

## **A Study on Shape and Construction of Sleeve Shown in Western Costume**

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### **Abstract**

The purpose of this study is to classify sleeves that play an important role in upper-garment designs and that can be presented in diverse shapes by meaningful era. Also, characteristics and trends of sleeves are analyzed to provide a basis for development of design on modern woman's dress. To examine formation and construction of sleeves, literature review and empirical examination were conducted, focusing on patterns of woman's dress presented in literature. This study is to concentrate on the period, the Renaissance to the 19C. In this study, characteristics of sleeves are analyzed by each era according to its shapes and construction.

By analyzing the shape of sleeves and the characteristics of the construction of sleeves, the following conclusions had been reached.

1) Sleeves evolved from single, draped garments into dimensional shapes which were manipulated to reflect the changing trends. Considering the comfort and ease of movement have always been very important in clothing design and the construction of sleeves throughout the ages has consistently been able to provide the comfort that wearer demanded.

2) Shape of sleeves varies a little in each period, but recurring trends in fashion led to similar design in sleeves being repeated. Also, instead of a dramatic change in the construction of sleeves, each period had its own unique technique to add freshness by using a variety of ornamentation.

Key words : costume, sleeve shape, sleeve construction

## **I . Introduction**

### **1. Necessity and Purpose of Research**

Throughout time, clothing has always been affected by politics, society, culture, economy, religion, law, and has evolved according to these forces.<sup>1)</sup> Due to the changes in elements such as religion, clothing has undergone innumerable changes and developments. Despite this, clothing has tended to be standardized. In today's modern world, there is a high rate of cultural exchange taking place which has been caused by improving communication technology. In spite of this rapid transfer of culture, traditional costumes in many countries have remained as a symbol of the local culture. However, based on ease of wear, western designs have been selected in many countries for everyday wear<sup>2)</sup> and it is predicted that this will continue on into the future.

Therefore, in order to forecast the future of costume design, costumes should not imitate the costumes of the past but they should evolve to meet the demands of modern lifestyles. Therefore, how western costumes have developed to meet these demands need to be analyzed.

Through the study of the history of costume from such constructional aspects as pattern drafting and sewing techniques, useful data and inspiration can be supplied to amateur and professional designers, and people who study clothing.

Previous research,<sup>3)4)</sup> which investigated the historical formation of western clothing was based mainly on the study of completed clothing and decorative aspects of men's clothes, woman's clothes, sleeves, collar, and other features of clothing design rather than the analysis of the construction process. By focusing on pattern drafting methods, there was no research that analyzed the various changes in clothing, and it is only recently that there has been any research<sup>5)</sup> on the dimensions of patterns of women's bodices.

Not only do sleeves provide very distinctive features in upper garment design, they also play a very important role in the coordination of the whole garment. For clothes to be suitable for the shape of the human body dimensionally, sleeves require skilled technology in pattern and sewing methods. This research is to provide a basis for modern women's dress design by classifying various sleeves by period, analyzing their characteristics, and investigating changes in sleeves.

### **2. Content and Scope of Research**

The theoretical study of sleeve shape and construction was conducted from reviews of literature and studies on western costume, and empirical research was

based upon the patterns of women's clothing illustrated in the literature on western costume by Arnold Janet,<sup>6)7)8)</sup> Waugh Norah,<sup>9)</sup> and Payne Blanche.<sup>10)</sup>

The periods in this research covers range from Renaissance, in which stitching allowed clothes to be transformed from flat to dimensionally fitted forms, to the modern costumes of the mid 19th century and their periodic characteristics are analyzed into shapes and constructions.

## **II. Periodical characteristics in Sleeve Shapes and Constructions**

From this study, it can be seen that each period shows similar characteristics in the silhouette and shape of sleeve of Western women's clothing. Base on these similar characteristics, sleeves shape and construction have been organized chronologically for discussion in this paper. The literature of Payne Blanche, Chung Heung-sook and other authors was studied to identify these periodic characteristics.

### **1. Changes in Sleeve before Modern Age**

The dictionary definition of sleeve is "the part that wraps the arms in clothing and two sleeves are joined by a bodice in the middle."<sup>11)</sup> However the, present set-in sleeve which is seen in modern clothing had not yet developed in ancient times. Throughout the various periods of Western civilization there have been few changes in Western costume with the exception of one feature. With the development of the dimensional sleeve in the Middle Ages, there have been very specific shapes and designs of sleeves.

The following is a brief summary of the changes in sleeves before modern times. The collar was rare in Egyptian clothing. Since the Kalasiris, which both men and women wore, had sleeves, it required a sewing technique that was different from other types of clothes. It was sometimes cut out with a detached bodice.<sup>12)</sup>

The Greek costume or toga was very simply draped over the body and secured in such a way as to show the form of the body. There was also time when long tight sleeves were worn, but they did not gain popularity and it is thought that Persians influenced this design.<sup>13)</sup>

Basic women's clothing in Rome was the Stola, which used a form of Ionic sleeves, using buttons or putting a brooch on the shoulder. The sleeves were also sometimes lengthened with two to eight buttons inserted.

The Byzantine Empire costume was represented by the Dalmatica and the Tunic.

Sleeves were always long and the undersleeves were very fitting and the outersleeves were a little shorter and wider so that the undersleeves could be seen.<sup>14)</sup>

While there was no change in the costume during the middle ages, sleeves with cuffs appeared in the late 10th century to create volume. In the 11th century, sleeves on the outer garment became of much more importance. The length of the outer garment was shortened while the length of the sleeves was lengthened with a tightened upper arm and a looser lower arm.<sup>15)</sup> In the 14th century, these forms marked the arrival of close-fitting sleeves from the elbow to the wrist using buttons to secure the sleeve.<sup>16)</sup>

## 2. Modern Periods

### 1) Renaissance Period

#### (1) Characteristics of Costume

During the Renaissance, styles changed to accentuate the sensual female form. Silhouettes became very exaggerated by tightening the waist and then increasing the bulk of the skirt by using hoops and padding.<sup>17)</sup> This became known as the hourglass silhouette.

The biggest characteristics of costumes in this period were slashes and ruffled collars. Slashes, which originated with the slashed military uniform, was worn by both men and women and took on various forms in men's clothing. In order to create elegance, ruffled collars and pleats were used to compliment the silhouette of the clothes.

#### (2) Characteristics of Sleeves

Sleeve design, which contributed to beauty and large changes in the Renaissance Period clothing, made costume more colorful. Sleeve design consisted of various silhouettes. The representative sleeves in this period can be classified into two, and their characteristic shapes are as follows.

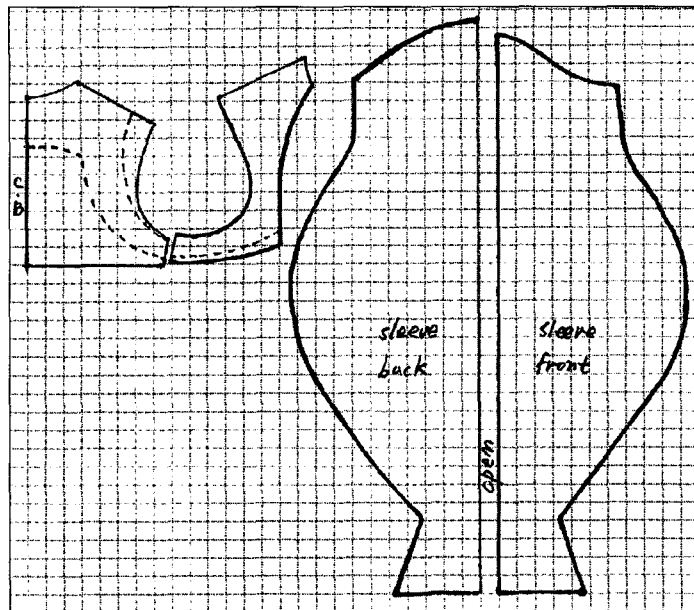
Leg of mutton sleeve was the most worn. This design puffed the sleeve from the shoulder to the elbow by inserting a pad made of whale fin or thin wire into the sleeves. The sleeve from the elbow to the wrist was tight. Sleeves were detached from the bodice, and were fastened using brooches, string, eyelets or other fastening devices.<Fig. 1> By using detachable sleeves,



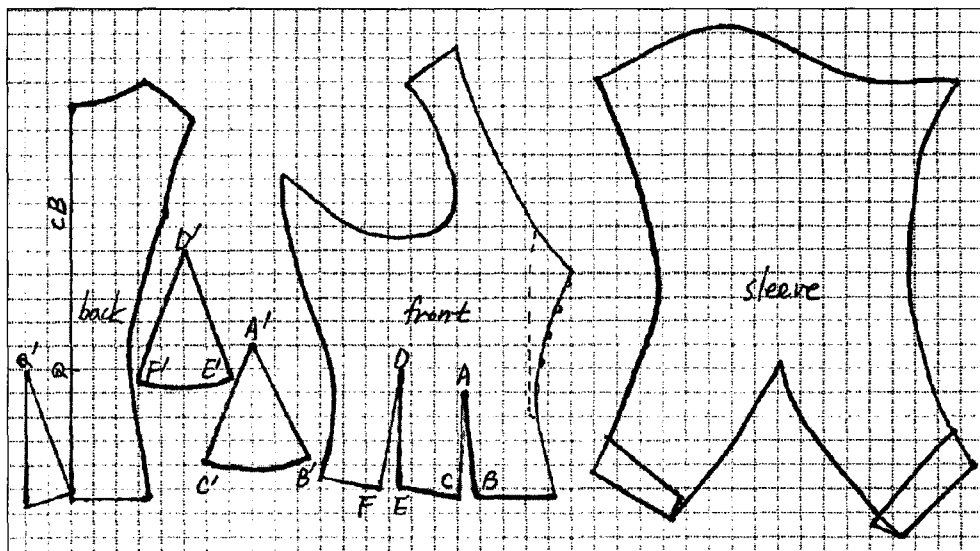
<Fig. 1> Detachable sleeves, c.1570-1580  
(*Pattern of Fashion*, c. 1560-1620, p. 44)

the wearer could alternate and coordinate different sleeves with different bodices. <Fig. 2> Also, shoulder wings attached to hide the sleeve's armholes generates a voluminous appearance.

Double undersleeves and long hanging sleeves which were worn as outersleeves for decorative purposes were very popular. <Fig. 2> shows an example that sleeves were the most important features of clothing in this period. Undersleeves were long and tight, and outersleeves opened from the armhole to the wrist.<sup>18)</sup>



<Fig. 2> Overdress Diagram, Late 16C.  
(*History of costume*, p. 625)  
Scale 1/10 1square=2.5cm



<Fig. 3> Queen Elizabeth's Golden Doublet Diagram, c.1578  
(*History of costume*, p. 627)  
Scale 1/10 1square=2.5cm

When sleeves are examined in terms of construction, the following characteristics were found. Compared to the sleeves of the 15th century, sleeves transformed from straight to dimensional curve around the elbow, which shows the natural curve of the elbow.

To create this shape, designers were required to use a new construction method which stitched two different pieces of cloth together. It is believed that this is the early form of today's modern sleeves. This change produced a superior form of sleeve, allowing the elbow the movement freely and thereby creating more comfort for the wearer.<sup>19)</sup> <Fig. 3> shows that when the sleeve was constructed by only one piece of fabric, a split line over the elbow was made to make the sleeve look dimensional.

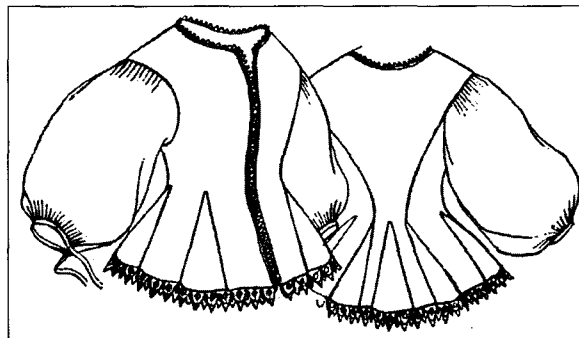
In the early Renaissance, the bodice and the sleeves were connected with either string, brooches, eyelets or other fastening devices. However, later the method of attaching the sleeves to the bodice by sewing was developed and contributed to a perfect dimensional formation of clothes.

## 2) Baroque Period(1600-1730)

### (1) Characteristics of Costume

At the turn of the 17th century, the center of fashion moved to France and Britain, the lace loom was invented in France, and lace ornaments became fashionable. In the Baroque period, the women's clothes became more splendid and gracious. and accentuated the female form by using loop and lace ornaments. However, it became much less popular to use such ornamentation on men's clothing.<sup>20)</sup>

In order to maintain and define the social classes, sumptuary laws were introduced in France. These laws prohibited the use of lavish ornamentation. This led to the disappearance of the padded or hooped skirt. The tightening of the upper body also disappeared. In its place, a more comfortable and practical silhouette became popular. These laws did not remain in effect; however, and in the middle of the 17th century padded and hooped skirts were in fashion again to hold up petticoats. Petticoats were lengthened to create a more exaggerated silhouette.



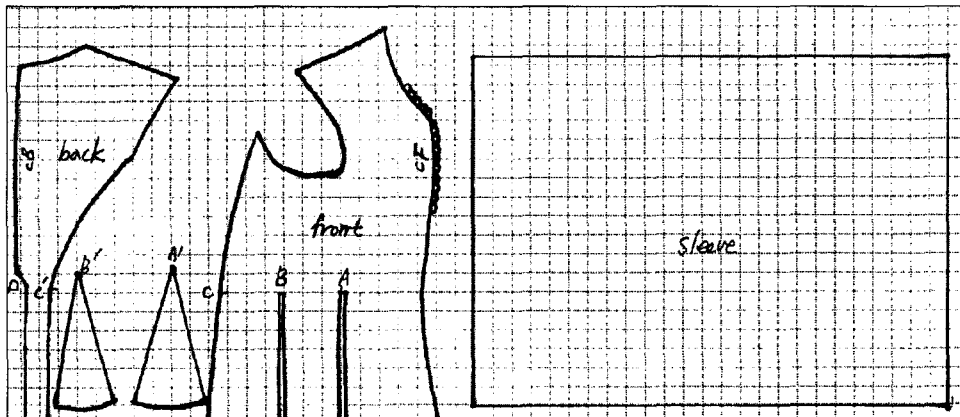
### (2) Characteristics of Sleeves

The fashion of the Renaissance

<Fig. 4> 1 Embroidered jacket, c.1625-30.  
(*The cut of women's clothes 1600-1930*, p. 38)

period continued until the 1620s, but padding and shoulder wings used to create volume around the shoulders gradually disappeared. Sleeves in the Baroque period can be classified and their characteristics are as follows.

Sleeves were elbow-length, and tightened around the elbow with ruffles and ribbons at the point of the elbow. <Fig.4, 4-1> The popularity of this decreased at around 1625.



<Fig. 4-1> 1Embroidered jacket Diagram, c.1625-30.

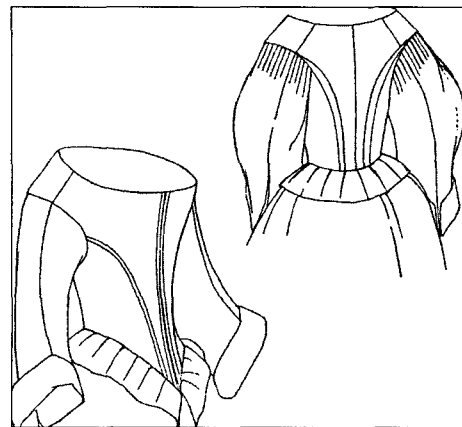
(*The cut of women's clothes 1600-1930*, p. 39)

Scale 1/10 1square=2.5cm

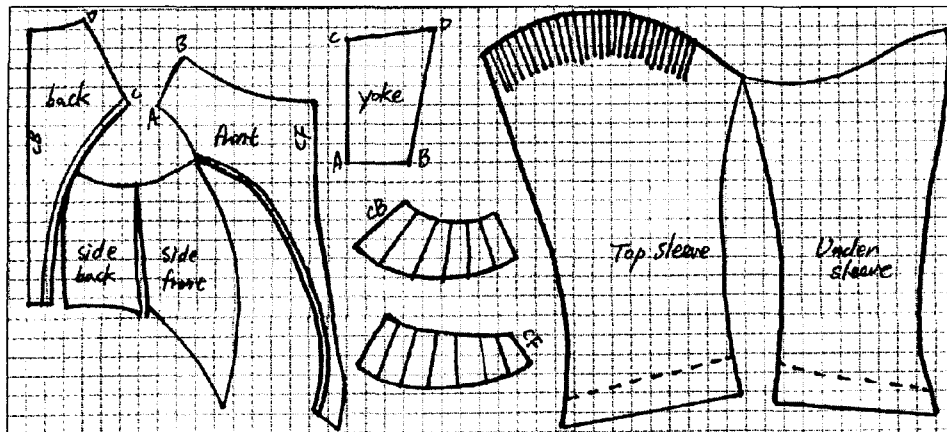
In the late 17th century, sleeves became tighter around the shoulder and longer. Usually they were cuffed, but sometimes the chemise sleeve was allowed to show. 21) <Fig. 5, 5-1>

To improve ease of movement in this period, two designs of sleeves were developed to show the natural curve of the elbow. Ironing techniques appeared to help with the manipulation of fabric around the elbow.

The sleeve and sleeve lining were seamed separately and gathered together, the bottom into a band the top gathering arranged on the shoulders and down the back of the armhole.



<Fig. 5> Bodice, c.1650-60. (*The cut of women's clothes 1600-1930*, p. 39)



<Fig. 5-1> Bodice Diagram, c.1650-60.  
 (The cut of women's clothes 1600-1930, p. 39)  
 Scale 1/10 1square=2.5cm

### 3) Rococo Period(1730-1810)

#### (1) Characteristics of Costume

In the 18th century, there were gradual changes to light and delicate colors and patterns from the huge and splendid designs of the Baroque age. As trade with Central and Far East Asians increased, the Europeans, who came into contact with them, were affected by their cultures. Fine patterns, bright, light weighted and mysterious textiles were generally used during the 18th century.<sup>22)</sup>

Woman's clothes tightened the upper body with corsets and widened skirts with petticoats again. Decorations including lace, flowers, feathers, ribbons were also used. The pattern and sizes of these ornaments changed from lavishness to softness as the clothes evolved to emphasize the female form even further.

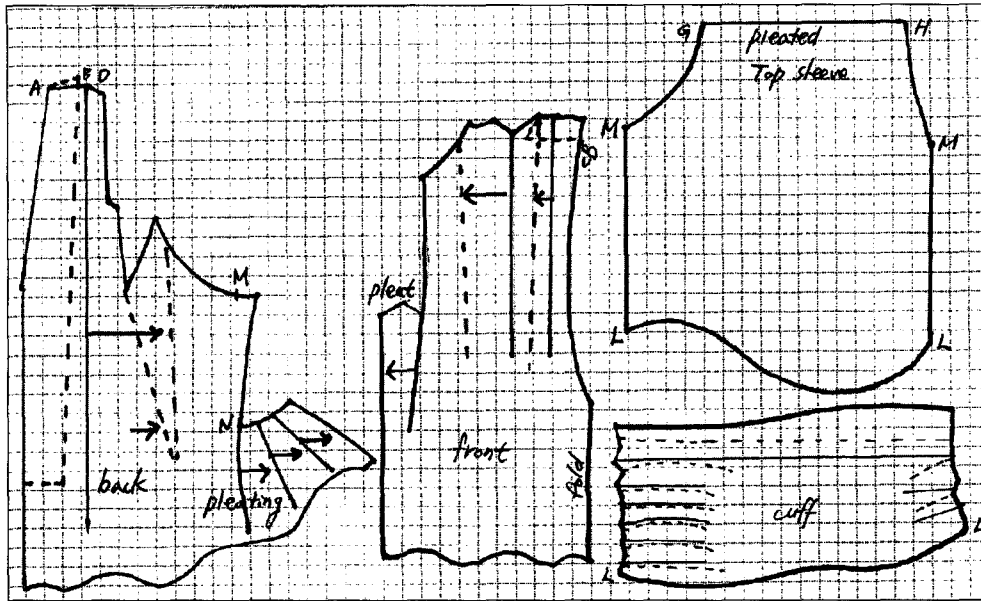


<Fig. 6> Gown, c.1735-40.  
 (The cut of women's clothes 1600-1930, p. 83)

#### (2) Characteristics of Sleeves

The shape of sleeves in the Baroque era could be sorted into two categories and their characteristics are as follows.

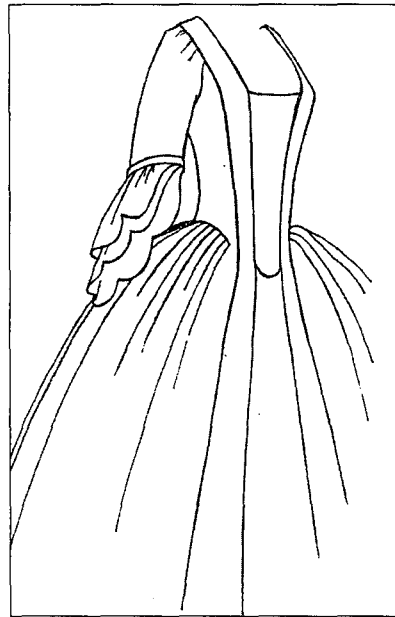




<Fig. 6-1> Gown Diagram, c.1735-40.  
(*The cut of women's clothes 1600-1930*, p. 83)  
Scale 1/10 1square=2.5cm



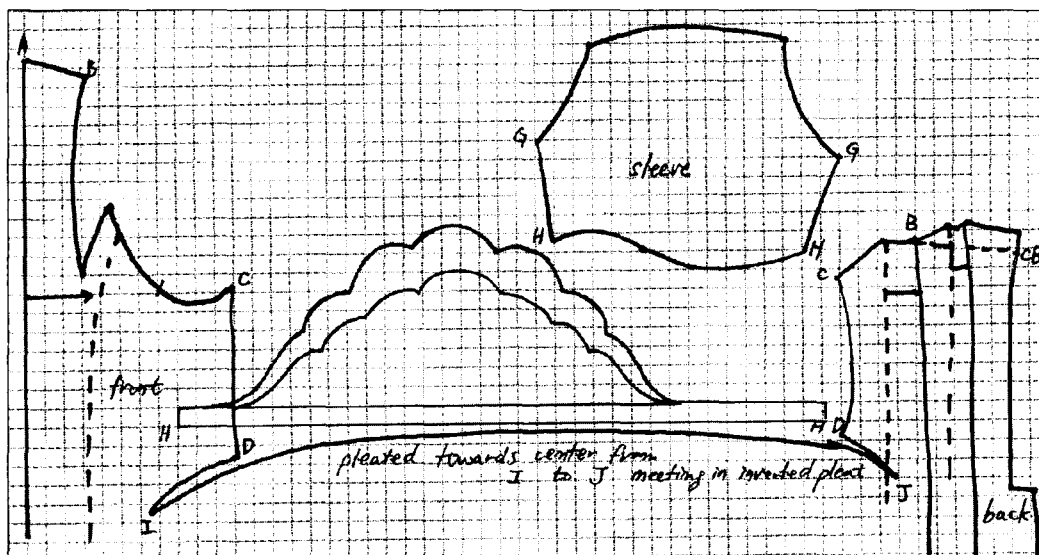
<Fig. 7> Queen Marie  
Leczynska, c.1740.  
(*History of costume*, p. 418)



<Fig. 8> Mantua, c.1740-50.  
(*The cut of women's clothes  
1600-1930*, p. 87)

Dresses were worn in the early 18th century and the fullness of the back was controlled with stitched pleats called robe a l'anglaise. The sleeves, in particular, were typical of the period. Quite a lot of fullness in the back portion is fashioned into vertical pleats. The cuffs also was significant: cut generously in the form of a long narrow rectangle, they were joined at the end and shaped by cross-pleating at the inner surface of the elbow. This cuff style lasted into the 1740s. The lingerie ruffles below the might be attached to the chemise or sewn to the dress sleeves.<sup>23)</sup> <Fig. 6, 6-1> This sleeve in this period fits well onto the shoulder. Make sure it does not wrinkle at the front and that the back pleats do not poke.

The 30s and 40s witnessed a revival, not only of the mid-seventeenth-century neckline, but also of the sleeves that period. The court costume of Marie Leczinska shown in <Fig. 7> had these features.<sup>24)</sup> The fabric of the gown was used in a tiny sleeve cap; below it was a sleeve made of ruffles of lace on puffed, delicate fabric, ending with a double ruffle at the elbow.



<Fig. 8-1> Mantua Diagram, c.1740-50. (*The cut of women's clothes 1600-1930*, p. 87)

Scale 1/10 1square=2.5cm

Other types of sleeves included a long tight sleeve on the jacketed costumes and the soft loose sleeve reaching just below the elbow, ending in ruffles of lace.<Fig. 8, 8-1>

### 3. Modern Period(1810-1890)

#### 1) Empire Style(1789-1820)

##### (1) Characteristics of Costume

The Industrial revolution occurred in France at this time, and the rise in economic power in the textile industry brought about extravagance in costumes in line with the rebirth of aristocratic inclinations.

The characteristics of the empire style was to preserve the natural beauty of the curved bodyline of ancient Greece and Rome. Therefore, along with a straight silhouette complement the natural bodyline, belts tied just below the bust, accentuated the bustline, and consisted of short puffed sleeves and long skirts.<sup>25)</sup> Women's sexual charm was elegantly expressed with transparent thin muslin to allow the female form to show.

##### (2) Characteristics of Sleeves

The kinds and characteristics of sleeves influenced by classicism in this period were as follows.



<Fig. 9> Coronation of  
Josephine, c.1806.  
(*History of costume*, p. 478)



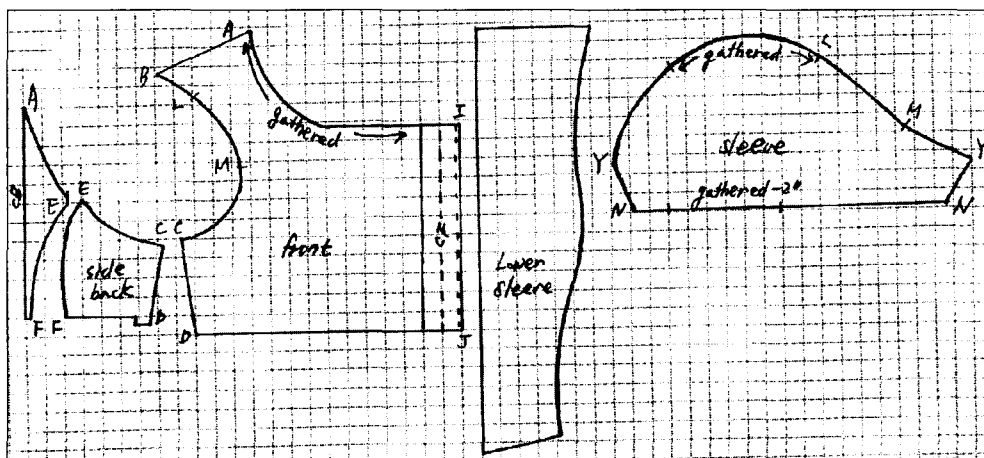
<Fig. 10> White  
Cotton Dress,  
c.1806. (*History of  
costume*, p. 479)

The early Greek-inspired gowns had short sleeves, sometimes set in, often, by shirring and buttons, simulating the sleeves of Ionic chitons. However, the two-

sectioned sleeve with a puffed upper portion and a long fitted extension reaching to the knuckles soon made its appearance.<sup>26)</sup> Josephine's coronation robe of 1804 was of this design. <Fig. 9>

Long sleeve often came down were cut wide enough to get the hand through. A band buttoned round the wrist, nipping in the sleeve. The seam could also be left open for 7.5cm to 10cm. Net or lace sleeves were tighter, as the cotton net of the period stretched as the hand went through the sleeve.<sup>27)</sup>

The incredible narrow back portion required a sleeve totally different in shape from sleeves today.<Fig. 10, 10-1> The puffed upper section gave essential ease; the lower portion had the extended length of the Middle Ages.



<Fig. 10-1> White Cotton Dress Diagram, c.1806. (*History of costume*, p. 575)

Scale 1/10 1square=2.5cm

## 2) Romantic Style(1820-1848)

### (1) Characteristics of Costume

Since the abdication of Napoleon, the bourgeoisie increased under capitalism, revived splendid decorations and aristocratic style which shows a tendency towards romantic forms. Therefore, traditional straight silhouettes in woman's clothes disappeared. Newly popular aristocratic clothes exposed the shoulder by extending the neck-line and puffing the upper portion of the sleeves. The waist was tightened a little, and the skirts puffed using support again.<sup>28)</sup>

Decorating the hem of waistlines, sleeves, and skirts. with ruffles and lace expressed aristocratic splendor, resulting in a romantic atmosphere. This was similar to the silhouettes of the Renaissance.

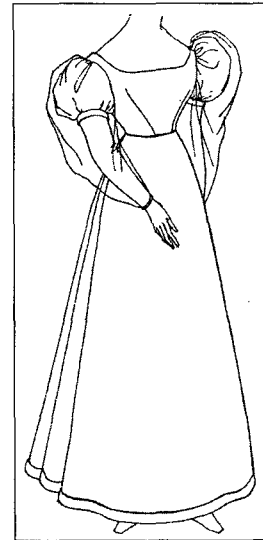
**(2) Characteristic of Sleeves**

In this period, sleeves became the most voluminous in the history of western costume, and the width of the skirt was also widened according to the size of the sleeves. The characteristics of sleeves in this period can be classified into three types.

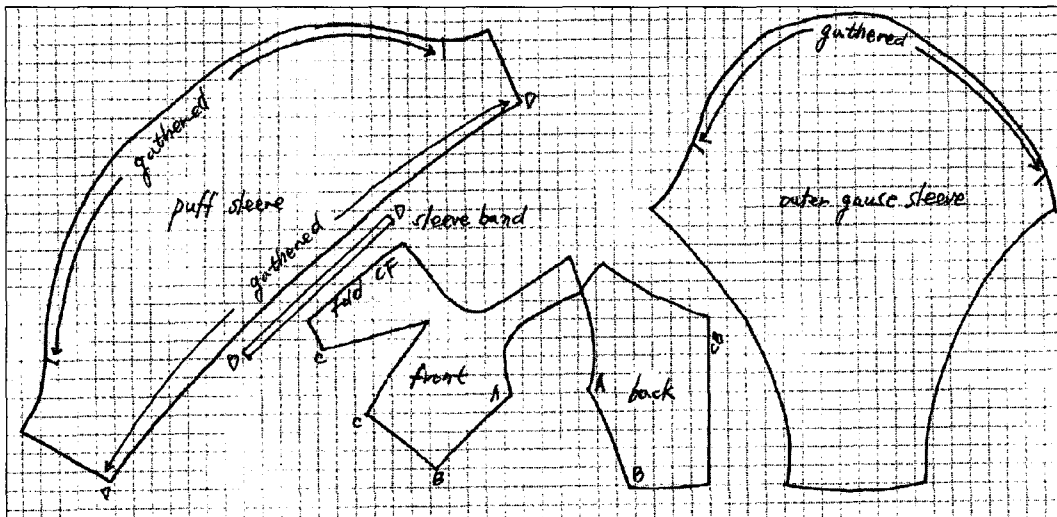
In the 1820s, leg of mutton sleeves bulged at the upper arm enough to need support was a typical sleeve of this era. In order to puff the sleeves excessively, they were stuffed with duck down and stiff lining was added.<Fig. 11, 11-1>

The head of each sleeve could have a separate puff to make a more flamboyant shape. All the binding seems to be about 1cm wide. This decoration is typical of the period when most of the decoration is self fabric, bound or piped.<sup>29)</sup>

This sleeve, which was prevalent in the 1830s, is an excessively bulging form in the history of Western costume. The pattern <Fig. 12, 12-1> explains the cut and construction. Excessive amount of material were required for these mammoth sleeves to obtain their unique shape. The excessive sleeve volume began to diminish by 1837.<sup>30)</sup>



<Fig. 11> Evening Dress, c.1825.  
(The cut of women's clothes 1600-1930, p. 161.)

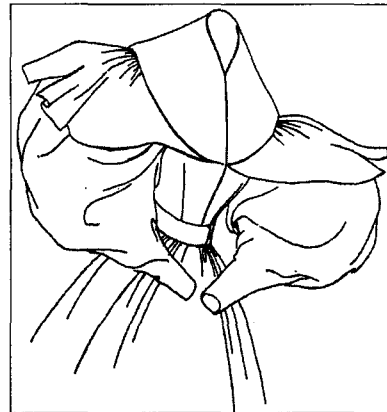


<Fig. 11-1> Evening Dress Diagram, c.1825.  
(The cut of women's clothes 1600-1930, p. 161)

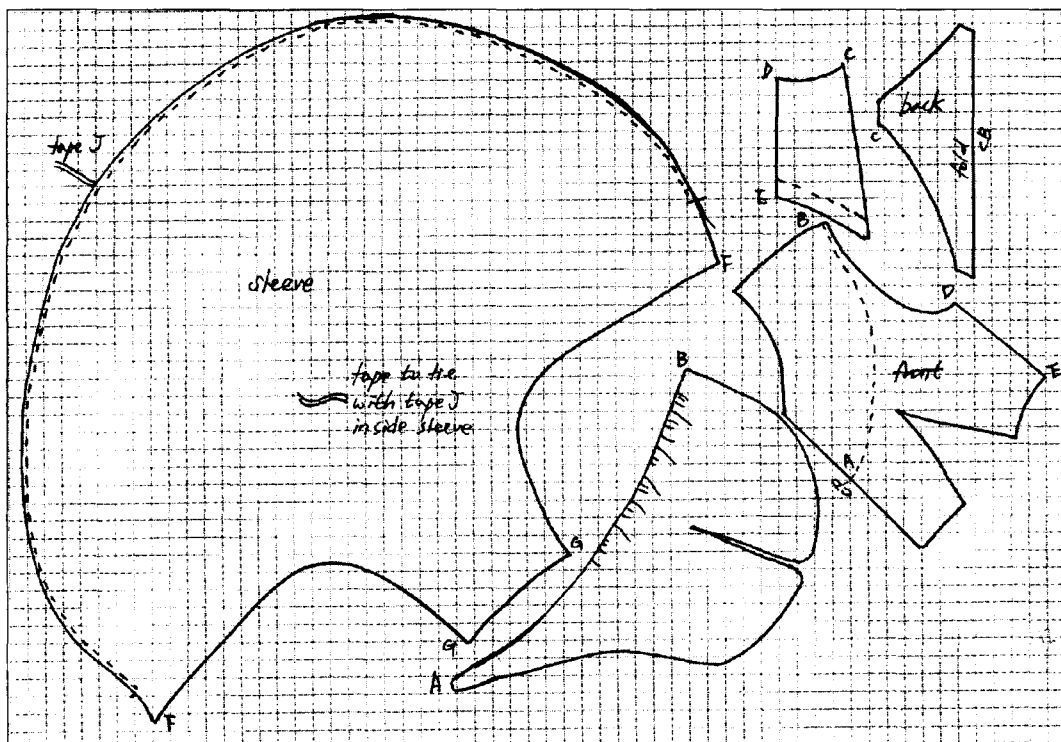
Scale 1/10 1square=2.5cm

Unlike the Edwardian-leg - of - mutton sleeve - version of the same type of sleeve, the 1830's variety sloped down and away from the body. It was made to look more sloped with inserts and gauging at its head.

The gigot sleeve was cut on the bias and was made up with no fullness under arm, and the sleeve seam was cut with a curve.<sup>31)</sup> The fullness at the head and wrists of this type sleeve was controlled with gathering or pleating, some of the latter being quite complicated. The long sleeve both before and after this period, although smaller, were cut in a similar way.



<Fig. 12> Day Dress, c.1834.  
(The cut of women's clothes 1600-1930, p. 162.)



<Fig. 12-1> Day Dress Diagram, c.1834. (The cut of women's clothes 1600-1930, p. 162.)

Scale 1/10 1square=2.5cm

By the early forties, sleeves were narrowed and straightened, almost as if the excess had been stripped away by stroking it downward over the elbow and off the

Hand. In the very last years of this decade, the lower part of the sleeve was shortened and widened slightly to permit a lingerie undersleeve to show.

These sleeve need some sort of support. Originally, a pad stuffed with down or a whalebone frame was used to keep them in place. Today supports can be made by machining frills onto a flat base which is in turn gathered and stitched into the head of the sleeve.

A layer of net, stitched onto the mounting inside the gathering lines before the top fabric and the mounting are put together, will help to help the shape the sleeve. If the net is taken into the seams, the armhole will have to be bound to stop it from scratching.

## V. Conclusions

By analyzing characteristic features of sleeve shapes and constructions from Renaissance age to the mid-19th, this research provides a basis for modern woman's dress design development. The results were as follows.

Periodic characteristics in sleeve formation: 1) Sleeve shapes in the Renaissance having an exaggerated silhouette were represented as a leg of mutton sleeve puffed at the shoulder by pads and puffs, 2) Sleeves in the Baroque era were softened in general by adding puffs with ribbons binding the middle of the sleeves instead of puffing at the shoulder with pads and shoulder wings, 3) Sleeves in the Rococo era emphasizing the delicate and elegant inclination of women's dress were bell-shaped sleeves of elbow-length which increased in volume from the shoulder to the cuff. 4) In the Empire waist naturally accentuated the shape of women's bust with a high waist, puff sleeves were typical highlighted part of the shoulder, and 5) Finally, in the Romantic era in which the curve of human body was emphasized and aristocratism prevailed, excessively bulging sleeves down to elbow were used to complement the emphasized skirt.

The main features of construction were discovered to be as follows. 1) The Renaissance showed a completely three-dimensional construction of costume by putting the body and sleeve together by needlework, and securing the sleeves with strings. 2) In the Baroque era, by using curves which were made by two smaller pieces of cloth instead of one large piece, sleeves became more comfortable for the wearer. When sewing, ironing techniques manipulate the curved line of the elbow appeared in this period. 3) Techniques to puff sleeves were slightly different in each period. Slashing and padding were used in the Renaissance while puffs were formed by binding the middle of the sleeve with strings in the Baroque era. In the Rococo era, voluminous

features with ruffles were preferred. In the Romantic era, sleeves were ballooned out with the use of duck down and stiff lining as support.

In much early times, the sleeve was formed through draping rather than by attaching separate pieces of fabric to the bodice. The current form of sleeves has evolved over a long period.

By analyzing the shape of sleeves and the characteristics of the construction of sleeves, the following conclusions had been reached.

1) Sleeves evolved from single, draped garments into dimensional shapes which were manipulated to reflect the changing trends. Considering the comfort and ease of movement have always been very important in clothing design and the construction of sleeves throughout the ages has consistently been able to provide the comfort that wearer demanded.

2) Shape of sleeves varies a little in each period, but recurring trends in fashion led to similar design in sleeves being repeated. Also, instead of a dramatic change in the construction of sleeves, each period had its own unique technique to add freshness by using a variety of ornamentation.

3) When using patterns from original sources you must remember that it has been taken from an original garment, made for a woman who would have been used to wearing stays since a child. You will need to check the shape and the measurements of the original pattern. With practice, instead of making a toile on the stand, we will be able to alter an average size pattern on the flat to make the right size and shape.

4) When cutting from patterns taken from original dresses, it is as well to start by checking the size. It is the grain of the fabric and the shape of the pattern pieces that is important. The pattern taken from the original will give you, for example, the width of the back pleats of a Sack that you see from the outside, but inside the pleat can be made much deeper. It will also help you to understand the construction and method of setting the sleeve. These details will make your costume more real if this is the designer's wish, or you to cheat on the original and to give a more theatrical flavour.

Further research to improve modern design, clothing manufacturing and practical design development through examining the features of previous clothing designs is needed.

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