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**The French Connection: Motor Phonetics and Modern Music: Serialism, Gertrude Stein, and Messiaen's "Mode de valeurs"**

Célestin Deliège's new book(1), an overview of fifty years of modern music, from the inauguration of the Darmstadt Summer Courses in the aftermath of World War II to the installation of IRCAM under the pavement of the Pompidou Centre, reproduces an extensive and valuable archive of documents, interviews, and commentary on the aesthetics and theory of post-war developments from a distinctly European and Francophile perspective. The author is known outside Belgium as a concerned advocate of new music and what it represents, and in particular as a commentator on the music and ideas of its leading exponents, most notably Pierre Boulez. Compiled as a mainly educational text for European music students, the book's size and scope makes it a valuable one-stop resource, written in a French that is comfortable to read. It is also a very deliberate statement about a distinct and unified period of musical and cultural history that the author feels is still not taken seriously by educators, an era "currently under threat of revision by post-modern critics," not to mention composers now in open denial of the theoretical positions they once maintained with a youthful and righteous fervour. For readers outside continental Europe, the book's external features, priorities, and attitudes convey not just a specifically European cultural perspective, but also the emotional flavour of a unique period of international co-operation, politically animated (if not motivated), between the United States and Europe. The history begins in the aftermath of war with a morale-boosting joint initiative by composer Everett Helm, representing the American occupying forces, and Wolfgang Steinecke, mayor of Darmstadt. It ushers in an era in which abstraction in music as in art comes to symbolize a new sense of artistic and intellectual liberation from the tyranny of National Socialism and its proscription of "degenerate art." In December 1949 Bernstein and the Boston Philharmonic premiered the vast and ecstatic orchestral celebration of peace, love and freedom that is Messiaen's *Turangalila Symphony*; the same year, at Boulez's instigation, that John Cage and his prepared piano made a sensational debut before elegant Paris society. The creative US-European dialogue continued with the publication, first in German, then in English, of the periodical *die Reihe* in the late fifties and early sixties. Stockhausen toured extensively in the States in 1958, and was soon followed by Berio and Xenakis accepting extended teaching positions in Mills College and Indiana. In the 1970s Boulez took over the New York Philharmonic and became a mainstay CBS/Sony recording artist. The culmination of this extraordinary period of US-European co-operation is IRCAM, inspired by Boulez, funded by the French government of Georges Pompidou, and showcasing US expertise in digital synthesis. It is that ongoing theme of co-operation, within Europe and between Europe and the United States, that marks the music of this period as a social enterprise in the spirit of UNESCO and the United Nations, and one becoming increasingly sidelined as younger generations of composers and musicologists pursue alternative personal and political agendas.

Part of the reason for serialism's gradual decline is a sense that the co-operation exercise has ultimately failed. Not a failure musically, since whatever its theoretical basis the period still produced works as good as Boulez's *Le marteau sans maître*, Berio's *Sinfonie*, and Stockhausen's *Hymnen*, and led to a new appreciation of the orchestral works of Ives and Webern. It speaks rather of an intellectual failure to reconcile the competing claims of serialism, aleatory, minimalism, and other theories into a coherent system and historical process. If astute, experienced, and also sympathetic commentators of the generation of Professor Deliège are finding it hard even after fifty years to adjudicate on the relative merits of European and US versions of serial theory, can we be altogether surprised if younger and more cynical generations of post-structuralists now pretend that there was nothing there in the first place? And what is one to make of the all-too-clear evidence from leading

composers themselves, Cage, Boulez, and Stockhausen among them, of a retreat from discourse, or even from the idea of a common language? If the premier composers of the age stop communicating, what hope is there for the rest of us?

While sympathizing with Professor Deliège's fastidious concern to preserve the unity of time and place of this conveniently neat segment of musical history, I cannot help thinking that the continuity and coherence he is looking for is to be found elsewhere, outside the barricades. They are not his barricades, but Boulez's, and Stockhausen's, representing a European mindset that from the outset vehemently refused to concede any value to aesthetic theories that preceded them. Boulez's attack on Schoenberg was symptomatic of a need for closure, and on Stravinsky's neo-classicism, of a passionate renunciation of an aesthetic emblematic of a discredited imperialism. We can understand that. In any case, the rejections are symbolic, not personal. But why was such venom directed by Boulez at poor René Leibowitz, whose dedication to the Second Viennese School deserved better than the younger man's disdainful abuse? Leibowitz's dedication to this music throughout the war was courageous and made him a very apt role model for the author of 'Schoenberg est mort' It is surely possible, fifty years on, to maintain a view of modern music as a coherent historical unity while at the same time acknowledging the earlier contributions of Schoenberg, Hindemith, Krenek, Varèse, and others. The only exception, it seems, is Messiaen.

Other barriers that stand in the way of a better understanding of this whole period of musical and theoretical invention derive from the practice and conventions of musicology itself, in particular a prevailing mindset that, like the preacher whose only source of information is the scriptures, refuses to look beyond the book for answers that cannot be found within it. It helps to remember that musicology is a relatively young discipline, the product of a nineteenth-century middle-class ignorance of musical arts combined with a Romantic fetishistic attachment to the mysteries of human relationships, a culture for whom music is a subset of language, and "the language of music" is defined in terms of tonality and the communication of vague but powerful states of mind. It is musicology's foundation in a sentimental association of unsaid emotion and supposedly unsayable musical language from which arise the familiar and pernicious doctrines linking atonal and serial music with social and intellectual incoherence—the same prejudice now emerging in postmodern critiques of modern music from Darmstadt to IRCAM. To say so is not a criticism of the author, whose task by his own account is faithfully to report the evidence on which others may come to a decision. There is a certain piquancy however in Professor Deliège's reluctance to pursue crumbs of evidence that he has meticulously preserved, clues to a broader intellectual agenda of which modern music is only a part. Berio's long association with Umberto Eco, his interest in the wordplay of James Joyce and Samuel Beckett, and citations of Roman Jakobson and Claude Lévi-Strauss all speak of a close intellectual fascination with issues connecting modern music and contemporary theories of meaning. The same can be said of Boulez's attraction to the poetry of Mallarmé, Henri Michaux, and e e cummings. Cage's "mesostics" are the work of another leading avant-garde composer inquiring into the nature of language, sense, and meaning; Stockhausen's *glossolalia* likewise. Within a very short space of time Boulez's *Le marteau*, Stockhausen's *Gesang der Jünglinge*, the *Canto sospeso* by Luigi Nono, Eimert's *Zu Ehren von Igor Stravinsky*, Berio's *Circles*, and Ligeti's *Aventures* arrive on the scene. In their different ways, all of these composers and musical offerings participate in the same collective inquiry into the sources of language and meaning. If explicitly textual evidence is needed, it can be found in key writings of Levi-Strauss, Boulez ('Sound, Word, Synthesis'), Stockhausen ('Music and Speech'), and others. The real surprise is not the coincidence of musical and linguistic interests, but the failure of musicology to pick it up.

For a devotee of the period like myself, one of the delights of reading Professor Deliège's compendium is precisely the gathering together of a multitude of source documents in convenient and readable form that makes it possible for a reader suddenly to see connections

that were never so obvious before. Early on I was struck by an allusion to Messiaen's theory of tripartite rhythm, part of an opening gambit in which the foundation of post-war serialism is tracked back to the composer's *Technique de mon Langage Musical*. That Messiaen's ideas on rhythm, modes, and harmony can be seen to have influenced Boulez and Stockhausen is perfectly obvious and well documented, so the choice of the text as a starting-point seems logical enough.

'For Messiaen the fundamental unit of metre and rhythm is the group or figure, by analogy with the fundamental phrase or period in prose. He identifies the group *anacrouse-accent-désinence* as one of the primary elements of classical prosody, or for greater precision *preparation* for anacrusis, and *decline* for termination. In the music itself, however, tripartition remains a relatively intuitive and approximately defined concept.' (Deliège: 29)

I recognized the phrase *anacrusis-accent-decline* from forty years ago, but had never thought of a rhythmic unit divided in three as anything special. What made the tripartition all of a sudden newly meaningful was its unexpected resemblance to the tripartite definition of a waveform in synthesizer music. During the 1980s I had become very irritated with the embedded concept of a synthesized tone as consisting of an *onset*, a *steady state*, and *decay*. This one-dimensional description of a musical tone bears no relation to acoustical real life and for a long time I was at a loss to understand where it came from. (The fact that I and many others are still forced to deal with these conventions of wave shaping even today is an indication of the persistence of the formula.)

Later I acquired a 1988 commemorative edition of R.H. Stetson's classic study *Motor Phonetics* (2). Readers aware of the contribution of Werner Meyer-Eppeler to the theory and formation of electronic music in Cologne, and who appreciate the direct influence of American 'visible speech' technology and expertise on this music during the early 1950s, will understand my interest in the history of researches into the fundamentals of speech. It was here that I first came across the scientific definition of a syllable as a composite of three elements. Stetson was an interesting and multi-talented individual; a capable musician, he studied zoology at Oberlin College before going on to Harvard, eventually to earn a doctorate in the new discipline of psychology. In 1897, while still at Oberlin, he authored a paper entitled 'Piano Tone-Color from a Physical and Psychological Standpoint' in which he concludes that musical expression in terms of piano performance is a meaningless concept, a study of obvious relevance to researches in the United States and Europe at this time into the development of a touch-sensitive keyboard, that led to the new reproducing piano of the early 1900s.

'Stetson eschewed the linguistic approaches of his contemporaries that reduced articulatory movements to the logistic symbols of a phonemic alphabet and then proceeded in a formal fashion. . . . His whole image of the scientific investigation of speech and language can be summed up in one eloquent phrase: "Speech is rather a set of movements made audible than a set of sounds produced by movements".' (Stetson: 58)

Stetson's work in motor phonetics is part of a larger research enterprise aimed at elucidating the basic elements of spoken language. He worked with a cylinder recording device called a *kymograph*, a development of the Scott-Koenig *phonautograph* of the 1850s on which the sound of a voice speaking through a stethoscope-like tube causes a stylus to trace a vibration on a rotating paper surface coated in lampblack. It was a very insensitive recorder, even by comparison with wax cylinder recorders of the period. However it had the virtue of representing speech as an audible continuum and not as a sequence of discrete syllables. The task of identifying separate syllables within the continuum of vibration was addressed in terms of the dynamics of the speech act. According to Stetson

‘The characterized factors of the syllable, the vowel and the consonant, constitute the familiar phonemes [with] which the phonemic systems are concerned.

The fundamental classification of such phonemes has already been indicated:

Vowels which emit the syllable pulse.

Consonants which delimit the syllable pulse.

Consonants have two fundamental functions:

Releasing the syllable pulse.

Arresting the syllable pulse.’ (Stetson: 61)

—of which the *release* corresponds to the onset (Messiaen: anacrusis), the *vowel* the steady state (accent), and the *arrest* the decay (decline). What makes this more than a simple coincidence of threesomes is the additional correspondence between Stetson’s dynamic theory, emphasizing the physical speech act, and the special emphasis on the dynamics of performer action that underlie a musical theory of rhythm. What Stetson is doing is searching out the basic *gestural* units of speech in order the better to understand how they are recognized as conveying meaning in the ever-varying combinations of ordinary discourse. What Messiaen is implying by his theory is a reduction of musical rhythm to a set of basic units that are modifiable in reference to a beginning, a middle, and an ending, to produce an infinite variety of new and potentially meaningful configurations. Compare Stetson: ‘Speech is rather a set of movements made audible than a set of sounds produced by movements.’ When the two are read side by side, a picture emerges of a generative system based on rhythm that, already applying to speech, can also be applied to music; not a system of rules to restrict freedom of speech, but procedures that allow for the free articulation of new thoughts and new meanings.

The tripartite division of a syllable is also discernible in the orthography of ancient languages, for example Sumerian, a system of writing the symbols of which represent not complete words or ideas, but constituent sounds of syllables. ‘The structure of the Sumerian [cunieforn] led to the recognition of the three factors in the syllable, each of which might on occasion be distinguished in notation: 1. Releasing factor, usually a consonant; 2. Vowel shape giving the syllable a definite quality; 3. Arresting factor, usually a consonant.’ (Stetson: 155) As a students of music both Messiaen and Stetson would have known of the functions of *anacrusis* and *accent* as they apply to plainchant notation. Plainchant however is a vocal practice, and has no rhythmic component, only succession. The missing element of *désinence* (decay) has to be looked for elsewhere. It is noteworthy that Messiaen credits his introduction to rhythm in 1929-30 to Maurice Emmanuel and Marcel Dupré, his teachers at the Paris Conservatoire. Through them he was introduced to Greek scansion and later discovered tripartite formations in Indian rhythms.

When I first consulted Stetson I was simply looking for a precedent in science for the standard depiction of a synthesizer waveform as a three-part formation of onset, steady state, and decay. Re-reading Stetson with Messiaen’s theory of rhythm in mind, reveals an even more remarkable series of conjunctions of US and European theory, and of linguistic and music theory.

The starting point is the invention by Leon Scott of a sound recording device, the *phonautograph*, in Europe in the 1850s. This device was designed as a piece of laboratory equipment for the realization and analysis of speech sounds in visible form. Phonautograph recordings, as with the later kymograph, could not be played back as sound: they had to be studied as wavy lines on paper. A quarter-century after Scott, Edison invented a device for capturing, storing and audibly reproducing, on indented tinfoil, telephone messages transmitted in Morse code. By an accident of fast rewinding he discovered the machine had a potential for recording and also reproducing human speech. Shortly afterward, Alexander Graham Bell and colleagues developed an improved wax cylinder recorder, in part as a

communications aid for the hard of hearing (Bell's wife being deaf), and also as an instrument of research into speech sounds and speech articulation. What is now called the music industry came into being in the late nineteenth century not as a natural consequence of recording—after all, the quality of early sound recording was abysmal—but as a marketing ploy to generate income for scientific research into the nature of voice communication. Among scientists, the new audio technology was widely perceived as the key to uncovering not only the roots of language, but also the bases of human emotion, in much the same way as the capture of moving images on film promised to revolutionize human understanding of dynamic processes in nature, to which speech and music belong.

It is no surprise, therefore, that the development in the late nineteenth century of new technologies for recording sound and movement should lead to the development of corresponding new fields of intellectual inquiry, and the rise to prominence of the triumvirate Ferdinand de Saussure, linguist and pioneer of semiotics, a new science of meaning; Emile Durkheim, an early leader in the social sciences and the structures of social relationship of which language is a dominant component; and Sigmund Freud, pioneer of psychology and investigator of the human unconscious. It is in the 'General Theory of Linguistics' of de Saussure that the primary distinction of *la langue* and *la parole* is articulated for the first time. During this time the poet Stéphane Mallarmé composed *Un coup de Dés* (a throw of the dice), a poem designed both formally and typographically to allow a variety of alternative readings. It is this intellectual environment, deeply involved with basic questions of the dynamics of human behaviour, that sets the tone for musical developments in the early twentieth century. One such innovation, the introduction of *sprechgesang* in Schoenberg's *Pierrot Lunaire*, acknowledges the musical potential of inflected speech in a totally new way.

The Great War of 1914-18 and its catalogue of destruction served only to intensify the search by artists and writers for new techniques for representing human motivation through the cultivation of an anti-authoritarian and non-representational art tapping into the individual and collective subconscious. During the 1920s both surrealism and radio emerge as new communications media. Schoenberg's twelve-tone method makes its appearance as a structured method, as if inspired by Freud, to restrict the composer's conscious freedom of choice and allow the unconscious to be expressed. (A generation later his sometime pupil John Cage's aesthetic of chance is destined to fulfil exactly the same mission.)

Now the fun starts. We learn that Stetson perfected his theory of motor phonetics not at Harvard or Oberlin, but as a consequence of his studies *in Paris* during 1922-23 with French pioneer Abbé Rousselot (a name that could almost come from Messiaen's *Catalogue d'oiseaux*). That makes Messiaen's adoption of tripartite rhythm even more interesting, since it shows motor phonetics to have been just as much a part of Parisian intellectual life as the theory of de Saussure. There is more. While still at Harvard, prior to his studies in Paris, Stetson had come under the influence of William James, the philosopher and brother of the novelist Henry James. It was at Harvard in 1906 that Stetson completed his Ph.D. dissertation entitled 'A Motor Theory of Rhythm and Discrete Succession' under Hugo Münsterberg.

Paris in the 1920s had long been a refuge for American artists and writers, among them Ernest Hemingway, George Gershwin, e e cummings, and George Antheil. The American presence in Parisian intellectual life is celebrated in the movie *An American in Paris*, based on Gershwin's music. Of all Americans in Paris, the most celebrated for the longest time was Gertrude Stein, writer and inventor of a radically new kind of mantric prose. Gertrude Stein was another Harvard graduate in psychology and zoology. She also studied under William James and Hugo Münsterberg; in fact her first piece of published writing was a paper in *The*

*Psychological Review* of September 1896 entitled 'Normal Motor Automatism', a study of speech pattern.

'It would be difficult to overrate William James's influence on Gertrude Stein. The conscious, just before it was superseded through the influence of Sigmund Freud by the unconscious—although never for Gertrude Stein—was a main concern of thinking people, and she was a thinker. James's conception of the "stream of consciousness" awoke an immediate response in her. "Within each personal consciousness, thought is sensibly continuous," he had already written in *The Principles of Psychology*. "Consciousness . . . is nothing jointed: it flows." And so-called interruptions "no more break the flow of the thought that links them than they break the time and space in which they lie." (Elizabeth Sprigge, in Meyerowitz: 13-14)

We have to ask if Messiaen, the son of a poetess, composer of *Harawi* and publisher of a new theory of rhythm, knew more than he let on. Though he affected an air of simplicity, I have no doubt of his intellect. What drew him to study rhythms of the far East? Was it merely a taste for the exotic, or a genuine desire to formulate an alternative musical language? As a devoted Catholic, would he not have been interested in the theories of Abbé Rousselot? The son of a professor of English literature, Messiaen claimed to have been reading T.S. Eliot at the age of eight. If that is true, would he not also have been capable of reading Gertrude Stein at the age of eighteen?

It does not end there. Boulez's settings of Mallarmé and of e e cummings, and Berio's settings of cummings, Joyce, and Beckett, speak to us of a perceived affinity connecting the composers of post-war modern music with poetic conventions expressing Parisian intellectual life of a previous generation. This sense of connection is not random but deliberate: both in the acknowledgement of corresponding objectives, and in the desire to create forms that reflect the unconscious patterns and processes of human thought and meaning. In a final touch of irony the repetitive mannerism of American Gertrude Stein also looks ahead to the musical minimalism of Philip Glass, John Adams, and their generation.

So what of Messiaen's *Mode de valeurs et d'intensités*? This is the piano piece acknowledged by everyone, Dr Deliège included, as a seminal work in the history of serialism, the prototype of a new 'pointillistic' style in which all the parameters: pitch, attack, intensity, and duration are serially ordered and permuted. In their haste to acknowledge the work as a quantum leap in musical thought, the experts have failed to notice some even more radical issues:

- 1) Although widely touted as the work of 'a master rhythmician' the work is nothing of the kind. It contradicts the composer's own theory of rhythm. It is in fact the *antithesis of rhythm*, a music operating in a modern equivalent of the unmediated timespace of medieval plainchant. That sense of timelessness is what initially commended the work to Stockhausen and Boulez.
- 2) Messiaen's definition of unique pitch, attack, intensity and duration variables for every single note is very new, and effectively corresponds to a rendering of each note as a 'syllabic unit' in the terms of motor phonetics: that is, as particles of a musical speech in which not only *anacrouse-accent-désinence* but all other components of *the physical gesture* are inseparably combined.
- 3) Cage's prepared piano intuitively does the same: producing a keyboard in which every prepared sound has fixed and unalterable acoustic properties, further evidence perhaps of a US-French connection.
- 4) In addition to abolishing time, the piece also abolishes form. In their place it proposes a vocabulary of terms that may be freely varied in order, their characteristics remaining the same, to create new formulations with the potential to communicate new ideas. The prepared piano implies the same.

This is a radical conception of music, and its radicalness is inspired by theories of meaning that were active in the Paris of Messiaen's youth, both directly, in the work of Roussetot and de Saussure, and indirectly, through their influence on the surrealists.

(1) Célestin Deliège: *Cinquante Ans de Modernité Musicale: De Darmstadt à l'IRCAM. Contribution historiographique à une musicologie critique*. Sprimont, Editions Pierre Mardaga, 2003. 1024pp., 21 x 29.7cm, paperbound, 2-87009-828-6, €65.00.

(2) R.H. Stetson : *R. H. Stetson's Motor Phonetics. A Retrospective edition*. Edited by J.A.S. Kelso, and K.G. Munhall. Boston: College-Hill, 1988. 0-316-48702-3

(3) Patricia Meyerowitz (ed): *Gertrude Stein: writings and lectures 1911-1945*. London: Peter Owen, 1967. 0-720-60060-X