tim souster

spectral

for viola and live electronics

Note (1999)
The performance instructions provided in this score date back to the composition of **Spectral** in 1972. It would be quite feasible to reconstruct the original intentions of the composer and the composition by means of present-day technology. This could reduce the number of performers required.

The viola needs a pick-up (e.g. Barkus Berry) attached to a voltage-controlled filter with pedal control operated by the player (NB the pedal has a wider span than the average wah-wah pedal) as well as scordatura tuning (C-string tuned down a fourth to G basso). The whole instrument from time to time needs to sound a further octave lower by electronic means especially in the final section (**Decay**) where the part is notated at sounding pitch and beginning on a bottom Bb. In this section too, a sostenuto viola sound is broken up live by an electronic chopper (voltage-controlled envelope shaper) which must be capable of producing exactly metrical pulses according to the rhythms and tempo marking given.

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SPECTRAL

for viola and live electronics

performance instructions from 1972

1 Score

The score consists of the following sections, played in the given order:

Aria
Echoes I-VI
Decay

The score gives graphic (and in the case of **Echo IV** and **Decay** conventional) indications of the nature of the material played by the solo violist.

Three other players are required for the performance of the piece. The violist will hereafter be referred to as Player I, his/her colleagues as Players II, III, and IV.

Player II changes the patches on Player I's synthesizer and controls the tape-delay system.

Player III controls a synthesizer which transforms and spatially deploys the sound material supplied by output channel I of the tape-delay system

Player IV does the same for output channel II of the tape-delay system.

In **Aria** (for viola only) the notation is as exact a representation as possible of the song of the hump-backed whale and should be adhered to as closely as possible, using a recording of the actual song as an aid during practice

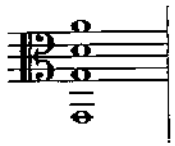
The graphic notation of **Echoes I, II, III, V** and **VI** is less binding. The exact pitching and timing of the individual sounds is left to the performer's discretion and to his ability to react creatively to the sound produced by the tape-delay system during the performance (see **2 Circuit** below).

The score of **Echo IV** notates exactly the activity of all four players and the score of **Decay** gives a precise indication of the nature of the viola part. The remaining instructions for Players II, III and IV are contained on separate instruction sheets and patch sheets showing the various synthesizer circuits.

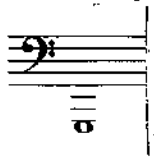
2 Circuit

See diagram.

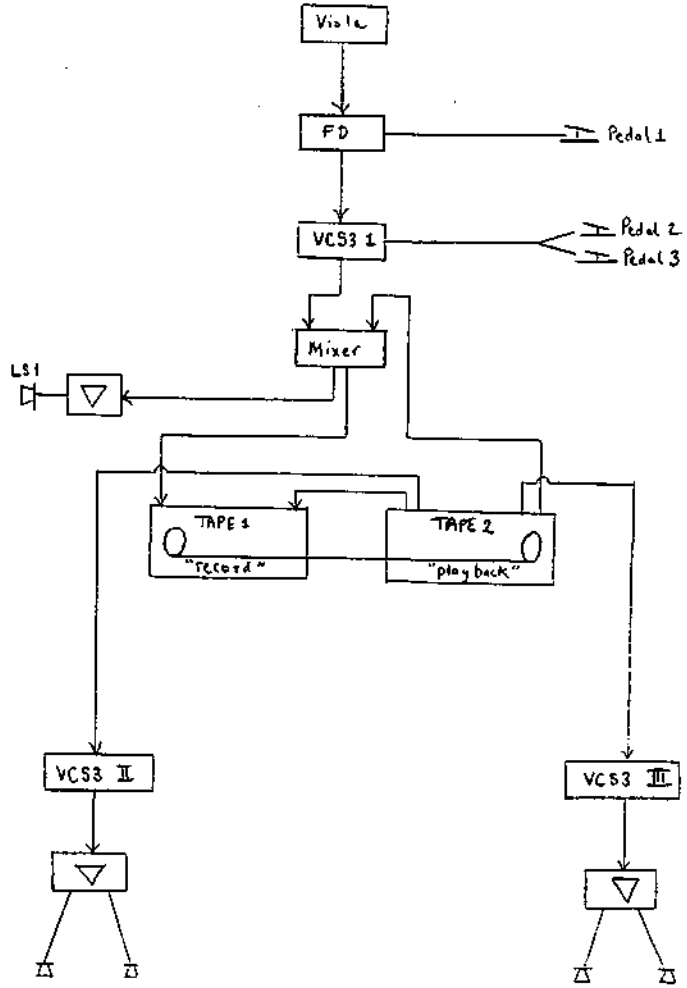
A viola, fitted with a contact-microphone or, better, a magnetic pickup, is connected to a device, controlled by a foot-pedal, whereby the frequencies of the two lower strings may be halved, i.e. their pitches are automatically transposed down one octave. The tuning of the open strings of the viola in **Spectral** is:



which means that, when the frequency divider (FD) is activated by means of the pedal, the bottom note of the viola's range (as heard through the loud-speaker) is:



When the FD is not engaged, the frequency of all the strings of the viola remain unchanged.



The output of the FD is fed into a voltage-controlled synthesizer (eg the VCS3 produced by EMS Ltd, London), transformations of the viola sound being controlled by Player I by means of two further foot-pedals, one for voltage-control of

any parameter (eg ring-modulation -RM- or envelope-shaping -E) and one for panning between the two output channels of the synthesizer which are here used in parallel on one output lead.

This output lead is connected to a mixer with two output channels, the left one of which is connected directly to an amplifier and loudspeaker, positioned at the centre rear of the stage. Through this is heard the sound of the viola transformed by the FD and the VCS3I

The right-hand output of the mixer is connected to a **tape-delay system** consisting of two stereo-phonic tape recorders, linked in such a way that they produce repetitions of the signal fed into them as follows: on output channel 1 after four seconds delay and on output channel 2 after eight seconds delay. The **delay time** may be adjusted by means of increasing/decreasing the distance between the two tape-recorders.

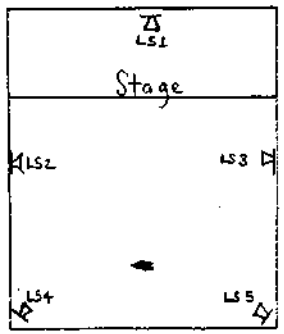
The **number of repetitions** produced on each channel can be adjusted by ear by regulating the relationship between the two input levels on the 'record' machine.

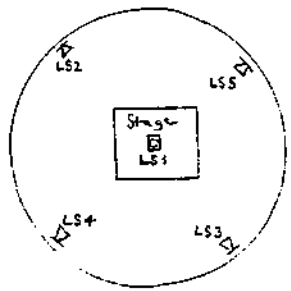
The number of repetitions produced by a signal should not be less than ten.
Player II can make any internal adjustments in levels during the performance. He can also regulate the overall balance between Player I's loudspeaker and the outputs of the tape-delay system, and moreover the balance between these two outputs of the tape-delay system.

The two outputs of the tape-delay system are each fed into a synthesizer (VCS3II and VCS3III) by means of which Player III and Player IV respectively may further transform the violist's sound.

3 Layout

Either layout below is possible. In both kinds of hall, speakers 2-5 should be positioned high up, suspended from the ceiling, standing in a balcony etc. In the round hall, LS1 should lie on its back, the sound projected upwards and outwards in all directions.





4 Lighting

The lighting of a performance of **Spectral** is an integral part of the composition and must be executed exactly according to the time-scheme provided for the lighting technician. In **Aria** normal bright stage-lighting should be used, and in such a way that the audience should not suspect that it will change in any way. After two minutes, however, the lights fade almost imperceptibly to yellow and then with each successive section, an extremely gradual transition is made from **yellow** to **orange** to **red** to **purple** to **blue** to **green** (always moving from light to dark) which culminates, in the last 30 seconds of **Echo VI**, in complete darkness. The pulsations of **Echo VI** are linked to the flashes of a stroboscopic light which increases in speed exactly in synch with the output of LS1. The violist ceases to play at 13' 40", but the music continues on the tape-delay system until 14'30". During this time the stroboscope continues to be trained on the platform at a constant flash rate of c. 20 per second. This illuminates the movements of the violist who, after he has stopped playing, bows slowly and silently to the audience and slowly leaves the stage.

The stroboscope should be cut off exactly when the music reaches inaudibility. Players II, III and IV should see to it that this occurs at 14'30". It is recommended that all four players wear light-coloured clothing which reflects the lighting as intensely as possible.

5 Filtering

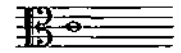
The spectral colours **yellow**, **orange**, **red**, **purple**, **blue** and **green** which illuminate the performance of **Spectral** are also used in the notation of the score to denote six degrees of sound-filtering. Using the low-pass filter in the VCS3 synthesizer, yellow is taken to denote the 'brightest' spectrum (i.e. the richest in upper partials) and the green the 'darkest' (i.e. all upper partials having been filtered away). Player I must practice the control of the filtering by means of the pedal so that six different areas can be distinguished. When colours adjacent in the spectrum appear adjacently in the score, particularly within a single unbroken line, a continuous glissando from one area of filtering to the next is implied.

6 Notation

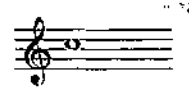
The following notational signs are used in **Spectral**:

i. Aria

The pitch indications always relate either to a central



or to a central



In order to clarify the relationship between the intended pitch-area and the central pitch, the vertical line on the left-hand side of each page is divided up into octaves.

Unbroken lines imply arco, legato. Successions of vertical strokes imply tremolando.

ii. Echo I

The melodic shapes are blocked in in colour in order to clarify their exact contours.

iii Echo IV

s.v. = senza vibrato
s.p. = sul ponticello
c.l. = col legno
mid = middle of the bow
Accidentals affect only the note they immediately precede

For Players III and IV
F = filtering
RM = ring-modulation
E = envelope shaper
P = panning

iv Echo V

 = octave higher than written

 = with reverberation

v Echo VI

T = col legno battuto

* = pizzicato

 = scrape the strings with heavy pressure,

often using the lateral bow movement along the string. The two lower strings produce the best range of sounds, particularly in combination with swiftly changing filtering.

vi Decay

The upper of the two staves indicates the speed of the pulsations of the envelope shaper. These are controlled by very gradual depression of the foot-pedal.

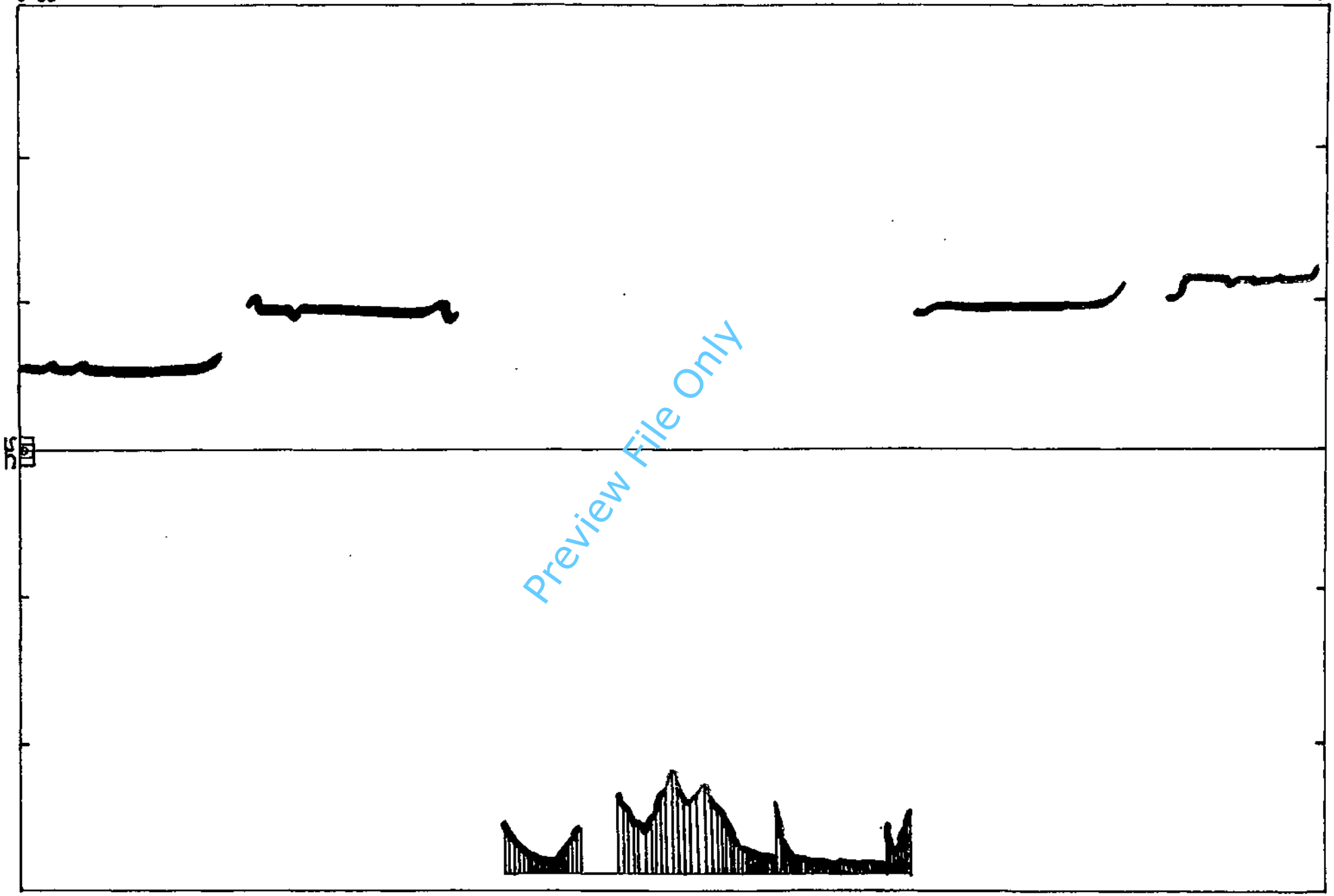
TS 1972

ARIA

a

0' 00"

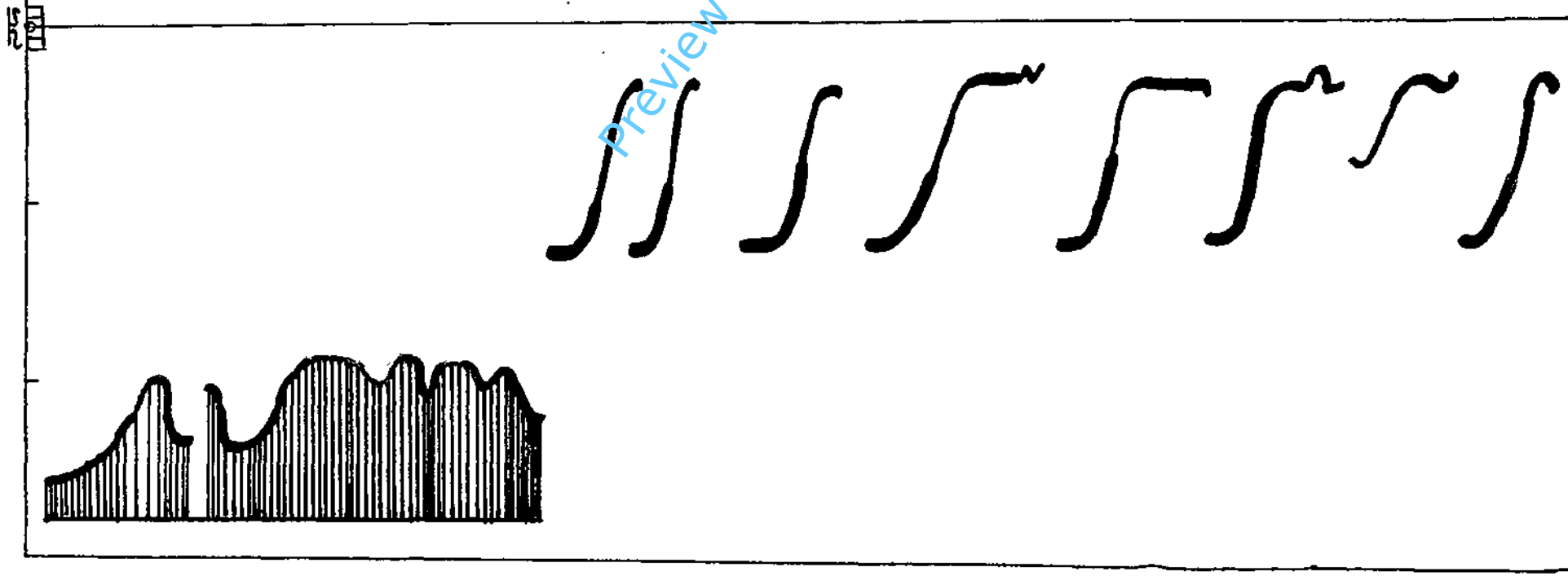
0' 30"



ARIA
b

0' 30"

1' 00"

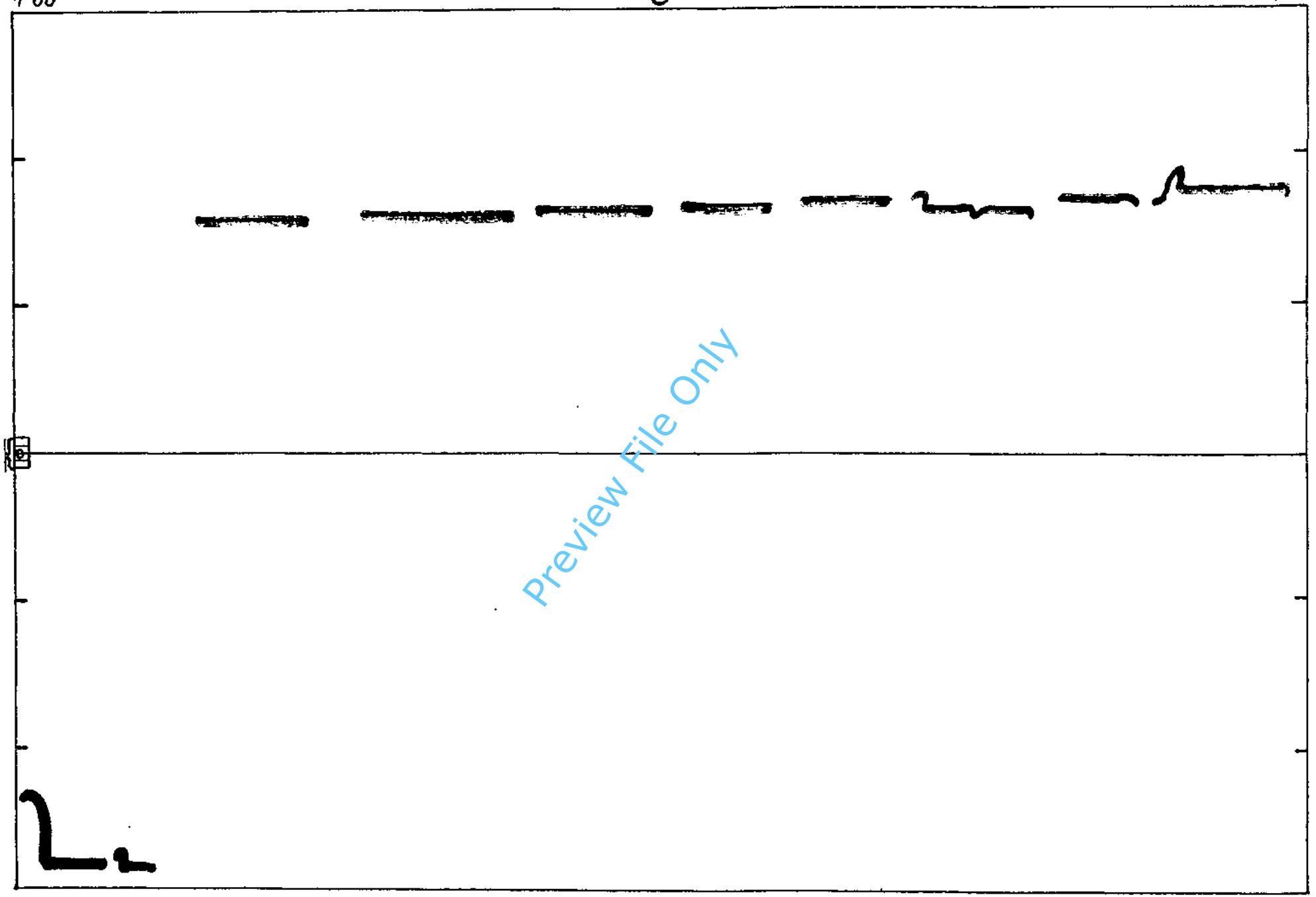


ARIA

C

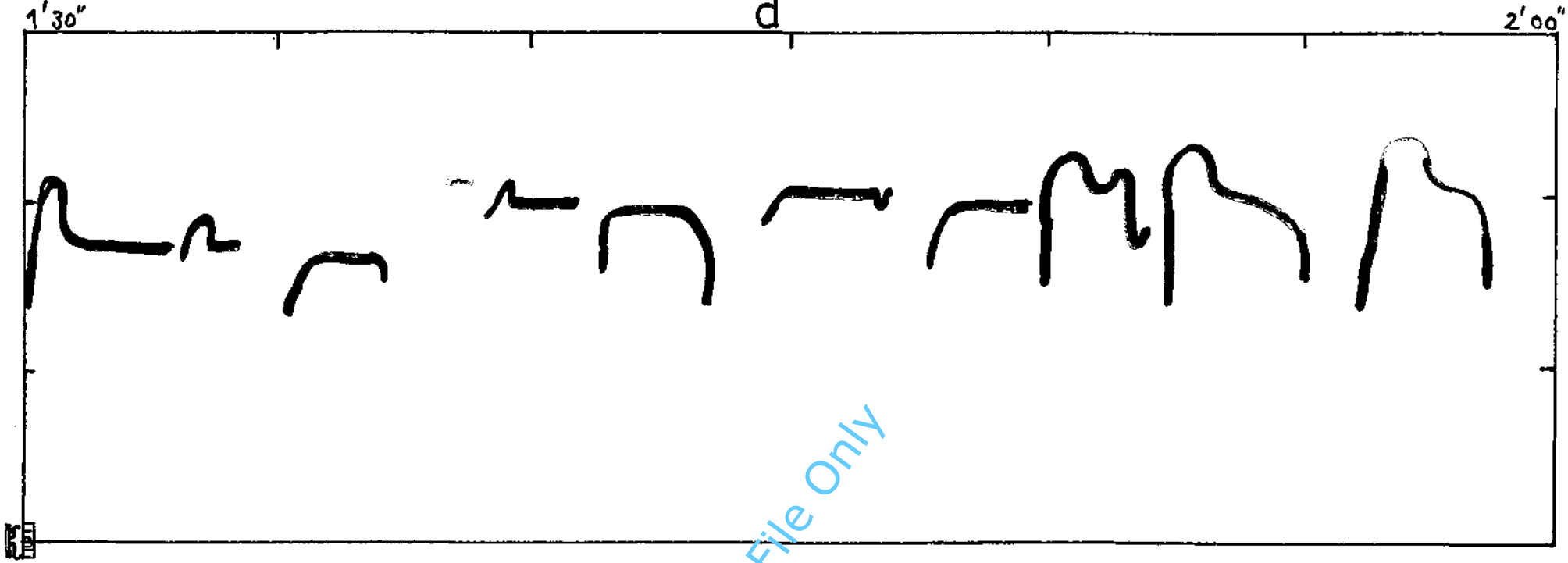
1'00"

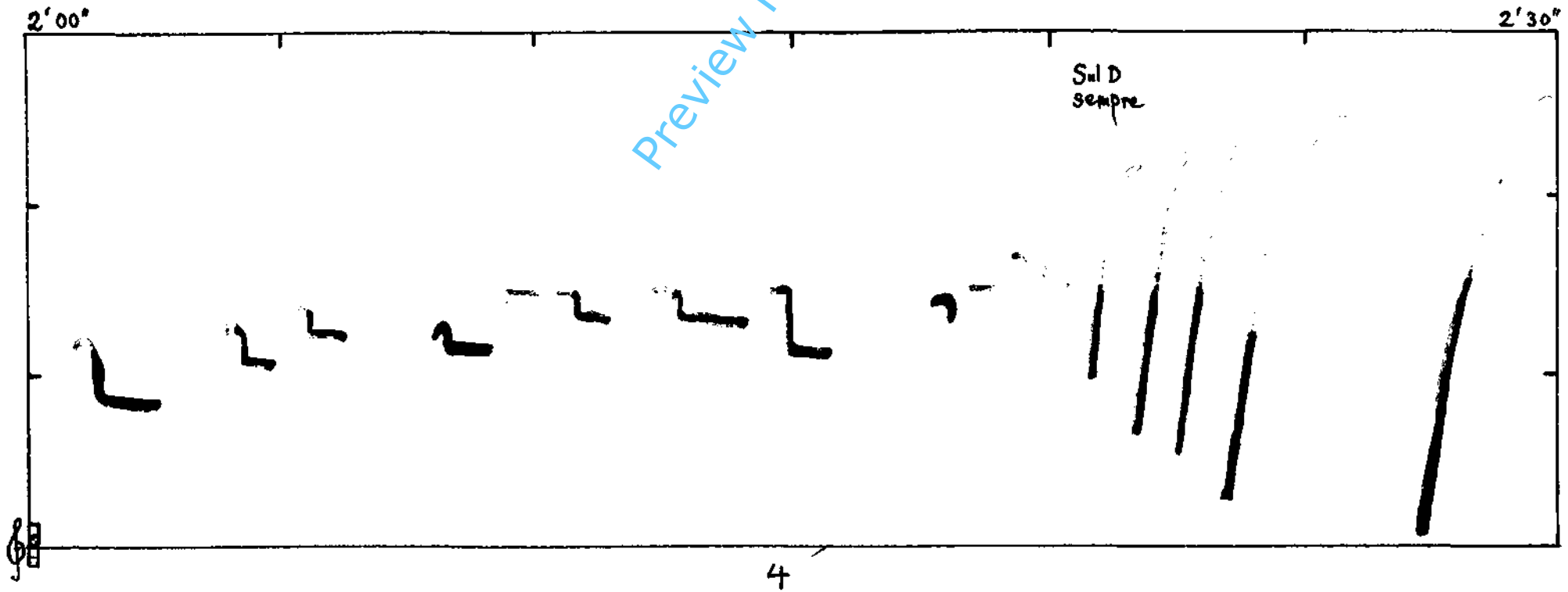
1'30"



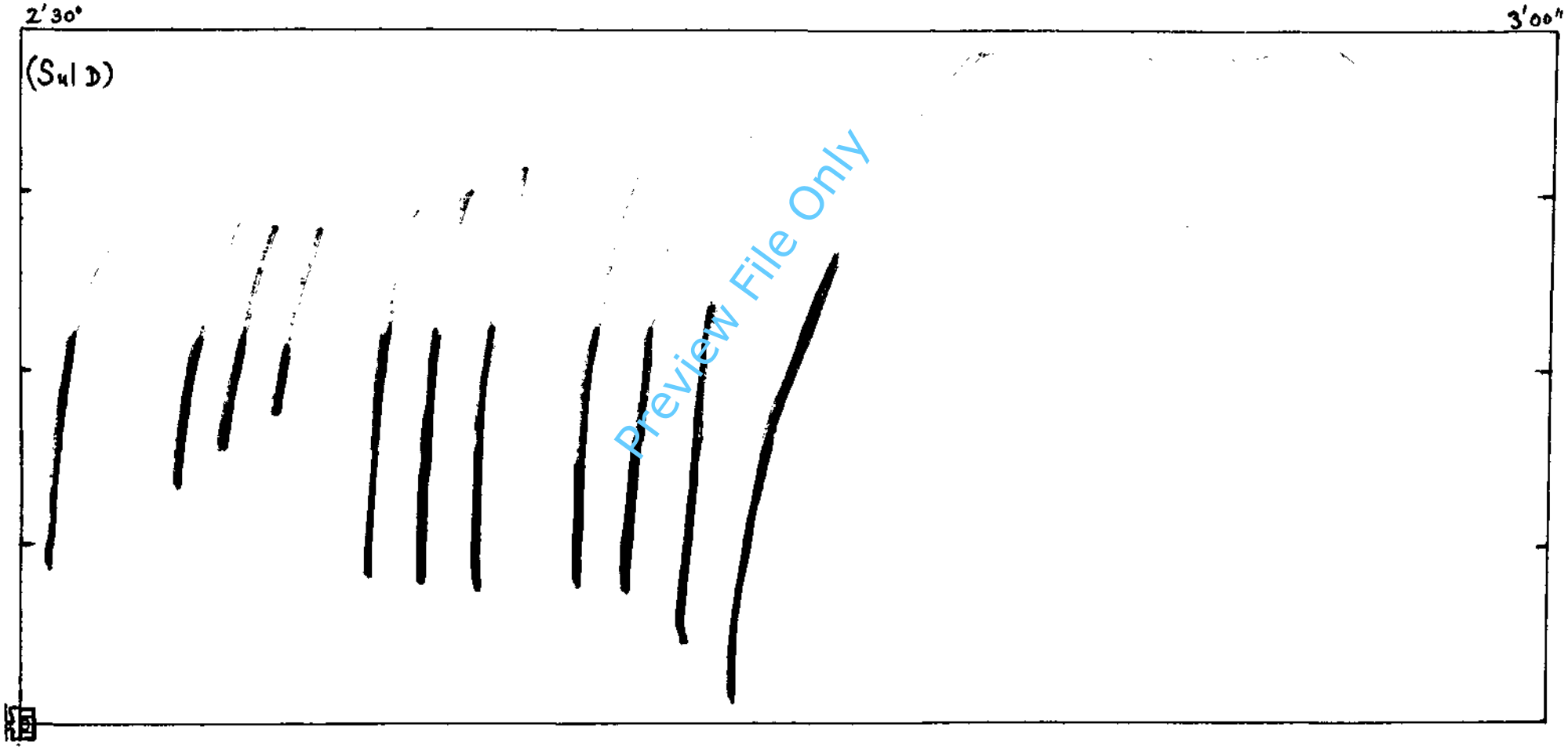
ARIA

d





ARIA
e



ECHO I