“Clarinets, Louder!”

Why This Statement is Detrimental, and Solutions to Apply Instead

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Abstract

Many band directors across the nation struggle to hear their clarinetists through their ensemble. While this can become frustrating, continually asking students to play louder as the primary solution can lead to poor technique and even physical injury. Therefore, directors must address the fundamental barriers that are causing this issue instead of only addressing its symptom. The purpose of this paper is to provide practical solutions to these common causes.

Interestingly, orchestral clarinetists and wind band clarinetists who play orchestral transcriptions typically have significantly less difficulty being heard than clarinetists who perform original band works. This can largely be attributed to differences in scoring and the use of the clarinet as a soloistic instrument in orchestras and as a blending instrument in bands.

To accommodate for these differences, three actions should be taken. First, properly balanced instrumentation should be developed in the ensemble. To accomplish this, I provide example ensemble proportions. Second, proper brass playing technique should be developed to widen their dynamic range, especially into softer dynamics. Suggested exercises accompany this discussion. Third, clarinetists' technique should be modified to safely create a larger sound. To this end, a review of various elements of clarinet pedagogy is presented. It is my hope that as these solutions are discussed in more depth, they can allow directors and clarinetists alike to find greater fulfillment and success in the wind band setting.

Introduction

It is concert week, and the director is running through a piece. They come to the clarinet section feature, and yet again, it cannot be heard. A variety of thoughts run through their head.

Why are they still refusing to play out? Should I have picked a different piece? What should I do for the concert? Could I bring in members of the other band to help out?

It is safe to say nearly every band director, regardless of the level they teach, has experienced this issue to at least some degree. For years, I have experienced this from each end as both a director and a clarinetist. It is such a source of friction that it has spawned this paper as an attempt to provide meaningful solutions to the problem. What can we do as directors to help our clarinetists be heard?

The viewpoint that I would like to maintain throughout is that there are a variety of problems causing difficulties for clarinet players to be heard in the modern American wind band setting. To immediately place sole responsibility for the problem on the player can become discouraging over time and, because improvements are rarely made using this method, can also lead to a sense of hopelessness. While this could be an ideal time to mention retention rates, I would like to focus instead on the individuals this affects. Our ability to properly address this problem directly influences the level of enjoyment our students can take from our ensembles. At the end of the day, if our students do not feel as if they are experiencing success, they will drop band, and we will lose the ability to share our passion with them.

Risks of Symptom-Treating

The above alone should be motivating enough to find solutions, but if not, there is another large issue that must be addressed. When we only address the issue at hand by asking our clarinetists to play louder, thus addressing the symptom and not the underlying causes of the problem, we run the risk of them developing poor technique, which can lead to injury.

To word this in another way, a request not followed by a clarification of how to physically perform the request can result in the students developing their technique on their own instead of utilizing pedagogically standard technique. For example, when we ask students to play louder without any further clarification, many will pinch their embouchure due to an increase of tension in the rest of their body, and ironically, this pinching will close off the reed, allowing less air past and therefore creating a softer sound. Students will also often lower their tongue in an attempt to allow more air through, but this will result in a spread, "blatty" sound that may not carry. If it does carry, it is unfortunately not the characteristic sound we hope to hear. Additionally, many students will also attempt to tighten their throat to create a more piercing sound, and while this may carry, it is not a sustainable technique.

The above in general are non-sustainable techniques primarily due to the risks of damaging the soft palate. On average, one third of clarinet players have experienced this, formally known as velopharyngeal insufficiency (VPI), although this number is estimated to be low.[1] This damage is caused by putting too much force on the soft palate, and the most common causes of this on the clarinet are playing on too hard of a reed, a history of improper or insufficient warm-ups, and combining improper technique with excessive strain, such as that caused by large volume requirements. It can take up to six months to recover, and "stressful" playing should be avoided throughout the recovery period.[2] Stressful is defined as anything that increases pressure on the soft palate, such as *forte* playing.

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[1] Alison Evans, Bronwen Ackermann, and Tim Driscoll, "The Role of Soft Palate in Woodwind and Brass Playing," *Proceedings of the International Symposium on Performance Science 2009* (Utrecht, Netherlands: AEC, 2009), 268.
[2] Chris Gibson, "Current Trends in Treating the Palatal Air Leak (Stress Velopharyngeal Insufficiency)," Archives & Links, International Clarinet Association, accessed October 17, 2021, https://clarinet.org/wp-content/uploads/2016/03/Gibson-Palatal-Air-Leak.pdf.

From the concerns above alone, soft palate damage is something we should be actively aware of, but there are also long-term effects to consider. If it is not immediately addressed, students will eventually lose the ability to play completely until a substantial period of rest is taken. That amount of damage allows enough air to leak out of the nose while playing that there is simply not enough air pressure for the air to make it through the instrument.[3] Additionally, speech complications can arise from soft palate damage. Once enough damage is done, the palate may collapse mid-speech and result in snorts, and air may continuously leak from the nose, causing a decrease in volume.

Soft palate damage, or VPI, is not something we should take lightly. If a student shows any signs of VPI, it must be addressed immediately because it will only become worse otherwise. The initial damage will lead to a decrease in their ability to support higher pressure air, which results in quieter speaking and playing, thus leading to forcing more air through to increase the volume, which does further damage.[4]

Fundamental Causes of Soft Playing

Even if we teach our students how to play louder in a way that avoids injury, we will still encounter balance problems because the causes of this issue lie deeper. In uncovering these causes, we will discover exactly what must be addressed to find effective, long-term solutions.

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[3] Kensley Behel, "Velopharyngeal Insufficiency In a Clarinet Player: A First Hand Case Study" (Honors Theses, Florida State University, Tallahassee, 2013), 13, FSU Digital Library. Remainder of paragraph from this source.

[4] To address a soft palate leak, I suggest the student drops down a reed size temporarily (and compensate with a firm embouchure while *relaxing* the throat - without proper embouchure support, they may continue to support with the throat), and they should be allowed to play at soft volumes and take frequent breaks. A low, slow warm-up should occur before each playing session, and frequent sips of water while playing can help keep the throat relaxed. Once this immediate need is addressed, their technique, equipment, and playing demands should be evaluated in search of the initial cause of the problem.

Clarinet Timbre

Regarding the instrument itself, the clarinet has a naturally blending timbre. This is proven by the number of wind band orchestration textbooks that recommend adding clarinet to other sections to round out their sound. For example, Alfred Blatter's text *Instrumentation and Orchestration*, which is used in many collegiate composition courses, states:

> Clarinets, in spite of their distinctive tone color, blend with other instruments more readily than any other woodwind. For this reason, one often finds the clarinet(s) doubling at the octave or in unison with other instruments or combinations of instruments. The effect, when the lower range of the clarinet is utilized, is generally one of added warmth or body. When the upper range is used, the effect is one of added brilliance or focus. *Often the presence of the clarinet(s) in the ensemble is not readily apparent* [emphasis added], but if the clarinets were to be removed, the contrast would be striking.[5]

In addition to blending with other instruments well, the clarinet blends with itself easily. Because of this, there is a "sweet spot" in clarinet doubling. One clarinetist is able to pierce through an orchestra, and a large number can as well, but to double or triple the part may actually cause the line to not carry as well as a solo line can. This theory is also presented by Blatter when he speaks of flute doubling, stating, "the extra mass [from doubling] seems only to "take the edge" off of the sound. The result is actually *less* penetrating than a single flute in the same range."[6] Given the clarinet's unique ability to blend, this theory seems as if it could hold true for this instrument as well.

Therefore, the clarinet can have difficulty being heard due to its blending timbre. How well do composers take this characteristic into consideration as they write?

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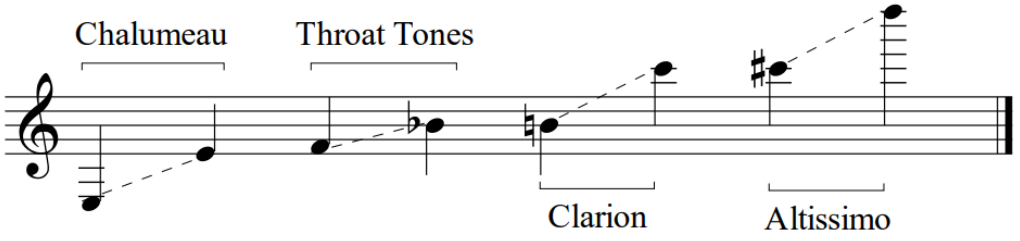
[5] Alfred Blatter, *Instrumentation and Orchestration*, 2nd ed. (New York: Schirmer Books, 1997), 108-109.
[6] Ibid., 364.

Orchestration - The Model

As it turns out, the great orchestral composers do consider the blending qualities of the clarinet and expertly maneuver their scoring to make accommodations. Unfortunately, perhaps because the wind band is a newer medium, only certain composers have mastered this realm and do the same. However, before we can discover how this assists us in addressing the problem at hand, it is helpful to identify key characteristics of an ideal example of scoring.

Orchestration textbooks for orchestra highlight the needs of the clarinet as one of the softer instruments of the ensemble. For example, Hector Berlioz's book, revised by Richard Strauss, emphasizes the proper usage of the various registers of the clarinet to help its sound better carry. He defines the registers as is seen in Figure 1, which is standard practice, although the outdated terms of "low, chalumeau, medium, and high" have been replaced with the standardized names of the registers.

Figure 1 - Clarinet Registers



Source: Hector Berlioz, *Treatise on Instrumentation*, rev. Richard Strauss (New York: Edwin F. Kalmus, 1948), 199.
The standard fingering chart for advanced clarinetists will often stop at a high C. This chart extends to D because this is how Berlioz notated it, but the clarinet is capable of higher notes, extending nearly an octave more. However, these notes are impractical and rarely utilized, so they are not included here.

Regarding these registers, Berlioz states:

> Each of these has its own distinct quality of tone. The high register [altissimo] has something piercing, which can be used only in the fortissimo of the orchestra or in the bold runs of a brilliant solo… The medium [clarion] and chalumeau [throat tone] registers are suited to cantabile melodies, arpeggios and runs. The low register

> [chalumeau], especially in sustained notes, produces those coldly threatening effects, those dark accents of quiet rage which Weber so ingeniously invented.[7]

Further expanding on this idea, Dr. Joseph Wagner of the Los Angeles Conservatory of Music wrote in his text *Orchestration* that "although resonant, this [chalumeau] octave carries with less intensity than that associated with the upper-middle and high registers and is, therefore, less rewarding when the tone is forced because of heavily scored accompaniments."[8] Therefore, choice of clarinet register should be supported by choice of surrounding instrumentation and overall thickness of texture. An example Wagner cites is Tchaikovsky's *Symphony No. 5*, where the clarinets open the first movement with a chalumeau and throat tone solo (Example 1). No brass, percussion, or other woodwinds are utilized throughout the 37-measure solo, so the clarinets can typically be easily heard.[9]

Another example is Sibelius' *Symphony No. 1*. The first clarinet begins the work with a solo primarily in the lower clarion and throat tone registers, and this range is paired with a timpani roll only (Example 2). This pairing allows the clarinet to make greater use of its dynamic range, crescendoing past *mf* but also decrescendoing to a true *piano* while still being heard.[10]

Lastly, in Stravinsky's work *The Firebird*, the clarinet can be seen in its clarion and altissimo range against a seven-part string ensemble at the beginning of *Variation de l'Oiseau de*

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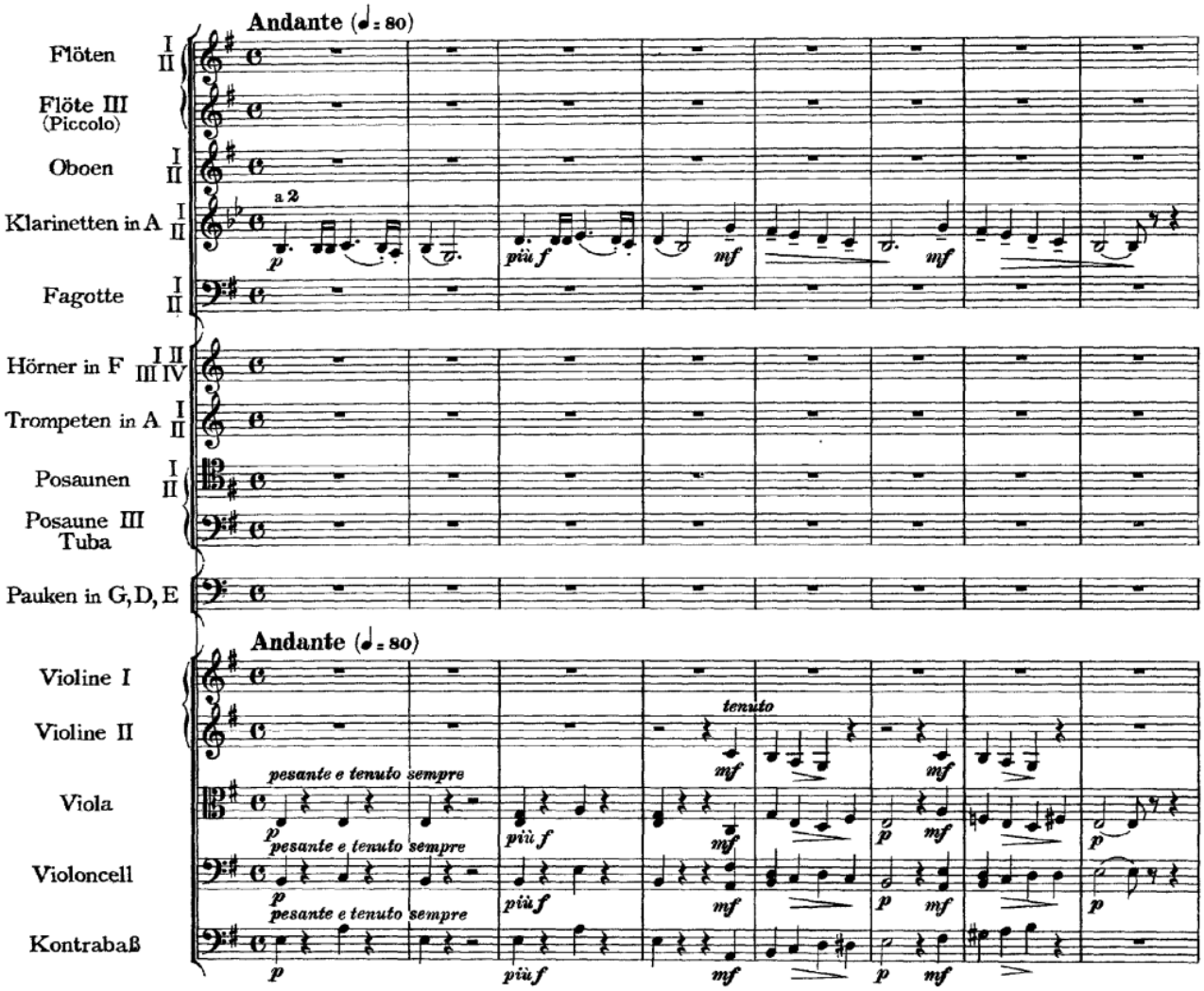
[7] Hector Berlioz, *Treatise on Instrumentation*, rev. Richard Strauss (New York: Edwin F. Kalmus, 1948), 206.
[8] Joseph Wagner, *Orchestration* (New York: McGraw-Hill, 1959), 140.
[9] The standard I am using for "easily heard" is that the clarinets on an average recording of the piece can be heard without any effort or searching for their part. If the average recording buries the clarinet line partially or fully under the ensemble, then the part is "not easily heard." In this case, the following recording can be used as an example: "Tchaikovsky Symphony No.5 by Zubin Mehta and Israel Philharmonic Orchestra," September 14, 2017, accessed December 3, 2021, *YouTube,* https://www.youtube.com/watch?v=MGAPY2Vc1aY.
[10] "Sibelius Symphony No. 1, Orquesta Filarmónica de Santiago/ K. Chudovsky," n.d., video, accessed December 3, 2021, *YouTube,* https://www.youtube.com/watch?v=zph7mfN_snA.

feu (Example 3). Here, the string section can be fuller like it is because the clarinet, even though it is initially marked *piano*, is in its upper registers and is therefore audible.[11]

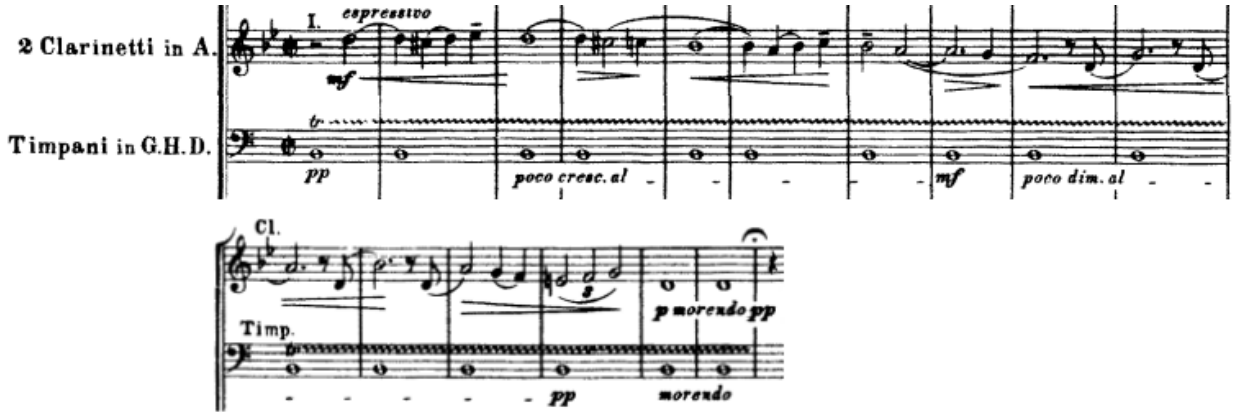
All of these examples are well-known orchestral pieces, so their quality writing is fitting. We can call them a "standard" for what enabling clarinet scoring and writing should be, and we can use them as a basis of comparison when looking into wind band compositions.

Example 1 - Pyotr Tchaikovsky, *Symphony No. 5* (Leipzig: Breitkopf & Härtel, 1930), 1, mm. 1-8.



[11] "Stravinsky: Firebird Suite, Illinois Wesleyan University Symphony Orchestra," October 21, 2016, video, 6:15, accessed December 3, 2021, *YouTube,* https://www.youtube.com/watch?v=gL7VYMNwh0M.

Example 2 - Jean Sibelius, *Symphony No. 1* (Leipzig: Breitkopf & Härtel, 1902), 1, mm. 1-16.



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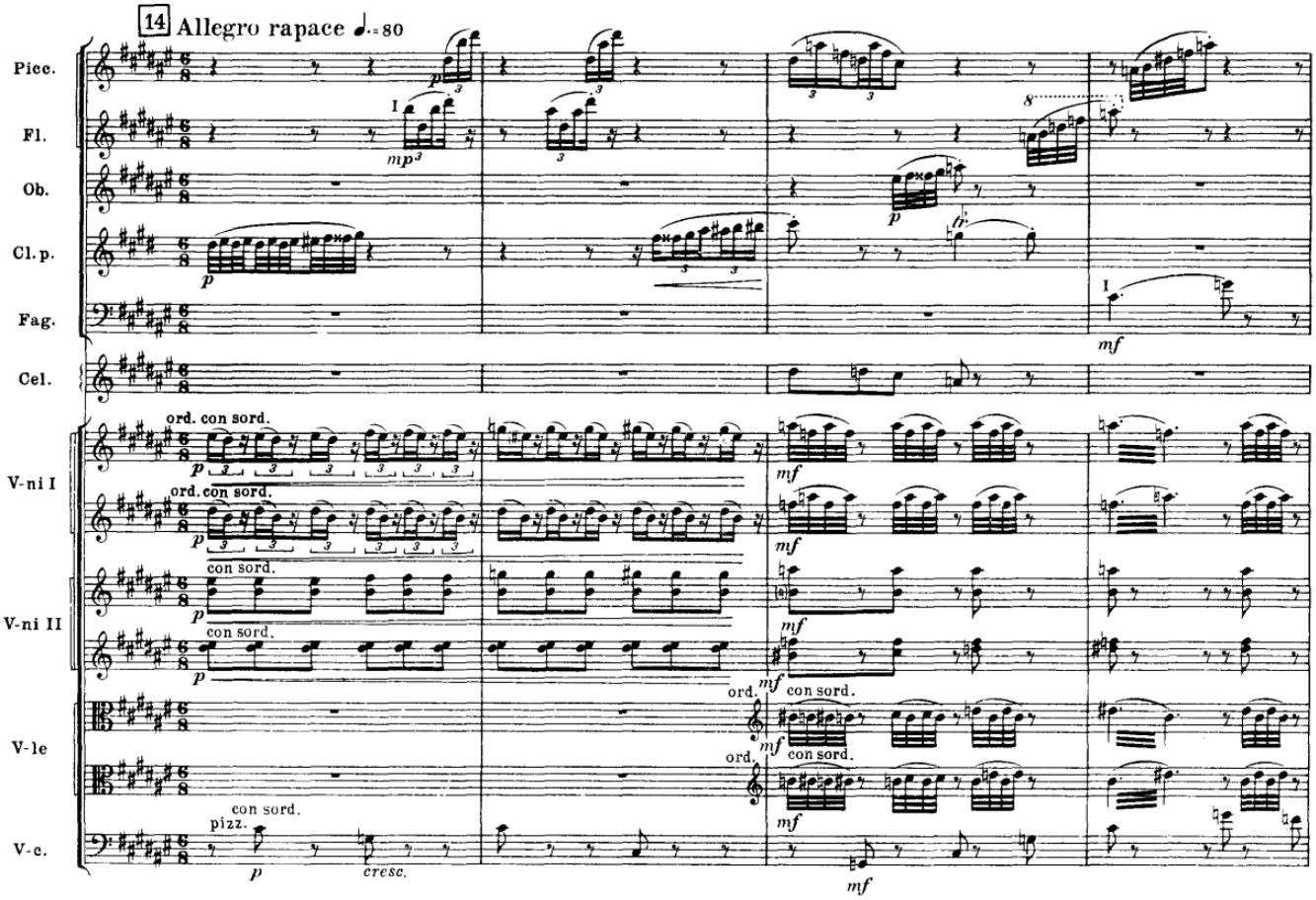
Example 3 - Igor Strawinsky, *l'Oiseau de feu,* mvt. 3 (Moscow: P. Jurgenson, 1911), 18, mm. 1-4.



Orchestration - Wind Band

Regarding original wind band works, composers have some texts to teach them the art of composing for band. In these, a different approach to clarinet writing can be found.[12]

In orchestral texts, the clarinet is typically acknowledged as having a blending timbre. However, the clarinet is typically treated as an individual, soloistic instrument in this setting. In wind band texts, however, blending is the primary purpose for the clarinet, not a secondary one. The previous quote on page five taken from Blatter's book is a prime example. His book addresses both orchestral and wind band writing, and he is quite clear in stating the clarinet adds to the color of the brass but is not necessarily an independent color itself.

Even more specific to band, Roy Miller states in his book *Practical Instrumentation for the Wind Band with a Workbook,* "The real art in band arranging lies in the fusion of colors which produces interesting, dignified, and beautiful effects."[13] This implies many band instruments are treated as blending instruments, not as individual colors. Specific to woodwinds, Miller adds that "woodwinds soften brass," and "the wood color refines, softens, and sweetens the brass tone."[14] Regarding the clarinet, he states, "The clarinet in unison with the flute adds fullness to the flute, while the flute adds dullness to the clarinet," and "the clarinet adds fullness to the bassoon when the two instruments are played in unison."[15]

Further evidence that the clarinet is utilized as a blending instrument in bands can be found in William White's book *Military Band Arranging.* In it, he states, "The Alto clarinet

[12] When looking at quality orchestral transcriptions for wind band, a few tendencies can be noted. First, the thickness of instrumentation is generally retained. Second, the registers of the various lines are kept similar. Because of this, if an orchestral work is well-written regarding its use of the clarinet, if the above two statements are true of the transcription, the clarinet will still find success in the new setting.
[13] Roy M. Miller, *Practical Instrumentation for the Wind Band with a Workbook* (Detroit: Wayne State University Press, 1957), 33.
[14] Ibid., 33, 35.
[15] Ibid., 34.

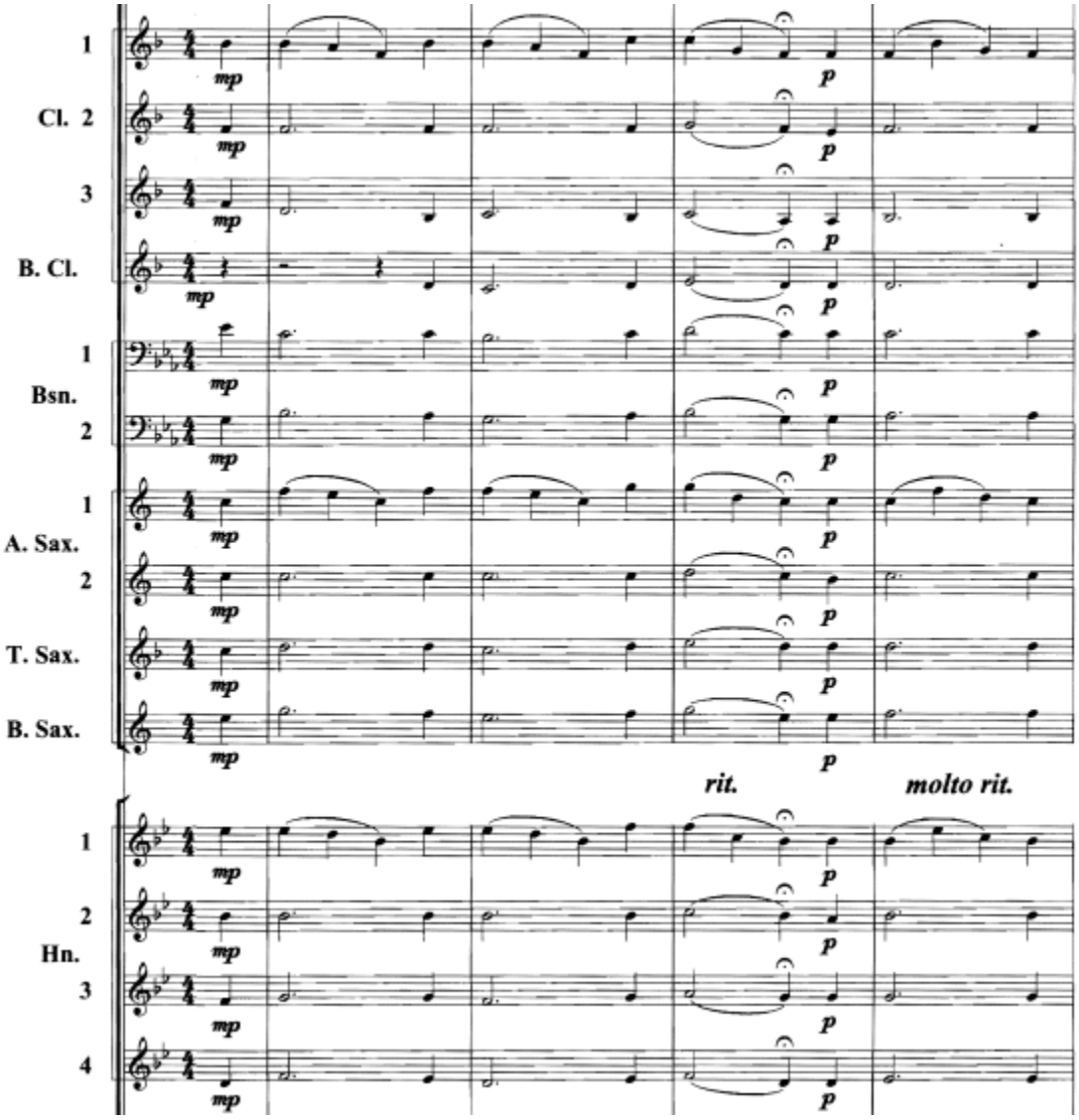
blends well with the french horn and is of valuable assistance to it in high or quick solos. It also softens the melody when combined with the baritone or euphonium."[16] White also quotes Professor H. Kling from his book *Modern Orchestration and Instrumentation* in saying, "The beauty, uniformity, and great pliancy of tonal character possessed by both the alto clarinet in Eb and the bass clarinet in Bb, subdues the tonal volume of the higher wood and especially the brass instruments, to such an extent as to impart an even and euphonious tonal quality to the entire instrumental masses of the military band."[17]

Knowing this, directors can perhaps make new interpretive decisions. Many of the band directors I have observed in my lifetime primarily treat the clarinet as an independent instrument, typically saying that if the clarinet ever shares a line with another instrument, the clarinet sound should be heard independently from other instruments' sounds and should therefore make up about 50% of the line's total sound. I would like to present a second mode of interpretation knowing the clarinet's primary role in the wind band setting. This is not meant to replace the previous form of interpretation, but it is instead meant to provide for a wider and more accurate use of the clarinet's unique characteristics.

In *O Magnum Mysterium*, transcribed by H. Robert Reynolds, we find a clarinet line doubling a horn solo (Example 4). Knowing it typically takes two clarinets to balance out one horn player, and using Frederick Fennell's Wind Ensemble instrumentation with two first clarinets and one first horn (see Figure 3), this line should have a clarinet flavor to it. However, also knowing that the clarinet is placed in its throat tones, and the clarinet's role in band music is often to add depth to other sounds because of its blending nature, we can begin to interpret this as a horn solo that's beauty is purely enhanced by the clarinet.

[16] William C. White, *Military Band Arranging: A Practical Modern Course for Schools and Private Study* (New York: Carl Fischer, 1924), 8.
[17] Ibid., 9.

Example 4 - Morten Lauridsen, *O Magnum Mysterium*, transc. H. Robert Reynolds (New York: Peer Music Classical, 2003), 8, mm. 59-62.



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Therefore, the solo should not be equal parts clarinet and horn.[18] Instead, it should sound like a "horn-et," primarily horn, with additional desirable characteristics derived from the

[18] If the clarinet had been written in a louder register, or the clarinet solo was marked a dynamic above the horn, I would argue that the solo could be interpreted as being equally split between the two instruments.

clarinets underneath it. I believe that in interpreting this excerpt in this manner, we are revealing the transcriber's true artistic intentions.[19]

As is found in various wind band composition textbooks, the clarinet typically assumes a blending, supportive role in the band setting.[20] However, this certainly does not apply to all sections of all band music. What happens when we wish to hear the clarinet as an independent instrument, not just as a supportive sound?

Some elements of scoring have to change for this to happen naturally and with ease. First, if the clarinet is playing a line by itself without any doubling, the supporting texture must be thin enough that the clarinet has room not only to be heard, but to be expressive and utilize various sections of its dynamic range. Second, if the texture is thicker, the clarinet must be placed in its upper clarion or altissimo range to be heard. Third, if the clarinet is doubled with another instrument, care must be taken to pair the clarinet with a softer instrument, or an instrument in its softer range, due to the clarinet's nature to blend into that instrument's sound.

Are wind band composers successful in incorporating these accommodations? We can discover the answer to this question by briefly looking at some sample compositions.

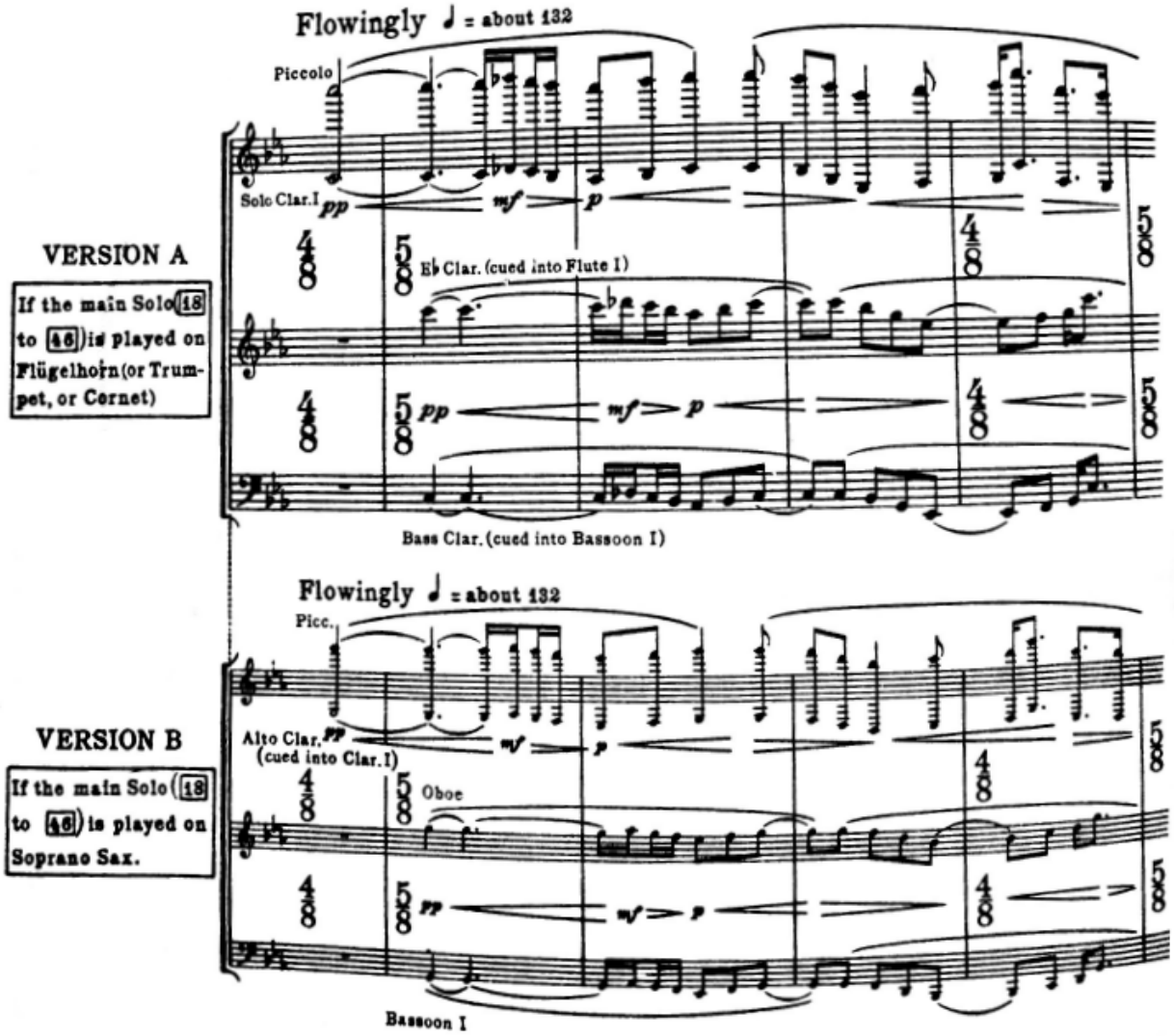
First, let us look at Grainger's *Lincolnshire Posy,* often considered a masterwork for band. The third movement, *Rufford Park Poachers*, begins with juxtaposed woodwind solos (Example 5). In Version A, the clarinet is in its lowest tessitura for the entire solo. However, it is

[19] It is also interesting to note that the Bb clarinets are the only instruments that are utilized in every measure of the transcription, thus meaning they are paired with a larger variety of voices than any other instrument in the ensemble. This makes sense when viewed through the lens that the clarinet is a blending instrument, meant to contribute to others' sounds.

[20] I would like to clarify that this is specific to the clarinet. Both philosophical ways of looking at the band sound (every sound should blend into the rest, or all instruments should sound independently like themselves) can incorporate this use of the clarinet. I am not advocating for the use of all instruments in this blending manner, and I also do not believe the clarinet must always assume this role. Instead, the clarinet is one of the most versatile instruments of the ensemble and should be utilized as such in various different roles.

typically easily audible because it is paired with the piccolo and set against a thin texture composed only of Eb and bass clarinet.[21] In Version B, the alto clarinet is also in the chalumeau register, but again, it is paired with piccolo and against only oboe and bassoon.

Example 5 - Percy Grainger, *Lincolnshire Posy*, mvt. 3 (New York: G. Schirmer, 1940), 12, mm. 1-5.



Throughout the rest of the piece, Grainger honors these compositional techniques. When he wishes for the clarinets to shine through (marked by a "solo" indicator or a thinned texture),

[21] "Lincolnshire Posy by Percy Grainger, West Orange High School Wind Symphony," February 18, 2016, video, accessed December 3, 2021, *YouTube,* https://www.youtube.com/watch?v=NZ3ppldgP9E.

the texture is greatly diminished, especially when the clarinet is in the chalumeau register.[22] When Grainger utilizes the clarinet as a blending instrument, it is doubled, tripled, or even more with other instruments in order to flesh out their sound, and the clarinet's range is similar to that of the other instruments, not allowing it to easily overtake the other sounds. Ultimately, a clarinet solo cannot be found in the work in a low tessitura buried under a heavy texture or louder solo instrument; it is always treated with care.

Next, let us look at Jim Stephenson's *Symphony No. 2*, composed in 2016. Although not considered part of the standard wind band canon, many would argue this piece is of merit, and I would agree. In the fifth bar of this excerpt, we see eighth notes in the clarinet (Example 6). Given the slower moving parts around this clarinet part and the *mp* markings across all parts, we can at least expect the clarinet to be heard in conjunction with the surrounding parts, if not above them. In either interpretation, the line should at least be audible.[23] However, the clarinet begins in the chalumeau register, and if we are using an ensemble around the size of Frederick Fennell's recommendations (see Figure 3), approximately 2-3 first clarinets are playing against 20 other players. The ensemble is only 45 total for this piece. Therefore, 2-3 clarinets are playing against nearly half of the ensemble while marked *mp* in the chalumeau. This alone while doing score study should imply there may be a balance concern with the start of the line.[24]

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[22] Percy Grainger, *Lincolnshire Posy* (New York: G. Schirmer, 1940). Remainder of paragraph from this source.

[23] A third interpretation could be that the composer wanted this line to "rise out of the mist" and not be immediately audible. However, the notation of *niente cresc.* would have better notated this idea. Also, this section is leading to the piece's largest climax. The rhythmic movement found in this line helps propel the piece forward, so even if the line is more of a "low murmur" than an obviously audible melody, it still must be heard to some degree to create a sense of motion. Every note that is not heard of the line is motion and impact lost.

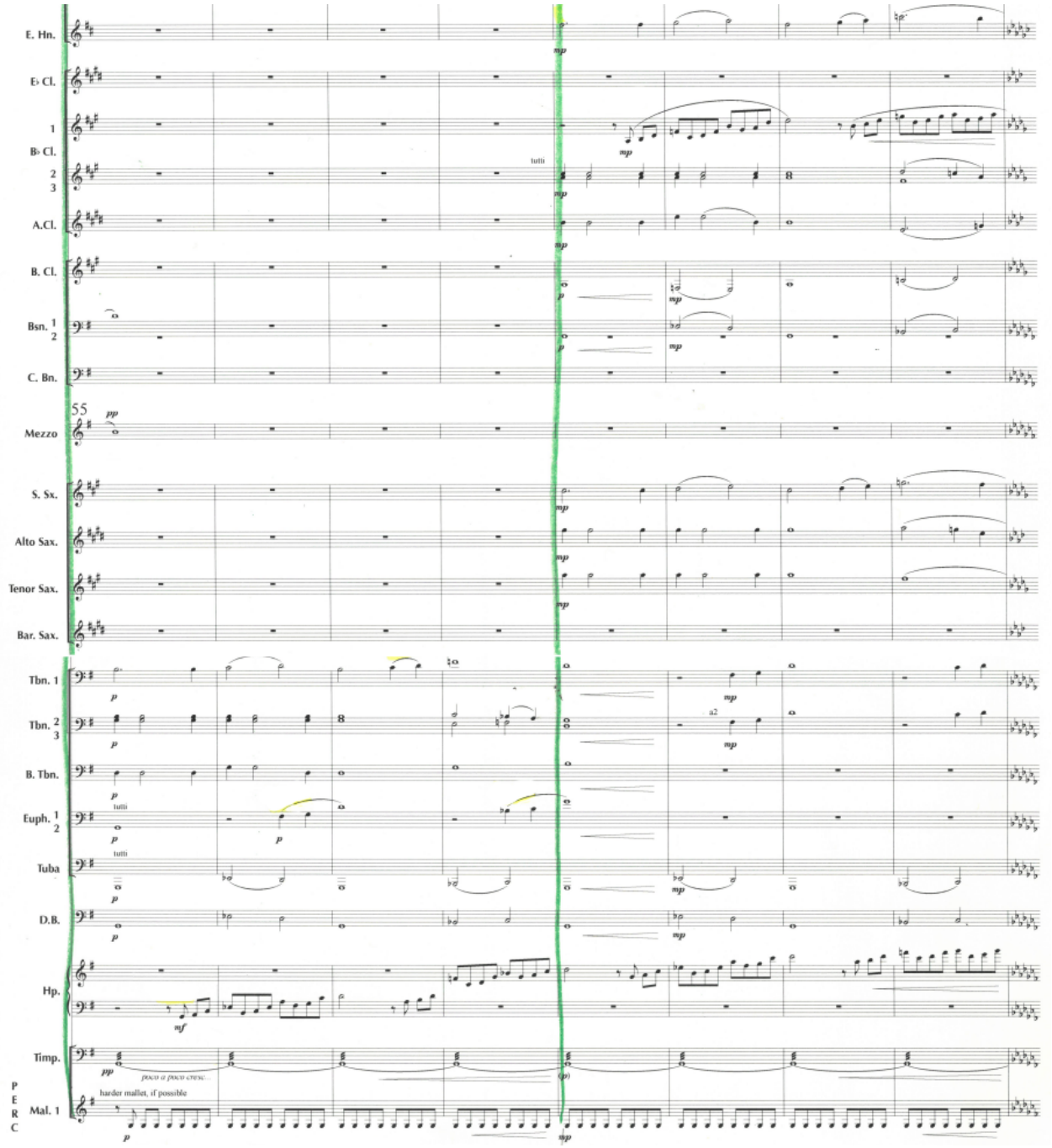
[24] Being able to enter a rehearsal with this kind of knowledge ready can save time. In order to help locate sections such as these, a Volume Density Analysis can be created. See the Appendix for an example and explanation.

When the esteemed United States Marine Band released their spectacular performance of the piece in 2017, this clarinet line was initially inaudible.[25] As the register rose, the line became more easily audible, but even with multiple Marine Band clarinetists, the first few notes disappeared in the mix of winds.

Evidently, even if we only take a single step outside of the standard wind band canon, we will begin to find sections of pieces, or even entire works, that are not always written to naturally sound balanced. It becomes up to the band to create a sense of balance instead, which is much more difficult than playing a piece in which this has been done compositionally. However, since the band is still a newer medium, we do not have an extensive wealth of masterworks to select from for the rest of our careers, and while it can be a good idea for our students' sake to have some standard works in a four to six year rotation, we need to continue to learn new pieces to satisfy our inner musician and continue to grow and learn. Therefore, it is inevitable that we will play works outside the canon throughout our careers, so I believe the question should not be "how can we avoid these pieces?" Instead, it should become "how can we teach these pieces in a way that helps us overcome the limitations written into the piece?"

[25] "Stephenson Symphony No. 2, Voices: 3. Of One - "The President's Own" Marine Band," May 11, 2017, video, accessed December 3, 2021, *YouTube,* https://www.youtube.com/watch?v=ctTgTQiOJYw. Remainder of paragraph from this source.

Example 6 - James Stephenson, *Symphony No. 2: Voices,* mvt. 3 (Chicago: Stephenson Music, 2016), 81, mm. 55-62.



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Suggested Solutions

There are several steps we can take at various levels to assist our clarinet players in being heard and thus better balance the band as a whole. The first is at the full band level regarding proper instrumentation.

Instrumentation - Proportions

We may not always have a large enough program to create a perfectly ideal ensemble, but there are a few points we should have in mind that will help us create a more balanced ensemble sound, no matter its size.

First, there are ratios of brass to woodwind that need to be considered. If we have a trumpet section of six and a clarinet section of six, that clarinet section will not be heard. Miller recommends that for every one horn, the ensemble has two clarinets to properly balance with it, and for every one trumpet, two horns are needed, implying four clarinets are needed to balance with one trumpet.[26] White states the clarinet is "the principal instrument" of the band, thus playing the same role to band as the violin does to orchestra.[27] The standard orchestra has large violin sections in comparison to the rest of the ensemble.

While this is a helpful starting point, examining the instrumentation of some of our first great bands will provide us with a better sense of what a complete ensemble should look like. Figure 2 contains the instrumentations taken from the esteemed Frank Battisti's book *The New Winds of Change.*[28]

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[26] Miller, *Practical Instrumentation*, 32.
[27] White, *Military Band Arranging*, 5.
[28] Frank L. Battisti, *The New Winds of Change: The Evolution of the Contemporary American Wind Band/Ensemble and Its Music* (Delray Beach, Florida: Meredith Music Publications, 2018), 53-54.

Figure 2 - Instrumentation of Esteemed Ensembles, Late 1940s

Goldman Band (60 total players)

1 piccolo	2 bassoons	6 trombones (4 tenor, 2 bass)
3 flutes	3 saxophones (alto, tenor, bari)	2 euphoniums
2 oboes (2nd doubling Eng hn)	4 cornets	4 tubas
1 Eb clarinet	3 trumpets	1 string bass
19 Bb clarinets	4 horns in F	1 harp
1 bass clarinet		3 percussion

University of Michigan Band (About 100 total players)

8-10 flutes	3-4 bassoons	6 trombones
2-4 oboes (Eng hn)	5-6 saxophones (alto, tenor, bari)	4 euphoniums or baritones
1 Eb clarinet occasionally	6-8 cornets	6 tubas
24-28 Bb clarinets	2 trumpets	2 string basses
3 alto clarinets	2 fluegels occasionally	1-2 harps
3 bass clarinets	6-8 horns in F	4-6 percussion

United States Air Force Band (81 total players)

6 flutes (all doubling picc)	4 bassoons (1 doubling contra, 1 bass sarrusophone)	6 trombones (4 tenor, 2 bass)
3 oboes (one doubling Eng hn)	5 saxophones (2 alto, 2 tenor, 1 bari)	3 baritones
1 Eb clarinet	11 cornets and trumpets	4 tubas
14 Bb clarinets	8 horns in F	4 violoncellos
1 alto clarinet		4 string basses
1 bass clarinet		1 harp
		6 percussion

Source: Frank L. Battisti, *The New Winds of Change* (Delray Beach, Florida: Meredith Music Publications, 2018), 53-54.

The last two bands are “symphony” or symphonic bands, given their large size. The point of these ensembles was to recreate the orchestra’s large, full sound, and in addition to original band works, they would often play orchestral transcriptions. The University of Michigan and Goldman band was comprised of about 35% clarinets. The Air Force Band was able to succeed with 21% clarinets. In all three bands, the clarinets comprised around half of the woodwind

section, and the woodwinds made up about half of the band. The brass made up just under half, and the remainder was filled out by strings and percussion.

In trying to find an ideal instrumentation, we should also look at Frederick Fennell's Eastman Wind Ensemble (Figure 3). He desired to create a standardized instrumentation that catered to composers in order to encourage the creation of more original works for the wind ensemble.[29]

Figure 3 - Fennell's Eastman Wind Ensemble (About 44 total players)

1 picc and/or alto flute	2 bassoons	3 trombones
2 flutes	1 contrabassoon	2 euphoniums
2 oboes	4 saxophones (2 altos, 1	1 Eb tuba
1 English horn	tenor, 1 bari)	1-2 Bb tubas
1 Eb clarinet	3 cornets or 5 trumpets	1 string bass
8 Bb clarinets	2 trumpets	Variable harp and perc
1 alto clarinet	4 horns in F	
1 bass clarinet		

Source: Frank L. Battisti, *The New Winds of Change* (Delray Beach, Florida: Meredith Music Publications, 2018), 68-69.

Again, we see the same fundamental characteristics as the earlier, larger bands: The clarinets comprise about 25% of the band, which is about half of the total woodwind section, of which is just over half the entire band (55%).

Therefore, because these ensembles are considered a success and abide by similar instrumentations, the above is the recommended proportions for a well-balanced ensemble. If it is possible through auditions to at least allow the upper ensemble(s) to come close to this instrumentation, this would set the clarinets, and therefore the entire ensemble, up for success. However, not all programs will have multiple ensembles or enough players to easily achieve these ratios, so other accommodations should be made.

[29] Battisti, *The New Winds of Change*, 68.

Instrumentation - Flexibility

The first recommendation is that not every brass player always needs to play. Before the fear of that statement takes hold, let me clarify.

We have already discussed the dangers of asking our clarinetists to play full force all the time. However, brass can develop poor technique and become injured while playing as well, but from both ends of their dynamic range. The clarinet, when supported with proper fundamentals, can play extraordinarily soft with ease. This is not as natural for brass instruments, so if we are in a passage that requires soft playing by a large brass section and are having them all play in unison, we are not setting them up for success.

We can compare this to assistant horn players. They step in before solo passages to allow the principal to rest, and they add in for tutti *forte* sections. In pieces where this approach is practical in one or more brass sections, I would absolutely recommend it. For example, if the trumpet section is large and the second and third part are doubled, the second chairs of each part can act as an assistant to the chair above. The higher chair can play many of the exposed sections, but the second chair can also be given some opportunities to do so as well to help them grow. Then, for less exposed sections, the second chair can typically play, and all can play in sections where they will not be covering an important line. This provides all players an opportunity to rest, develop their solo playing, and work on playing softly without as much pressure. Additionally, once the trumpets have been taught to divide parts like this, they can begin to divide them themselves, relying on their own knowledge of the piece to determine how each section should be approached and encouraging them to listen to the ensemble sound in a new way.

A second concept to help create a balanced ensemble is that we do not need to keep the instrumentation for our largest piece. For example, the instrumentation for John Mackey's *Aurora Awakes* can be seen in Figure 4.

Figure 4 - Instrumentation for *Aurora Awakes*

Piccolo	2 bassoons	4 trombones (3 tenor, 1 bass)
4 flutes	1 contrabassoon	1 euphonium
1 oboe	4 saxophones (2 altos, 1	2+ tuba preferred
1 Eb clarinet	tenor, 1 bari)	1 string bass
4 Bb clarinets	4 trumpets	Piano
2 bass clarinets	4 horns in F	Timpani
1 contrabass clarinet		6 percussion

Source: John Mackey, *Aurora Awakes* (San Francisco: Osti Music, 2009).

There is an extra trombone and flute in this ensemble in comparison to Fennell's instrumentation. There is also one less oboe and euphonium. Knowing we want to keep our instrumentation balanced for other pieces, what are our solutions?

Trombone and euphonium players can often double the other instrument, so the euphonium player that does not play in Mackey's piece could play trombone. Much like trumpets switching to cornets or Eb clarinets switching to Bb, this would require a brief moment between pieces to move and blow warm air through the instrument, but it is not unheard of for the audience to witness this process. Therefore, if one of the euphoniums already plays trombone in an orchestra, they could be a great option to switch for the piece, or if one player would like to improve their trombone skills to work towards an orchestral audition, this could provide them with a beneficial opportunity.

Many woodwinds are not as much of a cause for concern because of their quieter volume, so the second oboe player could double the part. However, if they play in the pit for marching band, for example, they could be given a mallet part instead, especially if the band does not have seven percussionists. Additionally, if they play piano, they could be given that part instead.

As for the extra flute, fourth flute could be brought in as a guest if an extra flute is not needed for the rest of the concert's repertoire. This could be a good introduction to the higher level ensemble for the first chair of the ensemble below without suddenly having an entire concert's worth of repertoire to learn. Logistically, if both bands rehearse at the same time during the school day, this would work well. If they do not, a few playing exams in place of rehearsals and brief excused absences from a conflicting class for any dress rehearsals would still give the student this valuable experience. The collegiate setting enjoys more flexibility in enjoying this concept, and we should not hesitate to take advantage of this. Changing instrumentation between pieces is common in many orchestras, so if this is possible to do in our bands, we should not completely shy away from the idea.

As it was previously stated, the band is meant to be an experiment in sound, so we should not expect one set of instruments to work for every piece we encounter.[30] We can attempt to pick pieces with as similar instrumentation as possible for each concert, but inevitably, there will be some fluctuations between pieces. Therefore, we should start off with as balanced of an ensemble as possible and only add players as needed.[31]

The types of solutions above are relatively simple but not always easy. They can require more work on the director's end and an especially tactful approach when discussing part assignments with students. However, when we remember that our band's sound will greatly benefit from this kind of work, we can know that frontloading our work like this will make

[30] Battisti, *The New Winds of Change*, 69.
[31] Of course, include as many students as possible. I am only asking that we remember the following: When we add too many to a certain section that has the ability to overwhelm the full ensemble, that can diminish the level of the ensemble experience for *all* involved. Thus enters the "do the needs of the many outweigh the needs of the few" debate, in which the answer will naturally vary from person to person and situation to situation.

rehearsals much easier, because our band's sound will already be much closer to our goal than it otherwise would be.

Proper Brass Technique

Another way we can assist in balancing our ensemble, ideal instrumentation or not, is to develop proper brass playing technique. This is especially helpful in pieces that may not have been scored to naturally let woodwind melodic lines speak.

I will leave the nuances of brass technique to a brass specialist, but here I will advocate strongly for the use of long tones in the development of a soft brass sound. Beginning with *mf* long tones in a comfortable range and gradually coming closer to a *pp* dynamic while retaining a full, round sound will strengthen the embouchure and form a habit of producing a characteristic sound at a wider range of dynamic levels. While practicing, the dynamic should not be lowered until the student can produce a full sound at whatever dynamic they are currently playing. For example, if the student can play at *mp* with a characteristic sound but not at *p,* allow the student to practice long tones at *mp* until this dynamic is quite comfortable. With some consistent practice, they will gradually be able to reach the quieter end of their dynamic range.

Proper Clarinet Technique

To ensure proper balance between the clarinet specifically and the rest of the ensemble, certain aspects of clarinet technique should be considered to ensure the player is able to achieve a maximum volume.[32]

[32] Please remember, these are not the *primary* solutions to solve all clarinet-related balance issues. If it takes two clarinets to balance out one horn, and we have six horns and seven clarinets in our ensemble, no matter how great the clarinetists' technique is, proper balance will be a constant chore. Even if we have four horns and eight clarinets, if the horns cannot play softly,

To begin, a common adjustment that can be made with most younger players is to take more reed in the mouth. When the student only uses a small amount of reed, a small amount of sound is produced because of the lack of vibration. There are multiple common ways to determine the amount of reed a student should take in their mouth, but the most practical and effective way is to have the student take in more and more reed until they squawk, and then take just a little less than that in the mouth. No fancy paper tricks, no need for measurement, just a quick test and correction.

As the student does the above, the head and clarinet angle should be taken into consideration. Taking more mouthpiece into the mouth is different than taking more reed. The student only needs a small amount of the mouthpiece under their upper teeth, only enough to ensure a proper grip. This means that if the student needs to take more reed into the mouth, they should bring the clarinet a little closer to their body instead of pushing more mouthpiece into the mouth. Ideally, the bell of the instrument should rest somewhere between the knees while sitting. Additionally, the head should remain upright; the lower the head, the less reed that is in the mouth. Of course, every mouth is different, and the student's teeth angle will affect the instrument's angle, but to generalize, this is the ideal position for the clarinetist to ensure optimization of the reed, which will allow ease of sound production.

Body position is important as well. When players slouch into themselves, their sound may reflect their posture. Therefore, having open shoulders, an upright head position, and the elbows away from the torso will create more space for the sound to be produced.

This body position will also enable proper breathing, which is key to sound production on any wind instrument. The breath should be deep and relaxed. The stomach should expand while

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proper balance will still not readily be achieved. Therefore, consider these final recommendations the icing on the "balance cake," if you will.

breathing, and the shoulders should not rise in order to avoid tension.[33] Although stacking air is more common on oboe, techniques to avoid this problem should be taught to clarinetists as well. Therefore, the size of the breath should match the need for air; the breath does not always have to completely fill the lungs.

The breath can be easily misused on the clarinet. Just like breathing in, our exhale should come from our stomach area. We do not necessarily need to think of tensing the area to force air through the instrument, but we want to avoid blowing from the throat, which occurs when there is a lack of proper air support from below. The tone of a student blowing from their throat will sound "throaty," spread, and uncontrolled, and the pitch may sag. I have also heard this called a "plastic" sound, because many players who blow from their throats happen to also play on plastic instruments.[34] These sounds can also result from puffed cheeks, so to determine the difference, if the pitch does not correct itself with a firming of the corners, the tone color may be caused by a throat issue instead.

To teach students how to shift where they are blowing from, they can practice playing slightly leaned back in their chair. When they lean back, it is important to keep the head at the same relative angle to the instrument as it is when seated normally, and it is not necessary to lean back far. Instead, students should lean just enough that they feel their abs *start* to engage, and then they should play while holding this position. Frequent breaks are recommended, but over

[33] Some students struggle to breathe anywhere other than their chest. To help with this, have them find where their rib cage meets in the center of their torso, then press just below that gently. Ask them to relax the area under where they are pressing, and then breathe below this area. Another exercise to help lower the breath is to practice breathing while laying on the ground. Gravity will help them better feel where they are breathing from and self-correct.

[34] In other words, most plastic instruments should not sound drastically different from wood instruments. If an unfocused sound is coming from a beginner, it is probably from a technique issue, not primarily from the instrument.

time, this will train their body to utilize their intercostal muscles instead of their throat and tongue.[35]

Reed strength should be supportive to the clarinetist. A one-size-fits-all approach is never appropriate for equipment of any kind. For example, I should be able to play on the same equipment as my clarinet family members because I am genetically physically similar to them. However, I sound extraordinarily different from them when I play on their equipment because it does not fit my mouth shape. If my family cannot even play on the same equipment and sound similar, I cannot imagine an entire section with widely varying physical characteristics sounding the same on the same equipment. Just like we ask students to arrive in a uniform fit to their proportions, we should ask them to use equipment that matches their physical needs as well.

Therefore, selecting a reed strength becomes more personal than assigning a 2 or 2.5 at the start and requiring they make it to a 3.5 by high school. To tell if a reed is too soft, ask the player to play an A above the staff. If it is difficult to make it speak without cracking, the reed is too soft. Additional characteristics of a reed that is too light are difficulties in tonguing lightly, a thin unsupported sound, and an inability to play softly in the upper register. To tell if a reed is too hard, ask the player to play an open G, *mf*. If it sounds fuzzy or muted in any way, the reed is probably too difficult. Other characteristics of a hard reed are unclear starts to notes, a fuzzy tone in the lower range, an inability to sustain a phrase, and an inability to play softly and with a clear tone. Articulation can also suffer and become unclear, but often a reed that is slightly too difficult

[35] While it is important to play with minimal tension, some form of support is required to produce the air pressure needed for clarinet playing. That pressure can come from a large set of muscles (the intercostal muscles), thus dispersing the work those muscles have to do, or it can come from a small set of muscles (the throat), thus highly increasing the pressure put on that area. I would prefer the former, and the latter can result when we ask clarinet players to remove all tension from their bodies. They may remove the tension from their torso and place it in their throat, and they may not immediately notice it there due to its close location to the required tension in their embouchure. This is when soft palate damage can occur.

allows for an increase in articulation speed due to a feeling of support from the reed, which is sometimes why players will gravitate to them.

Students will need to switch reed strengths for a variety of reasons. As a beginner, they will probably change strengths relatively rapidly. As they mature, they may find certain strengths work better during certain seasons (reeds can become soft in the dry and cold winter climate and vice versa - quarter sizes, such as 3.5+, are most helpful in these instances). If the student changes brands while searching for a different sound, the cut of that brand may necessitate a different strength. If anything physical changes, like a mouthpiece change or an oral surgery, a different reed strength may be required. It is not abnormal to play on a 4 and later play on a 3.5. Reed sizes should have no relation to ability level; they are just tools to produce a sound, and they must be matched with the unique face and equipment of the player.

Overall, the suggestions above will help clarinetists produce a larger sound over time. Balancing this with a softer brass section and properly proportioned instrumentation should help provide a beautifully balanced band sound that consistently works with ease.

Conclusion

Knowing that improperly balanced ensembles can cause poor technique and injury in players, we should commit ourselves to overcoming scoring difficulties in order to create both a supportive musical environment and an ideal, balanced ensemble sound. We may not always have the ability to create an ensemble that is naturally balanced or to play only masterworks, but by knowing the reasons the clarinet sound can become buried in the ensemble, we can hopefully problem-solve from a more comprehensive view of the situation.

As with everything new, the recommendations above should be implemented one at a time, starting with the adaptation that will make the biggest change in the particular ensemble being addressed. Over time, it is my hope that directors can begin to integrate these processes into their ensembles naturally and without thought, thus allowing for greater musical fulfillment from the new and improving wind band setting.

Appendix

Volume Density Analysis

Below is a sample analysis of *Armenian Dances* by Alfred Reed.[36] To do an analysis:

1. Total the number of players in the ensemble that will be performing the work.
2. Search for the highest and lowest dynamic in the work.
3. Assign the number 1 to the lowest dynamic and the total from step one to the highest dynamic.
4. Assign numbers as evenly as possible across the remaining dynamics.
5. Measure by measure (or in larger chunks if desired), count the number of players playing in the given measure/section (if there are three oboes playing, every time the oboe has a tutti line, it counts for 3 players). Put this total number in the Density column.
6. For each measure/section, also determine the average dynamic. Using the numbers assigned in step 4, put the corresponding number in the Volume column.

Here, the density is based on a maximum density (ensemble size) of 49 players, and the dynamics in the chart consist of the loudest and softest dynamic found with everything between filled in:

Volume Range	*fff*	*ff*	*f*	*mf*	*mp*	*p*	*pp*
Density Range	49	41	33	25	17	9	1

A sample of the entries made while creating the chart:

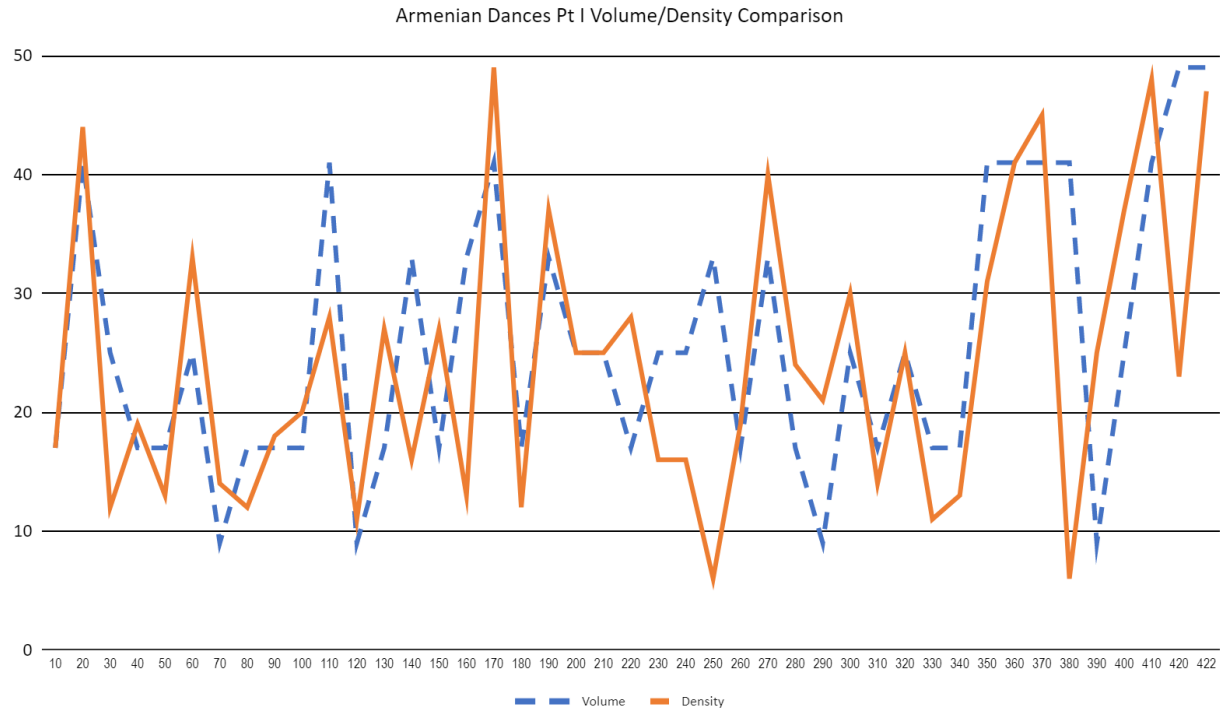
Measure	Volume	Density
1	41	40
2	41	40
3	41	40
4	41	39
5	33	35

Measure	Volume	Density
6	33	27
7	33	32
8	33	32
9	17	17
10	17	17

Measure	Volume	Density
11	17	17
12	17	17
13	17	19
14	9	17
15	9	18

[36] Alfred Reed, *Armenian Dances (Part 1)* (New York: Sam Fox Publishing, 1974).

The resulting chart:



When the volume or density is high and a clarinet solo is paired with it, there may be a balance problem. These charts have additional uses, such as when the volume and density do not align, the dynamic of the ensemble may need to be adjusted to produce the written dynamic (such as around the 240 mark in the example above - the volume is relatively high, but hardly any players are playing). Additionally, these charts can serve as an expressive overview of the piece, highlighting where the climaxes occur. In all, I would recommend using these charts, because they will provide more context when attempting to find potential balance problems in a piece.

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