

# Lars-Gunnar Bodin's "Anima": Intervalllic Symmetry as Metaphor for A Cybernetic Age

Howard Jonathan Fredrics, DMA  
Texas A&M University  
fredric@unix.tamu.edu

## Introduction and Overview

The rise to prominence of electroacoustic music has raised important philosophical and ethical issues for composers, many of whom have felt compelled to find a unique path toward reconciling the inherent contradictions of new modes of music production. Inextricably tied to industrial automation technology, the tools of the electroacoustic composer have, according to the German critical theorist, Herbert Marcuse, led to "the progressive enslavement of man by a productive apparatus which perpetuates the struggle for existence and extends it to a total international struggle which ruins the lives of those who build and use this apparatus" (Marcuse 1991). Thus, as Marcuse might argue, electroacoustic composers are now faced with the daunting task of transcending the repressive forces of a technological society by instead using that society's tools as a liberating force.

Acousmatic composers such as Francis Dhomont, Claude Schryer and Denis Smalley have developed new methods for semiotic coding through the use of *non-pitch-based* sonic metaphor. By employing recognizable sounds or by codifying an abstract structural language based on the spectral morphology of gestural shapes, they have enhanced the potential for deriving musical as well as symbolic extramusical meaning from their respective works. Indeed, in reference to its semiotic use of recognizable everyday sounds, Dhomont defines acousmatic music as "the art of mental representations triggered by sound" (Dhomont 1995).

Schryer's interest in *acoustic ecology*, wherein sound artists explore the relationships among art, technology and sonic environments, leads him to the view that "artists can become a conduit of our collective memory and help us better understand our acoustic environment, which we rarely actually hear. Thus, the sound artist can propose new associations, acoustic games, poetic metaphors and pose fundamental questions about the coexistence of electronic technology and ecology" (Schryer 1998). Schryer's belief in the existence of a collective sonic memory suggests a parallel with the noted psychologist, Carl Jung's notion of the *collective unconscious*. Similarly, his concerns for the social and environmental impact of producing art with the aid of technology mirror those of Marcuse. Smalley, on the other hand, defines a set of abstract archetypal sonic shapes which may be applied toward time-variant spectra (Smalley 1986). In doing so, Smalley builds upon ideas concerning sonic typology which were first espoused by Pierre Schaeffer (Schaeffer 1966).

Few electroacoustic composers, however, have exploited discreet *pitch* relationships as a primary source of poetic metaphor. Perhaps this trend can best be explained by the very nature of the medium, which has afforded composers the possibility of exploring timbre as a primary structural and semiotic determinant. Similarly, most music theorists through their training in the logical positivist tradition have, until relatively recently, largely discounted symbolic and

interpretive modes of analysis, favoring a more strictly quantitative approach. The use of both quantitative *and* interpretive modes of analysis offers promise for electroacoustic composers seeking a rational basis for expression of subjective poetic ideas, while suggesting a more balanced model for theoretical study.

The composer, Lars-Gunnar Bodin employs abstract musical structures and technological tools towards the humanistic goal of reflecting, reconciling and transcending the political, social and psychological challenges posed by modern society. An examination and metaphoric interpretation of his use of intervalllic symmetry, most notably in his piece for mezzo-soprano and computer-generated vocalise, *Anima* (1984), suggests links to the ideas of both Marcuse and Jung. Jung's concepts of anima and animus -- the emotional or 'female' and intellectual or 'male' parts of the human unconscious psyche or soul, which, according to Jung, must be integrated within the realm of the conscious mind -- can be compared to Marcuse's views on social alienation and the repression of individuality through the misapplication of so called 'rational' technology under industrialized capitalism (Marcuse 1991).

Bodin's interest in programmatic and literary themes from cybernetics, as well his interest in revolutionary politics are first revealed in his early *text-sound* works from the 1960s and 1970s. These ideas are symbolized not only by his choice of texts, but through his use of evolving form, symmetrical pitch structures, *ostinati* and through his choice of sound processing techniques.

According to Bodin the extra-musical basis of *Anima* is derived, in part, from Sven Fagerberg's essay collection, *The Bronze Horses*, which concerns itself with the struggle within the individual to come into reconciliation with his or her anima, or true essence (Bodin 1990). In *Eros and Civilization*, and *The One-Dimensional Man*, Marcuse criticizes technology as an instrument of capitalist exploitation that, in the name of 'rationality' has alienated people from their 'true selves.' Indeed, a detailed analysis of pitch, timbre and texture in Bodin's *Anima* shows that its large-scale musical form, symmetrical pitch content, and the shifting dialectic between voice and tape parts mirrors the ideas espoused by Fagerberg, Jung and Marcuse.

## Jungian Notions of Anima

The Jungian psychologist, James Hillman summarizes Jung's definitions of anima as including such broad and specific terms as "feeling, femininity, Eros [the life force], soul, [and] fantasy" (Hillman 1985). Carl Jung explains his notion of anima as the essence of femininity by stating that, "...the feminine belongs to man as his own unconscious femininity, which I have called the anima" (C. Jung 1967a). He further defines anima as, "the image or archetype or deposit of all the experiences of man with woman" (C. Jung 1967b). Emma Jung broadens Carl Jung's definition

by stating that anima includes the "image that he [man] has of feminine nature in general, in other words, the archetype of the feminine." Conversely, the Jungian notion of masculinity is attributed to animus. (E. Jung 1972).

Thus, while we find that, according to Jung, anima is the feminine archetype which is concerned with feeling, with sensuousness and human relationships, animus forms the counterpart to anima, the masculine archetype which is concerned with pure logic and with mechanisms for control.

Spiritual and mythological archetypes are characteristic of Jungian psychology's notion of anima. The anima, according to Emma Jung, is a "spiritual and psychological mirror to man that makes him become more aware of things about which he is unconscious" (E. Jung 1972). According to Marcuse's theory of an undeveloped class consciousness, much of our capitalist society is, likewise, initially unaware of its own class interests, in part, as a result of the domination of technology and reason over nature and human desire. Similarly, in Bodin's Anima, the use of a human female voice type (mezzo-soprano) to articulate a complex symmetrical pitch relationship around the computer-generated tape accompaniment serves as a 'mirror' to the listener who may be otherwise unaware of the musical structure and its consequent metaphoric meaning, the reconciliation of anima and animus, of feeling and intellect, of humanity and technology.

A related example of the connection between Greek mythology and Jung's notion of anima is their shared conception of fracture and redemption. Integral to the Jungian notion of anima is the idea of an original state of wholeness and unity becoming disrupted. Psychologically, this split is represented by societal demands for socialization which destroy the original wholeness of the child. According to Jung, redemption of this split can only occur by recognizing and integrating the anima and animus, the complementary elements of the unconscious or soul (E. Jung 1972).

Inherent in the Jungian notion of anima is the necessity for freedom. According to Jung, the process of redemption through integration of the soul is, itself, liberating. Thus, the anima may be said to be a force for liberation (E. Jung 1972). Similarly, in Bodin's piece, Anima, the sung voice and its structural and sonic integration with its computer-generated counterpart, serve as musical symbols of the Jungian notion of liberation through the integration of the elements of the unconscious.

### **Marcuse's Theories of Capitalist Alienation**

Marcuse believes that the capitalist society, which is dominated by a misuse of technology, serves as a force of repression against and domination over humanity's life force, known as "Eros" (Marcuse 1955). While technology and the resultant gains in scientific knowledge have created real improvements in productivity and possibilities for greater freedom and higher living standards, according to Marcuse, it has also created the vehicle for mankind to employ with greater efficiency, methods of oppression, and destruction (Marcuse 1991). Thus, technology is used to rationalize the perpetuation of status quo socioeconomic constructs.

According to Marcuse, the alienation of producers from control over the means of their production and the acquisitive, competitive, alienating exercise of what he refers to as the "performance principle," enhances, through technological domination, the needs of the elite class over the needs of the many. Moreover, when an individual is working within a system which he doesn't control, wherein he is merely fulfilling a pre-established role, he becomes alienated

from his *own* needs, indeed from his very being, even if he appears to embrace his circumstances (Marcuse 1955). Marcuse refers to this reduced state of consciousness as "one-dimensional thought" (Marcuse 1991). In Jungian terms, one might say that the capitalist society alienates people from their anima, from their true selves.

The structural musical dialectics in Lars-Gunnar Bodin's Anima may also be seen as psychological and political metaphors for the universal or individual process of reconciliation of capitalist repression through discovery of one's own anima. In Eros and Civilization, Marcuse writes that

"behind the aesthetic form lies the repressed harmony of sensuousness and reason--the eternal protest against the organization of life by the logic of domination, the critique of the performance principle. Art is perhaps the most visible "return of the repressed," not only on the individual but also on the generic-historical level. The artistic imagination shapes the "unconscious memory" of the liberation that failed, of the promise that was betrayed. Art challenges the prevailing principle of reason: in representing the order of sensuousness, it invokes a tabooed logic--the logic of gratification as against that of repression" (Marcuse 1955).

Indeed, remarks Marcuse, "a subversive potential is in the very nature of art. Art can express its radical potential only as art, in its own language" (Marcuse 1972). In other words, Marcuse believes that the potential for human fulfillment lies within the realm of the abstract language of art.

### **The Life And Music of Lars-Gunnar Bodin**

#### **Early Works**

Although Lars-Gunnar Bodin is most widely known as a composer, he began his career as a graphic artist. His interdisciplinary background was further enhanced as a result of his long-term association with the Swedish *text-sound* poets, Bengt-Emil Johnson and Sten Hanson (Peterson 1990).

During the late 1960s and early 1970s, Bodin's interest in *text-sound* compositions with programmatic and textual themes drawn from modern science and technology emerged. Bodin also became enamored with the Frankfurt School Marxist critical theories of Herbert Marcuse, most notably, those found in his books, Counterrevolution And Revolt, Eros and Civilization, One-Dimensional Man, Philosophy of Revolution, and The Aesthetic Dimension.

During this period, Bodin composed a series of collaborative works with the choreographer, Margaretha Åsberg. Cybo I-II... from any point to any other point... (1966-8) for example, involves speculations about cyborgs and other man-machine connections. Other relevant examples of Bodin's programmatic music from this period include Toccata (1969), which was based on Marcuse's observations on what he refers to as "the new sensuousness" as well as the role of art in post-revolutionary society, and Traces I-II (1970-71), a work that tries to give representational musical form to the scientific and cognitive theory of our fragmentary knowledge of physical reality (Johnson 1972). The pieces from this period are characterized by their sensuous lyricism, a trait that is maintained in his more recent works, including Anima (1984).

#### **Later Works**

Bodin's later works are characterized by the use of an *ostinato* technique. Several representative works from this period include Clouds (1976), a multimedia music-drama with singing, dancing and slide projections, For Jon I: Fragments for a Time to Come (1977), a cantata for tape and pre-recorded, electronically-altered sung and spoken voices

which, like *Cybo I-II*, explores psychological issues of cybernetics and *Anima* (1984) for mezzo-soprano and computer generated tape (Peterson 1990).

### Examples of Musical and Textual Analysis of Bodin's Works

#### For Jon I

*For Jon I* is notable for its use of intervallically symmetrical pitch structures which are often built from octatonic collections. As shown in Ex. 1 below, at rehearsal A, Bodin uses a symmetrical chord composed of the pitch classes, 6-9-11-1-4 (a tritone + a perfect 4th) and an identically structured -1 transposition of that chord (5-8-10-0-3).<sup>1</sup>

Ex. 1 -- "For Jon" - L. G. Bodin (1977)

As shown in Ex. 2 and 3, beginning at time 1'16" after rehearsal 2, and lasting until the interlude after rehearsal 4, Bodin presents a series of chords built on octatonic collections, which are followed at Interlude I by a largely octatonic solo vocal melody that is processed through a harmonizer to produce parallel chords.

Ex. 2 -- Octatonic Chords

0-2-3-5-6-(8)-9-(11) - Octatonic  
0-1-(3)-4-(6)-7-(9)-10 - Octatonic

Ex. 3 - Octatonic Melody

1-2-4-6-7-9-10-0

(11 does not belong to this octatonic collection)

The structural uses of intervallic symmetry and octatonicism imbues the work with an audible sense of cyclic stasis. This musical stasis is further reflected in the subject

<sup>1</sup>The former occurrence of the set is symmetrical around the note, B-natural, the same pitch that Bodin uses as an axis of symmetry in *Anima*. Perhaps Bodin uses B-natural because it is the dividing point of the white key octave.

matter of Bengt-Emil Johnson's text, which refers to the essential helplessness of the human being in maintaining one's sense of identity against the forces of external cybernetic control.

the feeling of being lured into a trap-capsule  
the feeling of being pulled into an endless labyrinth  
the feeling of slowly losing your right-lobe control  
the feeling that your ego is gradually being consumed by foreign existences  
the feeling of provoking an opposing force  
the feeling of never understanding the connections  
the feeling of being irretrievably lost  
the feeling of losing one's grip and screaming madly . . . .

Excerpted from *For Jon I* (1977)

text by Bengt-Emil Johnson

Bodin reflects the text's cybernetic aspects by first presenting a synthesized ostinato, which represents the mechanistic character of the machine. This ostinato is later carried forward by a similar ostinato performed by sung voices, thus symbolizing the incorporation of the individual into the domain of the machine.

#### Anima

*Anima*, for mezzo-soprano with tape, was composed in 1984 for the English soprano, Rosemary Hardy, who also gave its premiere performance. The work uses the FOF-based vocal analysis-resynthesis modeling program, CHANT, which was first developed by Xavier Rodet, Yves Potard and Jean-Baptiste Barriere at IRCAM (Bodin 1990). In using CHANT, all of the parameters of the voice synthesis--for example, the spectral envelopes, amount of vibrato, degree of randomness of pitch, etc. -- may be independently varied by the user to produce sounds which remain 'vocal' in character, but which extend far beyond the capabilities of a 'live' performer (Rodet et al 1984).

Bodin makes use of CHANT's built-in voice synthesis models, supplying his own parameters to create different vowel formants, and he uses various digital signal processing effects such as chorusing, delay, echo, etc., which cause the tape part to sound unmistakably machine-produced. His parameter settings, which result in the creation of largely 'inhuman' sounding vowel timbres, present an appropriately alienating contrast to the human quality of the mezzo-soprano. The absence of a sung text, thus renders the piece devoid of literal associations for the listener, who is then free to draw his or her own conclusions about the extra-musical meaning of the music from its purely musical elements.

Yet, the piece was, in fact, inspired, by specific texts, namely, Sven Fagerberg's essay collection, *The Bronze Horses*, which is about the struggle within the individual to come into reconciliation with his or her anima, or true essence (Bodin 1990). Bodin's interest in the subject matter of Fagerberg's essays is, however, by no means isolated. Rather, it is clear that Bodin's decision to draw from Fagerberg is related to his long-standing fascination with the subjects presented in both Jung and Marcuse's writings.

In *Anima*, Bodin uses intervallic symmetry, texture, and the shifting relationship between tape and voice to articulate a symbolic representation of the psychological and political struggle for humankind's unification with its anima.

*Anima* is divided into four sections + a brief coda. Each of the sections is articulated by a progression in the relationship between the voice and the tape part, from the struggle of predominance of one part over the other, wherein each has its own identity, towards a merging of temporality

and content. While the texture of the tape part itself moves from a unified ensemble chorus towards increasing degrees of heterophony, the intrusion of soloistic melodic materials that appear earlier in the solo mezzo-soprano part serves to link the tape part to that of the voice.

As shown in Ex. 4 below, the first section of the piece begins with the tape part articulating three successively slower iterations of a motive, which I shall henceforth refer to as the 'anima motive.'

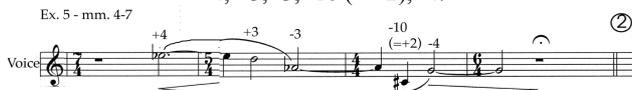
Ex. 4 - "Anima" (1984) -- 'anima' motive



The anima motive consists of symmetrical interval class sixes, above and below what Bodin refers to as the "inner corte" note, B-natural.<sup>2</sup> Thus, the motive contains the pitches F4-B5-F5. Simultaneously, Bodin presents a softer "oo" vowel on the dyad F and B, wherein the F dies out before the B. Similarly, the final note of the anima motive is an F which also dies out before the mezzo-soprano's first entrance. Yet, until the very end of the piece, Bodin systematically avoids having the mezzo-soprano sing the inner corte note, B, instead placing her line symmetrically above and below the notes of the anima motive. Throughout the first section, there is no overlap, between the iterations of the tape and vocal parts, except for the rhythmically motionless sustaining of anima notes. Such separation and sparseness of tape materials allows the first two vocal entrances to clearly state the nature of the dialectic that is to take place over the course of the piece.

As shown in Ex. 5, in the first four-measure vocal entrance, the sequence of pitches forms the following interval distance relationship with the inner corte note:

$$+4, +3, -3, -10 (= +2), -4.$$



Except for the C# (-10) (which is located -4 from the other anima note, F), all of the sums of the intervals are symmetrical around the inner corte. Indeed the phrase as a whole begins and ends symmetrically around the inner corte.

The tape part maintains a similarly sparse texture during the second vocal entrance, where the tape part, again, sustains a B. As shown in Ex. 5a, the second tape entrance presents a single slowly chorused iteration of the anima motive, that is followed by a telescoping of the vocal climax notes, Bb and C, which occur later in the piece.



These notes, which are iterated three times, are intervallically and registrally symmetrical around the inner corte note (+-13, which reduces to +-1). The second vocal entrance forms the largely symmetrical structure, +3, -3, +4, -4, (-10) +3 around the inner corte.

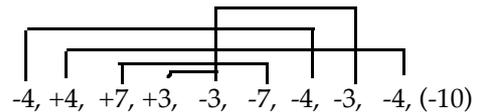
Like the second tape entrance, the third tape entrance begins with a single measure of the anima motive. As shown in Ex. 6a, the tape continues with a rhythmic diminution of

the single solo notes, however, this time, they are symmetrical around the other anima notes, F4/F5.



These notes are also symmetrical by +7, -7 around the inner corte note, B.

The third vocal entrance contains two new pitches, F# and E, which first appeared in the tape part in m. 16. Thus, we have the first example of merging of pitches between the previously independent tape and soprano parts. The symmetrical interval structure of the third vocal entrance around B is:



In this case, not only do the individual pitches of the vocal entrance tend towards symmetry around the inner corte, but they are also arranged in a manner that is approximately symmetrical in their distribution around the temporal midpoint of the line.

Section 2 of the piece begins with the tape part's one-measure statement of the anima motive, this time, with the addition of a small amount of portamento between each note and a slight rhythmic asynchronicity which moves the line towards its eventual state of heterophony. As shown in Ex. 6b, for the first time in the piece, the tape part displays a distinctly melodic character whose pitch content is identical to the mezzo-soprano line in mm. 17-19.

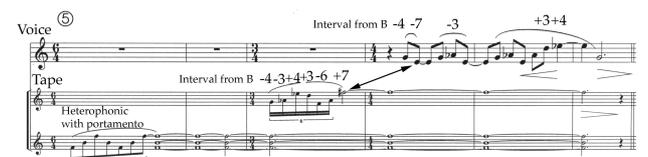
Ex: 6b -- m. 22



Indeed, similar 'penetration' or duplication of the mezzo-soprano's notes by the tape part is, along with somewhat increased heterophony in the anima motive, what characterizes the section as a whole.

The second tape entrance begins with a statement of the anima motive that is ever more heterophonic and filled with portamenti between the notes as shown in Ex. 6c.

Ex. 6c--m. 25-30



The solo tape part in m. 27 uses the following symmetrical interval distances around the inner corte:



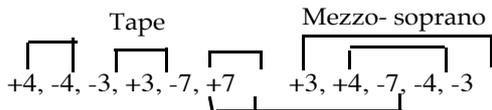
I am, however, unable to explain the presence of the -6, except as one of the anima notes (F), but the +7 (F#), which sustains into the mezzo-soprano entrance, can be explained by the presence of its complement, -7 (E) in the mezzo-soprano in mm. 28-29.

The third and final tape entrance returns to a slightly less heterophonic texture, with two statements of the anima motive followed by a solo statement of a figure which is used as an ostinato in section 4, as shown in Ex. 6d.

<sup>2</sup>"Inner corte" is a term used by Bodin in the liner notes to the recording of "Anima."

© Ex. 6d. mm. 31-36

The solo tape figure contains both E and F# (+-7), rather than dividing the complementary pitches between tape and mezzo-soprano. Thus, when the mezzo-soprano sings the E in m. 35, she is not merely complementing the F# from the tape part in m. 33. Rather, the two parts are merging through a shared common tone, E, which is presented in the tape part in mm. 32-36. The third tape and mezzo-soprano pitches are as follows:



Section 3 is characterized by 'penetration' of the anima by temporal overlaps of sustained mezzo-soprano phrase endings and subsequent tape entrances, as well as by the voice singing the secondary anima note, F4 for the first time in m. 42, and its complement, F5 in m. 64 as shown in Ex. 6e.

Ex. 6e -- mm. 39-43

Additionally, the mezzo-soprano introduces several other new pitches, C, A, and Bb. The new pitches are used in various octaves, thus expanding the overall range of the melody around the inner corte note. The symmetries around the inner corte that result from the new pitches include +1, -1, +2 and -2, (if one reduces larger intervals by octave transposition). The intervallic proximity of the mezzo-soprano notes to the inner corte adds an element of tension to this section, as it pulls the listener ever closer to an eventual resolution in the coda. Moreover, in this section, the chorused anima motive is presented in a highly heterophonic, asynchronous texture that foreshadows the breakup of the unity of the Anima motive into glissandoing ostinati in section 4. The author interprets this process as a symbolic, purgatoric, disintegration of the collective body (i.e. the unison chorus) into its individual component parts.

Section 4 is characterized by the dense combination of a polyphonic, mechanical ostinato solo tape line, with the anima motive in augmentation, and a *simultaneous* presentation of the mezzo-soprano melody line. The structure of the solo tape ostinato is divided into two essentially symmetrical five-note groupings as shown in Ex. 6f.

Ex. 6f -- mm 48-51

A and C# are inversionally symmetrical around B

The nature of that symmetry is one of inversion, though the intervals are slightly altered. Yet, each of the notes of the first and third quintuplet, with the exception of the A-natural on the third note of the last quintuplet of m. 48, is complementarily symmetrical around the inner corte note as follows:

C# - E - D - Eb - F#    A - F# - A - G - E  
 -10 -7 +3 +4 +7    +10 +7 -2 -4 -7

The latter A-natural is most likely an error in the score; had it been an Ab, the passage would have been perfectly symmetrical. Moreover, in this section the C#, which occurs in the mezzo-soprano in m. 51 is finally understood as the intervallic complement of the A's which occur in mm. 48-50.

As shown in Ex. 6g, the mezzo-soprano's climax note occurs in m. 56, where she sings a high C6, the intervallic complement (if transposed) of the high Bb5 in m. 45, which is also the high point of section 3.

Ex. 6g -- m. 56

Climax  
Interval from B = +13 = +1

The final section of the piece is the coda, which begins with the chorused tape part's statement of the anima motive. The single iteration ends with the chordal sustaining of the anima motive, which eventually recedes to a single pitch, the inner corte note, B. While the tape sustains its final sonorities, the mezzo-soprano outlines a summary of the symmetrical possibilities between the F3 and F4, the outer limits of the anima motive, finally settling on the inner corte note, B for the first time in the piece, as shown in Ex. 7.

Ex. 7 - mm. 68-72

The intervallic symmetry in the Coda forms a wedge as follows:

+6 -6, +5(=-7), -5(=+7), +4, -4, +3, -3, +2, -2, +1, -1, Unison - B!

## Conclusions

Ironically, the live voice must undergo an intense struggle to penetrate the inner corte of the tape part's 'anima', which is symbolized by the process of the voice's avoidance and eventual merger with the tape part's anima note, B-natural. Thus, in a sense, the musical merger between the human voice and its machine-generated counterpart symbolizes the struggle against and simultaneous drive towards the inevitable merger of humanity with our technological creations which results in the loss of our ability to function as independent human beings. In Bodin's *Anima*, the sung voice and its structural and sonic integration with its computer-generated counterpart, serve as musical symbols of the Jungian notion of integration and redemption of the masculine and feminine elements of the unconscious, with the final unison of the piece representing the culmination of that process.

Bodin's free but clear use of abstract symmetrical pitch structures provides the intellectual and intuitive basis for the events of his piece. Similarly, in *The Aesthetic Dimension*, Marcuse critiques Marxist orthodoxy by extolling the virtue of abstraction in art as the ultimate form of revolutionary activity because its domain, that of human thought, is where man is truly liberated (Marcuse 1978). Whereas the traditional Marxist opposes the abstract artist because his ideas are difficult to control and his products too obtuse to use as a propaganda tool, Bodin develops a complex dialectic that is structurally, poetically and politically meaningful.

While most listeners, except for those with perfect pitch, would not *consciously* notice the absence of and eventual drive towards B over the course of the piece, the reality of that process remains and may be experienced on an unconscious level. According to Jung, the unconscious

level, the metaphoric level at which anima usually operates is, perhaps, the best path of communication with that anima. By bringing the anima into conscious perception, through its presence in the tape part and through the obvious wedge around B that occurs in the coda, Bodin attempts to bring the musical experience into the realm of psychological and political consciousness.

Perhaps, for Bodin, the metaphors of merger between the natural and the technological, between feeling and intellect, between female and male parts of the self, and between the mezzo-soprano voice and the computer generated voice, is related to his own process of confronting his anima. Bodin sees himself as an artist who must, like all artists working in technological media, somehow manage to make his tools the extension of his physical, intellectual and emotional being. For Bodin, the process of composing *Anima* was his way of reconciling the present day realities of life in an alienating, technology-dominated capitalist society. The clearly peaceful, rhythmically and registrally de-energized character of the final notes takes on a quality of relative acceptance of, or at least resignation towards the apparent inevitability of our fate. Yet there remains a slight trembling, in the form of a subtle vibrato in the final mezzo-soprano note that lets us know that perhaps there is still some fear left in Bodin's final approach towards the inner corte of his anima.

The use of subjective interpretation, supported by objective structural data has proven quite useful for the analysis and composition of electroacoustic music. Metaphor as a semiotic tool for both the analyst and composer alike is not limited to works composed of recognizable concrete source materials. Rather, abstract pitch structures remain a useful vehicle for symbolic representation or interpretation of extramusical constructs. Objective sonogram analysis is useful as a tool for deconstructing both pitched and non-pitched musics into their constituent morphological archetypes. But quantitative analysis and composition need not become our sole objectives.

#### References

- Bodin, Lars-Gunnar, *Anima*, (Stockholm: Edition Suecia, 1991).
- Bodin, Lars-Gunnar, liner notes to the recording of *Anima*, on *Computer Music Currents*, vol. 7, Wergo 2027-2, 1990.
- Bodin, Lars-Gunnar, score excerpts on liner notes to *For Jon I*, Folkways FTS 33443, 1978.
- Dhomont, Francis, "Acousmatic Update," *Contact!* v. 8 No. 2, 1995, p. 51.
- Fagerberg, Sven, *Bronshästerna*, (Malmö, Sweden: Beyronds AB, 1973).
- Hillman, James, *Anima: An Anatomy of A Personified Notion*, (Dallas: Spring Publications, 1985). p. 3, 7

- Johnson, Bengt-Emil, *Electronic Music in Sweden*, (Stockholm: Swedish Music Information Center, 1972), p. 13-14, 53.
- Jung, C.G., *Symbols of Transformation : An Analysis of The Prelude to A Case of Schizophrenia*, translated by R.F.C. Hull, ed. by H. Read et al. (Princeton: Princeton University Press, 1967a), paragraph 678.
- Jung, C.G., *Alchemical Studies*, translated by R.F.C. Hull, ed. by H. Read et al. (Princeton: Princeton University Press, 1967b), paragraph 58.
- Jung, C.G., *Psychological Types*, translated by R.F.C. Hull, ed. by H. Read et al. (Princeton: Princeton University Press, 1971), paragraph 803.
- Jung, C.G., *Two Essays on Analytical Psychology*, translated by R.F.C. Hull, ed. by H. Read et al. (Princeton: Princeton University Press, 1966), paragraph 29.7.
- Jung, C.G., *Mysterium Coniunctionis: An Inquiry Into The Separation And Synthesis of Psychic Opposites in Alchemy*, translated by R.F.C. Hull, ed. by H. Read et al. (Princeton: Princeton University Press, 1970), paragraph 500.
- Jung, Emma, *Animus And Anima: Two Essays by Emma Jung*, (New York: Spring Publications, 1972). p. 46, 55, 58, 65.
- Marcuse, Herbert, *Counterrevolution And Revolt*, (Boston: Beacon Press, 1972), p. 82, 103, 105, 107.
- Marcuse, Herbert, *Eros And Civilization*, (New York: Vintage Books, 1955), p. vii, 19, 42, 130, 156, 168.
- Marcuse, Herbert, *One Dimensional Man*, (Boston: Beacon Press, 1991) p. 12, 144, 187.
- Marcuse, Herbert, *The Aesthetic Dimension*, (Boston: Beacon Press), 1978.
- Peterson, Hans-Gunnar, *Swedish Composers of The 20th Century*, (Stockholm: Swedish Music Information Center, 1990), p. 29-30.
- Rank, Otto, *The Trauma of Birth*, (New York: Harcourt Brace, 1929), p. 93.
- Rodet, Xavier, Potard, Yves, Barriere, Jean-Baptiste, "The CHANT Project: From the Synthesis of the Singing Voice to Synthesis in General" *Computer Music Journal*, v.8, no. 3, 1984, pp. 15-30.
- Schaeffer, Pierre, *Traité des objets musicaux*, (Paris: Editions du Seuil, 1966).
- Schryer, Claude, "À la recherche de l'effet Sharawadji/Electroacoustic Soundscape Composition," *eContact* 1.4, 1998.
- Smalley, Denis, "Spectro-morphology and Structuring Processes" in *The Language of Electro-Acoustic Music*, Simon Emerson, Ed. (London:MacMillan, 1986), p. 61-93.

#### Discography

- Bodin, Lars-Gunnar, *For Jon I*. FTS 33443. New York: Folkways, 1978.
- Bodin, Lars-Gunnar, *Anima*, on *Computer Music Currents*, vol. 7. WER 2027-2. Mainz: Wergo, 1990.