

WOVEN MUSIC

Melanie S. Jackson, B.F.A.

Problem in Lieu of Thesis Prepared for the Degree of
MASTER OF FINE ARTS

UNIVERSITY OF NORTH TEXAS

May 2003

APPROVED:

Amie Adelman, Major Professor

Harlan Butt, Minor Professor

Jerry Austin, Committee Member and
Chair of Studio Division

C. Neal Tate, Dean of the Robert B. Toulouse
School of Graduate Studies

Jackson, Melanie S., *Woven Music*. Master of Fine Arts (Fibers), May 2003, 20 pp. 1 table, 7 figures, glossary, references, 12 titles.

When I am weaving I listen to music and notice that my hands and feet fall into a rhythm. This connection reminds me of playing the piano. I took a closer look at weaving drafts; the movement of the threading setup reminded me of the notes on musical scores. This relationship inspired me to see what textures I could achieve by actually weaving the musical notes.

The focus of my study is the exploration of the relationships between weaving and music utilizing elements and principles found in both, such as: color, texture, form, repetition, rhythm, and time. Both music and color produce emotional responses and will be taken into consideration within the weavings.

TABLE OF CONTENTS

CHAPTER I.....	1
Introduction.....	1
Statement of Problem.....	2
Methodology.....	3
CHAPTER II.....	4
Discussion of Work In Relation To Questions	4
Question One	4
Question Two.....	5
Question Three.....	8
CHAPTER III	9
Portrayal of The Work	9
CHAPTER IV	12
Summary and Conclusion.....	12
CHART OF NOTE COLORS	13
GLOSSARY	14
FIGURES	17
BIBLIOGRAPHY.....	19

CHAPTER I

Introduction

Fibers in some form have always played an important role in my life. My paternal grandmother taught me to sew at an early age. While I watched her make quilts, I carded the cotton for batting that she used in the linings. Later I developed an interest in spinning and then weaving.

When weaving, I listen to music and instinctively my hands and feet fall into a rhythm. I have always been involved with music in some form, whether it was playing the piano, singing in the choir or performing with Medieval vocal groups. This connection with music led me to take a closer look at *weaving drafts* and the movement of the threading setups, which are similar to that of the notes on musical scores. The similarities both excited and inspired me. I wanted to know what patterns and textures I could achieve by actually weaving the musical notes.

Thus my appreciation for music and love for weaving persuaded me to pursue a new direction in my work. I decided to weave material for garments inspired by three of Shakespeare's plays: King Lear, The Tempest, and A Mid-Summer Night's Dream. The colors of each piece developed out of the serendipity of the dyeing process. The yarns for the first garment were dyed a dark blue-green, dark green, bronze, and gold. This became the garment for King Lear because the colors reminded me of royalty. The second portion of the *warp* was dyed reddish pink, medium orange and pale gold. I felt this series of colors would go well with the romance of star-crossed lovers in The Tempest. The final piece was dyed dark, medium, and light blue-green with shots of

silver metallic thread in the *weft* for A Mid-Summer Night's Dream to bring out the magical quality of another realm.

In interpreting King Lear, I chose a classical piece of music entitled “In the Hall of the Mountain King” by Edvard Grieg. The garment consisted of a long vest, a waist length top and silk pants. To embody The Tempest, the second piece of music was inspired by “Hello Young Lovers” by Rogers and Hammerstein. The garment for this was a romantic 1940s woman's suit. For the final piece inspired by A Mid-Summer Night's Dream, a classic rock tune “Do You Believe in Magic?” by Lovin' Spoonful was used. This garment was a two-piece double asymmetrical vest and skirt. Through the process of executing this work an intimacy with the woven cloth that I had not known before was discovered. The musical score predetermined the structure of the weave and led to a wonderful and unpredictable element of surprise in the final piece of cloth.

Statement of the Problem

My focus and primary objective is to explore the relationship between weaving and music, by utilizing the elements (*color, texture* and *form*) and principles (*repetition, rhythm, and time*). Emotional responses can be produced both from a piece of artwork or from a musical piece. These responses will be taken into consideration while producing my work. In exploring these relationships, the following questions will be addressed:

1. Does the complexity of the musical scores translate into complex weave structures?

2. Do the elements and principles in music (color, texture, form, repetition, rhythm, and time) relate to the same elements and principles in design?
3. What kind of technical challenges will the literal translation from musical notes to weaving drafts present?

Methodology

I propose to weave the material constructing a body of artwork that will consist of six to nine finished wall hangings. The pieces will use the musical score as a weaving draft and be seasonal in theme. Each piece of woven cloth will represent different combinations of the elements found in both music and weaving. I will document the work by keeping a journal, taking photos of the process, and discussing my findings in a written paper. An exhibition of the artwork that was produced for this problem in lieu of thesis will be implemented.

CHAPTER II

Discussion of Work In Relation To Questions

Question One

Complex musical scores can produce complex weave structures on a *loom* with more than eight harnesses. Using several different phrases from a single piece of music and either threading the harnesses or treading the sequences for the pattern also can create complex weave structures. Weave structures can appear to be more complex than they are by the dye methods used in the exploration in this body of artwork.

Translation of a musical score to a weaving draft: There are a number of ways of translating a musical score into a weaving draft: creating a draft directly from a musical score; creating a profile draft – a form of weaving shorthand (requiring fewer adjustments); using a musical score for developing color orders for *warp* and/or *weft* stripes (based on positions of notes on the lines and spaces, and note duration to determine the width of the stripe); assigning a color to each note to achieve a striped pattern (e.g., see chart) along the color wheel. This paper deals with the first translation, creating a draft directly from a musical score.

The lines and spaces in a musical score represent the warp while the notes crossing the lines and spaces represent the weft. I assigned each line and space on a musical score, from Middle C to High C, a *harness* number: Middle C = 1, D = 2, E = 3, F = 4, ... High C = 8. I adjusted this according to the lowest note on the *treble clef*. Some scores can be translated literally, but not all; some need adjustments. For example:

If the draft worked out to 1,3,4,5,5,6,8,7, I might add a 2 between 1,3 (1,2,3) and a 4 or 6 between the 5,5 (5,4,5 or 5,6,5) or I might take out the extra 5. These additions or subtractions make for a more pleasing weaving design.

The threading of the *heddles* varied from a straight draw (1,2,3,4,5,6,7,8) to various *twills* (point, rosepath) while the musical notation was placed in the treading (order in which the harnesses are raised).

Question Two

Relationships between elements (color, texture, form) as well as the principles (repetition, rhythm, and time) in music and design can be seen as the following: Color and music have had a long association. Tone color is a way of describing how a composer uses different instruments to create a desired mood or effect. The range and instrument are stated by the tone color. For example: the music for “Summertime” by George Gershwin and Dubose Heyward is slow and sultry like a southern summer. It might make one think of bright yellows, reds, greens and a hazy pale blue sky, sitting on the porch drinking lemonade. Each instrument produces a different tonal color, which would produce different moods. The voice would produce the above imagery, where if played by a flute might give a brighter, livelier mood. Mood is an emotional response to the feeling created by an artwork or a piece of music. In Michael Poast’s book, Color Music: Visual Color Notation for Musical Expression, he quotes Russian painter Wassily Kandinsky (1866-1944) with the following: “the same inner sound can be rendered at the same moment by different arts...[E]ach art will display that extra element which is essential and particular to itself, thereby adding to that inner sound which they

have in common a richness and power that cannot be attained by one art alone.”¹ Color and music have been proven to produce emotional responses. Blues, greens, purples in the cool tones produce calming, relaxing feelings. Music that vibrates within these tonal ranges creates the same effects. The warm colors (reds, yellows, and oranges) produce more of an energetic response, while, musically, red is considered by some to have a heavier feel than yellow or blue. According to the Major scales (music in the keys of C,D,A,F and F-sharp) are “interpreted by Rimsky-Korsakov with white, yellow, rose, green, and grayish-green, respectively. Scriabin is said to have interpreted them as red, yellow, green, red, and bright blue. Arthur Bliss wrote a composition entitled Colour Symphony (1922, rev. 1932), each movement of which represents the associations of a specific color (e.g., purple: royalty, pageantry, and death).”²

Repetition is an important element in musical composition and is created by the repeating of various musical ideas or motifs. Rhythm is comprised of regular intervals of long and short notes. This movement of notes flowing up and down the scale provides movement as it progresses across the score.

Repetition and rhythm in weaving is a combination of different elements. The repetition and rhythm in this body of work is achieved by the use of pattern in the weave structure, colors and motifs as they move across the finished cloth. Spring II (Fig. 2) is the strongest representation with its field of orange marching across the piece reminiscent of a garden path.

¹ Poast, Michael, Color Music: Visual Color Notation for Musical Expression, Leonardo, 2000, Vol. 33, Issue 3, Cambridge: MIT Press, p. 215.

² Apel, Willie, ed. Harvard Dictionary of Music, 2nd ed., 1978, Cambridge, MA: Belknap Press of Harvard University Press, p. 183.

Form when applied to weaving, as art in general, encompasses design structure and overall appearance. In music, form deals with rhythm, tone color, melody, and texture. In a lengthy piece of music this is achieved by repeating themes, rhythms, tone colors, and textures. In weaving, as in music, form is all the parts coming together to create an idea and can be accomplished in a number of ways: removing color (Figs. 1 and 4), adding color (Fig. 1), or applying additional fibers to the surface of a piece (Figs. 5, 6 and 7).

Texture of music is much like that of weaving cloth. The vertical threads of music form the harmonies while the same threads form the warp on cloth. The horizontal threads of music comprise the melodies while those same threads form the weft on cloth. These two elements create texture in both music and weaving. This texture is most predominant in choral/orchestral music where each part stands for an individual design in the form of a horizontal line, connected to the other vertical lines by their harmonic partnership. In weaving, this occurs by the crossing of the warp and weft. The texture one is capable of creating in weaving and music is greatly varied, depending upon what one is trying to achieve. Texture adds another dimension to both.

Time in music is connected with the rhythm. Notes are given a duration of so many beats for each kind of note. A whole note in a piece of music with a time signature of 4/4 means there are 4 beats per measure; indicated by the top number and the bottom number indicates which kind of note represents the beat. In this case a whole note gets 4 beats, half notes would get 2 beats each and there would be two per measure, quarter notes would get 1 beat each and there are four to a measure, etc.

Time in a woven piece is experienced in a variety of ways with preparation being only one way. Weaving is like the seasons. Nature takes time to bring her color and bounty to fruition and weaving takes time from the start of an idea to the completed cloth. Spring and summer seem to fly by while fall and winter seem to drag by at a snail's pace. Yet Nature's beauty can be seen as the cycle of the year passes. She is continually healing as she repeats herself in the never-ending circle of life. We are reassured that dawn will follow night and spring will follow winter.

A blend of all the parts of one's composition, whether a piece of music or textile, must in the end be connected. Without this connection of color, texture, form, repetition, rhythm, and time, music and weaving would be very dull.

Question Three

The technical challenges associated with translating musical notation to a weaving draft, more often than not, will result in a modification of the notation. When I created a draft using the literal translation I often chose to use the lowest note in a composition on *harness 1* progressing up the scale correspondingly for however many harnesses I decided to use. There may be areas that create long floats across either the warp and/or weft. Adjustment comes into play here by either adding or subtracting harnesses for a more coherent design. The floats can be used as an added textural element. Floats are a design element that is individual to each weaver. I chose not to include floats that were more than five threads wide in either direction.

CHAPTER III

Portrayal of The Work

Spring I (Fig. 1) was woven to the music of “I’ll Remember April” by Don Raye, Gene DePaul and Pat Johnson. The design for Spring I was inspired by the soft, gentle colors of spring. To borrow a phrase from William Wordsworth, “A host of...daffodils;... Fluttering and dancing in the breeze.”³ Images of daffodils and tulips bring spring to mind and the colors that resulted from this dyeing spoke of these two flowers. The cloth, once woven, cried for more. I chose to use the images of these two flowers to bring a focus to the music. The vertical lines of removed color and the added diagonal lines of color were for visual effect.

“April in Paris” by Vernon Duke and E.Y. Harburg was the music used for the weaving draft for this artwork. The inspiration for Spring II (Fig. 3) came from the Impressionists, their use of points of color, especially in the landscapes and reflections on water. As I looked at the finished piece it reminded me more of orange and purple flower reflections on water than what I had first envisioned. The bumps in the yarn’s texture help add to this illusion.

Summer I (Fig. 4) was woven to “Summertime” by George Gershwin and Dubose Heyward. The idea for this design came while driving in the country one summer and coming across a meadow of wildflowers. I envisioned an abstract garden in yellows,

³ Garofalo, Michael P., ed., Time: Seasons, Cycles Timing, Timeliness, Impermanence, Memories, Anticipation – Quotes for Those that Love Gardens, Gardening and the Green Way, January 28, 2003, www.gardendigest.com/time.htm.

greens, pinks, reds, blues, and purples creating splashes of color surrounding a blue spiral. Spring and Summer to me have always meant renewal. The ‘spiral of life’ represents renewal and ever changing, much as one’s music changes with life’s experiences. Musically I grew up on “Rock ‘n Roll”, but today my tastes have become more eclectic.

The draft for Summer II (Fig. 2) was adapted from the music for “The Things We Did Last Summer” by Sammy Cahn and Jule Styne. The draft looks like bushes and flowers. The design of faux-ikat in yellows, greens, pinks, reds, purples, and blues splash color across the artwork while the red weft forms abstract bushes and flowers with a hint of the M’s and W’s of the threading. Discharged roses and sunflowers reminiscent of past summer gardens cascade from the top to pile up at the bottom. One hopes to pick one up and savor the sweet emotions it would invoke.

“Autumn Leaves” by Joseph Kosma and Johnny Mercer was the musical force behind Fall I (Fig. 5). In autumn, one sees nature’s design: the trees abound with a myriad of colorful leaves in various shades of green, yellow, gold, red and brown against mostly dark backgrounds of rough bark. I wanted to capture these ideas and images seen on a crisp fall day.

Fall II (Fig. 6) uses a different version of the original “Autumn Leaves” draft. The tie-up was changed on this version to give a slightly different texture. I used curved shapes to form an abstract representation of leaves being blown around by the wind for the design. The background of a slightly warm brown I envisioned from the final stage of decolorization of the leaves. The curved shapes of burgundy, green, gold, red, and

orange, are the leaves blowing in the wind. These organic shapes appear to swirl around the background.

Winter I (Fig. 7) culminates the pieces in this body of work and the draft was derived from the music of “A Dust of Snow” by Elliott Carter from a poem by Robert Frost. Monet was the inspiration for these colors found in winter scenes. Both the warp and weft were painted to produce double-ikat. This produced a watered effect across the piece. The colors used were found from photos of snow covered mountains: pinks, light orange, gold, browns, red, blue-greens, blue-violet, red-violet and blues. I used a mylar that reflected the light like the sparkle of sunshine on snow.

This short poem by Stanley Horowitz sums up how I view this experience from this body of work.

Winter is an etching, spring a watercolor, summer an oil painting
and autumn a mosaic of them all.
-Stanley Horowitz⁴

⁴ Ibid.

CHAPTER IV

Summary and Conclusion

This experience has been an exploration of color, texture, form, repetition, rhythm, and time, and a deeper understanding of weaving and music and how each can interrelate. Each piece of the body of work has been a challenge. I learned to break the rules, take the risks and break the shell of my own conformity. With each method there was a new goal to meet.

This body of work drove home the concept of a design and the need for more careful planning. Of the methods used here, all have merit and produced mostly favorable results. Experimentation of combining the music and the design concept warrant further investigation. Additional work needs to be explored in producing the emotional responses I want to achieve through color and design. The elements and principles in music and art have powerful abilities to stimulate our emotional faculties. It can make us happy, or cry, peaks our interest, gets our blood flowing, or refreshes and relaxes us. Color is more like our sense of seeing and hearing, because it is simultaneously stimulus and sensation and can invoke the same or similar responses in music and in the visual arts. I have attempted to express emotional responses through color, design and the choice of music that represent what I feel for each season: from spring flowers on a cool day to a meadow on a hot summer day to the crisp cold white slopes of a mountainside at dawn. The score is the mechanism upon which the music is written, just as a loom is the mechanism upon which cloth is woven.

CHART

Cimerian's Circle⁵

Energy: Music and Color Correlation

COLOR	NOTE	FREQUENCY
violet	B	493.9 cps
dark violet	low B	466.1 cps
light yellow	high E	659.3 cps
dark red	low C	261.6 cps
royal blue	G	392 cps
light purple	high A	466.1 cps
dark blue	low G	370.1 cps
canary yellow	E	329.6 cps
light blue	high G	415.5 cps
white	all	all
dark yellow	low E	311.1 cps
light red	high C	523.3 cps
indigo	A	440 cps
red	middle C	261.2 cps
green	F	349,2 cps
light orange	high D	314 cps
kelly green	F	349 cps
orange	D	293.7 cps

⁵Cimerian, portaloflight.50megs.com, 2003

GLOSSARY

color: The American Heritage Dictionary definition as it relates to art: (2) A dye, pigment, paint, or other substance that imparts color. (14) The use or effect of color as distinct from form.

Music: Tone color and *timbre* are the terms for quality of sound from the notes we hear when music is played or sung. This tone color is very difficult to describe and some of the best adjectives used are “bright,” “warm,” “harsh,” “hollow,” or “brassy” and is one of the most recognizable elements of music.

discharge: In weaving it is a method of removing color in certain areas of the piece. This is usually done with a product called *Thiox*.

double-ikat: The process of *ikat* done on both the warp and weft. The weft is painted to match up with the warp when woven in.

draft/draw-down: A graphic map of the pattern you want to weave. A full draft is made up of four parts: threading, *tie-up*, *treadling*, and *draw-down*. Drafting is the international language of weavers. It tells you how to weave any fabric you'll ever see.

fabric: A construction made from *fibers*; a *textile*.

fiber: A material, either man-made or derived from natural sources, capable of being spun into yarn or thread.

form: is similar to the idea of shape. Form is the structure of your design and how everything in the design looks like it's meant to go together.

harness: A frame that supports a groups of *heddles* on the *loom*.

heddles: A wire, strip of metal, or cord with an eye in the center. One or *warp* yarns are threaded through each heddle to control the separation of the warp and create a *shed*.

ikat: The process of *resist* dyeing portions of a *warp* or *weft* (or both) before *weaving* to create a pattern. Most ikat resist has sections of the warp that are wrapped to resist the dye and a pattern can be created with the wrapping.

loom: Any device used for *weaving* that performs the minimum function of holding the *warp* yarns taut and in their proper positions.

meter: A background of stressed and unstressed beats in a simple, regular, repeating pattern.

plain-weave: (see *tabby*)

repetition: In musical composition, repetition is one of the most important principles of structure. (e.g., repetition of a musical idea or motif includes such devices as sequential treatment, imitation, variation, and repeat of entire sections.

resist: a process in dyeing yarn/cloth, such as wrapping, where certain areas are wrapped, clamped or otherwise used to prevent the dyes from penetrating the yarn/cloth.

rhythm: In general rhythm refers to the whole time aspect of music. Less general “A rhythm” is a series of long and short notes. The whole feeling of movement in music, with a strong implication of both regularity and differentiation. Some representations of rhythm are breathing, pulse, and tides.

selvedge(s): The lengthwise or *warpwise* edge of a woven *fabric*; the point at which the *weft* yarns bind the *warp* to form a finished edge.

supplementary weft inlay (laid-in weave): A weave in which decorative weft yarns are added to a *plain-weave* ground in selected portions of the *web*.

tabby: Plain weave – a basic weave that is the regular interlacement of warp and weft yarns in a one over and one under arrangement.

textile: A construction made from *fibers*; often used to refer specifically to woven *fabric*.

texture: The appearance of a fabric resulting from the woven arrangement of its yarns or fibers. Everything, including works of art, has a texture or surface. Texture can be rough, bumpy, slick, scratchy, smooth, silky, soft, prickly, surface interest. Music: a blending of various sounds and melodic lines that occur simultaneously in a piece of music. The word is adopted from textiles, where it refers to the “weave” of the various threads—loose or tight, even or mixed.

Thiox: A chemical agent, less damaging to fibers than bleach, which removes color from fiber. The item can be immersed in a solution of hot water and Thiox or applied with a thickener to which Thiox has been added, then the item is ironed with a hot iron to remove the color.

tie-up: The connections between the *harnesses* and the *lamms* and the lamms and the *treadles* on a floor *loom*. Also, the process of making such connections for a particular *weave*.

time: Art: Time in a woven piece is experienced in the preparation more so than in the weaving. Music: The numbers on the staves at the beginning of a piece which indicate the *meter*.

timbre: Tone color (see color).

treadle: A foot lever that controls the raising of *harnesses* on a floor *loom*.

treading: The process of depressing the foot lever and raising the harness or harnesses.

treble clef: A symbol centered on the second line of the staff to indicate the position of G above middle C.

twill: A basic weave characterized by diagonal lines.

warp: A set of yarns that are parallel to one another and to the *selvedge* or longer dimension of a woven *fabric*; the lengthwise element in a woven construction.

weave: A particular pattern or order of interlacement for *warp* and *weft* yarns.

weaving: The process by which two sets of threads of any substance are interlaced at right angles to form a continuous *web*.

web: The *fabric* created by interlacing *warp* and *weft*; the product of the *loom*.

weft: A set of yarns or other material perpendicular to the *selvedge* or longer dimension of a woven *fabric*; the crosswise element in a woven construction.

FIGURES

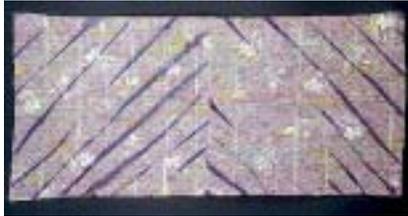


Figure 1

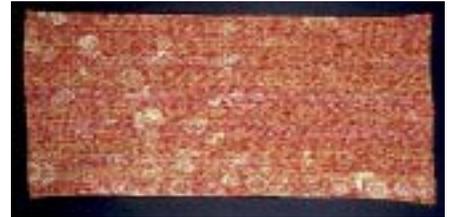


Figure 2

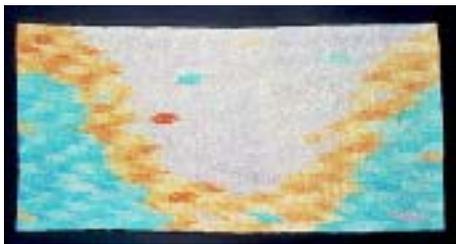


Figure 3

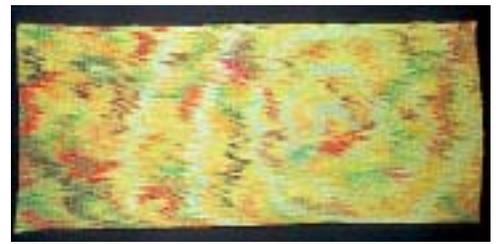


Figure 4



Figure 5



Figure 6

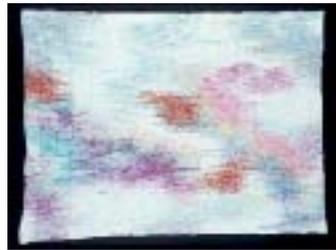


Figure 7

BIBLIOGRAPHY

- Held, Shirley E. *Weaving, A Handbook of the Fiber Arts*. New York: Holt, Rinehart and Winston. 1978
- Redding, Debbie. *Learning To Weave with Debbie Redding*. Loveland, CO: Interweave Press, Inc. 1984.
- Battenfield, Jackie. *Ikat Technique*. New York: Van Nostrand Reinhold Company. 1978.
- Meyer, Leonard B. *Explaining Music Essays and Explorations*. Berkeley: University of California Press. 1973.
- Lerdahl, Fred and Ray Jackendoff. *A Generative Theory of Tonal Music*. Cambridge: The MIT Press. 1983.
- Henneberger, Kate. "Weaving Music." *Shuttle, Spindle and Dyepot*. West Hartford, CT: Handweavers Guild of America, Inc. Vol. XVI, No. 4., Issue 64, Fall 1985, p. 6-10
- Newman, Margaret. "Miniature musical drafts." *Shuttle, Spindle and Dyepot*. West Hartford, CT: Handweavers Guild of America, Inc. Vol. IV, No. 4, Issue 16, Fall 1973, p. 70-1.
- Handwoven*. (The whole issue is devoted to weaving music), Loveland, CO: Interweave Press, 2000. Vol. XXI, No. 4, Issue 101, September/October 2000
- The American Heritage Dictionary of the English Language*, Morris, William, ed. Boston: Houghton Mifflin Company. 1976.

Poast, Michael, "Color Music: Visual Color Notation for Musical Expression,"

Leonardo, Cambridge: MIT Press, 2000, Vol. 33, Issue 3, p. 215.

Harvard Dictionary of Music. Apel, Willie, ed. 1978., 2nd ed., Cambridge, MA: Belknap

Press of Harvard University Press, p. 183.

Time: Seasons, Cycles, Timing, Timeliness, Impermanence, Memories, Anticipation –

Quotes for Those that Love Gardens, Gardening and the Green Way, Compiled

by Michael P. Garofalo. www.gardendigest.com/time.htm. January 28, 2003,.