



TUMPAL,
the triangle design in contemporary jewellery influenced by
Indonesian batik *tulis* of Central Java and filigree jewellery

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ABSTRACT

The study subject of this final work is to explore possibilities in designing contemporary jewellery by studying the similarities found in the design method of both Indonesian batik *tulis* from Central Java and filigree jewellery.

Inspired by curiosity of Indonesian batik *tulis* particularly in geometric designs patterns together with composition of wire in filigree jewellery consisting circular and helix forms, I would like to experience the process of transforming two-dimensional aesthetical linear form found from both batik and filigree into three-dimensional jewellery design.

The study process described in this final work starts from discoveries found from studies made in pattern construction in both design method. Finally bringing out a result of the challenge produced from transformation of drawn pattern to a three-dimensional form such as jewellery design in a contemporary way.

Keywords: batik, filigree , jewellery, design, transformation, forms.

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TIIVISTELMÄ

Lopputyön aiheena on suunnitella ja tuottaa modernia korusuunnittelua tutkimalla kahden tekniikan samankaltaisuuksia, joita esiintyy sekä Indonesian Keski-Jaavan batik *tulis*- että filigraani-korusuunnittelun tekniikoissa ja muodoissa.

Työn innoittajana on toiminut mielenkiinto indonesialaista batik tulis-tekniikkaa kohtaan ja tutkijan mielenkiinto selvittää miten korusuunnittelussa voidaan soveltaa batik *tulis*-tekniikan geometrisia muotoja filigraani-metallilankatekniikan pyöreisiin ja spiraaleihin muotoihin. Lopputyö kuvaa ja tutkii prosessia, jossa kaksiulotteinen esteettisen lineaarinen muoto muutetaan kolmi-ulotteiseksi korumuotoiluksi.

Lopputyössä kuvattu tutkimusprosessi selvittää aluksi ne havainnot, jotka löytyivät tutkittaessa kuvioiden rakentamisesta molemmilla suunnittelutavoilla, ja työn loppupuolella esitetään lopputulos asetetusta haasteesta, jossa tarkoitus on tuottaa piirretystä kuviosta nykyaikaista kolmiulotteista korumuotoilua.

Avainsanat: batik, filigraani, koru, suunnittelu, muoto

TABLE OF CONTENT

| | |
|---|----|
| 1 INTRODUCTION | 6 |
| 2 DESIGN INSPIRATION | 8 |
| 2.1 Motivation behind the study itself | 8 |
| 2.2 Source of inspiration in making the designs | 9 |
| 2.2.1 Indonesian ornamental design in batik <i>tulis</i> produced in Central Java | 9 |
| 2.2.2 The "architecture" of filigree jewellery | 12 |
| 2.2.3 Exploring the possibility of forms | 14 |
| 3 DESIGN TASK | 15 |
| 3.1 Limiting jewellery design to necklace, bracelet, and ring | 15 |
| 3.2 Setting the parameter for the target group | 17 |
| 3.3 Applying design method of Indoensian batik <i>tulis</i> from Central Java and filigree in contemporary jewellery design | 18 |
| 4 PROCESS IN DESIGNING | 20 |
| 4.1 Geometrical pattern in 5 main designs in Indonesian batik tulis from Central Java | 20 |
| 4.1.1 Exploring geometrical pattern based on the studies | 22 |
| 4.1.2 Sketching and drawing the designs | 22 |
| 4.2 Ideas on transforming 2D pattern into 3D form | 26 |
| 4.2.1 Experiments based on construction method in filigree | 28 |
| 4.3 Study discoveries in getting different features of patterning, profile in metals | 30 |

| | |
|---|----|
| 5 TRANSFORMING FORMS | 32 |
| 5.1 Understanding the construction of forms of jewellery design | 32 |
| 5.2 Experiments in expanding 2D form into 3D form | 32 |
| 5.3 Applications | 32 |
| 5.4 Result | 33 |
| 6 MECHANISMS | 35 |
| 6.1 Tension mechanism from spiral as a method of fastening | 35 |
| 6.2 Electroform | 35 |
| 6.2.1 Uneven granulation effect on the surface of the jewellery piece | 36 |
| 6.2.2 Substitute of rivets in attaching stones to the jewellery piece | 36 |
| 7 THE PRODUCED JEWELLERIES | 38 |
| 8 EVALUATION AND CONCLUSIONS | 42 |
| LIST OF REFERENCES | 44 |

1 INTRODUCTION

Being Indonesian by nationality and having been raised in a very rich and diversified Indonesian culture and traditions, leads me to take the art of Indonesian batik for granted. The Indonesian batik, which decorated every corner of my apartment, has never been my point of interest until I study design in Finland and take jewellery as a major.

The enthusiasm to explore more the existence of filigree rise up from appealing definition of filigree jewellery written by Oppi Untrach(1997, 296) in his book Traditional Indian Jewellery: "objects of wire and air". Based on own interpretation of the definition gave myself leads to search more the possibilities of forms that could be found in filigree technique.

These led myself to a challenge in finding elements from both methods and utilised indirectly as design tool in own design process in this final work. In the process of finding the elements orientated me to compare both methods and resulting in more similarities than differences in the sense of their construction.

Inspired by a book called Muodon Palapeli, translation in English: The Puzzle of Forms by Ilkka Kettunen (2001) and the article from Muoto magazine on interviewing Vuokko Nurmesniemi (1.2006) that states:

"Luovuuteen kuuluu leikki ja intohimo. Pariisissa muoti on sellaista kulississa, teatteria. Meillä Suomessa vaatteeseen liitetään aina funktionaalisuus. Vaatteita täytyy voida käyttää."

Translation in English: "Play and passion belongs to creativity. In Paris fashion is theatre behind the curtain. We in Finland always relate the usage of cloth with functionality. Clothes should be able to be worn." Together with the enthusiasm in exploring forms lead to an idea of designing unique pieces of contemporary jewellery that do not have to be worn by everyone and worn only in appropriate occasions.

The targeted group for these jewellerys are determined to be women that belong to creative class, in other word women who are open minded toward differences and who do not follow the trend and who appreciate art and design.

Begin with these knowledge led me to undergo series of experiments in exploring forms. The exploration is by means of application of design method revealed in batik *tulis* and filigree. These experiments are to be the main focus of the design process of this final work.

In the process of the making the ready jewellerys led me to meet problems and find solutions. However planned the work is through experience as a jewellery designer the occurrence of problems is inevitable. The action to be taken is to find other solutions to fix the problem. This is emphasised based on the final founding in using the electroform technique to replace or fix problems faced. The problems faced were replacing means of stone fastening, granulation effect and metal thickening.

2 DESIGN INSPIRATION

2.1 Motivation behind the study itself

The motivation behind my studies in deepening knowledge in batik *tulis* is to learn more own culture background that unconsciously exists in me.

Being more familiar with filigree technique based on the in-depth study report I wrote, "Deepen the Knowledge Level of Designing and Jewellery Making Method in a Customer Order Work", 2005. Filigree is a traditional technique in jewellery making with high craftsmanship. It is practised seldom in jewellery design in Finland at present.

Coming to personal fond of playing with forms led me to realize the challenge in searching inspirational elements. Begin with these elements I was inspired to construct an idea to design the jewellery. The curiosity mind to seek more elements to complete my inspiration has led me to the thoughts of ornament design. Following these basis I come to an idea in exploring more the possibilities of forms and seeking challenges of differences that could be brought in the field of modern jewellery nowadays.

Results received from exploration and seeking would be utilised in producing the work pieces. With this idea I raise the thought of creating pieces of unique jewellery depicting the metaphor of development in designing process.



Image of different utilization of batik cloth, starting from people in the royalties family to ordinary people.

2.2 Source of inspiration in making the designs

The main source of inspiration would be the visual images inspiring from batik motifs especially in batik *tulis* (handwrite batik) from Central Java together with the method of making the design. The other source would be to find similarities in both Batik and filigree and based on the findings to construct the pieces of unique jewellerys.

The fundamental idea to bring out in this final work is to explore, analyse and utilise non-literally forms from source of inspiration elements as "pillars" to build the final forms of the jewellery designed both in concept and physically.

2.2.1 Indonesian ornamental design in batik tulis produced in Central Java

Batik is a textile tradition and one of Indonesia's most highly developed art form of resist patterning. It is a technique of patterning in textile by means of dye-resist from applying wax to the cloth. Batik has become through time the pride of the nation. However it is originally made only in Java and was primarily women's work. According to Expat Website Association (www.expat.or.id/info/batik.html, 25.4.2006) the practice in making batik is a form of meditation for the women who make it. This is one of the reasons why batik craft is considered to be a high respected work. Another reason is the tool used in making batik tulis.

The word batik comes from a Malay-based tik that means drop or drip. In other source batik word derived from the word "ambatik" which means a cloth with little dots. In either interpretations mean little dot, drop, point or to make dots. Following the description, batik pattern is traditionally

drawn by hand by applying dots of hot wax according to the pattern design made. The tool used to apply the wax is called *canting*, a wooden "pen" fitted with reservoir of hot liquid wax. The opening tip of canting comes with different size to result in different thickness of line applied to the cloth when drawing batik tulis. Before applying the hot wax, the patterns are first drawn to the cloth by charcoal following different method of constructing pattern.

The style and colour of batik cloth in java and the diversity of batik pattern is very much influenced by traders from different nations that came to Indonesia. The traders are Chinese, Indians, Islamic traders, and Europeans as well as Javanese and traders from the archipelago. (Gittinger 2005, 42)

Focusing back to the pattern and the architect of the pattern, batik motifs recall characters from the epics of the Hindus, plants, animals, sea creatures and gamelan melodies (a traditional Javanese orchestra).

Batik designs are either geometric or freeform, sometimes there are found a combination of both. Geometrical pattern is considered to be the earlier designs that consist of circle forms, rhombus, squares, stars, and etc. Meanwhile free form design is commonly found in modern batik. The modern batik, although is having a strong tie to traditional batik utilizes linear treatment of leaves, birds and flowers. Batik based on this description tends to be more dependent on the dictates of the designer. (Expat Website Association, www.expat.or.id/info/batik.html, 25.4.2006)

Besides its pattern design prior to the motif images itself, another interesting part of batik is the construction of the pattern to fill the area of the cloth. Textile material used for batik is a high woven cotton fabric or nowadays silk is also very much utilized. In the early stage of drawing batik *tulis*

Image of Javanese women drawing batik *tulis* on fine cotton fabric



Image of *canting*, tool to apply wax in drawing batik *tulis* with different sizes in the opening tip.



Image of modern batik



Images of The motif *Ceplok*, *Parang*, *Kawung* and *Nitik*

or handwrite batik pattern e.g. in geometric pattern, the designer draw first the grid as an overall plan of pattern for the cloth. Using charcoal, the designers start drawing the various form of geometric pattern within the outline of grids. In the geometrical form there are the *Ceplok*, repetitive design, the *Kawung* where there can be found intersecting circle forms, the *Nitik*, weaving designs, the *Garis Miring*, parallel diagonal designs, and the *Tumpal*, triangular design. (Aberges, www.serve.com/aberges/batikpag1.html, 23.04.2006)

Ceplok, where is found a series of geometrical design forms such as squares, circles, rhombus, and star. *Parang* is as well an example of traditional geometric forms in batik that describe rugged rock, knife pattern or broken blade. The design consists of slanting rows of thick knife like segments running in parallel diagonal bands. Types of batik mentioned above was earlier reserved only for the royal family court of the Sultan of Jogjakarta that eventually become wearable to common people in java. (Expat Website Association, www.expat.or.id/info/batik.html, 25.4.2006)

The concept of layers is very much found in batik pattern as a whole. The application of wax due to the application of colours constructs a form of working in layers. As well as the application of different kind of pattern in one area such as the act of intersecting and overlapping forms also constructs the form of layers. (Expat Website Association, www.expat.or.id/info/batik.html, 25.4.2006)

The unconscious application of layers has become one "pillar" in the construction of batik work. Due to add elements as source of inspiration in this final work, layers or layering has become one element in form as one "pillar" of this work.

2.2.2 The “architecture” of filigree jewellery

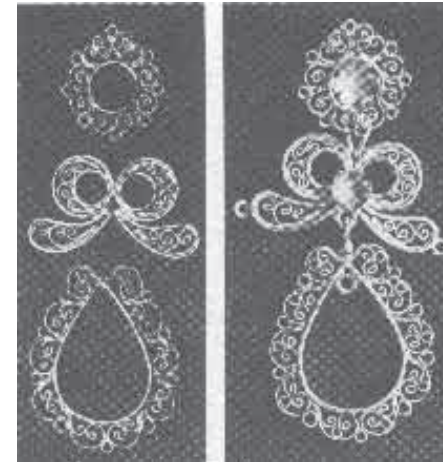
The term filigree is European and the older term is filigrain (L: filum, wire and granum, grain). It is a very ancient jewellery making technique in ornamenting. The technique utilise shapes of metal wires and small metal balls or grain. The application of metal balls or grain is later called granulation technique. The metals commonly used are gold and silver and other metals such as copper. (Untracht 1997, 296)

In ancient times, the filigree technique was used in Mesopotamia, Egypt, Etruria, Greece and Byzantium. In ancient Greece and much later in Hungary and Russia, filigree was often combined with enamel, as it still is in the backed filigree work of Ioánnina, Greece, and in the USSR. Today filigree work still actively produced in traditional regional style in Algeria, Bulgaria, China, Egypt, Greece, Hungary, Island, India, Israel, Italy, Jordan, Latvia, Lebanon, Malta, Mexico, Morocco, Norway, Poland, Portugal, Spain, Sumatra (Indonesia), Tunisia, USSR, Yemen, Yugoslavia and elsewhere. (Untracht 1982, 172)

The word “architecture” refers to the characteristics found in constructing filigree jewellery. The most fascinating about filigree jewellery is the delicate, time consuming style of metalwork as well as the consummation of minimal amount of precious metal in creating object of maximum size. There are different types of structures found in the technique of the “architecture” of filigree jewellery. The types are open work filigree, ground supported filigree, combination of both, and material added such as enamel, niello, or a plastic resin that fills the spaces between the wires which have first soldered together. The ground supported filigree is where all the wire is soldered to a ground of sheet metal or woven wire mesh. (Untracht 1982, 173)



Picture of construction of filigree jewellery



Images of filigree jewellery



Images of traditional filigree jewellery from Norway



Image of openwork filigree.

The most inspiring structure type is the openwork filigree, where the wires are without any backing. The openwork filigree generally consists of heavier wire frames within which lighter weight wires are held and joint together by soldering the points of contact. These lighter weight wires are called filler wire and the heavier wire is the frame wire. The construction of openwork filigree is commonly linear.

Oppi Untracht in his book *Concept of Jewellery and Technology* wrote that filigree is a wire technique of captured air. (Untracht, 1982, 172) This gave me directions to the study of different kind of wire used in filigree, and forms commonly used in filigree jewellery designs.



Images of different filigree wires

2.2.3 Exploring the possibility of forms

As to batik tulis, the exploration is in the method of designing geometrical forms with the style of intersection, overlapping and layers.

After seeing and getting more familiarized with the method of the making and the different types of filigree jewellery, the idea of exploring more the possibilities of forms focused in openwork filigree. The exploration started from the shapes, sizes and form of wires as well as the material, which is silver.

Relating the sizes of the wire used on filigree to the variety of sizes of the hole in a canting used to paint batik is only one of the many similarities that I found in the way to make the both different artwork. Other finding seen in both art forms is the similar concept in designing pattern as means of ornamenting.

The pattern in both batik tulis and filigree are mostly linear or 2D. Exploration of forms became an idea of reviving linear 2D into 3D form by explore more the behaviour and custom of forms.



image of the use of long batik cloth, batik shawl and batik collar shirt for men.

3 DESIGN TASK

3.1 Limiting jewellery design to bracelet, necklace and ring

The goal in this final work is to be able to realize the unique pieces of jewellery based on method of construction explored from batik tulis and filigree. Besides the jewellery, the goal is also to be able to present the process of method of working by means of application of elements found in batik tulis and filigree. The elements taken and utilised indirectly to build own design for the jewellery. In other word, is to be able to exhibit entirely or partially the metaphor of experiments in a manner of physical form in the process of achieving the form of the several jewellerys.

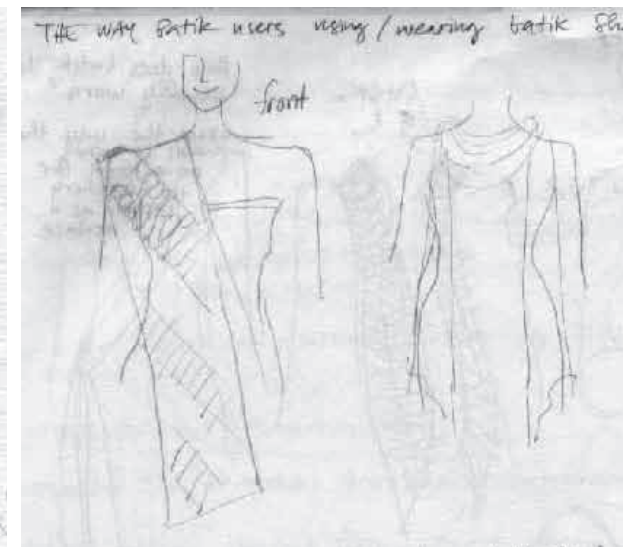
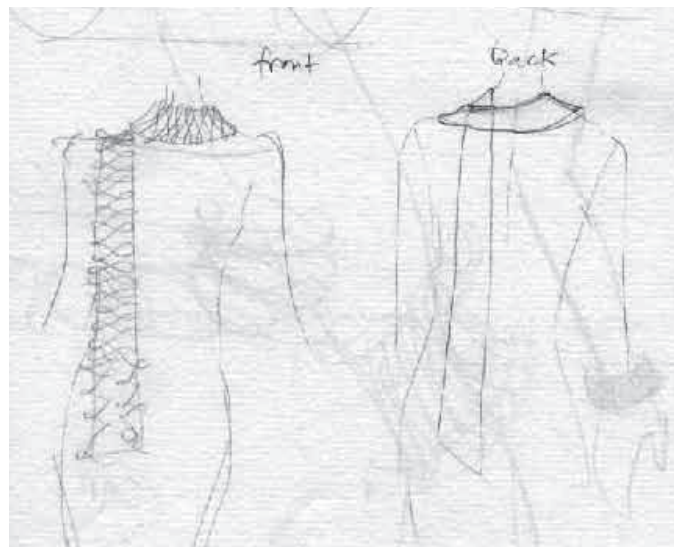
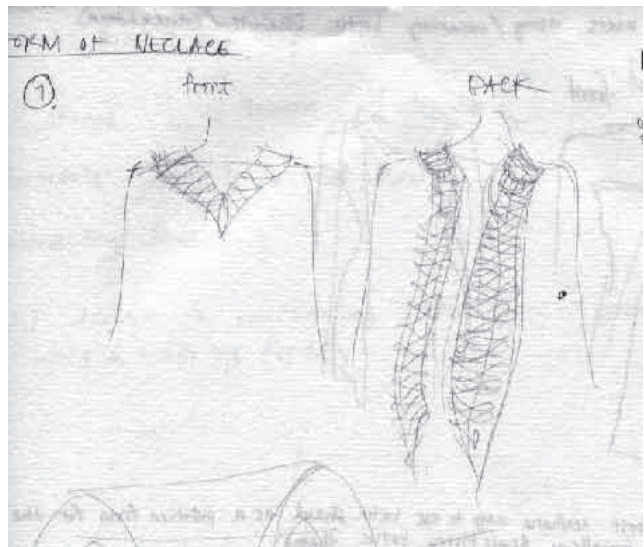
The first process is to achieve the form of two-dimensional pattern utilising the visual elements preferred from entire concept of batik tulis pattern design and filigree jewellery. The second process is the knowledge gained together with results from series of experiments in transforming 2D pattern into 3D jewellery. And finally the third process is the ability to apply preferred results from the experiments in realizing the final form of several unique jewellerys.

According to different forms batik cloth worn conducted me to take this features as an advantage in finding the different type of jewellery to be designed.

In connection to realising the idea of exploring forms and finding the right ornament as the pieces of jewellery guided me to benefit the utilisation of batik shawl as compliment to wearing batik cloth in different type of occasions. Shawl is one of batik cloth traditionally worn on shoulder as compliment to tradition batik costume. In present time the use of batik shawl var-

ies following the trend of using scarf as accessory in clothing. Based on this gave me inspirations of start the design in a form of necklace. To accompany the necklace raise an idea of making bracelet and ring

Besides the types and form of the jewellery, the choice of materials is as well essential. Based on filigree, as has been mentioned earlier, the material practiced most often is gold and silver. The choice of utilising mainly silver is based on its colour of clear white that adds up the sense of freshness to fulfil the idea of contemporary jewellery.



Figurex of own sketches in how to use batik shawl. And the way of wearing selendang sbg scarf.

3.2 Setting the parameter for the target group

The user group for the jewellery are women in age between 25-50 years old, which do not follow the development of trend instead that are setting the trend. Group of women dare to be different and eccentric especially those who are open minded toward newness and international. Finding more specific description of the target group led me to construct a collage of visual materials cut from magazines that contain images of style, atmosphere, forms, feelings and sense to complete the description. In conclusion to this the criteria of creative class suited the best.

The knowledge of creative class is introduced by Richard Florida. According to Florida the creative class society is eventually rising up and creates a larger target group. In creative society there are fifteen fields belongs to creative industries; advertising industries, architectures, art industries, handcraft, design field, fashion field, film industries, music industries, performing art, publishing field, research and development, programming, television and radio industries, and videogames.(Florida 2005, 11-16; Coloneus 2004, 17)



Image of a collage of different visual images as description of the target group

3.3 Applying design method of Indoensian batik tulis from Central Java and filigree in contemporary jewellery design

As a big part of the design task is the application of design method from both field of art in designing the unique jewelleryes. Based on the comparison made on batik tulis and filigree, more similarities are found than differences. The similarities are the intersecting, overlapping and layers.

The features from batik applied in the beginning of own design process is the method of drawing batik pattern. The application is meant to draw two-dimensional (2D) pattern on paper. As to filigree, the features applied are mainly the different profile of filigree wires, starting from size and shape. These are the application of features in the stage of designing process for the jewelleryes.

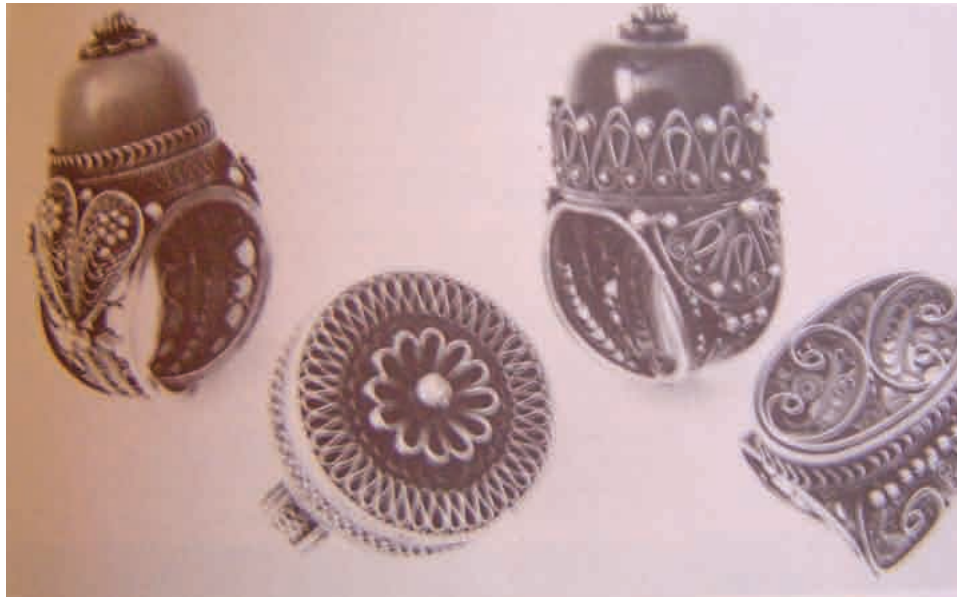


image of Traditional filigree jewellery.

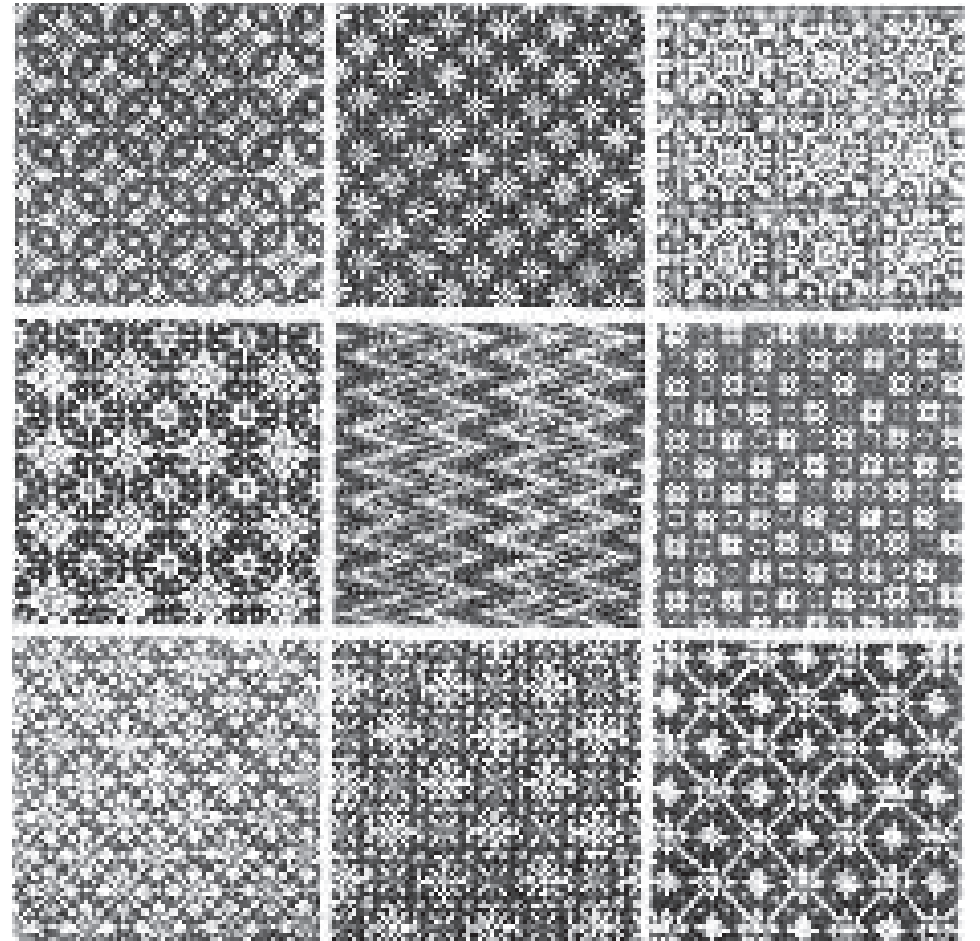


Image of Traditional batik motifs.

4 PROCESS IN DESIGNING

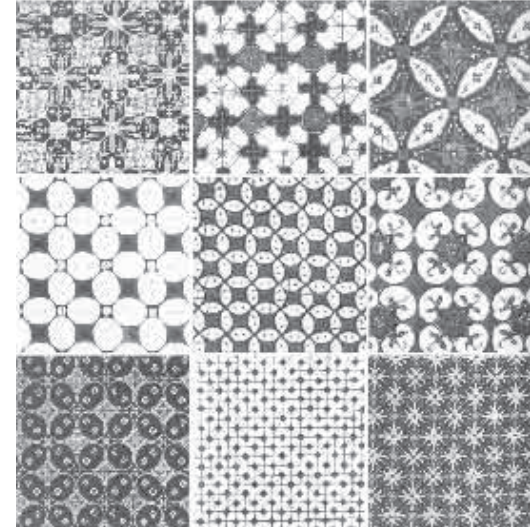
4.1 Geometrical pattern in 5 main designs in Indonesian Batik *tulis* from central java

To start with, the five main design preferred in starting the design process are circular designs called *Kawung*, repetitive designs called *Ceplokan*, parallel diagonal designs called *Garis Miring*, *Nitik* or weaving designs and *Tumpal* triangular designs.

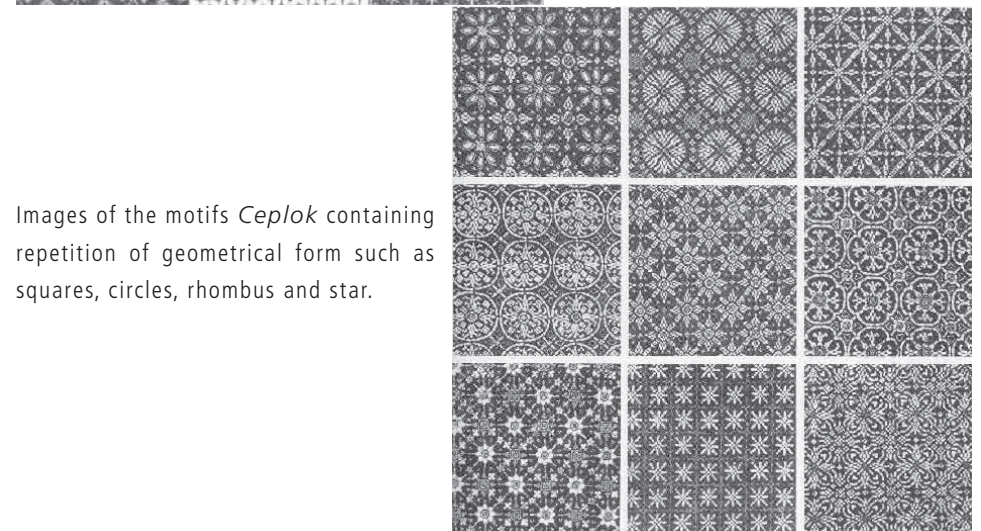
Starting with these forms, each design led to the action of "peeling off" or visualising the formula utilised by batik artisans in drawing the pattern. In *Kawung* designs it is very clear that the pattern resulted from intersecting or overlapping the circular form. In *Ceplokan* designs it can be seen that the patterning is a result from composing units of circular form into another sole unit of form that gives the outline in a form of rhombus. The pattern achieved is from the arrangement of repetition designs.

Analysing the rest of the three forms gave results also in the similar method used to draw batik cloth. In *Garis Miring* design literally means diagonal design, the unit design are applied within the diagonal outline that reminding to the form of helix or spiral in wire.

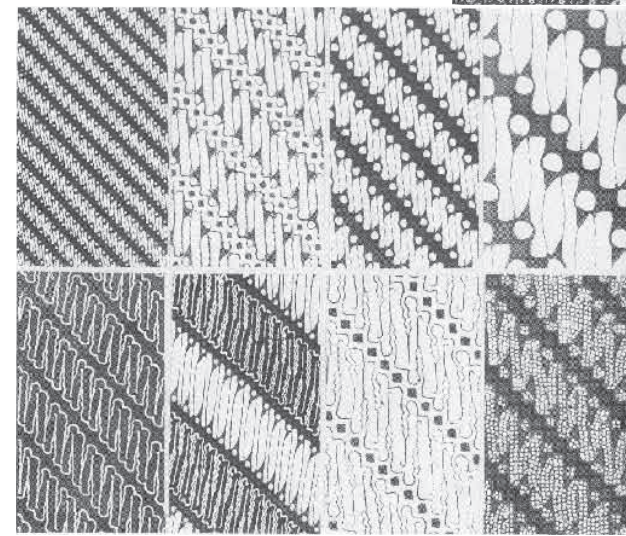
Addition to this knowledge, in the beginning of the process of making batik the artisans commonly draw grids for the main outline, which within specific motifs such as described above are drawn.



Images of the motifs *Kawung*, containing circular forms



Images of the motifs *Ceplok* containing repetition of geometrical form such as squares, circles, rhombus and star.



Images of the motifs *Parang* or *Garis Miring* containing parallel diagonal forms

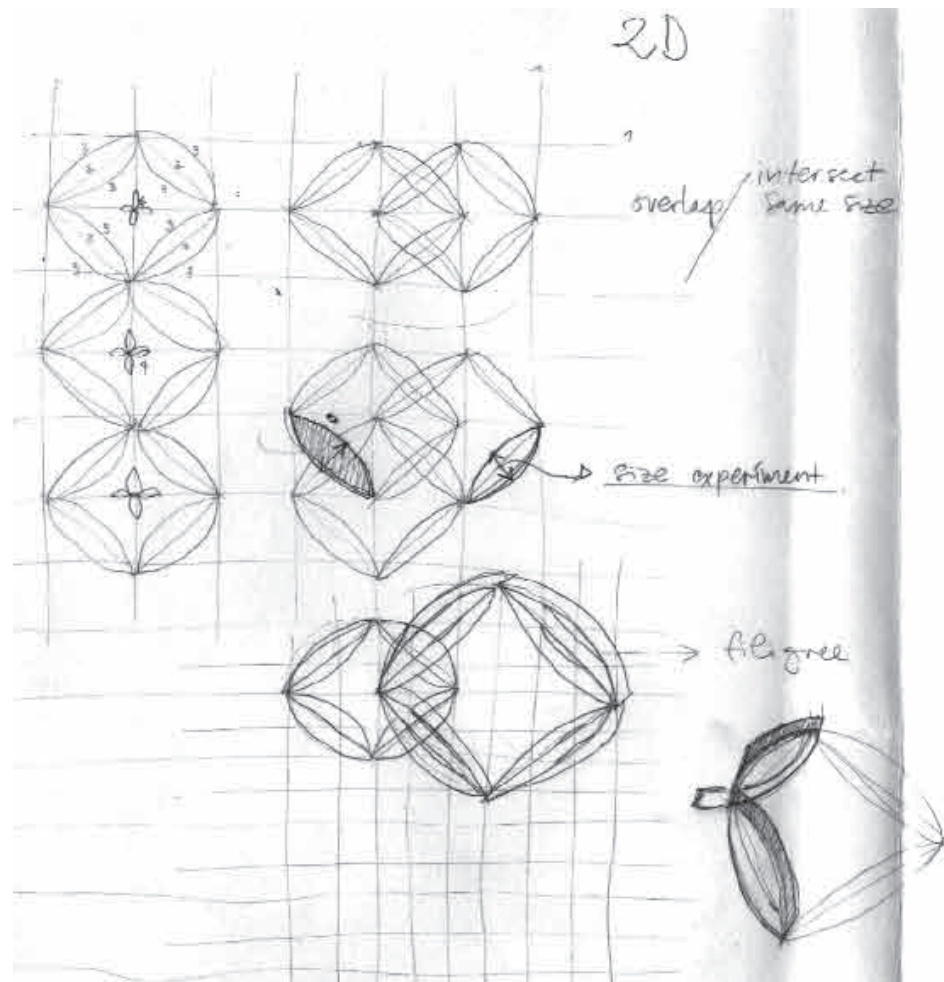


Image of Own analyse on ceplokan motif where circles overlaps and intersects.

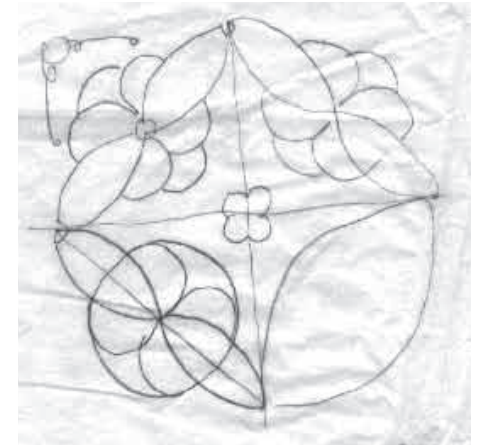
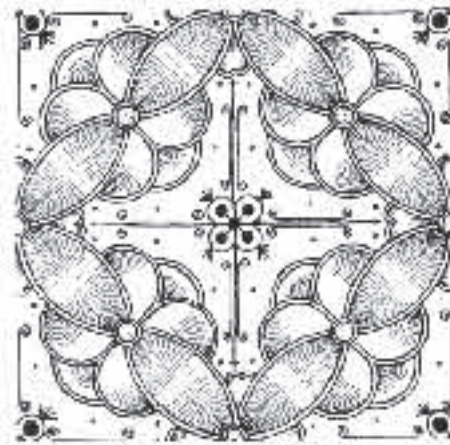


image of drawing by tracing existing motif to study the formula.

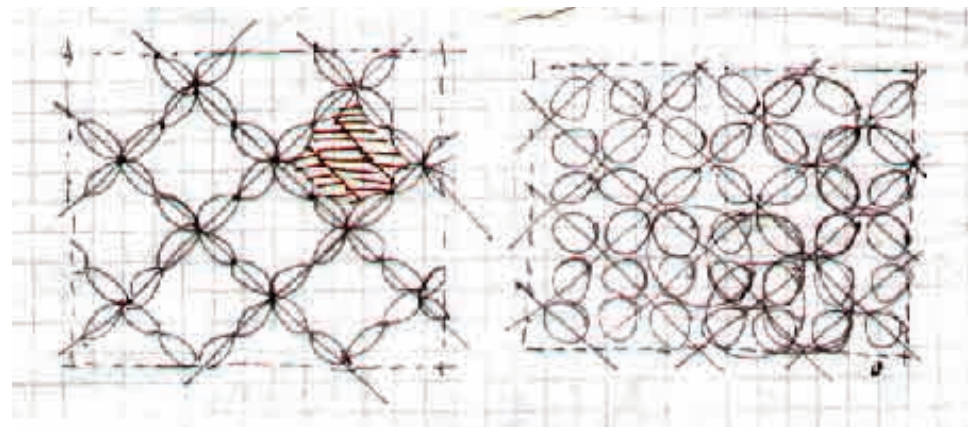
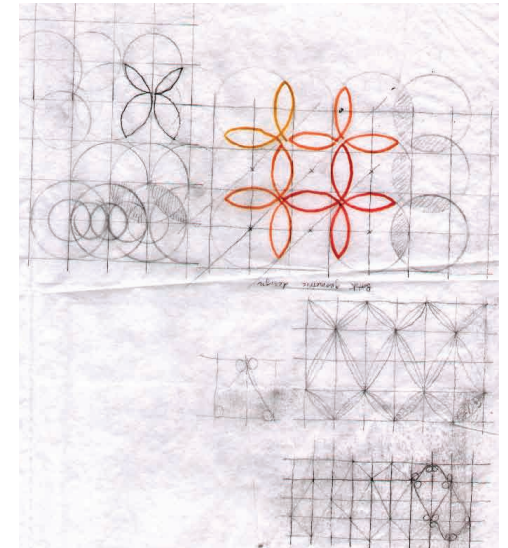
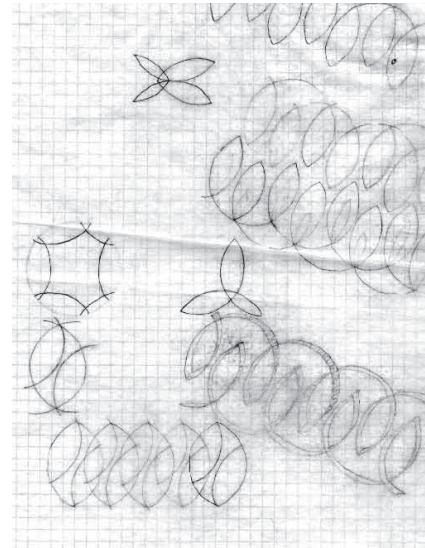
4.1.1 Exploring geometrical pattern based on the studies

Based on the studies above I was guided to start own design by drawing pattern for the jewellery. I began my drawings with circle forms regarding that it is the most basic form in geometry and commonly found in batik design. Having "peeled off" and understanding the method of drawing circular form found in some of the batik motif, I began to see the formula or the module of its construction. Slightly with the same formula I started my exploration. Besides the diagonal, horizontal and vertical form in arranging geometrical forms in batik design the symmetry in the arrangement is seen to be fundamental. Having noticed this feature, I was driven to try to break the symmetry in own process of designing the pattern.

4.1.2 Sketching and drawing the designs

The process of sketching and drawing own pattern began with the use of grid and transparent paper to trace first some examples of circular pattern preferred found in books. When getting the grip of the module, I began to improvise the design based on own ideas. The improvising method is realised in the form of changing the symmetry from the existing design, or applying the overlapping and intersection method in testing the forms. The method used in sketching gave result in the idea of layers. Taking advantage of the idea of layers, I began to explore more linear form resulted by application of layers of different forms.

In the making of sketches rose an idea of "peeling off" the line construction of the geometric form. In seeing from intersection of two circles gave results in points of intersection. If taking an eraser and rub away the outer or inner line as rest of the lines lead to a result in a form reminding of seeds. This form can be treated as new form. This new form gave me direc-



Images of own drawings in studying the module.

tion to “explode” the form into lines by separations and by moving the line in different angle would give an additional dimension to the form. Another feature found is the resemblance of continuity form of pattern from intersecting or overlapping forms. The element of continuance is another great feature in own exploration of finding forms.

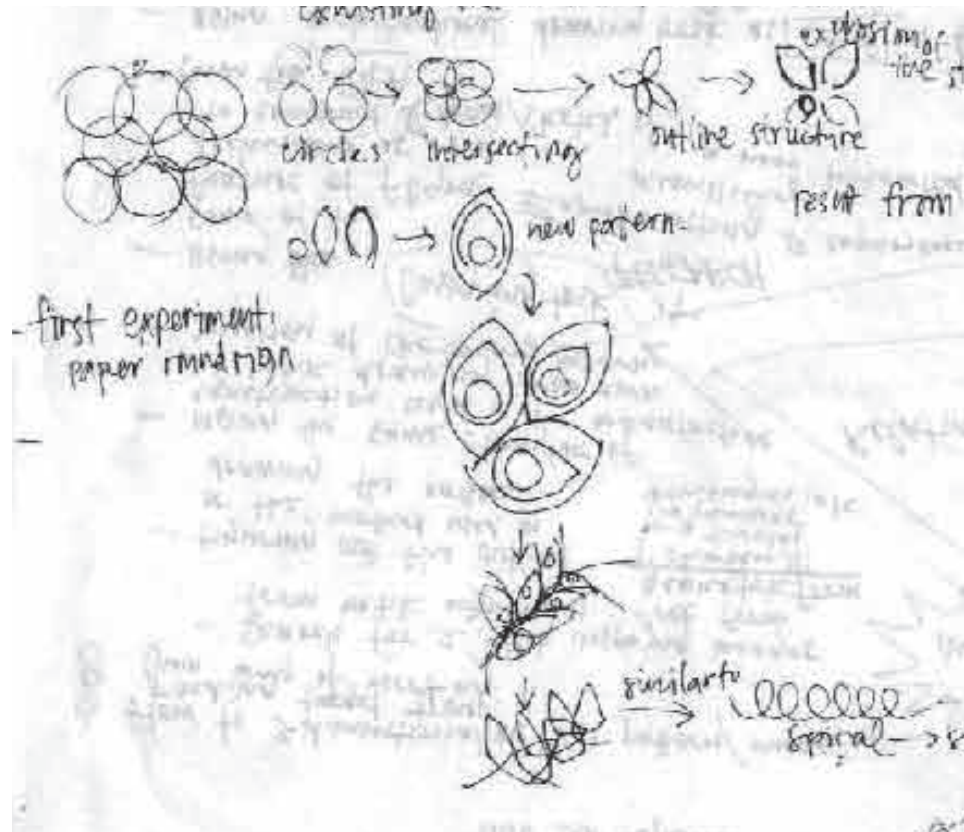
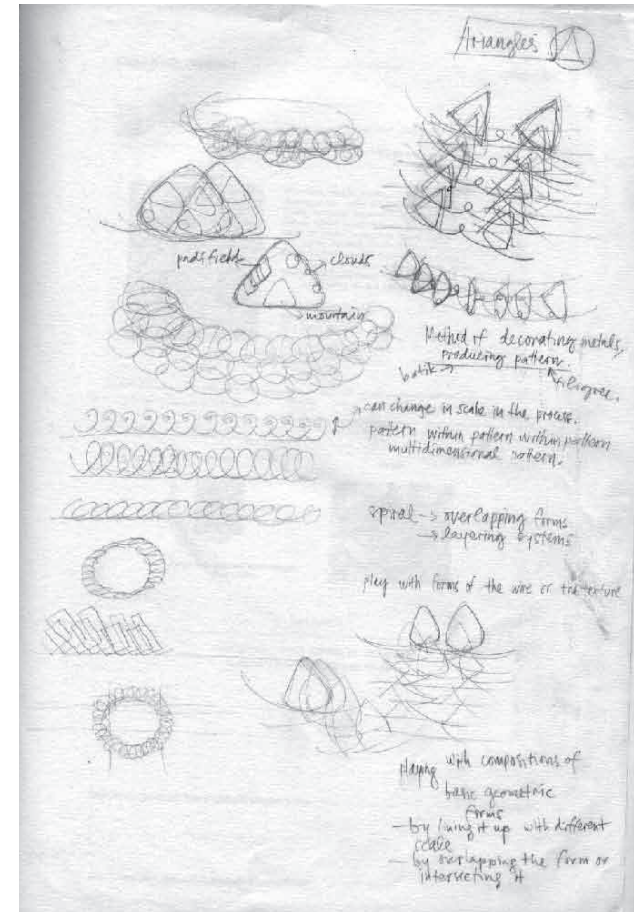
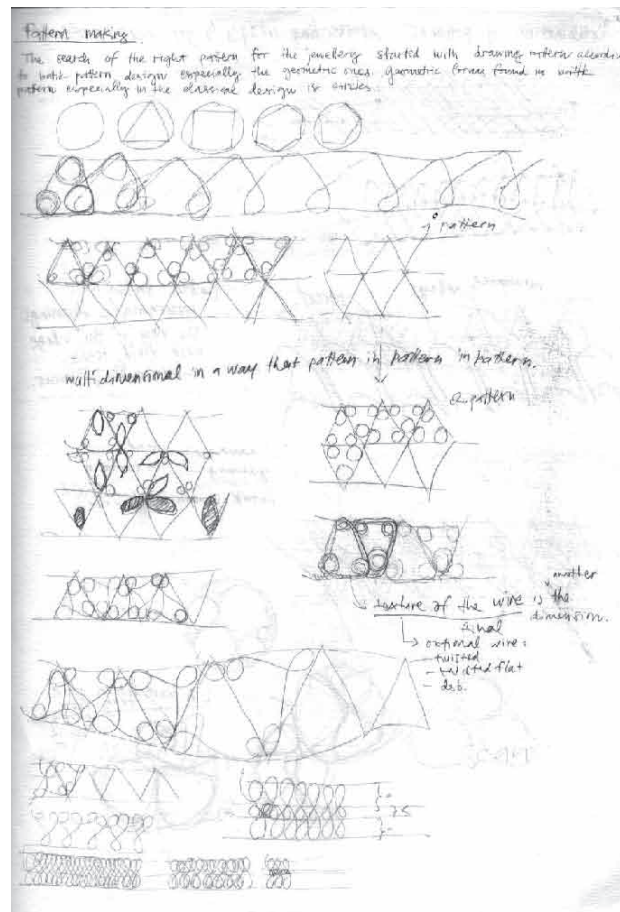
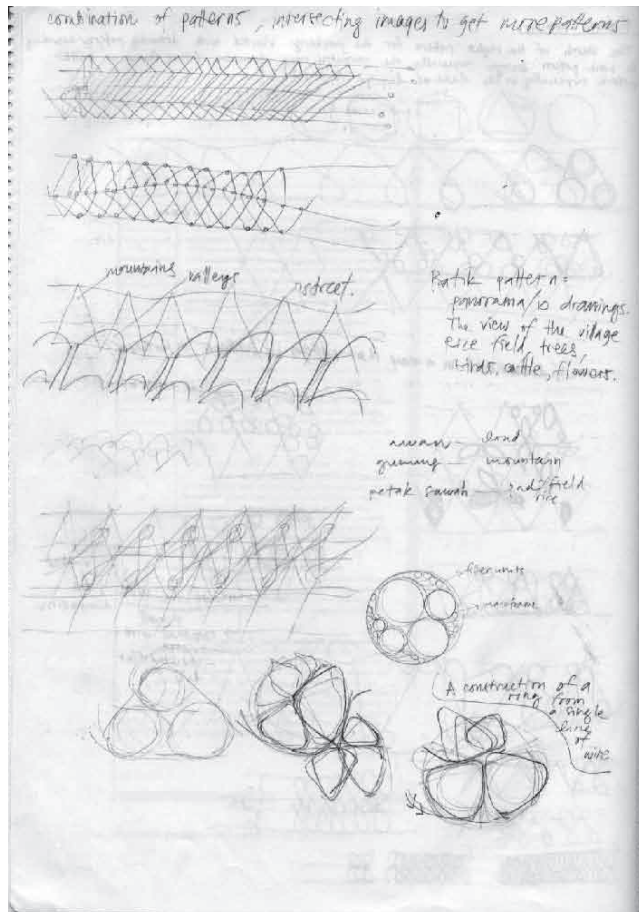
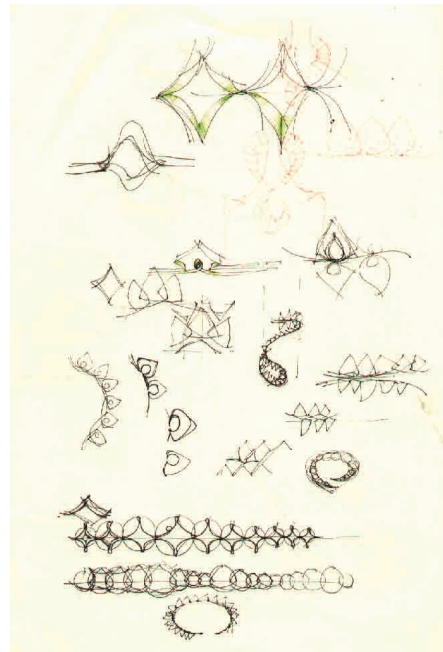
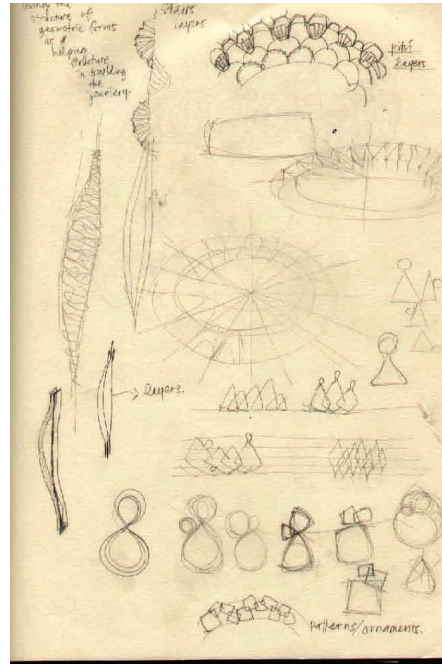
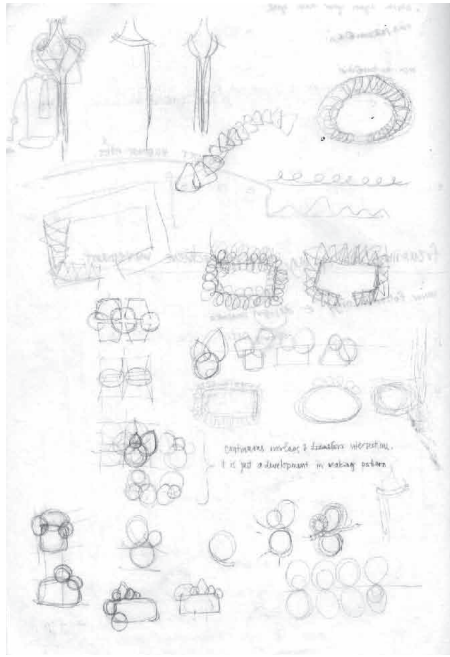


Image of drawing mind maps in exploding 2D form into lines

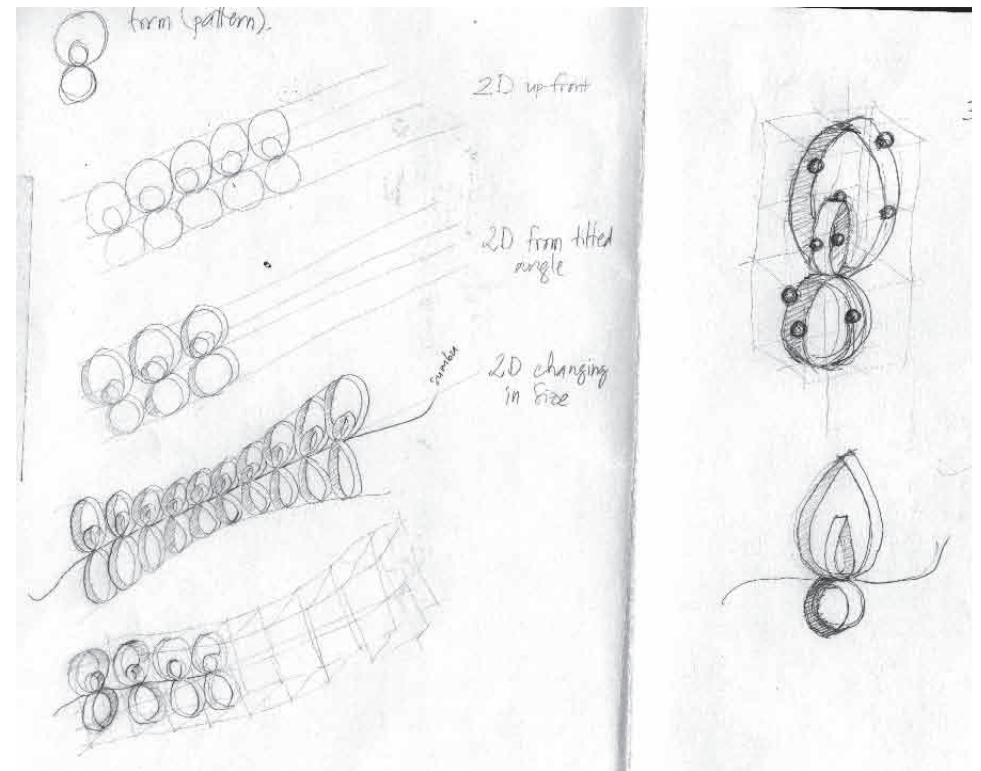


Images of own pattern drawing applying design method of batik pattern drawing and own improvisation.

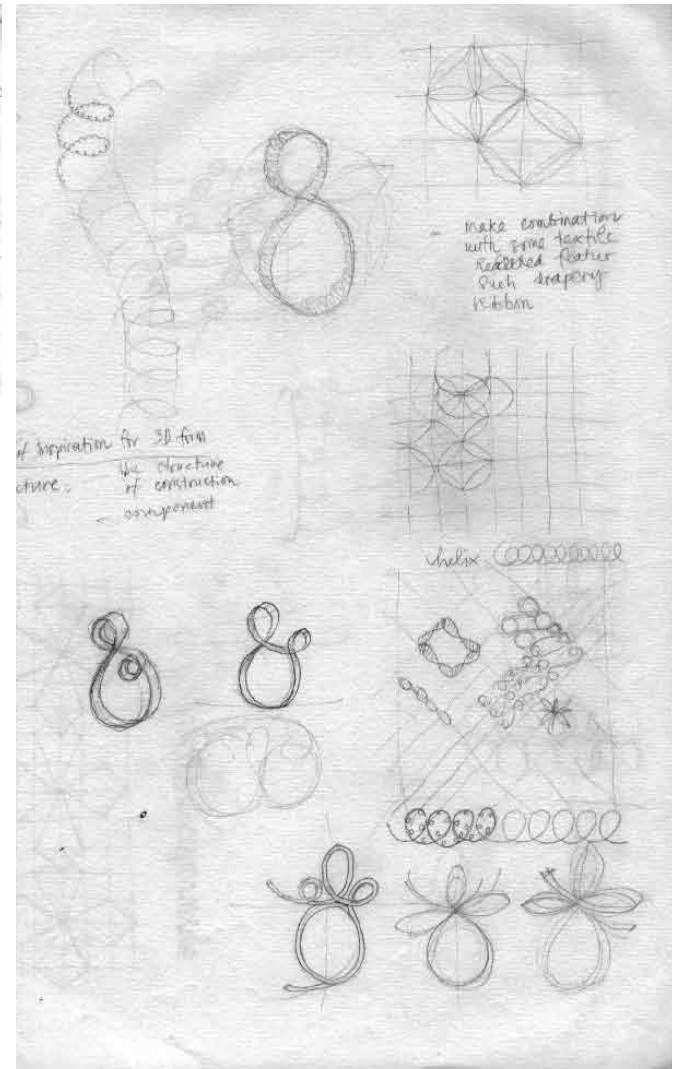
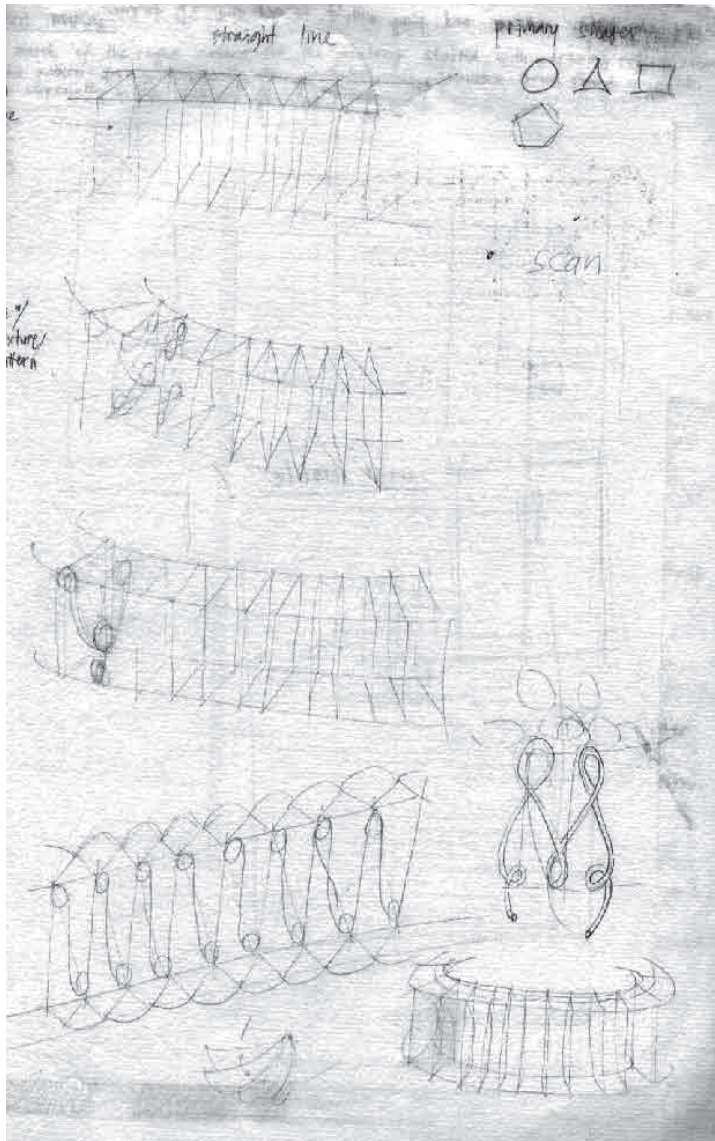


4.2 Ideas on transforming 2D pattern into 3D form

The idea of the transformation came from the sense received when seeing batik pattern as well as filigree pattern from a distance. The sense in this context means the feeling of seeing an optical illusion picture. These feelings stimulate the drive in how to raise a 2D form found in pattern or linear form into 3D form or multidimensional form. The Idea of transformation of forms rose from the curiosity in proving the idea by means of changing the position of the forms and changing the size and shape of its visual properties. (Ching 1979, 64)



images of drawing on transformation of 2D form to 3D form



4.2.1 Experiments based on construction method in filigree

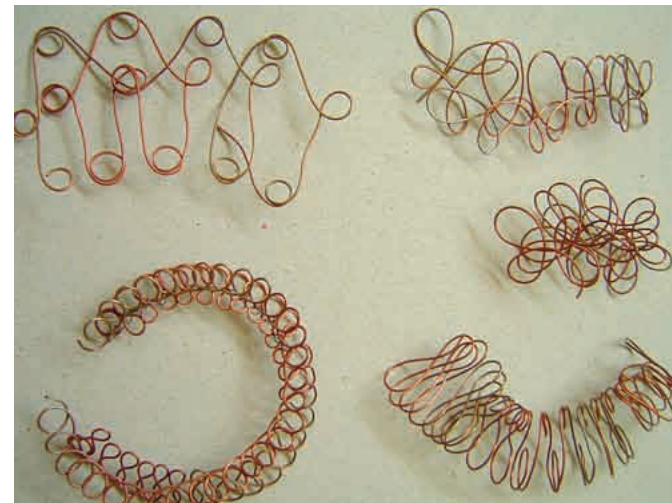
Having a number of trials and experiments in exploration of geometrical form, I was directed to fulfil the idea of transforming forms. Following the previous idea of “exploding” a form into lines and positioning one of the lines differently, I began the experiments first by testing different feature of wire based on knowledge or wire generally used in filigree. The experiment led me to try different size in the sense of diameters in wires. Starting with twisting two wires, twisting two twisted wires, drawing two twisted to a plate plain wire into a square wire to see the profile. After having tested all possible wire profile found in basic filigree technique lead to experiments in applying both features found from batik and filigree.

Besides metal wire, the material used in visualising ideas is paper. The idea of transforming forms involves a simultaneous working relationship in sketching and direct production of prototypes. Paper is very much used in this phase regarding to that it is easier to fold paper than pleating wires. Finding the right paper became a choice of using white paper that contains images on the other side of it. The use of papers led me to start exploring more possibilities of forms by folding, bending or taking some part of the paper away to have similarity in flat filigree wire. The process of bending the paper gave me an idea of achieving several forms from one length of “filigree paper”.

Receiving different texture of spiralled fine wire found in filigree jewellery gave leads to the application of the behaviour of spiral wire in realising multidimensional form by for example flatten the cylindrical form of spiral wire by means of pinching on the side of the cylinder. This action gave results in visual image of intersecting circles. Shaping of wire according to geometry forms is also practiced much in this phase to find more possibilities.



Image of different experiments of wire profile.



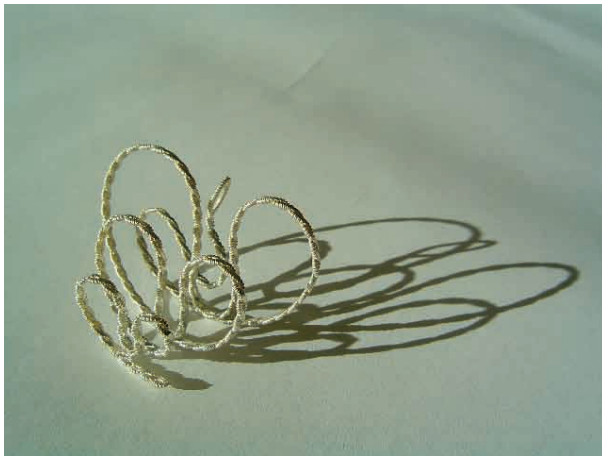


Images of “filigree paper” prototypes from circular designs.

4.3 Study discoveries in getting different features of patterning, profile in metals

The number of experiments explored yielded in receiving different texture of filigree wire as alternative for selections. Drawing and composing geometrical forms by means of intersecting and overlapping method in grid outline that later guided me to the use of spiral or helix form to realize 3D or multidimensional forms. Playing with "filigree paper" conducted me to an idea of realizing multidimensional form by means of pattern within pattern. The intersection of pattern gave effects such as in optical illusion.





5 TRANSFORMING FORMS

5.1 Understanding the construction of forms of jewellery design

Staying with the definition of filigree technique given by Oppi Untracht (1997, 296) ; an object of wire and air, I was given orientation to an idea of exploring more the possibilities of more dimension of forms from the existing three dimensional form in filigree jewellery in general. Following this curiosity gave rise to an idea of applying this feature in the finding method to raise 2D pattern into an object which is jewellery. Realize the idea of transforming forms guided me to search more theory in the definition and understanding forms in general from other field of design.

5.2 Experiments in expanding 2D form into multidimensional form

According to the book called Architecture: form, space and order the properties of form are divided into shapes, size, colour, texture, position, orientation, and visual inertia. (Ching, 1979, 50-51) Seeing from the construction method of openwork filigree where there are the main frame work and filler units in order to visualise the parts into unsoldered unit of form by imagining that the whole construction would be made of single wire then open the unit one by one in different direction. Seeing the result of this has given the idea of possibilities in forms found from filigree.

5.3 Applications

Based on the idea mentioned above to reach the goal, I started to utilise

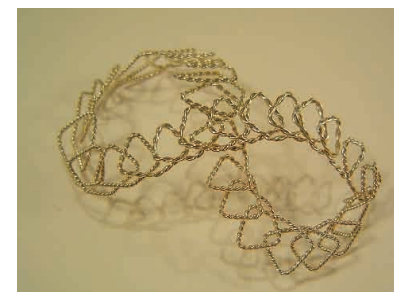
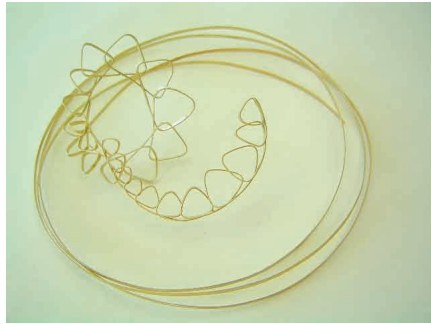


Image of explored forms in the process of transformation



directly some texture of wire resulted from previous experiments in reaching closer to the goal of this thesis. Applying the experiments in expanding 2D forms into 3D or multidimensional by means of spiral or continuity form rose more curiosity of finding more theory to explain the idea.

“All other forms can be understood to be transformations of the platonic solids, variation that are generated by the manipulation of their dimensions, or by the subtraction or addition of elements.”(Ching , 1979, 64)

Understanding the meaning of this caption, I started to make more experiments by means of applying the results received from all kind of experiments

5.4 Result

Regarding to all experiments done especially in the exploration of repeating circular form resulted into a form that is seen very general. Seeking more challenge in the form of visual appearance, I stepped in to trying other forms than circular forms. I later made trials of triangular forms with the same method of application. The trials started in utilising directly the method of continuity line achieved above from one wire and shaping spiral form by triangular forms.

Starting from utilising twisted wire, flat wire resulted in a triangular helix form that is similar to an outline form of a star. The movement accidentally resulted from the behaviour of the helix add more dimension in a sense of breathing together with the shadow resulted from reflection by light add another dimension that I called it “false” dimension. False in the sense that

it is elements that can not be touched or feels instead gave the sense of room to the object. This feature gave an impression to the viewer that the object live

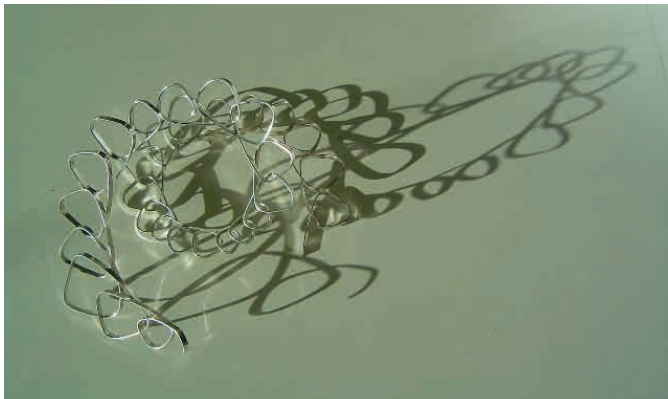


Image of the shadow resulting that give addition to the idea of multidimension



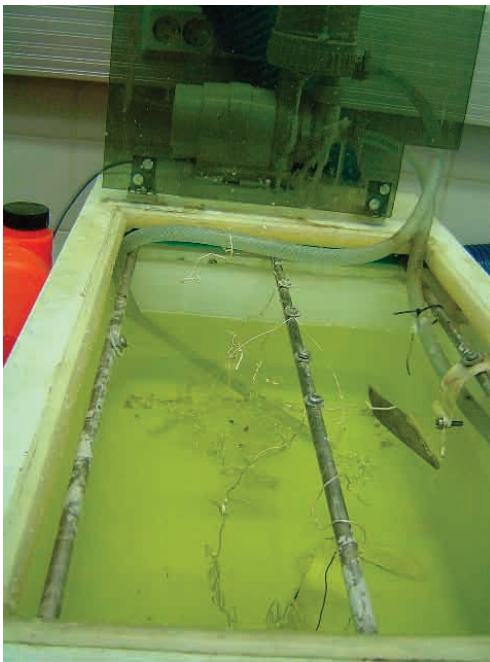


6 MECHANISMS

6.1 Tension mechanism from shape of spiral as a method of fastening

During the process of shaping and handling metal or wires in this work the activity of bending it into continuous form created a tension where the metal behaves like a spring. In the completion of achieving the concrete form for the jewellery, I was driven to take for granted the tension accomplished from the helix form.

When placing and trying to wear the experiment piece and treat it like a bracelet gave results in how the tension grip well the round form of a hand. Based on these findings, instead of finding separate mechanism for the attachment of the jewellery to be steady on parts of the body such as neck and finger, I decided to apply the features from the findings.



6.2 Electroform

The description given by Kate Fowl on electroform taken from Oppi Untracht's book, *Jewelry: Concepts and Technology* (New York, NY: 1982, Doubleday), he defines electroforming as the process of synthesizing a metal object by controlling the electrodeposition of metal passing through an electrolytic solution onto a metal or metallized form. To simplify, a metal skin can be built up on a metal surface, or any surface that has been rendered electroconductive through the application of a paint that contains metal particles. This differs from electroplating because the skin is much thicker and can exist as a self-supporting structure when the original matrix is removed. (www.lapidaryjournal.com/jj/oct00jj.cfm, 24.4.2006)

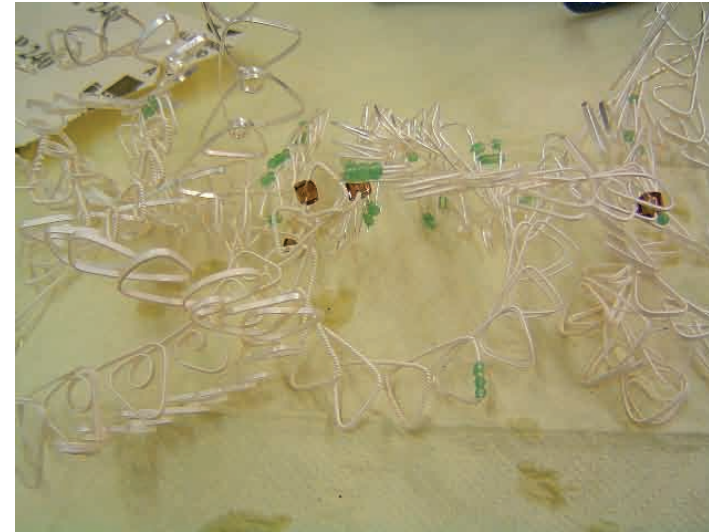


6.2.1 Uneven granulation effect on the surface of the jewellery piece

At the verge of providing the final result to be taken to realize the final jewellery raise an idea of adding possible materials such as stones to give more colours to the plain metal. Visualising in how to attach the stones to the surface lead to the thought of granulation, which is a technique of attaching granules in the surface of metals as means of patterning. Relating to filigree Granulation is very common found in filigree jewellery. Starting from this point, I decided to make final experiments to discover other method in realizing the effect without learning the actual technique of granulation. Looking back at some own pieces of old work on electroforming open a window of possibilities in realizing the idea.

6.2.2 Substitute of rivets in attaching stones to the jewellery piece

Coming back to the issue of setting stones raised the idea of giving effects of granulation on the surface of the metal by riveting small round stones. The plan was to be applied after achieving the right thickness of the piece of jewellery after electroforming. However the plan did not work out as it should and regarding the time led me to search for other solutions. After series of experiments in electroforming in addition to the search of mechanism to replace rivet mechanism, I took granted the electroform technique itself to fulfil the idea. Based on the description of electroform where it is a technique of growing metal on metal therefore I decided to apply it and gave function to it as mechanism of attaching stones to a metal surface.



7 THE PRODUCED JEWELLERIES

The jewellery that is finally produced varied in a form of necklace, bracelets and rings. It is also varied in metal profile utilised. The addition of bracelet and ring is based on the founding of similar form of part of body that can hold the jewellery, round form. The materials used are mainly silver and stones such as aventurine with a colour of aqua green and size of 2mm diameter round with addition of edgy form of roast quartz in size of 4x4mm.

The behaviour form of the jewellery is delicate, breathing and depicting the whole development process of the design process. The triangular form is chosen to be the form taken advantage from source of inspiration applied in a repeating continuous line that eventually forming a spiral. The colour and the surface of the metal is silk white resulting from the effect given from electroforming.

Considering the size of wire chosen in the making of the jewellery, the sense of delicate feature appeared. Based on that feature, a direction of wearing and treating the jewellery has to be done. Since it is designed to depict the function of batik shawl or scarf in general, it is suggested that the user should adore and try to wear it in a careful manner. Regarding the meaning and the process that the jewelleries carry, the users should experience the patience that those Javanese women in consuming time in making Batik tulis and similar to artisans who make filigree Jewellery.



Images of tumpal neckalce with flat wire profile.



Images of Tumpal bracelet and ring of flat wire profile.



Images of Tumpal bracelet and ring of flat wire profile.





Images of Tumpal necklace of twisted and double round wire profile.



Images of Tumpal bracelet and ring of twisted and double round wire profile.



8 EVALUATION AND CONCLUSIONS

In conclusion, having explored two different fields of studies as source of inspiration in this final work gave a possibility to expand and develop more the field of the studies in the future. Looking through the whole process in this final work there are many experiments done regarding to the exploration of forms to achieve the right form for the final product, which is the jewellery itself. The path of the experiments as a whole was back and forward but progressive and constructive, which gave an endless result. Based on this I had to give boundaries and limitation in order to create the jewellery on time. These endless results can be expanded in the future apart from this final work.

At last the idea of transforming 2D pattern into 3D gave result in many possibilities. The findings received from the experiments are partially applied to conclude the final jewellery. At this point the ready produced jewellery is undergoing the process of electroforming. The decision in adding granulation effect by electroforming was a new feature to be studied further in replacing rivet mechanism for attaching stones and thickening metal. Some rings and bracelet are ready to wear. The result in the colour on the surface of the silver is a satisfying result to complete the idea of making contemporary jewellery.

In search of name for the work, I went through to vocabularies found in batik. Having met with the name *Tumpal*, which the name represents the triangular motif design in batik *tulis*, I decided to apply the name to the jewellery.

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Appendix

Appendix 1

Collage of images describing the target group in this thesis.





