

# lysogeny

by Carla Scaletti

LYSOGENY for harp and computer-generated tape  
Carla Scaletti

A lysogenic virus injects its DNA into a bacterial cell where, unlike other viruses, it does not replicate itself and lyse the cell. Instead, when the cell's circular DNA breaks apart in preparation for replication, the viral DNA attaches to the the cell's DNA. The cell then replicates both its own and the viral DNA. In this way, the cell may acquire some characteristics of the virus. Later, the virus may reenter the lytic phase, and replicate itself inside the cell until it lyses the cell. These viruses may then scatter to infect other cells; but sometimes they have broken off a piece of the cell's DNA. Characteristics from one cell may, in this way, be transferred to another type of cell.

This piece is dedicated to my father, who taught me about lysogeny.

Upon converting the first section of this piece, I was rudely reminded that musicians do not execute scores precisely as notated and computers do. Convinced that this "warping" of the written score is a systematic alteration on the part of the performer, I was not satisfied that a little random variation would add "life" to the music. Instead, I made performance subroutines which find -plets, short phrases, and long phrases, and the highest pitch within each of these phrases. The tempo and amplitude are then altered according to where the routines have found phrases.

The tape for this piece was realized on the University of Illinois IBM 4341 using Barry Vercoe's MUSIC 360. The score was printed using the CERL Music Project music print programs.

The digital/analog conversion was done at the Speech and Hearing Sciences psycho-acoustics lab.

I would like to thank my adviser, John Melby, for his guidance during both the composition and the realization of this piece. I would also like to thank John Neutzel and Mark Joseph for being so generous with their time and for allowing me to use the conversion facilities in the psycho-acoustics lab. And to Kurt Hebel of the CERL Music Project, thank you for an unending supply of encouragement, interest and assistance.

lysogeny,  
by carla scaletti  
 $\text{J}=92$

TAPE HARP

2 3 4 5

6 7 8 9

A handwritten musical score page featuring four staves of music. The top staff uses a treble clef and has measure numbers 10, 11, 12, and 13 above it. Measures 10 and 11 show eighth-note patterns. Measure 12 is mostly blank. Measure 13 ends with a bass note. The middle staff uses a bass clef and has measure numbers 10, 11, 12, and 13 above it. Measures 10 and 11 show eighth-note patterns. Measure 12 is mostly blank. Measure 13 ends with a bass note. The bottom staff uses a treble clef and has measure numbers 10, 11, 12, and 13 above it. Measures 10 and 11 show eighth-note patterns. Measure 12 is mostly blank. Measure 13 ends with a bass note. Various performance markings like dynamics (e.g.,  $\text{E} \natural$ ,  $\text{B} \sharp$ ,  $\text{C} \natural$ ,  $\text{G} \natural$ ,  $\text{P}$ ) and fingerings are included.

A musical score page featuring four staves of music. The top staff is in bass clef, starting at measure 14. The second staff is in treble clef, with a 'b' marking below it. The third staff is also in treble clef, with a 'G' marking below it. The bottom staff is in bass clef. Measures 14 and 15 show eighth-note patterns. Measure 15 includes a grace note and a fermata. Measures 16 and 17 continue the pattern. Measure 17 ends with a sixteenth-note cluster. Various dynamics like 'f' and 'p' are used, along with slurs and grace notes. A large bracket under the third staff spans measures 14-17, with 'E♭' written above it. Other labels include 'C♯' and '5'.

18            19            20            21            22

C $\natural$       E $\flat$   
 C $\sharp$       D      D $\sharp$   
 D $\natural$       B $\flat$

23            24            25

A      A $\sharp$       A $\flat$       E $\flat$

This image shows a handwritten musical score for piano, consisting of ten staves of music. The score is divided into five systems, each containing two measures. The key signature changes frequently, indicated by various sharps and flats. Measure 26 starts with a treble clef, a key signature of one flat, and a tempo of 26. Measure 27 starts with a bass clef, a key signature of one sharp, and a tempo of 27. Measure 28 starts with a treble clef, a key signature of one sharp, and a tempo of 28. Measure 29 starts with a bass clef, a key signature of one sharp, and a tempo of 29. System 30 begins with a treble clef, a key signature of one sharp, and a tempo of 30. The music includes dynamic markings such as  $\text{ff}$  (fortissimo) and  $\text{p}$  (pianissimo), performance instructions like "R.H.", "L.H.", and "legato", and specific note heads with labels like "A#", "C#", "C", and "D". The manuscript is written in black ink on white paper.

33

34

Handwritten musical score for measures 33 and 34. The score is divided into two systems by a vertical bar. Each system has four staves. Measure 33 starts with a treble clef, a key signature of one flat, and a common time signature. Measure 34 starts with a treble clef, a key signature of one sharp, and a common time signature. The music includes various note heads, stems, and grace notes. Handwritten labels with numbers '3' and '11' indicate specific rhythmic groupings. The bass staff in measure 34 contains labels for notes: E, D, A, Ab, C, G, B, C#, D, G, D, A, C.

35

Handwritten musical score for measure 35. The score is divided into three systems by vertical bars. Each system has four staves. The first system starts with a treble clef, a key signature of one flat, and a common time signature. The second system starts with a treble clef, a key signature of one sharp, and a common time signature. The third system starts with a treble clef, a key signature of one flat, and a common time signature. The music includes various note heads and stems. Handwritten labels with numbers '3' indicate specific rhythmic groupings. The bass staff in the third system contains labels for notes: A, C, Ab, B.

37

38

39

40

Measures 37-40:

- Measure 37:** Dynamics include **pp**, **f**, and **b**. Notes are labeled **F**, **E**, and **D**.
- Measure 38:** Dynamics include **f** and **b**. Articulation **dolce** is indicated.
- Measure 39:** Dynamics include **f** and **b**. Articulation **L.V.** is indicated.
- Measure 40:** Dynamics include **f** and **b**. Notes are labeled **E**, **D**, **b**, and **D**.

Measures 41-43:

- Measure 41:** Dynamics include **f** and **b**.
- Measure 42:** Dynamics include **f** and **b**.
- Measure 43:** Dynamics include **f** and **b**. Time signature changes to **7:2** and **3**. Articulation **L.H.** is indicated.

Notes labeled in the score:

- Measure 37:** **F**, **C**, **B**
- Measure 43:** **A**, **b**, **C**, **A**, **C**, **F**, **B**

45      46      47      48

*etouffé*

F<sup>♯</sup>  
 B<sup>♭</sup>

C<sup>♯</sup>  
 D<sup>♭</sup>

50      51      52

A<sup>#</sup> E  
 D<sup>♯</sup> C

E<sup>♯</sup>

E<sup>♭</sup>  
 C<sup>#</sup>

E<sup>♯</sup>  
 B<sup>#</sup>

A handwritten musical score consisting of two staves of music. The top staff uses treble clef and the bottom staff uses bass clef. The music is divided into six systems, numbered 53 through 62. The key signature changes frequently, indicated by various sharps and flats. Measure 53 starts with a 5/8 time signature. Measures 54 and 55 show complex rhythmic patterns with eighth and sixteenth notes. Measure 56 begins with a 3/4 time signature. Measure 57 starts with a 2/4 time signature. Measures 58, 59, 60, and 61 are all in 2/4 time. Measure 62 concludes the piece. Various performance markings like slurs, grace notes, and dynamic signs are present throughout the score.

53

54

55

B<sup>#</sup>

F<sup>b</sup>

57 58 59 60 61 62

b<sup>b</sup>

b<sup>b</sup>

- 8 -

63 - . 64 . 65 - . 66 b<sup>o</sup> . 67 - . 68 b<sup>o</sup> . 69

70 . 71 . 72 d=60 b<sup>o</sup> . 73

5

73      74      75      76      77      78

G<sup>b</sup> E<sup>h</sup>  
 D<sup>#</sup>

79      80      81      82

F<sup>#</sup> E<sup>b</sup>  
 B<sup>b</sup>

ff      E<sup>h</sup>  
 B<sup>#</sup>

D<sup>h</sup>-(#)

\* ↓ ≡ TAP THE SOUNDBOARD

83                    84 o    85                    86                    87    88

89                    90                    91

 = STRIKE WIRE STRINGS WITH PALM

92            93            94            95

96            97            98            99

100

101

102

103

104

105

106

8va

A<sup>#</sup>  
D<sup>b</sup>

E<sup>b</sup>  
F<sup>b</sup>  
G<sup>b</sup>  
A<sup>b</sup>  
D<sup>#</sup>

$\nearrow$  = SCRAPE WINDING OF INDICATED WIRE STRING

107

108

109

110

111

112

D $\natural$

G $\natural$

3

7

\*  = SALZEDO'S "WHISTLE EFFECT"

113 
  
 114 
  
 115 
  
 116 
  
 117 
  
 118 
  
 119

A<sup>b</sup> G<sup>b</sup>  
 B<sup>b</sup>

C#

F<sup>b</sup> G<sup>b</sup>  
 E<sup>b</sup> F<sup>#</sup> A<sup>b</sup> G<sup>b</sup>  
 F<sup>b</sup> E<sup>b</sup> D<sup>b</sup>  
 A<sup>#</sup> B<sup>b</sup>  
 A<sup>b</sup> C<sup>b</sup> G<sup>#</sup>  
 B<sup>b</sup>

120                    121                    122

E<sup>b</sup> G<sup>b</sup> A<sup>#</sup>   F<sup>b</sup> E<sup>b</sup>   G<sup>b</sup> F<sup>b</sup>  
 C<sup>#</sup>

123      124      125      126      127

A      C      C<sup>b</sup>      D      A<sup>b</sup>  
 D<sup>b</sup>      cb

8va

128            129            130            131

pdtt   

132            133            134

A<sup>#</sup>  
 C<sup>#</sup>  
 C<sup>b</sup>

3

D<sup>b</sup>  
 3  
 D<sup>b</sup> C<sup>#</sup>

135                    136                    137                    138                    139

E $\natural$

6

A $\flat$   
C $\natural$

140                    141                    142                    143

G $\flat$   
D $\flat$   
F $\sharp$   
G $\sharp$  A $\sharp$   
A $\sharp$  G $\natural$

E $\natural$  F $\flat$

D $\flat$

144                    145                    146                    147                    148

E $\sharp$   
F $\natural$   
D $\sharp$  C $\sharp$

E $\flat$  F $\flat$

F $\natural$

149                    150                    151

152                    153                    154

155  $b_e$  3  $\#_e$  156  $\#_e$  157  $\#_e$   
 $C\sharp D\flat$   $B\sharp$

158  $E\flat$   $A^\sharp$   $D\flat$   $D\sharp$  EVAL  $\#_e$   $b_e$   
 pdt  $\| \text{m} \text{m} \|$

162

163

A b

G# D4