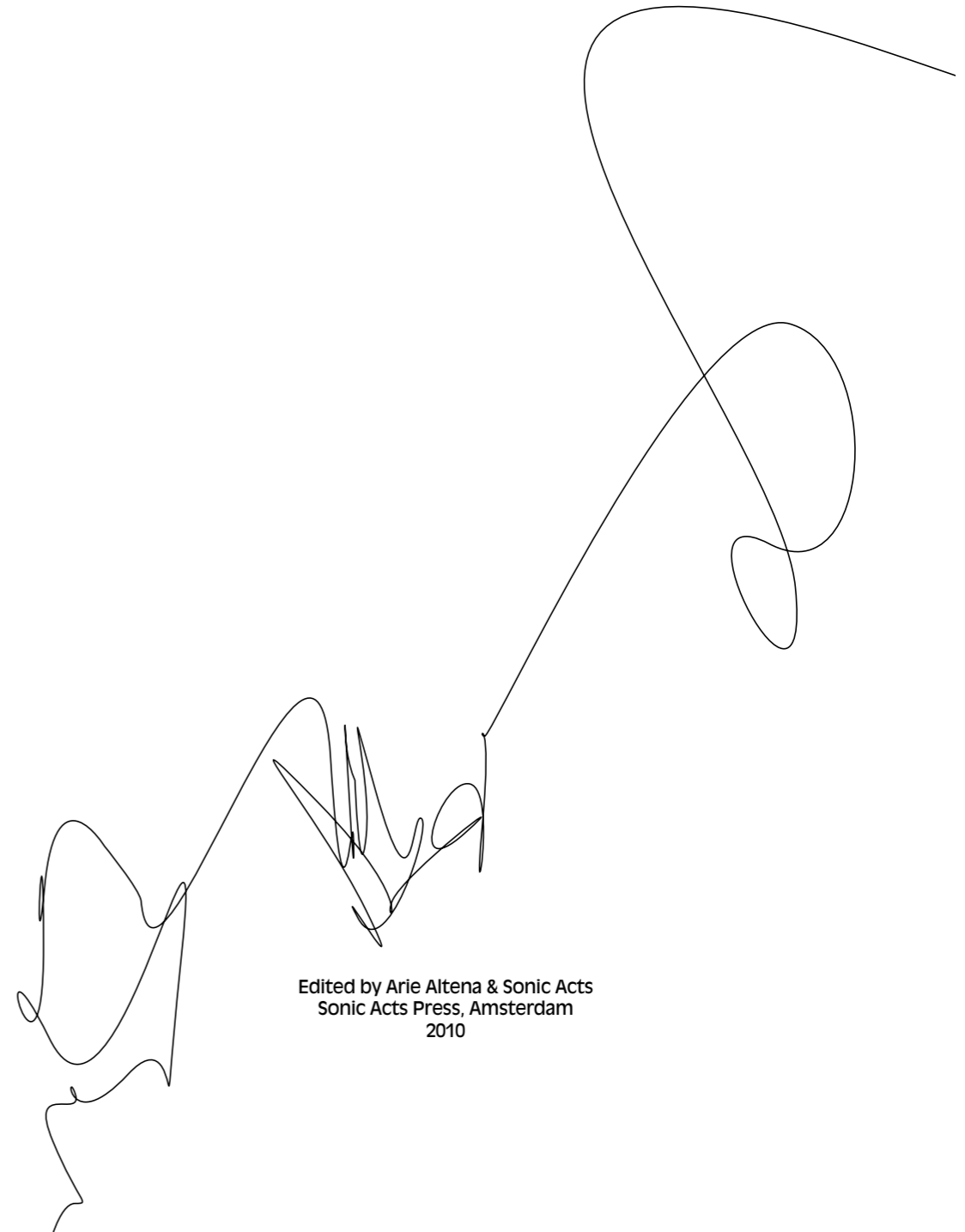


Sonic Acts XIII
The Poetics of Space



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2010

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Introduction

This book was compiled and edited in 2009 during the development of the thirteenth Sonic Acts Festival. The research, ideas, and thoughts that led to the Festival, held between 25 and 28 February 2010, were the same as those that guided the compilation of this publication. This book is therefore a counterpart to the Festival, but not a catalogue. Although the title, theme and research are the same, the resulting product differs.

The title *The Poetics of Space* derives from the English translation of the book *La Poétique de l'Espace* (1958) by the French philosopher Gaston Bachelard. Bachelard meticulously described the influence of space and architecture on humans and implicitly argued for an architecture based on experience and imagination, not only on scientific knowledge and functionality. The guiding idea of Sonic Acts' *Poetics of Space* is the exploration of space and spatiality in art, sound, technology, and science. We focused attention on the physical spatial experience, on the physical and psychological impact of spatial designs in a society, which has increasingly put technologically mediated communication and immaterial data-streams at its centre.

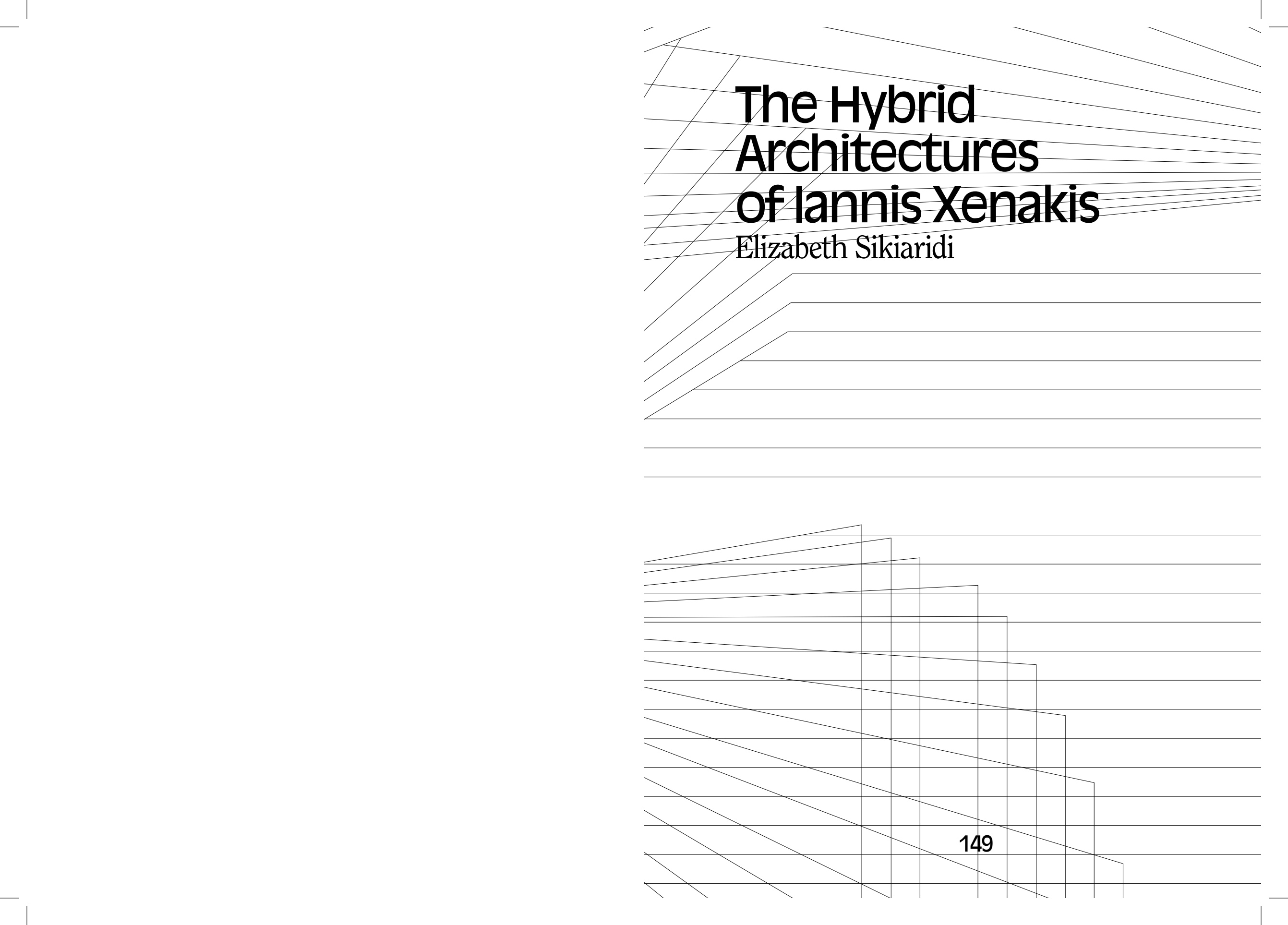
The central motif of this book is an examination of spatiality in the arts, more specifically the poetry of (abstract) space and the (psychological) perception of space. In what ways do works of art approach and define space? In what ways do technological artworks examine the visual, auditory and psychological properties of spatiality? What developments have taken place over the past centuries in the relationship between technology, space and architecture? How have technological developments influenced our perception and conception of space and the ways in which we relate to the space around us?

Immersive installations, spatial sound, multi-screen projections, performances that combine sound and vision, and the innovative artistic use of technology often take centre-stage at Sonic Acts. The presentation of such works is combined with an interest in the scientific and conceptual background, and in works by precursors from the history of art and technology. For *The Poetics of Space* we were also interested in how technology redefines public, private, and intimate space, and how it has changed our orientation in, and awareness of, space. The interest of visual and media artists in such issues links up in interesting ways with the research and works of different generations of sound artists and soundscape composers

who have delved deep into our understanding of space through sound, and have enabled a profound exploration of specific spaces and environments. The idea that architecture and spatial design is not only visual, but speaks to all the senses, is a notion which not only informed Bachelard but also the Finnish architect Juhani Pallasmaa, whose *The Eyes of the Skin* was a profound inspiration for the Festival programme. Underlying all of this is not only a critique of ocular-centrism, but also an emphasis on the experiential aspect of art. Needless to say, these are wide-ranging issues that can hardly be covered in one book. But the aforementioned questions and issues do return, sometimes explicitly, sometimes implicitly, throughout the texts presented here.

Sonic Acts commissioned texts from Brandon LaBelle, Douglas Kahn, Trace Reddell, Cindy Keefer, Erkki Huhtamo and Eric Kluitenberg for this book. Brandon LaBelle's poetic performance-text explores how the speaking voice relates to space. Douglas Kahn's essay is about extremely long soundwaves, such as those produced by the eruption of Krakatoa in 1883, and also touches on electrical sound phenomena heard on telephone lines and the work of Gordon Mumma and Alvin Lucier. Trace Reddell interprets the legendary Vortex Concerts of Jordan Belson and Henry Jacobs in the light of cybernetic theory, space travel and cosmology. Cindy Keefer condensed her meticulous research of the Vortex Concerts. Erkki Huhtamo's media-archaeological account, shows how the form of the Diorama, which aimed at creating an immersive experience by creating an illusion of spatial depth, changed through the years from Daguerre's original Diorama to the modern miniature dioramas of popular culture. The essay by Eric Kluitenberg describes the effects of the use of mobile technology on our experience of public and private space and elaborates the concept of Hybrid Space, a spatial condition that characterizes the contemporary condition.

Barry Truax's previously published 'Soundscape Composition as Global Music' is included here because it is a clear overview of the original ideas and history of the World Soundscape Project (1973) and describes the evolution of soundscape composition. Mitchell Whitelaw's essay directly relates to the Sonic Acts XIII exhibition programme, which features a spatial installation by HC Gilje's; Whitelaw establishes a link between tangible spatial installations and immaterial network culture.

The background of the page features a complex architectural drawing. It consists of numerous thin, black lines that create a sense of depth and structure. In the upper right, there are several curved lines that sweep across the page. Below these, a series of horizontal lines are interspersed with vertical lines that form a grid. The overall effect is that of a technical drawing or a conceptual architectural plan, rendered in a minimalist, line-art style.

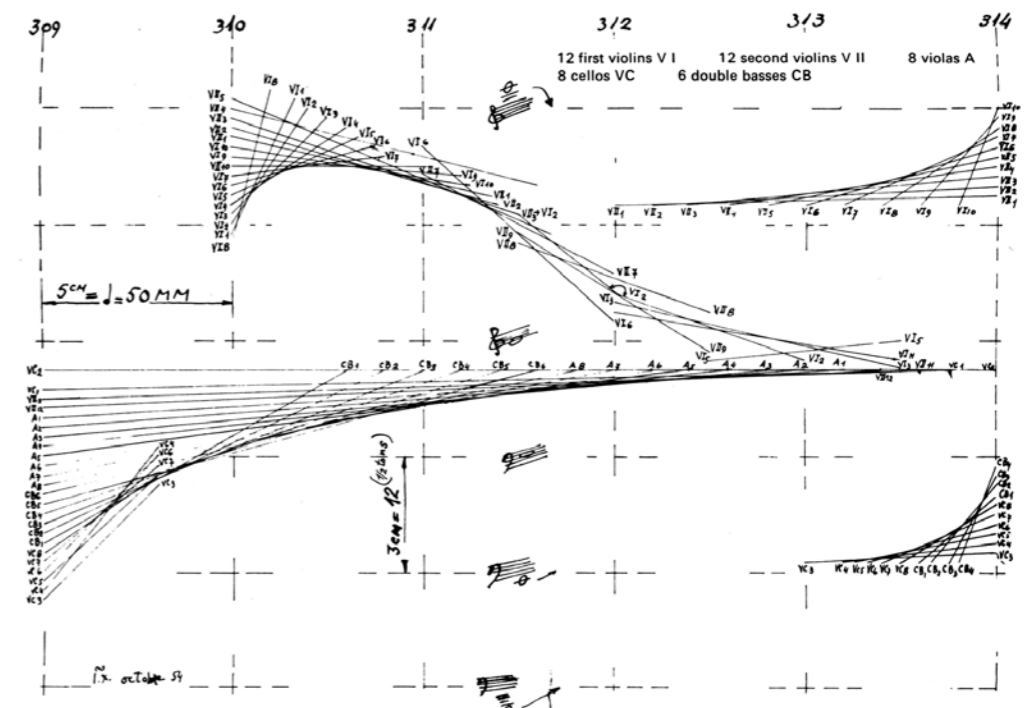
The Hybrid Architectures of Iannis Xenakis

Elizabeth Sikiaridi

In the aesthetic production of the twentieth century, the *Poème Électronique* is a fascinating moment of artistic synergy. The architect, Le Corbusier, conceived an electronic synthesis of visual and acoustic events, and a vessel containing the poem for the Philips corporation presentation at the 1958 Brussels World Fair. The composer Edgar Varèse contributed the acoustic part, the spatialized piece of music entitled *Poème Électronique*. Iannis Xenakis (1922–2001), who was originally trained as an engineer, worked as an architect in Le Corbusier's office. He designed – in co-authorship with Le Corbusier – the vessel containing the *Poème*, the shell structure of the Philips Pavilion. Xenakis, was to become an internationally renowned composer, and he continued his research into complex architectural forms and the equally complex ephemeral architectures of music, sound and light. Xenakis's experience of working simultaneously in architecture and music opened the way for the practice of applying the same structures in music and visual events (his *Polytopes* and *Diatope*), and for transferring mathematical–scientific structures into artistic production. His transfer and use of scientific–mathematical methods is more than a practical solution to the problems of processing the dynamic formations of sound and light events, of organizing the mass phenomena of clouds of sounds and galaxies of light that he is confronted with while composing; it is an integral part of world-view and his approach to art.

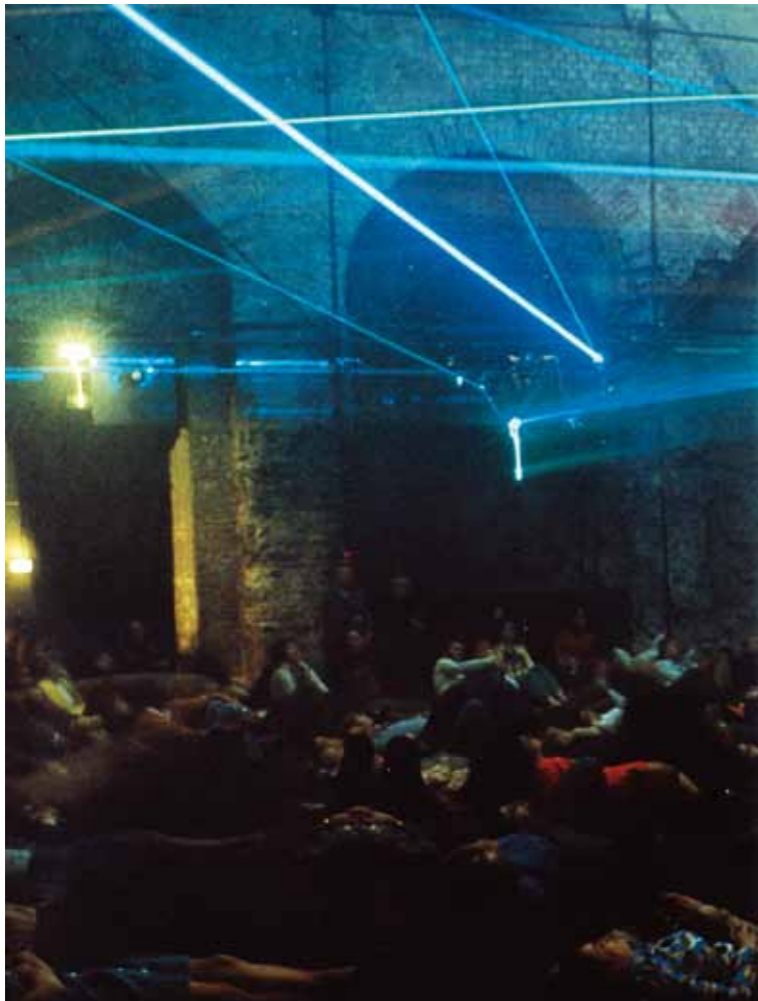
In the 1960s Xenakis started to develop a custom-made computer to control and (de-)synchronize the overlaps between musical and visual events, and integrated it in his creative process. This digital instrument, the UPIC, is a music-computer with an architect's drawing board as interface that transforms graphical information into music and sound. Linking visual and acoustic forms via the bridge of mathematical information, this computer reflects Xenakis's holistic approach to form and is an integral part of his research on complex structures and their materializations in very different media and dimensions, in sound, in light, in time and space.

Before working on the Philips Pavilion, Xenakis had introduced hyperbolic paraboloid structures in his musical composition *Metastaseis* (1953–54): graphs of straight lines mapping the rising or falling sounds of each instrument, the *glissandi*, generate curved, ruled, surfaces of sound.

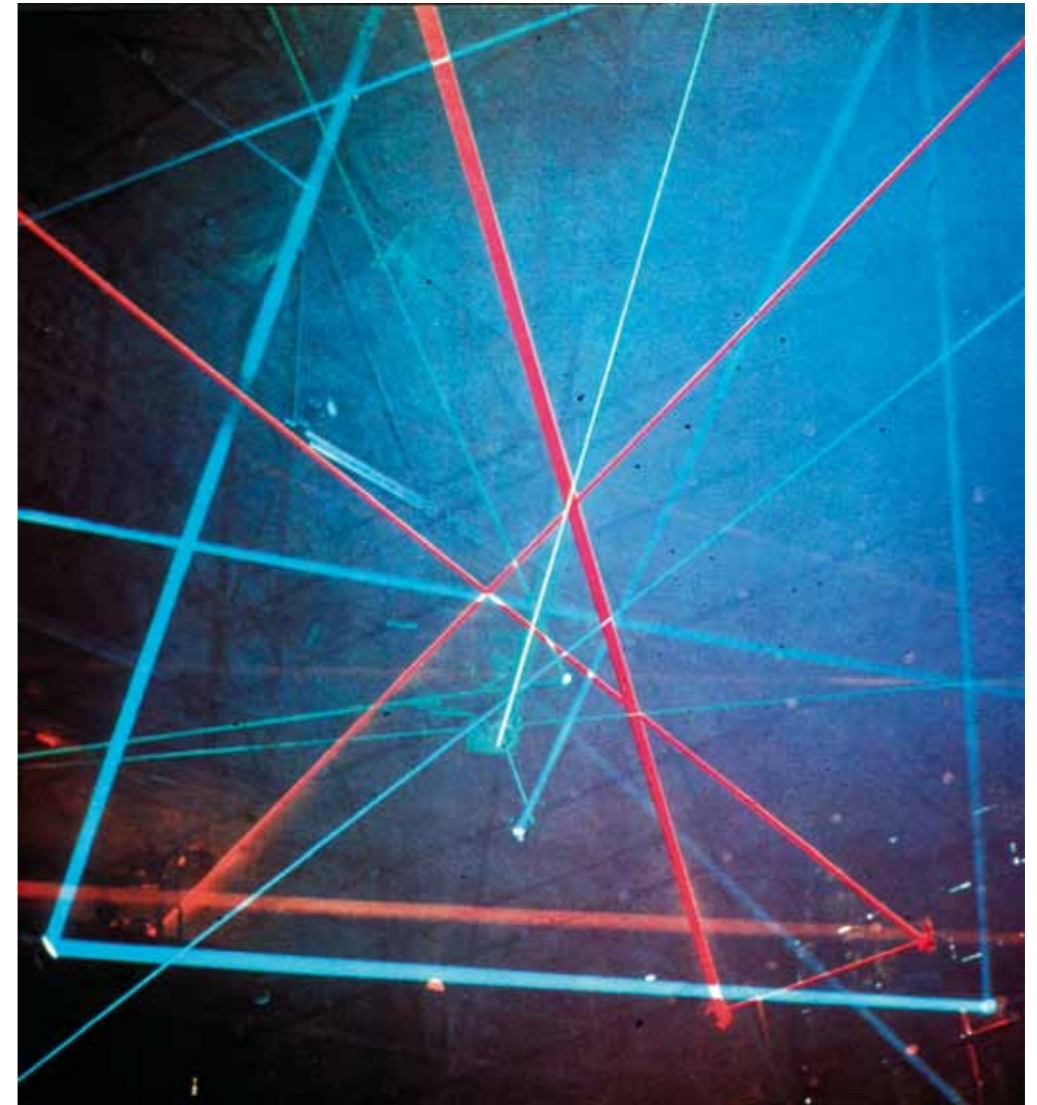


Iannis Xenakis, Notations for the hyperbolic paraboloid structures of *Metastaseis*, 1953–54.

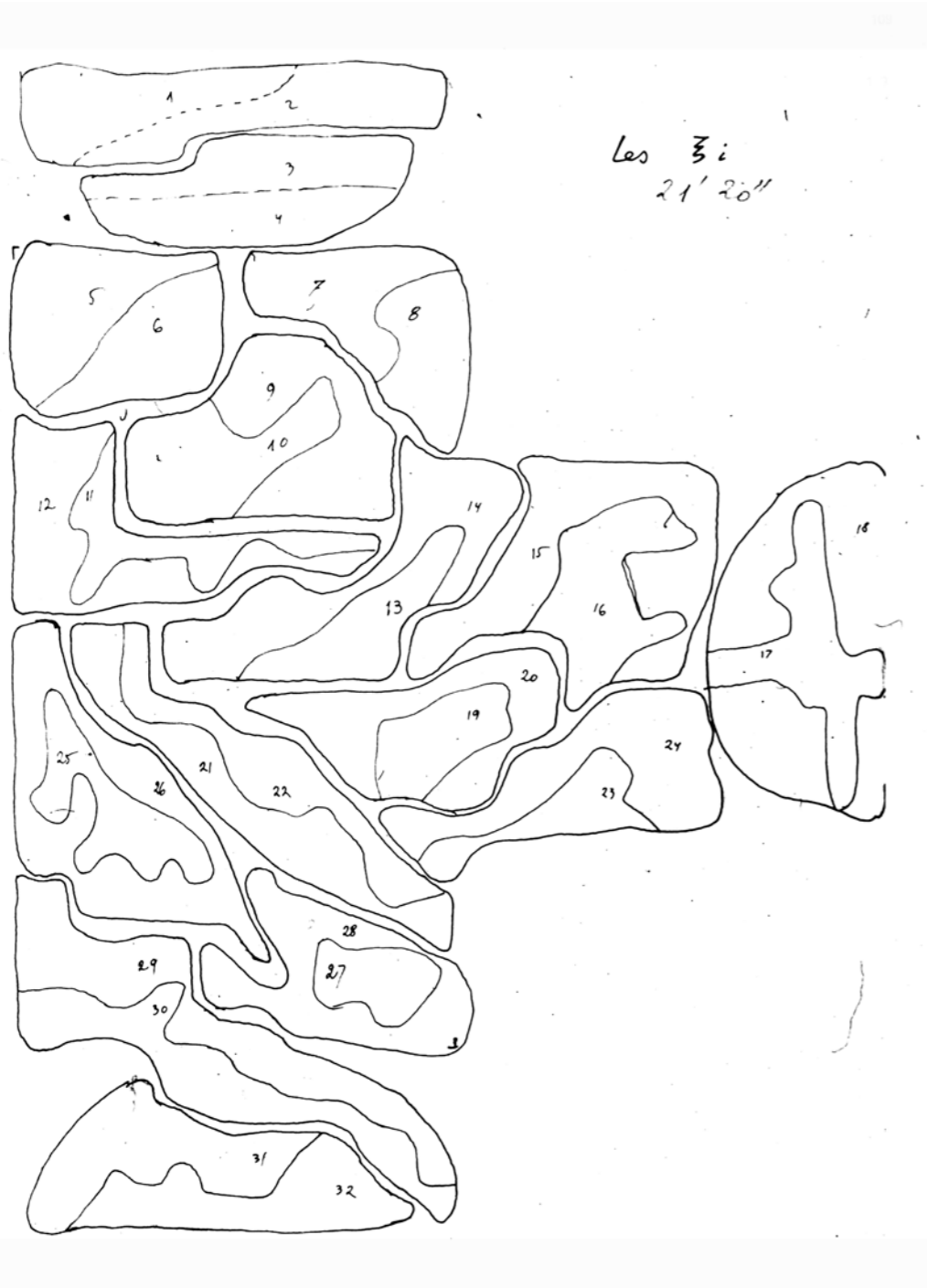
Xenakis worked with architectural elements that capture, guide and transform light. For the Convent of La Tourette, Xenakis designed a rhythmically structured facade, the *pans de verre ondulatoires* (undulating glazed panels), and the skylights, the *Light Canons*. These architectures of light evolved later in Xenakis's compositions of sound and light: the *Polytopes* (*Polytope* of Montréal, 1967; *Polytope* of Osaka, 1970; *Polytope* of Persepolis, 1971; *Polytope* of Cluny, 1972–74; and *Polytope* of Mycènes, 1978). The word *polytope* (*poly-topoi*, 'multiplicity of places') describes the overlaying of music and light, creating various ever-changing asynchronous places.



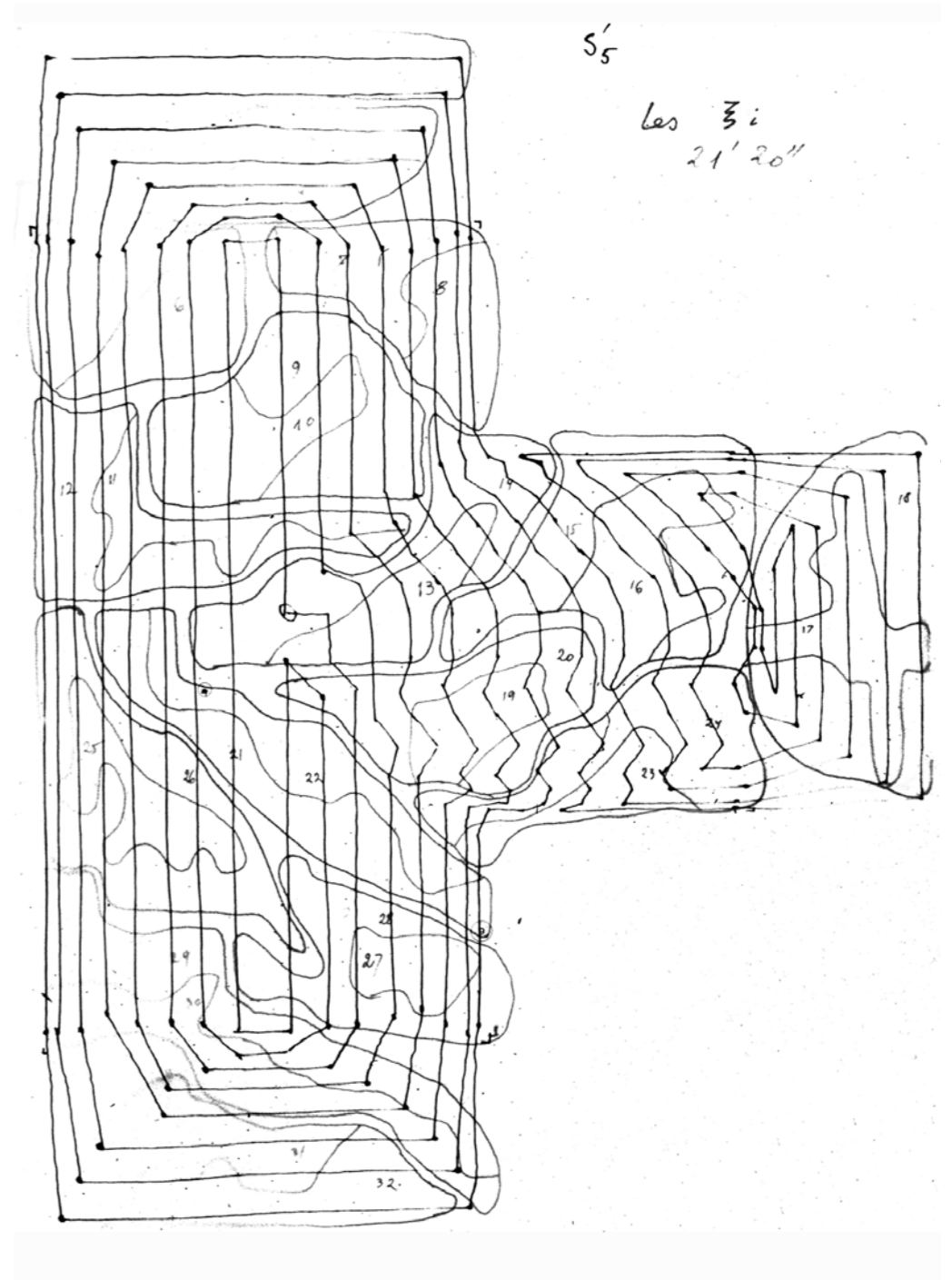
Iannis Xenakis, **Polytope de Cluny**, in the Roman thermal baths of Cluny in Paris 1972–74.



Iannis Xenakis, **Polytope de Cluny**, in the Roman thermal baths of Cluny in Paris 1972–74.



Iannis Xenakis, graphical notations for **Polytope de Cluny**.

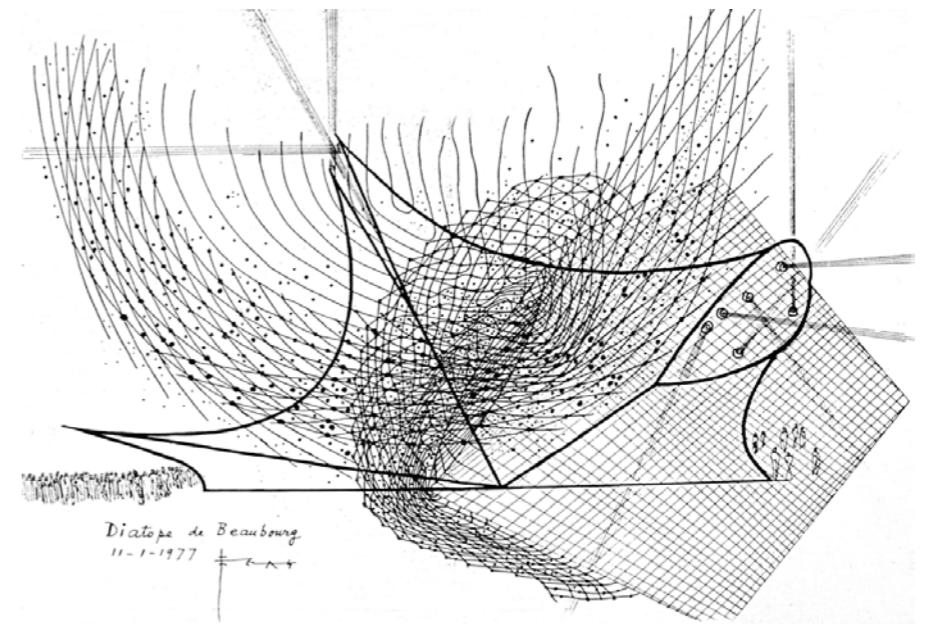
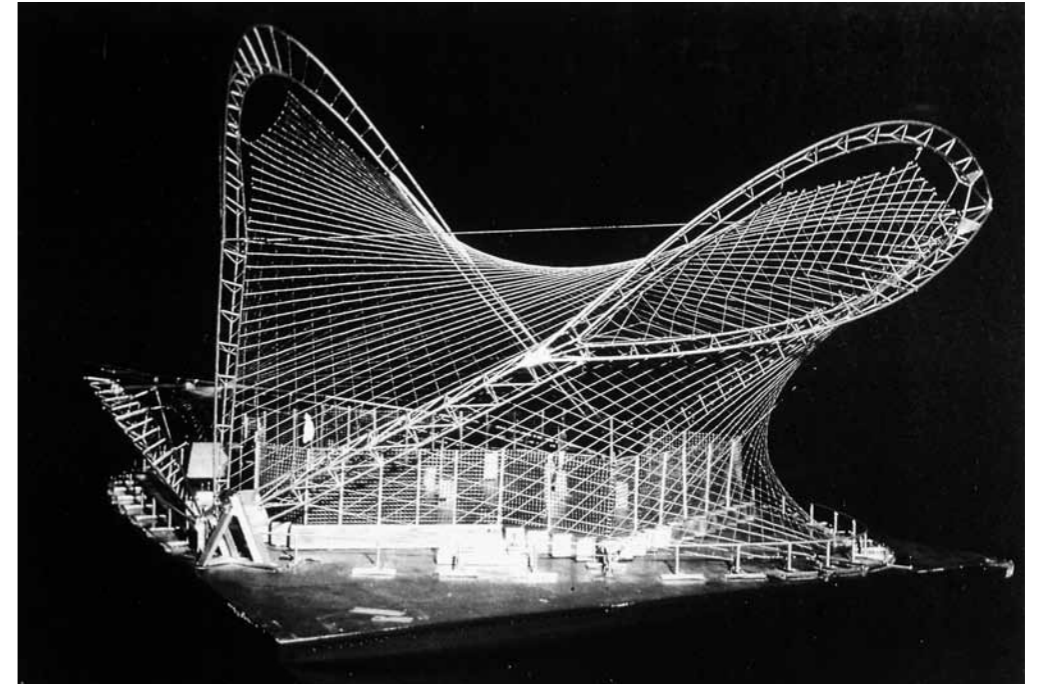


Iannis Xenakis, graphical notations for **Polytope de Cluny**.

The *Diatope* (meaning 'through-place') was a combination of sound and light effects in a translucent pavilion Xenakis designed for this purpose. The *Diatope* was planned for the inauguration of the Centre Georges Pompidou in February 1978, but for technical reasons was only realized in June 1978 and set up again in Bonn in 1979.

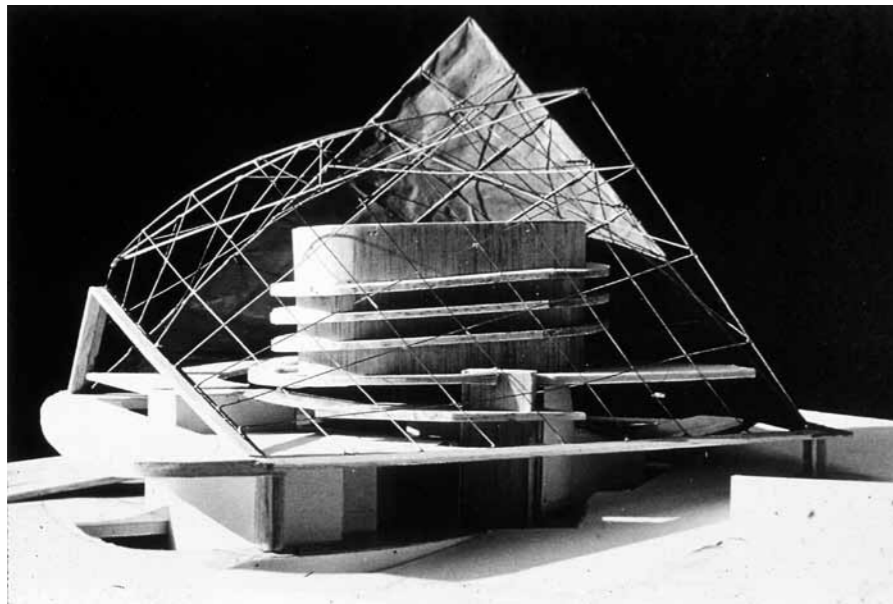
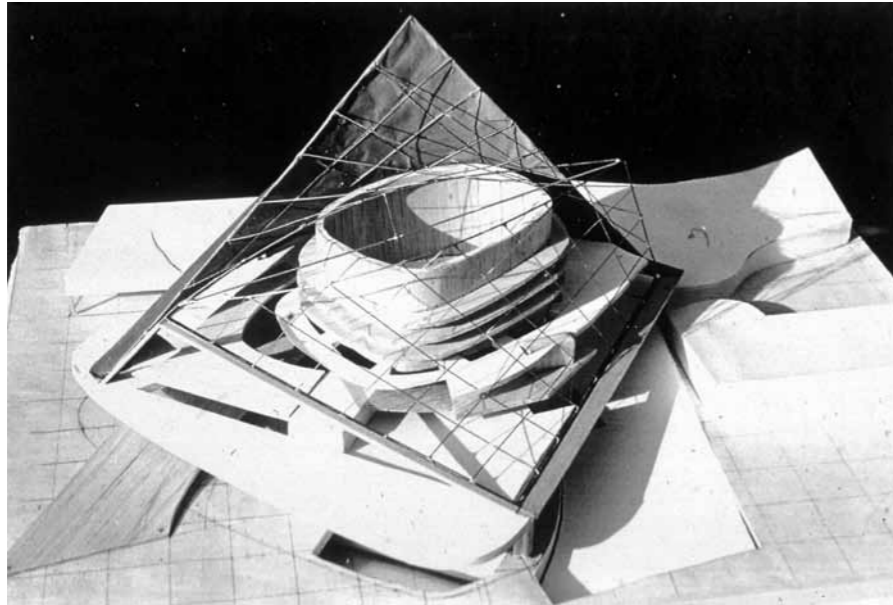


Iannis Xenakis, Interior of the **Diatope**, Paris/Bonn, 1978-79.



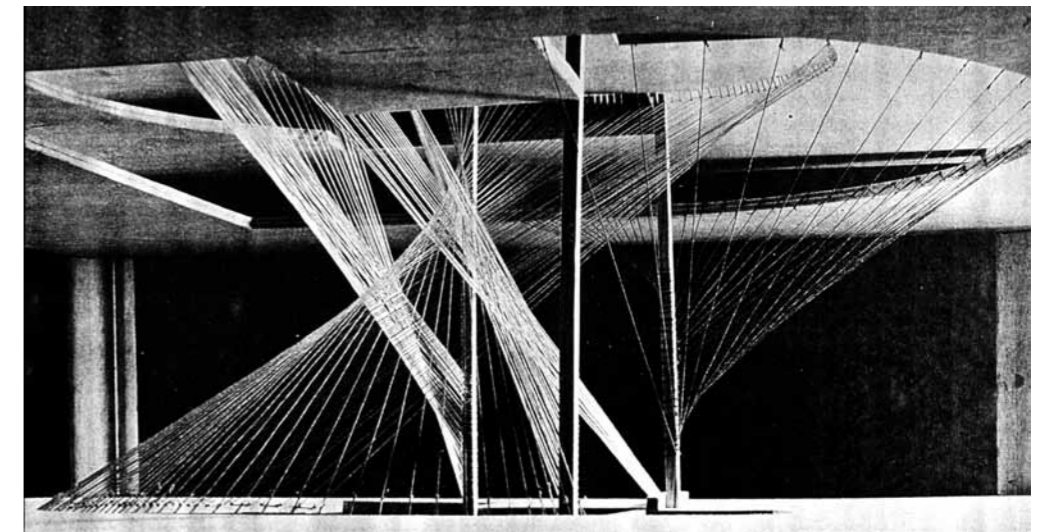
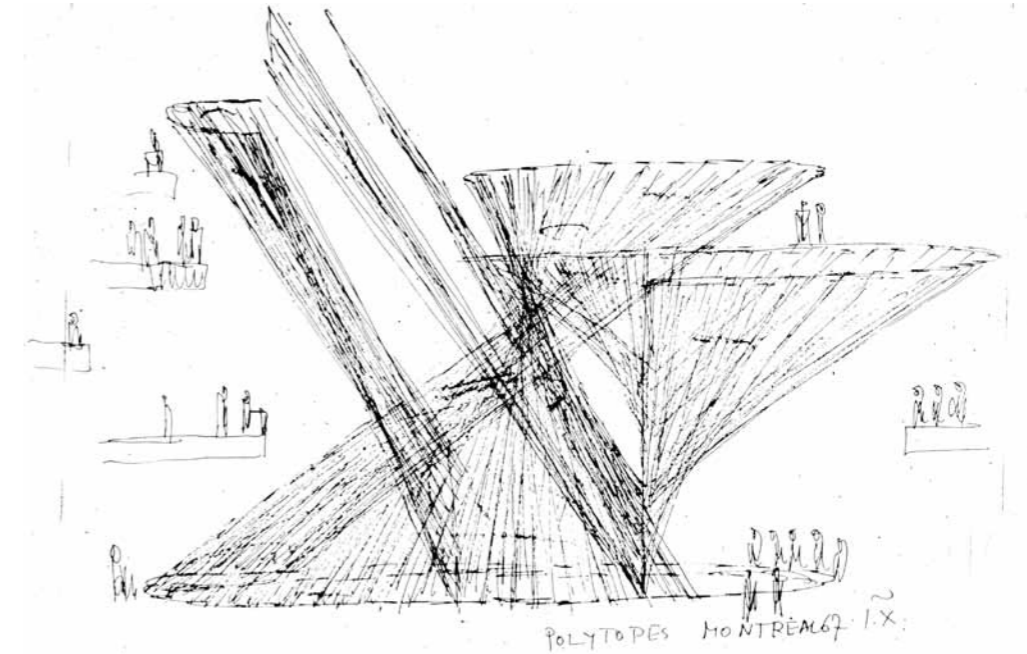
Top – Iannis Xenakis, Model of the temporary, mobile pavilion of the **Diatope**, Paris/Bonn, 1978-79.
Bottom – Iannis Xenakis, Sketch of the **Diatope**, Paris/Bonn, 1978-79.

The hyperbolic paraboloids became Xenakis's artistic signature. Most of his architectural designs are based on the geometries of the hyperbolic paraboloids and conoids he had also incorporated into the design of the Philips Pavilion.

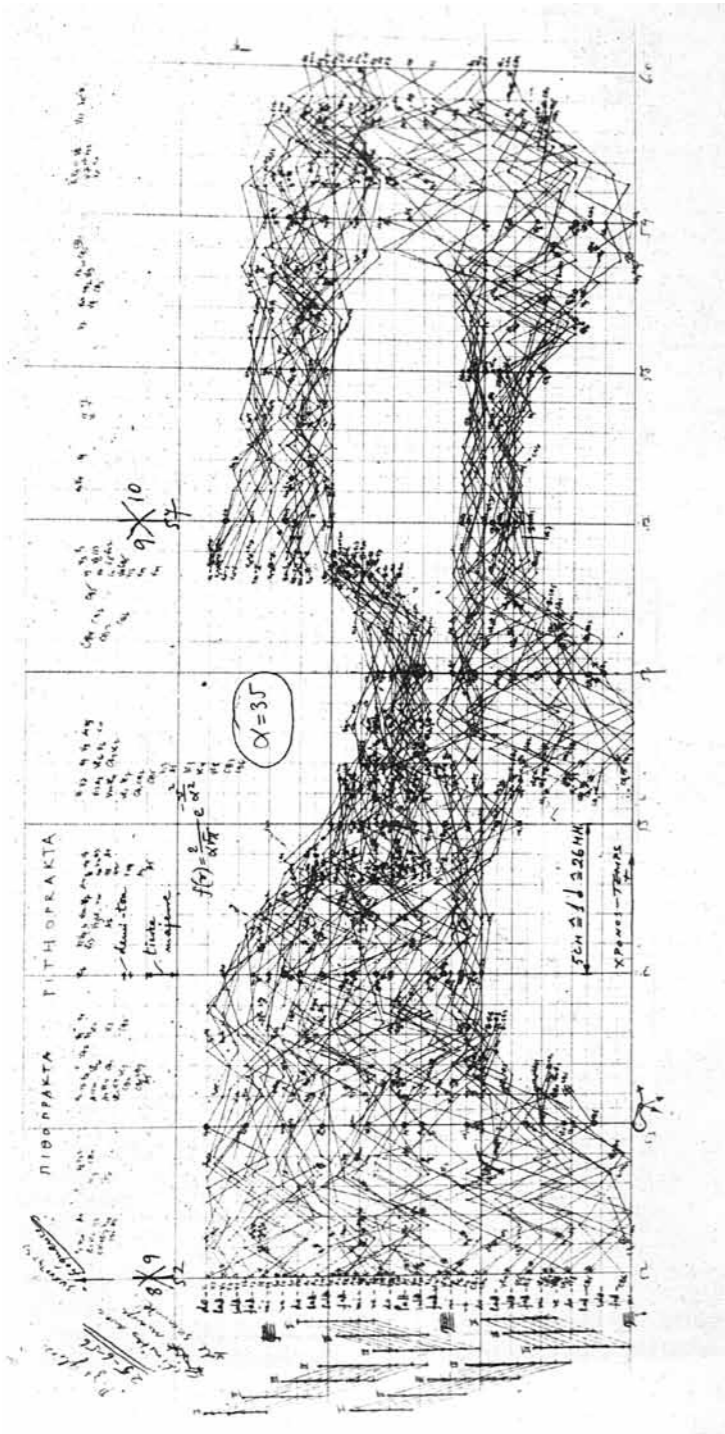


Iannis Xenakis and J.L. Véret, Model for the Cité de la Musique, 1984.

Xenakis arranged the straight steel cables to which the lights were fixed to create hyperbolic paraboloid surfaces for his sound and light event *Polytope* in Montréal in 1967.



Iannis Xenakis, **Polytope** in the French Pavilion at the Expo '67 in Montréal. Sketch by Iannis Xenakis.



Iannis Xenakis, notation of the music composition **Pithoprakta**, 1956.

Elizabeth Sikiaridi (GR) is an architect and a partner in Hybrid Space Lab. Her investigation into the work of Iannis Xenakis is based on interviews with Iannis Xenakis and researching his personal archives.

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