M. Pierret: --- Can we go as far as saying that, if you wrote today either La coquille à planètes or Orphée, then you’d show more care for the oeuvre, you’d no longer be the victim of your own experiments...

P. Schaeffer: --- Certainly not! We always commit the same mistakes again and 'je ne regrette rien'! I tell you: I prefer an experiment, even aborted, to a successful oeuvre. (Pierret 1969: 105)

In another article (Palombini 1993), I have drawn a distinction between four phases of Pierre Schaeffer's work from 1948 to 1966: research into noises (1948--9), concrete music (1949--58), experimental music (1953--9) and musical research (1958--). In the present article I am examining the first stage in the transition from concrete music to musical research: the step whereby the Groupe de Recherches de Musique Concrète rallied musique concrète, elektronische Musik, music for tape and 'exotic music' [1] under the banner of experimental music.

In 1951, Radiodiffusion-Télévision Française offered the Groupe de Recherches de Musique Concrète, which at the time consisted of Pierre Schaeffer, the sound engineer Jacques Poullin and the composer Pierre Henry, the first ever purpose-built electroacoustic [2] studio. The collaboration between Schaeffer and Poullin, then in its fourth year, had resulted in the creation of the keyboard phonogène, the slide phonogène (also known as chromatic and continuous phonogènes), a three-track tape recorder and the spatialization desk [3]. The studio attracted diverse and important composers: between 1951 and 1953, Karlheinz Stockhausen, Pierre Boulez and Olivier Messiaen created concrete pieces there. In 1953 the Groupe de Recherches de Musique Concrète de la Radiodiffusion-Télévision Française, presided over by Schaeffer, organized the First International Ten Days of Experimental Music, which took place at UNESCO in Paris between 8 and 18 June. Vers une musique expérimentale, a special issue of the Revue musicale edited by Schaeffer and devoted entirely to the event, was announced. The final proof, revised and approved by the authors and Albert Richard, editor of the periodical, was ready on 10 July 1953. Richard nevertheless decided to postpone its publication. Four years later, this issue was finally printed, with the addition of Richard's explanations and excuses --- 'Quatre ans après...' (Schaeffer ed. 1957: 1--2) --- and an introduction by Schaeffer, his 'Lettre à Albert Richard' (Schaeffer ed. 1957: iii--xvi). In what follows here, the focus is on some of the 1953 texts, with particular reference to Schaeffer's 'Vers une musique expérimentale' (Schaeffer ed. 1957: 11--27). Especially relevant extracts from these texts are given in my own translation and are published in English for the first time.

To say that Stockhausen, Boulez and Messiaen, besides Schaeffer and Henry, created concrete pieces is to pose the following questions: how can works by such diverse composers all be classed as concrete music? or else, what is concrete music? Rather than trying to answer the latter question, I am presenting concrete music as it appears in the light of extracts from the early texts of Vers une musique expérimentale. Thus, it is primarily the state of concrete music in 1953 that is under consideration here.

In the article 'Tendances de la musique concrète' (Schaeffer ed. 1957: 36--44), which is supposedly the text of a talk given at the Ten Days, Antoine Goléa identifies four tendencies within concrete music. There is what he terms 'directly expressive' concrete music, whose characteristics are the absence of strictly formal concerns and the relatively primitive nature of the material [4]. Most of the examples of this tendency are found among the early works. Goléa calls
the second tendency the 'abstract' one; its exponents are found among those composers to whom concrete music provided an unexpected field for the perfecting of researches that were essentially serial. Under the 'abstract' label, Goléa places Boulez, Messiaen and --- with some hesitation --- Henry as creators of serial concrete pieces. In his words: 'Rhythms, tessitura, attacks and timbres; it is in order to push always further the refinement of these domains that musicians such as Pierre Boulez, Olivier Messiaen and Michel Philippot have come to concrete music' (Schaeffer ed. 1957: 39--40). Since the abstract tendency groups together all those whom Goléa calls 'traditional and very advanced composers' who found in concrete music a means of furthering their aesthetic advance, one might expect to find there as many personal aesthetics as composers. The third tendency identified by Goléa is the 'musical' one. This tendency reinstates the traditional instrument as its main source. Thus, 'with secret and guilty voluptuousness, concrete music turns round towards music tout court' (Schaeffer ed. 1957: 44). Finally, with a list of pieces Goléa illustrates the fourth tendency: the 'exemplary' one. The common trait of the exemplary pieces of concrete music is 'to express a complete world through a means of expression itself complete' (Schaeffer ed. 1957: 44). Goléa's catalogue raisonné reads as follows:

**'EXPRESSIVE' CONCRETE MUSIC**

1948 Pierre Schaeffer: Étude aux chemins de fer ('glorious and venerable'), Étude pathétique (Étude aux casseroles)

1949 Pierre Schaeffer, Pierre Henry: Symphonie pour un homme seul

1950 Pierre Schaeffer, Pierre Henry: Bidule en ut

1953 Pierre Henry: Astrologie (music for film, from which a four-piece suite was extracted)

**'ABSTRACT' CONCRETE MUSIC**

1952 Pierre Henry: Antiphonie (transition to 'exemplary' works); Pierre Boulez: Étude à un son; Olivier Messiaen: Timbres-durées; Michel Philippot: Étude I (simultaneously the classic of 'abstract' concrete music and a work of transition to 'musical' concrete music)

**'MUSICAL' CONCRETE MUSIC**

1949 Pierre Schaeffer: Flûte mexicaine

1952 André Hodeir: Jazz et jazz for piano and tape

**'EXEMPLARY' CONCRETE MUSIC**

1948 Pierre Schaeffer: Étude au piano (Étude violette)

1950 Pierre Henry: Batterie fugace and Tam-Tam IV

1952 Pierre Henry: Antiphonie

This analysis establishes precarious connections between material, tools, techniques, methods and results, hence the untenable nature of its formulation: it is as if (a) primitiveness of material
combined with a lack of formal concerns accounted for expressiveness; (b) total serialization of concrete material amounted to abstraction; (c) the application of concrete techniques to traditional sources were tantamount to musicality; (d) the mixing of 'expressiveness', 'abstraction' and 'musicality' engendered exemplariness. Furthermore, Goléa's article presents serialism and abstraction in far too amicable a relationship with experimentalism, let alone concrete music [5].

Schaeffer's relation to serialism might be summarized in the following proposition: in principle, but not in practice, I object to the application of serialism to traditional material; in principle, but not in practice, I accept the application of serialism to concrete material. He gives two reasons for not accepting serialism as applied to orchestral sounds: first, it appears as a merely destructive gesture aiming at neutralizing tonal relationships, which would be inherent in instrumental construction and technique; second, it imposes unnatural gymnastics on the performer. Schaeffer makes the first point thus: 'In so far as atonality for instance presented only a destructive face, pretending to organize the twelve notes in ignorance of their degree quality and considering them solely as terms of an algebraic permutation, one could be shocked by so premature a denial of a tradition that I shall call --- no pun intended --- dominant' (Schaeffer ed. 1957: 23). The following quotation will make the second point and also demonstrates that Schaeffer was prepared to accept the practical results of serialism as applied to traditional material.

As a matter of fact, after resisting with all my strength the system-mindedness applied to the concrete démarches, and the untimely constructivism of musicians who, in my opinion, did not show enough consideration for experimental empiricism, I realized an unexpected and, so to speak, physical intersection. An experience I recently had with the work of the young German composer Stockhausen will prove it. I have had the opportunity of hearing this piece under the masterly baton of Hermann Scherchen in the excellent studio of the Nordwest Deutsche Rundfunk in Cologne. I could not help recoiling, as I usually do in the face of any atonal work (not least because I remain convinced that they impose unnatural gymnastics on the instrumentalists). Well, in the course of the Ten Days inaugural conference I reheard Stockhausen's work, which was recorded on tape, over loudspeakers. Often in concrete music I miss the spectacular element of the concert, but its absence was the blessing that allowed me to hear, accumulated by the loudspeaker, which played the centripetal part, the different instrumental notes then welded [6] together and forming extremely brilliant and delicate sonic objects. This phenomenon was full of consequences: Stockhausen's abstract music was meeting the concrete experience; it was more acceptable when acoustically blended and heard by an ear accustomed, for some years, to consider sonic objects as such; it became far more justifiable and more intelligible; in other words, the same work presented two faces: one destructive, denying a past I believe everlasting (that is, the reality of the scale), and another turned towards the future. (Schaeffer ed. 1957: 23–24)

The acceptability of constructing atonal piece with traditional material will not be discussed here; what is important to stress is that, for Schaeffer, the hearing of pieces thus constructed may be validated by a particular training and the absence of the original instrumental source. What I have called 'acceptance in practice' therefore implies a material/construction dialectic which is resolved by the introduction of two extraneous elements: a new musical training and the tape performance. We have seen that, in principle, but not in practice, Schaeffer would admit serialism into the domain of concrete music. That, in principle, he opens the doors of concrete music to serialism, even leading one to believe serialism would find its true home there, is quite clear:

From the moment one makes the discovery of a practically infinite number of sonic objects, where degree no longer appears as the single dominant quality, the notion of series is more evidently applicable, and the negative character of atonality vanishes. While the day before it seemed a desperate gesture leading only to an impasse, now it emerges as spadework, a
gesture that was perhaps indispensable for the introduction of new sonic objects, precisely, to be accepted. (Schaeffer ed. 1957: 23)

That these doors, in practice, are hermetically closed, is a statement that Antoine Goléa seems to discredit:

Let us now imagine original recordings of noises that are much more complex and much harder to recognize; let us imagine transformations of these noises taken beyond any known limit, thanks to devices that allow slowing down, speeding up, retrogradation, reinforcing, attenuation, fragmentation, and the shifting of register from infra-low to ultra-high; let us imagine that the results thus obtained are intermingled, stuck together end to end, moved around and mixed up according to the marvellous law of algebraic permutations and combinations, then we shall have a faint idea --- in fact still totally abstract --- of the manufacturing procedures of concrete music.

(Schaeffer ed. 1957: 37)

We have seen that, for Schaeffer, there is nothing uncongenial between concrete material and serialism. Whether or not concrete music and serialism are compatible is an altogether different matter. To answer this question, one would first have to investigate what concrete music is, and whether it has ever constituted a coherent aesthetic, apart from the adoption of a particular kind of material. It might then be useful to establish a distinction between serial techniques, serial method and serial aesthetic, before defining at what levels serialism and concrete music oppose one another. By serial techniques I understand procedures that can be identified in the music of Bach, Beethoven and Schaeffer for instance. By serial method I mean the systematic application of such procedures, defined from the starting-point of Schoenberg's dodecaphony. Serial aesthetics would be the personal uses diverse composers make of the serial method to express themselves. From the notion of serial aesthetics one may derive an abstraction, the serial aesthetic, encompassing all those personal aesthetics based on the use of a serial method. The serial method and aesthetic are dismissed by Schaeffer:

The word 'debris', to my mind, does not at all apply to traditional music, but precisely to the destruction wrought there little by little, of which atonality certainly represents the gravest stage. In so far as the atonal démarche exhibits a simultaneously desperate and despairing rigour, an absolute denial of the customary musical universe, it has become indispensable to set sights elsewhere. Or else, in this dungeon, death would be ineluctable.

In reality, the prison had no bars. Why twelve notes when electronic music has introduced so many more? Why series of notes when a series of sonic objects is so much more interesting? Why the anacronistic use of an orchestra whose instruments are handled with such obvious anti-naturalness by Webern and his imitators? And above all, why limit the horizon of our research to the means, usages and concepts of a music after all linked to a geography and a history; certainly an admirable music but still no more than the Occidental music of the last few centuries?

(Schaeffer ed. 1957: 18)

A page of Schaeffer's Étude aux chemins de fer reproduced in an article in Polyphonie (Schaeffer 1950: 48–50) evidences the application of serial techniques to sound montage [7]. This does not point to the affinity between concrete music and serial method. The new premises
of the Groupe de Recherches de Musique Concrète may have been open to serial composers, that is, composers for whom serialism represented an aesthetic (and hence methodological) option; Schaeffer could not ignore the tensions of the partnership:

Chance and determinism, whose uncertain implications we begrudgingly suffer, engender curious encounters. It happens that concrete music has seen two diametrically opposed categories of spirit muster around it.

No sooner had I understood the necessity for musical experimentation, no sooner had I been astounded by the profusion of sonic entities that might pass out of our hands, no sooner had I requested the assistance of those who could help me in this discovery, in this sifting, in this curiosity turned above all to the object, and in this method whereof the empiricism I championed and the allegiance to the finding I treasured, than a party of musicians whose favourite instrument was the slide-rule, and whose musical ideas were rigorously opposed to mine, came running.

Of this sometimes stern ordeal, only the meaning is understandable. For two years, in a companionship that had nothing distinctly fraternal about it, the abstracts got down to the concrete, and vice-versa, with a sort of ferocious partisanship, and with mistrust in their emulation. Maybe all this is just starting to make us smile now and, as in any companionship, fraternity is at last arising, but seldom have such opposing procedures rubbed shoulders.

From among the thousand sounds in our cupboards, Pierre Boulez and his friends would choose the most unyielding ones, carve their full mass, and show no consideration for anything other than the series they had calculated in advance. Messiaen, whom we had invited to a feast of sounds in which everything --- so we thought --- should flatter his gluttony, did not even open our cupboards, but clapped his hands and whispered: 'Something like that, as little sound as possible'. And there even has been that mere nobody, a pupil of J.-J. Grunewald's who apparently had inherited so little of his master's taste for incarnate music as to ask, with a hint of covetous desire in his eyes, whether we deemed it possible to create a music totally devoid of evolution in tessitura. (Schaeffer ed. 1957: 18–19)

The approach of 'Pierre Boulez and his friends' is contrasted to Schaeffer's and Henry's in the paragraphs that follow:

Meanwhile, considering that the discovery of sonic objects was of primary importance, that it was necessary to manufacture many of them first, and to determine their categories and families, before even knowing how they could evolve and be combined, I impatiently started looking for musicians good enough, and unselfish enough, to venture on this gigantic work, which resembled the botanist's rather than the composer's. I must say that without the presence of Pierre Henry, who was nevertheless also tempted by serial construction, concrete music would probably have lacked an essential experimenter. So essential that it could have been stillborn, and no sooner discovered than, so to speak, already lost. Instead of being the starting-point of a more general musical procedure, of which I am now almost sure, concrete music would have been no more than the altogether bald, and doubtless ephemeral, continuation of either surrealism or atonal music.

Having closed in a few years, after an initial craving for composition, the cycle of his personal impressionism, of his romanticism, of his constructivism, and of his particular 'atonihilism', Pierre Henry finally took the wisest course and (excluding the background sounds for radio productions or film tracks, which are absolutely indispensable to earning a living, and hence
respectable) has stopped composing for the time being, giving himself up to those two researches that any future composition demands: research into sonic objects, and research into instrumental manipulations. (Schaeffer ed. 1957: 19)

In Schaeffer's opinion, although concrete material validates the serial method, this material itself has little to gain from the systematic application of serial principles: 'From the twelve-note series remains a constructivist disposition, which, applied to the new material perhaps prematurely, destroys its freshness. The blossoming of concrete sounds risks being reaped too early when there is a parti pris abstraction. The results are contradictory and deceiving.' (Schaeffer ed. 1957: 17). For him, there are dual aesthetic tendencies within concrete music: atonality and surrealism. However, the fundamental opposition within the Groupe de Recherches de Musique Concrète is less between two aesthetics than between two approaches to concrete material or, in Schaeffer's words, 'two diametrically opposed categories of spirit'. Rather than being torn between two aesthetics, in 1953 concrete music was torn between two approaches to the same material. For Schaeffer, in order to compose with concrete material (or in order to compose concrete material), not only a new instrumental apprenticeship is necessary: the apprenticeship of sonority itself is imposed. The choice is therefore between using concrete material to create oeuvres and doing research into sonority to discover musicality. When the concrete composer --- by which is meant the composer who opts for concrete material --- uses his material, the aesthetic results are doomed to be either atonal or surreal. If the result is atonal, the concrete material will be inserting itself within an aesthetic evolution where it does not belong: atonality defines itself in opposition to tonality, which in turn informs and is informed by the instruments of Western musical tradition. If the result is surreal, there will be a lack of the abstract dimension, which, for Schaeffer, is inseparable from musicality: rather than music, there is literature. Thus, before using the material to produce music, the concrete composer must explore sonority to discover musicality. 'Vers une musique expérimentale' clearly points in this direction. Here, though, concrete music ceases to be concrete music: it has already become musical research. Concrete music nevertheless did not become musical research in 1953; instead it placed itself under an umbrella of its own creation: experimental music. Why?

Schaeffer had a need to see his research materialize into works. Sophie Brunet (1969: 23) states that the relationship between the Clan des Rois Mages and the scout movement prefigured the relationships of the Studio d'Essai, the Groupe de Recherches de Musique Concrète and the Service de la Recherche to the institution that officially housed them: they were tolerated [8]. Schaeffer's anxiety to produce works is made obvious in his 1948 journal, which forms part of his 'Introduction à la musique concrète', published in 1950: 'One agrees to lend me the studio hoping that I shall eventually come up with some broadcastable material. The French Radio is obliged to justify its allocations. So are producers. I have to admit that the researcher must hide himself carefully behind the producer' (Schaeffer 1950: 37). In the same text, he asks himself: 'What is the Radio administration going to think of this squandering of records, of this apparent waste of time, of this symphony hardly even begun?' (Schaeffer 1950: 42) (return). The need to appease with works the public, the administration, Pierre Henry and himself is recalled, apropos Bidule en ut (1950), in 'Vers une musique expérimentale':

John Cage for his part had discovered the prepared piano. Although expressly owing him nothing at all, since the same discovery was made more or less simultaneously by ourselves with our own means, we could only be grateful to him for establishing a link between the traditional musical language and a possible langue [9] of concrete sonic objects. The prepared piano, a polyvalent instrument that would do anything and sound like anything, had the essential means of expression of the traditional language: the keyboard. From the new sonic universe it had the material [10], that is, thousands of new sounds that could be obtained from a suitably arranged sounding-board. It would be difficult to name offhand the limitations of the prepared piano ---
It would be reasonable to think that the events of the years 1948--53 had given Schaeffer some prominence. This supposition is confirmed by the reformulation that his journal underwent for publication in À 1a recherche d'une musique concrète in 1952 [11]. The passage just quoted demonstrates that in 1950 he was prepared to put up with some contradictions within the concrete démarche, in so far as this could lead to the production of Œuvres. Such an attitude is markedly different from that which presided over the creation of the noise études. Contradictions were an essential part of these pieces. During the elaboration of the noise études, they would come to the fore demanding appropriate solutions. Thus, a material/composition dialectic had appeared in a hitherto unknown light, justifying the genre étude as such. For Schaeffer in 1953, the application of serial method to concrete material was doubtless contradictory. However, the works of 'Boulez and his friends' were proving that this material could lend itself to abstraction, thus transcending the anecdotal character of the surreal pieces:

As they went along, though, both tendencies, albeit so opposite at the start, finally twined themselves into a garland. In addition to the necessary emulation, it was perhaps useful to put the straitjacket on these new materials for a year or two, so as to demonstrate at least the possibility of submitting them to construction. Thus P. Boulez has created his first étude. Messiaen, who unfortunately stayed somewhat away from the producer [12], has let this amazing Timbres-durées come out; it will certainly remain as simultaneously the greatest success and the greatest failure of this period.

At the same time, the 'abstracts' themselves recognized the thankless character of the materials they had chosen, recommending research into the sonic matter and, even unwillingly, benefiting from the progress achieved in the harvest of material, in its classing, and in the systematic development of new manipulations. So was born, early in 1953, an étude by Michel Philippot, which as an étude, pleased everybody. The serial construction there was applied to valid materials of which one respected the substance, and with which one played subtly, rediscovering, with an austerity that will surprise only the neophyte, the immortal characteristics of music: sensibility and sensuality. (Schaeffer ed. 1957: 19--20)

Within the domain of concrete music, it was possible for those 'two diametrically opposed categories of spirit' to find common ground at the level of the material. A kind of symbiosis in which the concrete group would investigate sonority while the abstract group would create Œuvres might have appeared as a possible compromise. Nonetheless, the label 'experimental music' was intended to do more than bridge the different approaches to concrete material. Philippe Arthuys's 'Pour commencer...' (Schaeffer ed. 1957: 8--10) lays down the purpose of the First International Ten Days of Experimental Music: 'The First International Ten Days of Experimental Music were held in Paris from 8 to 18 June 1953. The aim of these Ten Days was to bring together, under the banner of Experimental Music and on the initiative of the Groupe de Recherches de Musique Concrète, all researches that have been done in this direction. It was not
at all a concrete music festival with a large public, but a workshop from which something was expected to emerge’ (Schaeffer ed. 1957: 8).

But what precisely was expected to emerge? We have seen the Groupe de Recherches de Musique Concrète at an aesthetic and methodological impasse. Schaeffer in turn was already thinking of concrete music as 'the starting-point of a more general musical procedure' (see above). The International Ten Days of Experimental Music corresponded to the need of a radical reformulation within the concrete group.

A few years passed. What had appeared to us as an inconsequential excursion proved to be a fertile exploration. What we had taken for an island was perhaps a continent where others might have landed on other shores. We needed to go back to our fundamentals, compare our machines and machinations, recognize the team mates of a necessarily collective adventure and, to these ends, to travel, to correspond with the five parts of the world, with those who know the musical past of this planet, and those who are imagining its future. (Schaeffer ed. 1957: 14)

How this reformulation was expected to materialize is not made clear in 'Vers une musique expérimentale'. Later, in 'Lettre à Albert Richard', Schaeffer avows that his intention was 'to realize a synthesis of the different efforts aiming not only at a comparison of methods but also at the establishment of complementary research programmes' (Schaeffer ed. 1957: iv). When 'Lettre à Albert Richard' was reprinted in the first volume of Machines à communiquer (Schaeffer 1970: 189–201), this was rephrased as 'to contribute towards a synthesis of different efforts, by prompting not only a comparison of methods, but also the establishment of complementary research programmes' (Schaeffer 1970: 190). Schaeffer's view of international developments in electroacoustic and electronic music is, however, uncomplimentary:

While in Cologne or in Bonn, at the confluence of phonetics, acoustics and musicology, one gives birth to disturbing sonic beings, terrible sounds conceived with all possible scientific rigour (which does not make them any more reassuring), under the shadow of American universities, which, as we know, serve as Conservatoire, Faculty and Studio d'Essai, other tapes spin, and other characters bustle about making machines do what the agility of the fingers no longer knows how to, also expecting the machine to take them to where spirit and invention could not get first. (Schaeffer ed. 1957: 14)

A few lines below, he becomes even blunter: 'The Germans, hard-working and stubborn, no longer believe in anything but the musical electron. The Americans, dynamic and naive, put their pianos out of gear and apply to composition (somewhat rashly) the law of probabilities' (Schaeffer ed. 1957: 14). Getting together stubborn, naive and concrete composers is of arguable interest. According to a French historian, however, there exists a fundamental difference between the French and the English senses of humour: while Englishmen make fun of someone else by laughing at themselves, Frenchmen laugh at someone else to make fun of themselves.

It is sometimes touching, and often comical, to see the same successes and failures reward attempts made with diverse means in Paris, New York or Cologne by people who, at least thus far, have not met and are unlikely to have copied each other, employed the same procedures, followed the same démarches, or made the same remarks. It is quite interesting anyway that
they have undertaken the same tentative efforts, that they have come up against the same types of deadlock and, little by little, are publicizing only their contributions and their perhaps divergent methods. (Schaeffer ed. 1957: 17)

Within the concrete group of 1953, composers and researchers were able to find common ground in the choice --- deliberate in the researcher's case, circumstantial in the composer's --- of a particular material. Schaeffer tried to project this compromise on to the arena of the international avant-garde. Thus, concrete music, electronic music, tape music and exotic music were rallied under the banner of experimental music by the concrete group. In the opening paragraphs of 'Vers une musique expérimentale', Schaeffer outlines their common contention. However, items 6--9 clearly expose his objections to the extension of the serial method and aesthetic to the new instruments, as if, seeking a compromise, he could not help pointing out the concessions he was prepared to make:

Given the non-existence today of an experience that should actually be called the experience of experimental music (some will say 'new music', but let us stick to the experience without prejudging the results), the following facts, listed in the order in which they appear on the scene, must be minimized:

1. The production of sounds by electronic means is of no musical relevance. Such instruments, only just good enough to imitate (but to what end?) classical instruments, must avoid extending their possibilities to the domain where acoustic instruments are powerless: systematic variations of timbre, absolute control of dynamics, and extension of tessituras.

2. The use of prepared or exotic instruments, which now join the classical means for obtaining sounds considered musical, is of no relevance. Apart from the fact that such sounds, of questionable purity, disturb the habits of our ear, we are quite determined not to compose and not to hear any music other than that manufactured with the Occidental lutherie, which crystallized a century ago, say at the time of Bach [sic ].

3. The means of acceleration, deceleration, superimposition, montage and retrogression that recording techniques afford are totally irrelevant, as are artificial filterings or reverberations: they are engineer's tricks, only just good enough for the sound-track of animated cartoons.

4. No more relevant is the creation of complex sonic objects obtained from sounds or noises (musical or otherwise) through the combination of all the aforementioned techniques, which have been systematically practised under the name of 'concrete music' and perfected by means of special machines such as the phonogène (chromatic or continuous), the morphophone, the multi-track tape recorder, etc...

5. As to taking into account the tridimensional sonic space where, knowingly or not, one projects any music (live or recorded), this is a minor phenomenon to which one should not attach much importance, be such a phenomenon static or kinetic, i.e., whether it is a matter of spatially projecting motionless sound-sources or allowing sounds to follow trajectories in the space they are received. [13]

To these comments on the means of producing sounds, combining them and presenting them to auditors, other negative propositions would have to be added in the interest of comprehensiveness:
6. Music, which is all contained in the symbols of solfège, must not take any account of those sonorities which, being too complex and too new, elude such a system of notation and, for this reason, can be neither adequately laid out on a score that is accessible to traditionally trained musicians nor officially registered in the SACEM [Société des Auteurs, Compositeurs et Editeurs de Musique].

7. The problem of musical composition itself must be stated only in preconceived terms. The composer is able to imagine all possible sounds and desirable combinations without resort to sound experimentation. Likewise, he takes their psycho-physiological effects for granted, outside any sensory experience.

8. In particular, it is through a pure theoretical procedure, rather than through the tentative efforts of experience, that he demands new forms from the new instruments. The modern composer, writing less and less 'for the instrument', is supported by electronics in his absolute refusal to continue worrying about means for performance: these neither help nor constrain him any longer.

9. Finally, the musical work exists in itself, as unlistened-to, and the auditor must be considered as having no share in the genesis of the work (or at least in its raison d'être). He is no more than a witness who is limited solely to his capacity for adherence or refusal.

I shall not insist on the last four points, which would risk deepening the misunderstanding of a contingent controversy, although they have sometimes been involved in the talks and discussions of the First International Ten Days of Experimental Music, organized by the Groupe de Recherches de Musique Concrète de la Radiodiffusion-Télévision Française. The primary objective of these Ten Days was to highlight the notion of an experimental music, gathering as much information as possible on the subject, and bringing together in Paris those few personalities who have committed themselves to the diverse approaches that could be grouped under this name. The only important thing now, in fact, is to weigh up the various researches, taking the opposite course to an aesthetic debate, which is certainly necessary but untimely: first of all, to record the existence of a music in process of experimentation, acknowledging its tendencies and comparing results. In short, let us begin by applying the experimental procedure to researchers themselves. (Schaeffer ed. 1957: 11--13)

How are Schaeffer's propositions echoed back by the representatives of electronic music and the 'abstract tendency' of concrete music, that is, Herbert Eimert and Pierre Boulez respectively? In 'Musique électronique' (Schaeffer ed. 1957: 45--49) Eimert expounded the option of a particular kind of material that is inherent in electronic music. Like Schaeffer, he dismisses the use of electronic machines to imitate traditional instruments, also observing that 'the virtuoso use of special electronic instruments by any modern symphonic orchestra remains within the framework of the usual manner of playing' (Schaeffer ed. 1957: 45). What is plainly stated by Eimert is expressed by Schaeffer with all the resources of the rhetorical arsenal; Schaeffer's commitment to the aesthetic implications of the new material displays a radicalness unknown to Eimert:

How to explain then the state of underdevelopment in which these instruments have remained for almost twenty years? At that time, Martenot and Trautwein, preceded by Mager and many others, had discovered the essentials. Bode's melochord, which today equips certain German studios, and the new models of the Martenot or of the ondioline, simply present in a more convenient manner possibilities formerly glimpsed at. In too convenient a manner, doubtless. These instruments for virtuosos not only of melody but also of Klangfarbenmelodie, of ultra-high and infra-low pitches, and of the quintuple forte and the sextuple pianissimo, at the start
only increase the composer's embarrassment. Instead of destroying notes, the last stronghold of traditional music, they put in some more: timbre notes, intensity notes, register notes. 'Musicians, enrich yourselves!', Guizot said. To which the Prix de Rome replied, as if in the face of the flood: 'What a lot of notes!' (Schaeffer ed. 1957: 16)

Like Schaeffer, Eimert considers sound effects for film and radio as minor artistic forms. Electronic and concrete music share the same aspiration towards musical abstraction. In Eimert's words, 'It is meaningless to speak of electronic music unless the central processes involved are musical processes, that is, unless all essential decisions concerning form and sound are taken from musical points of view' (Schaeffer ed. 1957: 46). Schaeffer would have no qualms saying the same about concrete music. Eimert subscribes even to the credo of Schaeffer's empiricism. Thus, both Schaeffer's 'Vers une musique expérimentale' and Eirmert's 'Musique électronique' display as an epigraph the same quotation from Van Gogh: 'I believe one thinks much more sanely when ideas arise from the direct contact with things, than when one starts to look at things with the aim of finding there one idea or another' (Schaeffer ed. 1957: 11 & 45). However, the incompatibility between concrete and electronic music is implicit in the following paragraphs of Eimert's:

The fact that this system allows the creation of new musical material that cannot be obtained with classical instruments constitutes a true criterion of electronic music. It could be said, in a general formula that does not bind one to anything, that electronic music starts where instrumental music ceases. From a historical point of view, it is not by chance that means of construction today have been pushed to the limits of the possibilities of realization, and that, precisely at this moment, the new electronic means become available. Thus, there are doubtless real points of contact, particular connections between traditional and electronic musics. Those complicated rhythmic values that can no longer be played by instrumentalists may be easily represented as length values, that is, in centimetre length. Notwithstanding this, it is equally important to learn how to identify and grasp the immanent laws of matter that govern electronic sounds (return).

We are still quite far from having a detailed knowledge of these laws --- let me say, by analogy: the 'tonality laws' of electronic music. In such a situation, all one can do is open wide the door on to this new sonic world and, while shaping that world, operate by analogy with the processes of musical production. (Schaeffer ed. 1957: 49)

Eimert is aware of the possibilities the Cologne studio offers for acoustical research through subtractive and additive syntheses. Furthermore, he recognizes the need for this research, stating that 'there is a kind of tonality of electronic music; we do not know its details yet, but it will probably be a tonality of timbres' (Schaeffer ed. 1957: 48). For Eimert, though, the introduction of new material does not imply a break with the evolution of Western music. In his view, the so-called 'tonality laws of electronic music' will emerge, on the one hand, from the analysis of sounds by subtractive and additive syntheses and, on the other, from the creation of pieces within the framework of Western musical tradition.

If one examines the kind of concerns Pierre Boulez expresses in 'Tendances de la musique récente' (Schaeffer ed. 1957: 28–35), the tenuousness of his connection with concrete music becomes evident. Boulez considers the 'musical language' to be in a period of assessment and organization, after destructive researches that abolished the tonal world and regular metrics: on the one hand, complex rhythmic structures combined with very elementary centres of tonal attraction were developed by Stravinsky; the Second Viennese School, on the other hand,
worked towards the dissolution of tonal attractions, thus discovering the series, which was differently explored by Schoenberg, Berg and Webern. Boulez stresses the idea that Webern alone was aware of the series as 'a way of giving a structure to the sonic space, of threading it somehow' (Schaeffer ed. 1957: 29). He explains: 'While melody remained the fundamental element even in the bosom of polyphony, in the serial system as conceived by Webern it is the polyphonic element itself that becomes the basic element; hence this mode of thinking transcends the notions of verticality and horizontality' (Schaeffer ed. 1957: 31). All the same, he adds, rhythm remained unconnected to the 'serial language' [14], even in Webern.

Boulez then focuses on the music of Varèse, emphasizing two points: in Varèse, 'the function of the chords is no longer traditionally harmonic, but rather appears as a value of a sonic body [15] calculated in terms of natural harmonics, lower resonances and the diverse tensions necessary to the vitality of this sonic body' (Schaeffer ed. 1957: 29); besides, in Varèse intensity plays a structural role. Boulez sums up these two points in what he considers to be Varèse's main preoccupation: acoustics proper. 'Considering the acoustic phenomenon as primordial in sonic relations, Varèse applied himself to verifying how it could govern musical construction' (Schaeffer ed. 1957: 30). Boulez also notes Varèse's refusal of temperament, as well as his proposal of 'non-octaving scales, repeating themselves according to a spiral principle, or, to be clearer, a principle whereby the transposition of sound scales is no longer organized in accord with the octave, but rather in accord with different intervalllic functions' (Schaeffer ed. 1957: 30). For Boulez, Cage represents the need to extricate oneself from the limitations of the traditional lutherie, rendered obsolete by the eclipse of the tonal system; hence Cage's interest, shared by Varèse, in percussion. Boulez thinks that, within the domain of percussion, only rhythm can provide a powerful architectural element, other than timbre relations and acoustic relations between the different categories of instruments (skin, wood, metal).

It is when Boulez comments on Messiaen's Mode de valeurs et d'intensités that his own musical conception starts taking shape. For him, this piece materializes 'needs scattered almost anywhere in valid contemporary music' (Schaeffer ed. 1957: 31): the notion of an organized universe is applied not only to tessituras but also to durations, intensities and attacks. Boulez believes that, while in Varèse's music intensity plays a structural role because of the preoccupation with acoustics, in Mode de valeurs et d'intensités all sonorous elements are part of a formal research. In Messiaen's piece this 'universe' is organized modally; what Boulez has in mind is the serial organization of all planes by means of a single unifying principle. The interesting point is that this total unification has roots 'almost anywhere': from Stravinsky, he takes the rhythmic elaboration; from Webern, not only the series as a way of weaving together the horizontal and the vertical dimensions but also orchestration as a structural element; from Varèse, the structural role of intensity and the exploitation of the non-tempered universe, the latter also being found in Cage. What is more, Boulez's series stretches its long arm over the definition of scales and the creation of sonic material itself. Schaeffer in turn sees himself as the offsping of Varèse's self-fertilization: 'In the paths we were following, Varèse, the American, was our single great man, and the sole precursor anyway' (Schaeffer ed. 1957: 20). However, in the same way as Boulez mentions Cage's lutherie, while ignoring his aesthetic, it is the originality of Varèse's lutherie that Schaeffer stresses in 'Vers une musique expérimentale'.

It has been seen that for Eimert the introduction of new sounds should lead to the discovery of what he called 'the laws of tonality of electronic music'. By default, the means for this end would be the insertion of such sounds into the atonal aesthetic. Boulez for his part is concerned with the elaboration of a compositional method, or rather with rooting this method 'almost anywhere in valid contemporary music'. For Eimert and Boulez, the new instruments do not imply a radical break with the traditional musical system; rather, they contribute towards its evolution. New technology here is essentially neutral, a mere means for the advancement of traditional Western music:
We are lying in wait for an unheard-of sonic world, rich in possibilities and as yet practically unexplored. The consequences implied by the existence of such a universe are just starting to be perceived. I will note anyway the felicitous coincidence --- let us not expect it to be too fortuitous, let us not be surprised by the fact that the musicians who, in different countries, have taken an interest in these researches are linked by an indisputable identity of opinion --- the felicitous coincidence occurring in the evolution of musical thinking: this happens to have need of certain means for execution at the precise moment when electroacoustic techniques are able to offer such means. (Schaeffer ed. 1957: 34)

Boulez's argumentation deconstructs itself similarly to Eimert's (see quotation above): although 'electronic music starts where instrumental music ceases', a formula that, as Eimert wisely observes, does not commit him to anything, 'there are doubtless real points of contact, particular connections between traditional and electronic musics'. It is no surprise, then, if he 'opens wide the door on to this new sonic world' for Boulez to step in, sense the void, and step back: for Boulez, musical form (that is, tradition) takes precedence over sonic form. Both Boulez and Eimert seem to suggest that it is not because new sounds are available that new musical forms become possible, but rather because the composer has need of new musical forms that new sounds appear. A mystique of the composer's activity is in operation here: the compositional process itself is beyond question. There would be an evolution of musical forms, independent of ends and means; yet it is the supreme freedom of the composer that is asserted thereby. For Schaeffer in turn, new sounds, whether concrete, electronic, magnetophonnic or exotic, are essentially a repository of unimagined musical potentialities. He proposes a renewal of forms through the analysis of material and a reassessment of ends. One could say, paraphrasing Martin Heidegger, that it is the role of the experimental composer to consider carefully and gather together materials, forms and ends; materials, forms and ends in turn owe thanks to the pondering of the experimental composer for the 'that' and the 'how' of their coming into play for the production of the experimental 'oeuvre' (cf. Heidegger 1954: 8). Looking at the final paragraphs of 'Vers une musique expérimentale', where Schaeffer shows what all experimental teams, 'whether electronic, concrete, magnetophonnic or serial', have in common, one finds the confirmation of this hypothesis:

1. All call into question the notion of the instrument. Sound can no longer be characterized by its causal element, it has to be characterized by the effect only. Hence it must be classed according to its particular morphology, rather than according to instrumental provenance. It must be considered in itself. The best proof of this: once the most interesting sonorities produced by the new techniques have been recorded on tape, it is impossible to say how, and by what ensemble of procedures or instruments, they have been produced.

2. Correlatively, it is necessary to admit that the notion of the musical note, so intimately linked to the causal character of the instrument, no longer suffices to account for the sonic object. The definition we give of a complex note (a simple sonic object having a beginning, a body and a decay) is already infinitely more general. It is important to realize that, given its acoustical constitution and human manipulation, the traditional instrument, whether exotic or classical, cannot produce anything but notes, in the known restrictive sense. It is therefore natural that the introduction of new sonic objects and more complex notes coincides with the introduction of non-acoustic instruments and manipulations that are not directly manual.

3. The classical relationships between composition and performance, between authors and instrumentalists, are also fundamentally changed. In the new musics, the composer is often his own performer, and the score is simply a shooting script. The creation is achieved once for all, by means of a different division of responsibilities, which resembles that of the production crews in cinema.
4. Contact with the public is also different. The concert is no longer a spectacle, at least not in the sense we were used to. The conditions of listening entail new elements, simultaneously physical and physiological, individual and social.

As may be seen, these four major transformations of both the musical phenomenon and the communication of it are on this side of any problem directly concerning expression and impression.

There is also a lot to be said on these points. A lot will be said and a lot has been said during these Ten Days. However, in my opinion, it would be much preferable to consider only the aforementioned elements. This would greatly simplify the terribly tangled skein of our problems, certainly allowing all researchers to share, with more lucidity and effectiveness, and with less bitterness, the fruits of their different findings. (Schaeffer ed. 1957: 26-27)

After the Ten Days of 1953, Schaeffer distanced himself from the Groupe de Recherches de Musique Concrète in order to direct the foundation and management of Radiodiffusion de la France d'Outre-mer in North Africa. His return to France in 1957 coincided with the publication of Vers une musique expérimentale. In 'Lettre à Albert Richard', dated 18 May 1957 and published as an introduction to Vers une musique expérimentale, Schaeffer renounced the ideal of syncretizing techniques, and proposed what he then called 'method for research after concrete music'. The following year, he withdrew the term 'concrete music', so as to detach himself from its aesthetic connotations. Simultaneously, he started defining his work as musical research, and the Groupe de Recherches de Musique Concrète was restructured and rebaptized as Groupe de Recherches Musicales, an altogether different institution, with altogether different aims.

Schaeffer did not abandon the term 'experimental music', but it lost its syncretic connotations; and the term 'concrete music' was in turn dissociated from the technical procedures of concrete music and thus reappeared in Schaeffer's later writing with a more comprehensive meaning. In relation to concrete music, experimental music corresponded to the need to generalize the concrete approach, opening it up to new sounds and techniques, reassessing its principles and defining its method. The creation of concrete pieces had led to the formulation of a number of hypotheses; experimental music implied a shift of priorities: stress was laid on verifying the postulates upon which these pieces were based. However, the method of doing this was still an unknown quantity. Although striving towards the goal of a synthesis, Schaeffer's ideal of experimental music was historically placed amid the concrete/electronic controversy, which lasted from 1950 to 1955 (see Schaeffer 1966: 24).

This controversy has customarily been reduced to the choice between two contrasting kinds of material, each representing one of two mutually exclusive temperaments: the intuitive and the rational. It has gone generally unnoticed that two radically different approaches to technology underlie the concrete/electronic dichotomy: for the electronic group, technology was, so to speak, neutral, a mere tool for the perfecting of Western musical tradition; for Schaeffer, new technology implied new thinking, the calling into question of the whole edifice of Western musical culture. On condition that the affinity between Schaeffer's later thinking and structuralism were proved, one could read the concrete/electronic antagonism in the light of the two opposing Weltanschauungen defined by Claude Lévi-Strauss in the 'Ouverture' to Le cru et le cuit (Lévi Strauss 1964: 1--32): the structural and the serial. In a critique of Lévi-Strauss's work, Umberto Eco (1968: 303--22) has attempted to demonstrate that these so-called Weltanschauungen are not in fact mutually exclusive, thus redefining the relation between structuralism and serialism. For Eco, 'each serial technique has to be explicated (as regards effectiveness of communication and as opposed to the techniques it denies) through a structural methodology which accounts for the parameters to which consecrated and innovatory forms alike ultimately refer'. Thirteen years after the Ten Days,
Schaeffer offered, in Traité des objets musicaux, his unfinished account of the musical phenomenon in its universality.

Notes

[1] The term 'musiques exotiques' would translate now, after the politically correct fashion, as 'world musics'.


[3] For a description of the equipment available in the studio, see Peter Manning (1987: 27--28). Manning refers to a five-track tape recorder: 'In addition to a set of conventionally equipped recorders, including one capable of registering five independent tracks of sound, three special versions were installed'. A three-track tape recorder instead is mentioned by both Pierre Schaeffer (?) in 'Historique de la musique concrète' (Schaeffer ed. 1957: 138) and François-Bernard Mâche in 'Historique des recherches de musique concrète' (Schaeffer and Mâche eds. 1959: 58).

[4] When tackling concrete music, for material one should not understand notes, musical 'ideas', or sounds in general but, rather, sounds on record (or tape) that have undergone denaturalization (i.e., their source has been rendered unrecognizable).

[5] Fifteen years later, Schaeffer gave this answer in 'La sévère mission de la musique':

--- What are the relations between dodecaphonic, serial and experimental musics?
--- The worst possible! (Schaeffer 1968: 291)

[6] The original reads 'sondées' (investigated), probably a misprint for 'soudées' (welded).

[7] See also Schaeffer 1952: 32--35 (with comments) and Maconie 1976: 32--33 (with comments).

[8] This observation is ratified by Pierret (1969: 10): 'You have been, perhaps, tolerated only; the communities you have directed have always had, in the Institution, a rather marginal place; all the same, you have survived, continuously occupying positions of responsibility'.

[9] It is doubtful whether Schaeffer intends to establish a significant distinction between the Saussurean notions of langage and langue. Although he often refers to Ferdinand de Saussure in his Traité des objets musicaux, I have so far found no evidence to support the hypothesis that in 1953 he had already read the Cours de linguistique générale. Nevertheless, in order not to filter out virtual Saussurean overtones, I am not translating this word.

[10] In the original, 'matière'. This word can be translated as 'matter' or 'material'. In Traité des objets musicaux 'matière' is counterposed to 'forme'. In this connection, I invariably translate these terms as 'matter' and 'shape'; for earlier texts, though, 'material' is often more appropriate. In later works, Schaeffer employs the unambiguous 'matériau' for 'material'.

[11] For the rewriting of the two short passages quoted above from 'Introduction à la musique concrète', see Schaeffer 1952: 18 & 28, respectively.

[12] One may deduce from Schaeffer 1952: 24, that the producer of Timbres-durées was Pierre Henry.

[13] Item 5, which is formulated somewhat unclearly in the version that appears in the Revue musicale, has been translated with reference to the reworking that 'Vers une musique

[14] Boulez uses the word 'language' somewhat loosely, considering both music and serialism as 'languages'.

[15] Boulez uses the phrase 'corps sonore' in two different senses. Sometimes it refers to the 'corps sonore' as defined by Schaeffer, that is, the source of the sonic object, or the sound-producing body. Here, though, Boulez's 'corps sonore' does not refer to any sound-producing body but rather to the sound itself; it has been translated as 'sonic body'.

Bibliography

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Source: UFPr Arts Department
Electronic Musicological Review
Vol. 3/October 1998