CHAPTER TWO
The Birth of “Timbre”

In December 1765, the final ten volumes of Diderot’s *Encyclopédie* appeared, after an extended delay due to problems with censorship. Among the myriad entries was the following definition by Jean-Jacques Rousseau:

Tymbre. n. m. A sound’s tymbre describes its harshness or softness, its dullness or brightness. Soft sounds, like those of a flute, ordinarily have little harshness; bright sounds are often harsh, like those of the *vielle* or the oboe. There are even instruments, such as the harpsichord, which are both dull and harsh at the same time; this is the worst tymbre. The beautiful tymbre is that which combines softness with brightness of sound; the violin is an example.¹

¹ “Tymbre, s.m. *en Musique*, on appelle ainsi cette qualité du son par laquelle il est aigre ou doux, sourd ou éclatant. Les sons doux ont ordinairement peu d’éclat comme de la flûte; les sons éclatants sont sujets à l’aigreur, comme les sons de la vielle ou du hautbois. Il y a même des instruments, tells que le clavecin, qui sont à-la-fois sourds & aigres, & c’est le plus mauvais tymbre. Le beau tymbre est celui qui réunit la douceur à l’éclat du son; on en peut donner le violin pour exemple.” Rousseau, “Tymbre,” Denis Diderot, Jean Rond D’Alembert, ed., *Encyclopédie* (Paris, 1751-65 CD-Rom, Édité par Redon, Version 1.0.0). Rousseau most likely wrote this article years before it was published. He reports in his *Confessions*, “The two authors had just been working on a *Dictionnaire Encyclopédique* [sic], which was initially supposed to be nothing more than a translation of Chambers, similar to that of the *Dictionnaire de Médecine* by James, which Diderot had just translated. He wanted me to contribute something to this second enterprise, and he offered me the musical articles, which I accepted, and which I executed in a great hurry and very badly during the three months he had given me and all the other authors who were supposed to work on the enterprise, but I was the only one who finished in the agreed time.” *Confessions* (Paris: Hatier, 1999), p. 119, quoted in Philip Blom, *Enlightening the World: Encyclopédie, The Book That Changed the Course of History*, (New York: Palgrave Macmillan, 2004), pp. 44-45. It is likely, then, the Rousseau’s entry was written in 1749.
This brief article is remarkable not only for its content but because it is the first explicitly musical definition of the concept of timbre. While timbre may seem to be a trans-historical concept—surely musicians had been aware of it throughout history—the idea that timbre could be discussed as a discrete concept did not arise until the second half of the 18th century. The definition, however brief, signified a major change within musical aesthetics away from the early 18th-century notion that the musical medium by itself was essentially meaningless. The idea that one could talk about and evaluate music’s immediate sounds, outside of the context of a composition or performance, heralded a new conception of the value of the musical medium.²

As explored in Chapter One, most thinkers struggled with notions of imitation, since music’s meaning depended on how well it could depict, imitate, or express human emotions or the outside world. When discussions turned to music’s immediate sensations, it was usually to

² The word “timbre” has a fascinating etymology, and is used in French for such disparate things as “stamp” and “knees.” Rousseau was the first to define timbre as an explicitly musical element. In the first edition of the Dictionnaire de l’Académie française (1694), “timbre” appears, but is not associated with sounds. In the Dictionnaire de Trévoux (1752), the supplement to the Dictionnaire Universel François et Latin, article on timbre first connects it to “bell”—both cow bells and carillons. The end of the article reveals the changing notion of timbre: “It is said sometimes, for the sound yielded by the timbre (i.e., the bell): this timbre is too bright.” (Il se dit quelquefois, pour le son que rend le timbre. Ce timbre est trop éclatant). Timbre here is both the bell that gives for the sound, and the quality of the sound that the timbre emits. (The article on timbre in the Dictionnaire de Trévoux is doubly fascinating, because the author remarks on the many different ways in which “timbre” has been used in the French language). In the fourth edition of the Dictionnaire de l’Académie (1762) timbre is explicitly linked to the sound of the human voice: “It is used sometimes figuratively for even the sound of the voice. And in this sense, one says of a beautiful voice, There’s, a beautiful timbre. This voice has a silver timbre.” (Il se prend quelquefois figurément pour Le son même de la voix. Et dans ce sens on dit d’une belle voix, Violà un beau timbre. Cette voix a un timbre argentin). One finds a similar definition in Jean-François Féraud’s Dictionaire critique de la langue française (Marseille, 1787-88).
show how music that only provided immediate pleasure through its sonorities was compositionally deficient. Issues of tone-quality belonged to the realm of performance. As late as the 1770s, Sulzer still argued that single musical tones were not inherently expressive; it was only through thoughtful performance that tones became infused with expression:

One can certainly hear passionate notes in music that are, by themselves and with no help of the composer, painful, sad, tender, or gay. But such impressions come about through the artistry of the singer and belong properly to performance. This has nothing to do with the writing of a good melody, except perhaps in so far as the composition might offer the singer or player some guidance as to how the written notes may be performed with feeling.³

Though Rousseau’s definition of timbre marks a move away from a purely performative notion of tone-quality, it nevertheless appears cursory and conservative in comparison to the rich descriptions of instruments and instrumental effects we routinely employ today. One need only compare Rousseau’s article to Berlioz’s orchestration treatise to reveal exactly how stark the difference is: while Rousseau outlines a meager palette of four basic qualities—harsh, soft, dull, bright—Berlioz’s treatise often reads like a sweeping introduction to a cast of characters: he informs us which instruments are pleasant,

sweet, and joyous; which are grotesque, sad, or melancholy, which ought to be used more often and which should be avoided. He rapturously tells us that

... there is nothing like the telling sweetness of twenty e” strings activated by twenty well-controlled bows. This is the orchestra’s truly feminine voice, at once passionate and chaste, heart-rending and gentle, able to weep and moan and wail, or sing and implore and dream, or break out in joy as no other instrument can.⁴

He complains that violas are underused, and entices composers by speaking of the “particular pungency” of the instrument’s lower register and the “especially sad and passionate character” of the higher notes.⁵ The oboe is also a profoundly expressive instrument; for Berlioz, its “special characteristics convey candor, naïve grace, sentimental delight, or the suffering of weaker creatures.”⁶ By contrast the flute, he remarks, is an instrument “almost lacking in expression.”⁷ The bassoon he warns, has a “propensity to sound grotesque when exposed,” but also notes how Meyerbeer was able to produce a “pale, cold, cadaverous sound” in the resurrection of the nuns in Robert le diable by employing its middle register.⁸ Instrumental timbre, for Berlioz, is something that is full of character, colorful, and expressive.

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⁵ Ibid., p. 35.
⁶ Ibid., p. 104.
⁷ Ibid., p. 140.
⁸ Ibid., pp. 113-114.
How did musicians get from Rousseau’s definition of timbre to Berlioz’s orchestration treatise? The difference between the two thinkers’ perception of sonority is a one of kind, not merely of degree. Rousseau may define *timbre* as a discrete concept, but he does not assign it a place of importance within musical composition. By contrast Berlioz views the proper use of instrumental sonorities as fundamental to the structure of music; correct composition is impossible without an intimate knowledge of the properties of instruments. The notion of timbre, as we shall explore in this chapter, entered musical discourse in two stages: first, it became a discrete concept; only later did it become associated with color and character. The idea of timbre that was rendered as *Klangfarbe* in German implies the presence of a well-developed orchestral tradition: the single color of an instrument was one in a range of colors, and that palette was produced by an array of instruments. This “orchestral” conception of timbre emerged during the late 18th century, as the orchestra reached its final solidification and consolidation.

18th-century notions of beautiful sonority

In order to understand how the conception of timbre changed during the period between Rousseau and Berlioz, we must first understand the aesthetics behind Rousseau’s definition. The notion of timbre Rousseau discusses is closely tied to the word’s etymological roots: *tymbre* was derived from the Latin noun *tympanum*, meaning drum or bell; rather than color or character, *timbre* in its original meaning focused on the quality of resonance. Indeed, one meaning of “timbre” was simply
“resonance,” and Rousseau himself used the word this way in Émile, in a description of how a girl seeks to appear attractive:

... she can already seek to give an attractive turn to her gestures and a flattering accent to her voice, to gain composure in her bearing, to walk lightly, to assume gracious attitudes, and to choose situations where she looks her best. The voice’s range increases, it gets stronger and gains timbre; the arms develop; the step becomes sure; and she perceives that, however she is dressed, there is an art of getting looked at. ⁹

The initial attention paid to instrumental sonority did not consider instruments in a network of contrasting and complementary colors, but rather evaluated each sonority on its own. Rousseau, rather than describing the instruments’ characters, evaluates their quality. His discussion is governed by a notion of beauty that is halfway between early 18th-century conceptions of music and Berlioz’s view of instrumental timbre. In this period instrumental sonorities began to be granted real value, but their value was nonetheless dominated by the very aesthetic that held vocal music in the highest esteem.

We can best understand this particular aesthetic by looking not at orchestral music of the period—though the emergence of the modern orchestra certainly contributed to the notion that individual sonorities

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⁹ “... on peut déjà chercher à donner un tour agréable à ses gestes, un accent flatteur à sa voix, à composer son maintien, à marcher avec légèreté, à prendre des attitudes gracieuses, et à choisir partout ses avantages. La voix s’étend, s’affermit, et prend du timbre; les bras se développent, la démarche s’assure, et l’on a’aperçoit que, de quelque manière qu’on soit mise, il y a un art de se faire regarder.” Émile ou de l’éducation, (Paris: Classiques Garnier Multimédia, 1999), pp. 467-8; translated Alan Bloom (New York: Basic Books, 1979), p. 373.
were aesthetically pleasing—but at a particular instrument: the *armonica*. Invented by Benjamin Franklin in 1761, the glass harmonica, as it is more commonly known, consisted of a series of tuned glass bowls threaded onto a spindle, and set in motion by a foot treadle. The glass harmonica was a sophisticated version of the more quotidian musical glasses (water-filled crystal glasses played by rubbing the rims). The musical glasses had become increasingly popular in Europe in the decades leading up to Franklin’s invention: Gluck was known to dazzle several audiences with his prowess on the musical glasses; Irishman Richard Pockrich (~1690-1759) performed on a special set of graded musical glasses to which he gave the name “the angelic organ,” and was especially famous for his performances of Handel’s *Water Music*.\(^\text{10}\) Franklin heard the musical glasses during a trip to England in 1757 and set to work improving the instrument; his version allowed for the much easier execution of chords and passagework, and soon became immensely popular. Virtuoso performers such as Marianne Kirchgessner and Marianne Davies toured with their glass harmonicas, and a variety of composers, including Mozart, wrote music for the instrument.

Franklin himself described the instrument’s tones as “incomparably sweet beyond those of any other [instrument]”\(^\text{11}\) Many, as Heather


Hadlock has documented, believed the instrument paired well with the human voice: Ann Ford had already praised the musical glasses as a dignified accompaniment to singing; in 1762 a British journal reported on Franklin’s instrument, claiming he had “greatly improved the musical glasses and formed them into a compleat instrument to accompany the voice.” Franklin’s instrument impressed both in Europe and in America: Philipp Vickers Fithian reported hearing a Mr. Carter perform on the glass harmonica in Philadelphia, writing,

> It is the first time I have heard the Instrument. The Music is charming! The notes are clear and inexpressively soft, they swell and are inexpressively grand; and either it is because the sounds are new, and therefore pleased me, or is the most captivating Instrument I have ever heard. The sounds very much resemble the human voice, and in my opinion they far exceed even the swelling Organ.

In an article on Röllig’s keyboard version of the instrument, in Cramer’s *Magazin der Musik*, the author began by remarking that “Most readers will have had the opportunity to hear this indescribably beautiful instrument themselves, which exceeds the sweetness and softness of all [other] tones, including the human voice.” Consistently, writing about the glass harmonica concentrated specifically on its sonority; the actual

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music composed for and performed on the harmonica often does not feature prominently, if at all, in discussions of the instrument. In contrast to the large body of musical writing from the early 18\textsuperscript{th} century that minimized the importance of music’s immediate sensations, discussions of the glass harmonica celebrated the instrument’s remarkable tone. Its tone was beautiful, regardless of the music performed on it.

\textit{The glass harmonica as mediator}

Though the glass harmonica’s immediate sonority was considered beautiful in and of itself, the instrument nonetheless adhered to many of the aesthetic tenets of mimetic theory. Indeed, it was \textit{because} the instrument conformed to mimetic theories that it could be praised so lavishly. Two aspects of the glass harmonica gave rise to this notion of aesthetic conformity: its technical limitations and the quality and purity of its tone. Part of the reason people did not have to discuss the kind of music performed on it was because the instrument’s mechanism limited the range of styles it could perform. Its inability to execute rapid passagework and its slow response made wild changes of affect nearly impossible. This was understood at the time: Röllig, in his \textit{Über die Harmonika, ein Fragment} (1787) tells his readers that the glass harmonica could not perform music with filled sudden changes of affect.\textsuperscript{15} The harmonica, if not completely by choice, was ideally suited to music of a unified affect. It sidestepped the creative criticisms lodged

\textsuperscript{15} Hadlock, p. 521.
against so much instrumental music—the many accusations that music without words careened through a dizzying number of jarring transitions or that it resembled paint splattered upon a canvas.

Unlike music in the suspicious “Italian style,” the harmonica produced music that conformed to the dominant aesthetics, which held vocal music in highest esteem. Here there was no question of silly imitations of inappropriate subjects, for the harmonica could imitate the one thing that was worth imitating: the human voice. It was not alone in this regard. Instruments that could imitate the voice had parasitical aesthetic value. Sulzer, for example, argued:

> Among all instruments that can produce expressive tones, the human voice is without doubt the one to be preferred. One can deduce from this the fundamental maxim, then, that the most excellent instrument is that which is most capable of imitating the human voice. By this reasoning, the oboe is one of the best.16

This notion has recurred numerous times throughout recorded history. In the Renaissance the *viola da gamba* and cornetto enjoyed privileged receptions precisely because they were thought to approximate the human voice, while part of the enduring allure of the theremin is its uncannily voice-like sonority

Not only was the glass harmonica considered to approximate the human voice more closely than any previous instrument, it was praised

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16 Sulzer, p. 97.
for being an *ideal* voice, even better than human. Unlike other instruments, the harmonica distinguished itself by its ability to be discussed and judged using the criteria previously reserved for vocal music: it conformed to the dominant aesthetics in both sound and style.

*Instruments and beauty*

By relating the glass harmonica to Rousseau’s definition of timbre, we can begin to understand the underlying aesthetics behind the conception of sonority in this period. Both reflect an emerging fascination with music’s immediate qualities: the glass harmonica’s striking tone fostered discussions of sonority independently of performance; Rousseau’s article reveals how, for the first time in history, timbre demanded to be considered as a discrete concept.

Theory versus practice, each represents a different reaction to the same phenomenon. Yet, both also represent a midway point between early 18th-century aesthetics and our modern conception of timbre. Just as Rousseau judged instruments according to the beauty of their tone, so too the glass harmonica embodied a kind of sonority that was still entrenched in the imitative aesthetics of the early 18th century.

We can see this aesthetic functioning in discussions of, and treatises, on instruments from the mid-18th century onward. Pre-Berlioz instrumentation treatises are rarely discussed in the secondary literature, and are often treated merely as precursors to Berlioz. Hans

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17 The glass harmonica’s popularity as the ideal voice sparked a tradition inventing instruments that attempted to capture its pure sonority in a form that was more manageable, less fragile, and more agile.
Bartenstein, for example, is first and foremost concerned with identifying those moments that point towards Berlioz’s conception of instrumental character and the role of orchestration within a composition as a whole. Such a teleological approach glosses over many of the intricacies of these treatises and undermines an understanding of them as documents attesting to the aesthetics of their own period.

One of the earliest systematic discussions of instruments is Ancelet’s *Observations sur la Musique, les Musiciens, et les Instruments* of 1757. This small pamphlet is not a true instrumentation treatise, since it does not give any technical information about the instruments discussed. Ancelet does however reveal much about his conception of the value of the different instruments and the relationship between a composition and the instruments that execute it. Like Rousseau, he praises the violin. “It is certain,” Ancelet writes, “that the violin is the most beautiful and most perfect of the instruments, because of its quality of sound, its range, and its execution, which embraces all kinds and characters of music.”

Ancelet makes clear one aspect of the aesthetic of this period: the notion that we should evaluate instruments based on their ability to embody a range of styles. The flute, for

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20 This is not to say that the notion that instruments had their own characters was totally foreign. Rousseau, in the entry on “Instruments” in the *Encyclopédie*, noted that “the character of instruments forms a very important part of the composer’s study. They are the different voices through which he speaks to our ears,” quoted and translated in David Charlton, “Envoicing the Orchestra: Enlightenment Metaphors in
example, is not suited for styles of music such as “the airs of demons, furies, warriors, storms, sailors, and many others”; rather it should be reserved for “tender and pathetic pieces, accompaniments, small airs and brunettes, and in Sonatas and the Concerto it should be reserved for the best masters who do not misuse it.”21

Rather than embracing an instrument for its particular characteristics, Ancelet sees any specific characteristics as limitations. His notion of instrumental sonority is therefore pragmatic—some instruments can be employed in all situations, and are therefore very useful, and others that cannot, are therefore of limited use. Furthermore, Ancelet’s conception of the relationship between instruments and compositions reveals much about the general conception of character in music. Character, for Ancelet, arises first and foremost through aspects of composition unrelated to instrumentation; well-chosen instruments serve to embellish and enliven the preexisting musical character. In Berlioz’s orchestration treatise, by contrast, instruments appear as the *foundation* for musical character: the composer draws upon the character of the instruments to create the overall character of the music.22

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21 “Si l’on veut parler exactement sur le chapitre de la Flûte, on conviendra qu’elle n’embrasse pas tous les genres & les caractères de Musique, tels que sont les airs de Démens, de Furies, de Guerriers, de Tempêtes, de Matelots, & de plusieurs autres, dans lesquels elle n’est pas du moins employée en principal : elle sera donc mieux placée dans les morceaux tendres & pathétiques, dans les accognemens, dans les petits airs & les brunettes, que dans les Sonates & les Concerto réservés aux meilleurs Maîtres, qui ne doivent point eux-mêmes en abuser.” Ibid., p. 27-28.

22 Ancelet’s notion of instrumental sonority is also entrenched in a performative notion of timbre: each instrument is introduced with names of the leading masters on the instrument, past and present.
The first technical treatises on instruments appeared only a few years after Ancelet’s pamphlet. In 1764 clarinetist Valentine Roeser published a modest treatise, *Essai d’Instruction. A l’usage de ceux qui Composent pour la Clarinette et le Cor. Avec des Remarques sur l’Harmonie et des Exemples à deux Clarinettes, deux Cors et deux Bassons*. Roeser provides the composer with basic technical information about the two instruments: the keys in which the instruments were manufactured, their range, notation, and so forth. About the clarinet, he explains:

We distinguish up to three kinds of sound in the Clarinet; the first, which is from Fa in the small octave up to Si b of the first octave, is called *Chalumeau* because it is very soft. The second, which is from Si-natural of the first octave to Ut # is called *Clarion* or *Clarinette*, because it is more sonorous and brilliant. The third, which is from the Re of the third Octave up to Fa, could be called sharp, because it is very strong and we cannot soften it like the former ones.  

Roeser’s description of the clarinet’s tone employs the language as Rousseau’s definition of timbre: rather than describing the character of the different registers of the instrument, he informs the reader and

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23 “On distingue jus qu’à trois sortes dans l’étendue de la Clarinette; le premier qui est depuis le Fa de la petite Octave jusqu’au Si b, mol de la première Octave, est appelé Chalumeau, parce qu’il est très doux. Le second qui est depuis le Si naturel de la première Octave jus qu’à l’Ut # de la troisième est appelé Clairon ou Clarinette parce qu’il est plus sonore et plus brillant. Le troisième qui est depuis le Re de la troisième Octave jusqu’au Fa, peut être appelé aigu, parce qu’il est très fort et qu’on ne peut l’adoucir comme les précédents.” Valentine Roeser, *Essai d’Instruction. A l’usage de ceux qui Composent pour la Clarinette et le Cor. Avec des Remarques sur l’Harmonie et des Exemples à deux Clarinettes, deux Cors et deux Bassons*. (Genève: Minkoff Reprint, 1972), pp. 3-4.
would-be composer when the clarinet sounds soft, bright, and sharp. At the end of the section, Roeser says that though he has many other things to say about the clarinet, he is content to give the most necessary rules fearing to make this small work too obscure and to befog the Reader. The most certain rule, and the best for composing for the clarinet, is to aim to produce a pleasant and natural melody, to avoid large leaps and overly chromatic features: finally, follow the rule that says: one needs to compose or to sing for the heart and ear, to touch, and not to astonish.24

After explaining the technical properties of the horn, Roeser concludes the treatise with examples of how the clarinet and horn might be used in combination with bassoons. The treatise closes with sage words of advice about avoiding fifths and thirds in the bassoons, in order to maintain a clear harmony. He stresses compositional clarity; issues of expression and of character do not enter into his discussion. Roeser is most concerned with what contributes to musical beauty. Knowing how to handle the instrument in different keys is essential to making the instrument sound beautiful.

Eight years after Roeser’s treatise, Louis-Joseph Francoeur published his more comprehensive Diapason Général de tous les Instruments à Vent (1772), which encompassed all instruments in

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24 “…contenté d’en donner les règles les plus nécessaires : craignant de rendre ce petit Ouvrage trop obscur et embrouiller le Lecteur. La Règle la plus sure et la meilleure de Composer pour la Clarinette, c’est d’avoir pour but un Chant agréable et naturel, d’éviter grands [saults] et les Traits trop Chromatique. En fin de suivre la règle qui dit : qu’il faut Composer ou Chanter pour le Cœur et l’Oreille ; il faut toucher et ne pas étonner.” Ibid., p. 12.
current use (he leaves out instruments such as the musette, fife, sackbut, and cornet). Francoeur’s treatise resembles that of Roeser: it is devoted chiefly to supplying the reader with precise technical information about each instrument but uses a richer vocabulary. He tells us the flute is suited to pieces that are “slow and pathetic,” and that the *flauto piccolo* “perfectly imitates the songs of birds and nightingales.” In the section on the clarinet, he not only touches upon the sound qualities of the different registers of the instrument, as Roeser did, but also includes a lengthy section entitled, *De la Qualité du Son, et De la propriété de chaque espèce de Clarinettes*. According to Francoeur, the clarinet in G is the “largest and softest” of the clarinet family, and is not commonly used in orchestras; its sound “is sad and lugubrious, which is why one makes use of it only for somber effects and in funeral pieces.” The clarinet in A, by contrast, has an extremely soft tone, much less dark and with a greater range than that in G. It is appropriate to tender and gracious airs.” The clarinets in B-flat and B-natural, C, and D, are very sonorous, and appropriate to “very noisy pieces, such as overtures, symphonies, and lively airs ”; the clarinet in C is particularly appropriate for the “noise of war.”

Like Ancelet, Francoeur discusses the instruments in terms of the characters to which they are appropriate; however, his description of

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26 “le Son en est triste et lugubre ce’est pourquoi on n’en fait usage que dans les effets sombres et les morceaux funèbres.” Ibid., p. 23.
27 “...a le son fort doux beaucoup moins sombre et a plus d’étendue que celle en Sol, elle est propre aux airs tendres et gracieux &c.” Ibid., p. 23.
the different clarinets goes beyond their mechanisms: he attributes to each size of clarinet its own emotional character.

Othon Vandanbrock’s (1758-1832) *Traité général de tous les instruments à vent à les usage des compositeurs* (1793) is similarly focused on the mechanisms of the instruments. The main section of the treatise is devoted to the horn; the other instruments are dealt with in a much more cursory manner. Vandanbrock rarely talks about the tone-quality: rather he focuses on instruments’ range and chromatic capability. Only in his discussion of the oboe does he remark, “The oboe is a very old instrument, which beautifully approximates the human voice, in particular the female voice.” Like Ancelet, Vandanbrock prizes those instruments that offer the greatest flexibility and voice-like beauty.

A. F. C. Kollmann’s general composition treatise offers a basic introduction to commonly used instruments. Throughout his career, both through composition and through writing, Kollmann focused on musical pedagogy. His small oeuvre is dominated by didactically-themed works: in 1798 he published his *Symphony for Piano-forte, a violin & violoncello* which included “analytical explanations, of the Subjects and Imitations, the Modulations, the counterpoint Inversions, and the rhythmical Order it contains,” and later, he published his *Twelve Analyzed Fugues with Double Counterpoints in All Intervals*. He was editor of an ephemeral journal, *The Quarterly Musical Register*,

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Kollmann begins the chapter on instrumental music by listing the three basic things a composer must know:
To compose for any Instrument, so that the Composition be not improper, or insignificant, requires a perfect knowledge of the three following particulars: viz. *First*, its Compass and Scale; secondly, the Nature of its Sounds; and *thirdly*, the harmonious and melodious passages for which it is calculated, according to its peculiar nature.\(^3\)

Kollmann does not, as Ancelet did, praise the violin as the most perfect instrument, but he stresses that the violin’s “scale is the most complete imaginable. For a great player can execute on it not only every semitone, according to any Temperament, but also modify the enharmonic change so, as to produce the effect of a progression by a real quarter tone.”\(^3\) The majority of the descriptions of the instruments does not touch on their particular sound quality, and instead focus on their range, harmonic flexibility, and limitations. The only exception is


\(^3\) Ibid., p. 88.
in his discussion of the German flute, where Kollmann remarks, “[the flute] is of the same general use as the Hautboy, though not without regard to the particular qualities of both these instruments.”  He discusses “Nature of Sounds” in a separate section, where he groups instruments according to the quality of their tone:

The second particular pointed out ... is: the nature of the Sounds of every particular instrument. In regard to which there must be considered, whether they are continuing or ceasing: loud or soft; harsh or mild; grave or acute.

1. Continuing sounds are those which do not diminish in strength, as long as they are held: such as those of the Organ, the other Wind Instruments, and the Bow Instruments. Ceasing sounds therefore are, those of the Harpsichord or Piano Forte, the Harp, the Guitar, and the Bells.

2. The Loudness or Softness of sounds, may in some Instruments be varied by the soft of performance, like as on the Violin or Violoncello, the Piano Forte, the Harp, and other Instruments; yet the natural sound of the Trumpet, Trombono, or Bugle Horn, is louder than that of the French Horn; that of a Serpent, louder than that of a bassoon; and that of most wind or bow instruments, louder than that of a moderate Piano Forte.

3. Harsh in sound, are the Serpent and the Trombono; milder, the Trumpet, Hautboy, and Bassoon; and mildest, the Clarinett, French Horn, and German Flute. And the instruments which can be humored more than the above,

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32 Ibid., p. 89.
into all sorts of effects, are, the Violoncello, Violin, Piano-Forte, and Harp; but above all, a fine large Organ with a good swell may be used so as to produce many different effects.

4. *Grave* in sound are: the Violono, the Serpent, the double Bassoon, and the French Horn, all of which give their notes an octave lower than what they are written; and acute in comparison to the said instruments, are those which give their notes in that octave in which they are written, such as the Trumpet, the Violoncello, and the Bassoon.\(^{33}\)

Like Rousseau’s definition of timbre, Kollmann’s conception of the range of instrumental tone-quality is relatively conservative; he also mentions those instruments which offered the widest range of sound—the violin family and the organ—though he doesn’t implicitly discuss these instruments in terms of their value. Instead, Kollmann begins to cultivate an incipient notion of orchestration, and even includes a section entitled, “Of the combination of different instruments,” in which he briefly, and somewhat enigmatically, remarks on how a composer might go about mixing instruments:

... Those instruments which agree most will often agree too much, or so much that the passages of one cannot be distinguished from those of the other, by which the best of their effect is lost; it is therefore necessary to aim at a judicious *variety*, between those instruments which shall be introduced together...\(^{34}\)

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\(^{33}\) Ibid., p. 90.

\(^{34}\) Ibid., p. 91
This hints at an orchestral aesthetic, and though Kollmann does not treat instrumentation as a fundamental aspect of composition, he nevertheless considers how a composer ought to distribute the harmony among the instruments, briefly discussing which instruments pair well in terms of harmonic support. Instrumentation plays a supporting role in his conception of composition, but is an important source of compositional beauty.

*Mozart’s beautiful orchestration*

These treatises should not be seen merely as precursors to Berlioz. They highlight the special aesthetic of this period. Before instrumental timbre could fully emerge as a source of musical character, encompassing everything from the joyous to the grotesque to the cadaverous, it first had to go through a middle period in which thinkers, at the very least, attributed it with beauty. Just as these treatises focus on how to best use each instrument, so too, I believe, composers in this period attempted to use each instrument to its best advantage. Though they used the instruments with more specificity than they had in the past, taste, refinement, and beauty took precedence over character and color. The latter could only be approached after the former requirements were satisfied.

We find evidence of this conception of orchestration in German theoretical writing as early as the 1770s, with the publications of Johann Friedrich Daube’s (1730-1797) *Der Musikalische Dilettant: eine Abhandlung der Komposition*, published in Vienna in between 1770 and 1773. *Der Musikalische Dilettant* is a striking work: Daube continually
instructs his reader to pay attention to the immediate sound of the musical material. For example, in the section on harmony and chords, he discusses the effect of spacing and instrumentation:

... the effect of harmony is multifarious. A chord in which the intervals are spread out far from one another creates an altogether different impression than a chord in which they are quite close together. Furthermore, the ruling chord in C major, for example, sounds excellent when it is heard in the middle of the scale. Its effect is good on the organ, harpsichord, or piano, but still better when played by two violins and a violoncello. If it is heard on wind instruments of one family or of several, with or without string instruments, the effect is different in each case...”

Instrumentation is also a concern when choosing instruments to work together in imitation of each other:

... one especially must make certain to choose instruments capable of imitation. Likewise, the motives or figures to be imitated must be selected in accordance with the nature of the instruments. For example, a figure from the main melody would be suitable for imitation by the second voice, and probably by the viola, but not by the brass...

Daube’s discussion of the immediate sound of instruments focuses primarily on using instrumentation that offers the most clarity and

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36 Ibid., p. 144-5.
suits the harmonic identity of the piece best. Yet he also is aware of the
effect instrumentation has on musical expression:

It remains true that the characteristic tone quality of each
instrument also contributes greatly to the expression of the
affects. The unison is said to exactly coincide among all the
instruments, and yet everyone, even one uninformed about
music, hears the difference between each of the instruments.
All instruments used during antiquity as well as at the
present time differ from one another in tone quality, [a
characteristic] which results from the nature of the
instrument and remains peculiar to it alone...  

In his preface to the translated edition of Daube’s treatise, Ian Bent
remarks that Daube has “an awareness of the sonic world of music that
we do not associate with eighteenth-century writing about music.” Indeed, as Bent points out, Koch makes no mention of tone-quality in
his considerably later treatise on composition.

It is this aesthetic, I would argue, that dominated Mozart’s
orchestral writing. He was keenly aware of the effect of instrumentation
on the work as a whole; he could make his instruments—especially the
winds—sound exquisitely beautiful and refined through masterly
combinations and the distribution of harmony. Scholars have remarked
on his orchestration, both today and in his time. Nathan Broder argued
that Mozart was the most gifted orchestrator of his day, exuberantly
praising Mozart’s last three symphonies:

38 Ibid., p. x.
The instrumentation of these masterpieces is a marvelous synthesis of all the uses of the wind-instruments, which Mozart had learned and assimilated since his earliest days as a symphonic composer. The *concertante* winds of the Mannheim and the Italians, the dialogues between wind- and string-choirs of the Viennese, the various wind- and string-combinations beloved by Haydn, all these are in the three symphonies, ennobled by the beauty and appropriateness of the music entrusted to them, and by Mozart’s unerring sense of color.\(^3\)

The delicacy of Mozart’s orchestration led Benjamin Simkin to suggest that Mozart was imitating the sonority of the glass harmonica\(^4\). Simkin points to what Girdlestone called Mozart’s “dream andantes” dating from 1766 to 1773, and argues that the particular texture—the use of the flute, the “sweetness” of the upper strings reflected the influence of the timbre of the glass harmonica on Mozart\(^5\). However, rather than a direct imitation of the harmonica, I would argue, these “dream andantes” simply partake of the same aesthetic of voice-like beauty that led to the popularity of Franklin’s instrument.

Simon B. Keefe likewise argues, “irrespective of generic context, Mozart was acutely sensitive to matters of instrumentation and

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\(^5\) C. M. Girdlestone, *Mozart’s Piano Concertos* (London: Cassel & Co., 1948), pp. 39-40. Simkin writes, “Between 1766 and 1773 Mozart’s “dream” andantes were found in three symphonies, K. 45a (1766), K.43 (1767) and K. 45 (1768), the three 1769 orchestral serenades (K. 63, K. 99, K. 100) and the 1772 *Divertimento for winds and strings* (K. 131).” Simkin, p. 49.
instrumental effect where orchestral writing was concerned. His meticulous attitude towards the spacing of chords in the wind section is evident not only in adjustments he makes to his own manuscripts, but also in amendments to the work of his pupil Thomas Attwood.”

In the 18th century, Franz Xaver Niemetschek similarly praised Mozart: “Never is an instrument wasted or misused, and therefore, redundant. But he also knew how to achieve his most magical effects with true economy, entailing the least effort, often through a single note on an instrument, by means of a chord or a trumpet blast.”

In the Musikalisches Wochenblatt, Wessely beseeched his readers to study the winds more thoroughly so that they could be used to their best advantage:

Whoever knows the masterworks of Gluck, Mozart, Salieri, and others more, will certainly recognize that the correct, tasteful use of wind instruments... is the source of the greatest effect. It seems as if these instruments, because they imitate the human voice more closely than the string instruments, also touch the heart more deeply.

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44 “Wer die Meisterwerke eines Gluck, Mozart, Salieri und anderer mehr kennt, wird gewiss einsehen, dass richtiger, zweckmässiger Gebrauch der Blasinstrumente... Quelle des grösssten Effekts ist. Es scheint, als ob diese Instrumente, dadurch, dass sie der menschlichen Stimmen näher kommen als die Saiteninstrumente, auch tiefer ans Herz dringen, als jene.” Wessely, Über den Gebrauch der Blasinstrumente, für angehende Komponisten,” Musikalische Wochenblatt (1791), pp. 77-78; p. 78. When Mozart was more liberal in his writing for the wind instruments, he received criticism. After a performance of Don Giovanni in Berlin in 1791, a critic remarked: “The composition of this operetta is beautiful, although here and there too artificial, too difficult, and too overlaid with instruments.” Quoted in Neal Zaslaw, Mozart’
First and foremost, Mozart used the winds to clarify the underlying structure of the composition; the specific tone quality of particular instruments did not propel the work, but rather complimented and augmented it. This is not to say that Mozart did not pay attention to the timbres of the instruments he wrote for; on the contrary, he manipulated timbre in very detailed ways. Christoph Wolff has remarked that the orchestration in K. 550 “demonstrates in particular that Mozart’s instrumentation in his later works does not primarily aim at juxtaposing or coordinating ... contrasting sonorities but, rather, at blending... sonorities, in order to provide a transparent dynamic and expressive vehicle for his musical thoughts.”

Neal Zaslaw has argued that Mozart was intently keen on the effect of acoustics of the performing space on his orchestra. Only in a few of his symphonies did Mozart employ a “full high-classical” orchestra complete with flutes and oboes, while many of his theatrical works included both instruments. The absence of flutes in his symphonies, Zaslaw argues, likely reflected the space in which the work was to be performed: “…for Mozart, having pairs of both flutes and oboes must have been a way of dealing with theatre acoustics, which may have been less favorable to orchestral sonorities than rectangular halls.”

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These scholars all emphasize the same point, albeit in different ways: Mozart was aware of the effect of the particularities of the sonorities of his instruments and was able to exert precise control over his orchestral forces.

*A new conception of orchestral sonority emerges.*

Haydn’s orchestration has not received the same praise as Mozart’s; rather Haydn is portrayed as having been in debt to his younger contemporary. His oft-quoted remark, reported by Kalkbrenner after the fact, that “I only learned to use the wind instruments in my old age, and now that I understand them, I must leave them” feeds this conception of his orchestration, since it appears to be a declaration by Haydn himself that he couldn’t properly handle wind instruments until the end of this life.47 Broder interpreted this statement as Haydn declaring his debt to Mozart:

Whom else but Mozart could Haydn have had in mind when he said: “Only in my old age have I learned how to use the wind-instruments?” It remained for the mature Beethoven to enlarge the orchestra boundaries established by Mozart.48

Haydn’s handling of the wind instruments is distinct from Mozart’s, and scholars have tried to articulate where the difference lies. Broder believes Haydn’s orchestration owes much to a concertino-ripieno style;

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48 Broder, p. 259.
he even suggests that Haydn’s interaction with the wind instruments was somewhat simplistic:

All most all of the modern elements of orchestral technique that Mozart had mastered by this time [i.e., the 1780s] are also to be found in Haydn’s Paris symphonies of 1786. Complete independence of the woodwinds, their incessant activity, both thematic and subordinate, the mingling of wind and string voices to enrich the ensemble, all are found in these works. But here and there in these fine compositions there remains a trace of the old concertino-ripieno style; and this technical anachronism is coupled with a joy in the sheer sound of the wind-instruments that sometimes seems simple, peasant-like, in comparison to Mozart’s more polished and sophisticated treatment of them.49

The suggestion that Haydn’s orchestration was naive and outdated glosses over precisely those elements that were radical in Haydn’s treatment of the orchestra, elements which heralded a new conception of the orchestra and its capacity for expression. Haydn’s later orchestral works—especially the London symphonies—reflect a new aesthetic that prized variety, expression, and character. Broder argued that Beethoven enlarged Mozart’s orchestration, but Beethoven, and many other composers of the early 19th century imitated Haydn’s more than Mozart’s style of orchestration. Some later critics wished that Mozart

had employed a larger orchestra. For example, Fétis argues that Mozart’s Symphony in G minor would be absolutely perfect had it embraced more intense sonorities:

Although the luxury of a large orchestra was not available to Mozart for his Symphony in G minor, and although the massive effects that astonish and transport us in Beethoven’s symphonies are not found here, the invention that sparkles in this work, the impassioned and energetic expression that suffuses it, and the melancholy color that dominates it make of it one of the most beautiful creations of the human spirit. If this symphony had been orchestrated in the modern fashion, and if to the power of delightful song, of exquisite sensibility, and of elegant and pure harmony found here had been added that of a very intense sonority, the work would have been beyond all comparison.50

The “very intense” sonority that Fetis believed Mozart lacked refers not merely to the modest size of his orchestra, but to a fundamentally different style of orchestration that emerged at the end of the 18th century, clearly discernable in Haydn’s later works for orchestra. This new style is characterized by a new, structural conception of orchestration (i.e., that issues of orchestration shape the work, rather than clarifying pre-existing structure), an increasing predilection for color, contrast, and variety, and the notion that individual instruments had their own expressive characters.

Many scholars have identified the emergence of a new kind of orchestration during the late 18th century. Spitzer and Zaslaw argue that with the final consolidation of the orchestra as a concept, institution, and musical body, came the increased use of self-referential orchestral gestures. That is, gestures and effects that had previously been employed by composers in order to depict something in an opera or overtly dramatic situation (storms, pastoral scenes, etc.) began to be used to signify the grandeur and splendor of the orchestra itself. This idea resonates with many other discussions of the changes to the music and aesthetics of the period—we can find themes of internalization and self-referentiality throughout the literature.

David Charlton, looking to the opéra-comique orchestra, posits that in the late 18th century, the orchestra became “envoiced.” Individual instruments within the orchestra began to perform theatrical roles, as composers used them to represent idealized voices. R. Larry Todd argues similarly that orchestration began to serve an increasingly expressive function. He charts the growth from the modest-sized classical orchestra to the gargantuan and wind-dominated post-Wagnerian orchestra, and identifies a new mode of orchestration emerging in the late 18th and early 19th century, a mode exemplified by pieces such as the “The Representation of Chaos” from Haydn’s The Creation. Haydn’s striking orchestration—present in the earliest sketches for the work—attracted the attention of early critics and

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51 Charlton, “Envoicing the Orchestra.” Charlton points out several moments in Marmontel and Grétry’s Le Huron and Sedaine and Mosigny’s Le Déserteur in which the vocalists and orchestra interact in especially dynamic ways. For example, one woodwind passage in Le Déserteur Charlton argues “heightens [‘the words’] into an idealized form of memory.” (p. 15).
modern scholars alike, and has invited close analytic and hermeneutic study. Todd believes that the early romantic symphony began to use orchestral texture as an expressive device, fundamental to the very conception of the work. By contrast, he believes the classical symphony had used orchestration in order to clarify structure, and that it was not inextricably tied to the essence of the musical work. After Haydn’s Creation, Beethoven’s symphonies, in Todd’s words, “continue the emancipation of orchestration from classical norms to satisfy the new demands of expression.” That he described the new style that emerged with Haydn and Beethoven an “emancipation” of orchestration is perhaps odd, since the rest of his argument posits that orchestration became increasingly bound up with the basic identity of a musical work.

Todd’s argument owes much to the traditional narrative of the so-called “rise of instrumental music,” that is, the argument that posits that instrumental music both began to embrace abstract forms and impassioned expression. As musical works became increasingly reliant on formal manipulations, all elements and parameters became interdependent: it was no longer enough that the orchestration clarify

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the structure, it had to actually create part of the structure. Dahlhaus implicitly subscribes to the view that early 19th century music was internally interdependent. He sees the dissolution of functional harmony at the end of the 19th century, and with it, the “emancipation of timbre,” for example, in the symphonic poem:

Sophistication of local color interacted with a relaxation of functional harmony to become one of the decisive evolutionary features of the age. Ultimately, around 1900, it led to a reformulation of the notion of timbre, one of the crucial features of fin-de-siècle musical modernism. This “emancipation of timbre,” initiated by Berlioz, freed tone color from its subservient function of merely clarifying the melody, rhythm, harmony, and counterpoint of a piece, and gave it an aesthetic raison d’être and significance of its own.\(^5\)

Dahlhaus is certainly correct in identifying a new conception of timbre towards the end of the 19th century and beginning of the 20th century: it was this development that provided the aesthetic backdrop for Schoenberg’s *Klangfarbenmelodie* and eventually, I would argue, the invention of *musique concrète*. But the conception of timbre also underwent a radical transformation in the late 18th century.

Variety, nuance, and the symphony

Though variety and nuance were important throughout the 18th century, these musical aspects came to the fore towards the end of the century, especially in the context of the symphony. For the great part of the 18th century, the sonata had been considered the more flexible and nuanced genre. This was surely augmented by the invention of the pianoforte, which allowed for a range of dynamic nuance previously available among the keyboard instruments only on the clavichord. Schulz praises the sonata for its expressive ability, arguing that “there is no form of instrumental music that is more capable of depicting wordless sentiments than the sonata.” He goes on to argue that the symphony, by contrast, is a coarser genre, with a limited ability to assume different characters.

The symphony and overture have a somewhat more fixed character, while the form of a concerto seems more suited for providing a skilled performer the opportunity to be heard accompanied by many instruments for the depiction of passions. Other than these (and dances which also have their own character), no form other than the sonata may assume any character and every expression.54

Symphonic genres did not have access to the nuances available to the sonata. Through composition and performance, a sonata could explore

a range of emotions and contain subtle shades and nuances. A symphony, on the other hand seemed to provide a more basic pleasure. Kirnberger treated the symphony and overture as lighter forms of entertainment:

... instrumental music is most effectively utilized for dancing, marching, and other festive occasions. These are its most appropriate places. It can also offer a service to dramatic plays, in that it can prepare the audience through the overture or symphony for the affection that will be found in the play. Instrumental music can also be used simply for diversion or as practice material, whereby the composer and performer work to perfect important technical matters. Concertos, trios, solos, sonatas, and the like are all useful for these purposes.\(^5^5\)

To many writers, the symphony was best suited to expressions of grandeur. This reflects composers’ treatment of the orchestra: during the 18\(^{th}\) century, the orchestra saw the codification of a diverse number of grand orchestral effects. Spitzer and Zaslaw have shown how in the 17th and early 18\(^{th}\) centuries period, effects such as \textit{Le premier coup d’archet}, grand pauses, tutti chords, orchestral unisons, tirades, and crescendos became standard orchestral gestures. These effects, Spitzer and Zaslaw argue, made the orchestra sound powerful—taking advantage of the orchestra’s size, they symbolized grandeur.\(^5^6\)


This notion that the orchestra was best suited to grand effects—and not as well suited for more subtle ones—lasted through the century. Schulz criticized Graun’s symphonic writing, arguing that it lacked fire:

Graun... has brought more art and character to his opera symphonies. But even his tender soul lacked the requisite fire. The beautiful songs that were never wanting in his music, however estimable they may be, usually have a feeble effect in each of his symphonies. One believes one is hearing a fiery opera aria performed by instruments.57

His choice of metaphor—“a fiery operatic aria performed by instruments”—is telling. The idea of performing an aria purely with instruments seems musically nonsensical to Schulz; he criticizes Graun’s symphonic writing by accusing it of being vague and flaccid. By contrast, E. T. A. Hoffmann used the same metaphor in order to praise his contemporaries’ symphonic writing:

That instrumental music has now risen to a level of which one probably had no inkling not so long ago, and that the symphony, especially following the impetus it received from Haydn and Mozart, has become the ultimate form of instrumental music—the opera of instruments as it were—all this is well-known to every music lover. The onerous task those musical heroes were happily able to perform in the

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symphony was to unite all the common instruments of the orchestra, voicing their individual characteristics in the performance of one great drama. Thus, disdaining the stiff, boring form of the old concerto grosso, they were able to put individual parts at the service of the whole, and these products of their genius rightly became the norm by which later composers conceived their symphonies.\(^5\)

Hoffmann’s description of the symphony as the “opera of instruments” refers both to its status among instrumental genres, and the roles the instruments play within the symphony. This conception of the symphony was possible only after composers began to use instruments in increasingly precise ways. As Spitzer and Zaslaw have shown, the orchestra began to include increasing numbers of “effects of variety and nuance,” including echo effects, reduced scoring, and wind solos: “where earlier composers had used one wind soloist, one texture, and one timbre per number, later composers called upon a kaleidoscope of timbres and textures.”\(^5\) The symphony’s new capacity for nuance and subtlety was reflected in writing on music. While Schulz had argued that the symphony was limited in terms of the kinds of characters it could express, Ludwig Tieck, in his typically ecstatic prose, declared the symphony capable of encompassing all emotions:

> The composer possesses [in the symphony] an endless field for demonstrating his power, his deep thinking. Here he can speak the elevated poetic language which reveals the most

\(^{58}\)Hoffmann, “[Review of Witt’s Fifth and Sixth Symphonies],” AmZ 11 (17 May 1809), col. 513-21, trans. in Charlton, p. 223.

\(^{59}\)Spitzer and Zaslaw, p. 483.
wonderful in us, and which lays bare all depths. Here he can awaken the grandest, the most grotesque images and open their sealed sanctuary. Joy and sorrow, ecstasy and melancholy accompany each other here, and in between appear the strangest intimations. A sparkling brilliance returns, and the attentive soul rejoices in this full magnificence.  

The symphony, in Tieck’s view, was powerful because it reflected the complexity of life itself:

Thus, in every art blooms a full, luxuriant display in which all the fullness of life and all individual feelings unite and struggle and press in all directions and thus depict a united life with bright colors, and diverse sounds. To me, nothing in music fills this role so well as the grand symphonies with their manifold elements.

Likewise, an anonymous review in the *Allgemeine musikalische Zeitung* mused how the symphony had ascended to the highest position among instrumental genres, though this author seems slightly dubious of its new prominence:

That the grand symphony for full orchestra (for which the world has the Germans to thank, particularly Haydn and Mozart) represents the highest and most radiant peak of the

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latest instrumental music; that it justifiably commands not only its own genre but also exerts its power, albeit with less justification, on the other genres of instrumental music (for do not our concertos, for example, and even our piano sonatas grow increasingly closer to the symphony?); yes, that it seeks to reach beyond its boundaries and gradually draw everything toward it, in the same way the most affluent individuals are prone to do, something that is the right of only the strong (for are not all of our operas becoming more or less symphonies with song, something that should occur only in a very few, rare cases?...)

This conception of the symphony is connected not only to the new style of orchestration that emerged during the late 18th century, but also to basic perceptions of the musical medium. Whereas earlier in the century writers had doubted the aesthetic value of tones as an artistic medium, later authors praised tones for their malleability. Friedrich Rochlitz, for example, argued:

Tones, however, in the hands of a true artist, are more plastic and manageable than the softest wax; they can conform to all the turns, transitions, and nuances of feelings—they are by nature for the feelings alone.

While philosophers were busy waxing rhapsodic over the symphony and the infinite, composers and theorists wrote about the importance of nuance to musical practice. Johann Friedrich Reichardt included a

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62 AmZ 8 (1806), col. 616-7, quoted and translated in Waldfogel, p. 159.
chapter on dynamics in his Über die Pflichten des Ripien-Violinisten. He begins by lamenting the fact that most orchestras can only perform forte and piano and cannot achieve any gradation of dynamics between the two. He then introduced the different grades between weak and strong: pianissime [sic], piano, pocopiano, rinforzanto, pocoforte, mezzoforte, piú forte, forte, and fortissime. He instructs the violinist on how to master the smooth crescendo and diminuendo through simple exercises on one note and on scales. At the end of the chapter, Reichardt reminds the orchestral violinist that forte implies a different execution if the piece is adagio or allegro, an aria, or a symphony. Though Reichardt bemoans the fact that only the orchestras in Mannheim and Stuttgart are capable of performing such nuanced dynamics, he was presumably responding to a general change in orchestral writing.

The familiar metaphor of color returns in discussions of orchestral nuance. We will recall from Chapter one that writers from the earlier part of the century often saw nuance as a potential interference. For Batteux and Gottsched “mezzotints,” rather than adding any subtlety to the work, spoiled its clarity. Towards the end of the century, however, shading, plays between dark and light, and half-tints became increasingly important to musical aesthetics. Musical vocabulary reflects this shift, as writers began to describe new musical effects with language derived from painting. Annette Richards restores the novelty to the metaphor of the mezzotint in her study on the free fantasia,

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noting the freshness of Reichardt’s description of dynamic nuances ("If I may so express myself, [a crescendo or diminuendo] passes through all the shades of light or dark color"). 65 C. F. D. Schubart routinely uses color metaphors in Ideen zu einer Ästhetik der Tonkunst (1784-85, published 1806). Perhaps the most revealing is his description of the fortepiano. The instrument, he believes, improved upon the harpsichord, because it brought the potential for coloration without the inconvenience of using stops. All that remained, was the further nuancing of the instrument’s mechanism:

If mezzotints could be brought in the fortepiano, no desire would remain for the great keyboard player. Since then this magnificent instrument has been brought to such a perfection that one can produce the full magic of music, so much more by the elasticity of the fingers than by the knee, with which one modifies the strength and weakness of the sounds without grimacing. There are fortepianos of ten, twelve, [and] up to twenty stops. A nobleman in Mainz has made one where the flute, violin, bassoon, oboe, even horns and trumpets were conjured up in the fortepiano. When the secret of building is made known by this great inventor to the world, one will have an instrument that devours all others. 66

The last few sentences are the most telling: first, Schubart shows that that the idea of coloration encompassed a range of composition techniques from the use of gradated dynamics to instrumentation; second, he reveals the burgeoning orchestral aesthetic that was beginning to dominate all aspects of composition. It was the orchestra that offered the greatest amount of color, flexibility, and nuance. It was this new conception of the orchestra and nuance that led to the concept of *Klangfarbe*.

*Timbre and Klangfarbe*

In his recent study of Herder’s musical aesthetics, Rudolf Bockholdt posed the question of the earliest use of the term “Klangfarben.” Daniel Muzzulini’s brief response dates the first use of the term to 1834, in a book on organ building by Johann Gottlob Töpfer. Looking a couple years before Töpfer’s text, Muzzulini notes how another writer on the organ, Joseph Anthony, used the words “Klangqualität” and “Farbe” in close proximity without actually using the term “Klangfarbe.” Citing Friedrich Jakob’s comment that it was this moment in history that “Klangfarbe” first entered discourse, he argues that the concept of tone-color crystallized in this period. Töpfer may well be the first to use the actual term “Klangfarbe,” and it is

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67 See Chapter four for an exploration the many instruments invented with hopes of imitating the orchestra.
hardly surprising that the first use would have been in the context of the organ, the most colorful of all instruments. But both Muzzulini and Jakob date the roots of the concept far too late. The idea of equating tone-quality and color dates not from the mid-19th century, but the late 18th century. Indeed, the term depends on establishing a firm connection between timbre and color, nuance, and orchestration.

We saw in Chapter one how the color metaphor was used in discussions of the primacy of melody. When Rousseau argued for the primacy of melody, he introduced a third element: “Melody is the musical equivalent of design in painting; it is melody that delineates the features and forms, harmonies and sounds being only the colors.” By relating music’s raw sounds to color, Rousseau sought to minimize their importance to music as an art form. He goes on to defend his analogy:

But, you may say, melody is only a succession of sounds. No doubt. And similarly, design is only an arrangement of colors. Merely because a speaker uses ink, though, to write out his speech, can the ink be said to be a very eloquent liquid?

By the early 19th century, Rousseau’s analogy appeared more tenuous. Though he attempted to connect the performative act of music with that of giving a speech, he appealed to the ink with which the speech is written, rather than the voice with which it would be given. Guillaume

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72 Ibid., p. 93.
André Villoteau, in his 1809 annotated version of Rousseau’s text, recognized this:

Jean-Jacques well knows how to turn an argument round when he senses a fault in the principle that he has proposed! He is very careful to avoid the same mode of comparison that he used earlier on, for it would have brought him up with a jerk. Had he said that ‘an orator makes persuasive use of a range of vocal timbres during the course of speech’, is that not to say that the sounds of his voice ‘are most eloquent’? The logical outcome would then have been quite different.\textsuperscript{73}

Villoteau’s defense of the aesthetic nature of timbre reflects the general perception of the value of music’s immediate sensations to the overall composition. Starting in the late 18\textsuperscript{th} century, writers begin to employ richer vocabulary in their description of instruments and their tones.

One document that testifies to this shift is Johann Leopold Hoffmann’s \textit{Farbenharmonie}, published in 1786. The treatise explores the connections between music and color, finding analogies between various aspects of music—tone, harmony, melody, chords—and color and light. Most interesting to the discussion at hand is a survey of the analogies between painting and music, in which he relates major instruments to a range of colors:

\ldots I will try to draw a parallel between the most familiar bodies of color and the most familiar musical instruments.

\textsuperscript{73} Guillaume André Villoteau, \textit{Recherches sur l'analogie de la musique avec les arts qui ont pour objet l'imitation du language} (Paris 1809), translated in \textit{Music and aesthetics in the eighteenth and early-nineteenth centuries}, p. 93n.
1) Such an instrument unto which the harmony of a complete musical work can be reduced must be capable of the highest degrees of light and dark, and therefore must be the most perfect of all instruments. One can imagine a musical drawing, executed in light and dark. Those properties befit no other instrument than the clavier and similar instruments.

2) Since there are colored (wash) drawings, one can compare them to a sonata or clavier concerto, where the clavier has the main part and the accompanying instruments are regarded and treated like casual, slight inking.

3) A big concerto can be compared to a main painting, wherein a certain sound is predominant, which is, in the concerto, the solo part.

4) A Symphony is analogous to such a painting wherein the light is evenly spread and all colors are thickly applied, hence brilliant.

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6) Dark blue from well-prepared indigo; Lasur-blue from Lapis Lazuli and light blue from the ultramarine of silver can justifiably represent violoncello, viola and violin.

7) Green, the most pleasing of colors, which contains both the lightest and darkest colors, yellow and blue, without being dazzlingly bright or unpleasantly dark; more than all other colors, it can portray the sound of the human voice.

8) Yellow (Orpiment), the clarinet.

9) Scarlet (vermilion), the trumpet.
10) Pink (carmine with a little white), the oboe.
11) Crimson (pure carmine), the flute.
12) Purple (ultramarine mixed with some carmine), the horn.
13) Violet (varnish and dark blue, blended with a trifle of white), the bassoon.

One can reasonably imagine the tuning of the instruments as the preparation of colors on the palette.\textsuperscript{74}

Though Rousseau drew an analogy between music’s sounds and color, he never would have so systematically related each instrument to a particular shade. Hoffmann is not only describing the instruments’ color, but their expressive potential; it is here that the concept of Klangfarbe was born, even if not yet so named. Even more explicit is Wackenroder’s discussion of tone from a few years later. Critiquing the familiar idea of an ocular harpsichord, he explained what he saw as the true source of music’s color:

Each individual tone of a particular instrument is like the nuance of a color, and just as each color has a main color, so too each instrument has only one, completely characteristic tone that it best expresses. It was an unfortunate idea to build a Farbenklavier, and to believe that the childlike mechanism could produce a pleasant effect, equal to the varied tones of an instrument. Nothing could be more successful than when the same tone is sounded on several wind or string instruments, one after the other. Then

\textsuperscript{74} J. L. Hoffmann, \textit{Farbenharmonie} (1786). §53, pp. 56-59. Many thanks to Martin Küster for assistance with this item.
the tone is the color, and the melody and the form of the piece compare to design and composition.\textsuperscript{75}

Wackenroder all but coins the term \textit{Klangfarbe} in this passage. From the late 18\textsuperscript{th} century onward, instrumental timbre was conceived of as a form of musical color. In 1807, Michaelis drew upon the idea of color to praise the oboe and clarinet over the flute:

More deeply penetrating and tender than the flute tone is the sound of the clarinet and the oboe. Both bring, so to speak, a livelier, more charming color to the musical representation than the flute... For mere filling in or for mere accompanying figures they should not be used. For through their full, bright, floating tone they are quite well suited for bringing out interesting melodies, or for making certain chords, especially in beautiful progressions, clear and warmly felt.\textsuperscript{76}

And in 1815, we find the word “Tonfarbe” in a discussion of different reed stops on the organ in an article on composition by Gottfried Weber, a full twenty years before the time which Jakob and Muzzulini identified as the birth of the concept of \textit{Klangfarbe}.\textsuperscript{77}

\textsuperscript{77} Gottfried Weber, “Erneuerter Versuch einer Begriffsbestimmung von Ton, Tonkunst, und Tonsetz-Kunst.” \textit{AmZ} 17 (1815), col. 829-836 & 845-851; col.831 : “Eine Ausnahme machen gewissermassen die sogenannten Zungenpfeifen (Zungenwerken) auf der Orgel, worin eher die Zunge, als die Luftsäule eigentlich zu klingen und der Pfeifenkörper mehr die Qualität des Tones, das \textit{Timbre}, die Tonfarbe, zu modificiren, als dessen Quantität, Tonhöhe, unbestimmt zu bestimmen scheint.”
The notion that individual instruments had their own particular color went hand in hand with the idea of instrumental character. While earlier treatises barely touched on character, it becomes a staple of musical discussions starting in the late 18th and early 19th centuries. Johann Ferdinand Schönfeld, for example, praised the oboe for its ability to imitate the human voice, but his description is far more vivid and colorful than Vandanbrock’s comments:

This charming instrument is, so to speak, the favorite of sensitive hearts, it is extraordinarily similar to the human voice, and if any virtuoso is in a position to attract a gentle maiden’s heart through his playing, it is the oboist. The violin can enrapture a tender heart with all sorts of flatteries, but on the oboe they are melting.\(^7\)

The oboe not only possesses beautiful tone, but one that has a powerful effect on its hearer. Likewise, the horn, according to Schönfeld, is equally expressive, when used properly:

The composer who knows how to use the horn well can thereby excite remarkable sensations: he can at will depict the shadows lying deep as he wishes, merely through the way of writing particular materials. [He can depict] the complaints of love, sublimity, melancholy, terror, and excitement.\(^7\)

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\(^7\) Ibid., p. 193, quoted and translated in Page, p. 75.
Schubart in his *Ideen zu einer Ästhetik der Tonkunst* uses similar language. The trumpet, for him, is explicitly expressive:

> The character of the trumpet is, as everyone knows because of its penetrating, terrifying sound, quite heroic; it calls to battle and shouts for joy.\textsuperscript{80}

The horn, Schubart informs his reader, is a “heavenly instrument” that has “great qualities”:

> It in fact never expresses true greatness or pathos; rather gentle sweet, echo rousing, tenderly lamenting sounds, which fill the gaps of the string instrument, lie in the compass of the horn.\textsuperscript{81}

He goes on to describe the oboe’s sound as “so sweet, so languishing, and whoever is able to express the intermediate tones thereon may be certain of his victory over the hearts.”\textsuperscript{82} Such language became standard in treatises from this period onward; it can be found in Franz Joseph Froehlich’s *Vollständige theoretisch-praktische Musikschule*, in which he introduces the various instruments in current practice almost as if he is introducing friends, giving warm descriptions of the tone of

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\textsuperscript{81} Ibid., p. 366.

\textsuperscript{82} Ibid., p. 375.
each instrument. Most striking, however, is Alexander Choron’s new edition of Francoeur’s treatise on wind instruments.

Choron expanded Francoeur’s treatise to include descriptions of string instruments, including the harp. Some of his discussions of the wind instruments remain relatively unchanged from Francoeur’s original; he does add new instruments, and his manner of introducing them reveals the changing perception of instrumental tone. He also introduces a new instrument, the Trombe, a creation of Louis Alexander Frichot, a musician, teacher, and inventor. He played the serpent, and spent many years trying to invent a new instrument that could serve as the bass of the winds and brass. In the 1790s, he invented and performed on a “bass-horn,” which was popular for a time in England. In 1810, he completed a new version, the “bass-trompette,” and it is this instrument that Choron praises in his treatise. The name “trombe,” Choron claims he himself suggested to Frichot. He rather boldly uses the name in the treatise, even though it was not adopted by others. Because it is a new instrument, Choron describes it in great detail. He includes a section not found in the discussion of any other instrument, entitled “Timbre of the Trombe:”

83 Franz Joseph Froehlich, Vollständige theoretisch-praktische Musikschule für alle beyn Orchester gebräuchliche wichtigere Instrumente zum Gebrauch für Musikdirektoren, Lehrer und Liebhaber, Systematisch mit Benützung der Besten bisher erschienenen Anweisungen bearbeitet (Bonn: Simrock, 1810)
The trombe has the same character throughout its range, but this character offers particular nuances according to its main regions. Thus in the low register, this instrument produces a sound of a mixed timbre, between that of a serpent and that of a trombone, richer, brighter, and less dry than that of the trumpet stripped of its sourness and dryness; in the middle register, the timbre takes on that of the horn.\textsuperscript{86}

Choron discusses the properties of the instrument separately: he warns the reader that the trombe, like the serpent, has several notes that will sound unevenly, but also speaks highly of the “intensity” of its sound, which he claims is greater than any other wind instrument, and equal to three trombones.\textsuperscript{87}

Earlier treatises focused primarily on what a composer had to know in order to handle an instrument well so that it could sound beautiful. Choron’s treatise reveals that a new notion of instrumental sonority began to flourish alongside the earlier aesthetic. A composer should still know how to handle an instrument well, but he should also take advantage of its particular character. The trombe is not described as a beautiful instrument—nowhere does Choron say that it imitates the human voice—but as a powerful one, whose character implies that

\textsuperscript{86} “Le trombe a un caractère général dans toute l’étendue du diapason ; mais ce caractère offre des nuances particulières selon les principales régions. Ainsi dans le grave, cet Instrument produit un son d’un timbre mixte entre celui du Serpent et celui du Trombone, plus nourri, plus éclatant, moins sec que celui de la Trompette dépouillée de son aigreur et de sa sécheresse ; dans le medium le timbre participe de celui du Cor.” Choron, p. 75.

\textsuperscript{87} See Choron, p. 75.
it is suitable for a range of musical styles. Because it was a new, and relatively unknown instrument, Choron explicitly described its timbre.\footnote{Choron’s approach to the trombe is a more thorough version of 18th-century authors’ approach to the clarinet: they too described the instrument’s sound, though for the most part, using a less rich vocabulary than Choron.}

Case studies: Mozart and Haydn

The clearest way to understand the new aesthetic that emerged at the end of the 18th century is to look at the music written in this period. The new demand for color and nuance manifests itself in a variety of ways. I shall use three works, one by Mozart, two by Haydn, as case studies. Both composers took advantage of instrumental sonorities in the creations of these three works; in all cases, the basic identity of the musical work crucially depends upon the instrumentation and orchestration.

Mozart K. 617

Mozart’s Adagio and Rondo for Quartet and Glass Harmonica K. 617 beautifully demonstrates his handling of sonority. Although it may seem strange to turn to a non-orchestral work, such an analysis accomplishes two things: first, it shows Mozart’s structural use of instrumental sonority; second, it may suggest the range of the influence of the orchestral aesthetic.\footnote{For another close reading of this work, see Matthias Schmidt, “Das Andere der Aufklärung: Zur Kompositionsästhetik von Mozarts Glasharmonika-Quintett KV 617,” Archiv für Musikwissenschaft, Vol. 60, issue 4, (2003), pp. 279-302.}
In the context of the orchestra, the harmonica presented a problem. The instrument had a uniform timbre, and offered none of the “manifold elements” praised by Tieck; rather, it was plagued with technical limitations, which restricted the instrument’s usefulness for a style more and more dependent on dramatic contrast. Despite the fervor with which people routinely praised the tone of the glass harmonica, it also received copious criticism. In 1819, E.T.A. Hoffmann, in the guise of Kapellmeister Kreisler, published a short letter about the current state of affairs of the glass harmonica. His essay reflects the double life the instrument led in the late 18th and early 19th centuries: it both caused increasing frustration to musicians and critics, due to its technical limitations, and also remained the subject of numerous fantasies about music, fueling the invention of similar instruments.90 Hoffmann complains of the harmonica:

... the instrument’s mechanism... makes it impossible for even the most practiced player to connect the notes in an artistic sense. This mechanism also precludes any rapid execution. One the other hand, the harmonica affords the advantage of the organ, that the note continues as long as

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90 E.T.A. Hoffmann, “A Letter from Kapellmeister Johannes Kreisler (Contributed by E. T. A. Hoffmann.)”, Der Freimüthige, Vol. xvi, 29 and 30th April 1819, in David Charlton, ed. E.T.A. Hoffmann’s Musical Writings: Kreisleriana, The Poet and the Composer, Music Criticism, trans. Martyn Clarke (Cambridge: Cambridge University Press 1989), pp. 414- 419. It is important to stress that in this essay Hoffmann is critiquing the harmonica’s ability to execute music. Discussions of instruments designed to imitate the harmonica inevitably focused on their immediate sonority and not on their suitability to perform music. Two aesthetic worlds thrived side by side in this period: an orchestral one, to which Haydn’s “London” Symphonies, and a “vocal” one, in which inventors sought to create the most perfect instrument by capturing ideal tones. This other aesthetic will be explored in a future project on E. T. A. Hoffmann’s Automata.
one’s finger touches the glass. This property means that the characteristic quality of the instrument can be fully exploited only in slow music written in strict style.\textsuperscript{91}

He has several criticisms of the instrument: it is unable to articulate music—it produces mere sound. Using the familiar analogy of color, he begins to enumerate the instrument’s problems:

Sound is to music exactly what color is to painting. Both, color and sound, are capable in themselves of an incalculable variety of sublime beauties, but they represent only the raw materials which must first assume an ordered pattern before it can exert a deep and lasting effect on human minds. The intensity of this effect is determined by the degree of beauty and perfection the pattern achieves.\textsuperscript{92}

This seems to be criticism much along the lines of Rousseau’s plea for melody above. But Hoffmann continues:

It is not the color green, it is the forest and with the graceful splendor of its foliage which awakens delight and sweet melancholy in our breast. A deep blue sky will soon become desolate and sad unless the clouds tower upward in the myriad changing forms.\textsuperscript{93}

Hoffmann criticizes the harmonica because it lacks the ability to produce change and variety—in terms of both form and timbre. The lack of pattern suggests lack of melody; the monochrome sky, an overly

\textsuperscript{91} Ibid. pp. 416-17.
\textsuperscript{92} Ibid., p. 416.
\textsuperscript{93} Ibid., p. 416.
uniform timbre incapable of providing the means necessary to produce the melody. He goes on:

Now if the Freimüthige für Deutschland calls the harmonica the most beautiful and sonorous of all instruments, then as a hardened musician I would reply that from the musical point of view the harmonica is one of the most feeble and imperfect instruments there are! Of the welter of trivial ariettas and variations and polonaises and other insipid trifles that are normally played on it I will say nothing except that, to a finer ear, at least, any melody played on the harmonica sounds stiff and awkward.\footnote{Ibid., p. 416.}

Mozart’s Adagio and Rondo, I would argue, is precisely an attempt to overcome these shortcomings. It is not written in “strict style” and includes numerous quick runs and delicate ornamentation. The movements are scored for flute, oboe, viola, cello, and harmonica, and are in the concertante style: the harmonica is the focal point of the ensemble, while the other instruments perform a more supporting role. The harmonica’s part is virtuosic enough that Henrik Weise suggests that the delay of its premiere was likely due to the fact that the blind harmonica virtuoso Marianne Kirchgessner did not have enough time to learn the difficult work (Mozart entered it in his thematic catalogue on 23 of May 1791, and the piece was likely intended for a concert on the 10\textsuperscript{th} of the following month).\footnote{Henrik Wiese, in the preface, Mozart, Adagio und Rondo: für Glasharmonika (Klavier), Flöte, Oboe, Viola, Violoncello, K. 617 in C major, (Munich: Henle, 2001), p. III.} The proliferation of ornaments, runs, and
filigree melodies makes the work problematic for the harmonica: even
the best performer will have difficulties making many of the quicker
notes speak as clear pitches rather than as awkward scrapes. For
example, the thirty-second note passage-work in the Adagio at mm. 55-
56 inevitably sounds muffled, since the build-up of resonance
eventually obscures clarity (ex. 1).

\[\text{Example 2.1: Mozart, Adagio and Rondo, K. 617, mm. 53-56}\]

The imitative section that begins in m. 196 of the rondo works
charmingly when the flute and oboe engage in dialogue with the viola,
but when the cello and harmonica trade the gesture back and forth,
the effect is diminished—the harmonica’s watery response sounds like a
caricature of the cello’s crisp statement (ex. 2). Mozart pushes the
boundaries of what is possible and perhaps sensible for the instrument, but I would argue that he did so knowing that the other instruments would help clarify the awkward passages encountered by the harmonica.

Example 2.2: Mozart, Adagio and Rondo, K. 617, mm. 196-205

Mozart sensibly scored the work for instruments that blend well with the harmonica. Had he paired the harmonica with a string quartet, the string sonority and that of the harmonica would have become oppositional, and the harmonica would have been left on its own. The wind instruments, especially the flute, help to balance the texture and support the harmonica—the texture is more uniformly heterogeneous.
The way Mozart uses the four accompanying instruments is vital to the success of the work, for they are used to “aid” the harmonica extensively in both movements.

Example 2.3: Mozart Adagio and Rondo, K. 617, mm. 1-3

The adagio, in C minor, is fantasia-like and wanders between the turbulent and fractured opening section to the more subdued melodic section that begins in m. 17 in Eb major. The opening gesture is intended to be forceful, even violent. Without the *forte* flute and oboe and the pulsing viola and cello, however, the harmonica’s *forte* attack on i in m. 1 or vii4/3 in m. 3 would be flaccid (ex. 3). Indeed, it is easy to see why Röllig had warned against any violent music for the
harmonica, for the instrument is incapable of bombast. Mozart found a way to force dramatic contrast onto the instrument by bolstering the sonority with the other instruments.

Example 2.4: Mozart, Adagio and Rondo, K. 617, mm. 17-20

By m. 17, the music turns away from the turbulent opening to the melodic middle section in Eb major. Here the texture is thinner and the harmonica is more exposed. While the affect of this music is better suited to the harmonica, the numerous ornaments, even in the Adagio tempo, make it virtuosic. The flute echoes the harmonica’s turns starting in mm. 18 (ex. 4). I would argue that this happens for two reasons: not only does it provide a contrasting sonority, as is typical in such contexts, it also helps the listener understand what the harmonica is doing. The flute’s repetitions, which begin verbatim and then introduce a variant starting in m. 21, “focus” the harmonica. By hearing the same material performed by a more articulate instrument, we understand, as it were, what the harmonica is attempting to say.
Indeed, the coherence of the entire work depends upon this kind of “orchestration.” The other instruments, I argue, “lead” the harmonica through the work, demonstrating to the listener the various elements. The harmonica can never articulate any of the phrases as clearly as the flute or oboe; the latter instruments illuminate the harmonica’s music. Thus Mozart is able to write unidiomatic music for the harmonica. The thirty-second note figures in mm. 55-56 (Ex. 1) work only because they imitate the flute and oboe in mm. 53-54. It sounds muffled, but we have already heard the “unmuffled” version and therefore understand what the harmonica is doing in these measures. The imitative section beginning at m.196, though it may sound slightly awkward, would have sounded incoherent had the flute, oboe and viola not first “explained” the dialog before the harmonica warbled in response to the cello.

Because the harmonica runs the risk of sounding monotonous, Mozart is careful to keep intensive passages for the harmonica short and to break up the texture with interjections by the other instruments as in Ex. 4. Though this is a common enough technique in concerto and concertante-style music, here it serves the vital purpose of keeping the sonority of the harmonica fresh: the rondo begins with solo harmonica—a typical texture of an alberti-like bass and a simple melodic line. The accompanying instruments respond beginning m. 67—the flute takes the melody while the oboe and viola provide a livelier accompaniment. The triplet section beginning in m. 76 alternates the flute and oboe with the harmonica, eventually bringing in all four accompanying instruments for the cadence in m. 90 (ex. 5).
Example 2.5: Mozart, Adagio and Rondo, K. 617, mm. 76-90
There are two curious modulatory passages for solo harmonica at mm. 91-93 and mm. 178-180 (ex. 6). These chordal passages seem unexpected in the fast and delicate texture of the rondo, but they are there, I believe, because they use the harmonica to its best advantage. Indeed, this is precisely the kind—the only kind—of writing that Hoffmann said is well suited for the instrument.

Example. 2.6: Mozart, Adagio and Rondo, K. 617, mm. 91-93 & mm. 178-180

In these six and a half measures, we hear the most idiomatic writing for the harmonica in the entire work. Such writing shows off the sonority of the instrument, both because it gives the harmonica time to resonate and because the modulations turn the focus to the beautiful harmonies. Certainly, Mozart could have used this texture more, but doing so
would have risked ruining the effect. Mozart’s quintet for the glass harmonica is a delicate study in *moderation* above all else.

In short, the other instruments serve a different purpose than in many other chamber music works: though this music is intended to show off the glass harmonica, it does so almost by sleight of hand. Rather than five instruments participating in an intelligent conversation, the glass harmonica performs a distorted monologue, translated for the listener by the other instruments. We hear the music, as it were, projected through the harmonica; we are able to accept the inevitable distortions because Mozart has artfully employed the other instruments to focus the picture. In the end, the music is full of dramatic contrasts, both of character and of timbre; the harmonica appears to be a more normal instrument capable of producing nuanced music, full of variety and contrast. We learn something about the ideals of musical style: Mozart certainly could have written something idiomatic for the instrument, but it would have not offered timbral variety and thematic contrast. The form, expressive content, and structure of this quintet depend upon the instrumentation and handling of sonorities; however, the basic identity of the work does not lie in the instrumentation, at least not to the same degree as in the examples drawn from Haydn’s symphonies below.

*Haydn, Symphony 100 “Military” & Symphony 94 “Surprise”*

Though Haydn’s orchestration has received less praise than Mozart’s, several authors have commented specifically on the orchestration of Haydn’s “London” Symphonies. Gesine Schörder, for
example, argues that we can begin to see a turn away from classical orchestration towards a more “modern” orchestral aesthetic. Seeing earlier 18th-century symphonies as sonatas written for orchestra, she argues that Haydn begins to use orchestration to create symphonic form. Likewise, Marius Flothius notes how Haydn weaves instrumental dialogue into the basic orchestral texture of the London Symphonies. Janet Kathleen Page’s study of wind instruments in Haydn’s later music is the most thorough in the literature. She too argues that orchestration plays a more fundamental role in Haydn’s later orchestral music: through close study of Haydn’s sketches, she argues that we can find evidence of “orchestral planning” at an early stage in Haydn’s compositional process. These authors touch on important aspects of what makes Haydn’s late orchestration so striking. Yet the notion that Haydn creates part of the formal structure through orchestration does not sufficiently describe his compositional technique.

Two passages from Haydn’s “London” symphonies will demonstrate the place of instrumental sonority in composition. The first is from Haydn’s “Military” Symphony, n. 100. I am not going to discuss the slow movement, though the battery of Turkish percussion make the movement hermeneutically rich in terms of the relationship between orchestration and the overall form. Rather, I would like to turn to the

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first theme group of the first movement. After the slow introduction, the Allegro theme begins with just three instruments: a single flute paired with two oboes (mm. 24-31, ex. 7). The sonority is immediately striking; though the combination of a flute and oboes is by no means unusual, hearing the three instruments completely exposed in a relatively high register with no supporting bass transforms experience of the sonority. Rather than simply performing the role as the upper voices in the orchestral ensemble, the three instruments demand to be considered for their own sake—that is, as something else. Certainly the character of the theme hints at the more overtly military-themed music to appear in the second movement, and the petite ensemble somewhat hints at the small fifes that were paired with drums and used to coordinate the infantry.

Example 2.7: Haydn, Symphony 100 in G major, “Military,” i, mm. 24-31
But the combined timbres of the three instruments recall another instrument with which Haydn was quite familiar: the musical clock.\textsuperscript{99} Haydn composed a number of works for musical clocks throughout his lifetime, and he captures the sound of small automatic organs with the slight squeakiness of the flute and oboes.\textsuperscript{100} Haydn’s treatment of the instruments is in no way imitative of the human voice; few would praise it for harboring the same beauty as Mozart’s wind writing. It is, however, immediately evocative and expressive, and explicitly \textit{about} the immediate sonority.

\textbf{Example 2.8: Haydn, Symphony 100, i, mm. 32-38}

\textsuperscript{99} Page, p. 95ff., also makes notes the resemblance of this sonority to the Flute-clock, though she argues it most closely resembles fife bands. See Page, p. 95ff.

\textsuperscript{100} Haydn continually displayed a keen interest in the particular qualities of different instruments, and composed for a number of instruments throughout his career, including musical clock, baryton, and \textit{lira organizzate}. 
Example 2.9: Haydn, Symphony 100, i, mm. 39-48

In m. 32, the strings take up the theme (ex. 8). Here the melody in an octave lower, while the bass line is given to the cellos, beginning two octaves below its original register; the violas fill out the harmony. In
other words, the strings “normalize” the thematic material presented by the flute and oboes; this is how we might expect to hear a first theme group begin. In m. 39 the ensemble entire orchestra enters forte, completing, I would argue, the grand gesture begun in m. 25. Haydn’s exposition is about the “orchestral-ness” of his ensemble: he moves from the diminutive flute-clock sonority, through the normalized strings, to a full celebratory orchestra. Here, the instruments do not only articulate the structure, they also create it. The form wholly depends upon the orchestration; to re-orchestrate this passage would be to change the work’s fundamental identity.

*Symphony n. 94 in G major, “Surprise”/mit dem Paukenschlag*

The second movement of the so-called “Surprise” Symphony, one of Haydn’s most popular compositions, now has a reputation as a slightly quaint piece of children’s music Most concert programs simply reproduce the familiar story of Haydn’s desire to shock and delight the sleeping ladies in his audience, and probably no amount of scholarship could ever dispel the story that is so gleefully repeated about Haydn’s intentions when he composed the movement. According to Gyrowetz, Haydn explicitly intended to surprise his audience:

... the Salomon concerts often lasted until well past midnight, and so it happened that the ladies not infrequently fell asleep. This suggested to Haydn the idea of composing something which should arose them from their nap, and so for this occasion he wrote the celebrated Andante with the drum beat, as a result of which the ladies
were really awakened, and from some was even heard a loud cry. As Haydn was just composing this Andante, Gyrowetz arrived to pay his respects. Haydn was so pleased and delighted with his own idea that he forthwith played the Andante on his square fortepiano, laughing as he did so, and prophesying: “there the women with jump.”

But Griesinger suggests a different story:

I asked [Haydn] once in jest if it were true that he wrote the Andante with the kettledrum beat in order to awaken the English public that had gone to sleep at his concert. ‘No,’ he answered me. ‘Rather it was my wish to surprise the public with something new, and to make a début in a brilliant manner so as not to be outdone by my pupil Pleyel, who at that time was engaged by an orchestra in London (in the year 1792) which had begun its concert series eight days before mine. The first Allegro of my symphony was received with countless bravos, but the enthusiasm reached its highest point in the Andante with the kettledrum beat. Ancora, Ancora! sounded from every throat, and even Pleyel complimented me on my idea.\(^{102}\)

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Example 2.10: Haydn, Symphony 94 in G major. “Surprise”, ii, mm. 1-16
If this is true, how are we to interpret the infamous chord? Even if it was not intended to wake sleeping audience members it is still an effect—in James Webster’s words “an especially brilliant effect.”\textsuperscript{103} It is an effect, I would argue, that plays an important role in the identity of the movement as a whole.\textsuperscript{104}

The movement is in a variation form in which the variations do not simply vary the theme, but undergo a process of growth. After the \textit{piano} presentation of the theme, the movement slowly grows to increasingly loud dynamics and employing an ever richer orchestral texture: the first variation creeps up to a \textit{forte} dynamic, the second, \textit{minore} variation enriches the texture by adding flutes, oboes, and bassoons in the beginning and, in the second half, growing to include the full orchestra replete with string tirade effects.

The return to the major in m. 75 is accompanied by a return to a lighter texture, which grows again to reach an apotheosis in m. 107. In m. 115 the ensemble suddenly assumes a \textit{piano} dynamic, using only strings and bassoons; in m. 131 it bursts out into a full orchestral \textit{forte} before finally returning once again to \textit{piano}, though the final section includes the full orchestra. Here, as in the exposition of the “Military” Symphony, the orchestration plays a crucial role in the movement’s identity.


\textsuperscript{104} See also Gretchen A. Wheelock, \textit{Haydn’s Ingenious Jesting with Art: Contexts of Musical Wit and Humor} (New York: Schirmer Books, 1992), pp. 15-17.
Example 2.11: Haydn, Symphony n. 94, II, mm. 75-81

The growth process is not linear; the ensemble both grows and diminishes: the loudest and fullest moments are followed by sudden returns to quiet, reduced scoring. Haydn does two things in the movement: it is both a transformation from the simple opening theme to the grand military music of m. 107, and a careful study in the effect of contrast. The grandeur of the thematic apotheosis is so powerful because of the quiet music preceding it. Haydn is even able to repeat the effect in m. 131 because he once again reduced the scoring in the measures leading up to it; in m. 116, the music is marked *pianiss. e dolce* (Ex. 12).

The “surprise” chord in m. 16, then, also serves two functions: most obviously, it contrasts with the quiet music that opens the movement. It also, however, serves as an aural promise of the music’s
and the orchestra’s potential; in one fortissimo chord, it prophesies the future transformation of the simple opening theme, reducing the grandeur of m. 107 into a brief aural glimpse.

Example 2.12: Haydn, Symphony n. 94, II, mm. 107-115
The entire movement works out, in extended musical phrases, the compositional potential of the “surprise” chord. The chord, I would argue, serves a much more profound musical function than a mere symphonic alarm clock; it is a “brilliant” effect that is both generative and transformative: the entire movement is about the play between quiet and loud, small ensemble and full orchestra, a study in the control of orchestral sonority and sonic effects.

In both the “Military” and the “Surprise,” we do not need to see sketches for the works to understand that instrumental timbre plays a structural role, fundamental to the works’ identities. Haydn’s conception of instrumental sonority is precise and particular, and takes advantage of the different colors and characteristics of each instrument in the orchestral ensemble. His treatment of the orchestra depended on a loosening of the conception that the “best” sonorities were those that were closest to the voice. It required creating a palette of acceptable sonorities that including everything from the beautiful to the grotesque, the sublime and the bizarre.

The birth of the concept of timbre and its ensuing transformation effected two major changes in the perception of music. First, it provided a counterargument to the early-18th-century notion that music’s individual sounds had no aesthetic worth. The early notion of timbre

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105 Haydn’s “prophetic” use of the “Surprise” chord resonates with the forte chord that opens Schubert’s Impromptu Op. 90, n. 1: though the work begins with a forte chord, and the music never returns to this opening dynamic. Here, the chord stands in for something lost and unattainable, a promise that is left unfulfilled by the subsequent music.

106 Page reads the Surprise Symphony as a case of “orchestrational wit and humor,” writing, “... it is as if the woodwinds and brass refuse to wait their turn. Will they behave for the rest of the movement?” (p. 163).
provided a vocabulary for evaluating the beauty of sound, suggesting that music’s beauty did indeed depend upon its constituent sonorities. The later notion of timbre that was equated with color fueled the notion the character and expression in a composition came not just from particular melodies and thematic material, but also from the immediate sonorities of instruments. Music’s dependence on the medium of sound did not detract from it as a work of art, but actually contributed in a fundamental manner to the composition’s basic identity. In the following chapter, we shall explore how the new awareness of the medium of music affected the philosophical perception and estimation of music as a whole.