

**Review of Kanach, S., & Nelson, P. (Eds.). (2024).
*Meta-Xenakis: New Perspectives on Iannis Xenakis's
Life, Work, and Legacies*. Open Book Publishers.**

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Abstract

This book arose out of international collaborations arranged for the occasion of the centenary year of Iannis Xenakis in 2022. Its remarkable breadth mirrors and examines the interests and international influence of the composer, one of the leading figures of the European post-war avant garde, and a significant initiator of what have since become defining fields in twenty-first century aesthetics and musical thought. The relationship of Xenakis's style and technique to mathematics, semiotics, architecture, computer design and the fledgling field of AI are all addressed, together with the impact that these factors in his philosophy and output have had on a range of international movements in music, technology and the arts.

1 The Contribution of the Book to Scholarship

Meta-Xenakis is the published outcome in both electronic and hard-copy form of a range of projects that emerged in the large-scale international online event devised to celebrate the composer's centenary in 2022. The book encompasses its subject through the varying perspectives of authors and collaborators who provide analytical, biographical, performative and descriptive contributions consistent with his complex and influential achievements. The prefix 'meta-' embraces the breadth and ongoing potential of the works and ideas that originated over the lifetime of this musical polymath, while at the same time capturing the connection with the Greek origin of a refugee from his native country who is nevertheless its most celebrated musical product.

The book is a celebration both of Xenakis himself and of the philosophical and aesthetic movements to which his work gave rise, hence the international scope of its exemplification of responses to his influence worldwide. The interrelation of biography with output is of special significance, commencing with the circumstances that led Xenakis to achieve fame in Western European exile, and the painful recovery from near-death that preceded this.

More than one author in *Meta-Xenakis* refers (e.g., Araya, p. 184; Estrada, p. 478) to the effect on the composer's acoustic perception of the ear damage suffered by Xenakis resulting from the explosion of a British shell that killed his companions in street fighting in Athens in 1944. The severe injury to his face also resulted in the loss of an eye, while the political commitment that placed the composer in such danger was responsible also for his exile from his homeland (where

he was condemned to death *in absentia*), as well as his lifelong sympathy for victims of oppression (exemplified, for instance, in the dedication of the vocal ensemble work *Nuits* (1967) to named political prisoners).

Xenakis's preoccupation with a rediscovery of the relationships between proportion and expression reflected his early immersion in Ancient Greek philosophy and literature. Despite the impression of a connection with the static solidity of his initial architectural achievements, his later music evinces a bodily dimension in the sheer physicality of his works for percussion (e.g., *Plèiades* (1978) and *Psappha* (1975)) and the ballet *Kraanerg* (1968), memorably danced by the National Ballet of Canada.

Where for the late Umberto Eco 'books are about books', and given the predominant assumption of musical education up to the radical stance adopted by Cage (and evident in the approach of teachers such as Schoenberg and Nadia Boulanger) was that musical composition needed to respond to deep enculturation in the traditions of its predecessors, Xenakis adopted a position that presented an *ab initio* potential for stochastic processes and the employment of computer programs to present acoustic consequences that required no compositional precedents: music need not be about music.

His breakthrough work *Concret PH* (1958), devised to be experienced by audiences entering or leaving the Philips Pavilion designed by Le Corbusier, and acting as bookends to Varèse's *Poème Électronique*, possesses a clear sense of cumulative narrative that prefigures the methods of Xenakis's subsequent stochastic works dependent on computer realisation. This fundamental achievement of Xenakis's early collaboration with Varèse, in which music was disseminated as a complement to architecture through an array of loudspeakers, provided a novel spatial context inseparable from its acoustic impact. The music was itself an exhibit: static, permanent and lacking visible human agency. While many of Xenakis's subsequent works embraced considerable corporeality, even theatricality, the achievement of a distillation of neutral sounds in a landscape, whether this suggest the cicadas of the countryside or the hubbub of a city crowd, underpinned the exploration of granular synthesis and the sound-world to which it gave rise. But Xenakis was no mere abstract thinker. Matossian (2005, pp. 211–212) recalls discussing his approach to improvisation: while being unimpressed at the idea of leaving interpreters freedom within his compositions, he was personally fascinated to explore the properties of instruments prior to deciding on their employment in his works (see *Meta-Xenakis*, Chapter 14 (Delhayé), p. 248).

The volume commences with an explanation of its origins in the live-streamed *Meta-Xenakis* virtual festival of 2022, an exemplary editors' introduction, biographical notes on the authors, and a Prolegomenon by Harley (p. 21) that succinctly outlines Xenakis's life and achievements. There then follow 51 chapters.

2 Chapters of Particular Interest to the Fields Covered in *JCMS*

While virtually everything Xenakis touched has a degree of relevance to the development of creative music systems, a selection of chapters best represents the scope of this book for the field.

In Chapter 6, Ronald Squibbs reviews Xenakis's *Free Stochastic Music* program, which enabled mathematical procedures that he had previously calculated by hand to be processed electronically on the latest IBM computer. The new works thus developed (1956–1962) include those that carry the prefix *ST* (a version of the Fortran program developed during this period remains available from a weblink provided in a footnote). Squibbs illustrates how the program couples textural density to instrumental timbres (a marked contrast to, for instance, the serial processes employed by Stockhausen in a work such as *Mantra* (1970)). Familiarity with the program permits a deconstruction of how the score of the chamber ensemble piece *Atrées* (1962) was achieved.

A focus on the philosophical aspects and interpretations of Xenakis's writing informs Chapter 8 by Ramón del Buey Cañas and Oswaldo Emmidio Vasquez Hadjilyra, on the dialectic of real-time computation. The authors identify the Classical origins of Xenakis's thinking in Plato,

setting out the ‘impasse’ involved in negotiating the conditions of determinacy and indeterminacy. Citing Adorno’s (1962) proposal of *musique informelle* as ‘completely free of anything irreducibly alien to itself or superimposed on it’, a case is made for contrasting Xenakis’s aesthetic with that of Pierre Schaeffer or John Cage, whereby he embraced the influence of information theory and semiotics to underpin communicative intentions.

Nathan Friedman’s Chapter 9 adopts a contrasting, historically-derived approach to the issue of aesthetic purpose, conjuring a ‘postmodern sublime’ effect on the listener that responds differently to the Romantic sublime of Edmund Burke (2008), which informs perception of nineteenth-century music. Friedman quotes with approval the response of Milan Kundera (2010) on first hearing Xenakis’s music as possessing a beauty ‘washed clean of affective filth, stripped of sentimental barbarity’. Friedman’s focus is on the motivational and emotional features that may be concealed where scientific and technical information takes precedence.

In Chapter 11, Pablo Araya also explores the relationship between the exact sciences and music, spotlighting the roles of metaphor and analogy. He presents Xenakis’s own account of his achievement of ‘the analogy of these natural phenomena in music’ for which he ‘followed Maxwell’s approach step by step: what he did with molecules I did with the sounds’ (p. 182, citing Varga (1996)). One might take this relationship between extra-musical stimulus and its sonification as providing a parallel in some respects to Schoenberg’s (1950/2010) formulation of *style and idea*. What Xenakis’s method presents, though, is a direct relationship between stimulus and sound, the two related by the mathematical principles to which they can be similarly reduced. Granular synthesis can provide both a sonic reference to a natural phenomenon, such as, for instance, the sound of thousands of cicadas on a summer’s day, and also capture acoustically a representation of the Brownian motion of gas.

Chapter 38 by Bill Manaris examines further the development of algorithmic processes in Xenakis’s work in diverse media. The approach was shaped by the composer’s distinctive employment of the programming language Fortran, identifiable in the phases *input*, *process* and *output*. Data could be expressed in *visualisation*, *sonification* or other forms of *materialisation*.

From his close examination of Xenakis’s works and methods, Manaris derived a new program, UPISketch, accessible by the kinds of equipment widely available today. This aims to fulfil the educational potential of Xenakis’s intentions expressed in the composer’s description of the potential of the original UPIC (Xenakis, 1979, p. 96), including its appeal to children, realised by Manaris in a form accessible via iPhones and iPads. Manaris’s contemporary updating of Xenakis’s achievements is paralleled in the author’s use in this chapter of QR codes that permit the reader to access key audio and video recordings referred to in the text, and extended in one of the realisations Manaris describes that employs the audience’s smartphones as a means of distributing sounds and controlling aspects of the performance.

Manaris, quoting Keller and Ferneyhough (2004), outlines the gap between the output generated by the compositional program and its transcription into musical notation, which he refers to as *data sonification* (p. 639) and that represents the musical output that the audience hears. The same program may be realised in a different medium through *data materialization*. These multivalent outcomes characterise the key term *Polygogique* within the UPIC descriptor. Quoting Kanach (2010), Manaris stresses the significant difference between computer realisations that have been produced of Xenakis’s instrumental works and the essentially human features of their performance as the composer intended. The computer presented the capability of realising its programs in varied manifestations: art or architecture, musical composition, lighting plan; as well as all of these together or in sequence: the digital *Gesamtkunstwerk*.

3 Conclusions: Themes and Reflections

The extraordinary effect this reader experienced of engagement with this extensive collections of analyses, reflections and elaborations is the sense of its capturing the spirit of the age in which Xenakis lived, and the contribution he made to shaping it. For instance, over the last 50 years, where do we expect to experience music (concert hall, opera house, exhibition hall, car radio,

personal computer, mobile phone)? What is the role and purpose of music, and for whom is it produced?

In evaluating the significance of Xenakis, it is tempting to consider from a wider historical perspective the nature of the revolutionary musical and aesthetic innovation to which he, alongside his contemporaries, contributed. Periods of rapid change in musical history have commonly represented a response to new technologies: the invention of notation; the development of music printing; the new potential of the piano. The picture evident throughout *Meta-Xenakis* is of the white heat of technology informing everything without exception in an irreversible thrust of experiment and the application of scientific method.

Reflecting on the idea of the Romantic and postmodern sublime in Friedman's chapter (9), a parallel can be drawn between the reaction against Romanticism that emerged in Paris and Vienna just prior to World War I and the post-war conditions from which a scientifically influenced avant garde arose in Europe in the 1950s. Key innovations in the former period include Stravinsky's *Petrushka* (2011) and Schoenberg's *Pierrot Lunaire* (1912) – both in origin staged works whose eponymous character references the clown tradition traceable to the Renaissance *Commedia dell'arte*. Both undermined and redefined – as, even more dramatically, did Stravinsky's *Le Sacre du printemps* (1913) – the conventions and traditions of the primary Romantic media of ballet and opera, while remaining principally concerned with character and narrative. The aesthetic revolution post-1945, by contrast, strongly embraced scientific advance: both in its media (the tape-recorder and computer, which had emerged from technological advances accelerated by the conflict), and in its points of reference. While Xenakis represents most prominently the espousal of scientific method in his composing practice and its aesthetic potential, these features are evident in the output of other composers. In composing *Poème Électronique* for the opening of the Philips Pavilion to which Xenakis made his own innovative contribution, Varèse achieved the first notable composition of its kind. Xenakis's concerns with mathematical forms and stochastic processes are echoed in such works as Berio's *Points on the curve to find* (1974) and Ligeti's exploration of the formulation of Karl Popper, *Clocks and Clouds* (1973).

One takes from Friedman's chapter that the scientific and the aesthetic are complementary rather than opposed, with engineering underpinning both material and aesthetic functions. A bridge can both look beautiful and provide a safe and dependably lasting practical edifice: indeed, the one outcome is key to the interpretation of the other. So, also, music affects its listeners. One might coin the term *stochasm* for the capacity of algorithmically derived sonic structures to prove expressively moving.

Meta-Xenakis represents a milestone in the critique of Xenakis as an artist-philosopher, appraising his status as amongst the most significant composers of the second half of the twentieth century, whose influence has contributed materially to the concerns of musicians and their collaborators today. In a perceptive review of Matossian's (2005) update of her groundbreaking (1981) monograph on Xenakis, Vagopoulou (2011, p. 126) wrote:

We still await the publication of a full-length biographical work on Xenakis's life and music, critically evaluated and restructured, incorporating fuller coverage of his last years and drawing connections between performance issues and the relationship he had with his regular musicians.

This multi-authored volume offers for the present a convincing response to Vagopoulou's request.

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