Now, worthy fellows, be ready! Take care!
I made this symphony myself!
It’s what jingles and drums and tinkles and whistles,
What blows and booms and rattles and strikes!
Now the gentlemen won’t be able to find
Octaves and fifths!

-- Anon. Der Symphonien-Komponist (1799)¹

In the introduction to his treatise, Berlioz surveys the orchestral music of the early 19th century and declares, “instrumentation... is at the exaggeration state.”² This condition was neither strange nor unusual, he suggests, but rather a natural stage in the inevitable progress of musical style. All elements—dissonance, modulation, melody—follow the same path, Berlioz muses, each: must be “discovered, rejected, accepted, imprisoned, freed, and exaggerated” before assuming a balanced relationship with other elements of composition.³ Monteverdi’s introduction of expressive dissonance, he reminds us, was first derided by his contemporaries, then accepted and finally over-used to the point of obscuring all melody, before finding its proper relationship within composition; it was orchestration’s turn to undergo

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³ Ibid., p. 4.
a similar process of assimilation. Berlioz was hardly the first critic to
decry the state of orchestration: across Europe numerous people
objected to the increased size of the orchestra, the over-saturated
accompaniments in opera, the predilection for massed winds, the fad
for “Turkish” percussion, and the over-use of “effects.”4 In one of the
few studies to address the objections to orchestration in this period,
Adam Carse makes the realistic argument that criticism stemmed from
a need for ears to adjust to the orchestra’s increased size—every stage
in the expansion of the orchestra was met with hostility until listeners
adjusted to the new volume level and richness. He writes, “The
progress of this training [of the ears] can be traced in a series of
protests against the growing sonority of the orchestra, each stage of
which in turn was eventually accepted, and by simultaneous
complaints about the lack of sonority and color in the older scores,
and by the efforts made to amplify them and bring them up to date.”5
While Carse’s emphasis on a “lag time” that 19th century listeners
required before they could become accustomed to richer textures and
increased volume is reasonable as far as it goes, it cannot adequately
explain the nature of much of the criticism in the 19th century.

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4 These complaints feature minimally in recent musical studies of this period; Kern
Holoman, for example, makes no reference to the body of criticism against new
orchestral techniques in his history of 19th century orchestration “Instrumentation
and Orchestration: the 19th Century,” in The New Grove Dictionary of Music and
5 Adam Carse, The Orchestra from Beethoven to Berlioz: A History of the Orchestra in
the First Half of the 19th Century, and the Development of Orchestral Baton-
Given that Berlioz, in the same treatise, whimsically imagines an ideal orchestra of 827 musicians and chorus members, which would play in an enormous hall constructed specially for this gargantuan ensemble, his notion of “exaggeration” must surely refer to something other than mere oversaturated textures and deafening volumes. His concern with contemporary orchestration could not be assuaged with time, fading as his ears adjusted to grander orchestral sounds; rather, his criticism reflects a subtle understanding of orchestration’s relationship to other elements of composition. While Carse attempts to attribute the criticism externally to listeners’ habits, Berlioz identifies imbalances within the music itself. Berlioz may be the most eloquent critic of orchestral music of his period, and his criticisms encourage us to reexamine other musical writers in a new light. By resisting the temptation to read complaints by E. T. A. Hoffmann and his contemporaries simply as grouchy responses to new volume levels, we can gain a more nuanced understanding not only of the criticism, but also of the perceived expressive capacity of the orchestra. This will suggest a history of “absolute” music rather different from the one familiar to us today.

* * *
**Clamoring for (and against) orchestral effect**

The wisest counsel that a young composer can be given is this: never use an effect unless you know how to handle it, for the result will be quite otherwise than that which was intended.

-- François Hénri Joseoph Castil-Blaze

*Dictionnaire de musique moderne*6

During the late 18th and early 19th centuries, reviews of new compositions, discussions over the use of instruments, and commentaries on the current state of music obsessively gravitated towards one issue: the idea of musical *effect*.7 All music could have effect, regardless of whether it was intended for the keyboard, string quartet, or orchestra; also, any musical element—melody, harmony, rhythm, or instrumentation—could be the source of effect. However, effect was nevertheless something primarily associated with the orchestra and with instrumentation: that is, something produced by the contrasts and colors afforded by the different instruments available to the composer. The concept was already well established in musical discourse in the 18th century: dazzling string tirades, the commanding *premier coup d’archet*, and the famous “Mannheim rocket” became possible because the orchestra emerged as a stable body of trained musicians, making orchestration in the modern sense

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7 One of the earlier writers on music comment on “effect” and bad instrumentation was Rousseau in his *Dictionnaire de musique*. 
possible. As the century progressed, composers—and just as importantly, audiences—became increasingly fascinated with the orchestra’s capacity for grand gestures. By the end of the century, orchestral music was saturated with loud and colorful effects: trumpet calls, grand orchestral *tutti*s, massed winds, and jangling percussion. Though any dramatic orchestral gesture is, in essence, an effect, the concept, when invoked by critics, nearly always implied noisy combinations of numerous instruments, often of the wind family. As the newest members of the orchestra, the wind instruments provided not only colorful contrast to the string core, but also offered a novel power when used together.

Most musical effects originated in the opera or other explicitly dramatic musical genres. As Spitzer and Zaslaw argue:

Initially, orchestral effects appeared mainly in music for the theater and there only in certain contexts: in overtures, in “dramatic symphonies” depicting storms, battles, etc. in accompanied recitatives, and in a few stock arias (pastoral arias, military arias, etc.). As they became more familiar, orchestral effects tended to loosen their associations with context... 

Because of the flow of influence from opera, the development of instrumental genres mimicked that of the theater. In the 18th century, Gluck stands out as a great innovator for the orchestra; Hoffmann credited him with the tasteful addition of new instruments to the

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orchestra, while Berlioz continually turned to Gluck to demonstrate superb orchestration. After Gluck, opera continued to serve as a fount for new orchestral techniques. The next generation of French operatic composers employed some of the wildest and most outrageous orchestra effects. Instrumental forces reached a new size and volume as composers began to depend upon the orchestra for dramatic purposes to a greater extent than ever before, pairing the action-packed plots with equally thrilling music. Part of the inspiration for these changes came from the many public spectacles in France in the years of the Revolution. As Winton Dean has argued, the use of vast musical ensembles for public festivals and commemorations—ensembles that sometimes reached totals of 2400 musicians and vocalists—strongly influenced composers in the years after the Revolution. Inspired by the grandeur of these events, composers attempted to transfer the effect into their operas and orchestral compositions.10

Luigi Cherubini, after his arrival in Paris in the late 1780s, developed a robust orchestral style that was inspired by but also surpassed the Gluckian model in size and effect. Not only did operas such as Lodoïska (1791) achieve international success, but overtures from his operas were performed separately on symphonic programs across Europe, where they had far-reaching influence. Médée (1797) and Lodoïska contain many gestures and orchestration techniques

10 Winton Dean, “French Opera,” The New Oxford History of Music, (London: Oxford University Press, 1982), p. 27-28. Dean also documents the invention and eventual adoption by opera of new instruments such as the buccin and the tamtam, both of which were used in festivals before they found their way into opera in the works of Gossec and Méreaux.
that today seem essential to Beethoven’s style; in the words of Dean: “The scoring of the storm that begins Act III of Médée...is more advanced in style than that of the Pastoral Symphony, for instance in the imaginative treatment of the piccolo. In general... Cherubini’s orchestral style, with its busy string figurations, rhythmic punctuation on the wind, and contrasts between massive tutti and sudden hushes, often with solo woodwind left to carry on the argument, is scarcely distinguishable from Beethoven’s; and it was fully evolved before Beethoven left Bonn.”¹¹

Cherubini’s younger contemporary Gaspare Spontini used the orchestra in even bolder and noisier ways. Four years after he moved to Paris, Spontini achieved enormous success with his La Vestale (1807). The large orchestra provides a rich palette of instrumental color, while the plot affords ample opportunities for the deployment of such forces: the first act features a grandly scored Roman ceremonial procession and gladiatorial games and dances accompanied by an on-stage band replete with Turkish instruments, while the finale of the third act boasts a tumultuous deus ex machina storm that reaches deafening volumes as the chorus cries for mercy. Though some initially criticized the opera, it was soon embraced as a masterwork, and remained one of Spontini’s most successful works. Even more striking is Fernand Cortez, written two years after La Vestale. The opera’s gargantuan forces included six trumpets, three trombones, a huge battery of percussion, and an equally large wind section. Dean’s opinion that the score approaches “a sequence of military marches and

¹¹ Dean, “French Opera,” p. 43.
parades...” resonates with Hoffmann’s exasperated criticisms of the opera: longing for the more reserved orchestration of Gluck, he bemoaned Spontini’s inability to conserve his orchestral forces in Cortez, writing, “Spontini... seems to aim merely at loudness; almost continuously we hear not only the standard complement of wind instruments, but also trombones, piccolos, drum, triangle, and cymbals, until the ears are deafened. Whenever any heightened dramatic expression is possible, every external resource is brought to bear, with the result that any climax becomes impossible.”

Hoffmann’s criticism is echoed by other writers during this period: in an 1808 essay in the Allegemeine musikalische Zeitung, evocatively entitled, “Effect! Effect!,” the anonymous author addresses the current mania for effect, arguing that it is detrimental to musical art. The essay begins by emphasizing the mass appeal of effect:

Effect! Effect! So I hear clamoring from all sides. The directors, virtuosos, and audiences demand effect, and always vigorous, strong, powerful effect. Wherever decision, not contemplation, rules—that is, wherever the influence of an artist and his work is determined by the masses, and therefore success as well—one inquires into little, or indeed nothing at all, other than that which is called effect, vigorous, strong, powerful effect.

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12 Ibid. p. 80.
14 “Effekt Effekt! So hor’ ich von allen Seiten rufen. Effekt, und zwar immer lebhaften, starken, gewaltigen Effet, verlangen die Direktionen, die Virtuosen, die
Most telling, perhaps, is the witty “recipe” he includes at the end of his essay:

Recipe: for all who, without much time or trouble, nevertheless still want to produce an even far stronger, far more powerful, indeed truly irresistible effect—relayed, out of Christian brotherly love, to all pressured directors and composers, free of charge. Place, like Queen Elizabeth of England, sixteen trumpeters and six drummers in your theatre or hall; strengthen them, like Prince Potemkin, with eighty Russian hunting horns, and with relatively numerous Turkish instruments; let all of these musicians, like the Turks, each for himself, each after his own fancy, fantastically blow and hit his instrument; and finally, like Himmel in his burial cantata for Friedrich Wilhelm II, let the twenty-four and thirty pounders [i.e. cannons] fire freely now and again. If this does not make an effect, I will load myself into one of the cannons.15

Zuhörer. Überall, wo es nur Entscheidung, nicht Untersuchung gilt; das heisst, überall, wo über den Einfluss des Künstlers und seines Werks bey der Menge, wo mithin über Glück entschieden wird, fragt man wenig, oder vielmehr gar nicht, nach irgend etwas anderm, als eben nach dem, was man Effekt, lebhaften, starken, gewaltigen Effekt nennt.“ Anon. “Effekt! Effekt!” AmZ 10 (1808), col.417-422; col. 417.

Hoffmann complained frequently about composers who mistook chaotic combinations of noisy instruments for musical effect; against this musical malpractice, he advocated the subtle use of single instruments within the orchestra. In *Kreisleriana* he writes:

> It is true that a large part of the disturbing effect often produced by the inspired works of great composers comes from their orchestration.... Every instrument, whatever its distinctive effect in a particular instance, is capable of a hundred others, and it is a foolish delusion to suppose, for example, that strength and power can only be expressed by them all playing together. A single note sounded by this or that instrument can often produce inner turmoil.\(^\text{16}\)

A few years later, Hoffmann repeated the same sentiment in a more colorful and cynical essay for the *Allgemeine Zeitung für Musik und Musikliteratur*. After commenting on Mozart’s remarkable orchestration of the trial scene in *Die Zauberflöte*, he goes on:

> We know that the ordeal by fire and water [in *The Magic Flute*] ... would now require an entire arsenal of wood and brass weaponry, which is being daily augmented by strange inventions such as keyed bugles, flugelhorn, etc., cleverly made conspicuous by their dissonance. We know that every wind player, since he is no longer allowed to rest, wishes he had the lungs of Rameau’s nephew, or of the bewitched fellow who with his breath set in motion six windmills eight miles away. We know that the pages of

\(^\text{16}\) Hoffmann, “On a Remark of Sacchini’s, and on so-called Effect in Music,” from *Kreisleriana*, trans. in Charlton, pp. 152-159, p.158.
many scores now appear so black that a cheeky flea can relieve itself on them with impunity, since nobody notices it. And why? For effect—effect! Now creating an effect is certainly one of the most wonderful mysteries of composition, for the reason that the human heart is also a most wonderful mystery. From the heart to the heart, we say, and yet we cannot say which has the greater effect, an entire thunderstorm of kettledrums, bass drums, cymbals, trombones, trumpets, horns., etc. or the sunbeam of a single note from the oboe or some other instrument of refinement.17

Outside of opera, the most grand and bombastic music was to be found in “characteristic” symphonies on military and Turkish topics. The 18th century’s fascination with the Ottoman empire affected many areas of culture: not only did the West import Turkish tobacco, candy, and literature, but opera composers routinely turned eastwards for inspiration, drawing upon events in Turkish history for serious subjects, or taking advantage of the titillating possibilities hidden within the seraglio for comic opera.18 Though the European ear had little taste for most real Turkish music, the military bands—the

17 “Casual Reflections on the Appearance of this Journal,” Allgemeine Zeitung für Musik und Musikliteratur, 9 and 16 October 1820, trans. in Charlton, pp. 423-431. Hoffmann’s cynicism in this essay is striking. Later he goes on to mention Gluck, a composer he held in high esteem. He writes, “… if Gluck were living today, is it not possible that even he, as far as orchestration is concerned, would unfortunately be found wanting? We know that before he died he had planned an opera, Die Hermannschlacht, for which he wanted a special instrument made, copied from the Roman tuba. In view of this intention, his death was probably well timed.” (p. 429)
"mehter"—of the Janissary armies attracted the attention of European rulers and composers alike. Augustus II, Empress Anna of Russia, and Frederick the Great all kept Janissary bands or used Turkish instruments in their military ensembles. The instruments of the Janissary armies—related to Western bass drums, triangles, cymbals, tambourines, and shawms—soon found their way into orchestral compositions. Georg Druschetzky, Franz Anton Hoffmeister, Andreas Romberg, Johann Sterkel, Franz Süssmayer, and Friedrich Witt all composed symphonies whose titles (or movement titles) contained some variation of the adjective *turca*. Testifying to the popularity of the Turkish theme, E. T. A. Hoffmann, in his 1809 review of Witt’s *Sinfonie Turque*, complained:

Formerly the bass drum and the jangle of tambourine, triangle and cymbal were heard only rarely in the theatre, but gradually they became more and more frequent and finally even entered the concert-hall. It would have done well to lock its doors against them, for seldom is a concert-hall large enough or an orchestra loud enough to make the deafening sound of the bass drum and the jangle of the other so-called Turkish instruments even bearable.\(^\text{19}\)

The military and Turkish topics—because of associations with the courage and viciousness of the Janissary armies—were closely related, and Turkish instruments were often used to depict battles. In the

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\(^{19}\) Hoffmann, “[Review of Witt’s Fifth and Sixth Symphonies],” *AmZ* 11 (17 May 1809), col. 513-21, trans. in Charlton, p. 226.
1780s, Franz Kotzwara’s piano trio *Battle of Prague* (pub. 1785-88), which was soon arranged for orchestra, created a frenzied interest in battle and military music. As Richard Will and Karin Schulin have documented, Kotzwara’s composition gave rise to numerous imitators, all of which roughly follow an outline of march—battle—chorale, with some variation in order and the number of movements. 20 Franz Christoph Neubauer’s famous work *La Bataille* (1789) was popular enough to warrant two editions by André; to this list we could add Beethoven’s *Wellingtons Sieg* (1813, op. 91), Peter von Winter’s and Reichardt’s *Schlacht Symphonie* (1813 and 1814 respectively). Countless other composers produced similar works—most often ephemeral—to commemorate recent political events. Haydn’s enormously popular “Military” Symphony, though it does not celebrate a particular battle or follow an explicit program, nonetheless drew upon many of the established military gestures (solo trumpet calls, the clash of Turkish percussion), and consequently was heard as a kind of battle symphony. One London critic seemed genuinely alarmed at the clarity with which Haydn depicted a military engagement, writing, “the [Turkish instruments] mark and tell the story: they inform us that the army is marching to battle, and, calling up all the ideas of the terror of such a scene, give it reality. Discordant sounds are then sublime: for what can be more horribly discordant to the heart than thousands of

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men meeting to murder each other[?]”[21] Like the grandiose plots of French opera, both the military and the Turkish themes excused, indeed necessitated, the use of outlandish orchestration. Trumpet calls, exotic percussion, and even imitation gun fire and cannon roar to conjure distant lands, the horror of war, and the glory of victory. In time, these effects were taken up by composers whose symphonies had no overt military, or indeed, “programmatic” themes of any sort.

Beethoven, Spohr, Wranitzky, Gossec, and Méhul all wrote grand symphonies that were subjected to the same criticism that had been leveled against opera and battle music. These works, though “non-programmatic,” strove for effect as well. In a tradition that had crystallized in Haydn’s London Symphonies, the wind instruments enjoyed increased independence within the orchestra. The finale of Paul Wranitzky’s Symphony in D Major (Op. 36), for example, opens with an extended introduction featuring intimate Harmoniemusik before military horn calls launch the movement into the vigorous rondo that unfolds as a play between the colors of the string and wind families.[22] The infamous criticism of Beethoven’s first symphony that “the wind instruments were used far too much so that there was more music for wind band than for a full orchestra”[23] recalls Hoffmann’s

criticism of Spontini. Beethoven’s second symphony also faced similar
criticism, which was expressed explicitly in terms of effect:

The newest symphony by Beethoven (D major), despite its
great difficulties, was given twice in such a way that one
could enjoy it completely. As has been observed in Vienna
and Berlin, we also find the entire piece too long and some
details overworked. We would also like to add that the all
too frequent use of all the wind instruments impedes the
effect of many beautiful passages, and the finale strikes us,
even now after close acquaintance, as all too bizarre, wild,
and shrill.24

Likewise, Louis Spohr complained of the “unmeaning noise” in the Trio
and Finale of Beethoven’s fifth symphony, writing,

The Scherzo is highly original, and of real romantic
coloring, but the Trio with the noisy running bass is to my
taste much too rough. The concluding passage with its
unmeaning noise, is the least satisfactory; nevertheless
the return to the Scherzo at this part is so happy an idea,
that the composer may be envied for it. Its effect is most
captivating! But what a pity that this impression is soon
obliterated by the returning noise!25

Spohr nonetheless employed a grand orchestra of paired flutes, oboes,
clarinets, bassoons, horns, and trumpets, three trombones, timpani,

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and strings in his first symphony (Symphony in E flat Major, Op. 20), written for the 1810 music festival in Frankenhausen. Rather than being distinct subgenres, both grand symphonies and “programmatic” symphonies exemplify the popular “sonority-rich” musical style: the difference was one of degree, not of kind. When Méhul, better known as an operatic composer, wrote his Symphony in E Major, a French critic complained:

The astonishing success of Beethoven’s compositions is a dangerous example for musical art. The contagion of Teutonic harmony seems to win over the modern school of composition which has formed at the Conservatoire. They believe in producing an effect with prodigal use of the most barbaric dissonances and by making a din with all the instruments of the orchestra.\(^\text{26}\)

While the French complained of the “Teutonic contagion” of Beethoven, Hoffmann could look to French opera as the source of many of the worst excesses of the modern orchestra. The orchestra of the late 18\(^\text{th}\) and early 19\(^\text{th}\) centuries absorbed numerous compositional traditions; indeed, in terms of effect, it was impossible to separate French opera from the German and Austrian symphonic traditions.

Scholars such as Paul Bekker and Leon Botstein have remarked how Beethoven’s orchestration depended upon, more than variety of color, the sheer noise produced by a large orchestra.\(^\text{27}\) Their

\(^{26}\) A. M. *Les Tablettes de Polymnie* I (March 1810), 8, 9. Transcribed in Pougin, Méhul, 303-204. trans. The Symphony 1720-1840, D VII, p. xiii..

\(^{27}\) See Leon Botstein, “Sounds and structure in Beethoven’s Orchestral Music,” in Glenn Stanley, ed. *The Cambridge Companion to Beethoven* (Cambridge: Cambridge...
observation is perceptive, but Beethoven was hardly alone in this regard: the operas of Spontini and the numerous bombastic battle symphonies force us to recognize that numerous composers exploited the power of sublimely loud orchestral music. All of the works mentioned here—the symphonies of Haydn, Beethoven and their contemporaries, the operas of Cherubini and Spontini, and the numerous battle works—used similar means to create grand effects, whether the music was intended to accompany divine lightning bolts, depict a military engagement, or else merely dazzle an audience with orchestral effects.

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This body of criticism seems to depict effect as something negative. However, these critics were responding to what they deemed ill-conceived attempts to achieve effect. It was much easier for critics to enumerate the many things that could sour a passage of music than it was to explain what made an effect good. Attempting the latter, in his review of the Coriolan Overture (Op. 62), Hoffmann urged his readers to seek out a full score of the work in “order to appreciate its deeply thoughtful orchestration, which [the author] finds genuinely thrilling, since it would take too much space to illustrate the many inspired passages.” He continues, “Every entry of the wind instruments is calculated to produce the utmost possible effect. The E flat horns and C trumpets frequently play triads that make a
profoundly awe-inspiring impression…”

Hoffmann only gestures towards a concrete explanation of what made Beethoven’s orchestration particularly successful in this work. Effect was elusive; part of the power of a musical effect stemmed precisely from the listener’s inability to identify the cause. Elsewhere, Hoffmann told his effect-infatuated reader that, “To lay down rules for bringing forth effect in music may well be impossible…”

Hoffmann was neither exaggerating nor attempting to shroud music in unnecessary mystery. Effect presented a dual problem: first, it depended upon orchestration, which was equally resistant to theorization. While one can lay down some rules for counterpoint and harmony, Hoffmann claims,

> when it comes to musical color, the musician is left entirely to his own devices; for *that* is orchestration.

Because of the infinite variety of musical solutions it is impossible to venture even a single rule about this. With the help of a lovely imagination refined by experience, however, one can at least give some indications, and to these, systematically summarized, I would give the term “mystique of instruments.”

Berlioz likewise advised his readers that, “From the poetic point of view [the art of instrumentation] can be no more be taught than the writing of beautiful melodies or beautiful chord progressions or original and

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powerful rhythmic patterns.”

Second, and even more important, effect was impermanent and dependent on contemporary listening habits: a passage that was particularly effective at the time of its composition might cease to have any effect five years later. Castil-Blaze, in the 1821 *Dictionnaire de musique moderne* defined effect as something explicitly ephemeral:

> One of the most changeable qualities in music, one that is the most threatened by the passage of time, is that of “effect.” Of itself it is nothing; merely an impression that is made upon the senses. The force of an impression, therefore, depends upon the fineness of the senses, upon the extent to which they have been educated, and upon the degree to which they have previously been exposed to emotions. It depends too upon the training (or, if you prefer, the exercise) that the ear has had, as to whether the range of its sensations and as it were its needs will have been circumscribed or enlarged.

A critic in the *AmZ* went as far as to claim that one cannot even state that a bit of music has effect unless one also gives the precise context for the passage, citing as evidence perfectly fine symphonies by Hasse that seem dull and without effect when they are preceded by trumpet and drum fanfares. A more thoughtful concert program could have made the same symphonies dazzle. “That which one calls in music

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32 Castil-Blaze, “Effet,” *Dictionnaire de musique moderne*, trans. in le Huray and Day, p. 356. He continues, “Trumpets, trombones, kettledrums and bells (all of which have been much over-used) provide the composer with a superb fund of tragic and brilliant effects.”
‘effect,’” he writes, “is not absolute, but something far more relative.”

The Invention of the Orchestra Machine

The obsession with effect—both admiring and distaining—is symptomatic of the novelty of orchestration as an essential part of the composition. Before the development of the art of orchestration, the power that arose directly from the sounds of instruments was not under the jurisdiction of the composer. We’ll recall from Chapter Two, that Kirnberger had argued that it was primarily through performance that music could be perceived as sad, tender, or painful; the composer could only provide some suggestions as to how the work might be performed. A few years later, however, composers did not simply give suggestions for emotional performances, but wrote the emotion into the music, as it were, by the use of instruments, whether in vocal accompaniments or in purely instrumental music. To change the instrumentation was now to alter part of the work; an arrangement of a symphonic composition for a chamber ensemble could only approximate the original. When the Bureau d’Arts et d’Industrie published a piano quartet arrangement of the Eroica, a reviewer in the AmZ remarked, “This well-known work... is arranged here with diligence. Even in this form it has as much effect as is possible for pieces that depend so much on the unique effect of all the instruments, particularly that of the wind instruments in opposition to

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the strings.” In Beethoven’s symphony, the timbres of instruments were transformed from something that made the performance pleasant, into something central to the music itself. When Friedrich Mockwitz produced a four-hand piano arrangement of the Op. 59 string quartets and the “Pastoral” Symphony, the reviewer commented precisely on this shift between what “serves and what constitutes music”:

This wonderful work, rich in imagination and full of life, in which, almost as in Beethoven’s Sixth Symphony, what serves and what constitutes music are placed close to each other in their furthest extent, bent together, and as much as possible blended—has here been arranged for two keyboard players with insight and diligence.... In those places where the effect is based primarily upon the charm of particular instruments, it can scarcely go farther than to produce a pleasant recollection for those to whom the original is not unknown.... Apart from these places, the work makes even in this form a distinctive effect and invigorates irresistibly.35

Here the arrangement is less a new work, more a shadow of the original—“a pleasant recollection.” That the reviewer felt it necessary to comment on the inseparability of orchestration from the music testifies to the novelty of this kind of close relationship between

instrumental sonorities and the basic identity of a composition. The birth of orchestration and the ensuing interest in effect fundamentally changed composers’ and audiences’ conceptions of what constituted music: suddenly immediate timbres garnered interest, regardless of their context. Indeed, a branch of musical practice thrived during this period that was founded on the very idea that to capture music’s immediate timbres was to harness the power of music itself: turning away from sources traditionally consulted by historians of the orchestra, we find that contemporary instrument builders produced a host of instruments designed to capture the many timbres of the orchestra. These instruments epitomized the increasing attention paid to raw sonority at this time, as builders sought technologies that could reproduce both the orchestra’s variety of color as well as its dynamic range.

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It may seem odd to turn to obscure and novel instruments for information about the aesthetics of the period. Yet, as we can glean from Hoffmann’s reference to “strange inventions such as keyed bugles, flugelhorn, etc.,” inventors of the period produced a large number of new instruments, from chromatic horns and elaborate keyboard mechanisms, to automaton flute players and automatic “orchestra machines.” These instruments were taken on tour, touted in spectacles, and scrutinized by critics; journals of the period are littered with descriptions of the new inventions, reviews of the concerts given on them, and even suggestions for new mechanisms.

Though some scholars have documented these instruments’
mechanisms, few have connected these machines to broader issues of contemporary musical culture. Rather, they have typically been depicted as existing either in isolation, or else as musical freaks lurking in the shadows of mainstream musical culture. However, the emergence and proliferation of these instruments permit us to view them as repositories of elements of music that captured the public’s imagination. Inventors were profoundly influenced by the surrounding aesthetic climate, and their instruments reflected trends in musical practice. The glass harmonica, for example, invented by Benjamin Franklin in 1761, grew out of the dominant aesthetics that favored vocal music over instrumental forms. As Heather Hadlock has argued, the harmonica’s unique sonority and its capacity for dynamic nuance allowed the instrument to be heard as a kind of idealized voice, thus escaping the common criticisms lodged against instrumental music. Other examples of this kind of close relationship between contemporary aesthetics and instrument building can be found in the realm of automata: builders could not program their instruments without rigorously examining the ideas behind the interpretation of musical notation. Father Joseph Engramelle’s monograph for builders, La tonotechnie (Paris, 1770), addressed precisely the issue of making mechanical performances sound rhythmically nuanced. The 18th-

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century equation of physical motion with good performance is embodied in Pierre Jaquet-Droz’s automaton “La Muscienne”: endowed with flawless technique, this automaton keyboardist also performed with subtle head movements and a gently heaving bosom, dazzling her audience with her life-like performance.

As the public became increasingly aware of the power of orchestral sonority, a host of instruments grew up around this interest, taking a wide variety of forms. In 1804, Ehregott Wasiantski published an affectionate biography of Immanuel Kant. After a lively description of Kant’s love of military marches, Wasiantski described performing his new Bogenflügel for Kant and von Hippel:

In 1795, accompanied by the late G. R. von Hippel, [Kant] paid me a visit to hear my Bogenflügel. An adagio with the flageolet stop, which is similar to the tone of the glass harmonica, seemed rather disagreeable to him, but the instrument gave him uncommon pleasure when the lid was opened and its full force unleashed, especially when it imitated a symphony with full orchestra.\(^3\)

The Bogenflügel was one of numerous instruments designed to solve an age-old problem: The common keyboard instruments either lack the ability to sustain tones, as is the case with clavichords, harpsichords, and pianos, or to vary their dynamics, as with organs and harpsichords. The idea of a “sustaining” keyboard instrument had

\(^3\) Siegfried Drescher, ed. Wer war Kant? Drei zeitgenössischen Biographien von Ludwig Ernst Borowski, Reinhold Bernhard Jackmann, and E. A. Ch. Wasiantski, (Pfullingen: Neske, 1974), p. 268. Chladni praises this Bogenflügel (built by Garbrecht) as the most successful attempt of its kind.
fascinated inventors for centuries: Leonardo da Vinci drew up sketches for a keyboard instrument that used a rosined wheel to activate and sustain tones; the earliest actual instrument was Hans Haiden’s *Geigenwerk* of 1575. The performer used a foot treadle to set a number of rosined wheels in motion, and when keys were depressed, the corresponding strings were lowered onto these wheels. The speed of the wheels controlled the volume, so that varying the speed of the treadle the performer could crescendo and decrescendo. Haiden’s own description of the instrument enumerated its many merits: not only did it allow for the subtle nuance of single tones, it was capable of imitating the lute, *viola bastarda*, shawm, and bagpipe (features that supposedly allowed the *Geigenwerk* to “be used to please women and children who otherwise do not greatly care for music—and also for the amusement of very respectable people when they are a little tipsy from a good drink”40). Haiden also boasted that “one [could] play court music and band music on it, making it sound as if twelve trumpets and clarinos were playing together.”41

Various inventors attempted to improve upon Haiden’s design in the following centuries; C. P. E. Bach praised a *Bogenklavier* by Johann Hohlfeld, writing, “The fine invention of our celebrated Holefeld [sic], which makes it possible to increase or decrease the registration by means of pedals, while playing, has made the harpsichord, particularly the single-manual kind, a much-improved instrument,

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41 Ibid., p. 70.
and, fortunately, eliminated all difficulties connected with the performance of a piano. If only all harpsichords were similarly constructed as tribute to good taste!" Most subsequent sustaining pianos were built on the same basic hurdy-gurdy principles as Haiden’s instrument, that is, they used rosined wheels or bows to activate strings. It is important to note the difference between Haiden’s description and that of Wasianksi: though Haiden recognized the Geigenwerk’s potential to imitate other instruments, including massed brass, he could not, as Wasianksi did, describe it as imitating an orchestra, for his invention long predated the final consolidation of the orchestra as a musical body, concept and institution. Though one can identify basic goals shared by both instruments, the context in which Wasianksi’s Bogenflügel thrived was sharply different from that of the Geigenwerk. His seemingly casual remark that the instrument could imitate a “symphony with full orchestra” crucially depends upon the presence of an orchestral tradition. It was only when the orchestra emerged as a concrete manifestation of a new concept that instruments could be discussed as imitating its many sounds. Indeed, this discursive shift reflects a broader trend in the late 18th century; the Bogenflügel was but one of a number of instruments designed to capture various elements of the orchestra; many others declared their debt to the orchestra far more openly. We can find combination piano-organs with swell, and a number of automatic instruments constructed of actual wind instruments and percussion. One of the

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most telling signs of the influence of the orchestra was the emergence of the name “orchestrion,” which was used to denote several different kinds of orchestra-imitating instruments of this period.

The industrialization of orchestrion building in the late nineteenth century gave rise to the standard use of this term; today “orchestrion” usually conjures a large, late-nineteenth century mechanical instrument that plays preprogrammed music from a pinned barrel or perforated “book” and uses a combination of organ stops, percussion, and often also mechanically played wind and string instruments to imitate the sounds of the orchestra.

The terminology of the late 18th century and early 19th century was far less stable. In 1814, Hoffmann published his fantastical story “Automata” in the Zeitung für die elegante Welt. In the course of the story, the main characters, Ludwig and Ferdinand, attend a mechanical concert at the house of an unsavory professor whose automata have been on public display:

[The Professor] fetched his keys with a great clatter, and opened the door of a tastefully and elegantly furnished hall, where the automata were. There was a piano in the middle of the room on a raised platform; beside it, on the right, a life-sized figure of a man, with a flute in his hand; on the left, a female figure, seated at an instrument somewhat resembling a piano; behind her were two boys with a drum and triangle. In the background our two friends noticed an orchestrion (which was an instrument already known to them), and all around the walls were a number of musical clocks. The Professor passed in an
offhand way close by the orchestrion and the clocks, and just touched the automata, almost imperceptibly; then he sat down at the piano, and began to play, pianissimo, an andante in the style of a march. He played it once through by himself; and as he commenced it for the second time the flute player put his instrument to his lips, and took up the melody; then one of the boys drummed softly on his drum in the most accurate time, and the other just touched his triangle, so that you could hear it and no more. Presently the lady came in with full chords sounding something like those of a harmonica, which she produced by pressing down the keys of her instrument; and then the whole room kept growing more and more alive; the musical clocks came in one by one, with the utmost rhythmical precision; the boy drummed louder; the triangle rang through the room, and lastly the orchestrion set to work, and drummed and trumpeted fortissimo, so that the whole place shook...

Throughout “Automata,” the professor uses his automata, musical and otherwise, to manipulate the emotions of other characters, and this performance is no exception: the music unfolds according to the principles of effect (vague though they are) that we have seen above. Knowing that effect was relative, he did not allow his performance to suffer the same fate as Hasse’s symphonies: rather than opening with trumpeting and drumming, he carefully “orchestrated” his performance to end with the loudest and most grand gesture. Equally

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fascinating is the instrument that performs the final gesture: the professor’s “orchestrion” behaves much like the later orchestrions, a clear precursor to the later nineteenth century machines. Hoffmann’s strategically placed remark that the orchestrion “was an instrument already known to them” suggests that the automatic orchestrion already had gained some notoriety; it apparently needed little explanation within the story. Rather, Hoffmann used the instrument as suggestive referent.

Just eight years earlier, however, the “orchestrion” cropped up in a very different context. In his essay on the character and worth of musical instruments, C. F. Michaelis devotes a paragraph on instruments that he believes have genuine aesthetic value, but lack widespread use because their performance requires highly specialized knowledge typically possessed only by the inventor. He mentions, among others, the euphon and the clavicylinder, two glass instruments designed and built by the acoustician E. F. F. Chladni, the Bogenhammerklavier (a keyboard that combined the sustaining piano action with traditional hammers) and the “orchestrion.” This orchestrion, however, was an instrument very different from that in Hoffmann’s “Automata”: it was not automatic, but rather performed on by a real musician.

In other words, the notion of an orchestrion was highly elastic. Some instruments called “orchestrions” were clear precursors to the later nineteenth century version; others with the same name were a

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quite different species of instrument. Yet others functioned like orchestrions, but were designated by different names, and, to complicate matters further, there was a family of instruments, loosely related to the above, with unique and fanciful names. This sundry list of instruments, however, was united by a common theme: each, whether automatic or not, attempted to capture the essence of the orchestra. That a cluster of similar terms denoted a variety of related instruments testifies to a fervent interest in creating an instrument with symphonic capabilities.

The first known use of the term “orchestrion” was for a combination organ and piano with swell invented and performed on by Abbé Vogler in 1789. Michaelis, indeed, may be referring to Vogler’s orchestrion in his essay. Or perhaps not, as the concept—a keyboard instrument that combined several contrasting sonorities and had the potential for great variety of tone and volume—was taken up by a number of other inventors. Thomas Anton Kunz used the term for an instrument he completed in 1798, a similar combination organ and piano (Fig. 1).45

45 Thomas Anton Kunz, “Beschreibung des Orchestrian’s,” Allgemeine musikalische Zeitung 1 (1798), col. 88-90.
In 1812, the *AmZ* reported on a recently exhibited instrument by the builder Hunn. It too was called an “orchestrion” and consisted of a “fortepiano with forte, piano, clarinet, bassoon, and pedal.”\(^{46}\) The most romantic version was surely Leppichs’s panmelodion of 1809, which combined the sounds of a fortepiano, organ, glass harmonica, waldhorn, and bassoon (Fig. 2).\(^{47}\)


Figure 4.2: Franz Leppich’s Panmelodion

The automatic orchestra machines grew out of mechanical organ building in the eighteenth century. Their precursors were petite organs that were often housed in the body of a clock and played short pieces automatically from pinned barrels at predetermined times of the day. Earlier “musical clocks” were limited in terms of variety of sound, but throughout the eighteenth century builders began to increase the number of stops, finding ingenious ways of expanding the number of effects in their compact mechanisms. Petter Strand’s organ clock of 1794, for example, not only had two stops, but could move gradually between them, dynamically shading the tone—an effect unthinkable
for a human organist. By the 1790s, these clocks had grown into
great machines capable of grand effects. Father Primitivus Niemecz,
librarian of Prince Nicholas Esterházy, created a number of especially
fine musical clocks for which Haydn composed and arranged music.
These were typically smaller organs, but in 1798 he completed a large
mechanical organ with forte, piano, and echo effect, that played grand
ouvertures—an instrument that clearly hovered on the threshold
between mechanical organ and mechanical orchestra. It seems to
have taken some time for a new name to be applied to the larger
orchestral organs: in London, instrument builder George Astor
published a pamphlet advertising his latest barrel organs in 1799,
writing he “respectfully solicits the Attention of Merchants, Captains of
Ships, and the Public in general, to his Barrel Organs with Drum and
Triangle, which are particularly calculated for Country Dances, having
the effect of a Band.” Though he promised his barrel organs could
imitate a band, Astor did not invent or use a name that reflected the
instrument’s increased capabilities. This suggests that there may have
been more large barrel organs with orchestral effects in the late
eighteenth century than can be identified today.

One of the first mechanical orchestras to be called such was the work
of Johann Strasser, a Viennese clockmaker living in St. Petersburg.

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48 This instrument is in the collection of the Naational Museum van Speelklok tot
Pierement (catalog number 669) and is in playing condition.
49 See Arthur Ord-Hume, Joseph Haydn and the Mechanical Organ, (New York:
50 George Astor, Manufacturer of Musical Instruments and Music-seller to their
Majesties and their Royal Highnesses the Prince of Wales and Dukes of York and
Clarence [Advertising pamphlet], (1799).
Strasser spent over eight years creating an enormous mechanical orchestra with clock, which he completed in 1801. Housed in a mahogany-columned temple, Strasser’s instrument used a variety of stops (reed, wood, and metal) to imitate the different sonorities of the instruments of the orchestra. Though the organ’s mechanism was separate from the timepiece, the massive creation nonetheless featured one of the most accurate clocks of its day.51 The instrument originally had fifteen barrels that played extended compositions, including the overture to the *Magic Flute*, the March and Chorus from *Le Clemenza di Tito*, and the Allegretto to Haydn’s Military Symphony. One of the few instruments to survive from this time, it was recently restored in St. Petersburg and is currently on display in the Hermitage (Fig. 3).52

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51 Arthur Ord-Hume must have been unaware that this instrument survives, for he criticizes Landon for referring to Strasser’s instrument as a “musical clock,” writing “certainly Strasser’s orchestrion had no timepiece.” (Ord-Hume, *Haydn*, p. 38 n. 21).
In 1810, Joseph Gurk (also spelled “Gurck”), former apprentice to Niemecz, completed a large mechanical organ that had occupied him for the better part of a decade. Gurk’s instrument was first exhibited in Vienna in 1810 and then in London at Wigley’s Exhibition Rooms in Spring Gardens in 1811. When the instrument reached London, The Times drummed up interest with a lengthy description of its mechanism, and relayed Gurk’s self-serving claim that Haydn saw and inspected the instrument:
Thus, after about seven years of incessant labor, [Gurk] had the gratification of bringing his instrument to perfection just at the propitious moment for him, which preceded the great Haydn’s last illness and death. That veteran Orpheus... was one of the first who viewed the result of Mr. Gurk’s application and genius ... “And what’s to be the name of it,” asked Haydn, after minutely examining every part of the work. “My child,” replied Gurk, “has no name as yet; might I presume to request the Father of Harmony to stand its godfather?” Haydn promised to think on the manner, and the next day sent a German note to the following purport: Dear Sir, Call you instrument the PANHARMONICON; and, if any body ask you any question about it, tell him the name proceeds from old Haydn.”

Rather than using specially designed organ pipes to imitate orchestral sounds as Strasser’s creation did, Gurk’s organ was composed of actual instruments: in addition to a variety of percussion, the instrument contained French horns, oboes, clarinets, trumpets, and flutes in profusion, each one bored to produce a single note. The Spring Garden advertisement (Fig. 5) for Gurk’s panharmonicon boasts that the machine consists of no fewer than 210 instruments, and is “equally grand as a full orchestral band” —a slight cheat, since Gurk required a separate instrument for each pitch, with the result that it was an organ of five or six stops; in other words, Gurk’s instrument was a modest sized, though quite noisy, chamber organ.

Notwithstanding false advertising, the instrument was overstuffed with trumpets, flutes, and drums and seemed quite grand. The reviewer for *The Times* exclaimed, “Upon the whole, we confess, that both the sight of the complicated mechanism of this unique instrument, and the witnessing of its powers and effect, excited in us the strongest emotions of rapturous surprise.” (Fig. 4)\(^5^4\)

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**Figure 4.4: Gurk’s Panharmonicon**

Johann Nepomuk Mälzel, ingenious inventor and showman, created two orchestra machines. The AmZ enthusiastically reported on his first
machine in 1800, carefully detailing the instrument’s features. Like many other early orchestra machines, Mälzel’s is unnamed. However, he gave the name “panharmonicon” to his second expanded machine of 1812. Though the relationship between Mälzel and Gurk remains unclear, it is likely that Mälzel—who never suffered qualms about borrowing his contemporaries’ intellectual property—simply used Gurk’s name, since it had acquired some fame at the time. Like Gurk, he used real wind and percussion instruments, and his later panharmonicon included violins and cellos (achieved by means of clever organ stops). It was for this later instrument that Beethoven composed the notorious battle piece, Wellingtons Sieg, Op. 91.

While other mechanical instruments embodied contemporary notions of tuning, notation, or movement, the goal of these instruments was to capture orchestral sonority; this array of inventions illustrates how the ideal of the “orchestrion” had captured musical imagination: it could take the form of an instrument anywhere along a spectrum that ranged from bogenflügels, to piano-organ orchestrions, to the fully automatic panharmonicons. These creations herald a new era in the history of the orchestra: the crystallization and objectification of orchestral sonority. Just as the concept of the orchestra unified, so too the idea of the sound of the orchestra became a discrete concept, something worthy of imitation.

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The Problem with Orchestral Sonorities

While the piano-organ orchestrions and similar instruments drew on the effects of contrasting sonorities, the automatic orchestra machines and panharmonicons exploited the widespread interest in the grandest of orchestral gestures: trumpeting, drumming, and massive *tutti*. The popularity of bombastic sounds in contemporary orchestral music is distilled in mechanical orchestras. Gurk and Mälzel’s panharmonicons conflated the military band with the orchestra; Gurk’s instrument was even specifically advertised as reproducing the finest military music. The most popular piece remained the Allegretto from Haydn’s “Military” symphony, which was set for Strasser, Gurk, and Mälzel’s machines. In other words, these creations reveal in their design both the elements of music and the kinds of music that appealed to the public. Critics and instrument builders alike were responding to the frenzied interest in sonorous effects; the former attempted to discourage composers from indulging in such excesses, the latter simply capitalized on the interest, using the most popular music of the day to draw crowds. While the “effect recipe” and the humorous poem quoted above satirized contemporary musical practice that treated wild drumming, jingling, and trumpeting as music, orchestra machines capitalized on the fascination with these same elements, reproducing the sonorities that critics argued were being overused and abused.

It should come as no surprise, then, that these machines were subject to criticisms similar to those faced by the orchestral music
they imitated. Berlioz, towards the end of his discussion of individual instruments within his treatise, turns to newly invented instruments, remarking, “We will make no attempt here to dispute the opinion that the recent inventions of instrument makers can be fatal to the art of music.”

The episode with the professor’s mechanical orchestra in Hoffmann’s “Automata” functions as critique not just of the recent popularity of mechanical music (which he abhorred), but of loud, overly-bombastic music in general: the automata perform a march, and the entire piece culminates the din of every instrument playing at once, crowned by the drumming and trumpeting of the orchestrion. In other words, the mechanical orchestra embodies many of the most extreme aspects of the new fascination with orchestral effects.

Orchestral effects and orchestra machines both depended on a belief in the immediate power of instrumental sonority that was unprecedented in the history of music. The same impulse that led to a reevaluation of and new respect for the musical medium in the late 18th century redefined music in the early 19th century: orchestration not only became an essential element of music, but even threatened to undermine other elements. It is here that we can return to Berlioz’s claim that orchestration was “exaggerated.” Though the noisy operas of Spontini and numerous battle symphonies seem to suggest his idea of “exaggeration” was tied to volume, Berlioz refers to orchestration’s relationship with melody, harmony, voice-leading, and form. Just as composers in the years following Monteverdi used dissonance to the point of blotting out beautiful melodies (in Berlioz’s opinion), so too

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orchestration began to encroach on other musical techniques, as if brilliant timbres were the only hallmark for distinguishing a collection of sounds as music. For Berlioz, Hoffmann, and many other critics, noise-mongering symphonists reduced music to a series of shallow effects.

Much of the criticism we have seen against orchestral music may seem uncomfortably reminiscent of earlier 18th century authors who claimed that instrumental music lacked value because it was mere ear-tickling jingle-jangle, or, in the words of Batteux, merely paint thrown on a canvas. But a subtle and essential difference separates the earlier authors’ complaints that instrumental music was meaningless from the later critics’ objections to what they deemed meaningless orchestration. The former stemmed from a belief that the musical medium itself was meaningless; the latter assumed that instrumental sonorities are inherently meaningful. Though modern scholars traditionally speak of instrumental music as having “transcended” mere meaning in this period, I argue that the contemporary criticism suggests that what Hoffmann and his contemporaries objected to was not the total lack of meaningful sound, but rather the misapplication, as it were, of inherently expressive sonorities. Indeed, upon closer examination, we find that critics consistently identified two problems with the new style of

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57 Batteux writes, “What would one say of a painter who was content to throw onto the canvas bold strokes and masses of the most vivid colors with no resemblance to a known object? The application to music speaks for itself.” (Charles Batteux, Les beaux-arts réduits à un même principe [1746], trans. in Music and Aesthetics in the Eighteenth and Nineteenth Centuries, ed. by Peter le Huray, Peter and James Day (Cambridge: Cambridge University Press, 1981), pp. 40-56; p. 49.
orchestration: first, that composers were using their orchestral forces in ways that contradicted the characters of individual instruments, and second, that these uses undermined music’s unity; orchestration held the potential to enliven a piece of music in many ways, but only if it complemented the overall composition, working with the other elements to produce a unified whole.

*The Wind Instruments*

At first blush, it appears that Hoffmann and his contemporaries simply objected to the sheer quantity of music written for massed wind instruments. Newly liberated from their modest role as strengthening forces for the strings, the winds seem to have been the most obvious culprits behind the orchestra’s obsession with effect. Indeed, many of these reviews, taken out of their context, seem to support Carse’s belief that most ears simply had not adjusted to the new volumes of the orchestra. It was not primarily volume, however, but rather the misuse of *character* that offended the early 19th century listener. Starting in the 1790s, critics began to comment on the new roles the wind instruments played in contemporary orchestral music. In Reichardt’s journal *Studien für Tonkünstler und Musikfreunde*, a certain “W” published a brief essay on new ways composers were using wind instruments. Initially, the author claims, composers used wind instruments sparingly: the flute was only used for obbligato passages, the horn was limited to a supporting role, the bassoon was never used as an “effect instrument” [Effektinstrument], while trumpets and
trombones were confined to military contexts. In recent times, the winds had been freed, and were able not only to give a heightened clarity to the overall harmony, but also, by means of the contrasts afforded by the string and wind families, to produce “exceptional effects.” However, the wind instruments were also being used so much that they hindered the listener’s ability to pay attention and spoiled the effect of the music. He then argued that the orchestration of Gluck, Mozart, and Salieri shows the true, effective use of the wind instruments. The author ends by beseeching his readers to study the wind instruments closely so that they may understand how they function.

This idea of “attention” crops up in later criticisms of the wind instruments. Seven years later, an anonymous author in the AmZ gave the following elegant explanation why the wind instruments should not be overused:

The wind instruments are, by their nature, far more distinctly differentiated from each other, than the many kinds of string instruments. Their tone approaches the most divine of all instruments, the human voice. They penetrate the heart faster, and excite, according to their individual disposition, this or that mental state with far more certainty than the string instruments, which have a more general and therefore less distinct character.

Everyone who even superficially examines his feelings will

remark that the flute, for example, has an exclusively
gentle character, that the horns resound festively, that the
bassoon invites melancholy, that the trumpets have
something warlike and wild about them, and so on.
Already from this one can deduce that there can only be a
few cases in which the whole richness of wind instruments
can be well employed, since their differing impressions
cancel each other out, and must in the end cause nothing
but a bare harmonious ringing.\textsuperscript{59}

A little more than a half-century before, Batteux could complain that
instrumental music was as meaningless as color thrown onto a
canvas—for him, the tones of instruments did not signify anything; in
the anonymous critic’s opinion, by contrast, the wind instruments
were perceived as having so much significance as to confuse the
listener when they are compounded. To misuse the wind instruments
was not simply to make too much noise with them, but to contradict
the well-defined character of each instrument; to use them all at once
overwhelmed the listener with too many signifiers.

\textsuperscript{59} “Die Blasinstrumenten sind, ihrer Natur nach, weit wesentlicher von einander
unterschieden, als die macherley Arten von Saiteninstrumenten. Ihr Ton nähert sich
merh dem göttlichsten aller Instrumente, der Menschenstimme. Sie dringen
schneller ans Herz, und erregen, nach ihrer individuellen Beschaffenheit, diese oder
jene Gemüthsstimmung weit gewisser, als die Saiteninstrumente, welche einen
allgemeinern, aber eben deswegen unbestimmerern Charakter haben. – Jeder, der
sich nur einigermassen Rechenschaft von seinen Gefühlen ablegt, wird bemerken,
dass, z. B. die Flöten einen ausschliesslich sanften Charakter haben: dass die
Hörner feyerlich klingen: dass das Fagott zu Schwermuth: dass die Trompeten etwas
kriegerisches, wildes haben, und so weiter. Schon hieraus lässt sich es abnehmen,
dass es nur wenige Fälle geben könne, in welchen der ganze Reichthum der
Blasinstrumente wohl angebrachte sei, indem diese so ganz verschiedenartigen
Eindrüke sich wechselseitig zerstören, und am Ende nichts als ein bloses
harmonischen Geläute hervorbringen müssen.” Anon. “Kritische Bemerkungen über
verschiedene Theile der Tonkunst,” \textit{AmZ} 1 (1799), col. 193- 197; col. 196-7.
This view is supported and elaborated on by Michaelis, who in 1805 published a brief essay on the misuses of wind instruments. He identifies common mistakes that composers make when writing for winds. Like the anonymous critic he agrees that many composers do not properly consider their character. He goes on:

The flute, the trumpet, the bassoon, the trombone, etc.: each of these instruments is more suitable than another for its own expression of different emotions, for its own way of exciting the fantasy. One is more suitable for gentle complaints, the other better able to express deep melancholy, gloomy seriousness. One is better suited to cheerful and light Schwärmerei, the other more to tenderness and the comfort of the familiar; one is more suitable for feminine gentleness and indulgence, another better able to express masculine strength, courage, and defiance.\(^6^0\)

Michaelis takes his criticism of the wind instruments a step further than the earlier critics, arguing that the well-defined character of the wind instruments interferes with the perception of the work as a whole. He begins by drawing an important distinction between the string and wind instruments. Like the previous author, he believes

\(^6^0\)“Die Flöte, die Trompete, der Fagott, die Posaune u.s.w., jedes dieser Instrumente eignet sich mehr, als das andre, zu einem eigenen Ausdruck einer verschiedenen Empfindungsweise, zu einer eigenen Erweckung der Phantasie. Eins ist geschickter, die sanfte Klage, die ander die tiefe Schwermuth, den düstern Ernst, das Eine vermag besser die heitere leichsinnige Schwärmerei, das andere mehr die Zärtlichkeit oder das Trauliche der Biederkeit auszudrücken; eins eignet sich mehr für weibliche Sanftheit und Nachgiebigkeit, ein andres drückt besser männliche Kraft, Muth, und Trotz aus.” C. F. Michaelis, “Einige Bemerkungen über den Misbrauch der Blasinstrumente in der neueren Musik,” AmZ 7 (1805), col. 97- 102; col. 99-100.
that the string instruments have a more general character, while that of the winds is more distinct. He goes on to argue that because the strings are more neutral, they are better suited to give “the true form of the music.” He writes:

The string instruments, the less they imitate the wind instruments, the more they are capable of giving us the true form of music, and therefore true aesthetic pleasure, of which we do not tire easily. The wind instruments, however, have too much charm in their tones, too much that excites and fills out. They mix more materiality into our pleasure, of which we grow more easily weary (as everywhere where over-determination fences in the imagination).

Ghosts of Kant’s third Critique haunt this passage: Michaelis employs Kant’s distinction between “beauty” and “charm” to describe the function of the two instrument families. The strings can give true aesthetic pleasure because they help the listener contemplate the work’s form; the winds provide immediate pleasure through their charm, and thereby, because of their strong character, risk detracting from the enjoyment of the overall composition. For Michaelis, the tone of the string instruments is then equivalent to design, while the winds

61 “Die Saiteninstrumente haben, je weniger sie sich den Blasinstrumenten nähern, um so mehr Fähigkeit, uns die reine Form der Musik, mithin den reinern ästhetischen Genuss zu geben, bey welchen wir nicht leicht ermüden. Die Blasinstrumente haben hingegen in ihren Tönen zu viel Reiz, zu viel die bloß sinnliche Empfindung Aufregendes und Ausfüllendes; sie mischen mehr Materielles in unser Vergnügen, dessen wir auch (wie überall, wo zu grosse Bestimmtheit der Einbildungskraft Schranken setzt) leichter überdrüssig werden.” Ibid., col. 97.

62 See Chapter Three: “Sensation in Kant and Herder: Towards a Musical Monadology.”
function as color:

Whereas most string instruments, as long as their tone does not too closely resemble the wind instruments, show us the unadorned form of the music, as in were in outline, and often only lightly suggest things to the imagination, the wind instruments appear to add bright tints to the musical composition and give it a lively coloring. The most colorful paintings, the pictures with strongly laid on colors, are however not the most beautiful; they often make a tolerable effect only from a distance, and all too often captivate the eye of the tasteless mob, while repelling the connoisseur. For themselves, the wind instruments affect the senses too directly, and rob the imagination too easily of its free play...63

In a review of *Guillaume Tell*, Berlioz praised Rossini’s use of the triangle, and, like Michaelis, distinguished between the distinctly purposive use of the triangle and the more fundamental use of the other instruments. Unlike Michaelis, however, he includes the clarinet as a standard, unmarked, member of the orchestra. In the time between Michaelis’ essay and Berlioz’s treatise, then, instruments that

63 “Während uns die meisten Saiteninstrumente, solbald ihr Ton den Blasinstrumenten nicht zu sehr ähneln, die bloße Form der Musik gleichsam nach ihren Umrissen reiner zeichnen und oft für die Einbildungskraft nur leise andeuten, scheinen die Blasinstrumente bunte Farben auf die musikalische Komposition aufzutragen, und ihr ein lebendiges Kolorit zu geben. Die buntesten Gemälde, die Bilder mit stark aufgetragenen Farben, sind aber eben nicht die schönsten, sie thun oft nur aus der Ferne einen leidlichen Effekt, bestechen nur zu oft das Auge des geschmacklosen Pöbels und stossen den Kenner zurück. An sich wirken die Blasinstrumente unmittelbar zu sehr auf den bloßen Sinn, und rauben der Einbildungskraft zu leicht ihr freyes Spiel...” Ibid., col. 97-98.
had sounded novel, “marked,” and directly dramatic were transformed into quotidian fundamentals of music. Berlioz writes,

The triangle is here extremely appropriate, with its little pianissimo ting sounding at intervals. It is the little bell attached to the sheep grazing quietly while their shepherds exchange their merry songs. “Ah!” someone will say, “so you see some dramatic purpose in this use of the triangle? In that case, kindly tell us, what do the violins or the violas or the cellos or the clarinets, etc. represent?” To which I reply that the latter musical instruments are the fundamentals of the art, while the triangle, being merely a simple piece of iron whose sound does not belong with the recognizable sounds of the orchestra, should not be heard in the middle of a soft, gentle piece without very good reason, otherwise it will seem absurdly out of place.64

Rousseau used the metaphor of design and color to distinguish melody from harmony and timbre; Kant used it to separate knowable form from fleeting sensation. By the early 19th century, the conception of the musical medium and its capacity for expression had been transformed so radically that Michaelis was able to employ the metaphor to differentiate between kinds of musical sensation based on their inherent significance.

64 Berlioz, Gazette musicale, 12 Oct 1834, trans in MacDonald, Berlioz’s Orchestration Treatise, p. 292
The Idea of Form

The objections voiced against orchestral music in the first half of the 19th century were not directed as much against volume, as against the use of sound without sense. Hoffmann leveled similar criticism of the glass harmonica—an instrument that also benefited from this period’s love of immediacy. In the guise of Kapellmeister Kreisler, he complained that one could only play “trivial ariettes and insipid trifles” on the instrument, since anything else sounded “stiff and awkward.” He then drew the familiar analogy between tone and color, arguing that fine color requires beautiful organization:

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 material 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.... 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.  

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66 Ibid., p. 416.
Though directed at a particular instrument, this criticism is representative of Hoffmann’s conception of the relationship between the composer, a composition, and its constituent sounds. A composer could attempt to mask parallel octaves and fifths with trumpets and drums, but he could never succeed, since the trumpets and drums could only be effective if the entire piece was coherent. In his criticism of Spontini’s *Cortez*, we see that Hoffmann objects to the amount of noise because it is disconnected from the drama of the opera:

Who would disagree that in our wealth of instruments and their combined effects there lies a powerful, irresistible magic, and that the adornment of that glittering wealth becomes no genre of music better than that of heroic and tragic opera? It moved the immortal Gluck to enlarge the orchestra with instruments that at that time had never been heard in the theatre. But this composer’s music also shows that richer orchestration can be effective only when it renders more prominent the genuinely vigorous, inner harmonic structure, and when the use of various instruments according to their individual qualities proceeds from the deepest dramatic motives. It is not, therefore, merely an increase in volume that bowls a listener over, but a more forceful unfolding of the underlying harmonic process, uninterrupted by strange leaps. Spontini, however, seems to aim merely at loudness....

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When Berlioz remarks that most newly invented instruments are “fatal” to the art of music—even as he, in the same treatise, claims that a composer can turn any “sounding body” into music—he is commenting less on the tone of these instruments than on the kind of listening aesthetic they support. These instruments encouraged a separation between sound and composer, suggesting that one merely needs a flashy instrument and music can then create itself with amateur improvisation, the performance of some trivial composition, or the simple activation of a mechanism. The difference between these instruments and Berlioz’s “sounding bodies” is the essential role of the composer: the former eschew the composer, and rely on immediate, and therefore shallow, reactions of the listener, the latter, however, reveal the composer’s genius and imagination through his ability to manipulate any sound into music. Though this may seem contradicted by some of Berlioz’s own music, he shunned the use instruments that reduced music to mere noise. Thus we can join Berlioz’s claim about “fatal” instruments to his conception of exaggerated orchestration: both stem from a distinction between raw noise and controlled music. This is perhaps most evident in his discussion of the bass drum. He writes, “Of all percussion instruments of indeterminate pitch it is surely the bass drum which has caused the most devastation and led to the worst abuses and excesses of modern music.” He goes on:

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68 Berlioz writes, “Every sounding body employed by the composer is a musical instrument.” Slightly modified translation from MacDonald, Berlioz’s Orchestration Treatise, p. 5.
69 MacDonald, Berlioz’s Orchestration Treatise, p. 280.
When sensibly used, however, the bass drum is admirably effective. For example, it can join an ensemble as part of a large orchestra with the function of gradually reinforcing a broad rhythm which has already been established, joined by groups of louder instruments one by one. Its entry can be miraculous on such occasions; the orchestra pendulum assumes infinite resonance. *Noise, thus harnessed, becomes music.*

This same distinction between raw and composed sound also forms the basis for Berlioz’s distinction between “noise” and “power” which he invokes to defend his seemingly preposterous idea of a gargantuan orchestra of 827 musicians:

Vulgar prejudice calls large orchestras *noisy.* If they are well constituted, well rehearsed and well conducted, and if they play real music, they should be called *powerful.* No two words are more different in meaning than these. A nasty little vaudeville orchestra can be *noisy,* while a large group of musicians appropriately used can be of extreme softness and can produce the most beautiful sound even in violent outbursts. Three ill-placed trombones can seem unbearably *noisy,* and a moment later, in the same hall, twelve trombones will leave the audience amazed at their noble and *powerful* harmony.

A noisy orchestra, then is not an excess of instruments as such (indeed, such a thing seems nearly impossible for Berlioz), but rather a

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70 Ibid., pp. 280-281; italics mine.
musical body that had escaped the control of the composer and conductor.

Hoffmann, Berlioz, Michaelis, and other critics all argue for the importance of musical form; instruments that only produced beautiful tones did not produce music; loud orchestration that used raw volume, rather than a thoughtful combination of melody, harmony, rhythm, and orchestration, undermined music’s very nature.

In his *Die alte Musiklehre im Streit mit unserer Zeit* (Breitkopf und Härtel, 1841), A. B. Marx depicts music on a threshold: it must choose between succumbing to the merely sensuous and becoming fully spiritual. The former course would never allow music to transcend its medium, the latter would use music’s powerful medium and combine it with compositional method to produce a unified work that could speak to the whole man. He writes in his foreword:

*The vital question of our art and its influence on morality and the views of the people is simply this: whether its spiritual or its sensuous side is to prevail;* whether it is to purify and refresh heart and soul through its inherent spiritual power, enriching the spirit with immortal treasures, soaring aloft to thoughts and premonitions of all that is higher and eternal—or whether, void of that holy power, it is to weaken and enervate spirit and disposition, burying them in the billows of a narcotic sensuousness and thoughtlessness that dissolve and destroy all that is upright and noble. The art of music is
capable of both and has indeed been recognized in both capacities from the earliest ages...\textsuperscript{72}

Composers who aimed only for effect reduced music to a merely sensuvious pleasure, draining it of its spiritual content. Marx accepts that music depends upon its sensations far more than other forms of art, so much so, that it has been occasionally labeled as “purely sensual”:

The art of music lives and works in those regions of life in which the higher activities of the spirit stand in the closest interpenetration with those of the senses. For this reason, no art form works so decisively and so primarily on the sensitive faculty as does music; this is necessary apparent from one’s own experience and that of others. This side of its essence is so predominant, that even great thinkers (Kant, for example) have relegated the entire art to the dim region of the senses, wishing to treat it as a matter of dark and vague taste. In any event, it is undeniable that the majority of people are \textit{primarily or exclusively} capable of gaining from music but \textit{sensuous enjoyment} and that even a large number of musical compositions linger in this region, or, after briefly elevating themselves, sink back into it. Only a higher cultivation \textit{[Bildung]} on the higher content of musical art is able to take up and then dispense from within the human spirit. Only this \textit{spiritual content} indisputably elevates music to an art and to a

benefactor of mankind. Without this spiritual side, music would be mere sensuous enjoyment, like that afforded by food, odors, the play of colors and lines in a kaleidoscope, etc. it would be unworthy and incapable of being an object of spiritual cultivation.\textsuperscript{73}

While other writers believed in the necessity for innate talent for the composition of a good melody (or for orchestration), Marx stressed the importance of education and understanding. A rigorous compositional method, in Marx’s opinion, would aid the composer, audience, and performer. Once capable of producing a work with unified elements, the composer would gain skill in more elusive areas as well. Conversely, understanding of the compositional method would lead to the cultivation of spirit, helping a listener appreciate music:

> It may at once be objected that \textit{sensuous perception and feeling} cannot be taught and that compositional method cannot even hope to arouse them in musical form. Nevertheless, the method can have a significant influence even here, exercising a decisive effect on the entire artistic nature of the pupil through sensuous perception and feeling. It can do this by directing him, through the example of its entire procedure, to act always \textit{with sensuous vitality and a fully engaged soul}.\textsuperscript{74}

Marx’s notion of musical form disallows the use of effect for effect’s sake; form essentially implies \textit{unity}, which is only possible if all elements work together, all permeated by a single aesthetic goal. Marx

\textsuperscript{73} Ibid., p. 22.
\textsuperscript{74} Ibid., p. 31.
never claims that the musical medium is meaningless—indeed, like Wackenroder, Michaelis, and Hoffmann, he believes it to be a more significant medium than that of painting; rather he stresses that the musical art will never achieve the highest spiritual level without a rigorous compositional method.

While Hoffmann gestured towards musical formalism, Marx developed a concrete vocabulary for discussing and analyzing musical form. The rise of musical formalism, then, grows out of the fascination with orchestral effect: formalism was in part a reaction to the exaggerated uses of unmediated sound of the early 19th century; the love of sonority and sensuousness forced music critics to develop a language with which to criticize it.

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In the early 19th century, orchestration and effect hovered on a threshold within musical art; they were new enough to attract attention precisely because of their novelty, but at the same time depended upon a clarity of “meaning” that enabled them to be expressive and dramatically significant. The sonority of the wind instruments was both exciting because they were being used in ways and to an extent unknown in earlier music, and at the same time powerful because their immediate sonorities were familiar enough to be evocative and expressive. As something inherently fleeting, effect required continual renewal. The over-use of wind instruments, then, was an inevitable outcome of this aesthetic sensibility: each new composition, in order to have “effect” was forced to outdo previous
works. Part of the effectiveness of grand *tutti* passages stemmed directly from the novelty of such a gesture, and therefore expired as soon as it was outdone by a noisier work. As we have already seen, the addiction to noise was serviced by directors, composers, and audiences; Hoffmann complained:

> The eternal braying of theatre-directors for “Effect! Only Effect!” in order to pull in the audience, as the current theatrical expression has it, and the demands of so-called fastidious connoisseurs, to whom pepper itself is no longer peppery enough, often drive musicians into a sort of hopeless desperation to outdo earlier composers in their effects wherever possible....Composers of this sort are absolutely amazed when, despite the pains they have put themselves to, their works utterly fail to produce the effect they had imagined.  

Though Michaelis could explain why the wind instruments potentially detracted from the enjoyment of a composition and Hoffmann could wittily disparage attempts to achieve effect through the over-use of instruments, the musical public was less concerned with compositional issues. Composers stuffed their compositions with massed winds and Turkish percussion because audiences enjoyed the immediate pleasure offered by such fireworks. We may be inclined to treat some of the over-zealous use of instruments of this period simply as the product of bad composers who did not realize the poor effect their efforts actually produced. Yet to explain overly bombastic

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orchestration of this type merely as a lack of experience (or taste) of some composers is to gloss over the most fascinating aspect of this phenomenon. This period was characterized by a general love of immediacy, and composers and audience members alike—blissfully unaware that the wind instruments might hinder the “free play of their imaginations”—reveled in the dazzling sonorities of the orchestra. If composers were less concerned with form and harmony than Hoffmann and other critics would have liked, this was because the immediate sonorities of the instruments were aesthetically satisfying. Indeed, the marriage of politics and music of this time took advantage of the public’s receptiveness to the sound of the orchestra: a symphony could depict victorious nation or a heroic battle because victory and heroism seemed to be inherent in orchestral sonorities.  

The fate of “orchestra machines” is telling; most simply faded into oblivion, forgotten soon after their invention. The mechanical orchestra’s function radically changed from that of public spectacle to more mundane vehicle for popular tunes, be it in cafés and dance halls, or on city streets and fairgrounds. It is precisely this later, more trivial function of the “orchestrion” that makes it so difficult to understand its original importance to serious musical culture. In the late 18th and early 19th centuries, I argue, the goal of instrument makers briefly coincided with that of contemporary composers: both aimed to produce similarly immediate effects. The emphasis on form,

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unity, and structure in instrumental music, however, rapidly separated the symphonic tradition from that of mechanical orchestras, and as the culture that supported the love of immediacy was transformed, these instruments were reduced to novelties and special effects. Indeed, the very idea of a “special effect” was a product of this period of frenzied interest in sonority. The notion implies that the audience experiences it as something superficial and immediate; only when it is used well, would a special effect relate to the drama of the work as a whole, reflecting deeper aspects of the composition in the surface.

The last decade of the 18th and the first two of the 19th century were special: music had long been revealed as sensation but now for the first time saw no shame in this position, and for a brief period immediacy and sensuousness were serious aesthetic goals for many composers and inventors. Timbre was celebrated in works like Haydn’s London symphonies and inventions like Strasser’s orchestrion. The unique aspect of these years has been little recognized: this was not merely “early romanticism” or “late classicism,” but a period in its own right, governed by its own aesthetic tenets and characterized by a special belief in the immediate power of sonority. It was framed on one side by a public doubtful of the worth of the musical medium, and on the other by a culture aware of the necessity of merging orchestration with other elements of composition. By pointing out the special character of these years in music’s history, I intend not only to suggest a revised periodization of the late 18th and early 19th centuries, but to offer a new reading of the rise of instrumental music and the birth of
absolute music.\textsuperscript{77} Far from stemming entirely from an abstract shift in aesthetic philosophies, instrumental music found its expressive voice through a radical reevaluation of the musical medium that had far reaching implications in composition, acoustics, philosophy, and instrument making. Absolute music was born not in the subtleties of Beethoven’s late quartets, but in the raucous clamor of his symphonies and in the noisy orchestral works of his contemporaries. If absolute music, as Daniel Chua poetically claims, pretends to have no history, perhaps we should consider whether that is because it is slightly embarrassed about its seemingly unrefined roots.\textsuperscript{78} Absolute music had to conceal its debt to the many noisy Turkish marches, battle symphonies, and bizarre instruments that made music’s power seem so obvious and inevitable—its “meaning” rendered with blinding clarity through exaggerated uses of sounds: a battle symphony screams war and victory, trumpets and drums blare grandeur. Only after such excesses would absolute music feel the need to masquerade as a dignified product of formalism and idealism.


\textsuperscript{78} Daniel Chua, \textit{Absolute Music and the Construction of Meaning}, (Cambridge: Cambridge University Press, 1999), p. 3: “Absolute music has “no history.” It denies that it was ever born...”