

### The Function of Timbre in Music (1966)

Theodor W. Adorno

The Oxford Handbook of Timbre

*Edited by Emily I. Dolan and Alexander Rehding*

Subject: Music, Sound Studies, Music Theory Online Publication Date: Apr 2021

DOI: 10.1093/oxfordhb/9780190637224.013.34

### Abstract and Keywords

Adorno's purpose in these lectures, presented at the Darmstadt International Summer Courses for New Music in the fall of 1966, was to address the relationship between what he called "sound" and "structure." At the heart of his thinking is the notion of "structural instrumentation"—the ideal of organizing timbre in a manner commensurate to the compositional logic (*Satz*) of a given work. Following a historical survey of orchestration and instrumentation in the music of Bach, Viennese Classicism, and the New German School, Adorno turns at length to the "new music," and above all the work of the Second Viennese School. Ending with a brief consideration of the experiments in *Klangkomposition* undertaken by composers such as Stockhausen and Ligeti, Adorno challenges the younger generation of composers who held court at Darmstadt by calling into question the equality of timbre with other musical parameters.

Keywords: orchestration, instrumentation, timbre, New Music, Darmstadt, Klangkomposition

---

## I

Ladies and gentlemen,

It is no surprise that I am here to speak to you about the relationship between timbre [*Farbe*]*—*or sound [*Klang*]*—*and structure. You all take it for granted that timbre has a structural function in contemporary music and have struggled with the attendant problems. I would like to open by suggesting, however, that this matter is by no means as straightforward as one might suppose.

Those of you who concern yourselves with the historical dimension of music—and I believe that this is not to be frowned upon, though music historians have done plenty to cast doubt upon their discipline—know that the timbral aspect of music was the last to develop, that music had reached a quite mature state before it was compelled to absorb the dimension of color. (I deliberately avoid the term "parameter," in accordance with Ligeti's objection to that term, with which I concur.) I do not care to speculate here why this is

## The Function of Timbre in Music (1966)

---

the case, but I believe that we would do well to pause and consider whether the equality of all musical dimensions, which Heinz Klaus Metzger recently posited as a basic principle in an essay on Cage and his followers, is as unproblematic as it might at first appear, particularly given that we are dealing not simply with natural materials, but rather with “materials” in their historical aspect. You are aware (though let us repeat a fact that is now being recognized even in official music histories) that the variety of musical instruments in the sixteenth and seventeenth centuries did not correspond to an actual wealth of colors, but rather to the as-yet unrationalized technologies of timbral production. Since timbre had not yet been subjectively mastered, the abundance of timbres was more a product of the means of tone production than of the sonic imagination. The conception of sound being largely undifferentiated, timbre was imagined only in particular effects, such as the solo violins and oboes in Bach, or the famous high trumpets in one of the Brandenburg Concertos; these parts were neither treated equally nor integral to the musical structure. The tendency today to perceive a relatively homogeneous style in the sound of the music now improperly labeled as Baroque is mistaken, insofar as whatever unity there is in this music is simply a product of the consistency of the available instruments and the compositional technique, rather than the expression of an inherently unified and articulate timbral conception. The sound of this music is thus incidental: its unity is characterized by deprivation, rather than internal necessity—more a product of what lies at hand than of what Alois Riegl called *Kunstwollen*. (I will allow myself here a brief aesthetic excursus to call into question Riegl’s notion of *Kunstwollen*, which he viewed as belonging to the very essence of style. I suspect that the historical styles worthy of the name are not those produced by *Kunstwollen*, but rather those that emerged unplanned through the constraints imposed by the available means. The concepts of *Stilwillen* und *Kunstwollen* actually belong to a much later and more reflexive phase, in which the notion of style had already been suspended and any such unity had already become deeply problematic. I believe that these theoretical aesthetic considerations are also of great significance for how we think about sound.) The particularity of the sounds employed, to which I have called your attention, and which you all know from earlier music, has gradually (in historical terms, through the detour of the instrumental concert) moved into the foreground and has finally become a totality or at least a potential totality, and this constitutes the history of musical timbre, whose changes generate new qualities in turn.

But here we should keep in mind something of key importance for the present situation. In contrast to what one might call rational factors, such as overtone relations, the regularities of the tonal system, and conventional motivic-thematic work, timbre has something diffuse and mimetic about it, which degraded language registers in expressions such as “sonic stimulus” [*Klangreiz*]. Timbre cannot simply be reconciled with unity of musical structure, which is of an intellectual nature; rather, sound as timbre [*Klang qua Klangfarbe*] possesses an evasive quality that resists unity as such. This is perhaps mostly clearly illustrated by the fact that all ascetic tendencies in music—that is, those tendencies that foreground constructive and (however problematically conceived) logical processes in contrast to sensory stimuli [*Reizmitteln*—tend to constrain timbral variety, rather than exploit it.

## The Function of Timbre in Music (1966)

---

I am thinking here of the penchant for the decolorization [*Entfarblichung*] of music championed by the so-called folk and youth-music movement and recorder enthusiasts, who fondly wish to reduce the spectrum of historically developed instrumental timbres back to the ascetic level of the seventeenth century. Some would like to literally take the trombone by the collar, and, by reproducing its narrow bore, to do away with everything we associate with the very name of the trombone, let alone its actual timbre.

I say all this only to suggest that the tension or basic contradiction that exists in all music—that is, the tension between its rational-constructive and mimetic-expressive sides—also leaves its traces in the individual dimensions of music, and so I would hesitate to simply equate the timbral dimension with all the others in terms of its importance. At the present time, which we are gathered here to contemplate, it is a question of not allowing qualitative differences to disappear into an unarticulated compositional unity imposed from above, but rather of constructing a unity from these differences, and thereby preserving them. This will be an important part of the questions we explore in this lecture.

To this day there is no theory of instrumentation equivalent to the old, established academic disciplines of harmony, counterpoint, fugue, and the so-called theory of form. To be sure, conservatories and composition teachers have passed on suggestions, experience, and rules of thumb, but they have not provided even the most antiquated set of guidelines for correct instrumentation. Consequently, instrumentation appears as a realm of empirically guided preferences and, at the same time, a kind of periphery of compositional structure, although the most rudimentary consideration shows that all musical phenomena possess a timbre in addition to a pitch, interval, volume, and temporal structure, and so an organization of the material that hopes to penetrate all these aspects cannot possibly neglect the timbral dimension. But I would like to put up a bit of resistance to this plausible and familiar claim. The statement that there is no tone without timbre and no timbre without tone is much too general to be correct. I must say that the more I consider logical questions, the more I discover—to an ever-greater degree—difference within sameness. This is something very difficult to explain, and if I were to follow Wittgenstein's advice and speak only of that which one can express, I would have to keep quiet here. But since I am by no means a follower of Wittgenstein, I will take this opportunity to say something I cannot express in an unambiguous way. Something is not right about this statement on the equality of the relationship between tone and timbre. To say that every tone has a timbre and every timbre has a tone is to put one's thumb on the scale. Pitch is perceived as essential or primary and timbre as incidental or secondary much more often than vice versa. It is much easier to imagine relatively colorless tones, or perhaps our musical imagination is more independent of the concept of timbre than the concept of timbre is independent of that of pitch. And I would say that it is no coincidence that the first piece in which, to the best of my knowledge, the construction of timbre truly takes place, and thus truly becomes independent and foregrounded, is at the same time a composition in which, precisely because of the predominance of pitch over timbre, determinate pitches go out the window. In other words, a pure timbre composition [*Farbkomposition*] is logically one in which such a thing as tones simply do not exist. I am thinking obviously of the *Atmosphères* of Ligeti, in which this conceit is realized with

---

## The Function of Timbre in Music (1966)

---

the utmost consistency. I believe as well—and this should be established in advance for our whole set of problems—that the question of instrumentation in composition cannot be answered with a dogmatic appeal to an abstract concept of unity, and that the unresolvable qualitative differences between the individual dimensions must be taken into account.

I said earlier that the peculiar effects of individual instruments in the “pre-classical” orchestra—and I use this term only to make my meaning clear, and not because I believe it to be at all legitimate—are occasional highlights that are by no means fundamental to compositional practice. In light of how instrumentation changed through the music of Berlioz, Wagner, and Strauss, one would hardly claim that the melodies of Bach are similarly devised from the very nature of the instrument itself. Even passages where particular instruments are used for particular purposes—apart from simple cases such as fanfares—are not specifically conceived for a given instrument, as is the case, to take just one example, in the English horn melody in Berlioz’s *Roman Carnival*. The reason for this can be found in the state of techniques and productive forces. In the context of composition, technique has a double meaning whose significance has not been properly recognized. On the one hand, technique signifies the internal organization of the available compositional means: thus Bach’s old-fashioned title *The Art of Fugue* could just as well be translated as “The Technique of Fugue.” On the other hand, however, technique denotes the state of all possible means, including those external to music, as expressed in the naive statement of the young Mahler, who in his symphonies claimed to have constructed a world with all the means of available techniques. (Even those who love his music would stop short of claiming that Mahler in his first three symphonies had attained true mastery of technique in the strict, compositional sense.) One might perceive in this naivety something like a foretaste of what could be called “musical technocracy.” This state of the external technical means, which have developed independently of composition and which include above all the history and invention of instruments, is guided not by immanent musical logic, but rather by other factors: by mechanics, physical acoustics, and above all by the state of manual and industrial productive forces. This second sense of technique existed in Bach’s time, as well: think only of the highly developed fields of organ building and organ playing. But the relationships between the individual instruments and instrumental groups had not yet been grasped. These emerged more or less by chance, with no thought whatsoever of a continuum of tone-color or an instrumental palette available for all compositional undertakings, let alone of seamless transitions or the full spectrum of timbre. It should be said that the instrumental dimension of music today is still plagued by the aftereffects of this incidental and fragmentary course of development. Many instruments, such as the piccolo (which has meanwhile become newly favored by composers), remain in an archaic state compared to their closest relatives; others, such as the harp, still cannot play the fully chromatic music that has existed for almost 150 years, and there are still no entirely satisfactory bass voices among the brass instruments. Among the byproducts of electronic technology, however, are the quite satisfactory basses to be found in the continuum of electronic sound.

## The Function of Timbre in Music (1966)

---

In Bach's time all this could not be foreseen, and this both explains his preference for the organ as the most technically advanced instrument of his era, and indicates the degree to which Bach's music demands an instrumental realization in accordance with its structure, which could not be achieved with the means available in his time. When great modern composers such as Schoenberg and Webern orchestrate Bach, it is neither whimsy nor what philistines like to call love of experimentation, which so enraged musical reactionaries; rather there is, as Valéry would put it, an old need that can only be satisfied with modern means—not a need of Bach as an individual, but a need that resides in older music itself. I dwell on this because I believe that precisely such works as these Bach orchestrations, and especially that of the six-voice *ricercar* by Webern, shed light contemporary problems of structural instrumentation. It is certainly no coincidence that Bach, who in all other respects composed with such incredible clarity and attention to detail, left some of his most powerful works open with regard to instrumentation. He did this, I would say, simply because he himself sensed the inadequacy of the available colors in comparison to the structure of the music, and thus provided a kind of blueprint whose sonic realization he unconsciously bequeathed to a future age. This defiant indifference of the *Art of Fugue* and the *Musical Offering* to their sonic realization thus suggests, if you will, something like a critique of the condition of instrumental means in Bach's time. This, too, is the reason why historicists who insist on hearing Bach's music as it sounded in his time are so misguided. They injure their idol with their deluded zealotry; from the master's necessity they derive the virtue of his epigonic apprentices, though such needfulness has long been unneeded. This contradiction indicates how deeply the question of structural instrumentation is rooted in the dialectics of musical history.

Here I would like to say something a bit dogmatic about early music, which I believe also has a certain axiomatic truth with regard to instrumentation in modern music.<sup>1</sup> In the instrumentation of early music—that is, in music that was not conceived for specific instruments—the basic principle is that the instrumentation must realize the subcutaneous structure of the music, as indeed was done with the utmost rigor in Webern's instrumentation of Bach's six-voice *ricercar*. Here an objection is often raised, however, which we should now address, because it touches on a fundamental question about the instrumental realization of music all told: it is the objection that the construction of a work must be articulated of its own accord, and must avoid becoming manifest and thereby doing harm to the relationship between essence and appearance. In this view, the essence is precisely that which does not appear; rather it organizes the appearance and, on account of its organizational force, must not itself be legible. I leave out the historical dimension for the time being, as this may have been relevant at one point but is no longer valid—certainly not from a historical perspective. But I would contend that if one is to take this demand seriously, as it has been made from the musical youth movement to Mr. von Karajan, one would then no longer be permitted to interpret or even to perform music, but rather that one would merely have to produce, so to speak, a neutral photograph of the score, just as bad Bach interpreters still do today, and with an exceedingly clean conscience. But anyone who has dealt with such interpretations knows that what results is in general not music, but a kind of nonsense that has not the slightest to do with a critique of musical

## The Function of Timbre in Music (1966)

---

meaning. The less the sonic surface itself does justice to the essence of the music, as in Bach—the more it virtually closes itself off from what is essential—all the more pressingly does the music require constructive instrumentation. In the discussion to which I am referring it was once said to me that if a man loves a woman, he loves her body and not an X-ray of her body. Now, be that as it may—and the surrealists would have much to say about this—such direct comparisons between real and aesthetic conditions are always extremely problematic. In music, that which is structurally concealed is precisely what gives the phenomenon its sense and coherence, and if this essence is not elevated into appearance—if it does not itself become appearance—then the appearance becomes actually meaningless and becomes, at best, a merely culinary, pre-aesthetic stimulant, which remains beneath the intellectual dimension of music. The music thus becomes nothing but sound material and so, strictly speaking, meaningless. On the basis of these considerations I believe that Hegel's statement in the *Logic* that the essence must become appearance applies to music in a most emphatic sense: every sensual appearance of music and indeed every sound phenomenon must both express the underlying structure and, at the same time, remain largely subordinate to the structure, from which it cannot free itself. From this follows a certain norm with regard to the problem of structural instrumentation, however skeptical I remain of the free-floating and ahistorical proclamation of such standards. In any event, it remains an open question whether one can abstract from music something that was impossible in the time of its origin, and whether such impossibilities are secretly inscribed in the music's own laws of form; that is, whether a realization of Bach can be entirely successful in a dimension of sound that is essentially lacking among the a priori elements of his music. If the answer is negative, I would by no means shy away from the implication: namely that the great organ works from Bach's late period, but also the works I spoke of earlier, would no longer be performed, but rather only read. I would view this as no great calamity, as I believe that in light of the general state of musical reproduction today, score-reading has to a great extent become a more humane and dignified form of musical experience than so-called listening.

Now I would like to turn to the period following Bach—to Viennese Classicism, or, as music historians call it, the "Viennese Classics." I avoid this expression and prefer to speak of Classicism. You may be surprised that I talk so much about history in a lecture concerned with the present state of things. But I believe it is very important, if we are to understand the current situation, to account for the things we have moved away from, the things we have forgotten, why we have moved away from them, why we have forgotten them, and—of what remains—to know which ones we cannot afford to forget today.

The development of music is in large part a process of negation, one that contains what has been negated in itself and thus requires that the negated be taken into account. This historical accounting has not yet been brought to bear on what Webern dubbed the "so-called classical orchestra." Musicologists have shied away from grappling with such fundamental questions as what the orchestra as it existed from Haydn to Schubert actually means, what functions it fulfills, and what it represents in phenomenological terms. In order to understand the relevant trends as well as the present state of affairs, I believe it is worthwhile for us now to rack our brains a bit. You all are well aware that genuine analy-

## The Function of Timbre in Music (1966)

---

ses of instrumentation hardly exist at all, even (indeed especially) analyses of traditional music. This severe deficiency also affects the mastery of instrumental technique, and the demand for such analytical perspectives on instrumentation would be indispensable for a catalog of contemporary compositional techniques. The classical sound—the collective sound of the classical orchestra—is an unbroken sound. It is at one with the compositional structure—neither contingent nor merely ready-to-hand, but rather a dimension of the composition itself. The sound of the classical orchestra plays a certain part in the compositional structure, but it is not yet an emancipated force; it helps to manifest the compositional structure, but—apart from certain exceptions that I will discuss later—does not directly contribute to the act of composition. In this respect, as in many others, Viennese Classicism represents something of a standoff, a dilated moment in time. On the one hand, the sound is preconceived and attuned precisely to the compositional structure (and this is especially the case in Mozart). On the other hand, however, the sound is fettered in order to prevent it from transcending the compositional structure, from freeing itself and contributing to the composition in its own right. These, ladies and gentlemen, are again somewhat nebulous formulations that yet require a great deal of refinement, and I am also trying to touch on a phenomenon that can be heard much more readily than it can be put in words. But I believe that this standoff—between something at once preconceived and essential and, at the same time, something secondary and passive in comparison to the primacy of the thematic material—captures something essential about the classical orchestra. Likewise, in Viennese Classicism the idiomatic, predetermined character of the tonal system always holds the upper hand against the opposing force of motivic-thematic work. When the two reach a state of equilibrium, the thematic and motivic events are made to conform with tonality, indeed drawn from tonality itself, and the same goes also for timbre, which essentially has the function of staying out of the way and not asserting itself, and so remains subservient to the musical language as a whole.

There are still many traditionalistic elements in the classical sound, but there is not yet such a thing as a critique of timbre. Timbre has, so to speak, not yet been tilled like soil in which something can be planted, but rather it is accepted as a whole—though the works of the Mannheim School show how dynamically active the orchestra had already become in this time. There are still edges and corners in this sound, and if one has an appreciation for such things, this unsmoothed quality, combined with the emergence of the harmonic conception of sound, creates a singular feeling of freshness. This is especially striking in the music of Haydn—whom I view as one of the greatest composers—primarily because in his music the winds are, as it were, consistently undernourished in comparison to the strings. In the classical sound many conventions are simply upheld even though they are inconsistent with the ideals of absolute balance toward which the music strives. Much is determined by the limits of the instruments. The fact that the brass instruments are used to such a great extent merely as noisemakers or for reinforcement clearly has to do with their being constrained to the tones of the harmonic series, since in the classical period they could not be played fully chromatically. But other things seem to be the result of the score format, such as the fact that in the classical orchestra the oboe typically plays higher than the clarinet, thereby highlighting the middle register of the clarinet,

## The Function of Timbre in Music (1966)

---

which is notably dull and weak, and so leaving that instrument all but unused in its most characteristic upper and lower ranges. A critical analysis of classical composition would have to account for the insufficiency of the classical orchestra, of all that which it yet lacked. This would make clear how later discoveries, far from being merely extrinsic stimuli, had in fact become necessary.

The tacit foundation of the classical sound is the primacy of the strings, the winds and brass being employed only as a foil to this basic timbre—reinforcing it, joining it as soloists, or opposing it in extreme contrast. Here already one finds a connection between the problem of form and the problem of instrumentation. I would surmise that the model for the treatment of the winds and brass in the classical orchestra can be found in the trio of the minuet, which dates back to a much older tradition and thus represents something like a nature reserve for the wind instruments.

What I have said should make clear what is at stake here: the unity of the classical orchestra was too easily attained, imposed from above without the presence of instrumental forces that could provide resistance in a manner analogous to how, in the compositional history of the same period, motivic-thematic work counterposed the sonata principle. And this process was helped along by later developments precisely for the sake of the realization of the compositional structure.

On the other hand—and this has to do with the process of subjectification, which indeed in Viennese Classicism goes all the way to the top—it must be noted that timbre had at this point already passed through the imagination, if only in a negative sense. By this I mean that timbre in the classical period is controlled and balanced. What emerges is the idea of a sound-mirror [*Klangspiegel*] that, as I said earlier, corresponds to the a priori nature of tonality, and which can neither be obscured nor draw attention to itself. The sound of the orchestra must be well-balanced, and this touches on a factor that will later be very important: namely, that this balance of orchestral sound is possible only on the basis of a thoroughgoing differentiation and coloration. Just as rationalized techniques of production presuppose the division of labor, this balanced, all-encompassing sound-mirror presupposes a far-reaching differentiation of individual timbres. If these timbres have not been subjected to this process of differentiation, they stand out precisely as individual timbres, become disruptive, and undermine the work's structural unity. I believe this is of great significance for the question of structural instrumentation as a whole. And here you can see in a nutshell something that will become more and more important for the function of timbre: in the domain of timbre, the factor of integration or unification is an unmediated function of sonic differentiation, rather than a product of homogeneous colors that are in themselves undifferentiated and undistinguished, as a hackneyed assumption would lead to believe. All this is true even in the classical sound, in spite of the archaic boundaries I just mentioned. But it must be noted at the same time that this differentiation is always subordinated to what could be called the total sound [*Klangtotal*], of which the strings form the foundation.



## The Function of Timbre in Music (1966)

---

The truly modern aspect of the classical orchestra, that which allowed it to attain a canonic status in the nineteenth and early twentieth centuries, is the infinite perspective of the strings [*unendliche Streicherperspektive*]. By this I mean that each individual string tone points beyond itself, becomes more than it is *in situ*, and opens up the sonic space into something unlimited. The finite figures here as an image of the infinite, or as the unity of the finite and the infinite, in an unconscious (and therefore all the more profound) agreement with contemporary philosophy, which held that the infinite is nothing other than the totality of the finite. To grasp the singular character of this infinite string-tone, even in spite of its precise articulation, think of an extreme example such as the beginning of the third *Leonora Overture*, where the string tone immediately suggests something infinite and transcendent, even as it is marked by the most exacting thematic constraint. This unity of the finite and the infinite—meaning that which points beyond sheer appearances—is a fundamental element of the classical orchestra. It is also—to speak plainly—something that we have lost and likely cannot recover. This is true not only in light of the whole history of instrumentation, but also in an intellectual sense. I believe that one must take this into account in order to confront the question of contemporary instrumentation.

In the case of Beethoven—an example of which I mentioned earlier—the ideal of homogeneity is often violated for the sake of the music. In Beethoven the imagination in an intellectual sense begins to oppose a merely sensual imagination. I would like to call your attention to a passage that demonstrates this tendency, one which is exceptionally characteristic of Beethoven even if it is somewhat singular. The passage in question is from the 12/8 section of the slow movement of the Ninth Symphony, where the double-stopped first violins are juxtaposed to the rest of the orchestra—not the soloistic entrance of a single violin, but rather the chorus of the first violins. Judged by the standard of classical balance, this instrumentation is quite questionable. If Mahler, for example, had orchestrated the same passage with an eye to clarity, he would have certainly done otherwise, perhaps using trumpets to create greater relief or somehow making a much stronger contrast. But here we should be careful to avoid dismissing such uneven passages as poor orchestration according to current musical standards. This charge, when raised against great composers like Beethoven and Schumann, should not be made lightly, and it may well be the case that even poorly orchestrated music serves a function. Properly understood, the significance of this passage in Beethoven probably lies in the way that something as weak and powerless as the first violins stands up against the whole orchestra, like Arnold von Winkelried throwing himself upon the pikes of the Austrians.<sup>2</sup> What is weak on a sensual level is accorded a higher strength on account of what it represents in the total intellectual configuration of such a passage. Only by taking into account the intellectual dimension of instrumentation in the work of Beethoven can we make sense of this music. I touch on this passage because of its remarkable correspondence to a passage in Kant, which Beethoven was certainly not aware of, and which, if he had been aware of it, he certainly would not have attempted to set to music, because he was far too great of a composer. I have in mind the passage in the *Critique of Judgment* where Kant discusses the feeling of the sublime and traces it back to a similar discrepancy. For Kant

## The Function of Timbre in Music (1966)

---

the concept of the sublime applies to nature but not to art. In this passage he says that the feeling of the sublime—for example, in the confrontation with a storm-tossed sea—arises because as an empirical individual we are entirely powerless in the face of the boundless force of the sea, yet at the same time, as free moral beings, we are immeasurably superior to this threat, and no worldly dealings can confound this knowledge.<sup>3</sup> This is precisely the intellectual zone—not the atmosphere, but the realm of content—the domain of spiritual experience to which the above-mentioned passage in Beethoven owes its origin. One might say that Beethoven transcends the classical sound-ideal by radically subjecting timbre to intellectual design, while at the same time he remains in the thrall of this ideal because he cannot yet fully realize it. Likewise, in the arts generally, artists who go beyond the canons or norms of their practice always have to pay the price of revealing that they do not quite measure up to those norms.

In speaking about Viennese Classicism, much greater nuance is required than is typically brought to bear on the matter. I have already hinted at this in what I said about Beethoven in comparison to Mozart. This would apply to an even greater degree to Schubert, whose instrumentation, while only subtly distinguished from the other composers of Viennese Classicism, is yet highly idiosyncratic. As a rule, greater differentiation takes place within a strictly demarcated, almost predetermined style than at a later point, when the notion of style itself has become problematic and—as in the present—has even been abolished. This cannot be undone. Instrumentation in its emancipated stage is necessarily also a compensation for differentiation that has been lost. Plainly put: however difficult it may be, in order to articulate we must use much cruder means than were even possible in earlier times. There is no use losing ourselves in sentimental meditations about this state of affairs; better to accept it and see where it leads. When differentiation itself becomes a technique, when it passes through consciousness, it is abrogated [*aufgehoben*], reified, objectified, and, so to speak, *de-differentiated*. Thus even the concept of differentiation is subject to a kind of dialectics.

The extremely subtle differentiation in the instrumentation of the Viennese classicists, which I just discussed, corresponds to an aspect of economy or even poverty, and it is of no consequence whether this is intended or not. Of course it is, in theory, important to know whether an artistic technique has passed through the imagination or not. But the question of which individual effects are intentional or unintentional is in my opinion one of the most fruitless possible inquiries in the domain of aesthetics, and in the domain of craftsmanship as well.

Walter Benjamin, in a discussion of literature and philosophy, once spoke of the conditions and limits of humanity. Here I would simply like to note that the idea or ideal of humanity, which is so fundamental to Viennese Classicism, is unthinkable without this element of poverty or meagerness, which humbly works within firmly delineated constraints. At the moment when these boundaries are demolished—and this process is inexorable—the ideal of humanity is itself exploded. The circumstance that all qualitative and quantitative possibilities are now open does not relate so much to the human body and human perception as to the human as a reference point. Art in its ideal sense has lost its anthro-

## The Function of Timbre in Music (1966)

---

pomorphic element and thus transcends—in both a positive and a negative sense—the concomitant idea of humanity. You need only think of the contrast between the orchestra of Wagner or Strauss and the poverty of the classical orchestra to begin to grasp what was lost along with this poverty. (Later, when I touch on the problem of timbre, I will say more about this problem of poverty and wealth—and also false wealth.) This contrast clearly has much to do with the quantitative limitation of the classical orchestra's sound, namely the distinction between the small and large orchestra, as well as with the consistently doubled woodwinds. The transition to tripled woodwinds and quadrupled horns is not merely a quantitative expansion, but rather signals something qualitatively new. The technical development of the orchestra transcended the commensurability of sound to manageable spaces and ultimately to the perceptual capacities of the individual as such. The classical orchestra is thus marked by prohibitions, whether these were expressly felt, whether many possibilities were simply not open, or whether, to express it negatively, certain elements were simply lacking. Something similar can be seen in the piano music of the time, which stands in a peculiar and reciprocal relationship to the orchestra. This relationship would be one of the central problems for a thorough study of the function of timbre, since, after all, composing against the grain—with awkward hand positions on the keyboard or on the fingerboard of string instruments—is a rare or at least a rudimentary occurrence in the classical period. These mutual influences between piano and orchestra can be traced not only to the time of Wagner and Liszt, as is generally known, but also into the new music. In Schoenberg's music, in particular, the monochrome timbre of the piano becomes, paradoxically, a testbed for the emancipation of the multicolored orchestral sound. The imaginative orchestration of *Erwartung* has its closest precursors in the Op. 11 piano pieces, while the Op. 19 piano pieces, which are closely related to *Erwartung*, can almost be seen as a retroactive sketch for that work. I merely want to suggest that the principle of blended timbre was lacking in the classical period. There was only the intensification, contrast, or separation of the main voices and the accompaniment. There are exceptions here, as well, as in the work of Beethoven, who characteristically prefigured, at least in broad strokes, every imaginable possibility of a later form of composition, without, however, pursuing these possibilities any further. The slow movement of the *Pastorale*, aside from the solo cellos' striking orchestral effects, is already the prototype of an orchestral sound conceived in terms of mixtures—and so, of necessity, not thoroughly organized. It is interesting that in this movement, Beethoven, with his unerring instinct for such things, allows motivic-thematic activity to take a back seat to the emancipation of the timbral dimension, which is the primary phenomenon. The themes and motives take on the character of mere intimations in order to allow the orchestral timbre to come into its own. In the context of our present discussion, this movement is one of the most significant of Beethoven's works, and the composer's dialectical mindset is shown in the way that he is not content to merely dissolve motivic-thematic work into outlines and timbres, but at certain pivotal moments interjects against the play of timbres an exceptionally malleable theme—almost like an *Abgesang*—and so brings the difference between timbre and theme under the sway of compositional logic, making this distinction itself almost thematic.

## The Function of Timbre in Music (1966)

---

To put it paradoxically, the classical orchestra is neither colorful nor gray. The timbral dimension exists as a carrier of events, but it is not spontaneous, it does not protrude, it is thus not particularly varied. The most important thing is motivic-thematic activity, and such remains the case—and this is worth considering here—until Mahler and Schoenberg, indeed until Webern. The opposing aspect is that of *Klangfarbenmelodie*, and I could imagine that, for example, serial composers could devise a scale between these two extremes—a level of motivic-thematic activity which is clarified by timbre, and a structurally decisive *Klangfarbenmelodie*—which could then be deployed as the structure demands, or could itself motivate the structure in the first place.

Now I would like to draw another conclusion with regard to modern music, since my intention is to use certain phenomena in traditional music as a foil in order to highlight the contemporary situation. In a music where the ideal of thematic-motivic composition has been suspended, in which coherence is no longer based primarily on thematic-motivic elements, it follows that the timbral dimension loses its former function, namely that of realizing or clarifying themes and motives. As a result, timbre becomes freer and takes on new capacities; but at the same time the problem emerges—and here I am talking not merely about tendencies, but problems and difficulties—that the timbral dimension loses its original function of embodying particular events and is left hanging in midair, so to speak. If I am not mistaken, both of these tendencies can be found in the most recent music: the growing importance of timbre—precisely because it is no longer subordinated to motivic-thematic events, which no longer exist in the sense that they once did—and the danger of a bad emancipation of timbre, which then exists in its own right, but without fulfilling a real function in the composition as a whole. I will return to this in the last lecture.

I would like to mention one more thing. Some of you will probably react to my remarks about the classical orchestra by saying, “Very well, but what does this matter now? These questions no longer concern us.” In response I would say that it is very important to be clear about what everyone has forgotten, what is no longer of any concern. Very few musicians, I believe, know how many of the innumerable problems, norms, and formal questions that held sway in traditional music until Webern were not resolved, but simply forgotten. A paradoxical relationship: there is a distinction between plain forgetting and forgetting through critical reflection. There is another factor, namely that whatever is forgotten often remains unresolved and waits to be rediscovered. Although the problems and postulates of the classical orchestra are of course not binding for us, and cannot be taken up again without further ado, the questions I have raised apply in an obscure fashion to the modern orchestra as well.

The question of orchestral balance, of tailoring instrumentation in such a way that timbre remains subordinate to motivic-thematic activity, is no longer of great relevance for us. Again, this is because timbre, in a musical context no longer dominated by motivic-thematic work, must be something other than what it was in the classical and romantic periods: in other words, it no longer serves a motivic-thematic function. The sound of the entire epoch leading up to the threshold of the most recent developments was dominated by

## The Function of Timbre in Music (1966)

---

the motivic-thematic principle and, ultimately, the principle of tonality, no less than was the case, as Stockhausen has pointed out, in the paradigm of thematic-motivic work. Instrumentation has been tonal in this sense well into the present time—and this goes for Schoenberg as well—and the question is how composers can move beyond this kind of tonal instrumentation. On the other hand, I would like to remind you, at the close of today's lecture, of a comment Schoenberg made at a time when he undertook the total emancipation of counterpoint: namely, that harmony was no longer up for debate. There is, however, an element of openness in this statement, since harmony—the question of the internal structure and conception of simultaneous sounds—can again become relevant and is not resolved once and for all. I would suggest something analogous with regard to the possibility of the unified orchestral sound as I have described it to you. Tomorrow I intend to speak a bit about developments leading up to the threshold of modern music, and then I will speak at somewhat greater length about questions of instrumentation and timbre in the Second Viennese School. Finally, in the third lecture, I will draw some perhaps fragmentary conclusions with regard to the contemporary state of affairs.

Thank you.

August 31, 1966

## II

Ladies and gentlemen,

Someone pointed out—and this happens when one speaks off the cuff, and so has to choose his words less precisely than is normally the case—the discrepancy between my use of the terms Viennese *Classicism* and the *classical* orchestra. I admit that it was a lapse, and not an especially subtle distinction, as perhaps some thoughtful listeners might have supposed. But I would like merely to say something about why I may have made this misstatement. To this end, I call your attention to a little-known work by Anton Webern, which many of you may have heard: the instrumentation of Schubert's posthumously discovered *Deutschen Tänze* from 1824. In our conversations, Webern always spoke of this instrumentation with the expression “the classical orchestra”—this was almost its motto—and the cycle was clearly intended as a retrospective work, which, in full control of its material, presented something like the idea of the orchestra of Viennese Classicism, building this classical orchestra from the bottom up (if you will again allow me this expression). This piece, like the Bach arrangement that I mentioned in the previous lecture, is an example of analytical instrumentation, in which contrasts of timbre are used to break apart the smallest motivic units, which then, through their succession, clarify the thematic workings. But the Schubert instrumentation differs in that here a much stronger effort is made to emphasize the element of the sound panorama that I mentioned earlier. If the classical orchestra is approached from the standpoint of the present (which is of course the only standpoint we have), and not merely from the perspective of music history, then I believe that much could be learned from this orchestration by Webern, and I would be very grateful if someone went to the effort of making a careful analysis of the in-

## The Function of Timbre in Music (1966)

---

strumentation of this cycle, which in many ways—such as the use of the solo strings—goes significantly beyond the classicistic Viennese orchestra. This attempt is, however, by no means the only one of its kind; rather I would suggest that the treatment of the orchestra in Berg's Violin Concerto, which I wrote about in *Der getreue Korrepetitor*, is also relevant in this connection.<sup>4</sup> Berg's instrumentation, with its doubled woodwinds and general spareness in the deployment of the orchestra, owes something to the classical orchestra, although there are four horns and the brass is used heavily at times. Berg's orchestra is treated much more freely than Webern's, and it pursues much further the ideal of rigorous structural orchestration, but it nonetheless has the air of a retrospective effort to fabricate the very idea of the classical orchestra—what I have called the sound-mirror. I cannot say whether Berg intended this—we never spoke or corresponded about this piece, and I did not come to know it until after his death, but, knowing Berg as I do, I can assume that he was trying to attain a yet clearer version of this self-contained sound-mirror. The Violin Concerto, like so much modern music, relates to the past not by copying or rehashing it, but rather by reconstituting its governing principles. By virtue of its distance from the past, this music brings the past to light by making it transparent and conscious in an altered situation. This was first done in Schoenberg's Wind Quintet, which represents something like a reconstruction of the sonata form.

In order to help us proceed, I would now like to draw some conclusions from what I said yesterday. Here I ask you to forgive me if, in order to make myself clear and focus more on practical and functional aspects, I speak more dramatically, clumsily, and concretely than is typical for me. I do so in full awareness that one can use such dramatic formulations only to make a first approach to phenomena, and that one can and must make distinctions in order to better be able, later, to obliterate them.

The problem of structural instrumentation always implies a double function, both analytical and synthetic (and here is the horror I mentioned earlier). On the one hand, the analytical function makes visible and audible the motivic-thematic material and, what is more, breaks down the composition into its component parts, revealing its structural arteries by means of timbral differentiation. On the other hand, there is always the danger—and here I am speaking of something unintentional—that the analytical function dissolves the composition into bits of mere particulars, that its emphasis on variety takes place at the expense of unity. The other function of structural instrumentation is accordingly to reunify what has been taken apart, differentiated, and dissociated. Wagner, who loved to plant technical advice about composition in the most unexpected places in his libretti, signaled this double function (and he was no doubt thinking about compositional techniques) in the first act of *Siegfried*, when the title character proclaims that he broke the sword of Siegmund into tiny pieces (“Zu Spänen schuf ich die scharfe Pracht” is the line, if I recall correctly) in order to then, in a second process, forge from these shards a new sword, a new unity. It is worth mentioning that these two processes have already been separated from each other, as by a kind of division of labor which these processes almost seem to presuppose.

## The Function of Timbre in Music (1966)

---

I turn now to the so-called New German orchestra in order to illustrate this double character of instrumentation, a practice in which timbre is both broken up and reconstituted, and at the same time one in which timbre appears as something independent and productive.<sup>5</sup> You must forgive me for again appealing to philosophy, but a leopard cannot change his spots—even less so as he gets older. The notion of unity in variety, properly understood, does not mean that a unity—a form, say—is externally imposed on a variety of phenomena, but rather that this unity must itself emerge from variety, from the very lifeblood of the details. This unity-in-variety was arguably achieved for the entire domain of pure compositional structure by the principle of motivic-thematic work in Viennese Classicism, but it was not attained in the same manner in the domain of instrumentation. Here multiplicity was given short shrift, and this has much to do with the primacy of the sound-mirror ideal I mentioned earlier. Allow me here to get ahead of myself by saying that creating a connection between unity and variety in the timbral dimension that is internally motivated—not externally slapped together—constitutes the real challenge of structural instrumentation today. In order to realize this ideal—in order for the art of instrumentation to succeed as a unity unfolded from living, sonorous multiplicity, it was necessary to break through the classical ideal of timbral consistency, which had for the first time brought compositional technique and orchestration to a kind of rapprochement. It was as if this unity had been achieved in Viennese Classicism only in order to be annulled once more.

Hector Berlioz is rightly seen as the creator of the modern orchestra. He is at the same time the first manifestation of modern music all told, in that for him tradition no longer possesses any binding power. This is what is absolutely new and shocking about Berlioz. The logic of the musical structure, of all that which Viennese Classicism took for granted, which also determined its approach to instrumentation, is as obsolete for Berlioz as are the almost exactly contemporaneous systems of speculative philosophy. In its place Berlioz erected a different, external notion of technique, which I mentioned earlier, and which is clearly related to the industrial technology of Paris in that era, which, as you know from Balzac and the writings of the followers of Saint-Simon, had for the first time penetrated into the domains of consumption and luxury. This technique, which has an entirely different meaning from what we call compositional technique, allows the self-conscious mastery of a plane of material that had previously been the domain of the involuntary, the carefully controlled, and the occasional effect—the mastery, that is, of the instrumental imagination. Berlioz and his followers invent as if they were in a laboratory. At the same time, however, Berlioz's music subverts technique in the sense of immanent through-composition, that is, the ability to articulate a unified, coherent form down to the last tone. This kind of technique he lacked to the point of dilettantism. In an essay that Hermann Scherchen published in the *Gravesaner Blätter*, I once wrote that the first musical technician was also the first who was no longer a good musician, since for Berlioz instrumental organization and compositional disorganization went hand in hand.<sup>6</sup> I would add, in passing, that what is uniquely modern and, if you will, timely about Berlioz is precisely the disorganizing principles of the orchestral organizer—and this, as well, is the *correspondance* between the present situation and Berlioz's compositional technique. The

## The Function of Timbre in Music (1966)

---

explosion of the *Symphonie fantastique* immediately following the death of Beethoven separated instrumental timbre from the primacy of the musical line, sound from its function: an explosion perhaps comparable only to the explosion of aleatoric music that we have witnessed in recent years. In this respect, Berlioz's discovery of instrumentation was, from the standpoint of musical construction every bit as regressive as it was progressive from another perspective. In music there is, as we all know, a dialectic of progress, and many steps forward in the development of compositional means are offset again and again with losses in other domains. I tried to illustrate this yesterday as well in the discussion of the classicist orchestra.

Only through the separation of timbre from composition—through the cult of timbre that Berlioz and his followers fostered—was timbre so completely brought under the control of compositional volition, so consistently developed in all its potentialities, that it was able, by virtue of its independence, to be integrated into composition as a productive dimension in its own right. In Berlioz's work, the orchestra becomes a musical medium *sui generis*, the central focus of attention. Often, what happens in purely musical terms is—to use a Hollywood expression—a mere vehicle used to produce instrumental colors. To be sure, Berlioz has his compositional tone, one that is closely connected to the shocks and explosions of which I spoke earlier. Though almost always verging on triviality, many of his themes are so distinctive in their irregularity and unruliness as to defy every trace of the academic. The fragmentary nature of his compositional technique itself becomes an expressive catalyst, creating a peculiarly jolting effect of fits and starts. This too may be an echo of the industrial revolution—you can find related features in the compositional technique of Richard Strauss, which I will not go into here. Berlioz's true compositional talent was coloristic. His legacy lies in the orchestra's capacity for the free, the autonomous, the illustrative; for grandly contradictory excess, iridescence, and luminescence. Timbre is turned from something secondary to something essential.

Here I would like to say a few words about the notion of instrumentation itself, which may be obvious to an audience of professional musicians (if I may use that gruesome expression). But since there are some in the audience who wish to gain access to the problems of modern music through these courses, I would like to add something about instrumentation that seems timely in view of widespread usage of the term, especially in the journalistic domain. In many cases, the precise meaning of musical concepts diverges sharply from what non-musicians take these terms to mean. Thus, for example, melody for most laypeople still means a high voice that is easily grasped, symmetrically structured, and harmonically supported, while the compositional notion of melody is incomparably broader, encompassing all relations bearing significance or tension between successive tones, whether in a single voice or between multiple voices. Likewise, a layperson thinks of rhythm as a repeated, ideally unchanging microstructure of temporal order—that is, a beat consisting of consistent metric units. But for a composer, the concept of rhythm includes every possible temporal relationship: regular and irregular, repeated and unique. In categories such as metrics and macro-rhythm, rhythm verges into form, although it is impossible to say where the threshold lies between the immediate, obvious sense of



## The Function of Timbre in Music (1966)

---

rhythm and this broader, more differentiated one, simply because such a distinction depends on perceptions and listening capacities that are subjective in nature.

This applies as well to the current misunderstanding of the nature of instrumentation, and elucidation of this point would be a first, small step toward a clearer view of the problem of timbre as it stands at present. For example, instrumentation is often confused with organology, with practical questions concerning individual instruments. The existing handbooks on instrumentation, such as Gevaert's, or the most famous one by Berlioz, contribute to this misunderstanding through their layout, and Strauss, who edited and expanded Berlioz's treatise, betrays through his occasional and extremely laconic (not to say miserly) remarks, that he thinks he knows better. At the same time, however, he gives the impression that instrumentation involves what has romantically been called an "alchemical laboratory," and which might better be described as industrial trade secrets. Of course, knowledge of the individual instruments—their range, timbre, and playing techniques, their possibilities and limitations—is the necessary condition of all good instrumentation. To be able to attain mastery of the orchestra as a compositional medium, a composer must know in which register the clarinet shines and in which register it is dull, and likewise—as Strauss reminded his readers—must not call for the murky and cumbersome Wagner tubas to toot along in a comedy overture. But all these are necessary, not sufficient, conditions of instrumentation. They are perhaps comparable to the theory of chord types and inversions in relation to functional harmony. Knowledge about individual instruments and rules of thumb concerning the use of instrumental groups and the like are the raw materials of instrumentation. What instrumentation is really about—and this is the essence of what I am trying to communicate to you—is the relationship between sounds, and not the sounds themselves. Just as in composition it is the relationships between tones that matter—and not, as the idiotic proverb has it, the tone that makes the music—instrumentation has nothing to do with individual timbres. Instrumentation as an essential element of composition is a functional concept, and cannot be grasped atomistically.

We have been considering the organization of sound in the orchestra as a whole, in its simultaneous and successive proportions. Genuine problems of instrumentation would also include those of the blending or meaningful lack of blending of individual timbres: transitions between them, the choice between mixed timbres and the juxtaposition of pure ones, and further, the problem of the orchestra's multiplicity, its spatiality and the relationship between musical foreground and background. Finally, instrumentation in the broader sense includes questions of instrumental writing, appropriate register, distance between the voices, the role of individual contrapuntal voices in the context of the whole, and the clarity of musical events in their sonic representation or the avoidance of this clarity. Here I do not mean to suggest that these topics should be understood normatively, as if each implies a standard to which instrumentation ought to strive. This is obviously not the case. But these headings signal the parameters within which structural composition, in accordance with conscious technical mastery, implies compositional decisions among various alternatives, and indeed, an ordering of the possibilities at hand.

## The Function of Timbre in Music (1966)

---

You see then how intimately instrumentation is connected to the other dimensions of composition if it is to be more than the merely routine or conventional filling-in of musical outlines. The overall sound depends on the binding force of voice-leading, which is in turn a question of melody and counterpoint. Clarity of instrumentation, which becomes more and more important in light of the qualitative and quantitative expansion of the orchestra and increasing polyphonic complexity, can be attained only through a plastic, almost sculptural compositional technique. For instrumentation, no less than for performance, the rule is that every sound is a product of the thematic content, and not of the abstract idea of timbre.

Here I would like to note—and it may be superfluous, but I wish to leave no doubt that in this respect the new music stands in stark opposition to conventional musical conceptions—that expressions, so favored by critics, of “radiant orchestration,” shimmering orchestral garb, and the like are so much rank nonsense. This is so, not because sensual enjoyment or pleasure cannot have value as a compositional possibility in the domain of timbre, but rather because every time a composer is certified as a radiant orchestrator—and, to name names, let us take Werner Egk as an example—the unspoken but implicit fact is that the quality of orchestration has been detached from that of composition, that it has become an end unto itself, and such an instrumentation is, by virtue of its abdication of aesthetic unity, necessarily bad.<sup>7</sup> It is easy to show, in Egk’s ballet *Abraxas*, for example, the glaring disparity between the orchestral garb and the meagerness of the purely musical substance. Earlier, when there was still something of a central German or Brahmsian tradition, even reactionary critics had the courage to call out such things, as when they spoke of Strauss’ orchestral façades. But today, when little remains of such a stolid technical tradition, both critics and laypeople, incapable of perceiving musical phenomena as such, cling to ideas that had already been identified as problematic in better times (if I may use that expression). The same goes for the entire domain of musical interpretation, where a conductor who is capable of producing a completely unbroken sound-surface [*Klangfläche*], without holes or gaps, through which, so to speak, the canvas is nowhere visible, is hailed as a marvel. There is a certain text that discusses such a marvelous conductor, which however neglects to mention not only that all considerations of structural instrumentation have been left behind, but also that the ideal of the flawless sound-surface hinders the articulation of individual musical shapes. The so-called instrumental mastery of this conductor is not only musically irrelevant, but rather anti-musical, pre-artistic, and merely culinary.

Now, everything I am saying is self-evident for structurally minded modern musicians, but hardly for the general public—otherwise one would no longer encounter such phrases. But these expressions have a tenacity comparable to that of the “brilliant stylist” in literature, which one still encounters even today. It is important to note that this is not a matter of taste but rather of coherence; it is a question of the degree of structural organization or the lack thereof. Anything that shimmers should accordingly be suspected of fragility, although I do not mean to repudiate my earlier statement that everything that glimmers is not necessarily garbage. This is an important constraint on new music, which in this respect arguably resembles a synthesis of Brahms and Wagner, in that it combines

## The Function of Timbre in Music (1966)

---

Brahms' motive of no-nonsense instrumentation with Wagner's motive of imagining his music's orchestral realization from the outset. The problem that I have outlined was already a bone of contention in the battle between the New German School and the followers of Brahms. But Brahms' music, on account of its objective, less ornate instrumentation, is less timbrally articulated. There is a genuine antinomy here, a tension that cannot be brushed aside by comfortably taking one side or the other. In any event, the decidability of such questions presents problems for the ideal of tolerance, which turns up even today in response to various styles. I believe that whoever takes new music seriously and does not intend to trivialize it—and I take it as my mission to oppose this trivialization—must above all energetically oppose an idea of tolerance that suggests there is room enough for all possible kinds of music, for Egk and Stockhausen at once.

The basic principle of modern instrumentation, one might say, is the critique of instrumentation. This explains why composers are hypersensitive to the threat of regressing into an abstract ideal of beautiful sound. Nonetheless one must be careful here, because the choice of a beautiful sound or, on the other hand, a viscerally shocking or repulsive sound depends on the particular circumstances at hand. In Berg's *Lulu*, which could hardly be suspected of conformism with regard to its treatment of form, the composer strives for a beautiful sound in the French tradition precisely for the sake of this appropriateness to the opera's subject matter. It would be the worst kind of puritanism to take offense at Berg's use of timbre in this opera, although I can scarcely imagine a contemporary composition using the vibraphone as it is heard in *Lulu*. Very often the sensitivity or resistance to so-called beautiful sound—and here again I would counsel caution—is little more than a lack of feeling for the timbral domain as a whole.

All these factors, whose fraught relationships I have just attempted to outline for you, combine to raise instrumentation from a material and pre-artistic practice to the level of genuine composition. They make possible what could be called structural composition, that is, the incorporation of the timbral dimension into the organization of the artwork. Instrumentation is not the isolated presentation of colors (and precisely this notion threatens again today), or even the preparation of something already colorful, of a phenomenon without regard to its meaning. Once one understands the concept of instrumentation, the organization of sound as a dynamic relationship between whole and parts, once one grasps the inseparability of structural instrumentation and compositional structure, the challenge of constructive instrumentation itself becomes clear—a challenge that appears absurd to many, in large part because, as I have already said, they cling to a primitive, pre-artistic, and culinary notion of instrumentation. I believe I have also explained this phenomenon to you: that the dimension of sound or timbre, in contrast to the primary, structural forces of music, is of a diffuse and mimetic nature, and that it is thus in the timbral dimension that music struggles most to come of age and cast off its archaic heritage.

This idea of instrumentation, of the transformation of timbre into a significant element that is at the same time integrated into compositional technique, is without question the achievement of Wagner. No composer before him had achieved such a nuanced approach

## The Function of Timbre in Music (1966)

---

to instrumentation, had translated the most finely differentiated compositional events into timbral events. This is a definite gap separating Wagner from Berlioz, which ought to be spelled out unsparingly. To be sure, Wagner adopted and made use of Berlioz's emancipatory achievements, but he also added them to the realization of what he had composed, whether good or bad. This is connected, in turn, to the particulars of Wagner's compositional technique. I am thinking above all of the style of Wagner's middle and most productive period, of the technique of dissolution that he used in *Tristan*, in which motivic fragments allow the music to form a nearly homogeneous continuum that Wagner called "endless melody"—a continuum, as you know, that prefigures in some respects the idea of the twelve-tone row. (This is also a problem in Wagner that I think warrants close study.) If the instrumentation were not to proceed in a similar fashion—connected by the smallest links—there would be gaps in the compositional fabric, so to speak. The realization of the compositional ideal of "endless melody," if it is not to contradict itself, virtually demands a kind of orchestration that can represent the transitions found in *Tristan*. The principle of the smallest step, or as Wagner called it, the "art of transition," requires precisely the instrumental differentiation that was attained here for the first time. It is a commonplace to say that *Tristan* is chromatic, and that is generally true. One could truly say that the basic motive of the work is the chromatic scale, and this has been involuntarily copied by many later composers. But *chroma* means, etymologically, nothing other than color, and thus language indicates a deep affinity between Wagner's compositional technique and the kind of orchestration that it occasioned in *Tristan*.

While Berlioz developed the timbral material of music to a level comparable to that attained in painting 500 years earlier, Wagner delivered this material to the domain of compositional structure. The achievements of Berlioz and grand opera—above those of Meyerbeer—were carried over into a mature compositional technique that Wagner himself, with questionable justification, saw as the direct continuation of the great German symphonic tradition of Viennese Classicism. No longer is timbre an incidental, musically extraneous allure; the entire spectrum of timbre now belongs to the domain of composition, thanks to an instinct that Wagner possessed even before he had attained full mastery of the musical material. In his mature works, from *Lohengrin* on, his instrumentation follows the same principle as his general compositional technique: that of the smallest link. Color and line are integrated as they had long been in painting. He dipped his paintbrush—and here I quote Wagner's own words on the second act of *Parsifal*—"deep into the jar of paint," a statement that is of course unimaginable coming from the mouth of an earlier composer. The reason for Wagner's simultaneous and extremely laborious use of traditional and anti-traditional harmony, that is, his ability to mix and create imperceptible connections, is made clear at once by his orchestration, which is so modern and unbound by strict rules. The disintegration of melody—and I mean melody in the broad sense, as I explained earlier—into the smallest, finely differentiated elements manifests in timbral terms as the instrumental segmentation of melody, corresponding to Wagner's compositional segmentation of melody. This attempt to mirror the slightest compositional impulses in the timbral continuum has remained in force from Webern to all structural instrumentation today, and this is the basis of Wagner's eminent compositional relevance.

## The Function of Timbre in Music (1966)

---

Today, after the decline of the Wagnerian *Gesamtkunstwerk*, and when no one need any longer fear the suggestive power of his music, the productive forces embodied in his compositional technique emerge for the first time. The smallest chromatic transition demands a continuum of tone-color, in which the shifts of the timbral mirror (which remains in force, in accordance with the classical ideal) can be registered imperceptibly. Wagner sets the timbral mirror in motion and alters its relationship to time, but does this so subtly that the ideal of the mirror—what Richard Strauss called the “velvet sound of the Wagnerian orchestra”—is preserved. And this takes place precisely by means of the most sensual of musical phenomena, timbre, which in Wagner’s music is coherent in itself, changing constantly yet indiscernibly, so that there is not a single place where “the nails stick out and the glue stinks,” as my teacher Alban Berg once put it.

The idea of creating musical designs on the basis of particular tone-colors, which Berlioz conceived with inspiration from Gluck and Weber, now extends to the entire orchestra. There is no longer a single measure that is not meant to be heard as sound, the exact way it was composed. It is also worth noting that in purely compositional terms Wagner’s music is far less articulated than the music of Viennese Classicism, its ever-present sequence principle foreign to true development or developing variation. One could thus say that timbre in Wagner almost violently compensates for certain compositional shortcomings, that it has a kind of corrective function—a function familiar to all conductors, for whom the timbral presentation is, so to speak, a medium in which the weaknesses of every musical work—even the greatest—can be glossed over. Only when the fallibility of musical works is acknowledged and taken seriously can the notion of necessity, which produces everything that can be called musical progress, be properly applied. Every step of musical progress is, so to speak, a child of necessity and lack. The idea of creating musical designs from specific tone-colors is now extended by Wagner to the orchestra as a whole. Again, there is no longer a single measure that is not meant to be heard the way it was composed, as sheer sound. This is the foundation of Wagner’s claim to style, which has played such a large and in many ways calamitous role in the Wagnerian ideology. By contrast, in Wagner’s music individual timbral accomplishments become less pronounced, although all of you are familiar with the melodic liberation of the brass from the archaic stiffness of their choral bondage. The famous *al fresco* string sound in the Magic Fire music, the aurally sensitive mixing of the woodwinds, whose subtlety remains unsurpassed to this day, and the invention of entirely new colors such as those of the tubas and the bass trumpet in the *Ring*—all these achievements transcend everything previously devised by the instrumental imagination. Wagnerian harmony, for all its novelties, honored harmonic theory; it never attacked the classicist ideal of balance, but rather perfected it in the first place, and that is precisely the turn taken in Wagner’s music. What Schenker said of Wagner—that in spite of all his innovations he left the *Urlinie* intact—applies as well to the Wagnerian orchestra. The balance and unity of the orchestra would not be disturbed once and for all until the work of Richard Strauss, and this indeed constitutes a good part of Strauss’ significance.

## The Function of Timbre in Music (1966)

---

The image of the noisy Wagnerian orchestra—which he covered up and muffled in Bayreuth—is as wrong-headed as the claim of its formlessness. In the criticisms of Wagner, as if in response to his own ambivalence, reactionary and legitimate attitudes are inextricably interwoven. The unresolved tension that looms over Wagner's instrumentation is related not to instrumentation as such, but rather to his compositional technique. To the extent that Wagner's compositional structures are not truly formed through and through, but rather merely arranged, and so lag behind the concept of construction that he championed in the name of the symphonic tradition—to this extent his instrumentation becomes something surrogate and decorative, which clashes with the demand for thoroughgoing instrumentation formulated by the work itself. The aspects of Wagner's orchestration that grate on contemporary listeners—the over-pedaled, waterlogged quality, which stems in large part from the harmonic chorale of the horns—result not from the failure to live up to the standard of the compositional structure, but rather stem from that structure's hidden flaws, and ultimately from the gesticulating, bloviating, and thus self-exaggerating nature of the music. The incredible intensification of timbral potential by a single composer thus corresponds precisely to the difficulties of compositional technique he confronted. In art, humanity solves its problems in the very moment they demand an answer. Wagner's emancipation of opera from its traditional forms—which was at the same time the chimera of its uninterrupted unification into the music drama—required new purely musical means. This alone enabled the integration and articulation of the whole, as well as the clarification of the individual parts. None of the traditional elements of composition would have sufficed for this purpose. The Wagnerian orchestra salvaged everything that had succumbed to his critique or fell to pieces with the end of a tradition. My thesis on Wagner boils down to this: timbre becomes a means of articulation to the same extent that traditional means fall away, and the abandonment of the traditional, clear-cut forms of opera (which should not be confused with the abandonment of tonal schemata as such) brings about a situation in which timbre comes to the rescue as a means of integrating the various dimensions of music.

The development from Wagner to the threshold of modern music was no radical change, but rather hewed closely to particular elements of his achievement. I will highlight a few tendencies that later came into their own in the new music.

Richard Strauss, in his revolutionary works, used the disconnected surprises, abrupt shifts, and continuous, chaotic agitation first found in Berlioz to shatter the unbroken surface of the sound-mirror. Disintegration proves to be an agent of form: in parallel with the technique of the smallest link, there emerges the need for the greatest possible difference, and both stand in contrast to the balanced and equilibrated character of the medium-sized classicist orchestra—hence the slackened orchestration in Strauss' music, which is possible only on the basis of the previously attained integration of the orchestra. Strauss' music also betrays a tendency toward the dissociation of timbre that gave rise to repeated critiques of the orchestra in the twentieth century. This disintegration of timbre, too, is a function of composition, of an unleashed polyphony that breaks apart harmony and demands a timbre appropriate to this process of dissociation. The tendency toward

## The Function of Timbre in Music (1966)

---

disintegration cannot be seen as something foreign to the internal musical flow, but rather as a product of the ongoing integration of composition itself.

Strauss expanded the orchestra into a fungible painter's palette of instrumental colors that can be splashed here and there, and so estranged the orchestra from the pure composition that had been so wisely and economically controlled in the *Ring*. In terms of the interplay, mentioned earlier, between an indifferent timbre and one groping toward independence, Strauss' instrumentation reverts to an autonomy that is occasionally intensified into a kind of clamor. The threat of vagueness and indistinctness looms on the horizon of his music, and the correction of precisely this shortcoming becomes in turn an important factor in the later history of modern orchestration. In scores such as *Ein Heldenleben* and, though I am sorry to say it, *Salome* as well, there is more on the page than can be perceived. The greatest conductor of Strauss' time, Gustav Mahler, who likewise belonged to the tradition of Wagner and the New German School, faced up to this threat in his own compositions. In this connection it is worth noting that Strauss, for all his differences with Mahler, admired the latter's orchestrations, and the Fourth Symphony in particular. And I would hypothesize that Strauss' later turn to the chamber orchestra, and the reduction of instrumental means to which he committed in response to the danger of diffusion, can be traced back to Mahler's tendency toward structural orchestration. In opposition to the transmutation of music into timbre, which for Wagner had been a self-evident foundation, Mahler used orchestration primarily to clarify compositional processes and turned this into a rule or norm in his handling of the orchestra. This, too, was a critical motive in orchestration: in particular, it was a critique of the programmatic obscurity in the sound of the New German School. The overriding theme, as it were, in Mahler's music is the embattled unity of structure and instrumentation that was threatened by the cult of color around the turn of the century. In many passages in his late works, such as *Das Lied von der Erde* and the Ninth Symphony, Mahler's music opposes both the clamor of the *tutti* and the shimmering orchestral mirror. In this way, he too brings about the dissociation of timbre, especially in *Das Lied von der Erde*, in a manner analogous to the Impressionist composers.

It was Debussy who finally broke down the motivic-thematic material into its smallest particles, following the model of the Impressionist painters. With this, timbre takes over the task of organization that Debussy had withdrawn from melodic shapes and motivic-thematic work. Timbre itself becomes the foundation of musical coherence, whose traditional means fall victim to the ear's process of reflection, which no longer tolerates anything unmediated or naively realistic. This extreme process of subjectification sets timbre free for the first time and turns it into a material fully at the composer's disposal, and thus also makes possible its objectification through structural composition. For the first time, timbre attains independence, not as a mere stimulus, but as a compositional event. This emancipation of timbre should be examined in detail in Debussy's orchestral works, and above all in *Jeux*, as has already been undertaken by the serialist circle in Cologne.<sup>8</sup>

## The Function of Timbre in Music (1966)

---

At this point, one might ask—and here we are arriving at the problems of the recent past and of our own situation—why there was a rupture after Wagner, since he succeeded in fully incorporating and justifying timbre in a structural sense. The answer is not to be reached on the basis of isolated ruminations about timbre, but rather requires that we reflect upon compositional technique itself. The emancipation of composition from pre-existing schemata, which were directly and indirectly supported by the tonal system, necessitated a simultaneous emancipation of the orchestra. This went well beyond the emancipation undertaken by Wagner, in which the enduring aspects of tonality ensured the existence of schematic shapes and structures that were predetermined to the extent that they would have had no use for the non-predetermined—that is, for timbre that has become independent. Just as compositional technique, deprived of all superficial links to pre-stabilized orders and structures, now follows no other law than that demanded by the here and now of specific situations, just as the last abstract universal concepts of music are liquidated, so too it goes for orchestration. And the more compositional structure strives for unity in all its dimensions, the more the orchestra must follow suit, lest its repose disrupt this unity.

We can thus speak of a second orchestral revolution, in contrast to the first one, led by Berlioz. Timbre paves the way for the movement of compositional technique away from its preoccupation with closed surface connections; it flips subcutaneous forms inside out and raises composition to a higher level. Because the musical structure abrogates closure—for reasons that go beyond the technical state of affairs, and yet inextricable from these—timbre abrogates closure as well. Schoenberg's famous remark about the revolutionary third piece from Op. 16—that the timbres should not be gradated in order to produce a unified sound, but rather should be allowed to sound exactly as they do—reveals itself in this connection as not merely an incidental direction for the conductor, but rather a statement of the most basic principle of modern instrumentation, whose significance cannot be overstated. Though appropriate to the state of composition at their time, Wagner's orchestrations, and later those of the New German School and the Impressionists, always duplicated the smoothly polished and affirmative character inherent in tonality as it then existed, and as it corresponded to the ideology of its epoch—with some exceptions in the case of Debussy, whose imagination often overshoots the reality of the glossy sound-surface. Debussy's orchestration, in particular, manifests some peculiar problems in this regard. Like Berg, and in stark contrast to Hindemith or Stravinsky, Debussy was by no means what one might call a pragmatic orchestrator; rather, he was among the composers in whom the primacy of imagined sound dramatically asserted itself for the first time against concrete sound, and I believe that this must be understood in order for pieces such as *Ibéria* to be properly performed.

The polished and affirmative quality in orchestration is now on the ropes. Today the rounded, balanced sound of the Wagnerian orchestra is as little tolerated as the harmony-driven structure of his music. Both are giving way to the sheer presentation of musical processes without the dilution or mediation that for Wagner belonged to the essence of composition itself. In this sense, orchestration becomes objective during the expressionist period, long before the emergence of the notion of "objectivity" [*Sachlichkeit*]. The late

---



## The Function of Timbre in Music (1966)

---

Erwin Stein, whose collected writings I heartily recommend, published an essay forty years ago in *Pult und Taktstock* entitled “Mahler’s *Sachlichkeit*,” which might have helped do away with silly talk of the “last late-Romantic” and the like—if there were ever any hope that such notions could be banished from musical discourse.<sup>9</sup> The legacy of classical composition with regard to the timbral dimension, which the Wagnerian orchestra had secured, is now rejected as forcefully as the notion of the stable musical language as such. The very idea of the Wagnerian orchestra—one could almost say its metaphysical foundation—was that it could, through its saturation and unbroken facture, transcend itself, as it were. Its sound, like a sphere, was at once finite and infinite. At every instant its perspective stretched beyond mere phenomenal being. To use Benjamin’s expression, it was the auratic orchestra par excellence.<sup>10</sup> In Wagner’s sound, what is perceived is no more important than that which imperceptibly surrounds it, as its echo. Especially in his later orchestrations, in *Götterdämmerung* and *Parsifal*, this echo is in many cases paradoxically composed into the music. Think of the opening of *Parsifal*, after the Last Supper theme. The kind of listening that the Wagnerian orchestra provokes is described by a word that not coincidentally appears in the middle of *Tristan und Isolde*: eavesdropping or pleasurable listening [*Lauschen*]. After Wagner, this aura shatters, and with it a sound that was defined by the bodily contact of any given sound with any other. Infinitesimal transitions—the smallest links—open up the infinitely wide horizon.

One can no longer listen pleasurably to Schoenberg’s orchestra. One must listen in attentively, concentratedly, with a thinking ear—and this, I believe, remains true for all sound today. Schoenberg’s music replaces the ambition toward coherence guaranteed by the mutual contact of sensual elements with the dissociation of composition into its constitutive events, and this dissociation takes hold of instrumentation as well. Precisely this aspect of Schoenberg’s music has emerged in the problematics of instrumentation over the past twenty years, although the connection to his work has not generally been recognized. According to Schoenberg’s ideal, timbre is neither the subordinate carrier of events, nor is it autonomous. Fundamentally, timbre is subject to the same changes that befall other sectors of composition. The tendency toward dissociation, the disenchantment of the orchestra, frees timbre and allows it to be absorbed into compositional logic.

Ladies and gentlemen, I believe we have reached a good stopping point. Tomorrow I will give you a somewhat more detailed view of the orchestra of the Second Viennese School and then speak about the relevant questions about the orchestra today. For this I will need a bit more time. I would thus be grateful if you would prepare for a two-hour lecture tomorrow, to be able to complete what I have in mind. After all, such a lecture is a bit of a constructive form, and I hope I can assume from such an audience understanding and tolerance.

Thank you for your time.

September 1, 1966

### III

Before I continue, I would like to follow up on a suggestion that came from the audience yesterday. I was asked why I continue to use an expression like “mixed timbre” [*Klangmischung*], since, as it was correctly noted, this expression is pre-functional—it does not foreground the idea of a timbral function. I admit that I used this term without thinking too much about it, just as it has been popularized by the experience of orchestration up until the present day. By mixed timbres I mean heterogeneous timbres that are used in order to clarify or express structural elements of composition—that is, a sound-ideal that is equally opposed to both the classicistic and neo-classicistic ones, although it should be noted that it is not simply a question of the concept of timbral mixture itself, but rather of a sonic structure that is internally fractured, and which serves to elucidate compositional linkages. That is what I meant. I will return to this phenomenon later.

Now we turn to the Second Viennese School. The refunctioning of timbre, which divests it of its atmospheric quality and integrates it as a sector of compositional technique, took place at a relatively early date, before tonality itself had been liquidated. Similarly, the decisive structural changes in compositional technique were fulfilled in the late, still tonal chamber music of Schoenberg’s second period; the step to atonality merely sanctioned what had already taken place. I emphasize this not as a display of historical finesse, but rather because this phenomenon, which diverges from the generally accepted chronology, clearly illustrates how the revolution in composition that was already in motion by 1907 encompassed from the outset the internal structure of music, and how relatively unimportant are the phenomena always invoked by conventional wisdom, such as the rise of dissonance or the so-called fractured quality in the outward form of this music. I believe, now as before, that in Schoenberg’s works of this period—the first two string quartets (Op. 7 and Op. 10) and the First Chamber Symphony in E-flat, Op. 9—the most decisive insights lie at hand for the understanding of the new music as a whole. What I would call, with a nod to Berlioz, the second instrumental revolution begins with the First Chamber Symphony. This work exerted an unmistakable influence, particularly through its reduction of performing forces, upon innumerable chamber music compositions written in the fifty years that followed, which all make a point of diverging from the conventional use of the strings. But this crucial quantitative reduction vis-à-vis the atmospheric Wagnerian choral string sound was not the most important aspect with regard to the problem of timbre. After all, one of the most atmospheric pieces by Wagner himself, the *Siegfried Idyll*, was originally performed in a chamber setting that closely resembles that of Schoenberg’s Op. 9. The *Siegfried Idyll*, of course, is based on thematic material from the third act of *Siegfried*, music that was originally conceived for a large orchestra—the largest there is!—and I believe it would be worthwhile to investigate the function of the chamber setting in the *Siegfried Idyll*, although the work is unfortunately more often performed in the version for string orchestra. What takes place here is a structural change: orchestration is no longer a matter of producing a sustained and luminous sound-world, but rather of unifying thematic events and their timbral manifestation. To put it dogmatically, the new music as a whole is about the idea or ideal of such a unity or (perhaps more accurately) the

## The Function of Timbre in Music (1966)

---

coincidence or identity of sound and structure; the only controversy is whether this ideal can be realized directly or only as a unity in multiplicity. This may sound like too fine a point, but I hope to have occasion later in today's lecture to show what is really at stake, and I believe I am not overstating my case by saying that we are here concerned with *the* central problem in contemporary composition.

The Chamber Symphony is, over long stretches, the first seriously polyphonic composition since Bach, and the orchestration of the piece seeks to realize this polyphonic character. The aggregate sound is no longer a pre-ordained law which deviations serve only to uphold, as it was for Wagner and his followers, such as Strauss; it is rather the result of thematic voices that are superimposed, shifting, intersecting, and always strictly differentiated, even in terms of timbre. In this work, the ideal of timbral equilibrium is sacrificed for the sake of contrapuntal orchestration. Balance is sacrificed in order to lay bare the individual voices, and this is the beginning of that loosening-up of timbre, that complete disintegration of the *tutti* ideal that took place in the music of the Second Viennese School in a later phase. It seems that the classical orchestra in its traditional meaning is already subjected to critique in Schoenberg's Chamber Symphony. The piece's timbral imbalance is striking, and always unpleasant to the ears of seasoned orchestral musicians. There is something like a collapse of instrumental harmony at work here, which results in certain groups of instruments attaining notable predominance over others, which, in the historical dimension of hearing—in the way the ear habitually approaches music—are the central ones. The five solo strings, meager and over-exerted, can barely hold up against the ten winds and brass, which include the penetrating timbres of a D-clarinet, a contrabassoon, and (quite overbearing relative to the solo strings) two horns. In contrast to the strings, these instruments clearly have a completely different significance than their mediating and relatively moderate role as a kind of orchestral glue in the Wagnerian and post-Wagnerian orchestra. Without question, this imbalance does violence to the clarity of this quite complex piece, if one understands clarity to mean the apprehension of a self-contained, complete sound. But the logic of the original conception becomes clear when one hears Schoenberg's later version of the piece for large orchestra, which ostensibly corrects this flaw. The sound is imbalanced—constantly overturning and again finding its footing, completely lacking a stable sonic core—and yet it is much more appropriate to the contrapuntal nature of the composition than would be a traditional orchestration, which on account of its rounded character is far better suited for homophonic music, and which, so to speak, itself bears a harmonistic quality that stands in contrast to the contrapuntal nature of Schoenberg's music. This seems paradoxical, considering that in the traditional sound the individual voices and the contrapuntal fabric become clearer. The feeling of shock occasioned by the dominance of the winds and brass over the constantly overwhelmed, sometimes shrieking strings, and which is reinforced by extreme timbral inventions such as the octave doubling of the oboe and contrabass at the beginning of the scherzo section, is an aspect of the compositional design. The sound of these exposed parts in the Chamber Symphony is a slap in the face to all traditional conceptions of melodiousness. Sometimes garish, sometimes subdued, but never sensually flattering,

## The Function of Timbre in Music (1966)

---

Schoenberg's instrumentation takes part in the full-fledged critique of musical hedonism likewise pursued in his later, mature music in all its dimensions.

Schoenberg's first atonal compositions for orchestra, the Five Pieces for Orchestra, Op. 16, demonstrate even more clearly the implications of the new music for the treatment of the orchestra. These pieces mark a genuine turning point. There is scarcely a single string *tutti* in the traditional manner, although here (in contrast to the Chamber Symphony) the full orchestra is employed; there is no harmonic filling-out in the horns, and hardly a single homogeneous chord. As a result, at moments such as the end of the last piece, a superb movement whose significance has not yet been fully disclosed by analysis, the chordal agglomerations, by virtue of the economy with which this complexion is achieved, have a powerful effect that far exceeds that attained by earlier use of such techniques. Along with traditional harmony, the traditional harmonic conception of tone-color disappears as well. Timbre follows, as if blindly, its own impulse and that of the compositional structure. Departing from conventional notions of timbral balance—Schoenberg once cleverly lampooned this sound-ideal as “mezzo-fortissimo”—sound is decomposed into partial complexes corresponding to the layered complexes of the compositional structure. In *Erwartung* this process is taken yet further, in accordance to the athenatic style of the work, which is dominated by sudden shifts and extreme transitions. The timbre of the Pieces for Orchestra, by contrast, is at least intermittently homogeneous, to the extent that their conception is based on thematic-motivic organization. The first two pieces, in particular, feature passages in which the orchestration continues unchanged for some time as a drastic means of unification. In *Erwartung* this technique can no longer be found, except for a few passages of ostinato-like effects. The sound-image [*Klangbild*] emerges from these partial structures, unified only by virtue of the obligatory relationship that prevails between the heterogeneous components. Timbral homogeneity is approached only in isolated moments.

The sound-image presented in the first three measures of Op. 16, No. 1 is qualitatively new—more so even than the famous opening of Strauss' *Salome*, whose string tremolos still have one foot in the traditional techniques of perspectival instrumentation. The rhythm of Schoenberg's main theme—carried by the upper voice, thus representing the melodic aspect of this very short motive—is articulated in three voices: by two very high muted cellos that sound quite strained and denatured, and promptly doubled by a solo oboe—an alienation of the usual melodic tone expected of the upper voice. This rhythmic pattern is doubled by the clarinets, playing parallel fifths in their lowest register, while the contrasting bass part, a thematically conceived counterpoint that plays an important role later in the piece, is played in unison by the seldom-used contrabass clarinet and the contrabassoon—or at least should be played, since the contrabass clarinet is not found in most orchestras. The overall sound is quite hollow and weightless, even in *forte* passages, and this passage is something of a problem child in every performance, as the conductors in the audience can perhaps confirm.

## The Function of Timbre in Music (1966)

---

The second instrumental revolution has, as befits its gravity, an awkward, groping character, and up until Schoenberg's *Die glückliche Hand* professional orchestrators could chalk up passages they found badly orchestrated, because the playing techniques of the time lagged behind the innovative composer's musical imagination. Schreker, in spite of his apparent friendship with Schoenberg, delighted in demonstrating to his students how the disjunct bassoon passage, which plays an important role in the beginning of *Die glückliche Hand*, was actually unplayable, and so suggesting the passage was badly orchestrated. This is obviously the opposite of what I have in mind when I speak of the critique of instrumentation, which cannot be based on criteria of performability or playing technique, but rather only on the function of the instrumentation within the music in question. (Besides, with the improvement of technique, passages such as the one just mentioned can be mastered. In general this is a question of rehearsal.) The first theme of Op. 16, No. 1 has a consequent phrase, which foregrounds its timbral dimension, once more, in a sudden swerve scored exclusively for solo winds; it ends with a staccato passage in the muted horns. The main rhythm is then suddenly played in inverted intervals by the muted basses, reinforced by the bassoon and then later by the contrabass clarinet. The theme is carried on by an exposed chord in the oboes accompanied by pizzicato strings and sharp punctuation from the piccolo, whose emancipation can well be dated from this moment. Next there is a recitative in the bass trombone that has an unprecedented timbre, skittish and wild, which has become an indispensable addition to the orchestral palette. The model for this passage may have been a similar one in the development section of the first movement of Mahler's Sixth Symphony, and indeed the orchestration of Mahler's Sixth represents in many respects a precursor of Schoenberg's techniques—just as Mahler's use of the minor in that work anticipates the emancipated dissonance. (These are things that I can only hint at here, but which I believe it would be worthwhile to pursue further.) Nowhere in *Die glückliche Hand* is there a natural string tone. Anything that would have previously been normal for the orchestra now becomes taboo, a rare exception. In these works of Schoenberg one could even speak of something like an alienation effect, although this term has only recently been imported into musical discourse from Brechtian terminology in literature, and is already so overworked that one feels a bit self-conscious about using it.<sup>11</sup> The piece tends toward timbral and dynamic extremes, the latter above all in the triple-fortissimo passages, which bury underneath them everything of moderate scale—just like the sensational outbursts of *The Rite of Spring*, whose organizing principle can be traced to the prominent ostinato parts in the first piece of Op. 16. Timbre, dissolved into extremes, is now equally suited to vertical or horizontal construction: vertical in the sense that it has become dissonant, so to speak. Individual instruments stand out timbrally, just as chords of many tones in the new music resist fusion into a homogeneous, undifferentiated unity, retaining their independence as voices in a contrapuntal sense, even as they constitute a kind of whole. Schoenberg spoke expressly of instrumentation as if it were a separate skill, even though he also rigorously insisted upon, and realized, the unity of instrumentation and compositional structure, and this quiet contradiction seems to point toward an inherent tension, as I have already mentioned.

## The Function of Timbre in Music (1966)

---

The technical principle underlying these practices, if one is to reduce it to a kind of rule of thumb, is essentially that no tones in the same group of timbres should be immediately adjacent in verticalities, but rather should be more or less separated—and the same applies to timbres in succession. The entire chordal structure thus appears instrumentally fractured. Alban Berg followed this procedure rigorously in the *Drei Orchesterstücke*, and both Berg and Webern very often systematized and formalized certain discoveries of their teacher that Schoenberg himself found by following the law of the imagination, through a process resembling *écriture automatique*.<sup>12</sup> The music of Berg and Webern, while more rigorous than Schoenberg's, at the same time seems to lose something of this prodigious spontaneity.

In linear terms, this new approach to orchestration is consistent with the new music as a whole, in that it fulfills in timbral terms the principle of compositional contrast, of unmediated shifts of musical figuration—and in this it differs from the whole of Wagnerian orchestration. The timbres, like the themes, change incessantly, lurching from one extreme into another. This very mobility renders timbre susceptible to genuine construction. Here one must keep in mind the acute difference between the structural orchestration of the new music and the similarly anti-Wagnerian stance of certain reactionary tendencies. There was a universal discontent with the homogeneous orchestral sound that had become bloated into an end unto itself, as the principle of timbral mixture became in the nineteenth and early twentieth centuries, and a rejection of the illusionistic use of timbre to puff up meager compositional structures. The reactionary composers of the neo-Baroque, with their neat juxtapositions of distinct, *concertante* instrumental groups, simplistically regressed to a state before Wagner's subjective differentiation of timbre. They believed thereby to have attained a kind of objectivity of sound, but in fact they merely mimed objectivity, producing a sound that can only be called primitive. By contrast, Schoenberg's critique of the homogeneous, atmospheric orchestra both preserved and heightened the sophistication of the post-Wagnerian orchestra, subjected it to the structural demands of the music, and indeed used it as a means of creating musical structure. Rather than replacing timbral mixtures—the dynamic synthesis of the heterogeneous—with a simple contrast of differing groups of timbres, he reconstituted the disintegrated timbres into new relationships that were governed by the degree of compositional organization itself. The complex coloration of his music takes its cue not from any order external to the sonic material, but rather freely absorbs the music as a whole, which no longer relies on the timbral relationships set forth by the pre-existing orchestra. (Schoenberg occasionally altered the entire orchestral palette, as in the first of the Four Orchestral Songs, Op. 22.) Here it is striking that the so-called “large orchestra,” once established, has proven remarkably resilient into the present, even in the music of Boulez and Stockhausen, whose works for large orchestra, especially in the *tutti* passages, preserve an unmistakable link to this tradition. The reason for this, apparently, is that the sound of the large orchestra exists as something largely independent of its components—that is, the *tutti* is a constant that is something other than the elements it comprises, and the idea of the *tutti* is precisely that of a simultaneous, intensive totality of sound, which appears

## The Function of Timbre in Music (1966)

---

independent of its constituents at least until a more differentiated *tutti* is attained—which I believe has happened in a few of the newest works.

The altered function of timbre can be best illustrated by the third of Schoenberg's Pieces for Orchestra, Op. 16, to which I have already alluded. It is the only piece by Schoenberg that fully satisfies the agenda of *Klangfarbenmelodie*, and, aside from works such as Ligeti's *Atmosphères*, this approach to the problem of *Klangfarbenmelodie* has scarcely been pursued further. Op. 16, No. 3 is best characterized by a term that emerged almost fifty years later in painting: "abstract impressionism." Melodic and rhythmic impulses hardly register in the foreground. There is only a wisp of a harmonic progression. The melody is reduced to formulaic splashes, as in many pieces by Debussy and later by Stravinsky. The suggestion of a three-part form is projected by the timbre itself, with its changing complexion of dissonant (and therefore completely heterogeneous), brusquely voiced chords. The almost iridescent orchestral timbres fan out and, in a seemingly hyper-polyphonic yet fully convincing passage, diverge into their disparate colors, which nonetheless coalesce into a unified surface. The piece then returns at once to the rudimentary motives and chordal figuration of the beginning. It is also worth noting here that—as is often the case, not only in Schoenberg, but in all of music history—when the most extreme innovations in one dimension of sound are sought and attained, other dimensions take on a rather conservative character. This is done seemingly in order to avoid obscuring the intended novelty, as can be seen here in the contrast between *Klangfarbenmelodie* and the relatively simple formal design. In this respect, the newest music represents a legitimate critique of even the most revolutionary work of fifty or sixty years ago, because it perceives this divergence between the relatively traditional form and the extreme treatment of timbre as an unresolved contradiction. In Schoenberg, timbre and orchestration have become the primary musical phenomena and thus take on structural functions, but timbre yet remains unintegrated with the outward form of the music. There are, so to speak, two forms: the three-part song-form, applied uncritically, and the dynamic timbral form, which expands and then contracts. The novelty of this experiment remained ahead of its time for many years after the composition of "Farben."

Now, ladies and gentlemen, the tendencies that I have described to you should not be taken too literally, or as if they existed in a vacuum. They are constantly in conflict with other tendencies, such as—to take a simple and technical example—the necessity of reinforcing lines in order to make them audible, which of course is difficult to reconcile with the principle of emancipated timbre, or with the free superimposition of pure timbres. The need to reinforce sound through doubling is also at odds with many composers' desire to superimpose not only single lines, but entire timbral complexes; this tendency is already apparent in Schoenberg's *Orchesterstücke* and dominates pieces such as his *Die glückliche Hand*. There is from the beginning a kind of tension driving this development, which stems from the fact that the demands made of emancipated, structural uses of timbre are not immediately compatible with each other: on the one hand, the goal of clarity as the realization of the compositional structure, and on the other hand, the fully autonomous *Klangfarbenmelodie*. The two principles often collide, and the development of music registers composers' laborious search for a balance between these antagonistic goals. Super-

## The Function of Timbre in Music (1966)

---

imposed complexes, for example, in order to be distinguishable as such, will typically be timbrally homogeneous in themselves, to the extent that they form distinct units within the overall texture (and this is well illustrated in the score of *Die glückliche Hand*). The distinction between orchestral music and chamber music is not merely a quantitative one; it affects the composition of the music. This distinction also points to the limits, within compositions for grand orchestra, of how far orchestral timbres can be subdivided. The orchestra in many of Schoenberg's mature works, such as the Variations Op. 31, the Violin Concerto, and the Piano Concerto, is, in accordance with the compositional style, less jagged and—for all its timbral unconventionality—less extreme than in his earlier music. The orchestra has been tamed by the composer's confident mastery, which is by no means necessarily advantageous in music. It has been normalized, so to speak, in order to clarify a musical structure that has become much more complex, and this comes again at the cost of timbral autonomy. Gains on the one side are offset by losses on the other, and the muted retrospective tendencies (for lack of a better word) that distinguish the twelve-tone phase from the period of free atonality mark not only the very fiber of the motivic-thematic, rhythmic-metric, and formal structures, but also the sound of the orchestra, which in spite of its radical fidelity to the compositional design, is nonetheless balanced and re-normalized. It strives for something like equilibrium.

At the outset, two desiderata run afoul of each other: that of a formally generative *Klangfarbenmelodie*, and that of the appropriate realization of the musical structure. If one speaks of the unity of sound and structure, it should be clear that this unity is not something already there, but rather must be mediated; it exists only insofar as it is produced. The history of new music is to a large extent the history of this production process. The orchestral sound of late Schoenberg, rather than succumbing to either of these conflicting forces, represents the product of their conflict. Even in a piece such as *Gruppen* by Stockhausen, the two forces can still be heard playing off against each other in the treatment of the orchestra. Only Webern committed himself rigorously to the complete dissociation and subsequent constructive reunification of timbre. In this, he was—heretical as it may sound—an orthodox Wagnerian in spite of all his radicalism. He dreamed of integrating what had been atomized, and so he renounced the *tutti* and sacrificed the orchestra for the sake of the chamber ensemble, even when he oddly demanded full string sections, as in the Symphony, Op. 21. (I must confess that I have never quite understood the concept of this piece and its string sections.) Only in Webern's music did the critique of the voluminous orchestral sound extirpate the last vestiges of the traditional approach, which was the musical equivalent of a kind of common sense, and with which Schoenberg and Berg, on account of the sheer length of their works, never quite lost contact. Extended musical structures cannot be built entirely from extreme values that are marked by their inherent uniqueness and isolation.<sup>13</sup> In this respect, too, instrumentation belongs to the larger problem of form. In his short forms, Webern has been hailed for his unmatched use of *Klangfarbenmelodie*, perhaps most beautifully in the orchestral movement with the cowbells [No. 3] from Op. 10. The melodies are permuted through a constantly changing array of colors whose shifting nuances are chained together in a differentiated but unbroken continuum that mirrors the melodic threads. At the beginning of the first piece of



## The Function of Timbre in Music (1966)

---

Webern's Op. 6, the melody is composed of short phrases or even single tones in the first flute, the first trumpet, and the horn, while the accompaniment is given to short, four-voice harmonies, first in the celeste, then in the *divisi* muted violas and cellos. This is the exact antithesis of Schoenberg's timbral construction by means of contrast: the most subtle mediation between non-identical colors. Webern turns this to the benefit of the structure as well: the smallest motivic components of the themes—the contents of the compositional micro-level, as it were—are illuminated by the changing timbres, and the instrumentation thus projects a kind of analysis of the compositional structure.

Schoenberg's transition from the wild, fauvistic sound of his middle, expressionist period to a more severe, rationalized sound was brought about not only by his compositional mastery of timbres that have been freed from pre-existent ideals of beauty, but also by questions that the emancipated orchestra raises for compositionally attentive ears. The Pieces for Orchestra, Op. 16 display some (admittedly quite subtle) connections to traditional forms (with the exception of the last piece, with its ingenious recitative); furthermore, like the George songs [*Das Buch der hängenden Gärten*, Op. 15], they are haunted by remnants of tonality—both the first and second pieces gravitate clearly toward D minor. The critique of the orchestra in Op. 16 was not yet taken to the extreme. Over long spans of time there is a kind of background color, as in the first piece from the beginning of the cello theme, which resembles a fugato entry, until the end. But as already noted, even in the purely timbral third piece, the changes of color take place within a consistent basic palette. These timbral reminiscences of traditional compositional categories disappear in the monodrama *Erwartung*. Among Schoenberg's longer works, it is the only one to eschew manifest thematic work. But here there is a difference from what comes later: it is possible for motivic-thematic thinking to take place without motivic-thematic connections. I would like to say a few words in reference to a dispute that I once had on this matter with [Hans G.] Helms, because I believe these matters always come down to nuances.<sup>14</sup> It seems to me that it is an oversimplification to say that *Erwartung* is an athenematic piece, and that today music is also composed athenematically. My argument, which I do not have time to fully develop here, is that although pieces such as *Erwartung* or Webern's work from the period between Op. 7 and Op. 11, including the Bagatelles, do not feature motivic-thematic work in the traditional sense, they nonetheless belong in this domain on account of their complexion, the structure of their component parts. One could almost say that the difference is merely that in these works the technique of developing variation is taken so far that the factor of identity, which presided over motivic-thematic work from Viennese Classicism until Brahms, is no longer present, but the individual events themselves, in their melodic, harmonic, and contrapuntal structure, still belong entirely in the domain of the motivic-thematic. That is, these musical events do not simply unfold in terms of parameters thought to be derived from the unity of tone; they possess all the characteristics typical of traditional motivic-thematic construction, but the perpetually changing nature of Schoenberg's music demands other conclusions than those of repetition or more or less recognizable variation. Above all, that peculiar truncation of lines and of the horizontal as such—which becomes characteristic of later developments—is in *Erwartung* nowhere to be found. The concept of the athenematic or amotivic, then, has

## The Function of Timbre in Music (1966)

---

in the above-mentioned works of Schoenberg and Webern an entirely different meaning than it does today. This conclusion is reinforced by the fact that, in spite of the complete disintegration of traditional forms in this phase of Webern's music, these forms reappear almost against his will in Op. 9, which can be readily interpreted as a kind of latent sonata, with four sonata-like movements and two parenthetical sonatas. I emphasize this because I believe that those who view Webern simply in terms of the unification of all parameters overlook something that is central to the constructive meaning of his work, and I believe that artistic self-consciousness requires that we be absolutely clear about precisely those aspects we oppose.

The unifying principle in *Erwartung*, to return to that work, is nothing other than consistent and often shocking metamorphoses, the avoidance of anything that could be taken as outward structure—although of course, as in every organized work of art, *Erwartung* too has its sectional breaks, as in the pause after the discovery of the dead body, or the later entry of the adagio, which resembles an *Abgesang*.<sup>15</sup> As in the Pieces for Orchestra, in *Erwartung* the orchestra tends to mirror the compositional structure. It must therefore surrender to the shifting impulses of the music, its changing colors casting in relief the constantly changing musical shapes. The orchestra is completely purged of traditional associations, just as harmony is purged of triads—except, as I already suggested, in the fortissimo *tutti* passages, which are oddly indifferent to the work's general spirit of novelty. The score is thus literally an unprecedented, unheard-of event, a construction of sounds never heard before, as Webern wrote in one of the first books published about Schoenberg.<sup>16</sup> Today, of course, the ideal of the unprecedented—the search for new sounds—is obsolete and no longer relevant. What matters today is something other than the discovery of isolated effects, but I believe that one must grasp the significance of this impulse and the liberation of this potential.

Now we have reached a problem that points toward the further development of constructive instrumentation. When a state of absolute volatility is reached, as in *Erwartung*, the element of unity disappears—the element, I would say, of a constant against which it is possible to mark changes at all; and there is indeed in *Erwartung* a peculiar danger not of chaos, as regressive listeners might claim, but rather something entirely different: a danger of monotony born of constant change. Change is aesthetically (or logically) realized only in relation to something constant, and when this link to the unchanging falls away, that which is ceaselessly changing itself becomes static—a problem, too, that repeatedly asserts itself on a formal level in the most recent music. The experience of lay listeners, to whom everything in radical modern music sounds the same because everything is always changing, is not merely to be ascribed to their stubborn and rancorous ears; it has an objective motivation as well. Rather than simply disregarding these crude objections, radical thinking would do better to absorb and reflect upon them, as there is often more to learn from such criticisms than from the voices of so-called moderate progress.

For all my admiration for *Erwartung*, and I hardly need to tell you that I greatly admire this work, even this very advanced piece does not entirely escape a certain timbral monotony, as you can confirm by listening to the recent recording, conducted by [Hermann]

## The Function of Timbre in Music (1966)

---

Scherchen with [Helga] Pilarczyk singing.<sup>17</sup> The shocking moments, in particular, which have a different character each time, take on a certain similarity by virtue of their common effect, and this somehow contradicts their own meaning. Already in the period of free atonality, Schoenberg had to confront the question of how completely emancipated music could be coherently organized by means of timbre, and whether the work of (for lack of a better word) coloristic translation suffices for that purpose. (This is a question that many of the recent developments in music strive to answer as well.) *Die glückliche Hand*, a drama with music, which Schoenberg began writing immediately after he completed its counterpart *Erwartung*, was his answer to this question. It is segmented into short, self-contained scenes and musically closed pieces. Some are motivically-thematically unified, while others are linked together by dramatic means such as sustained harmonies. The final scene is a kind of varied reprise of the first. The instrumental arrangement is derived from this somewhat drastic—indeed, almost four-square—external architecture. To be sure, the orchestral color of the individual instrumental groups is much bolder and more original than the alternating timbres of *Erwartung*. The dramatic arc of this short stage work emerges above all from the contrasts between the abruptly juxtaposed basic colors of the scenes: for example (if you will allow me a bit of poetic description), the contrast between the silvery, soloistic second scene and the muddy gray of the first, tinted by speech and vocal noises. The very idea of *Die glückliche Hand* is to concentrate an epic process, the outward shape of a whole life, into a single inward instant, and this process of concentration of an extended time span is reinforced even by the disposition of the instruments. Structural instrumentation here becomes a technique of large-scale form: colors articulate the temporal flow. It occurred to me only very recently that these techniques are prefigured in Wagner, and, strangely enough, most clearly in *Siegfried*. If you listen to an entire act of *Siegfried*—there is a new record conducted by Solti, which I highly recommend for this purpose—you will notice that there is something like a timbral principle underlying the architecture of the music.<sup>18</sup> Rising up from a dull and nocturnal domain, the sound gradually brightens, ascending slowly into the light, and this movement from dark to light (or below to above) contributes to the unity of the whole by taking place in each of the three acts, albeit in a different manner each time. The use of timbre as a means of creating large-scale form, and not merely articulating of details, had already been developed in traditional music. The chamber ensemble of *Pierrot lunaire* formalizes the architectonic principle of *Die glückliche Hand*: each of the twenty-one distinctive melodramas has a different basic color whose identity is formed in part by timbral contrasts. The structural instrumentation in works such as Boulez's *Marteau sans maître* picked up where *Pierrot* left off, further systematizing timbral relationships in a manner analogous to Schoenberg's own trajectory from the use of *Grundgestalten* to the twelve-tone technique. This rationalized art of instrumentation was likewise carried forward by Alban Berg, under the influence of *Die glückliche Hand* and *Pierrot*. Berg's extended forms demanded additional means of forging connections, which was not true of Webern's miniatures, while Schoenberg, in the instrumentation of his late period, becomes less anxious and entrusts more to his ear. This is the element of *écriture automatique* that played such a major role in Schoenberg's work, and which distinguishes him so strongly from his two pupils Berg and Webern.<sup>19</sup> One could almost say that the chance el-

## The Function of Timbre in Music (1966)

---

ement, the random blots, the irrational aspects of the compositional process weigh much more heavily in Schoenberg than in his two closest successors. This is a curious fact that is worth investigating further. Ladies and gentlemen, I can only mention such things as a way of suggesting potential problems, without the opportunity to properly delve into them in such a short lecture—not to mention that I hardly know where to begin to offer genuine theoretical solutions to many of these questions.

In Berg's *Wozzeck*, not only are the solo and *tutti* passages deliberately juxtaposed, but also the individual scenes are assigned to specific instrumental groups or performed over a basic color, as in the scene by the pond. The first scene, structured as a suite, features different obbligato lead instruments for each of the movements, while the scene in the field is marked by the unremitting alternation of brass and woodwinds playing the same chords, a technique that was a favorite of Berg's. (I can still remember how, when I studied with him, he went out of his way to show me this technique of passing the same chord between muted brass and winds.) The scene in front of Marie's house consists of a contrast between the full orchestra and a smaller complement, and in the final scene the orchestra is reduced to a chamber ensemble. But this rationalization of the orchestral forces immediately exacts its price. In the otherwise admirably transparent production of *Wozzeck* in Frankfurt recently conducted by Boulez, I noticed that in this scene in front of Marie's house, where Wozzeck utters the phrase "Der Mensch ist ein Abgrund" ("Man is an abyss")—where the idea of murder first occurs to him—this passage, which demands an extreme of intensity, is entrusted to the chamber orchestra on account of the orchestrally motivated formal design. Within the dramaturgical logic, however, the chamber orchestra acutely lacks the kind of intensity or impact required by this moment, which is the climax of the entire opera; due to the discrepancy between the chamber orchestra and the large orchestra that one has just heard, this decisive moment falls flat. If I may touch on the theme of the entire course—namely, drama—such questions implicate the characters in a manner vaguely redolent of Wagner's leitmotifs. Most of the characters are accompanied by their own particular orchestral timbre, and the full richness of the palette is reserved for the ensembles. For this, too, there are Wagnerian precedents. One could say that Kundry is a clarinet made flesh: all of her music is conceived from the changing registers of that instrument. Here, if I may be granted a critical remark, I would say that the instrumental leitmotiv technique—the idea of pairing characters with particular timbral profiles—seems less fruitful as a technique of structural instrumentation than the principle of scenic timbral identity. The colors associated with particular characters become submerged in the extremely complex webs and structures of the music, with the possible exception of the athlete's piano clusters in *Lulu*. This technique is thus not quite the formally generative means that Berg seems to have envisioned.

Also on display in *Wozzeck* is the principle of instrumental variation, a practice that predominates throughout the work of the Second Viennese School. I still recall my first lesson with Berg, when he told me that the technique of the Second Viennese School, which I was now to learn, was in fact nothing other than a technique of variation. This principle was extended to instrumentation as well. In *Lulu*, Berg occasionally repeats entire musical structures for the sake of formal segmentation, especially where the music resembles

---

## The Function of Timbre in Music (1966)

---

a rondo, as in the case of Alwa. But his allergy to repetition, which characterized the Schoenberg school from the beginning, led him to completely reorchestrate these recurring passages. The return of earlier music is permitted only in accordance with the logic of the drama, and even then with a modification of the timbre that sometimes estranges the affected material to the point of unrecognizability. Nearly static identity is paired in these passages with the most extreme metamorphoses. On the other hand, of course (and this is one of the potentials of structural instrumentation), the reappearance of an identical timbral surface, or even the return of a single clear and striking timbre in a completely different musical context, can be heard as a return of the same and function as a reprise. By incorporating instrumentation into the large-scale structure of his music, Berg perhaps anticipated later developments in serial music to a greater extent than any other composer of the Second Viennese School. In this connection it is important to note that the tendency of the most recent music that Ligeti recently dubbed “programming,” for all its radical innovation, has a precedent in the Second Viennese School, where aspects such as instrumentation were dictated from above according to a kind of master plan. And of course, decisions have consequences. Once the entire instrumentation has been programmed in this top-down manner, the question could fairly be asked whether programming has been taken to its logical consequence, which is, ultimately, programming in the literal sense. An obvious response is to say that this degree of literalness is not intended; it is a question more the concept of programming than something actually programmed—a distinction, that is, between aesthetics and technique. To this it could be justifiably countered that we are left in the domain of the merely aesthetic “as if,” and that we are merely skirting about the pure logic of the program, which would have us stipulate a rule and actually follow it to the hilt. Thus we are led back into a certain kind of literalness and, if you will, unaesthetic obstinacy, to which it could again be objected that we arrive at a form of endless dialectics. I want only to call attention to this debate, without claiming to be in a position of judging who is wrong and who is right. Berg, for example, wrote retrograde large forms that were not literal retrogrades, but rather only in concept, to which it could be objected that this aesthetic retooling of a technical principle undermines the coherence of the technique itself. I say all this only to demonstrate the problems, at once technical and aesthetic, that underlie the developments we are discussing. Berg’s prescience in this respect has been described in Rudolf Kolisch’s extraordinary essay on the “crisis of the strings”—a paper that, along with Kolisch’s few other theoretical publications, outweighs the majority of recent writings about music of any kind. In the spirit of salvaging Berg, who has been rashly shunted from the one-way street of compositional progress, and who contributed every bit as much as Webern to the musical revolution (albeit in a different direction), I would like to read you a passage from Kolisch’s essay:

An important step on this path was Berg’s *Lyric Suite*. This allegedly reactionary composer has proven to be quite progressive, at least in this regard. In the third movement of this string quartet, marked *Allegro misterioso*, the thematic shapes are distinguished entirely through the techniques *sul ponticello*, *pizzicato*, *flageolet*—*flautando* (treated as equivalents), and *col legno*. As a typical example of how

## The Function of Timbre in Music (1966)

---

composers seek out new constructive means, I would like to mention that Berg, in the last part of the main body of this movement (mm. 46ff. and 93ff.) attempted to introduce an entirely new playing technique. In order to separate the staccato figures as clearly as possible from the legato, bowed *col legno* parts, he called for the staccato figures to be produced by a strike of the finger.

(Here I would add that Krenek tried something similar in one of his flute compositions, and with remarkable success.) “Unfortunately this innovation proved to be unperformable at the time”—today this is perhaps no longer the case—“and Berg replaced his original directions with the marking ‘*col legno geschlagen.*’ In the fifth movement of the *Lyric Suite*, the *Presto delirando*, the variations on the theme are marked *martellato, col legno geschlagen*, and *pizzicato*, while those of the trio are *flautando* and *col legno gestrichen.*” This leads directly, Kolisch asserts, to the threshold of what is happening today. The creation of instrumental series that are analogous to those from which the themes are derived, as in Luigi Nono’s *Varianti*, where (again quoting Kolisch) “240 different timbral categories, created by every possible combination of playing technique, dynamic level, and mutes, fulfill both structural and expressive purposes.”<sup>20</sup> So much for Kolisch. It would be interesting to see whether the passages in Berg’s *Allegro misterioso* could be played today as he originally intended, with the *presque rien* sound that Debussy sometimes called for, a liminal value at the threshold of nothingness.

I would like to use this opportunity to say something about the relationship between structural instrumentation and musical interpretation, an aspect that I have neglected up to this point. But I believe that the trouble here lies more with instrumentalists than with me, and anyone who has seriously worked on new music with instrumentalists (and singers) will readily confirm this. It is high time for instrumentalists to recognize that the representation of music in structural terms is possible only through the conscious mastery of the timbres available to a given instrument or the singing voice. To properly interpret music today means, by and large, to reproduce it through various sonic nuances that are derived from the structure of the music. With regard to the requirement that each instrument, within the constraints of the possible, produce the nuances and timbres called for by the compositional structure (above and beyond the standard techniques such as *pizzicato, col legno*, and the like)—instrumental technique has lagged far behind the requirements set forth in actual compositions. One of the most pressing demands with regard to the education of performers, so-called reproductive musicians, is to systematically address this shortcoming and to ensure that instrumentalists are taught from the outset to translate the structure of the works they study into the subtlest timbral nuances of their instruments and voices.

Now, ladies and gentlemen, I am arriving at the conclusions that I intend to draw from the foregoing and apply to the present situation. At the very beginning, I mentioned the problem of the equality of musical parameters. Here I would like to say a bit more on this matter. It is correct to say that there is no such thing as a pitch without timbre, and vice versa. But there is more to this “equal” than meets the eye. Timbre has something of an inessential quality, and pitch, in contrast, has the quality of an essence. Music composed

## The Function of Timbre in Music (1966)

---

purely of timbre is, at first blush, difficult to imagine. And here it seems significant that Ligeti, who has pursued this trajectory to a remarkable extent, is now going in a different (that is, polyphonic) direction, rather than continuing to explore pure timbral construction and *Klangfarbenmusik*. In contrast, there have always been great compositions that were indifferent with regard to timbre. This suggests the conclusion that tone-color should follow largely from the musical structure—that it is not something absolute. To crudely incorporate timbre into a compositional scheme is to confuse a physical property with a musical phenomenon. If I am not mistaken, this is a point on which everyone here can agree. At the same time, however, tone-color is no mere medium, and instrumentation is not simply a matter of pulling stops on an organ. The timbral aspect can and must become productive, but only in relation to structure. The simplest example of this is when color takes on a formal role, as I discussed earlier, where the purely musical development is so densely wrought that color is used to help articulate the structure, as is often the case in Berg's music. Timbre can also be used to animate a passage that is uneventful in melodic and harmonic terms, or, on the other hand, a homogeneous or continually changing timbre can link together heterogeneous events. In certain circumstances, the appearance of a single color can articulate an entire form. I would like to illustrate this now, and I encourage you again to verify what I say through your own experience with the relevant recordings. In Boulez's *Le marteau sans maître*, the tam-tam is deployed for the first time in the finale, and from the first instant the unmistakable character of this percussion instrument evokes the feeling of closure. This basic timbre of the tam-tam, which is sustained for the entire movement, sets the mood of the finale, and so exercises a specific formal function, which declares, in effect, "The end is nigh." All this is achieved by a single timbre. One must keep in mind, however, that (electronic sound notwithstanding) there is no continuum of timbre corresponding to that of pitches or dynamic levels, and it would likely be a fool's errand to attempt to achieve such a thing by reorganizing the orchestra. Thus, a so-called pure calculus of timbre is impossible outside of the electronic domain. The function of timbre must conform not to the mathematical relationships of overtone vibrations, but to the phenomenon itself. By "phenomenon" I do not mean a subjective category—something I or any other listener might hear—but rather that which objectively manifests in a musical work, and this objectivity can be readily determined and distinguished from merely subjective impressions. But this is an aesthetic question, which I set aside for the present.

The further consequence is that, the more timbre is emancipated, the more unconditional is the dominance of the imagination. The audible result has always been the deciding factor with regard to the question of good or bad instrumentation, and it is absolutely indispensable in the case of constructive instrumentation. The only thing that articulates is the sound that is heard—the same sound that has passed through the exact imagination of the composer. Stockhausen has justifiably argued that the concept of imagination must be qualified, calling attention to the fact that one cannot imagine every individual pitch of a tone-cluster; nor indeed, can one imagine every individual timbre in a complex orchestral structure—or even, in some cases, the composite timbre. In the history of music, no doubt, composers have as often been surprised by timbres as they have imagined them in

## The Function of Timbre in Music (1966)

---

advance. But this implies that the principle of imagination should be modified, not abolished. Even in cases where the conception is inexact—say, a widely spaced triad in a string quartet texture—the imagination circumscribes an auditory space. Composers have always known *what* sounds, even when they have not known *how* it sounds. This mental image, however limited, is crucial, even allowing for the limit case of being surprised by timbres—just as every composer who hears his orchestration for the first time is at once astounded by how it sounds. Every composer of complex orchestral works has likely had this experience. This question of “what sounds,” however, is not a matter of the selection of instruments in the abstract, but rather of the precise manner of instrumentation. Here we arrive at what could be called the technical counterpart to structural instrumentation: the register of the instruments in question. Bad instrumentation has always meant the failure to hear in the “mind’s ear” the register of the instruments and their timbral quality. In addition, there is the problem of registral spacing, that is, the ability to distinguish and constructively deploy open and close positions. Timbre, along with polyphony, is one of the primary means of producing a sonic space that is no longer defined in advance. The relationship between timbres creates a sense of perspective, and this in turn has a dynamic aspect—that is, one must distinguish, in terms of this spatial quality inherent in the sound itself, between foreground and background timbres, and this distinction must be based not on volume, but simply on timbral presence. I believe that the problems associated with the incorporation of space in contemporary composition are already present in questions of orchestration and orchestral timbre, for every form of articulating instrumentation brings about a kind of spatialization of music. Further, and this is critical, structural instrumentation cannot be limited to the precise conception of individual colors, but rather must incorporate relationships between timbres, as suggested by my earlier statement that instrumentation is not atomistic, but relational. Without constituting a homogeneous scale, these timbral relations play out between the two poles of identity and absolute variety. Since structural instrumentation has the task of manifesting the similarities and differences inscribed in the compositional structure, composers must themselves possess the most precise knowledge of similarity and difference. This is not as simple as one might suppose. Instrumentation always presupposes a kind of analysis, and this is true objectively as it is historically. This means that the process of instrumentation presupposes something like a monadological division of labor—that is, that the various tasks cannot be simply integrated into a single process precisely because this requires an element of analysis. That these coincide is an ideal, but it is not something that can simply be assumed. An unimaginative orchestrator, for example, who has the timbres of the bassoon and trombone in mind, might imagine them to be strongly contrasting. Stravinsky, on the other hand, who was a brilliant instrumentator in his youth, exploited the similarity of these seemingly so distinct timbres even simultaneously setting them in relief in certain passages of the *Rite of Spring*, and you will be amazed to see in the score how closely the two are linked and yet how clearly they are distinguished from each other. In such techniques the French (here including Stravinsky) are much more advanced than we Germans. Here I can only mention the entire problem of percussion, which I cannot go into here, but which would warrant its own lecture.



## The Function of Timbre in Music (1966)

---

All attempts at instrumentation that fail to incorporate these concepts remain pre-artistic tinkering. The relevant knowledge ought to be collected and made available to composers. Ligeti has noted that some important contemporary compositions, such as those of Boulez and Stockhausen, often seem to possess a degree of formal sophistication in spite of themselves, in that it cannot be traced back to construction or programming. Here it is a matter of the levels of instrumental technique that I illustrated earlier. These techniques correspond essentially to what Boulez calls *métier*, and which is something quite different from a compositional grid or plan. An extreme example of this is Stockhausen's piece *Zeitmaße*, which for all the rigor of its compositional structure has a certain independence in the timbral dimension: the instruments and the ensemble sound are exceedingly exact and, so to speak, freely imagined, and the compelling character that this sextet exudes is rooted largely in this quality.<sup>21</sup> The very fact that timbre cannot be as seamlessly rationalized as other dimensions gives it a productive character that in some cases provides the basis for qualitative distinctions between compositions that are otherwise built from the same or similar principles. This should not be taken to mean, however, that timbre is somehow independent of the other dimensions. This should hardly need to be repeated at this point in my lectures. But I would like to defend myself against the possible misunderstanding that timbre is some kind of nature reserve in which imagination is protected from programming.

The function of instrumentation is not only to clarify the compositional structure or to show how a piece of music is to be performed. To put it quite pointedly, instrumentation functions as its own dimension only to the extent that it is a function of other dimensions. It is an old bit of wisdom that only that which is well composed can be well orchestrated, and that good music virtually implies its own instrumentation. This has not changed, but rather has become canonical. Just as there was once a marking in traditional music called *tempo giusto*, today we must seek out something like an *instrumentazione giusta*, an instrumentation that lies in the thing itself, a sound that resides in the phenomenon and demands to be realized. It should be repeated, however, that this matter is ambiguous. Berg, in his teaching, stressed that any bit of music could be orchestrated in various ways, and these possibilities could be then surveyed and selected from. Here the situation is similar to traditional composition lessons, with which you all are likely familiar, for example in the writing of fugues, when the student compiles the various alternatives for the combination of themes in counterpoint and then chooses the solutions that best suit the composition. Similar techniques are also used for the composition of development sections in sonata-allegro movements. It would be in keeping with these precedents to demand that composers be able to choose among the various types of instrumental realization of any given composition, and do so in a conscious, rational, and systematic way. I leave aside the questions of whether polyphony can be completely abandoned in this effort, and whether a real dynamics of sound [*Dynamik des Klangs*] can even exist without some degree of polyphonic development. However, I strongly suspect that the dynamic function of timbre is tied to polyphonic unfolding—and I use the term “dynamic” not in the sense of loud or quiet, but rather to mean that which drives music forward, the developmental or, to use Ligeti's expression, the “vectorial” aspect of music. I know very well

## The Function of Timbre in Music (1966)

---

that this is a controversial issue, and it is a shame that we cannot discuss these pressing matters here.

I believe that polyphony is a prerequisite of productive instrumentation because what is sounded in each voice contains more than what they articulate non-polyphonically, although the term “to sound” [*klingen*] is very difficult to pin down here. Voices in a polyphonic texture have a stronger connection to their timbral realization than do mere isolated sounds or harmonies [*Klänge*].<sup>22</sup> If this were to be experimentally tested, I believe you would find it to be confirmed. Timbre becomes more differentiated and at the same time more objective, that is, it becomes absorbed into the matter itself, in proportion to the articulation of the compositional structure. The fact that so many contemporary works remain dressed up in fancy timbres is an index of their compositional inadequacy, and above all of the unintegrated, ad hoc, unthinkingly applied, and obtrusive character of many recently standardized instrumental effects. There is in fact a peculiar and vexing similarity in the treatment of color in recent music, which cannot easily be distinguished from the timbral effects of the late Romantic era, and so verges on that from which it attempts to distance itself—assurances to the contrary notwithstanding. The sound of much new music is characterized by a kind of tinkling that is imposed from the outside. There is an old Jewish joke about two people who want to travel by train but cannot afford two tickets. One of them puts the other in a sack and carries him on his shoulder, and when the ticket inspector asks him what he has in the sack, he answers, “Glass.” Then the inspector taps on the sack, and the man inside says “Clink!” There is a great deal of what I would call “clink music” played at festivals of contemporary music—music that has a certain stereotyped sound (in which the trusty xyloimba plays a major role) that does not follow from the structure. This music does not sound, but says “ting,” just like the man in the joke, who answers in this way because he must. It is time we bring to bear on the timbre of new music the same sensitivity that we have for the characteristic effects of the New German School, such as the cymbal crash or the triangle, and declare at the very least a temporary ban on such clichés in contemporary music. At the same time, it is important to distinguish between effects that are well-conceived and those that are not. In Boulez’s music, the sharp attack timbres always seem finely premeditated, viscerally expressive and precise, but that is not the case for many other composers. Scrutinizing these distinctions would be a task for the analysis of instrumentation, a discipline that does not yet exist. The question is whether the quest for distinctive timbres—which for all its associations with *Jugendstil* still takes place in new music today—can be integrated with a radically through-composed approach to tone-color. Since anything is now possible, in principle, this quest is as little justifiable as the search for new harmonies or intervals; the only way to do away with the superficial, *Jugendstil* approach to timbre is to subordinate timbre entirely to function. The striking quality of timbre as such can upstage and obscure the compositional. Even Schoenberg, the inventor of *Klangfarbenmelodie*, eschewed peculiar timbres in many of his works, precisely in order to clarify the music’s structural principles. In the Wind Quintet this may smack of mere registration, as indifference toward the principle of through-composed timbre [*durchgehörten Klang*], but in the Third String Quartet, as well, Schoenberg renounces all the timbral effects—mutes, *sul*

## The Function of Timbre in Music (1966)

---

*ponticello, flautando*—that were so prominent in the (still tonal) First String Quartet, where they had been imported from the orchestra into chamber music for the first time. In both the Wind Quintet and the Third String Quartet, however, the heightened counterpoint and the compositional technique give rise to a sound that ideally suits the compositional structure.

The process by which certain timbres become overused is different from that in the harmonic dimension, even though both domains were connected for so long. The timbres that become hackneyed are in many cases precisely the prominent ones, not those that are inconspicuous. The sound of a homogeneous quartet has not been trivialized the way the triad has in the field of harmony, and this has to do with a certain element of synsemantic dependency peculiar to the timbral dimension. Perhaps the time is ripe for a kind of timbral asceticism, at least in smaller settings—for example, the use of unaccompanied piano or string quartet.

There is a problem here, however. Timbre has a threshold value beneath which it sinks into aesthetic irrelevance, overshadowed by other events, and the unconscious awareness of this threshold explains the dignity of such important genres of traditional music as the piano sonata and the string quartet, which have been carried forth in our own time. Within this homogeneous continuum, in which timbre is almost a pre-ordained non-event, there are innumerable fine differences, and it is these that really matter. Nonetheless, the timbral dimension is without question of the utmost relevance in music today. Sound, in its pure form, always points beyond itself, and this is true even in music that, as I once wrote, has otherwise “cut the cables,” or, as Ligeti recently put it, has progressively lost its vectorial character. In other words, each timbre, in order to constitute music, demands other timbres on the horizon of expectation and memory. The more that music converges with painting, the more it draws in timbre as a means of articulating form. From a critical standpoint we should observe that this is far too rarely the case: the large-scale organization of timbre is precisely what is so often lacking. The most noteworthy example of timbre used for formal purposes of which I know is Ligeti’s composition *Atmosphères*. Significantly, and perhaps without much theoretical reflection, Ligeti broke through the limits imposed on timbre by the subordinate nature of sound, and created the genuine paradox of a music without tones, without any distinguishable, fixed pitches—and, moreover, he did this without succumbing to mere noisiness: the music remains highly articulated. This emancipation of what might be called absolute timbre solves what many of us feel to be the most pressing problem today: how to recover, without regressing to an earlier stage, that which was lost to the techniques of compositional programming.

It is well known that there is no theory of instrumentation comparable to that of traditional music theory. The reason is that timbre does not have stylistic markers, or at least did not in the past. But theories of art need not be universal. There is such a thing as a general theory of the particular. Such a discipline becomes possible precisely because instrumentation has not been disfigured by the dominant generality. Take, for example, the law of complementary instrumentation, the succession of timbres in accordance with the rule that those that have not yet been heard are up next, corresponding to the law of comple-

## The Function of Timbre in Music (1966)

---

mentary composition. Such laws, of course, have their limits; they are ultimately only possibilities within a much broader manifold of possibility. Any technical discipline that strives to the status of an aesthetic must be able to test and modify its laws against the concrete reality of particular works.

Ladies and gentlemen, I have come to the end. I would like to conclude by presenting you with an unresolved problem. On the one hand, there is the integrative demand that sound and music simply become identical. The fact that no tone or sound can be imagined without a timbre establishes the complete equality of this parameter or dimension. This hypothesis, or whatever you want to call it, makes it possible to sidestep the obstacles I have outlined and directly solve the *problem* of structural timbre by declaring that there is no problem at all. The very distinction between sound and structure, the argument goes, posits a dualism that was operative in earlier history, but which has been transcended by the most recent compositional developments. This is Stockhausen's view, if I understand him correctly and have given a correct representation of his thinking. [Stockhausen signals agreement.] That appears to be the case. My own position is somewhat different.

I would argue that the identity that is demanded here is an ideal—that is, something that has to be brought about through the act of composition, and not simply assumed as a property of the musical material or the production process. Although it is true that I cannot imagine either a tone without timbre or a timbre without tone, imagining a tone and imagining a timbre are not therefore identical. I would suggest, then, that the unity of tone and timbre, or, speaking more broadly, the unity of structure and timbre, upon which the prospect of a newly articulate music rests, is possible only as the unity of that which is internally differentiated. I do not believe that the differences between the various dimensions, as they have existed historically and as they have become sedimented in our hearing, have simply disappeared or been abolished. I believe, instead, that these differences persist, and for this reason I would say that the identity of tone and timbre in a precise and not merely rhetorical sense is a problem to be resolved in composition itself, and this can be achieved only through the utmost artistic effort, through the extremes of sound and structure. We cannot presume that this unity already exists. I am aware that I am clinging to certain traditional conceptions that may have something to do with motivic-thematic thinking, and far be it from me to press upon you the ideas that I have entertained in these lectures. I would like merely to ask you to consider these questions, which we will have to regard as unanswered, and upon which hangs the entire solution to the problematic relationship of sound and structure.

I thank you for remaining faithful even though I have unduly monopolized your attention and your time.

September 2, 1966

*Translated from German by Thomas Patteson with permission of the Hamburger Stiftung zur Förderung von Wissenschaft und Kultur, from Theodor W. Adorno, "Funktion und*

## The Function of Timbre in Music (1966)

---

*Farbe in der Musik,* in *MusikKonzepte special volume: Darmstadt-Dokumente I*, ed. Heinz-Klaus Metzger and Rainer Riehn (Munich: edition text + kritik), 263–312.

### Notes:

- (1.) The German phrase “alte Musik” corresponds roughly to the English “early music.” For some perspective on how the two concepts diverge, see Richard Taruskin, “‘Alte Musik’ or ‘Early Music’?”, *Twentieth-Century Music* 8, no. 1 (2011): 3–28.
- (2.) According to legend, Arnold von Winkelried was a soldier who sacrificed himself in order to secure the victory of the Old Swiss Confederacy in the Battle of Sempach (1386).
- (3.) In the original text, Adorno refers to the *Critique of Practical Reason*, but he must be thinking of the *Critique of Judgment*. The passage he alludes to is found in §23 of that work.
- (4.) *Der getreue Korrepetitor. Lehrschriften zur musikalischen Praxis* (Frankfurt am Main: S. Fischer, 1963).
- (5.) Adorno uses the term *neudeutsch* in this essay to refer to the music not only of Liszt and Wagner, corresponding to the historical meaning of the “New German School,” but also to the work of Richard Strauss, which Adorno sees as a continuation of this tradition.
- (6.) “Zum Verhältnis von Musik und Technik heute,” *Gravesaner Blätter* 11–12 (1958): 36–61. Reprinted as “Musik und Technik” in *Klangfiguren: Musikalische Schriften I* (Frankfurt am Main: Suhrkamp, 1959), 337–365.
- (7.) Werner Egk (1901–1983) was a German composer whose success during the Nazi period and immediately thereafter (when he was hailed as the “composer of the reconstruction”) likely reinforced Adorno’s disdain for his music.
- (8.) See Herbert Eimert, “Debussys *Jeux*,” *Die Reihe* 5 (1959): 3–20, and Karlheinz Stockhausen, “Von Webern zu Debussy. Bemerkungen zur statistischen Form,” in *Texte zur elektronischen und Instrumentalen Musik* (Cologne: M. DuMont Schauberg, 1963), 75–85.
- (9.) “Mahlers Sachlichkeit,” *Anbruch* 12 (1930), 96–98.
- (10.) Adorno alludes here to the concept of “aura” introduced in Walter Benjamin’s influential essay “Das Kunstwerk im Zeitalter seiner technischen Reproduzierbarkeit,” originally published in 1935. See Walter Benjamin, “The Work of Art in the Age of Mechanical Reproduction,” in *Illuminations* (New York: Schocken, 1969), 217–242.
- (11.) See Bertolt Brecht, “Alienation Effects in Chinese Acting,” in *Brecht on Theatre: The Development of an Aesthetic*, ed. John Willett (New York: Hill and Wang, 1964), 91–99.
- (12.) “Automatic writing,” a literary practice developed by the French Surrealists in the 1920s, involved writing as quickly and impulsively as possible in order to circumvent the constraints of rational thought.

## The Function of Timbre in Music (1966)

---

(13.) Adorno's use of the French word *valeur* in this sentence may be an allusion to Olivier Messiaen's composition "Mode de valeurs et d'intensités" (the second movement of his *Quatre études de rythme*, 1949–50), which was a touchstone for the young serialist composers of the 1950s.

(14.) Hans G. Helms (1932–2012) was a German composer and writer who studied privately under Adorno in the 1960s.

(15.) The text states "*Die glückliche Hand*," but the context makes it clear that Adorno is thinking of *Erwartung* here.

(16.) Alban Berg et al., eds., *Arnold Schönberg. In höchster Verehrung von Schülern und Freunden überreicht* (Munich: R. Piper, 1912).

(17.) Arnold Schoenberg, *Erwartung*, Nordwestdeutsche Philharmonie, Hermann Scherchen, Wergo LP 50001.

(18.) Richard Wagner, *Siegfried*, Wiener Philharmoniker, Georg Solti, Decca LP SXL 20061/65-B.

(19.) See footnote 12.

(20.) Rudolf Kolisch, "Über die Krise der Streicher," *Darmstädter Beiträge zur Neuen Musik* 1 (1958), 84–90.

(21.) Adorno misspeaks here; the piece in question is in fact for five instruments.

(22.) The German word *Klang* can mean many things, potentially signifying (like its closest English equivalent, "sound") timbre or tone color, but also, as in this passage, what in English we would call chords or harmonies. See also Joseph Auner's chapter in this volume.

### **Theodor W. Adorno**

Theodor Adorno, German philosopher and musicologist (1903–1969)