

SIMON EMMERSON

DIGSWELL TAPES II

(1973)

for percussion, tape delay and electronics

for Peter Britton

DIGSWELL TAPES II







I: INTRODUCTION

This version of Digswell Tapes is for a percussion spread divided into four groups - skin, wood, metal and tuned instruments. Any sound produced is fed onto a tape delay system which results in multiple repetitions of the sound (sometimes transformed in a synthesiser) such that complex structures can be built up. The following four processes, produced on the tape delay and not directly perceptible from the score, are important: when the sounds are ring modulated, points become groups, lines become polyphony; when the sounds are filtered (relatively unaltered), points become lines, lines become heterophony. There are four sections and two short transitional units between I-II and III-IV. Each section concentrates on one of the percussion groups and contrasts patterns of continuity/discontinuity and stasis/movement. The work was composed between March and October 1973 while the composer was in residence at the Digswell Arts Trust, Welwyn Garden City.



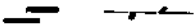
II: INSTRUMENTATION AND NOTATION

The percussion part is notated on two staves or lines. The tuned instruments are generally written on the lower staff, the others are distributed to give maximum legibility. Parts for the following instruments are designated by the following signs:

Metals:

- 4 crotales of uniform graded pitch 
- 4 cowbells of uniform graded pitch 
- Triangle 
- Low Bell 
- Suspended Cymbal 
- Gong or small tam-tam 

Woods:

- 4 temple blocks of uniform graded pitch 
- 2 wood blocks (high and low) or two pitched Moroccan drum 
- 2 pairs of claves (high and low) (or 2 wood blocks if Moroccan drum used) 

Skins:

- 2 timbales } uniform graded pitch between them
- 2 bongos }
- 2 congas } uniform graded pitch between them
- 2 tom-toms }



Tuned:



This part is best performed on a vibraphone with glockenspiel for the highest register. Other instruments may be interpolated. Some ad lib octave transpositions are indicated but if possible little else should be transposed.

Unless otherwise indicated the choice of sticks is left to the performer.

III: NOTATION OF RHYTHMS AND DURATIONS

Generally the tempo should be $\text{♩} = 60$ and figures indicate seconds. But the whole piece can be slowed down or speeded up proportionally, given that the 'crotchet' and the 'second' are changed in proportion and that the tape delay remains of 5 crotchets duration, altering proportionally also.

 etc are to be played as fast as possible hence  a short attack.

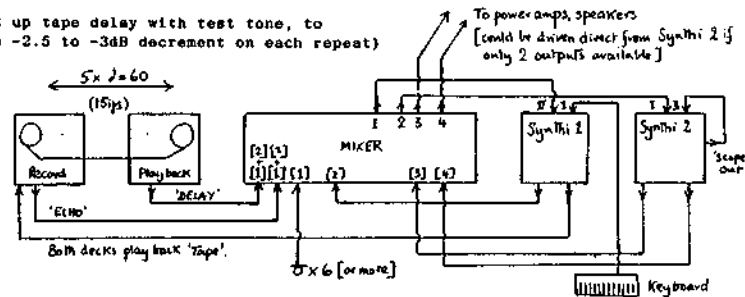
All tremolos are notated  on one note or instrument,  between two notes or instruments.

Free sections:

In these, the overall duration of the bar is fixed. Groups of sounds are separated by fermatas. The player must aim to build up lines of sound on the tape delay with as little superimposition as possible. The groups must be completed within the given total time. The second player, involved in the manipulation of the electronics may act as conductor and should operate stop watches where necessary.



IV: SET-UP AND NOTATION OF ELECTRONICS

(Set up tape delay with test tone, to give -2.5 to -3dB decrement on each repeat)



Any equivalent to the Synthi A or VCS3 machines may be used:

Synthesiser 1: is used to transform the sound on each circuit of the tape delay. One channel is used for ring modulation, the other for filtering of the sounds. The two channels are panned together to produce a mono output to both output channels. The three octave dynamic keyboard controls both the oscillator frequency for the ring modulation and the filter frequency. The joystick (or a pedal) may be used to crossfade between these two types of transformation, which are indicated on the score by:

-  = change quickly to ring modulation position of joystick
-  = change quickly to filter position of joystick

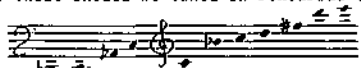
Synthesiser 2: is used to pan the sounds in space, in stereo, preferably between two pairs of loudspeakers, one channel to the pair to the rear of the audience, the other to those at the front. This is done using the fact that the input amplifiers of Synthi A or VCS3 machines invert voltage. The ramp wave of oscillator 3 (whose minimum frequency is about 0.05 Hz) is used (a) to

control the output level of channel I and (b) via an external connection from the "scope" output to an input (which inverts it), to control the output level of channel II. The levels of the two outputs will be in exact inverse if the overall levels are correctly set. The panning rate will be determined by the oscillator 3 frequency. This is indicated on the lower staff and varies from 0.05 Hz to 8 Hz. The exact dial readings must be worked out in rehearsal, as must all optimum level settings.

The Keyboard part:

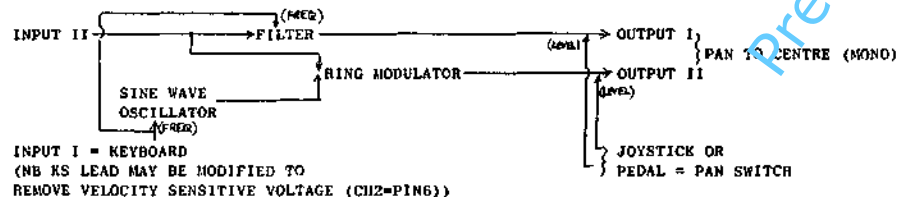
(a) as the filter frequency control: the staff represents graphically the keyboard range. The line therefore indicates relative filter frequency. The keyboard range should be adjusted such that the highest note depressed allows all the sound through, the lowest eliminates all but the low fundamentals.

(b) as the sine wave frequency control (input to the ring modulator): although in general this too is relative, there are points at which exact frequencies - notated in their staff equivalent - are required. These should be tuned in rehearsal to the pitched percussion:



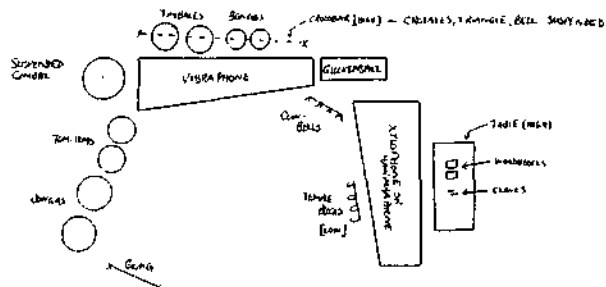
It can be seen that they all lie on the whole tone scale C-C and can therefore all be obtained if the keyboard is tuned to double its normal pitch spread, ie one of its semitones produces a tone difference in frequency. (The EMS DK and KS keyboards, the one three, the other 2 1/2 octaves will both cover the necessary range). The lowest note of the keyboard is tuned to the low B flat indicated. It is suggested that these fixed pitches be labelled. The continuous line should be freely interpreted. Especially in the filter mode where extreme unchanging lines are notated, these may be interpreted in the middle register, so long as the basic shapes are maintained. The continuous line should be logically linked to the fixed pitches. The discontinuities in the line must be made as great as possible and executed as fast as possible.

V: BLOCK DIAGRAM OF SYNTHESIZER CONNECTIONS



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VI: SUGGESTED LAYOUT OF PERCUSSION INSTRUMENTS



VI: PROGRAMME NOTE

Composed between March and October 1973, Digswell Tapes II was first performed by Peter Britton, for whom it was written, and the composer, at the Victoria and Albert Museum, London, in a concert in conjunction with the exhibition "Henry Morris and the Digswell Experiment" in November 1973. Digswell Tapes is a 'mobile' work specifying time proportions, and an electronic tape delay and modulation system. The composer has written out several versions. This version, for percussion instruments and electronics, uses a delay system which repeats sounds every five seconds, usually altered electronically via a synthesiser. Two types of structure result: pointillist material is built up into lines of sound, while linear material is piled up into dense polyphony. These two in turn can be either more or less homogeneous depending on the electronic modulation used. Divisions between sections are sometimes smooth, sometimes abrupt. A second synthesiser is used to control the movement of the sound in space, panning the sound at different speeds around the auditorium. The score is fully notated, leaving only a small degree of interpretation to the performer. The instruments are divided into four groups: metal, wood, skin and tuned. Each of the four sections of the work concentrates on one of these groups.

10

10

10

10

10

$p-ff$ ad lib.

0.05 Hz.

13

5

5

2

3

3

3

7

5

$p <f> p$

mf

p

$p <ff> p$

f

RM

F

RM

[0.05 Hz]

5 4 8 6 5 5 3 3

[0.05 Hz]

7 8 8

[0.05 Hz]

~5 MIX ~5 ~5 ~5 METAL ~5 ~5

WOOD f - ff

SKINS

(RM) (SLOW CHANGE)

F

DIRECT SOUND + ECHO ON
TAPE DELAY OFF
[0.05 Hz]

ECHO REDUCE ----- OFF

DIRECT SOUND OFF
TAPE DELAY ON

17 17 17 17 17

sfz p

p

mp

pp

21 32 15

RM

Octave tremolo high on Keyboard

Octave tremolo low on Keyboard

[0.05 Hz]

10 2 3 5 4 6 6 4 5 3 2 10

17 23 20 To:

[0.05 Hz]

This system contains a musical score with rhythmic notation on a five-line staff. Above the staff are numbers 10, 2, 3, 5, 4, 6, 6, 4, 5, 3, 2, 10. Some numbers are enclosed in circles or triangles. Below the staff is a waveform with markers at 17, 23, and 20. The waveform starts at 17, peaks at 23, and ends at 20. The text 'To:' is written at the end of the waveform. Below the waveform is a frequency label '[0.05 Hz]'.

10 6 6 7 5 16 14 (11)

pp 8x [simile] 2x 3x [to single beater] [to two beaters]

f Rel. to quintuplet [to single beater] P [to two beaters]

To: Aperiodic rhythms around 8b.

[0.05 Hz]

This system contains a musical score with rhythmic notation on a five-line staff. Above the staff are numbers 10, 6, 6, 7, 5, 16, 14, and (11). Below the staff are various annotations including 'pp', '8x', '[simile]', '2x', '3x', 'f', 'Rel. to quintuplet', '[to single beater]', 'P', and '[to two beaters]'. The text 'To: Aperiodic rhythms around 8b.' is written at the end of the staff. Below the staff is a frequency label '[0.05 Hz]'.

10
 2 3 5 4 6 f 6 4 5 3 2 10
 p mp mf f sfzp p sfzp p pp
 [0.05 Hz]

5 5 3 2 5 2 3 5 4:5 5 5
 6:5 4:5
 (p)
 2
 (FULL)
 [0.05 Hz] SLOWLY INCREASE
 ECHO SLOWLY UP
 0.5 Hz

3 2 5 5 5 5 5 2

mf *mf* *mp* *sfz* *f* *sfz* *p*

3:2 3:2 3:2 5:4

[0.5 Hz]

ECHO SLOWLY DOWN (OFF)

This system contains a piano and guitar score. The piano part has a treble clef and a key signature of one sharp (F#). It features a melody with dynamics ranging from mezzo-forte (mf) to piano (p). There are slurs and accents, and some notes are marked with a '3:2' ratio. The guitar part has a treble clef and a key signature of one sharp. It includes chords and single notes, with some notes marked with a '3:2' ratio. A large wave-like envelope is drawn across the piano staff, and a smaller one is drawn across the guitar staff. A box labeled 'F' is at the end of the system.

8 15 12 5

f (*num*)

[0.5 Hz] SLOWLY INCREASE 8 Hz

This system continues the piano and guitar score. The piano part has a treble clef and a key signature of one sharp. It features a melody with dynamics ranging from forte (f) to mezzo-forte (mf). There are slurs and accents, and some notes are marked with a '3:2' ratio. The guitar part has a treble clef and a key signature of one sharp. It includes chords and single notes, with some notes marked with a '3:2' ratio. A large wave-like envelope is drawn across the piano staff, and a smaller one is drawn across the guitar staff. A box labeled 'F' is at the end of the system.

6 6 4 4 4 4 4 6 6 6

f p sfz sfz p p f p f sfz p p f sfz p

(20) (15) (4) (9)

[8 Hz]

SLOWLY CHANGE → F → RM

Accel. poco a poco al tem.

DIRECT SOUND + ECHO SLOWLY UP → (FULL)

TAPE DELAY DOWN (FAST)

[8 Hz]

ECHO FADE → (OFF)

TAPE DELAY UP → FAST

DIRECT SOUND DOWN

* Durations quite free. Chords: let fade until nearly extinct before following attack. The percussionist should give clear signals for each bar.

2 3 4 3

mp 8va sfz p

VARY ABRUPTLY (APERIODICALLY)

f

F

Preview File Only

5 6 5 4

pp f mp f sf

RM F

[8 Hz] SLOWLY DOWN [2 Hz]

Preview File Only

9

mf

6

2

5

6

sfzp

mp

RM

[2 Hz]

6

Uniform Ritardando

Repeat ad lib.

3

4

7

mf

sfzp

f

pp

To bottom of key-board then oscillator steadily to lowest value.

[2 Hz] slowly down

0.05 Hz

Let natural tape delay fade, then fade mixer returns.