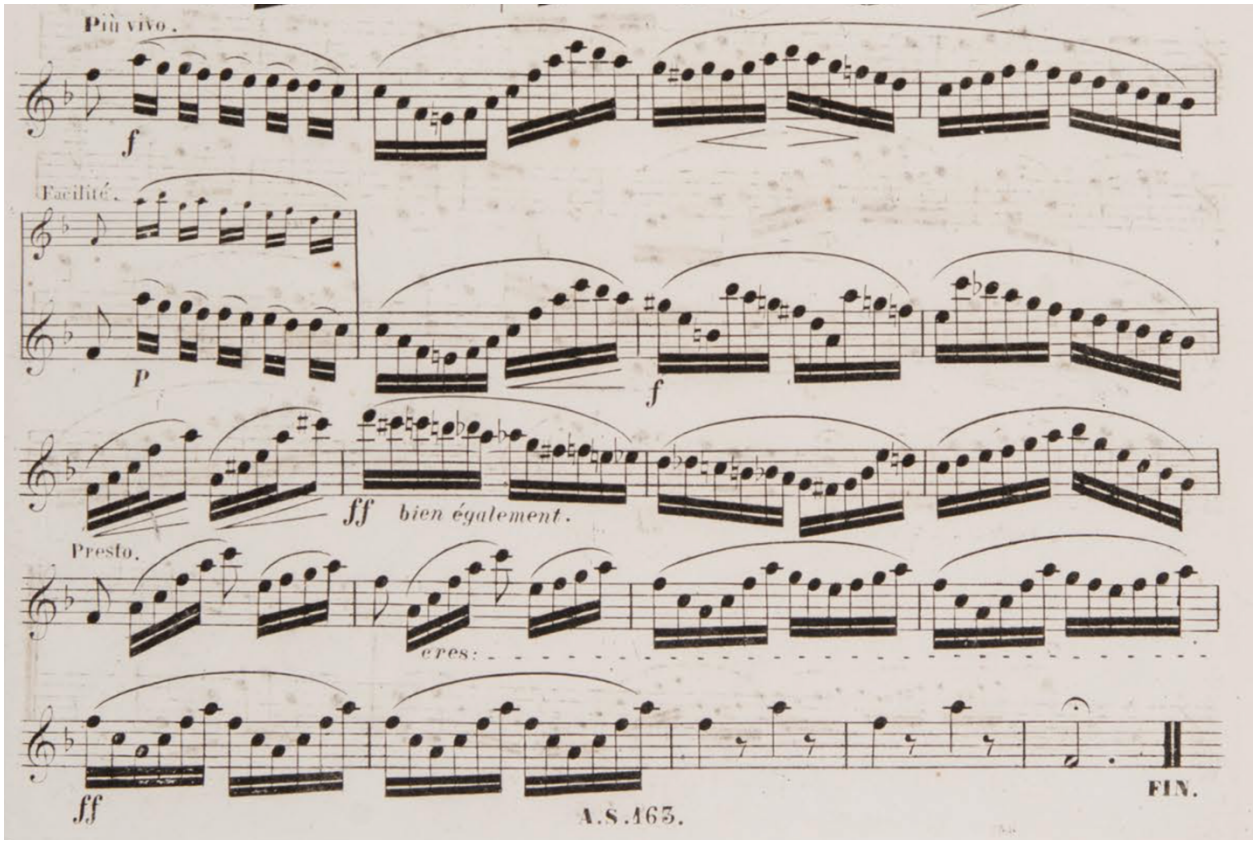


Figure 6: The finale of Demersseman's Solo for alto saxophone and piano, saxophone part.

Hyacinthe Klosé's "Solo pour Saxophone Alto mi♭"

Instrumentation: E-flat alto saxophone and piano

Written saxophone pitch range: c^1 - f^3

Saxophone dynamic range: *ppp* - *ff*

Piano dynamic range: *pp* - *ff*

Dedicated to Adolphe Sax, Klosé's friend (assumed based on the cover dedication), this *Solo* was listed in the publisher's catalog in 1858. The listed price for the publication is illegible on the scanned image obtained by the author.

The work is composed in theme and variations form, with an extended introduction that is much like many *fantaisies* that were typical of the time. Klosé opens with an *andante* section played by the piano initially in the tonic key of E-flat major, and then taken over by the saxophone with piano accompaniment in the same key. Following a brief *A piacere* cadenza by the saxophone, the *andante* continues with both instruments playing.

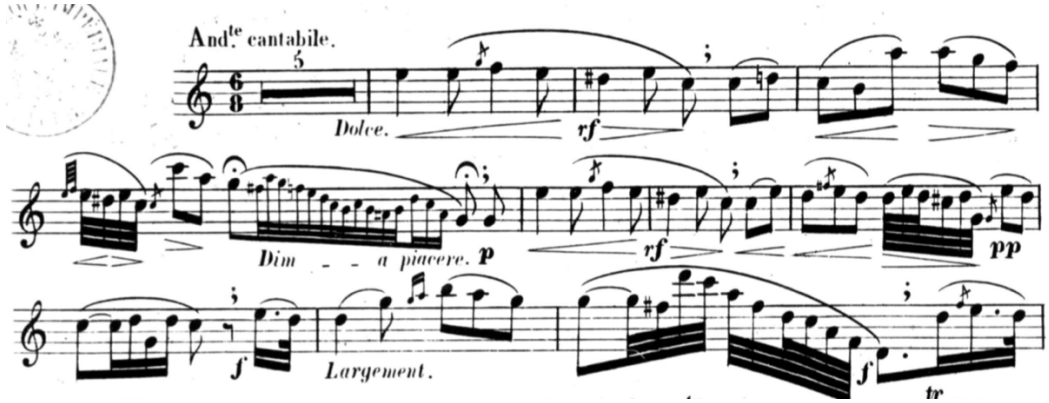


Figure 7: Klose's Solo, opening, saxophone part

In bar 14, the tempo indication changes to *largement*, and the rhythmic subdivision in the piano accompaniment becomes smaller (from eighths to sixteenths). Towards the end of this section, the saxophone is given a cadenza once again, with a long *fermata* concluding it. What follows is the *andante* section reprised with sixteenth notes in the piano accompaniment. The

next section starts with a change in time signature, from 6/8 to 2/4, and is an *allegro*. After this section, Klosé introduces another *Largement*, this time in 2/4 but with triplet eighth notes, reminiscent of the opening 6/8 feel. This feel changes when the piano takes over the melody while the saxophone plays sixteenth notes described as *Légèrement*, bringing the listener back to 2/4. A reprise of the 2/4 feel melody in the saxophone part marked *poco piu lento*, and an exciting finale marked *piu animato* closes the work.

The opening piano introduction sets the *andante* tempo, after which the solo saxophone enters with a *piano* dynamic marking. In this opening, the saxophone part includes crescendi and decrescendi that shape the phrase, whereas the piano part merely includes a *piano* marking with accents where the phrase climaxes. Within four bars, the saxophone part becomes a cadenza, with the expression marking *a piacere*. In addition, Klosé uses the *rf* instruction to reinforce the climax of the phrase in the saxophone part, but not in the piano accompaniment. The composer utilizes terraced dynamics in the opening, and in bar 14 the expression mark that accompanies a *forte* dynamic in both instruments is *Largement*. When the theme is introduced in the 6/8 feel again in bar 24, the expression is *dolce*, and the music proceeds in a similar fashion with markings like *rf* and *a piacere.* In the 2/4 section, the saxophone interjects with a *Lento* marking, followed by a series of *fermatas* in recitative style. The composer specifies that one phrase should be played in this style by including the expression *Récit.* At the end of the work, the saxophone part is marked *piu animato*, as the arpeggiated figures continue to intensify towards the end.

The opening of the work is in E flat major and modulates to A flat major in the 2/4 *allegro* section. Both these keys are very comfortable on the saxophone (C and F major respectively) and provide the performer with maximum control and apparent ease of key work.

However, on a period instrument several passages are challenging due to the dual octave mechanism, making even the simplest arpeggiated figure a challenge to execute.

Jean-Baptiste Singelée's "Fantaisie Pastorale pour le saxophone en si♭"

Instrumentation: B-flat saxophone and piano

Written saxophone pitch range: c^1 - e-flat^3

Saxophone dynamic range: *pp - f*

Piano dynamic range: *pp - f*

Jean-Baptiste Singelée's *Fantaisie Pastorale* was published in 1858 for General Émile Mellinet (1798-1894) of the French army and was listed for 7.50 francs at the time of publication.

The work is in a similar form to Klosé's *Solo,* and is more explicitly labeled by the composer as theme and variations. The introduction is an *andantino* and opens with an arpeggiated piano figure, followed by a similar figure in the saxophone part in 9/8, consistent with a traditional *pastorale*, referring to something of a pastoral nature. When the solo section starts, the saxophone part is marked *dolce*. Interestingly, Singelée indicates echoes many times in the saxophone part, even though the dynamic indications suggest it.

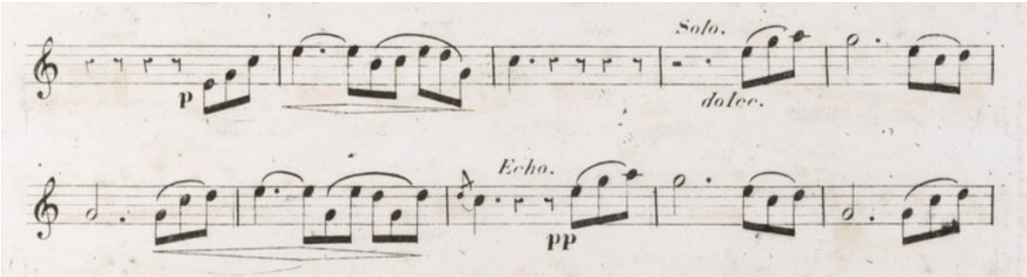


Figure 8: Singelée's Fantaisie Pastorale, saxophone part.

Next, the *allegro* section starts in common time. This section is short and ends with a cadenza in the saxophone part, marked *a piacere* in the piano part. When the theme is introduced next, the time signature changes to ¾ and the tempo parking is *allegretto*. The saxophone part is marked *dolce*. Next, the first variation is presented in triple time, with the saxophone part marked *espressivo.* The next section is marked *Andante*, with *dolce* in the saxophone part again. After a cadenza section, the next sections starts with an *Allegretto* in 2/4 time. In the last section of the work, the indication in the saxophone part is *loure*, a French Baroque gigue. In the finale section, the composer includes a challenging technical passage for the saxophonist to execute, which is essentially a variation on the simple theme, but using complex register changes that require considerable skill from the performer.

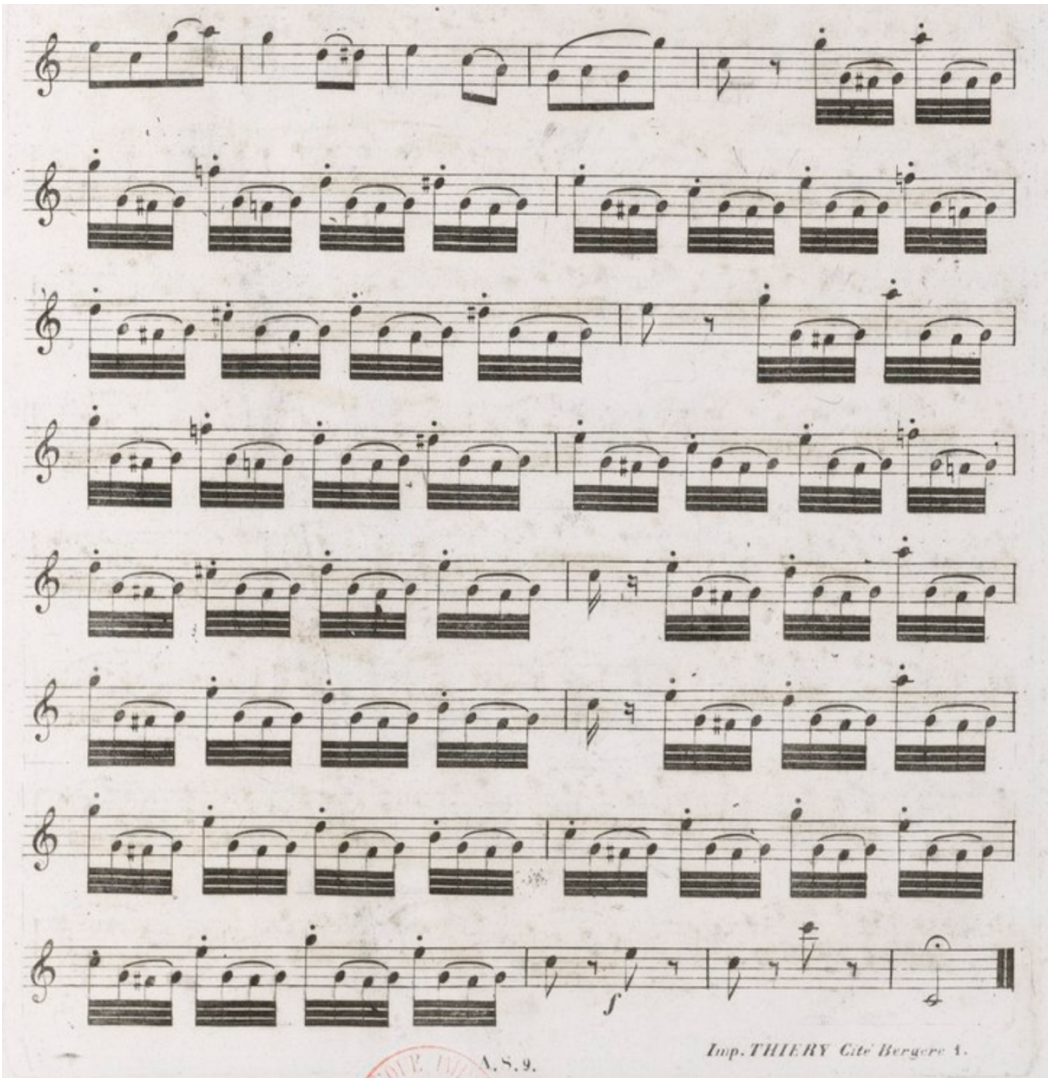


Figure 9: The finale section of Singelée's Fantaisie Pastorale, saxophone part.

The tonality of the piece starts in B-flat major and remains in this key until the *andante* section, where the composer modulates to A-flat major. When the *allegretto* section starts, the composer returns to the home key of B-flat major through the end of the piece.

My recorded performance: A blend of old and new

My desire to make an historically informed recording of the repertory in question started with my recording selected works on a modern instrument with piano. The challenges associated

with this project really began when I first played on an original Adolphe Sax alto saxophone from 1867, which I obtained on loan from Nick Rail,[84] who keeps the instrument in his private collection.

My first challenge was ergonomic. Sax designed the crook of the instrument with a greater angle from the body than a modern instrument, which means the neck strap needs to be shorter, and the angle of playing is greater than on a modern instrument. It also means that the arms need to be positioned higher, resulting in a less-than-desirable posture.

Once the performer overcomes this obstacle, the next challenge involves the keys. The earliest saxophones made by Sax include two octave keys, as opposed to modern instruments that have only one key to operate both octave vent mechanisms. In practice, the saxophonist is required to apply the first octave key when changing register from C#2 to D2, and then change the application to the second octave key when changing from G#2 to A2. The latter changeover is the more problematic one, as even the most straightforward scalar passage can be challenging for the performer to execute. Rail writes the following in observation of his own 1867 Adolphe Sax saxophone:

> The range on this alto just extends down to low B (standard for the day and hence the short bell), but does go all the way up to high F. Key pearls weren't in use yet, nor were rollers on the low Eb, C and bell keys. There was no side F#, bis, or front F key; no articulated G# or one-and-one Bb. The automatic octave was quite a few years away: the double key system had a spatula to the left to open the octave vent in the body for fourth line D through G# and one to the right to open the octave vent on the neck for A through high F.[85]

[84] Nick Rail lives in Santa Barbara and is president of Nick Rail Music. Mr. Rail has a private collection of instruments that includes an 1867 Adolphe Sax alto saxophone.
[85] Nick Rail, "Adolphe Sax Alto Saxophone" nickrailmusic.com. https://www.nickrailmusic.com/t-adolphesax.aspx (accessed May 22, 2019).

Aside from the keywork, the material used to make the instrument is undoubtedly lighter in weight than a modern instrument. As noted by Debecq, the brass used in Sax's day was thinner than modern instruments' materials, resulting in different sound quality (darker and more intimate) than modern instruments.[86] The instrument I had access to had pads dating to the 1920s, which closely replicated the pads used in Sax's original design. As a result of these older pads, the keys required more forceful depression in order to sufficiently perform on the instrument. Despite these factors, my work with the instrument revealed valuable insights for me as I compared it with my modern instrument. As a result, I have recorded selected repertoire on the instrument to accompany this dissertation. To compare, I have recorded the same repertoire on a modern instrument with piano.

[86] Christian Debecq, Program notes to *A Tribute to Sax*, CD.

Conclusion

The incompletely known history of the saxophone has led to a lack of appreciation of its early repertoire, and the neglect of early sound concepts that were appealing (and still are) to audiences. Adolphe Sax invented the saxophone to provide a new palette of sounds in the orchestral and military band world. This palette combined the power of brass with the finesse and agility of woodwinds. In terms of its sonic capability, it became arguably the most versatile instrument in the woodwind and brass families.

Although mechanical advancements have been made since the 1846 patent filed by Sax, the essence of the instrument has not changed as it relates to sound production. The instrument that Berlioz fell in love with held the same sonic characteristics, despite the more primitive keywork that made the instrument more challenging to master. Early pedagogues and performers were excelling in mastering the instrument, as evidenced by the numerous virtuosos who excited audiences worldwide. While we are able to hear only a few of these influential soloists through early recordings, the performance traditions set by them and their predecessors are reaffirmed by their successors who have studied their contributions.

The history of woodwind vibrato, let alone saxophone vibrato, is rarely explored, and is still a controversial source of contention among scholars. This is particularly the case with modern concert saxophonists, who default to the assumption that nineteenth-century works for saxophone ought to be performed using modern vibrato. Modern concert saxophonists rarely explore the sonic possibility of playing without vibrato, as evidenced by modern recordings of notable artists who have canonized the regular use of vibrato in nineteenth-century music as an expressive tool to supplement the timbre of the saxophone. Arno Bornkamp is the exception,

along with a few other artists like Claude Delangle and Christian Debecq. Bornkamp's historically informed performance disc of the nineteenth and early twentieth-century concert music for the saxophone may prove to be a turning point in the way vibrato is used or omitted with this repertoire.

While the repertoire published by Sax does not explicitly provide instruction about sound production methods, the study of its musical content illuminates the expectations of the composers, based on what their imagined sound profile was. The modern saxophonist can benefit from the knowledge that vibrato was an ornamental addition to the sound and not a continuous characteristic. Also, in terms of the sound of the nineteenth-century saxophone, much can be learned by playing on period instruments. Albeit challenging to emulate on modern instruments, the color palette these period instruments produces provides valuable information when performing the repertoire published by Sax. By learning more about the history of the early saxophone, and particularly about the way in which performers produced sound, the repertoire of the early saxophone can be performed to its fullest potential.

In conclusion, early saxophonists performed with a darker, smaller, lighter sound, as a result of the design of early instruments. The fundamental technique of the instrument did not include continuous vibrato, and performers produced sound in the same manner as modern performers, in terms of embouchure, breathing and articulation.

Appendix 1 – List of works published by Sax for saxophone and piano accompaniment

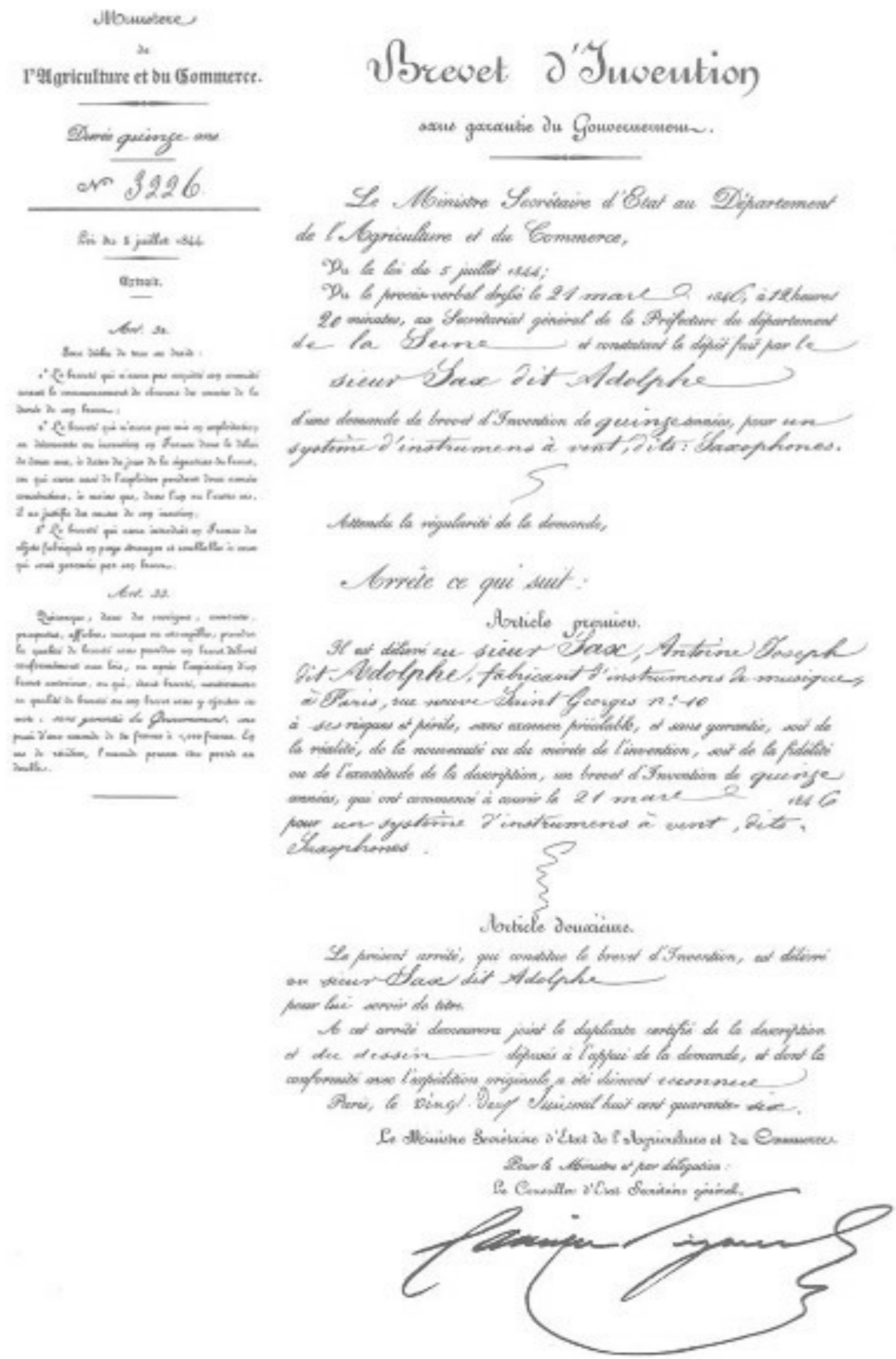
The table below lists all known works published for saxophone and piano accompaniment by *Chez Adolphe Sax.* Compiled from Bruce Ronkin's dissertation, *The Music For Saxophone And Piano Published By Adolphe Sax*, and updated based on new information obtained by the author.

Composer	**Title and Instrumentation**	**Year**	**Dedication**
Joseph Arban	*Caprice et variations (Asx/Pno)*	1861	Adolphe Sax
Friedrich Baumann	*Fantaisie* (Asx/Pno)		
	2e solo (Asx/Pno)		
Léon Chic	*Solo sur la Tyrolienne* (Asx/Pno)	c. 1850	Adolphe Sax
Jules Demersseman	*Premier solo* (Bsx/Pno)	1866	Joseph Xavier, Victor Bosch
	Premier solo andante et bolero (Tsx/Pno)	1866	Ch. Panne
	Premier Solo (Asx/Pno)	1866	Monsieux Staps
Hyacinthe Klosé	*Solo* (Eb Sx/Pno)	1858	A son ami Ad. Sax
Jean-Nicholas Savari	*Fantaisie sur des motifs du Freyschutz* (Asx/Pno)	1855	A. Auroux
	1re fantaisie (Asx/Pno)		
	2e fantaisie sur un theme original (Asx/Pno)	1861	le Colonel Pinard
	3e fantaisie sur un theme original (Ssx/Pno	1862	J. B. Singelée

Jean-Baptiste Singelée	*Fantaisie sur La Somnambule,* Op. 49 (Bb Sx/Pno)		
	Fantaisie, Op. 50 (Bb Sx/Pno)	1858	le Général Fleury
	Fantaisie sur un theme Suisse, Op. 51 (Eb Sx/Pno)		
	Duo concertante, Op. 55 (Ssx/Asx/Pno)	1861	Georges Kastner
	Fantaisie pastorale, Op. 56 (Bb Sx/Pno)	1858	Le General Mellinet
	Concerto, Op. 57 (Bb Sx/Pno)	1859	le Général, Comte de Rumigny
	Fantaisie, Op. 60 (Bsx/Pno)	1859	La Marquise de Contades
	Adagio et rondo, Op. 63 (Tsx/Pno)	1861	Boquillon
	Souvenir de la Savoie, Op. 73 (Ssx/Pno)	1861	Ernest Mareuse
	Solo de concert, Op. 74 (Asx/Pno)	1861	H. Litolff
	Fantaisie brillante, Op. 75 (Tsx/Pno)	1861	Jacques Mathieu
	Solo de concert, Op. 77 (Bsx/Pno)	1861	Sax Père
	Concertino, Op. 78 (Asx/Pno)	1861	Jules Demeur
	Caprice, Op. 80 (Ssx/Pno)	1862	Elwart
	3e solo de concert, Op. 83 (Bsx/Pno)	1862	Edouard Monnais
	4e solo de concert, Op. 84 (Bsx/Pno)	1862	Savari
	Fantaisie brillante sue un theme original, Op. 86 (Asx/Pno)	1862	Limnander de Nieuwenhove

Jean-Baptiste Singelée	*Fantaisie,* Op. 89 (Ssx/Pno)	1864	Colblain
	5e solo de concert, Op. 91 (Asx/Pno)	1864	Sellenik
	6e solo de concert, Op. 92 (Tsx/Pno)	1864	H. Klosé
	7e solo de concert, Op. 93 (Bsx/Pno)	1864	Charles Sax, Fils
	8e solo de concert, Op. 99 (Bsx/Pno)		
	9e solo de concert, Op. 100 (Tsx/Pno)		
	Fantaisie, Op. 101 (Tsx/Pno)		
	Fantaisie, Op. 102 (Ssx/Pno)	1865	Paulus

Appendix 2: The handwritten pages of Adolphe Sax's patent of 1846



Ministère de l'Agriculture et du Commerce.

Durée quinze ans

N° 3226

Loi du 5 juillet 1844.

Extrait.

Art. 32.

[illegible]

Art. 33.

[illegible]

Brevet d'Invention

sans garantie du Gouvernement.

Le Ministre Secrétaire d'État au Département de l'Agriculture et du Commerce,

Vu la loi du 5 juillet 1844;

Vu le procès-verbal dressé le 21 mars 1846, à 12 heures 20 minutes, au Secrétariat général de la Préfecture du département de la Seine et constatant le dépôt fait par le sieur Sax dit Adolphe

d'une demande de brevet d'Invention de quinze années, pour un système d'instrumens à vent, dits: Saxophones.

Attendu la régularité de la demande,

Arrête ce qui suit:

Article premier.

Il est délivré au sieur Sax, Antoine Joseph dit Adolphe, fabricant d'instrumens de musique, à Paris, rue neuve Saint Georges n.° 10 à ses risques et périls, sans examen préalable, et sans garantie, soit de la réalité, de la nouveauté ou du mérite de l'invention, soit de la fidélité ou de l'exactitude de la description, un brevet d'Invention de quinze années, qui ont commencé à courir le 21 mars 1846 pour un système d'instrumens à vent, dits, Saxophones.

Article deuxième.

Le présent arrêté, qui constitue le brevet d'Invention, est délivré au sieur Sax dit Adolphe pour lui servir de titre.

A cet arrêté demeurera joint le duplicata certifié de la description et des dessins déposés à l'appui de la demande, et dont la conformité avec l'expédition originale a été dûment reconnue.

Paris, le vingt-deux Juin mil huit cent quarante-six.

Le Ministre Secrétaire d'État de l'Agriculture et du Commerce.

Pour le Ministre et par délégation:

Le Conseiller d'État Secrétaire général,

Mémoire descriptif déposé à l'appui de
la demande d'un Brevet d'Invention de quinze
ans par Mr Antoine Joseph (dit Adolphe) Sax
fabricant d'instruments de musique demeurant
à Paris rue neuve St Georges No 10 à Paris &
élisant domicile à l'effet des présentes chez
Mr Papigna avocat 10 rue neuve St Augustin
pour un nouveau système d'Instruments à
vent dits Saxophones.

Exposé

Original. On sait que, en général les instruments à vent
sont ou trop durs ou trop mous comme sono
rité ; c'est particulièrement dans les basses que
l'un ou l'autre de ces défauts est le plus sensible.
L'Ophicléide, par exemple, qui renforce les
trombones, produit un son d'une nature si désa
gréable qu'on est obligé de le bannir des salles
fermées, faute d'en pouvoir modifier le timbre
Le basson, au contraire, rend un son si faible
qu'on ne peut l'employer que pour des parties
de remplissage & d'accompagnements ; ou
encore pour des effets particuliers d'orchestration
dans les *Forte*, il est parfaitement inutile.
Il faut remarquer que ce dernier instrument est
le seul qui se marie avec les instruments à
cordes.

Il n'y a que les instruments à vent en cuivre
dont l'effet soit satisfaisant en plein air ; aussi
l'harmonie composée de ces instruments est-elle
la seule combinaison d'orchestre qu'on puisse em
ployer dans de pareilles circonstances.

Quant aux instruments à cordes, tout le
monde sait que, en plein air, leur effet est
nul à cause de la faiblesse du timbre ; ce
qui rend leur emploi presque impossible dans
de semblables conditions.

Frappé de ces divers inconvénients j'ai cherché
le moyen d'y remédier en créant un instrument
qui, par le caractère de sa *voix*, put se

1er rôle [illegible]

rapprocher du instrumentr à cordes, mais qui possédât plus de force et d'intensité que ces derniers. Cet instrument c'est le saxophone Mais j'ai encore autre le saxophone est susceptible de modifier ses sons afin de leur donner les qualités qui viennent d'être mentionné et de leur conserver une égalité parfaite dans toute leur étendue : Je l'ai fait de cuivre et en forme de cône parobolique. Le saxophone a pour embouchure un bec à anche simple dont l'intérieur très évasé va en se rétrécissant à la partie qui vient s'adapter au corps de l'instrument.

— Description et nomenclature des divers individus de la famille des saxophones. —

N° 1. Saxophone en mi♭ ténor tout fermé : si en mi♭ fait ré♭ en ut.

N° 2 Saxophone en ut, descendant en si♭ dans son ton.

Le même instrument se fait aussi en si♭ et descend par conséquent en la♯ qui fait si♭ dans le même ton.

N° 3 Saxophone en sol contrebasse ; on peut aussi le faire en la♭

N° 4 Saxophone en ut Bourdon, on peut aussi le faire en si♭ (un ton plus bas)

Les saxophones N° 5, 6, 7 et 8 sont dans les mêmes tons que les précédents à octave supérieure

Doigtés.

N° 1. Le doigté de cette partie participe de la flute et de la clarinette, on peut aussi leur appliquer tous les doigtés possibles en usage Tout fermé ré♭ en ut.

1. Clef d'ut ouverte. — 2 ut♯ — 3 ré — 4 ré♯ — 5 mi — 6 fa. — 7 fa♯. 8 sol. — 9 sol♯. 10 la. — 11 la♯. 12 si. — 13 ut. — 14 ut♯. 15 ré — 16 clef pour octavier la première partie de l'instrument — 17 ré♯ — 18 mi — 19 fa — 20 clef pour octavier la seconde partie de l'instrument. —

N° 2. Tout fermé si♭ = 1. si ♮ = 2 ut # 3 ut #
4 ré = 5 ré #. = 6 mi = 7 fa. = 8 fa # = 9 sol
10 sol # = 11 la = 12 la # = 13 si = 14 ut =
15 ut # = 16 ré 17 ré # = 18 clef pour octavier
chromatiquement la première quinte de
l'instrument. = 19 clef pour octavier une
partie des notes suivantes. ——
20 clef pour octavier le reste des notes
suivantes, autrement dit pour produire les
sons les plus élevés de l'instrument. —

Description du Bec

N° 9 Bec du saxophone basse. Les autres becs
sont dans les mêmes proportions, on peut toute-
fois les faire un peu plus petits ou plus forts
si on le desire.

Fait à Paris le 20 mars 1846. —

Approuvé deux mots rayés nuls —

[illegible signature] Adolphe Sax

~~Vu pour être annexé au Certificat d'addition pris le 184 par~~

~~Paris, le 184~~

~~Pour le Ministre & par délégation~~

~~Le Conseiller d'État, Secrétaire Général~~

— un rôle
quinze lignes
— sans renvoi.
Deux mots nuls

Vu pour être annexé au Brevet
de quinze ans, pris le 21 mars 1846
par le sieur Sax dit Adolphe

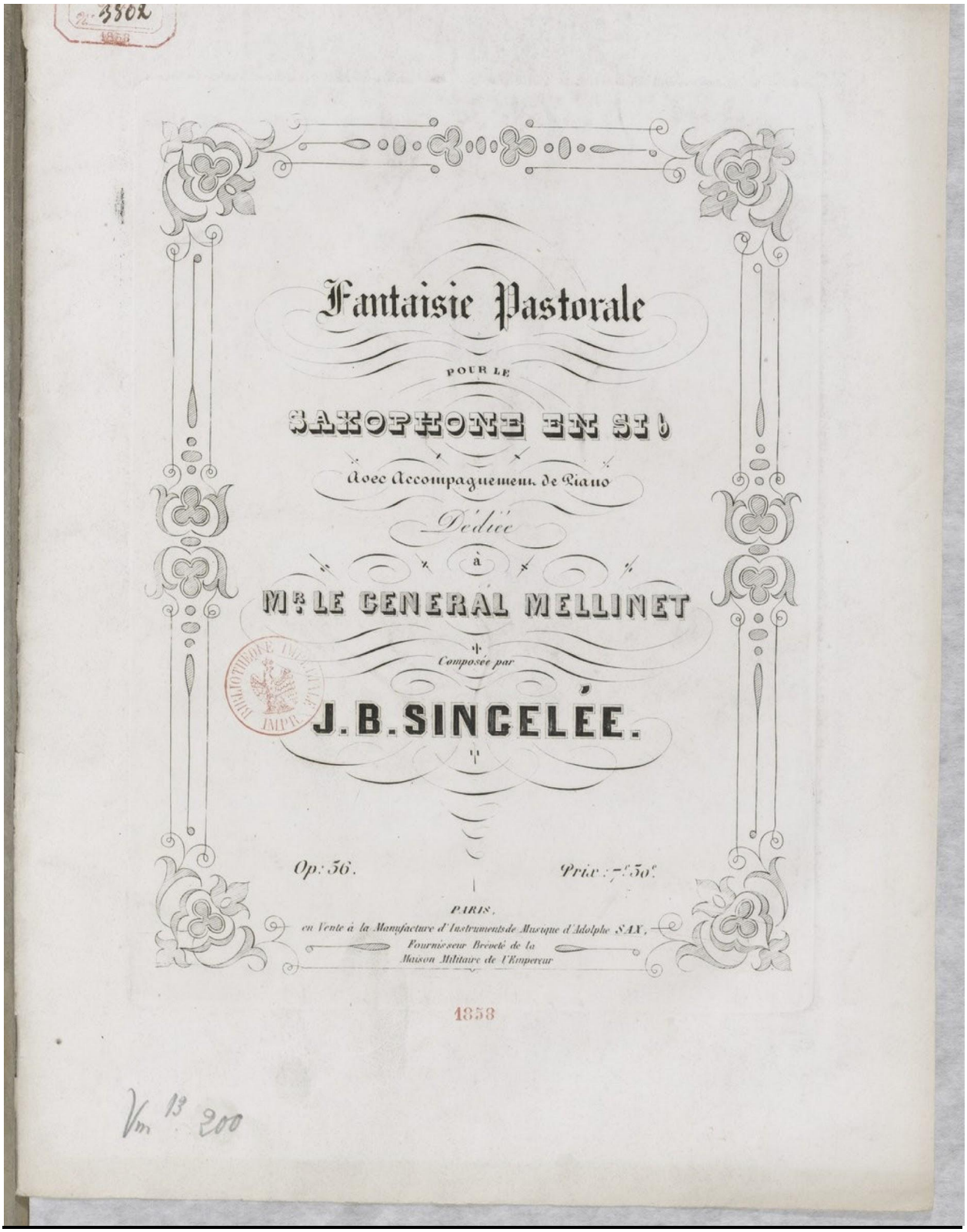
Paris le vingt deux Juin 1846

Pour le Ministre & par délégation,

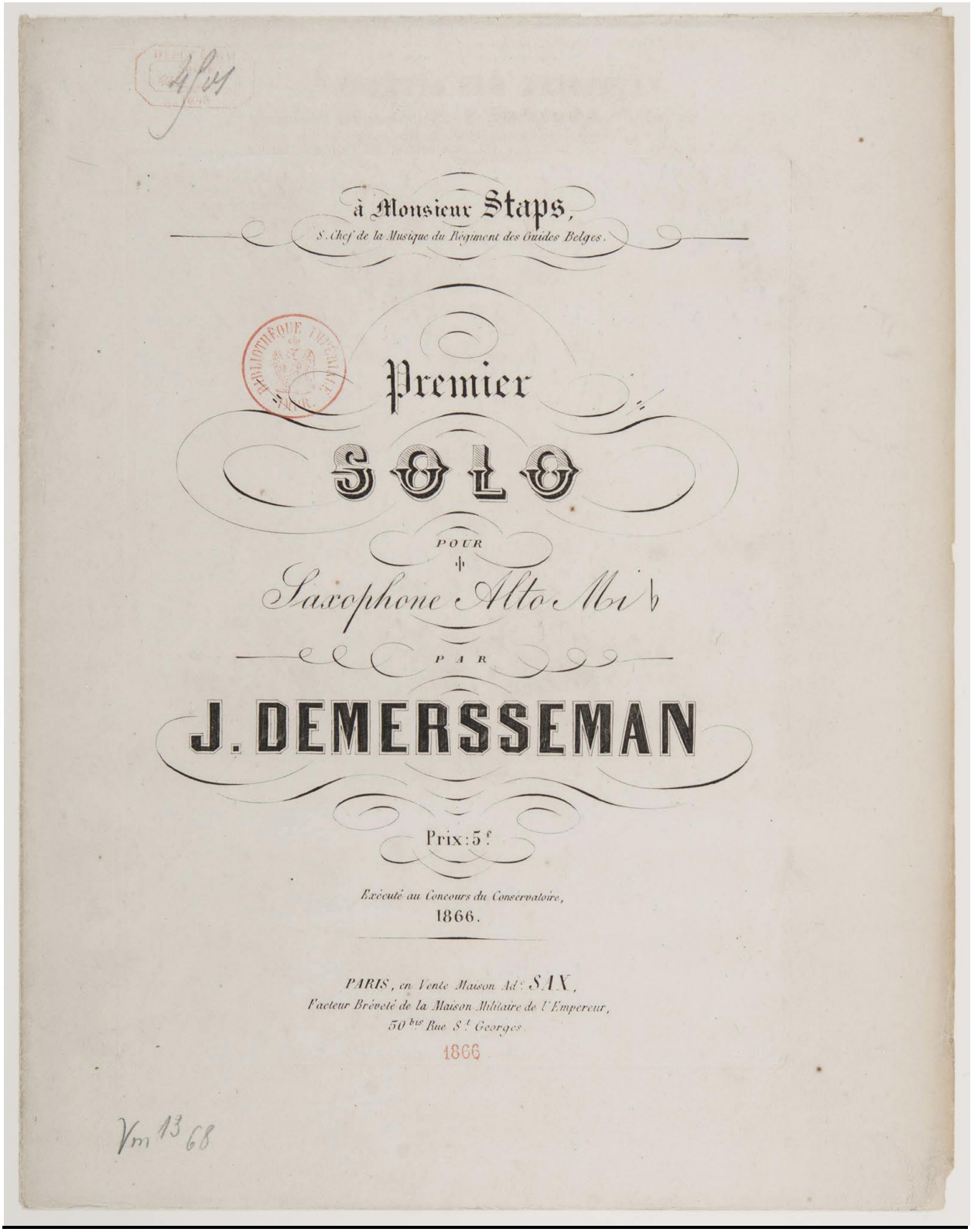
Le Conseiller d'État, Secrétaire Général

[illegible signature]

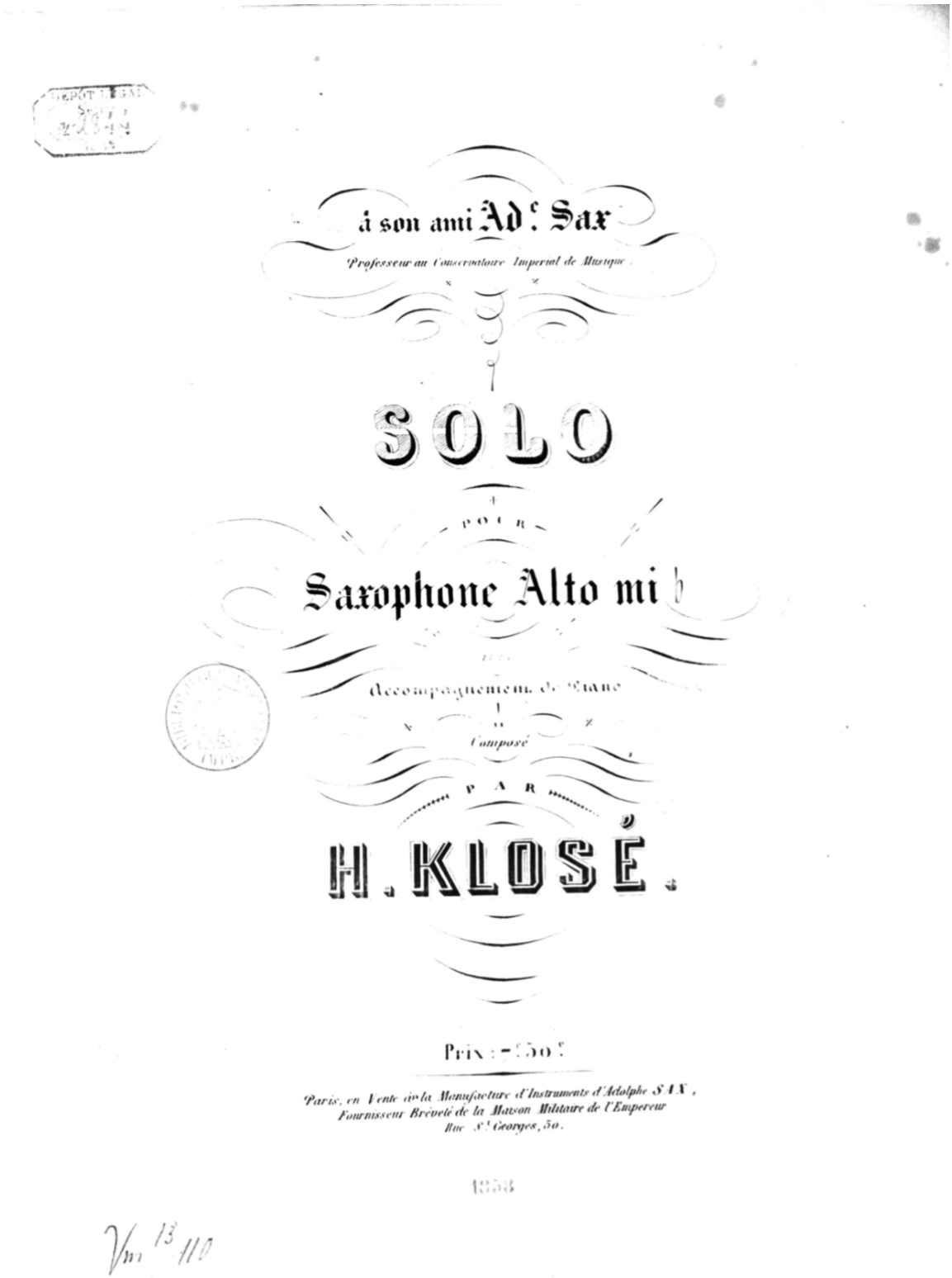
Appendix 3: Cover - J. B. Singelée's *Fantaisie Pastorale* for soprano saxophone and piano



Appendix 4: Cover - Jules Demersseman's *Premier Solo* for alto saxophone and piano



Appendix 5: Cover – Klose's *Solo* for alto saxophone and piano



Appendix 6: Details about the accompanying recordings

Audio 1: Recording of Demersseman's *Fantaisie* on 1867 Adolphe Sax saxophone.

Audio 2: Recording of Demersseman's *Fantaisie* on 2014 Selmer Paris saxophone.

Audio 3: Recording of Savari's *2ème Fantaisie* on 1867 Adolphe Sax saxophone.

Audio 4: Recording of Savari's *2ème Fantaisie* on 2014 Selmer Paris saxophone.

This dissertation is accompanied by four audio files (a period and a modern recording of 2 works.) *Fantaisie pour Saxophone en mi bémol* by Jules Demersseman was not published by Chez Adolphe Sax but by S. Richault in Paris. *2ème Fantaisie Sur Un Theme Original* by Jean-Baptiste Savari was published in the Chez Adolphe Sax catalogue. Both works were first recorded on February 26th, 2019 in the Mo Ostin Recording Studio at the UCLA Herb Alpert School of Music in isolated booths on a 2014 Henri Selmer Paris Serie III alto saxophone. The pianist in the recording is Ms. Irina Bazik.

Due to the limited access to the original Adolphe Sax instrument used for the period recording, a separate recording was made on May 11th, 2019 at Nick Rail Music in Agoura Hills, CA, and mixed with the isolated piano recording from February 26th, 2019. The saxophone used in the final recording in Agoura Hills is from Nick Rail's private collection. This instrument was manufactured in 1867 and bears the serial number 30133. The original mouthpiece has not been retained; therefore, I used a modern Henri Selmer Concept mouthpiece with Henri Selmer Paris reeds. The seal on the neck of the instrument was not re-corked, and therefore the mouthpiece position could not be maintained, resulting in intonation difficulties that are apparent in the accompanying recordings. In addition, Rail has maintained the character of the instrument to the

extent that the pads have not been replaced since the 1920s, making some lower notes challenging to produce, also apparent in the recordings. Despite the limitations, these recordings provide a valuable sonic representation of the sound of the early saxophone.

Appendix 7: Performer's log based on my experience with the period instrument

My first encounter with Mr. Rail's 1867 Adolphe Sax saxophone was encouraging, but challenging in a number of ways from a technical standpoint. The differences between playing a modern and a period instrument are considerable, and after my experience, I would think that a modern performer would require several hours with the period instrument in order to master it. I do not believe performers during Sax's time would have struggled as much as I did, because it was all that they knew.

My first visit with the period instrument was on February 1, 2019, in Agoura Hills, CA. At that stage, I was not aiming to work on the repertoire related to my study, but rather intended to get a feel for the instrument. The posture was a challenge, as my modern neck strap was too long for the angle of the saxophone's crook. Due to this greater angle, the instrument itself needs to be held higher up than a modern instrument would. Initially, I tried the saxophone with my modern mouthpiece and reed and got favorable results, but struggled with intonation and note production in the lower extremes of the instrument. Having read up on the dual octave mechanism, I knew how to change my finger technique appropriately to overcome this challenge, but did not anticipate the distance between the two keys. My left thumb had to move considerably more than I had hoped in order to change notes between registers. I also tried a vintage mouthpiece that was clearly a significant challenge when compared to my modern mouthpiece.

With each subsequent visit the technical challenges of playing the instrument decreased. I started recording sections of repertoire from my study in two subsequent visits with the instrument on April 18, 2019, and May 11, 2019. In the April session, I stuck to the vintage

mouthpiece and was able to get excerpts recorded, but struggled considerably with sound production and intonation. This was due to the cork on the crook not being preserved well. (Understandably, it had not being replaced by the owner so as to preserve the historical integrity of the instrument.) As a result, the mouthpiece was pushed on too far, resulting in an inadequate recording (intonation was too problematic) when paired with the pre-recorded piano accompaniment. In the last visit, I used my modern mouthpiece and a make-shift appendage to the crook in order to keep the mouthpiece from pushing on too far, thus keeping a lower pitch to match the pre-recorded piano's pitch. This visit proved to be far more productive, enabling me to record substantial portions of selected repertoire. The challenges associated with older pads and leaking lower notes were still present, so I had to manipulate the sound somewhat in order to produce lower notes.

Other interesting discoveries I made were related to the keywork and its implications for phrasing. As a result of the time it took to change notes, certain passages required changes in the way I executed phrases. These limitations were mostly due to the dual octave mechanism between G-sharp and A above the staff. Also, having only one option for playing a B-flat instead of multiple as on modern instruments meant that I had to change the way I executed some phrases (the side B-flat key is the only way to produce the note on period instruments.) The recordings that accompany this dissertation represent the summary of my experiences learning to play this interesting instrument, and are by no means polished performances. I believe that with sufficient time on a period instrument, modern performers could successfully perform the repertoire related to this study (and earlier transcriptions) on a nineteenth-century saxophone.

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