PORTFOLIO OF RECORDED PERFORMANCES AND

EXEGESIS:

The Evolution of the Bassoon and its Impact upon Solo Repertoire and Performance

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ABSTRACT

The research investigated the conception of the early bassoon in the late 1600’s and its subsequent development through to the modern day. It explored the technical evolution of the bassoon and its impact upon solo compositions\(^1\) and performance.

The recital repertoire was chosen to demonstrate the changing capabilities of the instrument associated with each evolutionary phase, and to show how an understanding of these changes helps to place accepted modern techniques into an historical context.

The submission consists of two recital CDs which are supported by an exegesis. The exegesis outlines the ways in which the performer’s musical interpretation is enhanced through an understanding of the instrument’s developmental history. It is also a commentary of the musical and technical issues faced by the author whilst preparing and performing the repertoire.

\(^1\)Within this submission the term ‘solo composition’ encompasses bassoon compositions and chamber works within which the bassoon plays a primary performance role.
DECLARATION

This Submission contains no material that has been accepted for the award of any other degree or diploma in any other university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by any other person, except where due reference has been made in the text of the exegesis.

I give consent to a copy of my exegesis, when deposited in the University library, being made available for photocopying and loan.

SIGNED:       DATE:
ACKNOWLEDGEMENTS

The Author would like to acknowledge the wisdom and guidance offered by her principal supervisor, Dr. David Lockett. She would also like to thank associate supervisor Mr. Mark Gaydon for the insightful and inspiring lessons throughout her candidature. Both men have offered constant and professional support throughout the process. The Author would also like to convey gratitude to Assoc. Prof. Kimi Coaldrake, who has also provided guidance and advice whenever it was needed.

Thankyou to the associate artists involved in the recitals: Larissa Schneider (Piano, recital one), Leigh Harrold (Piano, recital two), Sarah McCarthy (Violin), Karen DeNardi (Viola) and Elisabeth McGowran (Cello).

Thank you to Silver Moon for recording both recitals with utmost professionalism.
INTRODUCTION

Throughout the candidature, the research has focused primarily upon the evolution of the bassoon and its effect upon solo repertoire and performance. This exegesis forms a commentary on the process of preparing two one-hour recital programs which are inspired and informed by the research topic.

The paper is divided into 2 sections as follows.

Part One is a discussion of the repertoire. The relevance of each piece to the research area is explained, whilst giving a brief historical background that outlines the state of the instrument at the time of composition. Also discussed are the ways in which the research informed the preparation and performance of each work.

Part Two is a more personal discussion of other issues faced by the author relevant to the preparation and performance of these pieces. It includes a brief overview of skills and insights gained throughout the process.

It must be acknowledged that certain parameters had to be set with regard to the research. The author plays and performs on a German bassoon, so all references to the modern instrument will be to such a bassoon. Not all of the selected repertoire was composed specifically for the German bassoon: some works were composed with the French instruments in mind. Given the relatively small volume of repertoire available for the bassoon and the common modern trend of playing French pieces on German instruments, it was decided to include the French inspired pieces so as not to unduly limit the material for study. The Author concedes that to discuss
only the development of the German system bassoon may be considered a very “one sided” approach, but to delve into the evolution of the French bassoon would take the research beyond relevance to performance on the author’s own instrument. French model characteristics will, however, be discussed when relevant to a particular piece.

It must also be made clear that while this research involves the analysis of literature relating to historical bassoons and the evolution of the instrument, the author herself does not play on a period instrument. The purpose of the research is to align the historical understanding of the instrument to the repertoire of the era, with the goal of contextualising the compositions historically. The knowledge gained can then be transferred to the modern day bassoon, imbuing a performance with a greater understanding of the repertoire and the instrument for which it was written.

The author believes that this research will be of interest to other bassoonists, particularly those who wish to play the selected repertoire. It can additionally serve as a general overview of trends in the evolution of the bassoon and of the solo compositions written for it, so taking on a degree of relevance to all bassoonists.
## Recital Programs

### Recital 1 (CD no.1)

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Andante  
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PART ONE: THE INFLUENCE OF THE RESEARCH ON THE PREPARATION OF THE REPERTOIRE

This section will address the recital repertoire and its relationship to the research focused on the evolution of the bassoon. Each work will be discussed individually, highlighting the state of the bassoon at the time of composition and considering the impact upon performance practice. The pieces will be addressed in chronological order for ease of discussion. Please note that this is different from the program order on the CD recordings.

A. Vivaldi: Concerto no. 6 in E minor F.VIII (CD no. 1 tracks 1-3)

This work is one of Antonio Vivaldi’s most famous bassoon concerti. Vivaldi (1678-1741) contributed remarkably to bassoon repertoire in this early period, as he composed 39 solo concerti for the instrument.¹ Of these, two were dedicated to specific musicians and it is believed that the others were written for the girls in Pieta Orphanage where Vivaldi taught from 1703.² All of the bassoon concerti have been dated by Fertonani as having been composed between 1720 and 1740.³ Given that Vivaldi contributed more concerti for the bassoon than any other single composer, it was therefore considered important to include one of his works within the study. The author chose the E minor concerto because of its considerable technical demands and because of its popularity in competitions and concert programs.

² Waterhouse. Grove, 889.
³ Waterhouse. Grove, 889.
One element that cannot be ignored when investigating Vivaldi’s bassoon concerti is the possibility that they were composed for the dulcian. The dulcian was the bassoon’s predecessor. It was very similar in shape to the bassoon, had a conical u-shaped bore, a small crook and a double reed, but the instrument’s body was made from a single piece of wood. The dulcian was made in five common sizes, but the one that corresponded in size and pitch to the bassoon was known as the “chorist-fagott”. At the time of composition of the *Concerto in E minor*, the bassoon and dulcian were still very much in a phase of overlap and transition (some players were using the new improved bassoon in four pieces, whilst others stayed with the more conventional chorist-fagott). At this particular time, the chorist-fagott would have certainly been the most affordable and accessible instrument for the masses.

Further strengthening the possibility of the composition being created for the dulcian is the fact that only two of Vivaldi’s concerti descend to the note Bb\(^4\) (a note only reached on bassoon) meaning that the rest of the concerti fitted comfortably within the range of the dulcian. Furthermore, all of the concerti were designated ambiguously for “fagott”. The name “fagott” was used for a long time in reference to both the dulcian and the bassoon. However, as this piece was composed when the bassoon was in common use, it can be argued that it was at least intended to be interchangeable between the bassoon and the dulcian. Hence, even though this concerto may have once been performed on the dulcian, it also provides a very accurate portrayal of the very first solo works composed for bassoon.

\(^4\) Refer to Appendix 1 for key to notation of pitch.
The first bassoons had either three or four keys, the first three of which (F, C and E) also appeared on the dulcian. The fourth key was the G# key, which was added around 1700. This four-keyed bassoon would have most likely been the instrument on which most of Vivaldi’s concerti were first performed, but there were instruments with up to six keys already being made at this time.

On first analysing this piece, it becomes obvious that the early bassoon, despite its simplicity of construction, was still a dextrous and soloistic instrument. The opening passage provides a good example. The bassoon enters with fast moving arpeggiated chords that immediately demand the listener’s attention.


On the modern bassoon this passage requires a good venting technique to prevent the top notes from ‘cracking’. This ‘cracking’ occurs when an unwanted lower harmonic obtrudes into the note creating an unpleasant ‘croak’ and a messy attack. This particular phenomenon is more common on certain notes, including a, bb, b and c. Venting these notes requires the brief opening of various harmonic keys, either by means of a downwards ‘flick’ of the key (exactly

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coinciding with the attack of the note) or the holding down of this key for the duration of the note. The harmonic keys are controlled by the left hand thumb.

Due to the notes contained in the initial passage work, this concerto requires diligent venting for clean execution, necessitating a good deal of movement by the left hand thumb. It is obvious from the initial discussion about the bassoon in Vivaldi’s time that the left hand harmonic keys did not yet exist. How, then, did the players of the era produce a clean execution of such passages?

Early bassoons had narrower bores than those of today, and narrower bores facilitate a greater ease of attack and have a more ‘free blowing’ feel to them. This would have helped the execution of such passages, reducing the likelihood of croaking. Even so, without the presence of harmonic keys, the early player would have had to rely more on breath support and embouchure to ensure a clean attack. These elements are still important when performing on the modern instrument.

This brings us to the issue of articulation. The author believes that the most effective way of articulating the opening passage of the work is to slur two, tongue two. Stylistically, this was a common articulation pattern for wind players of the baroque period⁶, but it also has a technical advantage. Articulating the top two notes helps to ensure their speaking, and adds a feeling of momentum.

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Narrower bores may have had their advantages, but they also had disadvantages. They resulted in quite a small dynamic range compared to that of the modern instrument. This meant that elements such as articulation and ornamentation played a very important role in creating and highlighting musical contrast. This importance can sometimes be overlooked by performers playing works such as Vivaldi concerti on the modern bassoon. Emphasis can too easily be placed on creating loud-soft contrasts for variation within the piece at the expense of the more subtle techniques such as alternating various articulation patterns or adding ornamentation to recurring themes.

The second movement provides a good opportunity for adding ornamentation as a means of creating contrast. The first one and a half bar phrase is repeated exactly, calling for some variation in the approach. Additional ornamentation was added by the author as shown below.


It must be noted that the previous comments by the author about dynamics did not mean that no effort was made to create dynamic contrast within the recital, as can be seen from the added
indications. It merely means that such contrasts were more subtle (not pp to ff) and were combined with other techniques to achieve variation.

It is important when analysing the work to consider the significance of the way in which the composer utilised the entire instrumental range. For example, did Vivaldi write the piece to sit comfortably within what was easily attainable on the instrument, or did he intentionally extend to the outer limit of what was achievable at the time? On first glance, it is easy for today’s performer to miss the significance of the use of the extremes of the register. It is important when approaching baroque and classical pieces to acknowledge that these pieces, whilst using the entire range available to the performer at the time, may now sit well inside the comfortable range of the modern bassoon. This is indeed the case with Vivaldi’s concerti. He used the outer range of the bassoon, from C to f'. The range at the time was commonly recorded as being from B♭ up to g".

Vivaldi seems to have used the extreme ranges of the bassoon when he wanted to create a feeling of emotional tension within the composition. A good example may be found in bars 35 to 38 of the first movement. The two-octave leap from E to e' is one of the largest intervallic leaps in the concerto, and is followed by phrases which repeatedly utter the high e before the resolution to a minor at bar 38.

![Musical Example 3](image1)

Another point in the first movement where the outer ranges of the instrument are used is at bar 49. This leap is particularly important because it starts on E and jumps to f – an unexpected interval of two octaves and a semitone which also uses the highest and lowest notes contained within the movement. It is therefore a particularly significant and effective emotional moment within the work.


![Musical Example 4](image2)
G.P. Telemann: Sonata in F minor TWV 41 (CD no. 2 tracks 1-3)

This work was originally composed in 1728 for bassoon with accompaniment. Telemann published the work in instalments through his periodical “Der Getreue Musikmeister” which was a four page leaflet produced bi-weekly. Movements of various works appeared in each of the twenty-five issues, encouraging professionals and music lovers alike to collect complete works through purchase of successive publications. It was not uncommon for such pieces to be interchangeable between at least two instruments to make them more accessible to the public. Telemann indicates as a footnote to this particular piece that it may also be performed upon recorder.

For this reason, it would be reasonable to assume that the composition does not use the extreme bass register of the instrument (as this would have been outside of the range of the recorder), and on modern editions of the music (such as the International Music Company edition that the author possesses) this is certainly the case. However, upon analysis of the original publication\(^7\), it is clear that on several occasions Telemann provided alternate options for the use of lower notes. Such an occasion is at bar 26 in the first movement. The modern edition has a c printed for the first note in the bar, yet on Telemann’s publication there is a c with a C printed below it.

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Example 5: Telemann: *Sonata in F minor* TWV 41 1\textsuperscript{st} movement, bars 25-27 (Hamburg: Der Gertreue Musicmeister, c.1928, n.p).

![Example 5: Telemann *Sonata in F minor* TWV 41 1\textsuperscript{st} movement, bars 25-27.](image)

Example 6: Telemann *Sonata in F minor* TWV 41 1\textsuperscript{st} movement, bars 25-27 (Simon Kovar, ed. New York: International Music Company).

![Example 6: Telemann *Sonata in F minor* TWV 41 1\textsuperscript{st} movement, bars 25-27.](image)

The same thing occurs two bars later. It is therefore quite possible that Telemann desired the bassoon to play the lower C, but printed the higher note as an option for the recorder. For this reason, the author chose to play the lower C at this point. This creates a subsequent leap of two octaves, which is more surprising to the listener, and therefore more effective as an expressive gesture.

In the second movement, Telemann once again offers a higher and a lower voicing option at bar 46. As before, the lower note was chosen for this performance.
Because this piece is roughly contemporaneous with the Vivaldi concerto, many of the same considerations were taken into account regarding the use of dynamics, articulation and ornamentation.

Telemann specified several articulation patterns in the original publication. The author was careful to transfer all of the original articulations on to her working part, and used this as the base for her personal interpretation of the work.

Telemann indicated on the original score where basic ornamentation such as trills and turns were required. Some of this ornamentation has been omitted from more modern editions. The author consulted Quantz’s treatise “On playing the Flute” for appropriate styles of ornamentation. Although the publication was intended for use by baroque flautists, it contains whole chapters devoted to subjects such as appoggiaturas, trills and musical style. Quantz himself even includes a supplement entitled “Several remarks for the Use of Oboe and Bassoon” in which he emphasises that players of both the bassoon and oboe “may profit…… in general, from the entire method for flute, in so far as it does not have to do with fingering and embouchure.”

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9Quantz. 85.
W.A. Mozart: Concerto for Bassoon and Orchestra KV191 (CD no.1 tracks 10-12)

Composed in 1774, the bassoon concerto was one of the first concerti Mozart composed. The circumstances surrounding its composition remain a mystery. Some sources claim that the concerto was composed for a wealthy amateur musician such as Baron Durnitz. The loss of the autograph probably means that the true circumstances that inspired Mozart to compose his only (remaining) bassoon concerto will never be known.

The most noteworthy developments in the evolution of the bassoon in the mid to late eighteenth century were not concerned with the key mechanism but with the sound of the instrument. The sound tube (or bore) design of the instrument had begun to change.

The bell joint often had an inverted taper (not present on earlier models), which had a dampening and stabilizing effect on the lower notes.
Towards the very end of the century, the firm Grenser developed a reputation for their bassoons which had an improved ‘singing’ quality in their tenor register. This was due to the modifications made to the bore of the instrument by the founder of the company, Karl Augustin Grenser (who manufactured from 1778-1800). He changed the length of the joints and moved the location of several tone holes, whilst making several key holes larger.\textsuperscript{11}


The bassoon of Mozart’s era was therefore still relatively simple with regard to its key mechanism. Many instruments still had from four to six keys, and many cross-fingerings were required to negotiate the instrument’s chromatic range.

The concerto uses a large proportion of the available range of the instrument, extending from the very lowest note, B♭ up to b♭'. Although the b♭’ was quite high for the instruments of the day, it is interesting to note that as early as the end of the eighteenth century, there were fingering charts that included fingerings much higher than this. One of these (a chart for five keyed bassoon by Pierre Cugnier, “Le Basson” which appeared in Benjamin La Borde’s Essai sur la musique ancienne et moderne, Paris: P.D Pierres, 1780) even extended to f". It seems, however, upon analysis of available fingering charts for instruments of the era (such as those discussed by Langwill13), that b♭’ was one of the highest notes attainable by the majority of bassoonists at the time.

There seem to be two very distinct schools of thought concerning the bassoon writing of Mozart. Some commentators believe he composed for bassoon with a great understanding of the capabilities of the instrument, while others take the view that he disregarded the state of the bassoon at the time and composed for an ‘improved’ bassoon of the future.

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William Waterhouse states the following in his section on bassoon contained within the *New Groves Dictionary of Music and Musicians*:

Mozart’s use of the instrument shows a great understanding of its nature and potentialities...\(^{14}\)

This appears to contrast the opinion of Will Jansen in his book *The bassoon: Its history, construction, makers, players and music*:

Still others, like Mozart, composed for the future with utter disregard of what could be played on the bassoons of their time and how, perhaps figuring that, although the bassoon could be bad in itself, a good player could get everything out of it and maybe with the consoling thought that when the bassoon was a bad instrument now, there would come a time in which the instrument should be as good as a violin in later centuries it would be possible to play good [sic] what now seemed an impossibility.\(^{15}\)

When considering the information available on the bassoon in Mozart’s time, the above statement seems unlikely for many reasons. Firstly, it is doubtful that Mozart was composing for a bassoon of the future. Contemporary music was the only music that was listened to in Mozart’s day, and the thought of playing something composed two hundred years earlier was not even contemplated. Similarly, it would have been quite unlikely for Mozart to have considered the possibility of his music being performed a hundred years later. Mozart’s consistent use of the bassoon in his symphonies, operas and chamber works would also suggest a reasonable degree of satisfaction with the instrument that existed at the time. If he had major reservations about the capabilities of the instrument, it is doubtful whether he would have risked the embarrassment of a soloist being unable to perform important melodic and harmonic functions within his pieces.

\(^{14}\) Waterhouse. Grove, 889.

\(^{15}\) Jansen. 290.
Upon analysis of fingering charts and other works for bassoon that are contemporaneous with the Mozart Concerto, it is the author’s belief that Mozart was simply using the bassoon in its current state in the most effective way possible. The key of the piece, B♭ major, sits particularly well under the fingers for a bassoonist and was a natural choice for Mozart to make.

The extension of the bassoon’s range within the Mozart concerto and the degree of technique required to perform it at a proficient level does indeed challenge the view that it was composed for an amateur musician. If this was in fact the case, the skill level of the amateur in question must have been relatively high.

The concerto still contains many technical challenges for the contemporary musician, but it is important to realize that the tempi that were chosen in Mozart’s day may well have been slower than those in use today, allowing for a greater ease of execution.

In some ways the modern bassoon is better equipped to perform this concerto than the bassoon of the eighteenth century. For example, the balance between orchestra and soloist is less of an issue (it is acknowledged that classical orchestras would have also been quieter than those of today), as modern instruments project better. Also, the addition of auxiliary keys allows for cleaner and easier execution of trills. However, the bassoon of Mozart’s day was not by any
means unable to perform the work. This has been proven by the excellent recordings performed on historical instruments, such as those by Danny Bond\textsuperscript{16} and Marc Vallon.\textsuperscript{17}

Some of the considerations relevant to performing this concerto have already been discussed in the context of baroque works. They include subtlety of dynamic contrast and the desirability of adding extra contrast through other means such as articulation and ornamentation. The concerto contains a great deal of ‘written in’ ornamentation, and subsequently the opportunities to add extra notes are not very common. As a result it is important to consider articulation very carefully and use it effectively as a creative tool. It becomes apparent after listening to different recordings and performances of the work, that articulation is one of the greatest tools in creating an individual interpretation of the piece. For example, at bars 62 and 140 an entirely different character can be created according to whether one chooses to slur in pairs or to tongue.


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Other elements requiring consideration are the interpretation of grace notes, together with the insertion of *Eingänge* and cadenzas.

The author decided when considering possibilities for the cadenza, that it would not be inappropriate to use the extended range of the modern bassoon within such passages. It was, after all, the section in which the performer could demonstrate their ‘gusto’. The author extended the range of the chosen cadenza\(^{18}\) to c’, only a semitone higher than the highest note in the rest of the concerto. This cadenza did not stray too far from the traditional tonalities associated with the concerto, but was probably slightly longer than the traditional classical cadenza.

*Eingang* was Mozart’s own term for a “lead-in”\(^{19}\) and is indicated by a pause over the dominant chord of the prevailing key or above a rest following the chord. It is an invitation for the performer to improvise a short lead-in to the return of a theme that has already been used within the composition (usually the exposition material). There were two such opportunities to add *Eingänge*, the first being at bar 97 in the first movement and the second at bar 106 of the third movement.

When considering the options for ornamentation (such as how to interpret appoggiaturas and grace notes), the author came across a very insightful and useful article based on an address

\(^{18}\) Frank Morelli. *Cadenzas for KV191 1\(^{st}\) and 2\(^{nd}\) movements* (New York: unpublished, n.d).

given by the famous bassoonist Milan Turkovic at the International Double Reed Society Conference in Los Angeles (1978). The article considers the relevance of techniques for ornamentation discussed in the Violin Method of Leopold Mozart, as the young Mozart was still highly influenced by the compositions of his father, and other composers such as C.P.E Bach.

F. Devienne: Quartet No. 3, Opus 73 in g minor (CD no.2 tracks 5-7)

François Devienne had an excellent working knowledge of the bassoon as a composer, as he was also a professional player on the instrument. He had a career as both a soloist and an orchestral musician, working as a bassoonist within the Paris Opera, the Masonic orchestra Loge Olympique and the Théâtre de Monsieur.

Around 1800, Devienne composed three quartets for bassoon, violin, viola and cello (Op.73). One of the primary reasons for adding one of these works to the recital program was to explore a classical composition that was roughly contemporaneous with the Concerto by Mozart.

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23 Montgomery. 268.
It is acknowledged when comparing the two works that there are some distinct differences in the styles of composition. Devienne’s work is obviously not a bassoon concerto, though it was composed to feature the bassoon within a soloistic and virtuosic role.

Devienne’s use of the bassoon throughout his pieces shows that the bassoon writing in the Concerto by Mozart was by no means unrealistic on the contemporary bassoon in the last quarter of the eighteenth century.

Being well acquainted with the instrument, Devienne would have composed works that required technical dexterity and musical proficiency. He was on the board of the Paris Conservatoire, so many of his works would have been used within the institution. He would have also known the instrument’s limitations well.

It is interesting to note that the range used within Devienne’s Quartet sits comfortably inside that used by Mozart. The highest note reached is a’, and the lowest is D. This reinforces the previous statement that the bb’ contained within the first movement of the Mozart Concerto, was indeed a high note at the time.

The Quartet by Devienne is composed in G minor. Like the Concerto by Mozart, the key suits the bassoon well by reducing the complexity of the fingerings required. The piece uses the ‘tenor’ range extensively (as does the Mozart concerto). The singing and expressive qualities of this register were greatly improved in the last half of the eighteenth century, with the instruments most famous for their quality of sound being those made in Dresden. “Dresden
bassoons” was a general term for the makers K.A Grenser, J.H Grenser and J.F Grundmen, all of whom were based in Dresden.

The author believes that the beauty of the tenor register was an important discovery for classical composers and that a singing and expressive style is very important when performing music from the period. For example, the second movement in the Quartet may be approached as if one is singing an expressive aria (as may the second movement of the Mozart Concerto). It is interesting to note that the bassoon part in the second movement does not stray below e (staying within the expressive tenor region of the instrument the whole time), despite the other movements constantly jumping down to the lowest octave.

The last movement displays the dexterity of the instrument, especially at bar 55 (below). The whole of the “duet” section (from bar 116 to 147) also requires agility where the bassoon accompanies the violin with a counter melody that contains many arpeggiated figures and large intervallic leaps.

Example 8: Devienne: Quartet no.3, Opus 73 in g minor. 3rd movement, bars 54-58 (J.P. Newhill, ed. Weisbaden: Breitkopf and Härtel, 1984).
C.M.v. Weber: Andante and Hungarian Rondo Op.35 (CD no.1 track 5)

Weber arranged his Andante and Hungarian Rondo for bassoon in the year 1813 from a piece originally composed for viola in 1809.\textsuperscript{24} It was one of two major works that Weber created for bassoon, the other being his Bassoon Concerto composed in 1811 and revised in 1822.

When researching this particular era, the monumental effect on the evolution of the bassoon by Carl Almenräder cannot be ignored. Almenräder’s improvements eventually led to the creation of the Heckel firm which, in time, standardized the way that German bassoons were manufactured. All other manufacturers of the German type of bassoon would look towards the Heckel as the model on which they would base their own designs.

At the turn of the nineteenth century the bassoon was one of the least developed woodwind instruments. A lack of standardisation meant that the instruments in use ranged from a primitive four keys to the standard six keyed model. Early in the eighteenth century, some bassoons contained an extra two harmonic keys (bringing the total to eight), which facilitated production of the high register.

It was not without reason that the bassoon had remained unaltered for so long. The combination of a relatively narrow bore and a double reed meant that it was more receptive to cross fingerings compared with instruments such as flute or clarinet. This meant that the acquisition of extra keys was not essential to produce all of the notes of the chromatic scale.\textsuperscript{25}


\textsuperscript{25} Jeremy Montagu. The world of Baroque and Classical Musical Instruments. (Milton: Jacaranda Press, 1979) 89.
This was not so much a problem until music began to become more chromatically complex (as it did in the romantic era), and the increased necessity of complicated cross fingerings started to become impractical and difficult to work with.

...amongst the wood-wind group the bassoon seemed likely to become the lame duck unless its key mechanism could be made to keep pace with that of the flute, oboe and clarinet.26

The man who came to the aid of the bassoon was Carl Almenräder. Born in 1786, Carl Almenräder was a German bassoonist, composer and instrument maker. He first started to experiment in instrument design in Mainz in 1816. It was here that he came into contact with the theorist, composer and acoustician Gottfried Weber. Weber was most famous for founding the music journal *Caecilia*. It was in this journal that he published a series of pioneering articles on the acoustics of wind instruments with some shrewd ideas on the physics related to the actions of reeds and air columns.27 Almenräder was inspired by Weber’s publications and asked for his guidance when he began modifications to his own ‘Grenser’ bassoon at the Schott instrument factory nearby. It was here that he began his tireless work, which he would continue throughout his life, to improve the many technical difficulties and shortcomings associated with previous models of bassoon.

Almenräder widened the bore from the sixth finger-hole downwards, and enlarged the open tone holes, moving them further down the instrument. He also replaced the old resonance hole

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in the bell joint with an open key for B (hitherto only obtained by ‘lipping down’ from a C). Another key that was added was the low C#. By adding some keys and removing others he improved the response and intonation of the instrument.

By 1820 Schott was manufacturing fifteen-keyed bassoons according to Almenräder’s specifications.28

In 1829 Johann Adam Heckel, a talented seventeen year old, commenced work at the Schott factory. When Almenräder left in 1831 to open his own factory in Biebrich he made Heckel his business partner.

Almenräder and Heckel continued to improve the instrument together until Almenräder’s death in 1843. In the final year of his life, Almenräder published his ‘Fagottschule’ in both German and French. This tutor contained a method for his new seventeen-keyed bassoon, and ran to many subsequent editions.

After Almenräder’s death, Johann Heckel continued to improve aspects of the keywork. Johann’s son Wilhelm was his successor, and continued to refine the model developed by his father and Almenräder. By 1880 the bassoon was more or less the finished product of today.

The period from 1816-1880 was therefore an unprecedented time of activity and productivity in the evolution of the bassoon. Ironically, it was also a period in which the frequency of new solo compositions reached an all-time low.

28 Carse. 196.
This dip in productivity seemed to occur for a number of reasons. One such reason was that solo wind writing was simply not in vogue. Works for strings and piano were much more common in this era. Flutes, clarinets and oboes all suffered a dip in output, but none suffered as much as the bassoon. As the bassoon has always had a smaller percentage of repertoire composed for it, the drop in productivity meant almost a complete lack of new compositions.

The perception of composers may well have been that the bassoon was outdated, and it may have taken several decades for the improvements in the instrument to be noticed. There is also the issue of slow uptake by players. New models may have been created, but it would have taken many years for players to replace their instruments and to embrace the new fingerings required by the more complex models.

The *Concerto in F* and *Andante and Hungarian Rondo* by Weber were two of the last significant pieces composed before the dip in repertoire productivity. The nature of the decline can be seen clearly in the graph presented as Appendix 2.

The *Andante and Hungarian Rondo* was composed just before the bassoon underwent its changes at the hands of Almenräder. The range required is from C to c". As one would expect from a piece arranged from a string original, it requires great dexterity, jumping constantly throughout the range of the instrument. There are some very fast technical passages in both movements, and slurring of intervals as large as an octave (sometimes even two) is required. There are trills on notes such as d#, f#, and a♭, which are not particularly easy to negotiate on the modern instrument, let alone on the standard six-to-eight-keyed model of the time.
There are elements within the composition that would have made playing slightly easier for the performer of the day. The first of these was the key signature. C minor is a three flat key, and is kinder to the bassoonist than one with three sharps. The main concession is the fact that the whole of the Allegretto is based in C major, which with its absence of sharps and flats, ensures that the virtuoso passage work sits as comfortably as possible.

As Wilhelm Heckel once remarked:

…although the Dresden bassoons excelled in their soft and beautiful tone, they were adequate only so long as the instrument was used for accompaniment and then only in the keys of F, B flat, C and G major and G and C minor. When smooth technique was required in other keys, e.g. A and E major, and short phrases and solos were demanded, the inequality of the individual notes became apparent. 29

The type of writing contained within the Andante and Hungarian Rondo pushed the player of the early nineteenth century to the absolute limits of what was technically achievable. It is therefore understandable that maker and player Almenräder was inspired at the time to start work on improving the bassoon so that pieces such as this were executed with greater ease and effect.

29 Langwill. 49.
E. Elgar: Romance Op.62 (CD no.1 track 6)

Romance was composed in 1910. It was one of the first significant pieces composed after the inactive period of bassoon composition. Although written in the early twentieth century, the piece presents a fine example of the chromatic style popular in the late romantic period.

Elgar was a staunch advocate of the French bassoon, for which this piece was written. It was dedicated to Edwin James, who was an English bassoonist adept on the French instrument. The French system was still much favored in England at this time, but was to fall completely out of favor over the next 50 years. In fact, by as soon as 1930 all but a few French bassoonists (one of these being Cecil James, Edwin’s Nephew) had been converted to the German instrument.

The French bassoon had not undergone such a rapid transformation as the Heckel, retaining many features of the earlier bassoons. One of these differences included a bore that was not evenly conical (as with the widened lower half of the Heckel), but practically cylindrical at the end. This causes a marked difference to the timbres of the instruments. When listening to recordings of French bassoons, the low notes have a distinctive resonance which is not easy to reproduce on the German model. For this reason, special attention was paid to creating as resonant and well-projected lower register as possible, especially in crescendo passages.

A detailed commentary on the mechanical development of the French bassoon lies beyond the scope of the research, especially given that all the recital repertoire is performed on a German instrument. The Romance will be discussed as a work that is representative of a compositional

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style contemporaneous with a certain point in the development of the German bassoon. The author is not insinuating that Elgar composed this particular piece with the German instrument in mind, merely that it is still a good example of bassoon writing of the period, and of what was demanded from the instrument, French or otherwise.

The increasing chromaticism found in compositions of the period meant that more efforts were made to simplify the German fingering. Along with additional keys, other improvements included relocated and re-bored butt joint keys for improved tuning, a widened bore with altered conicity for a more beautiful tone, and extra harmonic keys to facilitate slurring large intervals (which were becoming increasingly popular in late romantic compositions and are repeatedly used within Elgar’s *Romance*). Heckel also introduced an ebonite lined metal ‘u-tube’ at the base of the instrument for a more uniform and leak-proof bore.

‘Carrier’ keys had also been invented by Heckel. These keys allowed a more simplified way of holding several keys down at once. For example, on older instruments there was no key for C. It was an open hole covered by the left hand thumb. Surrounding it were the D, B and B♭ keys. To play a C, the player would have to press on the D key and cover the C hole at the same time, and to play a B or B♭ they would have pressed these keys as well as the other two. This was quite a lot of work for the thumb to carry out, and made legato passages between these notes extremely awkward. The carrier system means that when the C key is pressed, the D spatula is automatically engaged, and when the B is pressed, C and D are automatically engaged and so forth. This means that the thumb need only press one key to close up to four holes. These keys are placed in such an arrangement so that it is relatively easy to slide from one key to the other, making low legato passages achievable.
The repeated use of the low C# in Romance is greatly facilitated on the German instrument by use of these keys (especially when slurred from other notes) as with the low B at bar 39.

Around the turn of the century, Heckel successfully added a ‘crook key’\textsuperscript{31} that could close the pin-hole vent on the side of the crook. This was linked to the low E key, which would automatically close the key when E or lower was played. This allowed for extra stability when playing $pp$ in the lower register. This is a great advantage for the bassoonist when playing this piece, as nearly all of the phrases ending on low notes require a diminuendo. The increasing demands from romantic composers in the area dynamic contrast made this kind of development necessary.

The author also felt that it was important to emphasize the ‘legato’ feeling of the piece, as the bassoon at the beginning of the twentieth century had improved to allow an unprecedented fluidity of technique and evenness of sound (this is true for both French and German models).

\textbf{A. Tansman: Suite for Bassoon and Piano (CD no.1 tracks 7-9)}

The \textit{Suite for Bassoon and Piano} was composed by Tansman in 1960. Tansman was a Polish born French composer, who was highly influenced in his early years by Stravinsky and Ravel.\textsuperscript{32}

\textsuperscript{31} Langwill. 54.

This piece was again composed with the French instrument in mind, but due to the truly global nature of music in the twentieth century it was soon embraced by bassoon players world wide.

Although the German bassoon had basically developed to its present state by the end of the nineteenth century, there were several important improvements made since 1900 that influenced the sound of the instrument.

In the 1930’s, the Heckel firm began to refine the technology used in manufacturing their crooks. Wilhelm Heckel had previously used mathematical and acoustic calculations to manufacture his crooks, but the science of acoustics was still very much in its infancy, and the mathematical basis on which the crooks were made was not very strong.  

In 1939 Franz Groffy, Wilhelm Heckel’s son-in-law, started working on a model for a crook on which present day crooks are based. Groffy’s initial assignment was to help redesign a crook that would allow older instruments to play at the new international standard pitch of $a = 440$ Hz. The previous pitch had been $a = 435$. What Groffy created was a crook that was scientifically sound and informed the physics of acoustics. He went on to create a whole series of “parabolic crooks”, each one different in length, conicity, bore and diameter.  

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33 Jansen. 214.

34 Jansen. 214.
to increase the ease of extremely high playing. The manufacture of these high quality crooks based upon sound scientific principles meant that an advantage was gained by many players.

In general, crook sensitivity of a bassoon is greater than reed sensitivity. Practically every bassoon is crook sensitive and becomes in its response influenced by the type of crook used on it. This is a lucky circumstance, because firstly it enabled the first-class makers to design crooks by which the tuning pitch of 435Hz could be heightened to 440Hz without impairing the instrument’s tonal qualities and secondly, as experience soon showed, innumerable bassoons of less good quality could be improved by putting another crook on them, improving in one case tuning, in another sonority, in a third the timbre.\textsuperscript{35}

The projection of the instrument was also an issue that the Heckel firm pursued throughout the twentieth century. As orchestras generally became larger and louder, the bassoon needed to be able to project better so that it could still be heard within such orchestras.

Improved projection would have been an important outcome for pieces such as Tansman’s \textit{Suite}, and indeed many other twentieth century solo works. The driving, rhythmic chords from the piano and the thick texture of the piece offer a challenge for the instrument to be heard, especially in the lower register. Without improved technology resulting in better projection, an effective instrumental balance within pieces like this would have been even more difficult to achieve.

The author also believes that extremes in dynamics take on a whole new relevance in twentieth century compositions. It is important for the player to emphasize the extreme ranges

\textsuperscript{35} Jansen. 228.
within the piece, as the bassoon of the era had a new found flexibility with regard to dynamic contrast, due to the ability to project better, but also due to the flexibility and improved response of the latest generation of crooks.

M. Arnold: Fantasy for Bassoon, Op.86 (CD no. 1 track 4)

Arnold’s *Fantasy for Bassoon* was composed in 1966, shortly after Tansman’s *Suite*. It is a good example of the popular and growing genre of unaccompanied pieces for wind instruments. It is a short piece that contains many moods from playful to sentimental, and constantly uses the full range of the instrument with many quick changes of dynamics.

The rapid passages in the lower register require dexterous thumb movement; the slurs require diligent venting and the crescendos and diminuendos are prevalent and extreme. It is, however, all achievable and very effective due to the modifications made to the instrument throughout its evolution.

This piece demonstrates that composers had finally rediscovered the bassoon as an effective and capable solo instrument, and were composing to display its various timbral characteristics throughout its large range.
J. Williams: The Five Sacred Trees (CD no.2 tracks 8-12)

This concerto was originally composed for Bassoon and Orchestra and was commissioned by the Philharmonic Symphony Society of New York for its 150th Anniversary. John Williams dedicated the work to the American bassoonist Judith Le Clair, who premiered the work (along with the New York Philharmonic) in 1995.³⁶

American composer John Williams is best known for his film music, but he has also composed two symphonies as well as concerti for violin, flute, tuba and bassoon.

This piece was included within the program because the author felt that it provided a good demonstration of the capabilities of the modern instrument. When researching the possibilities for contemporary works within the recital program, the author avoided pieces that contained “extended techniques”. This was done in order to focus on the evolution of the instrument’s physical characteristics, rather than to expand it to include development of (extended) playing techniques.

The first movement Eó Mugna is a good demonstration of the ‘fluidity’ available to the modern performer due to the addition of rollers between keys, as well as auxiliary keys for alternative fingerings and trills.

The second movement Tortan makes extensive use of the low end of the bassoon’s range, whilst interspersing it with a higher and more lyrical cantabile section.

Eó Rossa is a slow and reflective movement which demonstrates the high extreme of the bassoon’s range. The thinner, more melancholy timbre of the very high notes gives the movement a sense of emotional tension.

Careb Using uses the entire range. It starts off with the fast and quiet but intense ‘rumblings’ of the low register and rises gradually to the high extreme of the range, where an almost manic mood is reached as the bassoon squeals out the chromatically descending long notes d”, c#”, c” and b”. The original theme starts in the bassoon again in the next entry before climbing once more to a trill on d#. The tension is then maintained until the fifth movement starts attacca, with a subdued and tranquil mood.

Dathi is the final movement and starts with quazi cadenza feel. The bassoon plays a free flowing solo over long piano chords and tremolos, until a definite sense of rhythm is established by the repeated crotchets in the piano at bar 45 (which is marked with the directions “move a little”). The feel changes once again at bar 55 (meno) where the bassoon starts with a beautiful but simple melody based in the tenor register. The melody extends once again to the high extreme of the range (C#) at the climax point of the movement in bar 70.

It is interesting to note that Williams has given two options for the last two quaver beats of bar 70. The author believes that this is due to the sheer impracticality of the original notes. On listening to a recording of the piece by Judith Le Clair, it is obvious that she plays the alternative ending, and she is not the only professional performer to take this option. The fingerings required to produce these notes (especially the section a”-g”-b”-a”-c#”-d”) are very clumsy in this combination, and the speed required to play demi-semi-quaver triplets makes it
practically impossible. To play the notes as they were initially written would probably necessitate slowing the passage down, and in doing so it would lose momentum and compromise the overall effect. The alternative is not quite as spectacular, but effective none the less.


![Musical Example]

This shows that despite all of the best efforts of instrument manufacturers to refine the key work and design of the instrument, there are still some fingerings and areas of the bassoon that are more awkward than others and are unable to produce such a rapid or fluid technique. This is not due to the inadequate development of the key work system, but rather due to the acoustic qualities that make the instrument unique in its tone and timbre. These “awkward” areas generally only lie in the extreme ends of the range, and can usually be overcome by careful practice and, occasionally, by the adoption of an alternative fingering. As shown above, however, if all else fails the collaboration of player and composer can yield results that are acceptable to both parties.
PART TWO: THE INFLUENCE OF THE RESEARCH ON THE PREPARATION OF THE REPERTOIRE

This section is a brief reflective commentary on the recitals and the preparation process leading up to them. It is an opportunity to acknowledge certain achievements and to identify areas that could have benefited from a different approach. Self assessment plays a vital role in the improvement of the performer, who is continually researching different approaches to obtain the best possible performance outcome. The following discussion covers areas that were a direct consequence of the research and performance process.

Skills acquired

The most profound and influential skill that I acquired throughout my candidature was that of reed making. Under the guidance of previous teachers I had relied on commercially manufactured (mass produced) reeds. Although I had experimented with several ‘high quality’ products, I found that they were less than reliable, and often needed a lot of refining to reach a suitable standard.

At the beginning of my candidature, I began to make my own reeds. These were not made from absolute raw material, but were formed from cane that had already been gouged, shaped and profiled. I was introduced to a brand of cane that was consistently reliable, and had a shape and profile that was very workable. I have now made well over 100 reeds, and have learned a great deal about the process and just how important it is to get it right. The skill is
one that I am still developing. I was however, able to perform both recitals on reeds that I made myself, which I believe was a considerable achievement.

Another area in which I have progressed is ‘venting’ (described on page 5). Various teachers have differing opinions on how important venting is, and it had not previously been an area upon which I had directed a great deal of attention. I believed that venting was more or less a tool that was used when slurring and I never used it to articulate notes. As a result, ‘cracked notes’ were always a problem within my playing. Integrating venting into a well formed technique was extremely difficult. Sheer force of habit is daunting to overcome. I have, however, continued to develop my use of venting and believe that it is possible to observe the reduction in ‘cracked notes’ from the first recital to the second. The occurrence of such interruptions is by no means entirely eliminated; in fact, I was somewhat disappointed at the presence of such ‘cracks’ in the second recital. However, it is a problem that is being gradually brought under control through slow and careful practice of correct thumb technique.

**Self Assessment**

I have already mentioned how the second recital demonstrated an improvement over the first in regard to correct venting technique. I also believe that many other aspects of the second recital were better than the first. There are several factors worthy of note:

i. The most obvious reason for the improvement between recitals is my technical improvement as a musician arising directly from the intensity of my practice and study regime.
ii. Hindsight allowed me to see that the first recital required considerably more stamina than the second. Although many of the pieces in the first recital were rather short, they were demanding both physically and mentally. I could have balanced these more demanding works better between the two recitals.

iii. I was not mentally prepared for the concentration required to complete the first one-hour solo recital. I believe that a lack of mental stamina towards the end of the recital caused silly and unnecessary errors. I could have used the interval more effectively to regroup and stay focused. Instead, I allowed it to distract my attention from the performance. I was more prepared for the mental challenge of the second recital, and I believe that I was much more focused as a result.

iv. I noticed a marked improvement in my physical endurance between the first and second recitals.

v. A change of set-up with my bassoon took place between the first and second recital. I purchased a new Heckel crook for my Puchner instrument. This was an initiative that was greatly encouraged by my teacher, and further supported by my research. To my delight it helped with the response and intonation of the instrument (especially in the lower register). Both issues had been problematic in the first recital.
CONCLUSION

The modern performer must consider many more issues than the performers of past eras. Not only are they expected to perform contemporary works with great discretion (as was the focus of generations of past performers), they are also expected to perform music of varied styles that are up to three hundred years old, sometimes older. This is all expected on a modern instrument built to accommodate modern preferences, and drawing on a musical education acquired in the twentieth to twenty-first century. It is indeed a great challenge.

Ideally, all performers would have access to period instruments on which they could discover the unique characteristics of their instrument in past centuries. Unfortunately, this is impractical in many ways. Access to teachers who have experience on such instruments, as well as access to the instruments themselves, can be difficult.

This does not mean that a performance on the modern instrument need lack sympathy or regard for the instrumental styles of the past. As Milan Turkovic states, it is “better to play the eighteenth century music on a modern instrument with the information of performance practice at the time than play it on an older instrument without that information.”37

We may, however, take our knowledge beyond sheer performance practice. If we have a thorough understanding of the capabilities, limitations and idiosyncrasies of historical bassoons, we may play with an even greater understanding of the instrument and the works composed for it.

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The author believes that much can be gained by understanding the evolutionary journey of one’s instrument. It leads to greater insight into the physical idiosyncrasies of the instrument, and also to an appreciation of how the repertoire, composers, players and makers have all contributed to the modern character and capabilities of the instrument.

The research will continue to influence the way in which the author will approach and interpret bassoon repertoire for as long as she continues to perform on the instrument.
APPENDIX 1

“Key to notation of pitch”

A to G  a to g  a’ to g’  a” to g”
This graph is based on a survey conducted by the Author using *Bassoon Bibliography* by Bodo Koenigsbeck (Monteux, France: Musica Rara, 1994) as the source.
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<td>“Comparing fingerings from evolving bassoons from the second half of the 18th Century to the beginning of the 19th Century” <em>The double reed.</em> Vol.2.no.2 (Oct. 1979).</td>
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<td>Turkovic, Milan</td>
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