Fundamentals of Electronic Music

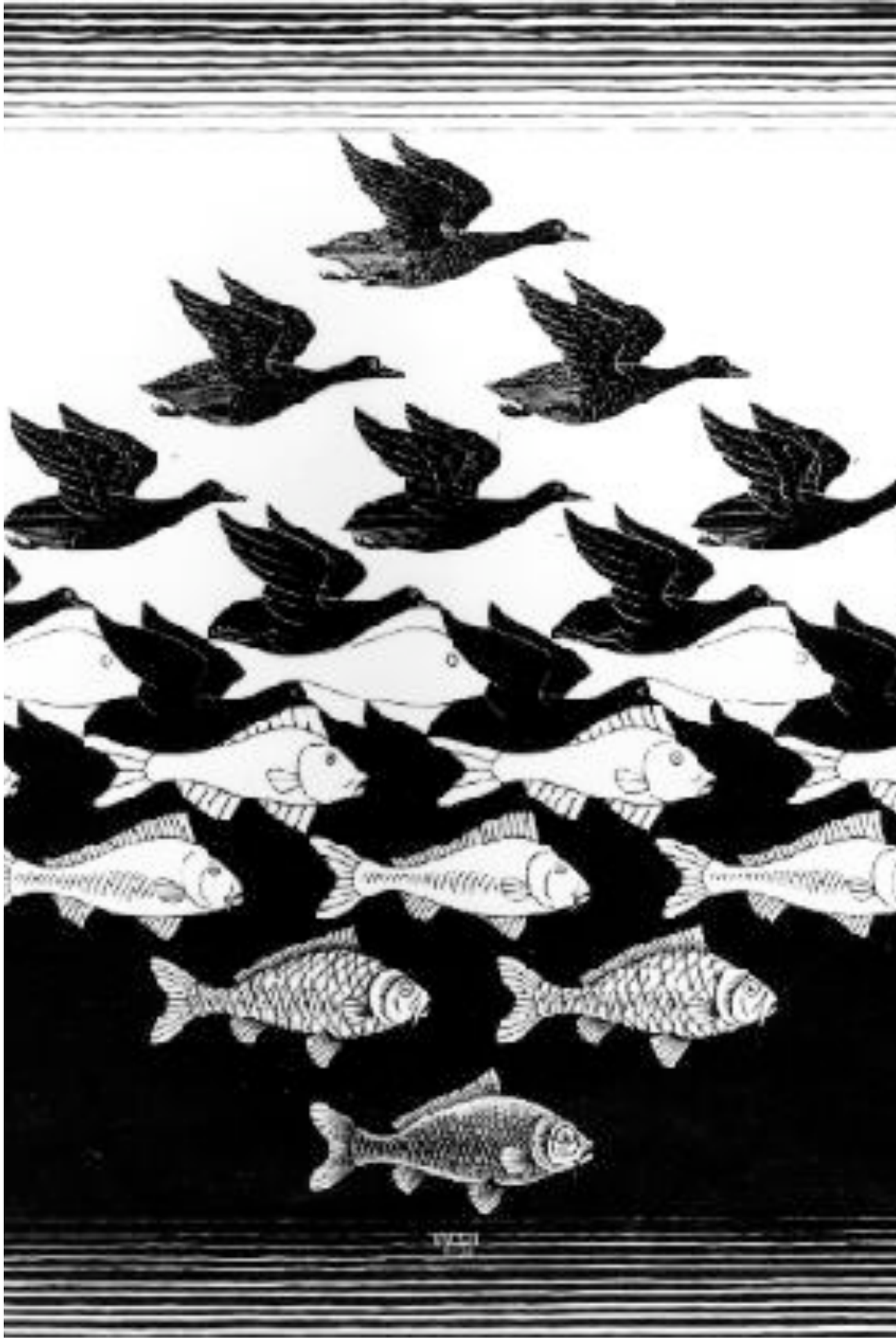
Transformation

Transformation

- The idea of transformation
- What is it, where does it come from?
- Vonnegut's analysis of Cinderella

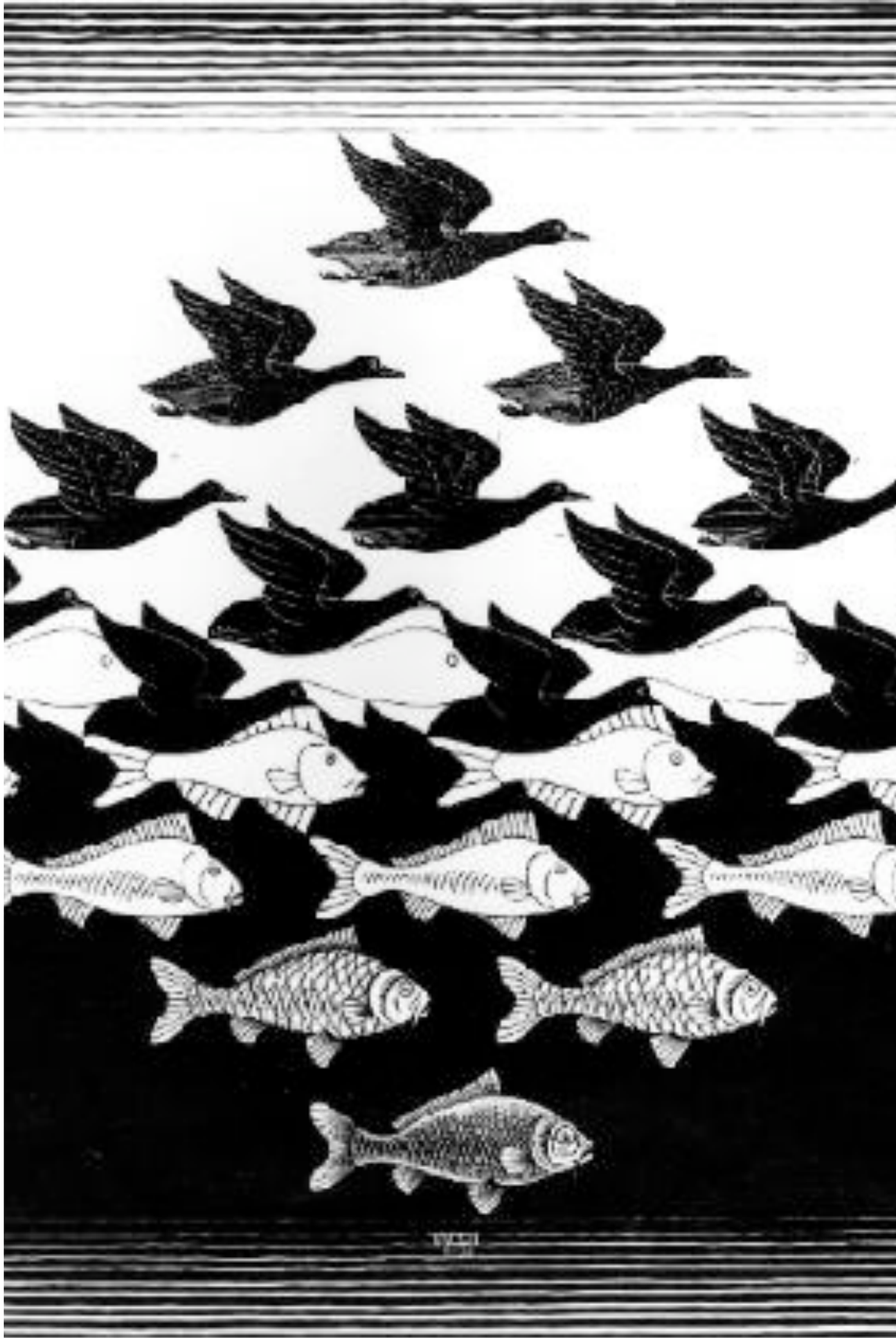
Musical Transformation

- Music before transformation
- The development of transformation
- Transformation as a central musical idea
- Transformation as a device of electroacoustic music
- Conclusions



Music ‘before transformation’

Bach C major prelude: patterning and symmetrical structure



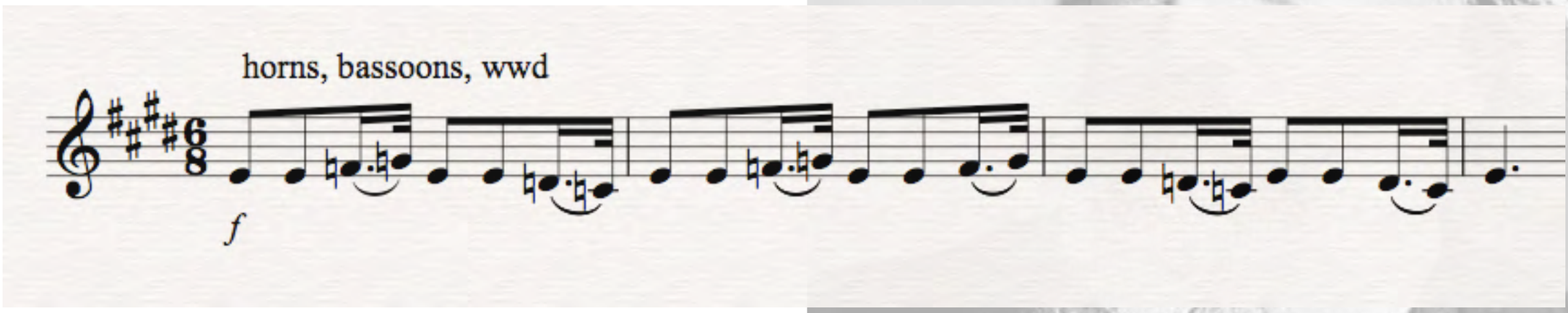
Classical music and transformation

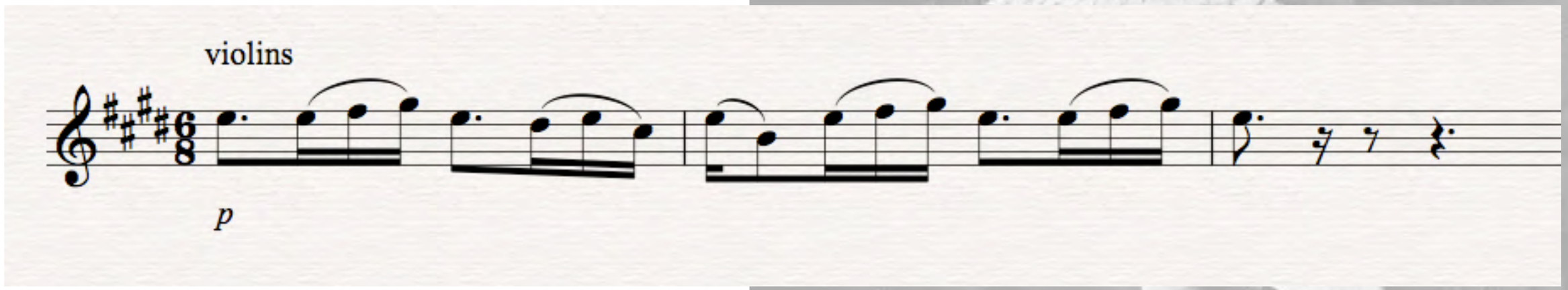
- Transformation is a comparatively recent phenomenon. The idea of transformation only emerged from the eighteenth century with the rise of classicism and, in music specifically, in the development section of sonata form. Particular composers:

- Haydn, Beethoven, Brahms

Romantic music and transformation

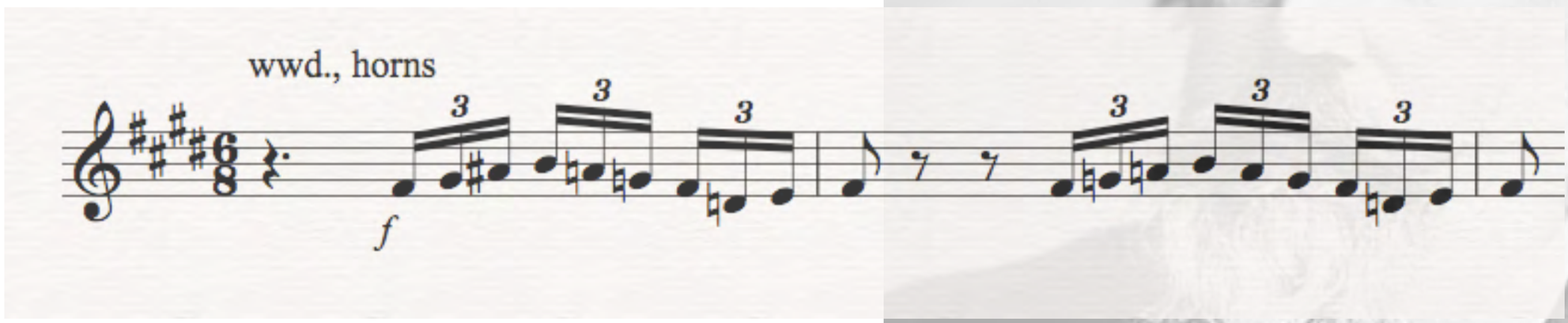
- Brahms's 4th Symphony (1885), 2nd movement

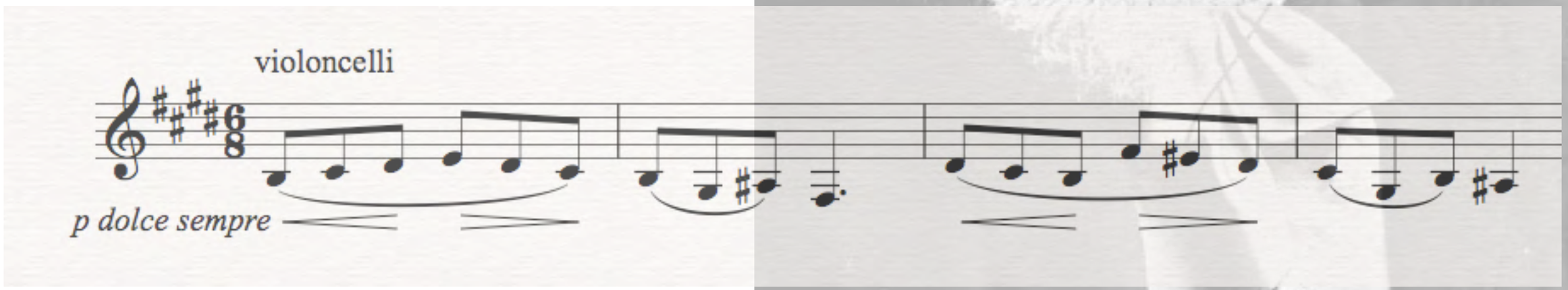




Brahms

- Brahms's 4th Symphony, 2nd movement

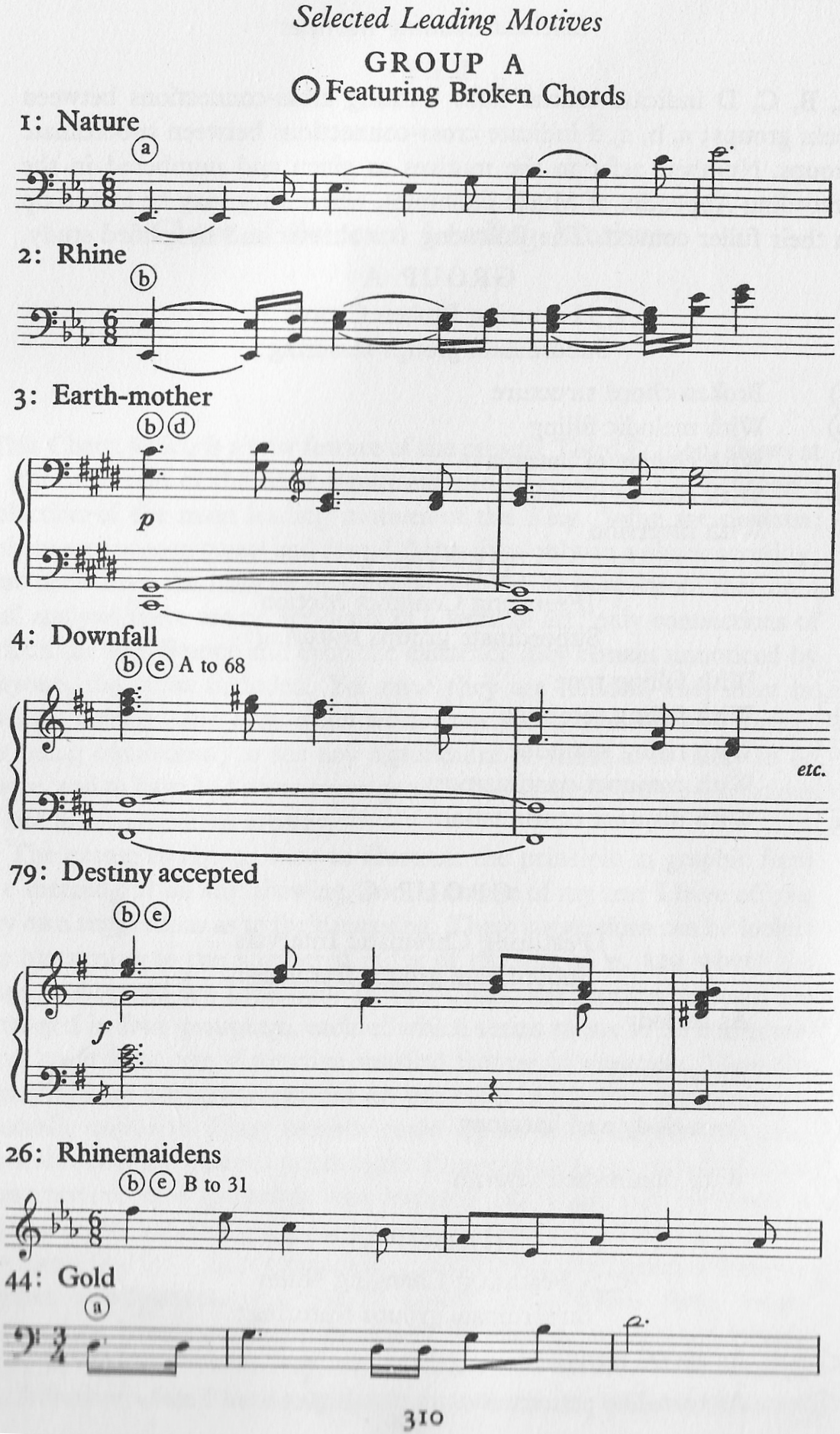




Transformation as a Central Idea

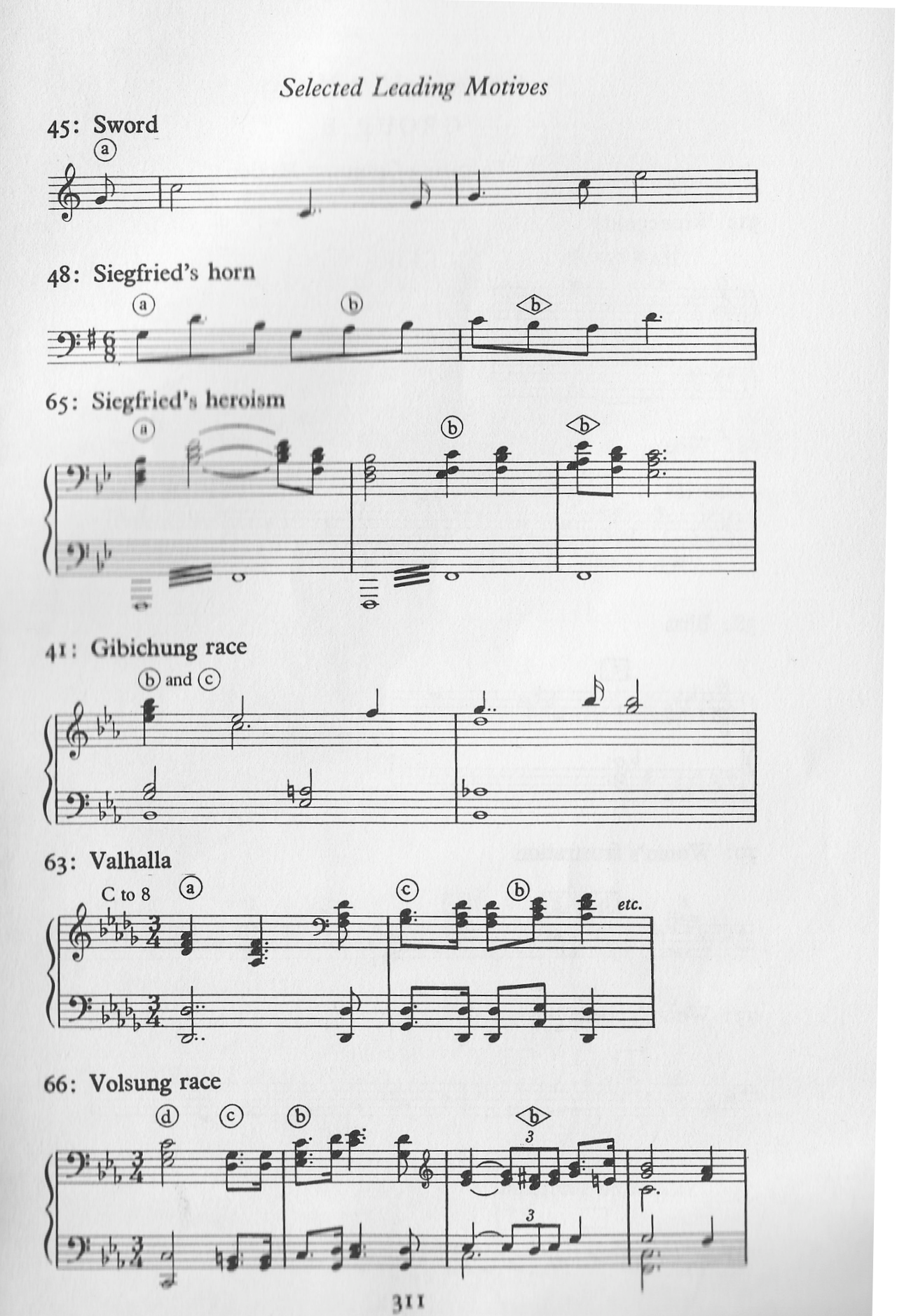
- The death of sonata form, but the ripening of expression, metaphor and transformation;

- Wagner (clip from Excalibur?)



Transformation as a Central Idea

- Wagner: The Ring.
- Excerpt from the opening of the Ring - Das Rheingold (1869)



Transformation as a Central Idea

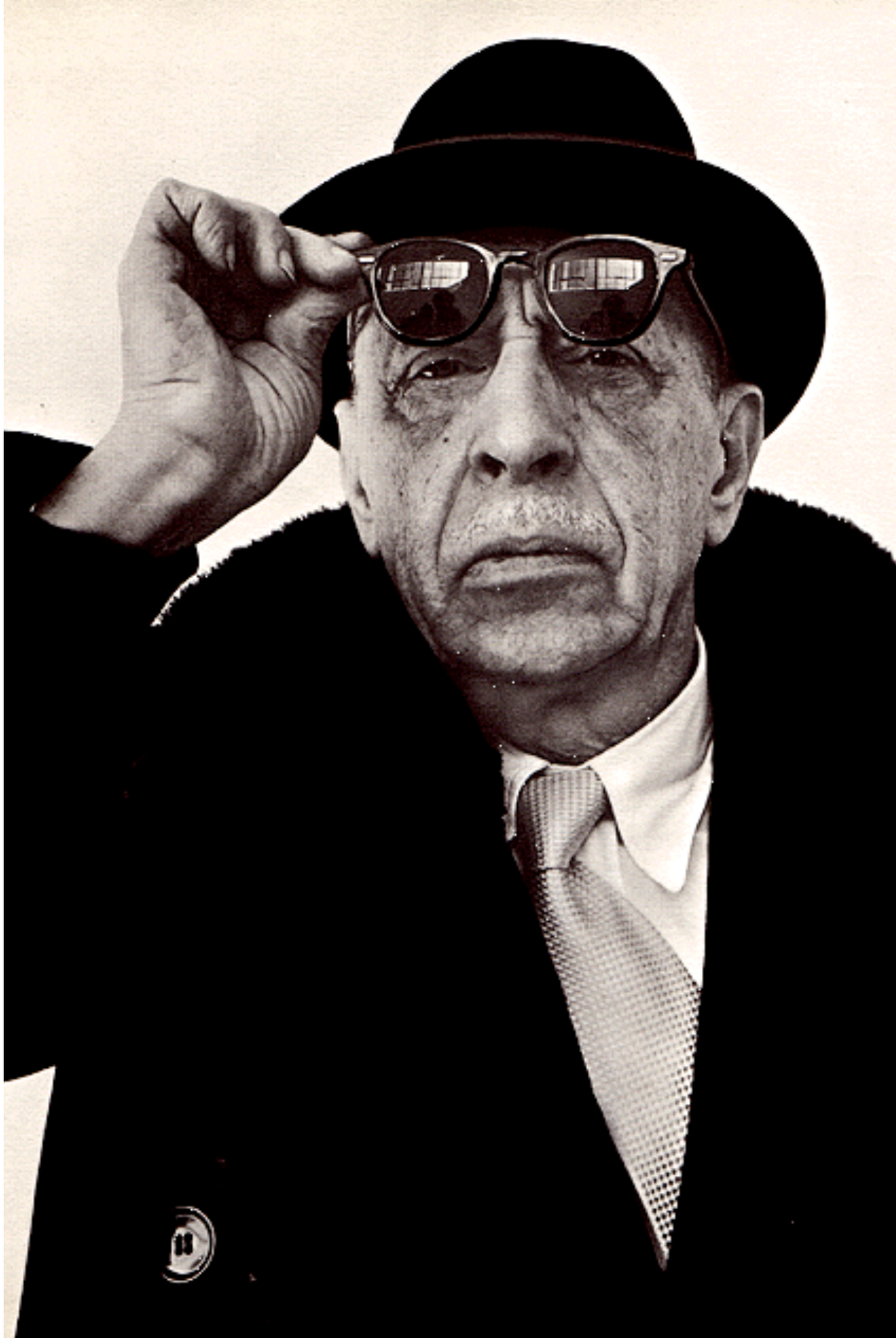
- Wagner: The Ring.
- Excerpt from Gotterdammerung (1874) - here used in Excalibur (Boorman 1982)

Excalibur (1982)

- Note the transformation of the theme...

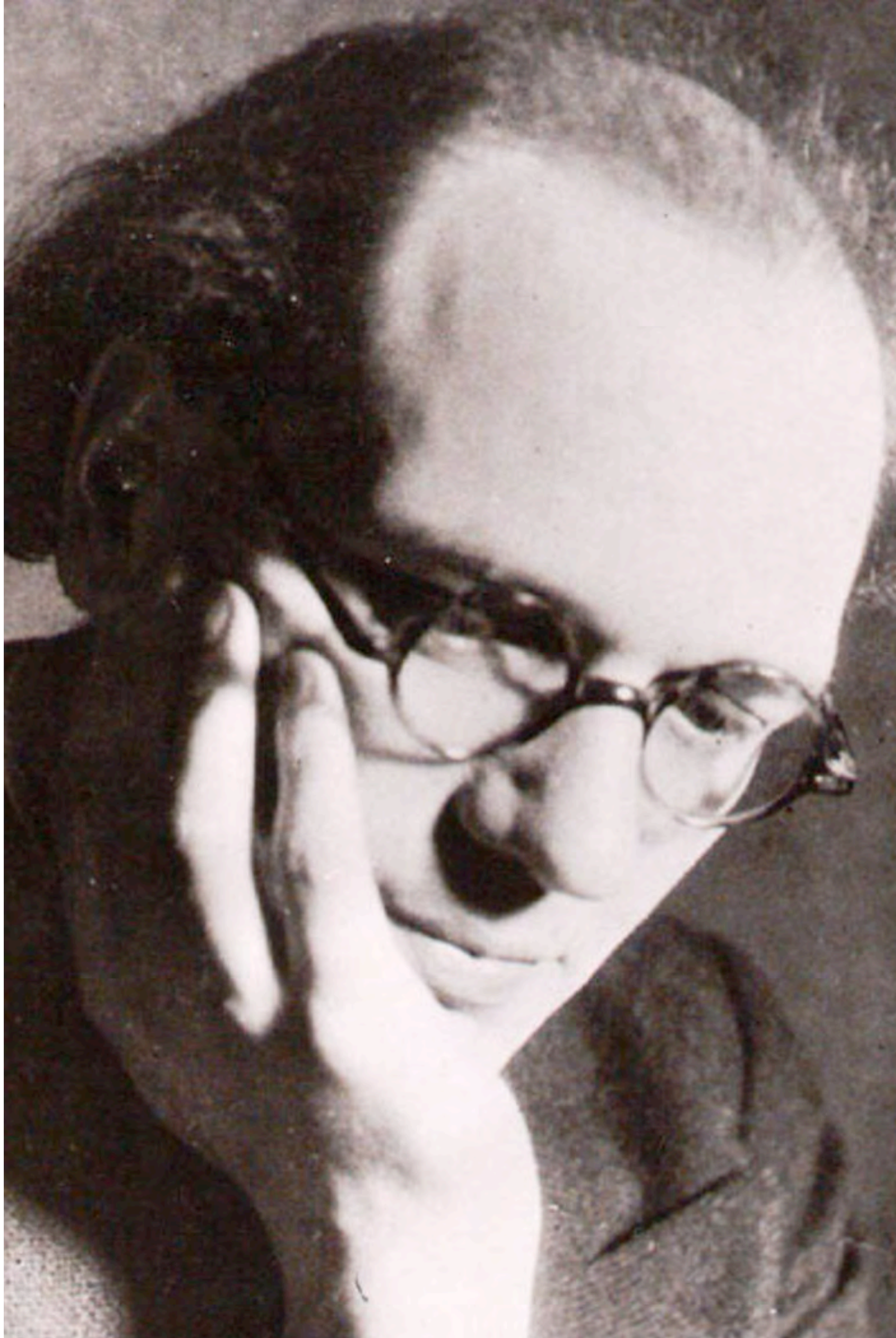
Post-Transformation Music

- Stravinsky (early): contrast, not transformation
- Petroushka
- Rite of Spring



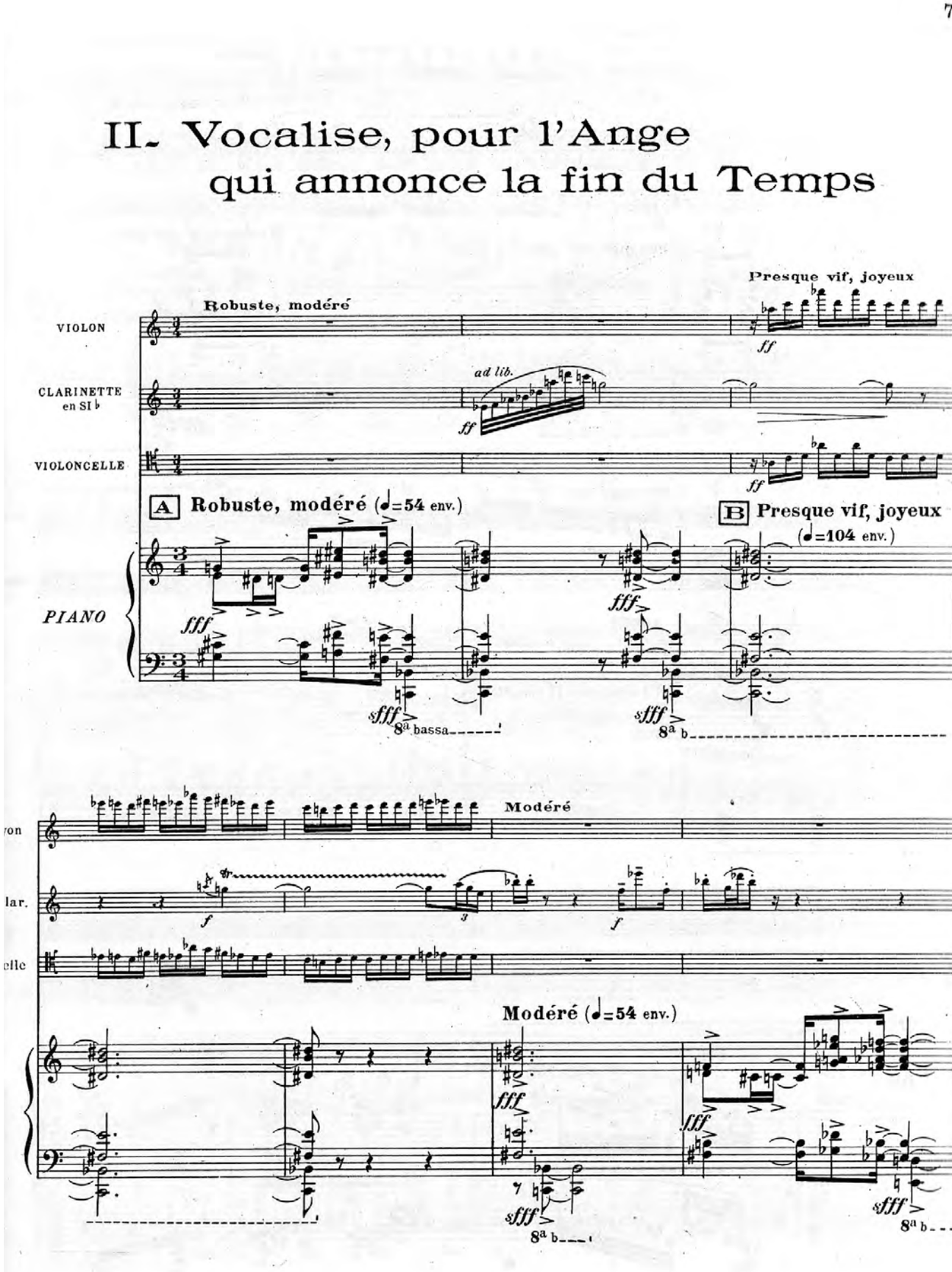
Messiaen

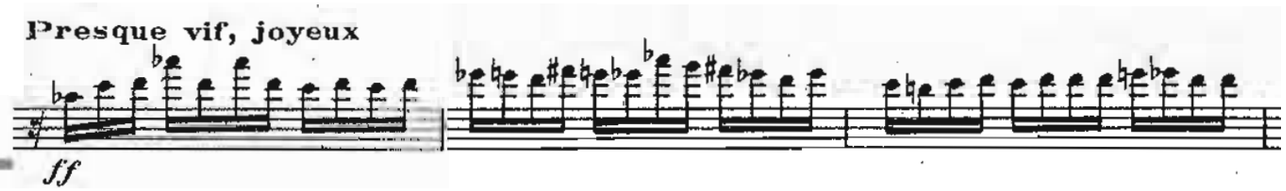
- Quatour Pour La Fin Du Temps (1942)

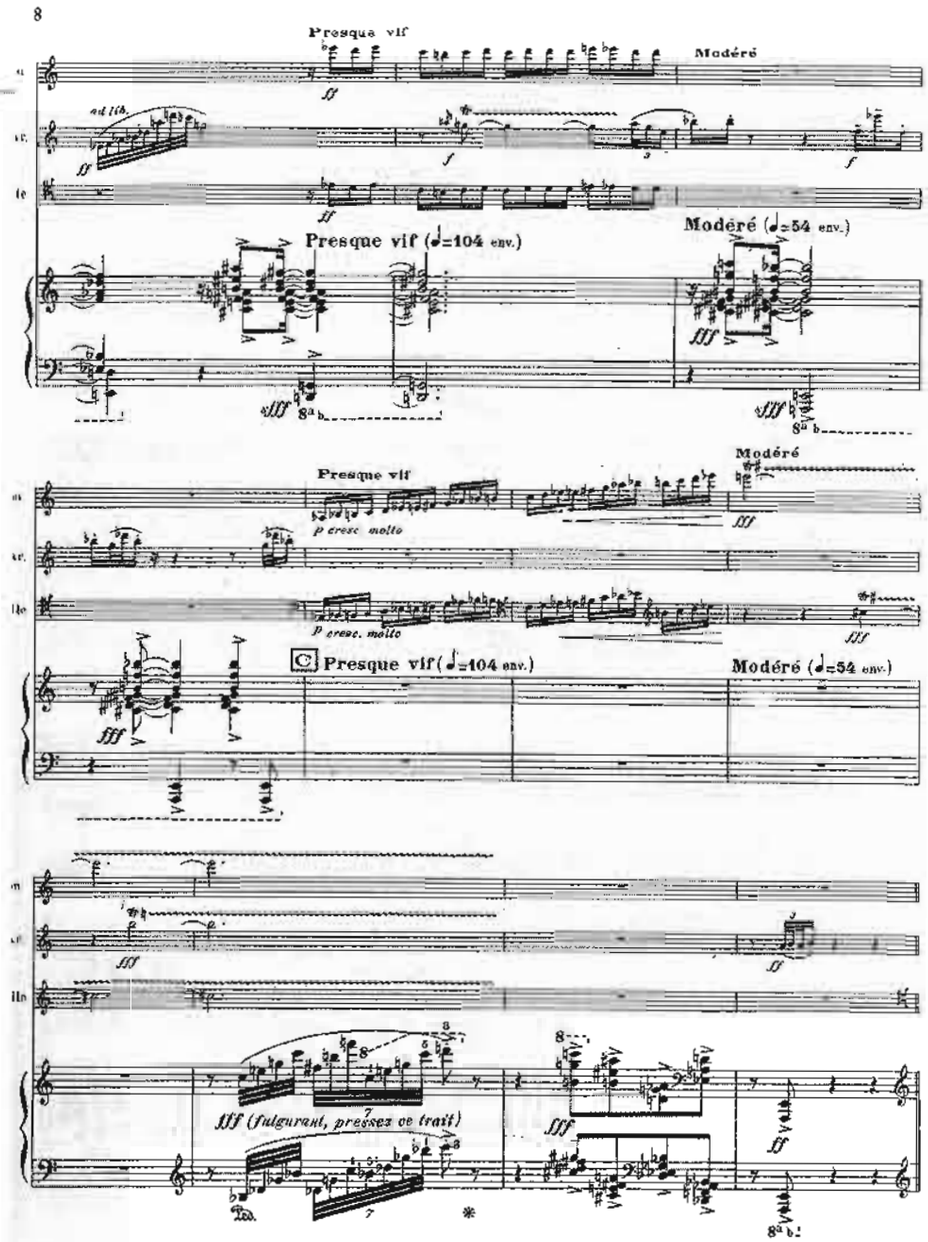


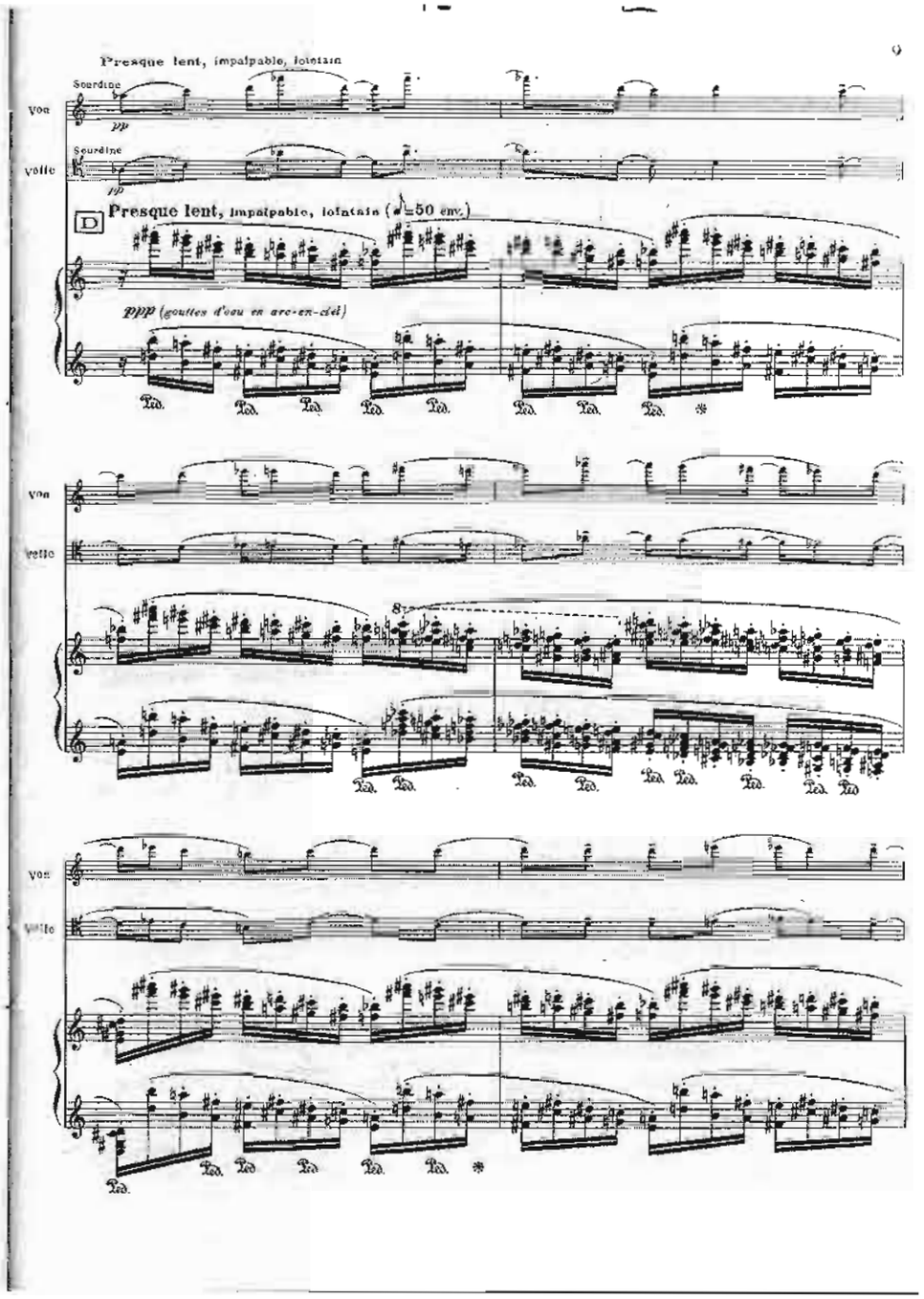
Messiaen

- Quatour Pour La Fin Du Temps (1942)




Presque vif, joyeux
ff


8
Presque vif
Modéré
ad lib.
Presque vif (♩=104 env.)
Modéré (♩=54 env.)
Presque vif
p cresc. molto
Modéré
C Presque vif (♩=104 env.)
Modéré (♩=54 env.)
fff (fulgurant, pressez ce trait)


9
Presque lent, impalpable, lointain
Sourdine
Voix
Sourdine
Voile
D Presque lent, impalpable, lointain (♪=50 env.)
ppp (gouttes d'eau en arc-en-ciel)
Voix
Voile
Voix
Voile

Messiaen

- Contrast with, from the same piece...
- This includes no transformation and reflects nature.

QUATUOR POUR LA FIN DU TEMPS

Violon, Clarinette en Si ♭, Violoncelle et Piano

OLIVIER MESSIAEN

I. Liturgie de cristal

VIOLON

CLARINETTE en SI ♭

VIOLONCELLE

PIANO

Bien modéré, en poudroiement harmonieux

(comme un oiseau)

ppp (son flûté)

p expressif

ppp (vibrato)

A Bien modéré, en poudroiement harmonieux (♩=54 environ)

pp legato (très enveloppé de pédale)

(vers la pointe)

Glissando

(*) Glissando bref; id. aux passages similaires.

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Transformation and Electronic Music

- Recording (Schaeffer)
- Direct manipulation of tape
- Elektronische Musik: direct manipulation of settings/data
- Electronics allowed the (apparently) precise manipulation of ideas (control freakery?)

Transformation and Electronic Music

- Trevor Wishart, Red Bird (1980)

Red Bird is not only a piece of music, but also a journey into an alternative world. When we listen to a piece of pure sonic art such as Red Bird, we bypass the theatre of the concert hall, and are cast adrift in an entirely aural universe. The whole environment is defined by the dynamic process of sound events. Sounds may again take on some of the 'magical' power they must have had for pre-literate peoples - a significance and resonance muted by the dominance of written language in our culture. If we allow ourselves, we can enter that state of perception where the environment is vibrant with significant sounds and symbols and in which myths have their power.

Trevor Wishart Red Bird (1980)

- Trevor Wishart, Red Bird (1980)

Red Bird is both a piece of music and a mythic retelling of the world. The underlying structural idea, as far as it can be put into words, is the conflict between 'open' and 'closed' conceptions of reality. This conflict may be expressed in a number of different ways (political, philosophical, technological…). I don't wish to explain this further, as I prefer the music to speak for itself. I will only add that such interpretations of reality are complementary, rather than conflicting - all reflect a 'deep structure' represented by the myth. What is straightforward in one interpretation may be metaphorical in another.

Trevor Wishart Red Bird (1980)

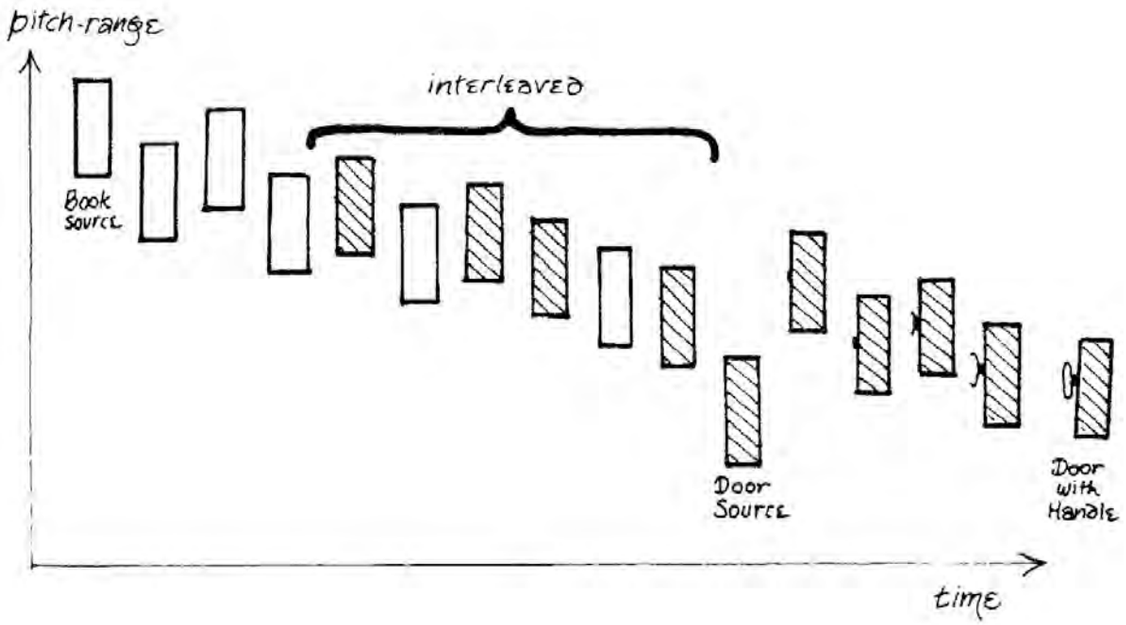
- Trevor Wishart, Red Bird (1980)

The sound world of **Red Bird**, as a myth, deals with complex ideas, but aims to distil the essence of these ideas and articulate them in an archetypal form. To do this it uses only a limited set of recognisable sounds, in particular....

Birds: real calls selected for their musical properties
Animal/
Body: including breath, fluids and inarticulate vocals
Words: especially 'listen to reason, and 'reasonable' and their syllables
Machines: sonic constructions made from words or animal/body sounds

Trevor Wishart Red Bird (1980)

Transformation: Book to Door (1’ 54”)

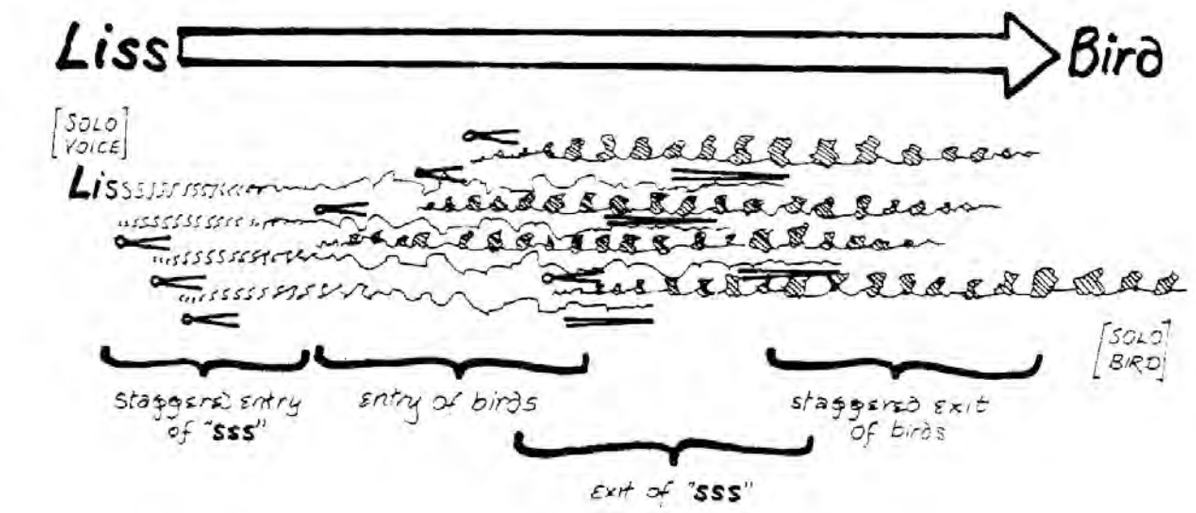


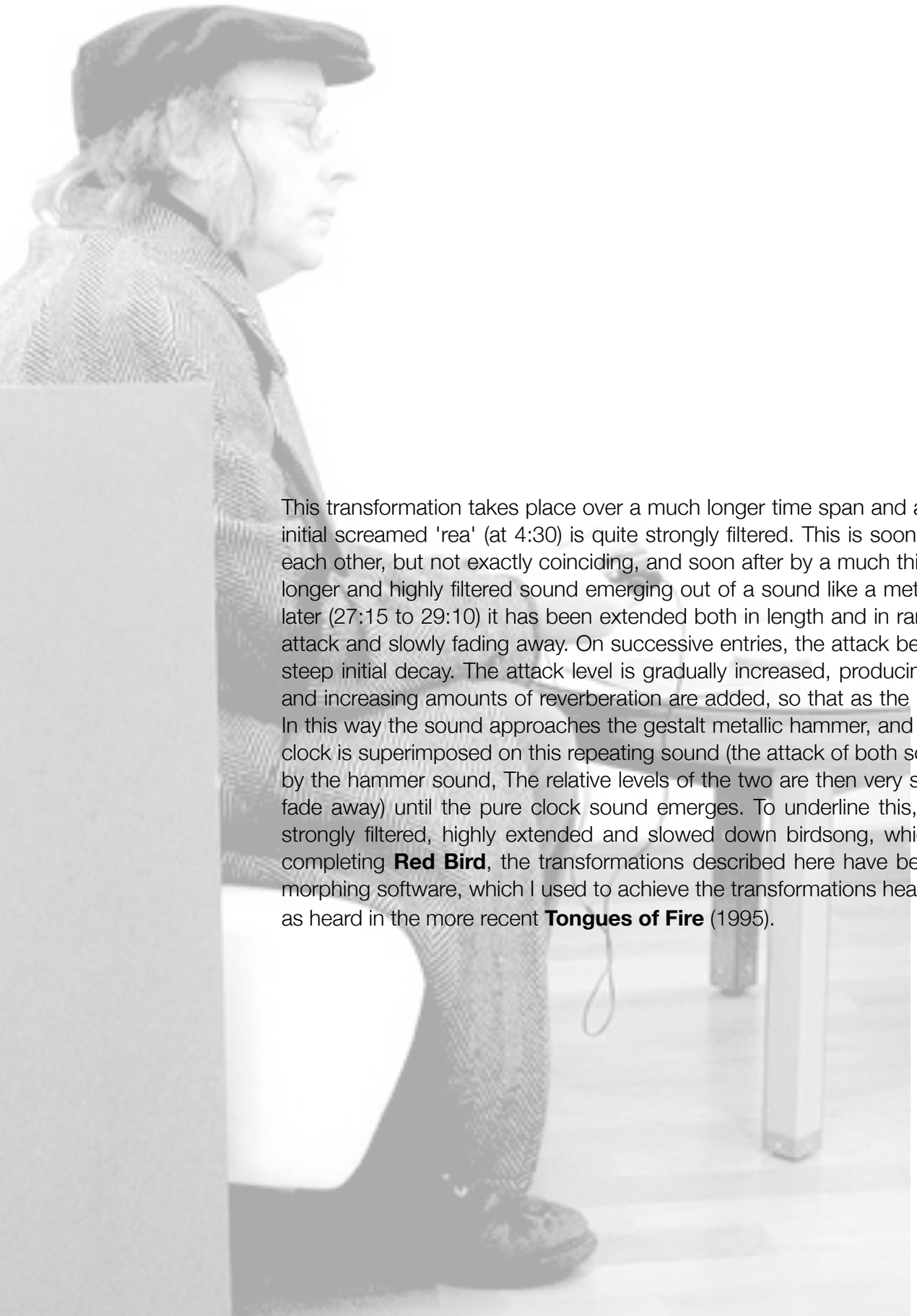
Here the transition is from the sound of a book slamming on a table to that of a slamming door. Neither sound is easily recognised out of context, especially when the sounds have to be stripped to their bare essentials (a percussive bang) to make the transition from one to the other. Hence the book is established by the context of pages being turned and the attempt to swat a fly, The slam is then gradually lowered in pitch to better match the door slam, As the door slam is repeated, the sound of the handle is gradually introduced (door context), and it finally merges into a stereo texture of many different doors. Where the sounds meet in the middle, the sequences of sounds are wrapped into each other, i.e., the (pitch-raised) door occurs in the sequence before the (pitch-lowering) book has concluded. (i.e., where the ear expects book) and the two semi-alternate until the book is eventually left behind,

Trevor Wishart Red Bird (1980)

Transformation: ‘Lisss to Bird’ (20”)

In this example, the vocal syllable ‘lisss’ transforms into the sound of birdsong. This transformation is achieved by a mixture of vocal mimicry and textural *melange* (a kind of self-masking) as indicated in the diagram. In this case the two poles of the transformation are clearly recognised without contextualising clues and the transformation passes through an artificial acoustic space generated by mixing it into a mono stream.





Trevor Wishart Red Bird (1980)

Transformation: Screamed ‘rea’ to clock (3’22”)

This transformation takes place over a much longer time span and also goes through a number of intermediate recognisable gestalts. The initial screamed 'rea' (at 4:30) is quite strongly filtered. This is soon followed by a texture of three screamed 'reas' (at 4: 36) layered over each other, but not exactly coinciding, and soon after by a much thicker texture. It also occurs at this stage extended into a much denser, longer and highly filtered sound emerging out of a sound like a metal hammer (from 6:05 to 6:27). When this sound texture occurs again later (27:15 to 29:10) it has been extended both in length and in range of pitches. It now occurs with a specific 'envelope', i.e., a sudden attack and slowly fading away. On successive entries, the attack becomes more and more pronounced and is followed by an increasingly steep initial decay. The attack level is gradually increased, producing extra harmonic content from resonances in the reverberation plate, and increasing amounts of reverberation are added, so that as the initial sound becomes shorter, its reverberated decay becomes longer. In this way the sound approaches the gestalt metallic hammer, and no longer sounds vocal, Finally (from 29:10 to 33:00) the sound of the clock is superimposed on this repeating sound (the attack of both sounds coinciding), initially extremely quietly, so that it is entirely masked by the hammer sound, The relative levels of the two are then very slowly reversed, and there is a shift in context (the breath-wind sounds fade away) until the pure clock sound emerges. To underline this, the ensuing alarm provides a context clue. Yet this sound is in fact strongly filtered, highly extended and slowed down birdsong, which rapidly defilters, speeds up and becomes a flock of birds. Since completing **Red Bird**, the transformations described here have become much easier to produce. I developed some of the first sound-morphing software, which I used to achieve the transformations heard in **Vox 5** (1986), and have since greatly expanded those techniques, as heard in the more recent **Tongues of Fire** (1995).

Trevor Wishart Vox 6 (1980)

This is supposed to be funny, or what (nothing to do with transformation)...