PIERRE SCHAEFFER'S *TREATISE ON*
MUSICAL OBJECTS AND MUSIC THEORY

"The main fault of this book is in fact that it is still the only one. More than six hundred pages devoted to objects weigh down one pan of the scale. To counterbalance it, the author should also have produced a *Treatise on Musical Organization* of equal weight."¹ This statement appears on the first page of the "Penultimate Chapter" of the *Treatise*. It could be construed as a mitigating disclaimer, although this would be a grave mistake. But we should not forget that the *Treatise* is a work by Pierre Schaeffer; his prose style, along with the scrupulous care with which he used the French language, is part and parcel of his message. Consequently, the passage must be read within the context of the book and its overall formal plan. I could have begun with another apparently alarming sentence written some eleven years earlier: "It is possible to devote six hundred pages to not saying what one had to say" (659). But neither of these passages is an admission of failure or regret. On the contrary, they represent a deliberate rhetorical strategy. In addition to closely argued sections on linguistics, acoustics, classification, and description, Schaeffer's writing contains many self-effacing remarks and wry comments on contemporary music (these are often directed to "a priori" methods of composition). His language is, therefore, integral to the book's subject matter and its methodology. With commendable honesty Schaeffer acknowledged there are areas where more still needs to be done, but rather than suppressing such sentiments, he identifies them and invites readers to acknowledge that as far as music is concerned, "making" and "doing" are ongoing processes.

1. Pierre Schaeffer, *Traité des objets musicaux: Essai interdisciplines* (Paris: Seuil, 1977), 663. Subsequent citations of this edition are given parenthetically in the text.

How, then, can we situate this unique and, I would argue, indispensable book within the broad field of music theory? There can be little doubt that the *Treatise* deserves respect, owing not only to its considerable length but also to the formidable range of disciplines to which Schaeffer referred. To make a claim for its status as music theory, albeit a distinctive type of contemporary music theory, we must turn to Schaeffer's writing. A good starting point is to examine the work's structure: seven books each drawing on subjects such as making, hearing, acoustics, linguistics, physics, physiology, and even philosophy. The books are divided into chapters (plus three appendices) that deal systematically with the specific topic under consideration. Moreover, each of the thirty-six chapters contains several subsections (nineteen in the case of chapter 35). The aforementioned "Penultimate Chapter" is, in fact, the book's final section. As a result, the adjective *penultimate* immediately presents the reader with a conundrum challenging traditional notions about how authors bring their books to a satisfactory conclusion. This "Penultimate Chapter" was added in 1977 as an addendum to the original 1966 publication and demonstrates Schaeffer's methodology, which is simultaneously playful and serious. Despite the passage of eleven years between the two editions the aims of Schaeffer's book remained consistent: research into the *sound object* and the importance of this research for music in general. The final pages from the first edition are rather lyrical in tone. Schaeffer referred to the special status of music and claimed that sound objects and musical structures "are man described to man, in the language of things" (662). This style is maintained throughout much of the "Penultimate Chapter," where it becomes obvious that the real conclusion, if indeed *conclusion* is the correct term, will be the body of musical compositions resulting from the research conducted by Schaeffer and his colleagues (Schaeffer always acknowledged his research was a "group" project). If, therefore, a final chapter in the conventional sense was problematic in 1966, it was, without a doubt, impossible in 1977. The practical work of composition would be informed by the research presented in the *Treatise*, and practice would in turn elaborate a new music theory. The activities of *homo faber* would exist in mutual cooperation with those of *homo sapiens*.

Schaeffer was no doubt fully aware of the implications of calling his book a *Treatise*. A long and distinguished tradition can be identified of theoretical treatises in French. For example, Jean-Philippe Rameau (1683–1764) wrote his *Traité de l'harmonie réduite à ses principes naturels* in 1722, and François-Joseph Fétis (1784–1871) produced his *Traité complet de la théorie et de la pratique de l'harmonie* in 1844. These are just two of the many important *Traités* written in French since the Middle Ages. But neither of these provides a satisfactory model for Schaeffer's *Treatise*. Fétis assumed that his work was, in effect, an exhaustive summary of a deterministic, historical development. Chords were evaluated as part of an evolutionary process culminating in tonality as defined by Fétis himself. Rameau's *Treatise* con-

vincingly demonstrated the natural foundations of harmony, which was in turn based on physical phenomena observable in acoustical studies. Rameau's theories of chord generation and fundamental bass are still recognized as crucial stages in our understanding of tonality. Scholars continue to contextualize both of these works as major contributions to the development of musical thought. Self-evidently, Schaeffer's *Treatise* is too recent for such a historically based comparison.

In his introduction Schaeffer writes that the book is not a "theory of music" (11) (the quote marks are Schaeffer's) constituting a manual for composers. The *Treatise* is "the summation of a body of research presented as it developed, rather than a logical presentation of results and possible applications" (665). In yet another self-deprecating statement Schaeffer refers to a "zigzag run-through" (11). Despite this apparent repudiation of systematic thinking, however, there are features in common between the *Treatise on Musical Objects* and earlier works. Many treatises draw on contemporary studies in acoustics. There are references to tuning systems investigated via monochords and Pythagorean ratios. Classification of chords and the systematization of mensural notation as promulgated by Philippe de Vitry (1291–1361) (with whom Schaeffer has been compared) are also common. Schaeffer was aware of these and certainly made use of contemporary findings in physics, for which his technical training makes him particularly suited. There are many references to scientists such as Helmholtz, Fourier, and Fletcher. But Schaeffer remained skeptical of an excessive reliance on scientific positivism and constantly reminded the reader that musicians hear not only with their ears but also with their brains. It is the interaction between cognitive capacities and sound (or the "sonorous") from which music will emerge—man described to man. Similarly, he identified potential similarities in how language systems operate and investigated theoretical paradigms such as structuralism in order to discover the possibility of fundamental, perhaps even permanent, ways in which humans structure their materials, be they sounds, words, or myths. He quoted scholars such as Lévi-Strauss, Malmberg, and Jakobson. Research in the *Treatise* clearly benefited from the dual nature of music as both an art and a science. This is clearly one of its great strengths, and in Schaeffer's opinion music became the supreme example of interdisciplinary research. But here another linguistic conceit demands attention (and Schaeffer must accept full responsibility for it!). The book's subtitle is *Essai interdisciplines*.² Schaeffer's research does indeed draw on various fields of study. For example, in his discussion on transients there are references to the acoustics of instruments and how stretched strings behave when struck or plucked. With the support of images, Schaeffer investigated the effects of such events on the processes of hearing. Such wide-ranging references to physics and human physiology

2. "Across disciplines": here Schaeffer uses the word *interdiscipline*, which he apparently coined, rather than *interdisciplinaire*, the more usual term.

are by definition interdisciplinary in that two independent fields of study are used to corroborate the results of a specific experiment. But the term *interdisciplines*, coined by Schaeffer, implies an intellectual area *across* the disciplines, one that demands to be studied on its own terms and might even emerge as a research field in its own right. Consequently, measurable physical data and physiological predispositions still cannot tell us what these transients *mean* in a musical sense. Science can be enlisted for factual information, but it cannot provide a satisfactory solution to the mystery of music. We are, once again, left with man confronting himself.

The value of the *Treatise* for musicians lies in Schaeffer's insistence on asking fundamental questions relevant to all aspects of music. He adopted a position of Cartesian doubt, where everything had to be interrogated and reevaluated. The starting point for this project was the sound object. But this object is not merely something in the world that is separate from us and that demands our attention. As suggested in the previous comments on transients, the sound object is both an acoustic event and the listening intention of the musician. It is a correlation between the outer world of objective physical occurrences and the inner world of subjective human experience. Two consequences stem from this. The first is that musicians can reassess the communicative potential of all sound material. Careful experimentation will go beyond a simplistic assumption that all perceptible characteristics are equivalent and that spectral detail and dynamic level can be used in the same way as pitch. By repeated, focused listening, previously disregarded features move to the fore and suggest themselves as candidates for new musical structures. Second, the whole enterprise might appear to be fixated on the single sound object. But the book's title is *Treatise on Musical Objects*. A sound object in isolation cannot create relationships; it can only be examined for its form-creating potential. The individual sound object must be placed within a structure that encourages perception and comparison of its features between other objects. It is precisely here that values and characteristics are identified and differentiated and that the transformation into a *musical* object occurs. Schaeffer even suggested that a single musical object does not exist (670): its musical status is conditioned on the creation of relationships with other objects. At this point we come full circle to the missing second volume. The next stage, that of musical organization at all levels of structure, can only really be undertaken by composers.

The central aim of the *Treatise*, the investigation of the sound object, is not compromised by this deferral of compositional practice. Instead, it asserts the role of music theory as an active aural procedure. What Schaeffer provides for the contemporary musician is a range of methods for investigating the materials of music and how they might ultimately be formed into structures. Naturally, there is some urgency to this endeavor given the vast repository of sounds that modern composers have at their disposal. This highlights the role technology can play in revealing

new musical languages. Indeed, the origins of Schaeffer's entire research project can be traced to the technology of *musique concrète*, though with great foresight he rapidly realized that his theories could be generalized to music as a whole. The recording process is of particular significance and can be compared to other technological methods that fix temporal events. In a sense a recording, like a photograph or a film clip, provides too much sensory information. The natural tendency when hearing a sound, even one that is unfamiliar, is to associate it with a known one. A sound object with an abrupt attack followed by a gradual decay in dynamic level and spectral content might simply be classed as one more member of the "percussion-resonance" family. But recording technology and the new conditions of acousmatic listening can also defamiliarize our presuppositions and provide the conditions for perceiving details of shape and color that can be exploited in music. Thus, the classification and description of sound objects by means of typology and morphology provide examples of how all sound material—the "sonorous"—has potential for use in music. Furthermore, typology in particular also shows how sound objects of long duration and unpredictable dynamic and spectral behavior can lead to entirely new, previously "unheard," musical languages. Sounds that are common in contemporary music (both electroacoustic and orchestral), but that theory often consigns to the periphery of music, can now be rehabilitated. In conjunction with the four listening modes we see yet again the sound object as the conjunction between a given sonic event and human perception. Schaeffer proposed that if the *Treatise* were to be renamed, it should be called a *Treatise on Listening*. I can think of no better legacy for musicians, whether they are composers, performers, or analysts seeking to learn about their art, than Schaeffer's discussions on the listening modes.

The *Treatise on Musical Objects*, therefore, remains relevant despite its origins in research initiated in the immediate postwar years. If Schaeffer's suspicions about received wisdom forced a reconsideration of musical materials, the inevitable corollary was to revisit that most basic tool of music making: the instrument. By means of "characterology," as outlined in the *Treatise*, musicians' attention is now shifted to how sound objects are grouped in families according to their inherent characteristics, as well as the listener's perceptual predispositions. The physical sound source, whether a traditional instrument or a new interface, is not repudiated. Instruments can now celebrate a "virtual" status and take an active role in creating musical languages where source recognition fluctuates between the real and the imaginary, between unambiguous recognition of causality and the unknowable and mysterious.

If readers are willing to accept Schaeffer's research program, there is much in the *Treatise* that will encourage them to consider many musical practices and theories in an entirely new light. But no book is perfect. Doubtless, our respect for Schaeffer's intellect and integrity is obvious. We hope we are able to exercise sufficient

self-restraint to remain objective. Proselytizing is seldom appropriate in any introduction. If readers seek a broad sweep of contemporary music theory (which is, in any case, not the book's subject), I must confess they will have to accommodate Schaeffer's prejudices. His suspicions about "a priori" methods were touched on in the opening paragraph. The writing of complex scores without aural verification, algorithmic procedures, the use of chance, and, in particular, serial techniques were targets of his disapproval. Many will agree with such comments, of course. Moreover, his remarks were entirely consistent. Schaeffer recommended that musicians work directly with sound, and as a result, any excessive reliance on notation methods (necessary though they often are) before hearing the result can be misleading. But this would imply that serial composers disregard the listening process, and this is manifestly untrue. Schaeffer failed to recognize that serialism is a collection of different techniques. There is no one type of serial thought. It is a way of thinking about materials and their organization that must be reconsidered and modified for each new composition. It developed constantly, and its effects are still in evidence today (*Formel-Komposition* is one example). When used by composers such as Karlheinz Stockhausen, Pierre Boulez, and Henri Pousseur (none of whom, it must be admitted, were particularly complimentary to Schaeffer's research), there are moments of real, even transcendental, beauty. But Schaeffer's comments are not gratuitous; they always support his arguments and illustrate the consistent nature of his viewpoints. And this must be borne in mind while reading this book. Schaeffer starts the *Treatise* with a lengthy quotation from E. T. A. Hoffmann. This romantic text seemed to encapsulate for Schaeffer the "dialogue . . . between spirit and Nature" (11). Sounds are all around us in Nature. But it is human beings who make them into music. Schaeffer wanted to alert us to the risk posed by "a priori" thinking in this vital relationship. On the last page of the *Treatise* Schaeffer uses the image of an archer whose real target is within himself. The *Treatise on Musical Objects*, therefore, is not a work that sets out a single music theory. It investigates what Schaeffer called the "phenomenon of music," the art that is both scientific and sensory. The contemporary musician needs to understand both.

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