Memories in nature

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By

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Introduction

The source of all coherent ornament is nature. Ornament, even the most abstract, seems, at its best, to grow and the growth in it is commonly reminiscent of plant life.(1)

Lewis F. Day

"Nature and Ornament"

Since the beginning of time, plants have been the natural ornaments of the earth. Each plant with its roots, trunk, leaves, buds, flowers and fruits, provides the earth with a beauty that causes delight and satisfaction to spring up within the beholder.

While searching for the personal artistic style that would capture this feeling of beauty, I was drawn to my memories of nature. The memories, experiences, and knowledge from growing up under the influence of my mother's flower shop in the lush tropical islands of Indonesia became the source of my artistic inspiration for my thesis. My expressive style was also influenced by the Indonesian culture. Characteristically some of the Indonesian traditional jewelry designs contained tiny round forms lying next to each other as a surface enrichment. The same tiny round forms or granules became the detail decoration on the surface of some of my jewelry pieces. Yet, my treatment of these Indonesian styles was unique as compared to the more rigid traditional Indonesian jewelry designs.

Just as a plant grows from a single seed, my ornamental designs sprout from a single plant form. I chose the plants that had a special significance in my life to create jewelry that would create a
lasting impression. These different plants became symbols of the many different feelings which I experienced while I grew up in Indonesia. Symbols reveal certain aspects of reality when people invent them, adapt them, and use them for their own purposes. Symbols also allow flexibility in individual handling and interpretation, and serve as stores of meaning in communication.(2) By creating jewelry as symbols of joys and sorrows, I could provide allegorical meanings to my designs. I will describe my jewelry in more detail exploring the symbols and allegorical meanings in the following sections as I present each of the jewelry pieces.

My recent visit to Indonesia has strengthened my artistic designs, and made the purpose of my thesis work become more obvious and clear. I felt a desire to preserve the memories that I had of my childhood. I remembered how I would have to spend the whole day once a week in the forest helping to pick leaves or moss for the flower arrangements. Every inch of the land in that forest was once occupied by many living creatures, but now many of them have become endangered species. Disruption of the forest by urbanization, industrialization, and the fast growing population of Indonesia has caused the original beautiful forest where I grew up to almost disappear. Nowadays, my mother has to buy the flowers, plants and greens from people who grow them in special nurseries.

My decision to become a jewelry artist came from my passion for metal and from the excellent guidance and encouraging persistence of my teachers. For their patience, I would like to acknowledge my appreciation to all my advisers: Leonard Urso, Mark
Stanitz, Don Bujnowski, and Lynn Duggan. To my family and fellow students, I would also like to give my heartfelt thanks for their encouragement, input and support.
Materials

A metal is defined as "an element characterized by a distinctive luster, malleability, ductility, and thermal and electrical conductivity, or is an alloy of such metals". (3)

As modern times have been ushered in, metalsmithing has become more convenient because of commercial suppliers that are able to distribute ready-made, needed forms, shapes, and alloys.

There are three reasons why I chose the various types of metals. I selected metal as the medium for my thesis work because from all of the available materials I like metal the most. The second reason is its aesthetic and imaginative qualities which allowed me to discover my own personal reality. Metal is an ideal medium of expression because it possesses the characteristics of brilliance, adaptability, and durability. (4) The third reason is that I wanted to learn more about the various metals during my graduate program.

The metals I chose are the many scales of karat gold, fine silver, sterling silver, bronze, steel, and fused mokume-gane.

Gold, a precious and beautiful metal, has its purity measured in karats and is based on the proportion of pure gold to other metals in the alloy. "So fine gold which contains twenty-four/twenty-fourths gold...is stated as 24k". (5) From my experiences, fine gold (24k) is the softest of all the metals and the most malleable. Fine gold jewelry is not suggested because it becomes more vulnerable to denting. Twenty-two karat gold is also soft, but it has more endurance. I also used twenty-two karat gold for its yellow color. Today, there are many shades of yellow gold available on the
market. Eighteen karat gold is the international standard for fine jewelry and high workability. It has become my favorite metal for making jewelry.

Silver is another important precious metal which I used for most of my jewelry. As silver is rather inexpensive compared to gold, I had much more freedom in my jewelry designs. I used fine silver for its malleability, ductility, and white color, while I used sterling silver for its strength.

I also cast bronze for some of my jewelry because I could easily patina it by chemically oxidizing the bronze to create plant life-likeness in my jewelry.

Steel was a component for some of my jewelry, although it is rarely used in creating jewelry. Steel is very difficult to work with because it is not malleable unless heated to a hot red color. It is also easily oxidized and is considered the least precious of all metals. But steel is cheap compared to most other metals and its famed strength and durability are demonstrated through the many tools and machines made from it.

In the "Anggrek" necklace, I utilized the Japanese alloy called "fused mokume-gane". I used the ready-made random pattern which is developed by combining twenty-one layers of sterling silver with copper. I also used the ladder pattern which has twenty-seven layers of sterling silver with copper in a parallel pattern.

As a final note, I also used gems and pearls as non-metallic materials. They are important because they work as a complement to the metal enhancing the color and delicacy of my jewelry.
Fig. 1
Granulation on the Indonesian Traditional Jewelry
Design and Influences

It was in the beginning of the spring quarter of 1992 that I had to design a piece of artwork. The piece had to have something to do with my past experiences. My desire was to create a harmony between nature and art via the form of jewelry. The work had to demonstrate my expression or my belief that there was much more to the world than simply what my eyes saw. I began my first design, as the simple form of a necklace. Needing to create a more interesting design, I added a natural flower form. My personal reason in choosing the flower form was because, in my perception, the flower expressed perfection in beauty, balance, and form. The flower was a select form that was most appealing to me. Even though it was mystical to me, it always stood out from all the other forms which I saw indistinctly. The flower form was the easiest form for me to imagine because of my exposure to the flower world from the time I was very young.

Soon I begin to articulate what my jewelry influences were. I wanted to establish a unique form that I could call my style. I remembered when I used to wear an Indonesian costume complete with all the traditional jewelry; the jewelry had granulation as the surface enrichment. The tiny balls (also called granules) were laid on the surface of jewelry; the granules were always clumped together and sat properly next to each other. (fig 1) Granulation has been used since early Egyptian times. The ancient Greek and Etruscan jewelry makers liked to use this technique which attached tiny metal balls to other surfaces of metal without using solder. (7) I liked to
use the granules, but I chose not to use these in the traditional manner. Instead, I attached the granules freely anywhere on the surface of my jewelry, soldering them to the surface or modeling them in wax before casting them.

After my first piece of jewelry was done, I began to think about specific flowers or other natural forms which had some effects on my life. I had seen many unusual and beautiful forms which I could use for the continuation of my thesis work.

After completing my thesis work, I realized other artists have used aesthetic characteristics which resemble mine in form and spirit. For example Georgia O'Keeffe's and Rene' Lalique's work in some aspects is similar to mine. Georgia O'Keeffe, a well-known feminist, felt that earth, nature, and the landscape were precious. O'Keeffe incorporated this natural world in her abstract paintings. Her ideas about visual language in art combined with the representational natural world in the abstracted environment. Therefore, her work created mysteries that showed a different appearance from the natural world. The similarity between Georgia O'Keeffe and myself is that we chose the natural objects for our art works. Charles C. Eldredge said: "For O'Keeffe, it was the plant's forms, its "strange shapes", that seemingly drew her interest". (8) Roxana Robinson stated in her book that, "Ironically, O'Keeffe's choice of flowers as subject matter resulted in her entanglement in both a patriarchal myth of the nineteenth century and the flamboyant Freudian associations of the twentieth. Neither connection was intentional; O'Keeffe's choice of subject matter was entirely personal."
Fig 2
Canna Lily
Fig. 3
Red Canna
(9) Her inner spirit was expressed in her painting "Canna Lily," (Fig. 2) which was a plant or still-life arrangement placed on serene surfaces. This placement was done in order to emphasize the primary subject. To achieve the serene surfaces, she painted the background in cool or neutral colors. (10) This painting has a similarity to my brooch form "Bunga Tasbih". Another of her paintings that has similarity to my necklaces "Kacret-kacretan, Cempaka, and Pucuk Gerinsing" is the painting "Red Canna". (Fig. 3) A similar concept is a small, natural object in large scale: when the things surrounding it are removed, this provides emphasis on the object as the primary subject. (11) Actually, O' Keeffe's paintings were influenced by two artists. The first person was Arthur Dow, who was a leader in art education in America, and also her teacher. She learned that the "Dow method was taught to eliminate the unnecessary, in order to emphasize the two-dimensional plane and the patterns that could be created thereon." (12) The other person that she was influenced by was Wassily Kandisky, a Russian-born conceiver of non objective art. Kandisky's book "Concerning the Spiritual in Art" (1912) influenced O'Keeffe. Kandisky stated an idea about music that gave O'Keeffe the visual language to express herself. He wrote that, "Colour is the keyboard.... the soul is the piano with many strings. The artist is the hand which plays....to cause vibration in the soul." (13) By using the Dow method and by applying Kandisky's idea about music, Georgia O'Keeffe discovered devices to create expression for her paintings the "Canna Lily" and the "Red
Fig. 4
Lady Slipper
Canna". By studying these paintings, I recognized that these paintings had similarities to some of my jewelry.

Another artist with whom I find similarity in spirit and form is Rene' Lalique. Rene' Lalique was a master of French art jewelry during the Art Nouveau period. As a child, he lived and studied in the countryside. He analyzed and observed natural forms such as plants, flowers, animals, insects and birds. He turned them into his own fantastic themes of jewelry. (14) He used various metals, precious and nonprecious, and formed them into spectacular, beautiful, unique pieces of artworks. He was the prodigy, the original, and the innovator of the Art Nouveau period. (15) "Lady slipper" was one of his jewelry pieces. (fig. 4) It is a tiara or a diadem and comb which has some similarity in form with my necklace "anggrek". He created a tiara of three orchids with the central flower's petals and the labelum carved in ivory. The stamen was a small topaz which was set in gold. The side blossoms were of carved horn. (16)
The Jewelry

My jewelry is to be interpreted as a representation of my beautiful memories of the nature in Indonesia and not as concrete examples of plants, flowers, or fruits. In art the way the object is presented is never indifferent to the meaning of what it represents. The natural forms I desire are not only beautiful, but they must also agree with my artistic purpose. I have titled my jewelry according to the name of the plants or flowers that I grew up with in Indonesia. I connect my jewelry with my memories by titling each piece in the Indonesian language. Each design also expresses a theme which is derived from the experiences and memories I have from the past. I want the viewer or the wearer to understand, to enjoy and to appreciate the particular forms which represent these natural objects from Indonesia.

1. Kembang Emas. Eighteen karat gold, steel necklace with fresh water pearl. (Fig 5)
Length 8 1/2" width 7" thickness 1/2"

The English translation for "Kembang Emas" is gold flower. It was my first necklace that captured natural form with variations in its character. This steel necklace has a curved, symmetrical shape with an opening in the back. The endings are tapered and accented with two small gold caps. On the front right surface of the necklace sits a gold, imaginative, abstract flower with six fresh water pearl stamens. This flower is the emphasis of the necklace and by symbolizing perfection in beauty, it creates the feeling of splendor.

At that time when I was creating the Kembang Emas, I was
Fig. 7
Kacret-Kacretan
struggling with feelings of anxiety and darkness from the pressure to find and form my thesis style. This contrasted with the feeling of elegance of the natural form which I wanted to express. As one can see, my conflict of feelings created the opposition between the flower and the base of the necklace in their colors, materials, shapes and influences. The colors of the steel necklace are a brown with purple-blue shades contrasting with the gold and the white pink pearls from the opening of the pendant. Also the use of gold contrasts with the use of steel in preciousness and in function. Kembang Emas's overall design has the appearance of a modern design, but it is also influenced by Indonesian traditional jewelry design. The flat front surface of the steel has many tiny, two-dimensional, round shapes of gold which have been arranged by decreasing sizes from the left to the middle of the base on the necklace, whereas the gold flower has many three-dimensional granules scattered all over a wrinkled surface. Although the Kembang Emas contains these many different elements, the end result was a unity in my design which was aesthetically pleasing and comfortable to wear.

The process of making the necklace consisted of numerous steps. The first step was making the base of the necklace. With a steel hammer and an anvil, I forged a rod of mild steel into the curved shape and tapered it at the ends. Afterwards, I drilled holes into the steel to fit the tiny round gold shapes which were made from three gauges of gold wire. These gold wires were then soldered to the steel necklace. I baked the mild steel in an oven at 1100
degree (the temperature has to be under the melting point of gold solder) for four to five hours until the color of the steel gradually turned to a brown with a purple and blue shade. I also constructed two cup forms for the ends of the necklace.

The second step was the making of the pendant. The pendant was first made from a sheet of wax that I formed into the imaginative, abstract flower. After that was done, I dripped wax onto the surface of the flower to create the granular surface. To transform the wax into metal, I used the lost wax casting technique. In a kiln, the plaster mold was heated to a certain temperature, then, eighteen karat gold was melted in a crucible and forced into the heated mold with a spring driven centrifugal casting machine. After casting, the pendant was cleaned, and the six stamens were soldered to the inside of the flower. The last step was to seat the flower to the base of the necklace by a cold connection method. Finally, after doing all these steps, the Kembang Emas was ready to be worn.


Length 14", width 4", thickness 1/2 ". (Fig 6, 7)

Kacret-Kacretan refers to an Indonesian fragrant flower bud containing a clear liquid that spurts out when the bud is broken. One of my strongest childhood memories is the smell of the Kracet-Kacretan whenever I stood underneath this tree. These tall trees had been widely distributed along the roads by the Department of Forestry as a shade tree, but now these trees are scarce because of the new high rise buildings. It was the disappearance of these trees
that provided me with the design for this necklace form. This jewelry piece has the symbolic image of broken infinity, which is represented by the cutting off of the bottom circle of the necklace. The broken infinity symbolizes that nothing in life will last forever and acts as a remembrance of this vanishing plant.

The overall design of the necklace is a long sculptural form that has the appearance of a curved tree branch with a flower at the center. The integrity of the necklace is accomplished by combining certain elements and principles of design to present a "soft" sculptural form of nature composed of "hard" inorganic materials. The line elements employed included contour and curvilinear lines, and these lines vary in thickness to provide contrast. For example, the tree branch is made of a thick line of sterling silver, whereas the vines made of eighteen karat gold that encircle the tree branch are thin lines. The element of shape is presented by the natural plant form. This plant shape is a looped, irregular, and asymmetrical cylindrical form that has holes in it which imitate a tree branch. There are also other shapes that lie on top of the cylindrical form such as berries, the leaves, and the vine that encircle the tree branch. A flower shape is in the center of the loop of the tree branch. The flower's petals are fused together, and inside the center of the flower burst out six stamens made of fourteen karat gold with a black pearl set on the end of each stamen. The textures on this necklace, such as tiny folds, bumps, and dents, were formed repeatedly on the surface to have the look of the vascular system of a natural plant. The silver has a brushed satin gloss on the entire surface to contrast it with the
edges, and all of the gold is brightly burnished. Eighteen karat gold solder has also been melted on top of the flower's petals. The mixed flashes of gold and silver light that bounce off the surface of the petals give the necklace an interesting character. The element of color in this necklace is given by the white of fine silver, the shine of silver, the yellow of gold and the black of the pearls. The balance, scale, and proportion are perfectly set on the wearer's body with the emphasis of the necklace being on the flower. The solitary flower at the center represents my sense of beauty and peaceful serenity, and when this necklace is worn, it wraps around the wearer like a creeping vine winding around a tree.

The process of making this necklace employed many techniques including forming, fusing, chasing, burnishing and stone setting.

To create a texture that imitates the organic image of a tree branch, I hammered the sterling silver, which was already cut into two long narrow strips, and annealed them. The metal became hard because of the hammering process, and therefore the metal had to be annealed or softened again. Next, I formed the two strips of silver into tubes with a plastic hammer. Because the tubes were constructed with wavering edges, they had uneven seams where the edges were joined. I fused the two tubes into one piece by heating one end of each tube until they melted together. After I achieved the tree branch form, I soldered the eighteen karat gold granules and the leaf shapes made of fine silver onto the necklace.
The formation of the flower was done by cutting fine silver into a certain shape, and then annealing and hammering it to imitate an organic texture. After achieving the flower shape, I melted eighteen karat gold solder on the surface of the flower's petals.

The stamens were formed by cutting six two-inch lengths of the fourteen karat gold wire. Next, I soldered the seats for the pearls onto the top of each stamen, and proceeded to solder the bottom of the each stamen into the cavity of the flower.

Afterwards, I cut a piece of sterling silver to make a hook. I formed and soldered it to the back of the flower so the hook would catch onto the other half of the necklace. The vine was formed by first hammering the gold wire to imitate an organic look. Then I coiled and soldered the wire around the tree branch.

The final finish of the necklace was achieved by heating and quenching it in order to bring out the white color of fine silver. After pickling the metal, I burnished all the gold and the edges of the necklace to a shine. Finally, I cemented the round black pearl beads onto each end of the stamens, and the production of the Kacret-Kacretan was a success.

3. Bunga Tasbih. Fine silver, sterling silver, and fresh water pearl brooch. Length 31/2", width 11/2". (Fig 8)

Bunga Tasbih, which means prayer beads, is a plant also found in America called the Perennial Canna. In Indonesia the seeds of this plant are used as prayer beads. These plants grew everywhere, as a fence or wild by themselves. Because of the prevalence of the Bunga Tasbih, I can easily remember the forms and the colors of the flower.
Fig. 8
Bunga Tasbih
The flower consisted of a couple of oval petals layered and rolled into a pointed cone. The base of this flower has an enveloped barrel-shaped ovary. This ovary contains the seeds which were later drilled and strung to form a set of prayer beads. The shape element of this flower motivated me to make a brooch out of fine silver with a fresh water pearl laid in the center. The flower shapes were of unequal form and irregular at the edges. Some of the edges were wrinkled and some of them were smooth. The use of both wormy and straight lines on this brooch was presented by the long smooth shiny tendril. In a sense, this tendril was used as a delightful ornament. Through the element of color, a harmony was achieved in the design by using the fresh water pearls which have the same hue as the white color of fine silver. The texture on the flower's surface resulted from hammer marks, and it contrasted with the smooth edges of the petals. The edges were burnished to shine. The shading with this technique and texture made the petals appear more like the natural canna.

The flower petals were textured, layered, and encircle the center pearl, appearing to guard the pearl. People usually associate a pearl with "love" and the flower form represents a guardian to love.

This brooch was created from one sheet of fine silver. The flower was formed by using the forming technique and by hammering the edges to produce different thicknesses. Afterward, the tendril was soldered to the side of the flower. Then, a tiny strip of sterling silver was attached to the bottom of the flower form. The strip was used to indicate the change between flower and stem. On
Fig. 9
Gelang Ranting
the back side of the flower I soldered the pin. The next step was the setting of the fresh water pearl in the center cavity of the flower shape, and finally, the edges were burnished to a shine.

4. Gelang Ranting. Sterling silver, ten karat gold, carnelian bracelet. (Fig 9)
Length 8", width 2".

The Gelang Ranting is a bracelet that captivates the abstract form of tree bark or a stalk. Nature decorates the bark of a tree or a stalk with many things such as thorns, ribs, sticks, spots, scars, breaking, berries, or miniature green leaves. My memories of the different types of tree bark became my inspiration. It is astonishing that these natural surface embellishments could become the enriching and beautiful details in the design of this Gelang Ranting. I often walked alone in the woods or worked in my garden in order to explore my obsession with the environment. I pursued the need to invent an expressive, eccentric design that had a strong identity with unexpected elements, unique surface treatment, and extraordinary details. The aesthetic aspect was achieved by the repetition of the structural design combined with the variation of the elements on the surface. The repetition appears in the irregular cylindrical form of the tree stalk, the surface application with points, lines, circles, tubes, leaves, and granule forms, the colors of the carnelian stones, and the mechanical structures connecting this bracelet. The effect of this repetition are colorful, playful, and evocative.

The production of the Gelang Ranting was a work of various elaborations and numerous details. There were several steps for the
Fig. 10
Cempaka
process of making this bracelet. The first step was the making of the large branches. I cut and formed the sterling silver sheet into tube forms by annealing and hammering the cut sheet. I then soldered covers to each end of the tubes. After that, I soldered granules shaped wire where the two edges meet, and wrapped the half round, twenty-four gauge, ten karat gold wire around the tube. I also arranged and soldered the granules, stone settings, and leaf shapes on to the surfaces close to where the two edges meet. These processes are then followed by chasing and engraving on the surfaces of the tubes to give them a decorative or textural relief.

The second step was making the smaller branches. These sticks were made by cutting six millimeter round silver tubing. I soldered a cover to the bottom of the tubes, and on the other end I made the stone settings for the carnelian bullet stones. Afterwards, the ten karat gold half round wire was soldered around the tubes. Next was the engraving process to give a decorative embellishment to the surface of the tubing. The two small branches were soldered together with the bullet stones pointing in opposite directions.

The third step was the making of the links of the bracelet with chains.

The final step was to set the carnelian stones.

5. Cempaka. Fine gold and fine silver with black pearls necklace. Length 11", width 6", thickness 1/2" (Fig 10, 11)

The Cempaka has many uses because this yellow flower is the most fragrant flower in Indonesia. They are sold in the market as popular offerings, and as decoration in performances. The volatile oil
has also been extracted from the flowers to be used in perfumes and hair oil. Cempaka has been my favorite plant, not only for the smell of the flower, but also because of the pleasant memories of using these flowers on many traditional occasions.

The necklace incorporates a main stem as the structural base of the necklace, and a flower with a side stem with a couple of stamens as the pendant of the necklace. The form of the main stem is a spiculum which has a variable relief with gold granules of various sizes on the surface. This necklace has an asymmetrical sculptural shape; it is larger in size at the side and tapers toward the center. The flower lies to the left side of the main stem. The necklace has an opening in the middle, so it is easy to put on the body. Also, the necklace sits still on the body because there is a pin on the back of the necklace. A piece of gold covers the center end of the necklace and is used as an accent.

The flower hangs by a short tiny stem, and has become the emphasis of the necklace because of its beautiful shape, textures, and colors. The flower has two concentric circles where the outer petals are smaller than the inner petals. I also textured the surfaces of the smaller fine silver petals with a tiny, thin, fine gold leaves. There are three curling stamens protruding from the center of the flower with three tiny black pearls attached to the ends.

The structural form of this necklace is a psychological representation of the joys and pains of life while growing up. The center end form that points to the chest represents the sad and the painful feelings stabbing through all the happiness. The other end
form encircles the neck, and this "hugging" form represents the happy feelings. The flower form stands apart from the necklace because it represents the constant beauty. The Cempaka flower will always be a predictable form that I will remember through my different experiences.

The construction of Cempaka started with the process of making the structural base of the necklace by forming the pre-cut, annealed sheet of fine silver into a spiculum form. Using the hammering process, I created variable relief forms on the surface of the spiculum and then bent it into the form of this necklace. Tiny granules were soldered to the base. The process of making the flower was also done by forming on the twenty-four karat gold without annealing. Annealing the twenty-four karat gold makes it very soft and unmanageable. Kumbo technique was applied to the surface of the smaller flower petals. A paper thin sheet of fine gold was forced and fused onto the silver by rubbing it with a burnisher. It was then heated with a low torch flame to the bottom of the silver. Before the flower was attached to the main stem, the stamens were attached to the center of the flower. The final process was to set the black pearl beads on the stamen.

Length 11", width 8". (Fig 12,13)

Maduri are weeds that grow vigorously in garbage dumps, and cemeteries. The white flowers are often used as offerings connected with cremations. The flower always form in clusters. It has four or
five petals, and at the central portion of the flower is a disk with four or five ribs; the stamen is located on the center of the disk.

This necklace consists of fifteen flowers, a single gold leaf and a chain. Some of the flowers are made from a combination of twenty-four karat gold and sterling silver, while others are made from combinations of eighteen karat gold and fine silver. The single gold leaf functions as a clasp. At the center of each flower is a gemstone stamen set in a silver tube. All the other parts are made from sterling silver. The twisting lines in this necklace were to connect the flowers. The flower form has two layers of disks. On the center of the bottom disk is a cavity which has been shaped to the bottom of the top disk, so that the top disk will sit perfectly on top of the bottom disk. If the bottom disk of the flower has four petals, then the top disk also has four ribs. It also works the same way on a flower with five petals. The colors of this necklace are a combination of the gemstones, the gold, and silver. The textures shown on the top surfaces of the bottom disks include line and circle designs.

The memories I have about these flowers are not only from the unique shapes, but also from the symbolic interpretation of these flowers. The center rib of the top disks reminds me of both the Holy Cross and a star. Actually the Holy Cross is a symbol for the Christian community, as the redeeming sacrifice of Christ. I believe that in life, everyone has their own suffering which I have symbolized by carrying a cross. To overcome this suffering, it may be like reaching for something impossible which I have symbolized with a star.
The production of this necklace employed many different techniques: carving wax and clay, making both a rubber mold and a liquid steel mold, casting, hydraulic pressure, texturing with the milgrain and beading tools, forging and twisting the silver wire, and setting the gemstones. The links of the necklace were cold connected.

7. Kembang Pukul Empat. A necklace made of sterling silver and bronze with green patina. Length 48", width 3/4 ". (Fig 14)

The title of this jewelry piece means "The Four O' clock Flower". The name refers to a specific flower that opens in the late afternoon around four o' clock. This flower has been used mostly for ornamental purposes. In Indonesia, people would set these fresh flowers together in a traditional necklace for almost any ceremony. By repeatedly using the flower forms in the necklace, I wanted to make this piece as a representation of the continuation of the Indonesian traditions.

The necklace has twenty three flowers made of sterling silver and each of these flowers consists of five petals which have almost been fused together into a tube. Inside, the flower has a stamen which is an oval shape with the top narrowing to a point; it also has a hole in the middle and granules on two side surfaces. The base of the flower has a very tiny petal, and the tube of the flower projects out from the base. Both the base and the stamen were made of bronze with green patina. The green patina is to create a life
likeness quality to the flower. A jump ring is set between the pointy top of the stamen, and becomes the link of the necklace. The base of the flower has a stalk which forms a hook. This hook will link the ring to the stamen.

To make this necklace, I first carved a base, a flower, and a stamen out of wax. Then I made a rubber mold for these shapes to be able to reproduce them in quantity. I cast both the bases and the stamens in bronze, and used sterling silver to cast the flowers. I bead blasted the surfaces of the silver flowers, and sand blasted the surfaces of both the stamens and the bases so that the green patina would easily stay on. After I soldered the stamens and the bases to the flowers, I applied the green patina. All the flowers were then connected to each other with the link between the stamens and the bases.

8 Pucuk Gerinsing. Sterling and fine silver necklace.

Length 20", width 8", thickness 1/2". (Fig 15)

This piece is named after a plant of the same species as the common flowering hibiscus. This particular plant grows in the tropical island of Bali. It gets its Balinese name from a combination of pucuk, the Balinese name for the familiar hibiscus, and gerinsing, a double tie dyed fabric woven in the village of Tenganan. This flower is often used as a decoration in the hair or behind the ear of a Balinese dancer. The flower has a red color and dangles face down from long thin stalks. It has five lacy petals which curve out and around the flower blossom. Each petal is deeply cut in long, narrow lobes. The pistil is long and protrudes straight down from the
drooping blossom. At the end grows the stamen with a bristle-like tip.

I liked creating this necklace using this flower because the Pucuk Geringsing has such an unusual forms. The exaggerated length of the flower, the upside down shape of the flower petals and the bristle-like appearance of the stamens evoke my feeling of magic and the unbelievable. The combination of the unusual forms with my emotive interpretation give this flower of nature an "unnatural" appearance in my necklace.

The overall design of the necklace is a round form with ivy wrapped around the branches. The round form is tight around the neck. The necklace has a moving connection in the front and an opening in the back. From one of the holes on the moving connection dangles the thin stalk and the flower face down.

The process of making the necklace employed techniques such as: forging the sterling silver wire into the branches and the stalk, and forming the precut fine silver sheet into the flower and the pistil. The bristle-like stamens were made by drawing and weaving the thin, fine silver wire into many holes drilled at the end of the pistil.

9 Buganvil. Twenty two karat yellow gold, eighteen karat green and pink gold, and diamond necklace.
Length 8", width 7". (Fig 16)

The Latin version of the name of this plant is Bougainvillea. This plant is found everywhere in the warmer areas of the world. The lavish colors of the flower, found in many highly ornamental
shrubs or vines have made this plant famous. Even though the plant is very beautiful, some people in Indonesia will never grow it in their yard because the flower carries a myth, especially to families who have daughters. They believe that the daughter will never marry or may have bad luck. My mother will never grow this plant; since I do not have any daughters, I can make a necklace with Buganvil.

The flower can be described as having five showy bracts with pointed ends. The five bracts carry two inconspicuous "actual flowers" at the base. The actual flower is tubular and ends in a flared portion consisting of five lobes, five shorter petals, and a stamen in the middle.

The necklace consists of a set of five flowers and ten leaves on the front. On the back is a single branch ending in a hook that functions as the clasp for the necklace. The dominant green, yellow, and pink gold colors, along with the tiny diamonds, are the more detailed motives that provide interest. Like a wind chime, each flower moves in a pleasing way allowing flexibility of the elements of the necklace. The overall cohesiveness of this necklace is affected by the important aspects of the composition: five flowers, ten leaves, and the dominant gold colors.

The making of the necklace employed a couple of techniques like texturing in forming the flower's bracts, chasing on the leaves, casting on the tubular flower, forging the green gold wire, and the diamond stone setting on the tubular flower.
Fig. 17
Papaja Perak
Fig. 18
Papaja Muda
Fig. 20
Kedondong
10. The fruits:

1. **Papaja perak**, sterling silver pendant with fine silver chain necklace. (Fig 17)
   Pendant size 1 1/4" x 2 3/4", length of the cord 28"

2. **Papaja muda**, bronze with green patina and steel on the outer surfaces of the fruit and silk necklace. (Fig 18)
   Pendant size 1 1/4" x 2 3/4", length of the cord 30"

3. **Manga**, sterling silver, eighteen karat gold solder, eighteen karat gold chain necklace. (Fig 19)
   Pendant size 1 1/4" x 2 3/4", length of the cord 28"

4. **Kedondong**, sterling silver, eighteen karat gold, steel wire and silk necklace. (Fig 20)
   Pendant size 1 1/4" x 2 3/4", length of the cord 30"

While growing up, I remembered that I always ate these fruits that were growing in my backyard. These fruits have an egg shape with a pointed bottom. The fruits could be distinguished from each other by looking at their colors and their seeds. These differences became the ornamental treatments in my design. In my mind they represent both a satisfaction and a new beginning. By creating this jewelry I tried to provide the beholder with the same type of pleasure that is given from eating one of these fruits. At the same time, I try to remind the viewer or the wearer that my jewelry represents a "rebirth" of old traditions by using these seeds and fruits.
The name of these fruits are: Papaja Perak which means the silver papaja, and Papaja Muda means the young papaja, characterized by the green color. Manga is equivalent to the mangoes in America. Kedondong is a fruit with a seed that has a lot of lobes; there are short needles by the end of each lobe.

The production of this piece began with making the pendant, and all the pendants were cast. The seeds of the Papaja Perak and the Papaja muda were made by dripping granules of wax in the inside and some on the outside of the wax fruit model. The Papaja Muda were cast with bronze. In order to achieve a certain green, the patina and steel wool was applied to the outside surfaces of the wax fruit models. The necklace was knitted with silk cord on a knitting machine. The Papaja Perak was cast in silver, and the necklace was made by crocheting fine silver wire. The seed and the fruit of Manga was made by casting the wax fruit model at a different positions in silver. After it had been cast, the eighteen karat gold solder was melted on top of the seed. Liver of sulphur patina was applied on the surface of the Manga, and the necklace was made by crocheting eighteen karat gold wire. Kedondong was cast in silver, and the seed is also made with cast eighteen karat gold and steel wire. The seed was soldered into the cavity of the fruit. Liver of sulphur was mixed with ammonia, and then applied as patina to the surface of the Kedondong. The neck part of the Kedondong was made by knitting a silk cord. I used fine silk fibers to incorporate the beautiful colors for its enhancement. I like working with fiber as well as metal.
11. **Anggrek.** Mokume-gane, sterling silver, eighteen karat gold, and water fresh pearls necklace.  
Length 9", width 7". (Fig 21)

Anggrek is the Indonesian name for the orchid. Orchids are found everywhere in the world, but their origin was in the tropical forest. This is why the flower is called the jewel of the tropical forest. The flower is fragile-looking and quite exotic in its shape and colors. Different flowers come from many different kinds of orchids, but they are all based on the same plan. First, there is an outer circle of three sepals. The upper sepal consists of one petal, the lateral sepal can consist of one or two petals, and the lower sepal is a more or less modified petal. Second is the labelum or the lip which also has many forms that depend on the genera of the orchid. There is the column which lies at the very center of the flower. This column is the organ for sexual reproduction by containing both the stamen and the pistil.

The memories I have of orchids are pleasant ones. I remember helping my mother take care of them in our garden as well as selling them at her shop.

The overall design of the necklace is a round sculptural form which consists of three flowers on the right side, the stalks, the branches and the tiny leaves. The petals of the flower and the leaves are made of fused mokume-gane which gives an interesting texture and pattern to the necklace. The branches, the stalks, the labelum are made of sterling silver to provide contrast to the texture of the mokume-gane. The pistil and the stamen are the fresh water pearls.
set on eighteen karat gold that become the focus of the necklace.

The process of making this necklace employed stretching and bending metals. A forming method was used to make the flower petals, while die forming, sinking, and repousse were used to make the labelums. Sterling silver wire was forged to make the stalks, the branches and the clasp. Then the pistil and the seat for the fresh water pearls were cast with eighteen karat gold.
Conclusion

This thesis has helped me realize many things in every day life that I originally took for granted. I believe that my expressions today are based on my present day mood. It was often a frustrating experience for me, as I worked with the designs, materials, and techniques for my thesis work. My plan, which was to create harmony using nature, art, and real life was reflected in my jewelry because I wanted to express not just aspects of nature, but the ecstasy of preserving my memories in my own way. After creating and achieving all my goals, I found that graduate school provided me with the time to explore, to grow, and to express myself in art. It has been an unusual experience and a great feeling to accomplish these goals. The feeling is more than that... it is sublime. The painter artist Franz Marc said: "Today we seek things in nature which are beneath the veil of surface appearances, and these seem more important to us than the discoveries of the Impressionists. Nature is everywhere, within us and without us. Something exists that is not completely concerned with nature, but reaches beyond it and interprets....... this is Art". (17)

I envision my future as an artist and craftsperson to continue to progress in designing and creating my jewelry that reflects an interest in and respect for nature.
Footnotes

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