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## The Study of the Ornament of the Sino - Portuguese Architecture and the Ornament of the Lanna Architecture for Integration of Jewelry Design for Industry

### โครงการวิจัยการศึกษาลวดลายตกแต่งสถาปัตยกรรมจีน - โปรตุเกส และลวดลายตกแต่งสถาปัตยกรรมล้านนา เพื่อบูรณาการการออกแบบเครื่องประดับอุตสาหกรรม

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#### บทคัดย่อ

การศึกษาลวดลายตกแต่งสถาปัตยกรรมจีนโปรตุเกสและลวดลายตกแต่งสถาปัตยกรรมล้านนาเพื่อบูรณาการการออกแบบเครื่องประดับอุตสาหกรรมนั้น จากการศึกษาแยกเป็นประเด็นได้ดังนี้

1. โครงสร้างของลวดลายตกแต่งสถาปัตยกรรมจีน - โปรตุเกสที่จังหวัดภูเก็ต และลวดลายตกแต่งสถาปัตยกรรมล้านนา ที่จังหวัดเชียงใหม่ มีโครงสร้างอยู่ในรูปสามเหลี่ยมมากกว่าโครงสร้างอื่น และมีโครงสร้างของลวดลายเหมือนกัน คือ โครงสร้างสามเหลี่ยม สีเหลี่ยมผืนผ้า สีเหลี่ยมด้านไม่เท่า ลวดลายอยู่ในพื้นที่ที่ถูกกำหนดไว้ก่อน ลวดลายจึงตกแต่งตามขนาดของพื้นที่ที่ถูกกำหนดไว้

2. อิทธิพลที่ปรากฏในลวดลาย ลวดลายตกแต่งสถาปัตยกรรมจีน - โปรตุเกส ได้อิทธิพลของต่างชาติหลายชาติ โดยเฉพาะอิทธิพลจากศิลปกรรมชาติตะวันตก เช่น อิทธิพลศิลปกรรมกรีก - โรมันโบราณ อิทธิพลศิลปกรรมสมัยเรอเนซองส์หรือสมัยฟื้นฟูศิลปวิทยาการ อิทธิพลศิลปกรรมสมัยนีโอคลาสสิก อิทธิพลจากความเชื่อที่อยู่ในงานศิลปกรรมของโปรตุเกส ซึ่งได้อิทธิพลที่อยู่ในงานของศิลปกรรมอังกฤษและฝรั่งเศส อิทธิพลที่มาจากตะวันออกที่เห็นชัดเจนมีชาติเดียวคือจีน แต่ความเชื่อแห่งวัฒนธรรมและศิลปกรรมจีนกลับโดดเด่นชัดเจนมาก แสดงถึงอิทธิพลของศิลปกรรมจีนที่สามารถเปลี่ยนแปลงรูปแบบเป็นลวดลายที่บูรณาการความแตกต่างให้สามารถกลมกลืนทั้งในลวดลายและโครงสร้างในงานสถาปัตยกรรมจีน - โปรตุเกสได้อย่างลงตัว สำหรับงานตกแต่งสถาปัตยกรรมล้านนาที่จังหวัดเชียงใหม่ นั้น อิทธิพลที่ชัดเจน ได้แก่ ศิลปกรรมอินเดีย เขมร และพม่าหรือพุกาม อิทธิพลจากพม่าหรือพุกามเป็นอิทธิพลที่เห็นได้ชัด ไม่มีอิทธิพลของศิลปกรรมตะวันตกปรากฏให้เห็นในลวดลายล้านนาที่เลือกเป็นกลุ่มตัวอย่าง

3. การจัดองค์ประกอบของลวดลายตกแต่งสถาปัตยกรรมจีน - โปรตุเกสที่จังหวัดภูเก็ต และลวดลายตกแต่งสถาปัตยกรรมล้านนาที่จังหวัดเชียงใหม่มีการจัดองค์ประกอบเหมือนกันสามแบบ คือ การจัดองค์ประกอบแบบสมมาตร (Symmetry) โดยการจัดองค์ประกอบให้น้ำหนักซ้ายขวาเท่ากัน ให้ลวดลายตรงกลางยึดเหนี่ยวสายทั้งสองข้าง และการจัดองค์ประกอบให้น้ำหนักซ้ายขวาไม่เท่ากัน (Asymmetry) โดยใช้วิธีการให้ลวดลายไม่เหมือนกัน แต่วางน้ำหนักของทิศทางเหมือนกัน หรือให้ขนาดของลวดลายแต่ละลายเล็กใหญ่ไม่เท่ากัน การแก้ปัญหาพื้นที่ลวดลายตกแต่งสถาปัตยกรรมจีน - โปรตุเกสให้ความสมดุลระหว่างรูปและพื้นที่เท่ากัน โดยให้ลวดลายไม่แน่นมาก ให้มีความโปร่งเห็นส่วนที่เป็นพื้น ซึ่งแตกต่างจากการแก้ปัญหาพื้นที่ลวดลายตกแต่งสถาปัตยกรรมล้านนาที่ให้ความสำคัญของส่วนที่เป็นรูปมากกว่าส่วนที่เป็นพื้นหลัง ลวดลายจึงมีความแน่นละเอียดวางเต็มพื้นที่มากกว่าลวดลายตกแต่งสถาปัตยกรรมจีน - โปรตุเกส

## Abstract

The study of the ornament of the Sino-Portuguese Architecture and the ornament of the Lanna Architecture for integration of jewelry design for industry could be discussed in the following subjects :

1. The ornament structures. The Sino-Portuguese Architecture in Phuket and the Lanna Architecture in Chiang Mai are mostly in triangle forms and have the same ornament structures namely triangle, rectangle, and trapezium. The ornament is encompassed within the defined area and so created in accordance with the specified area.

2. The influence appearing on the ornament. The Sino-Portuguese Architecture is influenced by many foreign nations, especially the western fine art such as Ancient Greek-Roman Art era, Renaissance era or Revival Art era, Neo-Classic Art era and the influence of belief in the Portuguese Art, which is also influenced by English and French art. The only obvious influence of eastern nation in the Sino-Portuguese Architecture is Chinese. This influence is so distinctive that it could integrate the different art patterns and mingle into the new ornament of the Sino-Portuguese Architecture perfectly. The significant influences in the ornament of the Lanna Architecture in Chiang Mai are arts from India, Khmer, and Myanmar or Phu-gam. However, the only distinctive influence is Myanmar or Phu-gam; no influence of the western art could be seen in the sampling groups of the Lanna Art.

3. The similarities of configuration of the Sino-Portuguese Architecture in Phuket Province and of the Lanna Architecture in Chiang Mai could be separated into 3 types as follows:

Symmetry - Balancing the ornament at the right side and the left side equally.

Having the ornament fixed in the middle to anchor tracery on both sides.

Unity - Having the ornament fixed in the middle to anchor the ornament on both sides.

Asymmetry - Arranging the ornament on the left side and the right side unequally. The ornaments are in different patterns but placed in the same direction or arranged in different sizes; some are small and some are big.

The solution for background area problem of the Sino-Portuguese Architecture is balancing the figure and background equally and not providing too many ornaments on which some space of the background is left in order to make it sparse. Unlike the solution for the Lanna Architecture, the figure is more emphasized than the background. Therefore, the ornament is fully filled on the area of the background more than the ornament of the Sino-Portuguese Architecture.

## Background

The product of gems and jewelry industry is one of the top products that constitute gain the national income. However, it is now decelerated due to a high level of competition in the world market and also the advantage of labor cost of production. Most jewelry industry in Thailand is made to order product. Moreover, there are many complicated issues in jewelry industry ranging from two-dimensional designs, three-dimensional models, settling of prototype moulds, the problem

of structure setting and ornament, and the selection of material for production, repeated using pattern and copying designs from foreign magazines without having their own identity. It is necessary that jewelry industry has to realize such these problems and find solutions to these limitations for the sustainable strength in the future. Jewelry industry is used to produce by designing order from foreign designers. This is the weakness and it becomes a serious problem now; it is necessary to be able to see through our

strength and weakness we possess. Thailand's strength of craftsmanship has been refined, exquisite, solidified, stabilized and cultivated since the ancient time from the Lanna period until Ayuthaya period. According to the present evidence of handicraft there are adorned characteristics such as weaving, dyeing, dressmaking/tailor, embroidery, stuccowork, wood engraving including jewelry work of which the ornament and production are repeated, Thai craftsmen could make it best and foreign countries have accepted this strength of Thailand. Nevertheless, the weakness is Thailand cannot create the design which foreign customers will accept. This is the major obstacle. From the study of jewelry science, we do not find any sustainable knowledge management of studying and training. The most important thing that must be developed more than anything else is providing the knowledge management in solving the problem of jewelry design in order that Thai jewelry designer could compete with other countries at the international level. With this regard, we have to study the culture and preference that is universal. From the past until the present, foreigners have settled down, run business in Thailand, created many works of arts which have been lasting for centuries, especially the architectural work. These foreigners had contrived their cultures, civilizations and their own preferences into each of creations.

Consequently, the researcher is interested in studying the ornament of the Sino-Portuguese Architecture in the Phuket Province and the ornament of Lanna Architecture in the Chiang Mai Province so as to bring the result of the study to set up the integration process of solving the jewelry design problem. The Sino-Portuguese Architecture is the architecture to enhance the integration of the eastern and the western patterns adorned with the ornament combined and concealed by the art, the culture and the beliefs of the Chinese, Portuguese, French, English, Indians,

Hollanders and Malaysians, whereas the Lanna Architecture is the architecture to enhance the integration of the artistic beliefs of Myanmar (Phu-gam), Laos, Khmer, and Thai. The researcher has brought the result from studying to integrate the art of jewelry design in a new heuristic way that is conformed with today's society as another solution to the problem of jewelry design today. It was found out from the study that there are many famous jewelry designers from European countries who are successful in marketing and widely accepted by many countries for their expertise in designing to meet with the preference of the target group, especially in France and Italy. They play a distinctive role in designing for commercialized industry. According to the studying of Italian background, the center for development of the Renaissance era or the Revival era of the Ancient Greek and Roman Art is Italy where the vigorousness of the Renaissance Art history is solidified and founded before spreading to England and France. This may be a factor that makes people of Italy and Italian designers have the impregnability background and appreciation of art that is enlightened by their environment. Most Italian designers study the information of art, ornament designs and patterns in order to develop the creation of design. Design is the fundamental process of all fields of art creation and is the important stage before the actual production. Likewise, in jewelry design, jewelry designer, have to know the process of analyzing of historical art database. The problem is most of Thai jewelry designers lack studying and analyzing the fact of data before creating designs and do not study the history of art sufficiently, which is the most important thing that leads to the idea of creation of work of art. They do not observe, analyze and experiment. Studying, researching and experimenting activate the instinct of contemporary design and inspire the creation of work of art including the conformation, imagination and

creation idea. Inspiration is as important as skill. Most of the artists who are successful in jewelry design such as French and Italian, are inspired by the history of art, and we could see from the craftsmanship's ornament that is concealed by history of civilization, culture and belief in beauty of art. Thailand has been famous for being a golden land, an open country, and an integration of cultures, natural resources, and biological diversities since the past to the present. This advantage attracts people from various countries to move in for trading and settling down in the country and causes diversified culture. The diversification of culture is the basic factor of art integration and the initial point of many aspects of development which could be seen in the existing ancient architectural building and its adornment that is concealed with multi - culture. The diversification of culture which appears on the structure and ornament of the building is worth studying because it is the integration of the identification of each nation, such as ornament adorned onto the Lanna Buddhist architecture. It is the art influence of the initial period of Phu - gam or Myanmar. Earlier, its ornament reveals belief and faith in religion, mysticism in way of life and the perfection of graceful conscience. Its identity is the integrated identities of Thai and Phu - gam or Myanmar in accordance with the consciousness of Lanna people. The architectural work shows the perfect combination of craftsmanship, fine art, folk art and art of court people, especially the wood carving sculpture and ornament of stuccowork. Later, it is influenced by Khmer, China and Laos before developing into the ornament of Lanna exclusively. The Lanna ornament is the combination of the old culture and the new culture; therefore, it is worth studying for further development.

Next, the ornament of the Sino - Portuguese design, its origin is in Malaysian Peninsula in the period of the western

imperialism. Around B.E. 2054, the Portuguese settled down, did business at Tha - maga city, and propagated their art and science, culture and western technology. They built their houses with the architectural style they experienced and with their own personal preferences. Hence, the construction work was of western style. When the Chinese craftsman attained it for a building plan, they had mixed it with their own preferences and experiences and finally it became an amalgamation. Due to the fact that the Portuguese had hired the Chinese technician to decorate their buildings, the ornament then became a combination style of the Portuguese, the Chinese and the Malaysians in the Malaysian Peninsula since then. Later, the Dutch and English became powerful over this land, and the ornament was then insinuated with various forms of ornament. We call this kind of building characteristic as the Sino - Portuguese style. Hence, the ornament of the Sino - Portuguese is the perfect combination of western and eastern style. Seeing the value of the ornaments of the Lanna Architecture and of the Sino - Portuguese, the researcher is interested in developing prototypes, patterns, and ornaments of jewelry from those Lanna and Sino - Portuguese ornaments. The researchers have tried to create a prototype of jewelry design that combines the Thai characteristic with the exotic identities in order to provide another option in solving the problem of Thai jewelry design that we now encounter at the present time.

### **Objective of the Research**

The studying of ornaments of the Sino - Portuguese Architecture in Phuket Province and of the Lanna Architecture in Chiang Mai Province is for obtaining the integration of design to be used in jewelry industry.

### **Scope of Research**

The ornament of the Sino - Portuguese Architecture that appears on public buildings, shop

houses and estates in the old area of Phuket Province and the ornament of the Lanna Architecture that is adorned on the Lanna Buddhist Architecture in Chiang Mai Province.

### **Keywords of the Research Project**

**Ornament** is the design of stuccowork or the design of wood carving which the craftsman applies as decoration in architectural design.

**Ornament of the Sino - Portuguese** is design pattern that is applied on the architectural work. It is the combination of belief, art and culture of China, Portugal, England, India and Malaysia that is cultivated through ornament adorned to the building. The ornament clearly represents belief that has been cultivated from the past until today and is evidently seen in the Chinese and eastern work of art.

**Ornament of the Lanna** is the work of wood carving or wood engraving and stuccowork that is created in the form of ornament, figure and character as adornment on building and also is considered as the architectural component. Lanna crafting is considered to be the work of Technician of Ten Squad (กลุ่มช่างสิบหมู่) since the ancient time like the Buddhist architecture such as chapel, temple, Ubosot (cathedral or church) that is influenced by Phu - gam or Myanmar in Chiang Mai Province.

**Jewelry in the industrial system** is the jewelry of the same kind of pattern and produced in mass under a systematic process and a definite production process.

**Jewelry Prototype** is jewelry that is made with analyzing research of design and production and used as the prototype of jewelry production in industry.

**Enameling Technique** is coloring or applying ornament on the metal surface of jewelry by using grinded glasses or grinded stone mixed with boric acid or mineral salt and poured on or applied on the ornament by baking or burning it until the color is melted onto the metal surface.

Metals to be used for this kind of technique are copper, silver, gold and bronze. There are many methods of enameling, such as Champlev, and Cloissonn. Each of them has a different technique of enameling.

**Fine Arts** is the creation work of a craftsman who possesses the special skill and creates the work with exquisite ornament and elaborate production. The work is esthetic and valuable, which gives the impression of appreciation and attraction to anyone who sees it. The work of fine arts in the ancient time is created by the Technician of Ten Squad (ช่างสิบหมู่) which comprises painters, potters, casters, bookmark technicians, woodcraftsmen, carvers, gilded/silver technicians, turner, silversmith - goldsmith, and stucco technicians.

**Contemporary Thai style** is the pattern of jewelry that represents the Thai characteristic perfectly combined with the ornaments of the western and eastern and contrived to the exquisite and elaborate work of craftsman.

### **Hypothesis and Scope of the Research Project**

The ornaments of the Sino - Portuguese Architecture and of the Lanna Architecture could be integrated into a new ornament pattern, which could be also used as a structure and new pattern of jewelry design which maintains Thai modern characteristic and also be used as a prototype of jewelry production for industrial export.

### **Process and Activity simultaneously performed with the Research**

#### **1<sup>st</sup> Process - Assemble and Analyze the data**

##### **Objectives**

1. To study all data that will be used in processing the research.
2. To study the ornament of the Lanna Architecture.
3. To study the ornament of the Sino - Portuguese Architecture.
4. To collect the data and specify the condition of analysis.

**Process of performing**

1. Aggregate concerned text books and documents.
2. Take field trips to search for the evidence of ornament of the Lanna Architectural design in the Chiang Mai Province and also of the Sino - Portuguese Architectural design in the Phuket Province.
3. Screen the ornaments to be used as sampling groups and analyzing the sampling groups.
4. Conclude and analyze the result of sampling groups and apply the empiricism of research as the database of design.

**2<sup>nd</sup> Stage - Actual production**

**Objective**

To study the empiricism of the research and derive it for analyzing and creating the two - dimensioned jewelry design in order to select it and to make the prototype of jewelry design for production.

**Process of performing**

1. Create the jewelry design (drawing, sketch) of ring, bangle, pendant, brooch, and earrings in 50 designs of each type, totally 250 items.
2. Select 50 designs as target group.
3. Analyze the 50 designs for the possibility to produce with industrial system.
4. Create 30 pieces of prototype in synthetic wax for industrial production.

**3<sup>rd</sup> Stage - Propagate the result of research**

**Objective**

To propagate the result of research to the public, the academic institute, the proprietor of jewelry industry, and the jewelry designer in order to take it for further development.

**Process of performing**

1. Arrange seminar and report the result of research by inviting the proprietors, the s from the institution of education that provide the

educational course of jewelry designs, and the jewelry designers.

2. Arrange the training course for the persons who are interested in practicing design of jewelry in accordance with the researching process.

3. Print the result of research in 300 books and distribute them to the public.

**Discussion and Suggestion**

The ornaments of the Sino - Portuguese Architecture and of the Lanna Architecture could be integrated into a new design of ornament and also could be used as a structure and new design of ornament which exhibits Thai modern identity and can be an inspiration for designing and producing a new pattern of jewelry prototype for industrial export. The ornaments of the Sino - Portuguese Architecture and of the Lanna Architecture are influenced by foreign nations and harmoniously integrated into a new ornament pattern, the influence of the nation on the ornament could be traced whatever they be the influence of the Ancient Greek and Roman Classic era, the Renaissance era or the Art & Science Revival era, Neo Classic era, Portuguese belief, English belief that comes through India and France, and Chinese belief and art. The ornament of the Sino - Portuguese Architecture is found mostly in triangle patterns. The triangle structures include isosceles triangles, obtuse triangles, right - angle triangles, and acute triangles. If it is in square structure, it ranges from rectangle, irregular quadrilateral to trapezium. The Sino - Portuguese Architecture is influenced by many nations and the ornament is configured by many methods, namely, Symmetry, in which the ornament on the right side and the left side is arranged in equal balance; Unity, in which each of the ornaments depends on each other; and Asymmetry, in which the ornaments on the right side and the left side is arranged unequally. Although this method seems to make unequal

between the right side and the left side, the ornament will be arranged in proximity. Hence, there is balancing within the imbalance and provides the sense of harmony between figure and background. There are many ways in solving the problem of figure and background – by emphasizing on figure component more than on the background; arranging the ornament as a part of background and background as a part of figure by fully filling in the ornament on the background area; or arranging the area of background more than the area of the ornament. It is found that the ornament area that is chosen for adornment of the Lanna Architecture is mostly in the pattern of square shape and triangle shape. Therefore, the ornament is within the area of a specified frame. At the initial period, the ornament is influenced by Khmer which is influenced by the art of India. Some ornaments are influenced by Myanmar or Phu – gam and China. Later, the ornament of the Lanna is changed by the influence of the Rattanakosin period influenced by Ayudhaya period. It is easily seen from botanic ornament. The botanic ornament of the Lanna style is applied mostly in wood carving as adornment on the gable or the angle under two slopes of roof end. The ornament is integrated mainly with Thai ornament. The popular of ornament configuration is balancing the ornament on the left side and the right side equally like Symmetry method and centralized balancing (Unity method) more than Asymmetry method which the ornament on the left side and right side is unequal by arranging the ornament solidly in full area of background and setting the figure equally to the background.

However, it is less popular to arrange the ornament configuration in the quantity that the background area is still visible.

The empiricism of the ornaments of the Sino – Portuguese Architecture integrated with the ornament of the Lanna Architecture into the fundamental of jewelry design has made the work of jewelry design become more divergent from the current design. It is esthetic attained from the natural delineated and the beauty of art mingled with universality which is the essential of international appreciation. The new ornament is still maintained with Thai character and based on international style that could be used as the prototype of jewelry industrial production.

### Suggestions

1. Jewelry design is selected from the database of ornament of the Sino – Portuguese Architecture. It is recommended to emphasize on using the area of background as a component combining with the ornament, however, it should not to be gotten too much into details of ornament because upon setting up the prototype by synthetic wax, calculation of height is relevant. If the ornament is full of thoroughly detail, it takes too much time for calculation of thickness, height and sequence of design upon setting up the prototype for production.

2. It is recommended to arrange various sizes; undersize and larger size; in many items after finishing the prototype so that it could be used as original prototype which is not too small or too big in formatting.

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