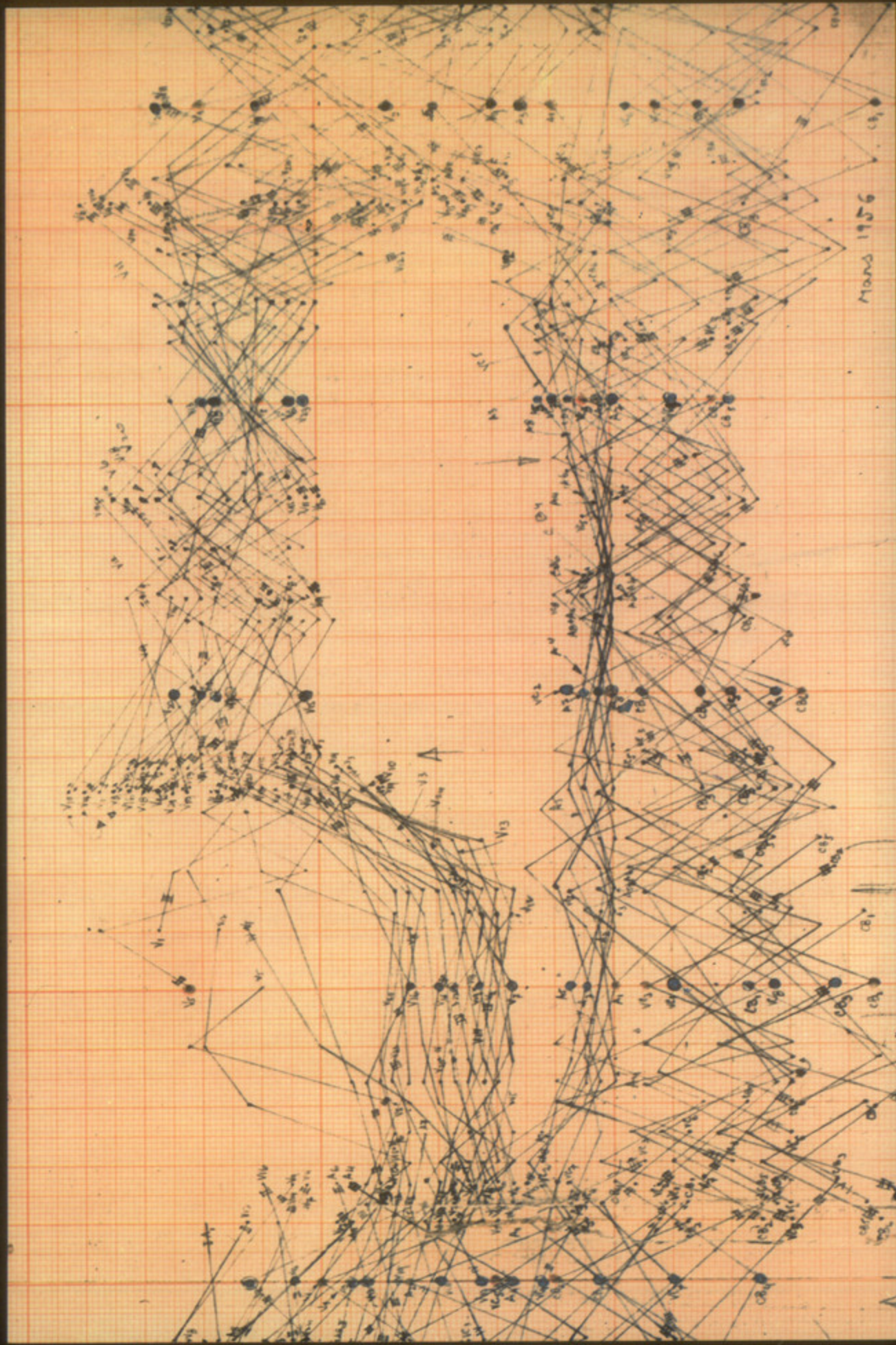


EMI



HIS MASTER'S VOICE



IANNIS XENAKIS

ATRÉES

for 10 instruments
in 5 parts

INSTRUMENTAL ENSEMBLE
OF CONTEMPORARY MUSIC,
PARIS

directed by
KONSTANTIN SIMONOVITCH

NOMOS ALPHA

for cello solo
PIERRE PENASSOU

ST 4

for string quartet
BERNEDE QUARTET

MORSIMA-AMORSIMA

for piano, violin,
cello and double bass

GEORGES PLUDERMACHER
JEAN-CLAUDE BERNEDE
PAUL BOUFIL
JACQUES CAZAUAN

directed by
KONSTANTIN SIMONOVITCH

The Music of IANNIS XENAKIS

Side One:

ATRÉES (for 10 instruments)

in five parts (Bands 1-5)

INSTRUMENTAL ENSEMBLE
OF CONTEMPORARY MUSIC, PARIS,
conducted by KONSTANTIN SIMONOVITCH

BAND 6 MORSIMA-AMORSIMA

for piano, violin, cello, double bass

Georges Pludermacher, *piano*;Jean-Claude Bernède, *violin*;Paul Boufil, *cello*;Jacques Cazauran, *double bass*;

conducted by KONSTANTIN SIMONOVITCH

Side Two:

BAND 1 ST/4 (for string quartet)

BERNÈDE QUARTET

(Jean-Claude Bernède,

Jacques Prat, *violins*;Bruno Pasquier, *viola*; Paul Boufil, *cello*)

BAND 2 NOMOS ALPHA (for cello solo)

PIERRE PENASSOU, *cello*

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"Architect—mathematician—logician... also poet and musician... a man of no ordinary stamp," says Olivier Messiaen. And the human and artistic adventure of Iannis Xenakis is, indeed, one of the most peculiar and fascinating of our time. It goes far beyond the merely aesthetic problems, of language or style; it overflows the limits of the musical in order to arrive at the deepest levels of contemporary thought, and radically to renew its perspectives. This constant seeking and the conquests that have resulted from it are explained as much by Xenakis's personality and the circumstances of his life as by the historical con-

ditions of Western music. Born of Greek parents in 1922, at Braila on the banks of the Rumanian Danube, Xenakis was nurtured on the popular folk music of Central Europe and the liturgical chants of the Orthodox church before he went to his first professor—a Georgian disciple of Ippolitov-Ivanov. His earliest attempts as a composer bore the mark of these multiple influences. But the serious scientific studies he undertook at the Polytechnic School in Athens soon opened to him other channels of thought and action. Without renouncing his musical vocation, which he had felt from the age of twelve, he developed a passion

for modern mathematics and turned towards architecture and town-planning. Meanwhile, Greece was torn by the civil war. Xenakis spent five years in the anti-Nazi resistance; he knew the Maquis, saw action, experienced prison and internment camps, was badly wounded in the face on New Year's Day 1945, was condemned to death...

He escaped and arrived in Paris in 1947. Here, in extremely difficult material circumstances, he managed to pursue his musical studies, notably—from the beginning of 1950—with Olivier Messiaen. Concurrently he carried out engineering calculations for the famous architect Le Corbusier, and was soon working by his side on the realisation of "living units" at Marseilles and Nantes, on the Couvent de la Tourette near Lyon, on work in India, etc. In 1958 he was to design the revolutionary architecture of the Philips Pavilion at the Universal Exhibition in Brussels.

At sixteen Xenakis had attempted to express some of Bach's music in geometrical formulae. His absorption in mathematics and his fundamental thinking on the organisation of sounds led him, in 1954, to make use of the Calculus of Probabilities in order to control what he calls "masses", "clouds", "galaxies" of sound-events governed by the characteristics of density, degree of order, rapidity of change, etc., which are opposed to the linear, polyphonic tradition in which serial music still has its place. Under the name "Musique Stochastique" (from the Greek *stochos*: point of aim, target—but also "think" or "reflect", i.e. to concentrate one's thought on a point of aim), Xenakis in this way applied to complex ensembles of sound-events the law of large numbers which holds that the more numerous the phenomena the more they tend towards a determinate end. The chance "happening" that Cage and his disciples call into play without controlling it is here imprisoned in a determinist rule which subjects it to the will of the creator. This completely formalised music lies, we see, altogether outside the present-day "aleatoric" current.

Metastasis for an orchestra of 61 instruments (1953/54), and above all *Pithagoraktá* for an orchestra of 50 instruments (1955/56) and *Acharisipis* for 21 instruments (1956/57) were the first fruits of this method of composition, and on each occasion determined a new sound—"morphology" of which the figures, the shapes, the effects were to have an immense influence on the instrumental vocabulary of today.

Acharisipis likewise resolves the construction of a work "controlled on a general plan by a minimum of rules of composition", and was to lead Xenakis, from *ST/10* (1956/62) onwards, to use an electronic computer, the IBM 7090, to speed up his calculations. This use of the machine, for which he has been reproached by those who do not understand that it is merely an obedient instrument, subservient to the composer's will, allows Xenakis not only to save time, but above all to objectivise his thesis and to "create a form of composition which is no

longer the object in itself, but an idea in itself, that is to say a possible family of works". Thus, from the "stochastic" programme of *ST/10* were to emerge *Amorsima-Morsima* for ten instruments, *ST/4* for string quartet, *Morsima-Amorsima* for four instruments, and *Atrées* for ten instruments.

Besides the Theory of Probabilities, Xenakis was soon to introduce into music the mathematical Theory of Games (of chance under the name "Musique Stratégique", in works for two orchestras such as *Duel* (1959) and *Stratégie* (1959/62) which leave to the two conductors a measure of choice (as to which "card" they will play)—a choice bound, however, to the matrix (in the mathematical sense) of the game and to the rules strictly established by the composer. This time it is "the extension of the problem of choice: a man's choice depends solely on himself, upon his capabilities, his faculties, etc..." But this is also to consider, like Pascal (1623-1662) and his contemporary, Fermat, that the game is one of the essential springs of human activity, capable of directing thought and opening new territories to mathematics, science and art.

Moreover, each new work by Xenakis proposes and supports a particular logical or philosophical thesis which is only a stage in a more general system where music is considered as "a basic tool for assisting the fulfilment of man". With the help of the Theory of Sets, of Mathematical Logic, of the Theory of Sieves and the congruences modulo n , the art of sounds is then thought of as outside-time, as an ensemble of relations of abstract figures, and leads to that "Musique Symbolique" illustrated by *Akrata* for 16 wind instruments (1964/65), *Hermes* for piano (1960/61) and *Nomos Alpha* for violoncello (1965/66), works based on logical operations imposed on classes of sounds. We are thus at the frontiers of a general and absolute axiomatisation of music which heralds the era of a *Métamorphose* uniting science and philosophy and tuning the composer into "a fabricator of philosophical theses and total architectures".

We see what this research owes to the humanism of the ancients and to its echo in the Renaissance. Xenakis, quite clearly, takes his place in the line of the orphic, of Pythagoras and Leonardo da Vinci...

For all that, his works speak directly to the feelings and, after a few inevitable "scandals", they have been recognised as eminently expressive and have been accepted and acclaimed by a public often incapable of appreciating the strictness of their technique. It is true that the discoveries of Xenakis have had wholly spectacular applications: since the extraordinary unity and intensity of the electro-acoustic pieces he conceived at the time he turned to the Groupe de Pierre Schaeffer (*Diamorphoses* 1957, *Concret PH* 1958, *Orient-Occident* 1960, *Bahar* 1962), up to the light-and-sound spectacle of *Polytope* in the French Pavilion at Expo '67, Montreal—by way of the architecture of the Philips Pavilion (the visual counterpart of *Metastasis*), the

singular stage music for *Les Suppliants* (1964) and *L'Orestie* (1965/66), and the stupefying *Terrelektorik* for orchestra (1965/66), a work integrally spatialised, a veritable accelerator of sonorous particles in which the 88 performers are scattered about among the audience.

A solitary and very exacting seeker, the enemy of all compromise, Xenakis was recognised and encouraged by Messiaen and Hermann Scherchen, but for a long while opposed by the fashionable musical establishments. Today his influence is considerable upon the latest generation of composers and, though he has no direct pupil save for the Japanese Takahashi, he directs two "Équipes de Mathématique et Automatique Musicales", the one at the Ecole Pratique des Hautes Études at Paris University, the other at the University of Indiana in the U.S.A., and he has just taken up an appointment (1967) at the Schola Cantorum.

ATRÉES—Commissioned by the French radio in homage to Blaise Pascal, and first performed in 1962, in Paris, under the direction of Konstantin Simonovitch, this score exploits the (computer) "programme" set up for *ST/10*. This programme is a complex of "stochastic" (probabilist) laws which order the electronic brain to define all the sounds of a previously calculated sequence, one after the other: first the time of its occurrence, next its class of timbre, its instrument, the gradient of its glissando where that occurs, the duration and dynamic of the emission of the sound.

Atrées calls for ten players with instruments different from those chosen for *ST/10*: flute, clarinet, bass clarinet, horn, trumpet, tenor trombone, violin, cello, and percussion (2 players—maracas, suspended cymbals, gong, 5 temple blocks, 4 tom-toms, vibraphone). In the composer's view the title evokes "the inflexible laws of Necessity", and Olivier Messiaen notes that by associating Pascal (one of the inventors of the Calculus of Probabilities) and the Atrides, "one instinctively brings together the two ideas of fatality and chance". Calculated on an IBM 7090 computer, *Atrées* permits a few licences, however, taken a posteriori by the composer upon the results obtained from the machine.

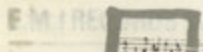
NOMOS ALPHA—This, after *Hermes* for piano, is the second of Xenakis's works

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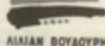
designed for a single instrument. According to the composer, "Nomos" signifies "rules, laws", but also, in music, "special, particular melody" and sometimes "mode". Commissioned by Radio Bremen for the cellist Siegfried Palm, who gave it its first performance in May 1960, this work is an act of homage "to the imperishable works of Aristoxenus of Tarento" (4th cent. B.C.), "musician, philosopher and mathematician, founder of the Theory of Music; of Evariste Galois, mathematician and founder of the Theory of Groups, and of Felix Klein, his worthy successor". It makes use too of the Theory of Sieves and belongs, through its extra-temporal architecture, to the "Symbolic Music" which, we have seen above, proposes an axiomatic theory of the universal structure of music. The full potentialities of the cello are demanded here, and this requires from the interpreter a completely new kind of virtuosity.

ST/4—As with *Atrées*, here it is a question of a particular exploitation, for four string instruments, of the "programme" worked out for *ST/10*. The complete title, "*ST/4-1.000262*" signifies: ST—stochastic (music) 4-1—first work for four instruments, 080262—8 February 1962, the date on which the work was calculated on the IBM 7090 computer. Here again we find, as in *Nomos Alpha*, the particular way of treating the strings that Xenakis had introduced in 1954 in *Metastasis* and which have since gained wide acceptance: glissandi with the bow, or in pizzicati, or in col legno, tapping on the back of the instrument, etc. *ST/4* was first given in 1962, by the Bernède Quartet, in Paris.

MORSIMA-AMORSIMA—With the same "programme"—that for *ST/10*—Xenakis had procured *Amorsima-Morsima* for ten instruments, and *Morsima-Amorsima* for piano, violin, cello and double bass, which were first performed at Athens in 1962 under the direction of Lukas Foss. The title comes from "Morsos": fate, death.—*Morsima*, that which comes about by fate; *Amorsima* (with a privative), that which does not come about through fate. "Today", Xenakis specifies, "the calculus of probabilities, the theory of large numbers, together with the problems of choice, of causality, of determinism, connect and clarify the ancient idea of Fate."

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