

A QUALITATIVE STUDY OF THREE AMERICAN PATTERN
DRAFTING SYSTEMS OF THE LATE NINETEENTH CENTURY

by

KAREN SUNDBY BURFORD

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Approved by:

Theresa A. Perencek

Major Professor

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PLATE I

FRONT VIEW OF 1885 BLACK COSTUME
FROM HISTORIC COSTUME
COLLECTION

that the length of the waist is the same as the half of that size, the breast one-third, the back one-third, the scye one-third, the side of the body one-fourth, and the height of the back one-sixth."
(Giles, p. 145)

Once this new system was established, tailors began to improve and revise it. They published these revisions under the auspices of a new title accredited to themselves.

Perfection of fit was an important aspect of nineteenth century tailoring. Manipulation of fabric, through pressing and molding to give a better fit, was a new concept employed in construction of both men's and women's clothing. Due to the high cost of fabrics, the way in which the garment was cut out became an important consideration. Therefore, competition arose between dressmakers who were concerned with whose system achieved the best fit with the least amount of wasted fabric, but with the simplest instructions.

The purposes of this study were (1) to examine three of these late nineteenth century American pattern drafting systems and (2) to provide an explanation of how to use the systems, so that historians and designers may reproduce authentic garments by employing the original methods. Each method chosen for this study was tested by drafting the pattern and constructing it in gingham. The next phase of the procedure was to analyze each system's strengths and weaknesses in relationship with the others, using fit as the primary comparative factor.

CHAPTER II

REVIEW OF LITERATURE

Professor W.A. Work's Champion Fitter

Several construction books used by a dressmaker in the late nineteenth century in Arkansas were loaned to the historic costume collection at Kansas State University in the summer of 1975. These books were Professor W.A. Work's Champion Fitter, an American pattern drafting system, first patented in 1885. Later, the instruction book was revised and fashion books were published quarterly. These fashion books contained pictures of women's, men's, and children's clothes with layouts for drafting the corresponding patterns. Mr. Work's system was based on proportional measure; he proposed that all figures corresponded proportionately to their bust and center back measurement in a two to one ratio. His system contained twenty-five graduated scales, a curved rule (which was a combination French curve and L-square, with letters and characters corresponding to letters and characters on the pattern diagrams) and instruction book. Theoretically, by choosing the scale corresponding to the bust measurement any basque (glossary) or sleeve could be drafted. Also, by choosing the scale corresponding to the hip measurement (taken five inches below the waist and over the petticoats or undergarments) any skirt could be drafted. As

Mr. Work stated it, "Our two main objectives were, first, to produce an accurate system; second, to simplify it in order that all minds would be able to grasp it without tedious lessons" (Work, 21:4). Mr. Work's set of scales and curved rule were not available for use in this study.

Mr. Thompson's Universal Garment Cutter

The historic costume collection at Kansas State University contained a set of scales donated by Mrs. Ada Noyes Conrad, whose mother used them prior to 1890 in Colebrook, New Hampshire. These scales were part of Thompson's Universal Garment Cutter. Mr. F.E. Thompson first patented his system in 1881. (The booklet in the collection was copyrighted in 1883.) It too was a proportional measure system supposedly based on a proportional relationship between the bust and center back measurements. The system contained a set of thirty scales. By choosing the scale corresponding to the bust measurement any part of the upper garment, which included the bodice, sleeves, and collar, could be drafted. For drafting skirts, the scale corresponding to the hip measurement was used. There was no curved rule or L-square, but the instructions required that the fabric be squared before drafting. Curves had to be drawn freehand between points. Mr. Thompson concluded his "General Directions" with, "The scale gets all the points in proportion to the one you work from. When persons are disproportionate, you can easily regulate the other points

than the one you take the scale from by the tape line"(Thompson, 15:General Directions).

Mr. McDowell's Garment Drafting Machine

Mr. A. McDowell first patented the McDowell Garment Drafting Machine in 1879 and revised it several times in the following decades. The 1891 revised edition was used because of its innovations, which included a skirt on the basque and an extension to curve the center front seam, if so desired. The 1891 machine also corresponded to the time of Mr. Work's system. Mr. McDowell's system was based on direct measurement and not on a proportional scale. His system included an instruction book, the machine, and an L-square with a moveable arm on the long arm of the L-square. The instruction book gave explicit instructions on how to take the body measurements using a tape measurer and the L-square. After this was done, instructions were given for setting the machine. Mr. McDowell said that to simplify cutting systems he, "combined certain principles of Art and Science mechanically, and as the result we have the most rapid, most simple, most accurate, and most artistic of methods"(McDowell, 11:i). The artistic aspects were limited because the machine could only produce a one or two darted basic basque and no other variations.

The History of the Art of Cutting in England

The only available history of pattern drafting

systems was written by Edward B. Giles of London in 1887, in The History of the Art of Cutting in England. The book provided a brief survey of the history of English costume from the point of view of the tailor, followed by a discussion of the various cutting systems and their development. In his preface, Mr. Giles referred to The History of the Art of Cutting in Europe by H. Klemm and to the French author M. Canneva. He translated both their works, but they were unattainable for this study. From these works arose his desire to publish a history of cutting in England. Mr. Giles stated:

Our old authors, who 'lived, died, and had their being,' have not been noticed, nor their labours recorded, beyond their own works. It is certainly full time that their names and works were rescued from possible oblivion that we should testify our gratitude for the unselfishness of their labours, and make some acknowledgement of the benefits we have derived from their works (Giles, 8:vii).

Since a written history of the art of cutting in America could not be found, this book aided in understanding how cutting methods had progressed to the nineteenth century.

Norah Waugh wrote three books: The Cut of Women's Clothes 1600-1930, (1968), The Cut of Men's Clothes 1600-1900, (1964), and Corsets and Crinolines, (1954), while teaching at the Theatre Department of the Central School of Art and Design in London.

The Cut of Women's Clothes examined garment construction from actual period garments available from museum collections. The pictures, diagrams, and scaled-down patterns were excellent in depicting and comparing details. Not all the patterns provided were actual patterns of the period, but, they were drawn off existing costumes of the time. Descriptions of the old pattern drafting systems and how they worked were not given. Ms. Waugh analyzed each era and included quotations from contemporary sources which brought the facts into their historical perspective.

The Cut of Men's Clothes, while similar in format to The Cut of Women's Clothes, included the development of the tailor's art and trade. From Norah Waugh's statements, certain facts were pulled out to aid in solving problems in this study.

Corsets and Crinolines was an excellent study of undergarments in the seventeenth, eighteenth, and nineteenth centuries, the latter period being important to this study. The book included historical developments, patterns, plates, and diagrams which were helpful in understanding how undergarments affected the outer silhouette.

Janet Arnold, who wrote A Handbook of Costume, (1973) and Patterns of Fashion, (1966), was the senior lecturer in needlecraft at the Avery Hill College of Education in England.

A Handbook of Costume was "intended to provide a guide to the ways in which people interested in costume (could) obtain information for themselves"(Arnold, 1:7). Ms. Arnold discussed primary sources, dating, and conservation. She included a bibliography and discussion of museums in Great Britain. One chapter discussed "Patterns and technical works on tailoring and dressmaking"(Arnold, 1:119). Several early systems were cited, including the McDowell Garment Drafting Machine, dated 1891.

Ms. Arnold also wrote Patterns of Fashion, English-women's dresses and their construction c. 1660-1860, Vol. I., and c. 1860-1940, Vol. II. Volume II was a great help in understanding the interior appearance of a garment and how pattern pieces were manipulated. The folio size books showed a drawing of a costume, a description, and a drawing of the inside. On the following page, the pattern pieces were laid out on graph paper with some suggestions about the construction. This was a good source of pattern shapes which formed a specific silhouette.

A. HISTORICAL REVIEW

By the end of the nineteenth century, many results of the industrial revolution were having their impact in the area of dressmaking. The most obvious one was the invention of the sewing machine. Although its origins date back to the late eighteenth century, it was considered a nineteenth century invention. The earliest machines were designed to copy the motion of hand sewing. A French patent was issued on February 14, 1804 to Thomas Stone and James Henderson for just such a machine (Cooper, 6:5). In May 1804, John Duncan patented a chainstitch machine, which used hooked needles working simultaneously (Cooper, 6:5). The first eyed needle machine was patented in 1807 by E.W. Chapman (Boucher, 5:5) and a sewing machine which made a couched stitch was patented by Josef Madersperger in 1816 (Cooper, 6:8). In Monkton, Vermont a back stitch machine was reported to have been invented around 1818-1819 by John Knowles. This was recorded in the 1867 edition of Eighty Years of Progress of the United States, but the invention could not be documented (Cooper, 6:9).

By the middle of the nineteenth century, there were attempts at using the sewing machine commercially. In 1830, Barthelemy Thimonnier patented a barbed-needle chain stitch

machine with a presser foot, designed to be used in making tambour embroidery. Realizing the utilitarian advantages of the machine, in 1841, he sold eighty machines to a uniform factory in Paris. A mob of tailors destroyed the shop because they feared the new machines would eliminate their jobs. Mr. Thimonnier left Paris but continued to work on his machine and formed the first sewing machine company (Cooper, 6:11).

Meanwhile, Walter Hunt combined the pointed, eyed needle with an oscillating shuttle to form a lock stitch. This machine was designed about 1832-1834 and was the first machine not created on the principle of imitating hand sewing. However, it was not patented (Cooper, 6:11). Several other American sewing machines were patented before Elias Howe, Jr. patented his lock stitch machine in 1846 (Cooper, 6:15), but since it was not readily accepted in the United States, he took his machine to England. When Howe returned to the United States, he found his patent rights were being infringed upon. In 1853, Mr. Howe was granted royalty licenses. "These licenses granted the manufacturer the right to use any part of the Howe patent, but it did not mean that the machines were Elias Howe machines" (Cooper, 6:24). These licenses also prohibited Mr. Howe from producing machines without paying royalties to the other inventors. This predicament led to the establishment of the Sewing Machine Combination (or patent pool) (Cooper, 6:24).

Another important American inventor was Allen B. Wilson, who improved on the lock stitch machine by designing a shuttle pointed at both ends, therefore making a stitch both coming and going. An 1848 patent, issued to Mr. Bradshaw, claimed this innovation and to avoid a patent suit, Mr. Wilson relinquished half interest to A.P. Kline and Edward Lee. After an unsatisfactory partnership, Mr. Wilson withdrew and went into business with Mr. Wheeler. While in the company of Wilson and Wheeler, Mr. Wilson invented the rotary hook shuttle, the stationary bobbin (Cooper, 6:27), and a four-motion cloth feed (Cooper, 6:29).

Issac Singer founded the most successful nineteenth century sewing machine company. Although his machine was not totally original, Mr. Singer made many improvements on a machine already designed by Blodgett and Lerow. After losing a patent lawsuit to Elais Howe, Singer bought the patent rights to a machine designed in 1849 and the Bachelder patent because "the established principle of patent law allowed that a novel device introduced and used in a patented machine could be covered by a reissue at any time during the life of the patent" (Cooper, 6:34). Under this principle, Singer contributed:

the needle moving vertically above a horizontal work-plate (Bachelder patent), a continuous feeding device by belt or wheel (Bachelder patent), a yielding presser resting on the cloth (Bachelder patent), the spring of curved arm to hold the cloth by a yielding pressure (Morey and Johnson patent), the heart-shaped cam as

applied to moving the needle bar (Singer patent) (Cooper, 6:41-42).

The early developments in the sewing machine industry were very decisive, but there were other important inventions affecting the clothing and textiles area in the nineteenth century.

Technological Developments:

At the beginning of the century, mechanical power was replacing many traditionally hand powered machines.

1. While a power loom was still a new concept in weaving, J.M. Jacquard, in the first quarter of the nineteenth century, invented the "punch-card system of automatic pattern weaving" (Bono, 4:124).

2. Another area where mechanization appeared was in the button industry. Bertel Sanders, a Dane, invented the first machine-made metal shank covered buttons in 1807. His son replaced the metal shank in 1925 with a flexible canvas shank (Bono, 4:123).

3. In the United States, John Ireland Howe in 1831 invented the first machine for making solid headed pins (Wilcox, 19:265).

4. In 1856, William Henry Perkin, a research assistant at the Royal College of Chemistry, "set out to prepare quinine, by, as he hoped, oxidizing allyl-toluidine through the addition of sulfuric acid and potassium dichromate (which was suppose to yield the necessary oxygen)" (Bono, 4:129).

All he got was a reddish-brown residue. Mr. Perkin tried his experiment again with impure aniline (a coal tar by-product) and his end products were purple crystals, which he found would dye silk. The commercial value of aniline dyes revolutionized fabric dyeing (Bono, 4:129).

5. Several attempts were made at making an artificial fiber in the eighteenth and early nineteenth centuries. In the latter part of the nineteenth century, Joseph Swan patented his successful "method of producing fibres by forcing nitrocellulose in acetic acid through a series of holes," in 1883 (Bono 4:130). Comte Hilaire de Chardonnet established a factory in France to manufacture artificial silk under the name rayon. Chardonnet silk was presented at the Paris Exhibition of 1889 (Bono, 4:130). Man-made fibers were slow to be developed and did not gain full acceptance until the next century.

"The origin of the art of cutting by system is unknown and it seems almost impossible to discover it. We shall most probably find it grew by degrees" (Giles, 8:73). The first known system, A Work on Practical Geometry Relating to the Art of a Tailor was published in Madrid by Juan Alcega in 1589. The only technical part of most of these early systems was their title. Most pattern drafting was done from experience gained through trial and error. This is expressed in the "anecdote of a German tailor's wife who said to her children when putting them to bed, 'My dears!

Now pray for your father, for he has a coat to cut!" (Giles, 8:73).

In the early nineteenth century there was an abundance of authors writing on the subject of cutting systems. The most significant one was Mr. Hearn, who published a system in England based on proportions of the breast measure. He later decided, "proportional systems are only suited to proportional figures. He insisted...the make of the customer must be provided for by measurement of observation" (Giles, 8:99). The fifth edition of his system, published in 1823, was a direct measurement system. It was the first of its kind published in England (Giles, 8:100). Mr. Hearn focused on two very important concepts about cutting that were new in the nineteenth century, namely, anatomy and geometry.

In Mr. Golding's "Tailor's Assistant", published in 1818, we meet with the statement that "The scheme of the system is founded upon the application of geometrical rules and principles to the anatomical proportions of the human figure." And though there is very little geometry applied, and still less anatomy, we have here the glimmering of the truth, that the true basis of cutting is founded on anatomy of the human figure, and the application of the method must be by geometrical rules (Giles, 8:118).

Mr. Hearn promoted and advertised the inch tape measure. "Who it was that first introduced inch measures, there are no facts to prove" (Giles, 8:93). But Mr. Hearn noted that the tape measure was universal and its advantages so great that it was hard to believe it was not in general

acceptance in the beginning of the nineteenth century (Giles, 8:93). Tailors, up to that time, used tapes with a customer's measurements notched into them. They mocked and ridiculed the inch tape measure, until they realized its advantages.

Another important contribution to the art of cutting was made by Messrs. Minister and Son. They introduced the plumb line or base line, as it is now known (Giles, 8:133-134). The base line was a squared line, which was to run parallel to the length-wise grain of the fabric. From this line, points could be established, lines squared out from the points, and the shape of the pattern outlined.

There were a number of different units of measurement. They had individual national origins with unknown dates or histories. A 'nail' was an old unit equalling two and one quarter modern inches. One source said a 'vara' was equal to two feet eight inches and was of Spanish origin (Waugh, 16:172). Another source noted that the Spanish 'barra' was a measure two inches less than the English yard (Giles, 8:75). An 'aune' was an old French measurement of 1.18 meters (Payne, 12:171). The origin of the inch was cited as: "the length of King Henry I's (1100-1135) arm was taken as the basis of our measurement. This length was called a yard, it was subdivided into thirty-six parts; each part was assumed to be equal to the thumb or pounce, as the French still call the inch" (Giles, 8:145-146). The interest in these units related to the study of the units used in proportional drafting systems, since these systems usually

had a set of graduated scales. The size of the unit and the theory on how it was achieved were unknown. Therefore, a survey of measuring devices was essential in hoping to discover how these units were obtained.

Following this synopsis of the technological developments influencing clothing and textiles in the nineteenth century, a brief explanation of costume and fabric of the 1890's will facilitate the understanding of pattern drafting and construction of that period.

Costume and Fabric: 1890's

Fashion progressed through the crinoline (glossary) of the 1850's and 1860's, and the elaborate bustle (glossary) of the 1870's and 1880's; into a period of transition in the 1890's. Women were emerging from the confines of the Victorian era into a modern twentieth century. They were seeking jobs outside the home and changing their image. Sports, other than horseback riding and swimming, gained favor. Sailing, tennis, bicycling, hunting, skating, and golf were examples of new sports which required special costumes. But the basis of all these costumes was still the basque and skirt, which was minus the bustle and tied up drapery of the previous decade (Wilcox, 19:319). "The corset (glossary) was not very long bodied and seemingly straighter so that the bust is more sharply defined...(Waugh, 18:227). The mode was an hourglass or wasp-waist style. The corset was unusually firm, heavy satin and heavily boned with whalebone, steel, or cane. It was black or colored (Wilcox, 19:

315). To achieve this sleek figure, the petticoats were fitted smoothly across the hips with slight back fullness. The flare was added by a flounce or ruffle at the knee length. "The chemise (glossary) and drawers of fine linen, batiste, pale silks, and satinets were lavishly lace-trimmed and beribboned. The lace-edged, beflounced petticoat in silk, linen, or nainsook created a pretty effect, typical of the period, held to one side when walking" (Wilcox, 19: 315). At this time there were three main kinds of skirts: gored, umbrella (circular), and bell-shaped; the sides were cut fuller and this extra fullness was pulled to the back to be gauged into the waist line. Day skirts were floor length, while evening skirts usually had a train. Some costumes often had both kinds of skirts as companions to one basque, thus increasing the flexibility and variety of occasions for which one costume could be worn. Evening costume was distinguished not only by a train cut onto the skirt, but by the basque which normally buttoned up the back. This contrasted with the day costume, in which the basque was usually buttoned up the front. Jackets were inspired by menswear and designed from the basic basque. By 1892 the bolero and Eaton jackets were also popular. While high standing Medici collars were seen on tea gowns and capes, basques usually had applied collars or revers collars (glossary). Sleeves were voluminous and often the focal point of the costume. Their volume was balanced by the width at the hemline of the skirt which created a harmonious design.

The full leg-of-mutton sleeve (glossary), which grew to enormous proportions, was lined or stiffened with buckram (glossary) or tarltan. In an advertisement from the February, 1896 issue of The Delineator, Fibre Chamois was recommended for shaping puffed sleeves and skirts. In the directions on how to use it, it was suggested that one choose the proper weight and "always cut the Fibre Chamois the exact size of the goods, and sew up the seams with the material; gather and pleat the same as you would the material and the result will be a stylish garment."

Norah Waugh stated:

Materials in the early 1890's were still firm and stiff-cloth, serge, tweed, etc., for tailored styles, plush velvet, heavy silk, damask, broche velvet, Dutch satin, etc., for dresses. Except for bands around the bottom, and sometimes braiding on seams, skirts were rarely trimmed. Bodices, on the contrary, are heavily decorated. Sleeves, revers, epaulettes, etc., were often of contrasting colour and material, usually velvet, over which there might also be heavy lace flounces and addition passementerie (glossary) trimming. If the high collar and yoke were of lace, this was always backed with silk, and the collar had a stiff lining (Waugh, 18:231).

CHAPTER III

PROCEDURE

A. CONTEMPORARY DRAPED BASQUE

This entire study originated from an assignment to choose a costume from the Kansas State University costume collection as an inspiration for a draping project. A basque from the late nineteenth century was chosen and directly copied except for the trim (PLATES I, II, III). The direction of the grain was studied and repeated as well as possible. Instead of two darts, on each side of the front, the outside dart was made into a princess seam. By modern fitting standards and by the modern concept of beauty, two darts were unnecessary. The contemporary basque seams were 'boned' with narrow horsehair braid, which gave body without stiffness. The points of the hem were weighted with coins (PLATE VI).

The sleeves were the most difficult part to drape. The grain matched that of Mr. Thompson's sleeve (see: pp. 28-29), but this fact was unknown at that time since this assignment predated the research on Mr. Thompson's system (PLATE V). The sleeves took hours to set in and the lack of ease (glossary) restricted normal arm movements. This lack of ease resulted in directly copying the historical basque. Nineteenth century dressmakers had no real concept of extra fabric allowed for unrestricted movement. Also, there was very little reason

for a genteel lady to need to move her arms up and down; she was so restricted in her corsetry that she may not have noticed her arm movements were restricted too.

Other than the tight sleeves, the rest of the contemporary basque fit very well. I conformed completely to modern standards because it was draped on a personal dress form (PLATE IV). As compared to Mr. Work's system and Mr. Thompson's system, the fit was far superior, but it was equalled, if not surpassed, by Mr. McDowell's machine. A skirt was planned, to be made out of a quilted fabric which matched the lining of the basque.

B. MR. WORK'S CHAMPION FITTER

Mr. W.A. Work's Champion Fitter required a set of scales before drafting could begin. However, there was no set of scales with the instruction book. The description of the scales was similar to the description of Mr. Thompson's system's scales; therefore, the latter set of scales was used with Mr. Work's method. An L-square, which had a lettered curve, was also needed. On one side, there was to be an arrow pointing down the long arm with a star below it and on the other side, an arrow with an O below it. The costume collection at Kansas State University had an old L-square with a loose metal arrow (which has recently been misplaced) (PLATE VII). Since it was old and the characters were faded, it was discarded in favor of another L-square, French curve combination, similar to that described by Mr. Work. Ms. Marianne Muse donated to the Kansas State University costume collection the Standard Square Inch Tailoring System, dated 1896, which had with it an L-square with an inside curve marked with letters and characters. Instead of an O, it had a diamond symbol (PLATE VIII). Once the necessary equipment was obtained, drafting the patterns began.

Mr. Work gave instructions on the actual measurements which should be taken. After the measurements were recorded,

the scale corresponding to the bust measurement was taken (PLATE XXXIII). A base line was drawn one inch away, down the edge of the paper. Next, a line was drawn out at a right angle from the top of the base line, the point where they joined was the starting point. Using the scale, all points, as shown in the instruction book, were laid out on the base line. A line was drawn out at a right angle from each of these points. The points, which shape the garment, could be marked on them. Mr. Work then instructed:

Take rule and connect all points by placing letter and spear on curved rule to correspond with letter and spear on diagram. Observe star and circle on diagram if star is shown on line, place rule with star up and same if circle is shown...All lines where there is no spear or letter should be drawn with straight edge of ruler (Work, 21:11).

Mr. Work began by drafting the back of the basque. The waist line was established on the base line by the actual back waist length, in inches, measured down from the neck line. The hip line was six inches below that mark. The back and side back were drafted in one piece, but Mr. Work neglected to explain that the side back was traced off (PLATE IX). To give flare to the skirt, it was traced down the starred line, below the waist for the side back and down the 0 line below the waist for the back. The front was laid off in the same manner. The waist line and the hip line were established by actual measurement, therefore they were not necessarily perpendicular to the

center front. The point of each dart was found by measuring up from the waist line and connecting with the points already established on the waist line and hip line (PLATE X).

The first piece drafted with the Thompson scale (PLATE XIA) was the balloon sleeve (glossary) and the length of one piece of the pattern was two and a half yards long (PLATE XII). This seemed large, but its actual size was unknown since there was only a fashion illustration by which to judge it (PLATE XIII). The rest of the sleeve was drafted, before attempting the bodice. When the bodice was drafted, it was extremely out of proportion. The width of one half of the bodice was larger than the actual measurement of the entire width of the bodice. When the actual front waist length was marked and the dart points established five and one half inches up from that line, the enormous darts ended under the front armseye (glossary). The bodice was almost twice as big as it should have been all over, and totally distorted when actual measurements were added as instructed. This also meant the large sleeves were out of proportion. It was concluded that Mr. Thompson's scales were the wrong set of scales, and that there was apparently no standardization between systems. It also appeared that each dress-maker devised his own set of scales.

At this point, trial and error experimentation was utilized in seeking a workable set of scales. A constant measurement was required and in The History of the Art of

Cutting in England, Mr. Giles discussed the origin of the Old Thirds System where it was found that the length of the back waist was half of the chest measurement on a man. This was based on an eighteen inch center back measurement versus a thirty-six inch chest measurement (Giles, 8:145). Therefore, using the center back measurement as the constant, a two to one (back to chest) relationship was obtained. The new scale was calculated by dividing the researcher's bust measurement (33"), into the back waist length (15.5") giving 0.47 (PLATE XIB). This was the new unit used in drafting the basic basque, but when it was constructed it was too small. This method of obtaining a scale was not successful. Furthermore, a sliding scale was needed which would give increased proportions to a pattern as the bust measurement increased. The above described method gave decreasing proportions as the bust measurement increased, causing the basque to get smaller instead of larger.

The next experiment was to take an extra long back waist length measurement, as recommended in Mr. Work's instructions, instead of a normal measurement by modern standards. The purpose of this longer back waist length was revealed by Mr. McDowell, "Do you wish the back extended down, or do you wish to fill up to the belt with a bustle?" (McDowell, 11:8). In the 1880's, the silhouette was formed by a horizontal bustle jutting out directly at the back waist. The silhouette of the 1890's was a smooth hour glass figure.

The skirt had some back fullness, but no tournure (glossary) to support it. Therefore the flare in the skirt of an 1890's basque needed to be lowered from where it had been in the 1880's. This was done by taking a long back waist length. The new scale was calculated as: 33" divided into the long back waist length, 17.5" equalling 0.53. Before this scale was used to draft a new basque, a new mathematical approach was devised. By using the same constant, but revising the division, a new proportion was reached---the normal back waist length, 15.5", was divided into the bust measurement, 33", equalling 2.13. This new unit gave a one to two proportion and to regain the required two to one relationship 2.13 was divided by 4 equalling 0.53 (PLATE XIC). The sameness of these two figures was an accident. The instructions Mr. Work gave were, "The length of the back is taken from prominent bone at back of neck to waist line as low as can be worn. A good way to locate waist properly is to take a small strap or cord fasten it tightly around the waist slipping it down as low as possible" (Work, 21:7). Since this procedure was not very precise, the mathematical approach was used as the standard for this study. The basque drafted from the 0.53 scale gave an acceptable fit and a scale which would increase proportionately as the body size increased.

Mr. Work's instructions for drafting a skirt required a scale corresponding to the hip measurement (which was taken five inches below the waist and over the petticoats).

Still using the center back length as the constant, 15.5", was divided into 42" equalling 2.71. Once again this unit gave a 1:2 proportion, therefore 2.71 was divided by four to regain a 2:1 relationship. The new unit 0.68 (PLATE XID) was used to draft Mr. Work's ladies' half circle skirt (PLATE XVI). The fit was satisfactory (PLATES XIX, XX, XXI).

To construct a complete basque, a sleeve was required. A basic sleeve was drafted with the 0.53 bust scale, but it was much too large. The length could be controlled, but the width was set by the point established with the scale. Since there was no way of reducing the width, except with a smaller scale, it was decided that the 0.68 hip scale, which was a smaller unit, would be used. This scale was used to draft the ladies' tight fitting sleeve (Work, 21:30). When it was constructed in muslin the sleeve was of distorted proportions because it flared out at the elbow instead of being tightly fitted. The cap of the sleeve fit smoothly into the armhole with enough ease, but there were two inches of excess fabric around the curve of the elbow. This may have been allowed as the maximum amount of ease needed and the elbow was then shaped to fit the individual. But the sleeve of the basic basque (Work, 21:16) was drafted and the two patterns compared. The latter was more tapered from the upper arm to the wrist (PLATE XVII). When constructed, this sleeve fit very well. There was extra fullness at the elbow when the arm was hanging down, but this

ease was taken up when the arm was bent. Mr. Work designed a snug-fitting sleeve which had enough ease to move in (PLATE XX).

Since a well fitting basic sleeve was achieved, the balloon sleeve was drafted next. The pattern was cut in three pieces, but Mr. Work neglected to say how many of these were required to make a sleeve (PLATE XII). Mr. Work's fashion illustration of the balloon sleeve showed three seams on the front (PLATE XIII). It was therefore assumed each piece was used twice to make six panels, but the sleeve did not fit the forearm snugly and each seam had to be taken up to make it fit.

The Standard Square Inch Tailoring System showed the basic leg-of-mutton (The Standard Square Inch Tailoring System, 14:26) sleeve divided into a gored sleeve (glossary) (PLATE XVIII). The shape of the pattern pieces resembled the shape of Mr. Work's pieces. The gored sleeve used the under-arm piece twice and the other two only once. Using this idea of construction on Mr. Work's method, a sleeve was made which fit the forearm perfectly (PLATES XXII, XXIII, XIV). This concluded the study of Mr. Work.

C. MR. THOMPSON'S UNIVERSAL GARMENT CUTTER

F.E. Thompson's Universal Garment Cutter was complete with its set of ten graduated scales (PLATE XXV). The first instructions were to square the fabric;

place the scale at the corner and mark the points down the selvedge line; then strike lines across at these points where they occur on the plan you are using; then place your scale on these lines, and get the points for the width of the garment; then with the square and crooked piece draft the lines the same as they are on the plan before you (Thompson, 15:General Directions).

The 'crooked piece' must have been a curve of some sort, which was not with the instructions. The actual drafting was similar to Mr. Work's, but the curve had to be freehanded to match the shape of the curve in the diagram. The back was drafted first and the front and side front drafted together. This basque did not have separate side back or separate front pieces, but they were combined to form a single side piece (PLATE XXVI).

In drafting the sleeve, the bust scale was used. The first draft gave a tiny, child-size sleeve, but the instructions stated, "get length of sleeve from center of back with arm raised and elbow bent, measuring to wrist; then deduct back piece, less two inches for seams (Thompson

15:). The entire arm length, 28", minus the back width $4\frac{1}{2}$ " (which was less 2" for seams) equalled $23\frac{1}{2}$ ". Three and one half inches were added to the overall length and the elbow point was lowered by half that amount. The sleeve was now in better proportion and the more fitted style was drafted. The curves had to be drawn freehand, and it was difficult to get a curve similar to the one in the diagram and also connect all the points. The points were left as guides only and the curves smoothed out. When this shaped sleeve was constructed in muslin, it could barely be pulled on as there was no ease allowed. A second trial was drafted using the fuller cut sleeve. This added the right amount of ease to give a well-fitting sleeve (PLATE XXVIII). A balloon sleeve was not drafted for a basque constructed by Mr. Thompson's method, because the principle for drafting it was the same as drafting it for Mr. McDowell's system.

The scale corresponding to the hip measurement was chosen to draft the skirt pattern. The front and side panels both had a dart, but the length of the dart was not established. It was left up to the discretion of the dressmaker. It was assumed the front was placed on the fold, and there was no explanation as to which edge of the side panel connected to the front. A plain width was used for the back and gauged in to fit the waist. The skirt fit very well (PLATE XXIX).

D. MR. MCDOWELL'S GARMENT DRAFTING MACHINE

Unlike Mr. Work's or Mr. Thompson's proportional measure systems, Mr. McDowell's Garment Drafting Machine was based on direct measurements. In the introduction he stated:

Our system of actual measure is the simplest to use, and yet gives the contour of the body, or shape of the lady, more perfectly than any other (McDowell, 11:1).

The system included the machine, which was the metal skeleton of a basque front, side front, side back, and back (PLATE XXX). Each piece had numerous moveable parts, which were set to fit each individual's measurements. This made the method of taking measurements very important. An L-square with a moveable arm and inch tape measure was required, even though it was still not universally accepted by all dressmakers at the time (PLATE XXI). The instructions on how to take the measurements were explicit with illustrations of where the tape measure or square went (PLATE XXXII). After measurements were recorded the machine was set. Following the instructions it took less than one hour to set the machine. The machine was then placed on the lining and traced along the outside and inside of the frame. The outside line was the cutting line and the inside line was the

stitching line (a $\frac{1}{2}$ " seam allowance, except on shoulder, which was $\frac{3}{4}$ "). When constructed this basque gave an excellent fit (PLATE XXXV).

A machine for the sleeve was not included, but there was a set of disjunctive instructions for drafting a sleeve. A line was squared on the paper and both direct measurements and letters on the L-square were used to draft a basic basque sleeve. It was very time consuming and difficult. Two points, O and P, (PLATE XXXIV) were not explained. It was assumed that they changed position, depending on the individual's measurements. They were established by drawing lines through M and N at the same angle as shown in the instruction book. This sleeve was snug at the elbow and restricted freedom of movement (PLATE XXXVI). Mr. McDowell explained how to enlarge this basic sleeve for a coat and how to make it a simple one piece sleeve, but there were no variations, such as the leg-of-mutton, which were popular at this time.

Mr. McDowell failed to give instructions for skirts. In the 1880's, skirts were normally draped (Waugh, 18:190) but by the 1890's patterns were usually used (Waugh, 18:228). For dressmakers of the 1890's certain information was assumed to be common knowledge, and how to make a skirt must have been part of that information taken for granted. However, a skirt was drafted by using the McDowell method. Instructions were given on how to make a princess polonaise (glossary) which, being a one piece dress, had a skirt. The polonaise was

drafted from the waist down giving a skirt front and a skirt side front. This was constructed using a plain width for the back, in the same manner as Mr. Thompson's skirt. It had four large darts in the center front, which was uncharacteristic of skirts at this time. A second copy was made eliminating the two center darts and curving that amount off the side seam, giving a smoother fit (PLATES XXV, XXVI, XXXVII).

To complete the study of Mr. McDowell's machine, a balloon sleeve was drafted, even though instructions were not given. Drafting began by using the diagram of a four gored sleeve in The Standard Square Inch Tailoring System (PLATE XVIII) as the basis. Mr. McDowell's basic two piece sleeve was placed with the lower halves side by side, seam lines overlapping. The width at the wrist was 7" (minus one inch for each half inch seam allowance). The height up to the elbow was nine inches and it was 11" across at that point. Both measurements of the width were divided by four-- the number of pieces needed to make a balloon sleeve. The wrist was divided into four $1 \frac{3}{4}$ " sections and the elbow was divided into four $2 \frac{3}{4}$ " sections. By connecting the points from the wrist to the elbow the forearm pattern was established. The Standard Square Inch Tailoring System stated that the sleeve was $3\frac{1}{4}$ " long. The sketch was three inches, therefore one inch equalled a little less than one foot. After several attempts, the top portion of the sleeve was drawn freehand. The pieces were then traced off and

cut out. The underarm portion was used twice and the two top pieces were used once each. When the sleeve was constructed, it fit the forearm snugly and gave a full puff at the top (PLATES XXXVIII, XXXIX, XL).

CHAPTER IV

RESULTS

A. COMPARATIVE REVIEW OF ALL THREE METHODS

After a thorough discussion of each method, a comparison should be drawn between the methods. Mr. McDowell's method took the least amount of time to draft and construct. It was also the most accurate from the start. Mr. Thompson's Universal Garment Cutter was not as difficult as Mr. Work's system, because the scales were correct and included with the system. Mr. Work was laboriously time consuming, since a new set of scales had to be devised.

A common problem with all three methods was the grain line. There were no lines to indicate how the pattern was to be laid on the fabric. It was assumed Mr. Work's grain line was parallel to the base line. This was clarified because the "ladies raglin sleeve" (Work, 21:29) (PLATE XIV) had a line drawn diagonally across part of the sleeve. Since this line was established by locating two points with the scale, it was thought it might be a slit in the sleeve. But at the bottom of the explanation, it stated, "Lay goods straight with line" (Work, 21:29). This was the first reference to a grain line and if it were to be any different, it was assumed Mr. Work would say so. The grain line of Mr. Thompson's system was also assumed to be parallel to the base line, since the base line was drawn along the selvedge.

of the fabric. Mr. McDowell did not grain, but it was determined that the grain line was perpendicular to the bottom of each piece. In the directions on how to mark off the machine, an illustration of the machine was shown when it was being set, then a sketch of what it would look like after it was marked onto the fabric. The latter sketch showed the bottom of the piece parallel to the bottom of the page (PLATE XXXIII) (McDowell, 11:13).

Although the position of grain on each pattern piece was not discussed, the pieces were often placed perpendicular to the crosswise grain, instead of the length-wide grain. This was a method of conserving yardage and meant the stress was taken by the stronger lengthwise grain. The lining could be cut in this manner, while the fashion fabric was cut on the lengthwise grain. The grain was also manipulated, probably without a realization of what was done or full comprehension of the results. This was evident in the skirt of the basque. The flare on the hip line of each basque piece could be increased by angling out the seam line from below the waist to the hem line or decreased by tapering in at the same point. For a more ruffled effect to the skirt of the basque, a horizontal dart was taken from the second bust dart to the back side seam. This changed the grain from straight, in the middle of the piece, to bias, over the hip, creating a flounced effect (PLATES XXII, XXIII, XXIV). The hem of the basque was marked on the individual and was treated in various ways. It could come to a long point in

front, cut up high over the hip and extend long in back. Others were hemmed evenly all the way around. The method chosen was up to the dressmaker and the individual.

The structural details varied greatly among the three methods. Mr. McDowell allowed for seam allowances, while Mr. Work did not. Mr. Thompson confusingly allowed for some seam allowances, but not others. Careful tracing around the McDowell Machine gave $\frac{1}{2}$ " seams, with a $\frac{3}{4}$ " shoulder seam. Inaccuracy could cause a variance of an $\frac{1}{8}$ " either way. Therefore, it was best to mark the seam line on all pieces of both the lining and the face fabric. Another structural detail which differed was the number of seams forming the bodice portion of the basque. Both Mr. McDowell and Mr. Work's basques had seven seams, while Mr. Thompson's basque only had five seams. The extra seams gave a princess line to the side back, not only for added flexibility in fitting; but it created aesthetic interest in the back of the jacket.

The amount of ease and the manner of fit were analyzed from two angles. The original measurements were taken over modern clothes and foundations. Later, a corset, chemise, drawers, petticoats, and corset cover of the 1890's were constructed (see Appendix V). The fit had to be judged against the original measurements, since Mr. McDowell's system was a direct measurement system. But it was also important that the fit was judged with the period under-

garments which would create the correct silhouette and posture.

All three methods had two darts on each side of the front bodice. These darts were needed for fitting the full-busted effect created by the corsetry. Mr. Thompson gave the most fullness for this area since the outside dart was longer. Mr. Work's large darts gave an overall full-bodied effect. Mr. McDowell gave a tight-fitting effect since the darts were set to the exact bust measurement. The fit varied when all the undergarments were added. The ruffles on the chemise and corset cover added fullness to the upper bodice, whereas the corset actually flattened the bust. Mr. Thompson's basque allowed the exact amount of ease for this fullness, but with the long outside dart, the fullness was meant to begin under the arm (PLATE XXVII). Mr. Work still allowed too much ease, even with the corsetry. The darts were too large. The ease in the upper bodice was filled out by the ruffles, therefore the excess fullness at the fullest part of the bust was not filled out (PLATE XIX). Mr. McDowell's basque fit more snugly over the corsetry, than it did without it. This was the result of the machine being set to actual measurements. Mr. McDowell's basque also fit better through the midriff and waist than either of the other two (PLATE XXXV).

The corset also affected the posture. Through tight lacing the figure was pulled erect causing the shoulders to be thrown back. This resulted in making the width across the

shoulders more narrow. Mr. Thompson's back shoulder width was extremely narrow. The corsetry pulled the shoulders back, but it would have taken years of tight lacing to achieve the perfect stance (glossary). Both Mr. Work's and Mr. McDowell's basques showed wrinkles at the back armscye because of the posture created by the corsetry. This can be explained in Mr. McDowell's case, because the machine was set to the wider shoulder width of the modern, round shouldered stance of the researcher. But Mr. Work's basque was expected to be cut smaller across the back width, and it was not.

The importance of the set of the waist of each basque was clarified when the undergarments were put under the skirt and basque. The petticoats held the skirt in the proper position, with the fullness concentrated in the back. Therefore, the way the skirt of the basque fell over this fullness was determined by where the waist was. Mr. Work's basque fell smoothly down and over the skirt (PLATE XXI). This was the purpose of his instructions to take a long back waist measurement. Mr. McDowell's basque also draped over the back fullness of the skirt (PLATE XXXVII). Since both of these systems recommended a long back waist length, it could be assumed they meant it to complete the hour-glass silhouette of the 1890's. Mr. Thompson's skirt flared directly out from the waist (PLATE XXIX). Since the date accompanying the instruction book was 1883, the sharply flaring skirt of the basque would conform to the horizontal bustle worn in

the 1880's.

The set of the sleeves was another important consideration in analyzing fit. Mr. Thompson's sleeve did not set in well. To avoid gathering the armseye to the sleeve (instead of the contrary), the underarm curve was deepened until the sleeve would fit in, but there was still no ease in the cap of the sleeve. With the narrow back width and no ease in the sleeve, it was difficult to reach or move in Mr. Thompson's basque (PLATE XXVIII). This differed from Mr. Work's and Mr. McDowell's whose sleeves set in with the ease in the cap and with a normal setting shoulder width (PLATES XX, XXXVI). The only discrepancy occurred when the outseam of the sleeve was supposed to match the side back seam of the basque. It matched on Mr. McDowell's basque, but to get a correct position of the grain on Mr. Work's sleeve (the crosswise grain on the cap of the sleeve should be parallel to the floor) the inseams matched the front side seam. On Mr. Thompson's sleeve, none of the seams matched.

A balloon sleeve was constructed for both a basque by Mr. Work's system and a basque by Mr. McDowell's system. The method in which each sleeve was drafted was discussed previously. Since the method of drafting a balloon sleeve for Mr. McDowell would have been the same for Mr. Thompson, a sleeve was not made for Mr. Thompson's basque. The important feature of the balloon sleeve was the manner in which it was supported. Each panel of Mr. Work's sleeve was underlined

with muslin and buckram (glossary). The buckram was not sewn into the seams, but the seam was catch-stitched over the raw edge of the buckram. It gave a very full effect, but was rather stiff looking. For Mr. McDowell's sleeve, each seam was reinforced by a double strip of buckram one inch wide hand sewn over the seam. The sleeve was also underlined in muslin. This sleeve had a very soft appearance, but did not stand open and full (PLATES XXXVIII, XXXIX, XL). The reason for two different methods for stiffening the sleeves was to experiment with the possible ways for achieving a similar silhouette. The rather stiff appearance of Mr. Work's sleeve must have been how it looked in the 1890's (PLATES XXII, XXIII, XXIV). In Patterns of Fashion, Janet Arnold showed a balloon and pattern piece in which "the taffeta sleeve is lined with stiff paper, cut slightly smaller than the taffeta shape" (Arnold, 2:47).

The three necklines differed from one another: Mr. Thompson's was high in the back, Mr. Work's needed to be cut wider for a smoother fit, but Mr. McDowell's fit perfectly. The neck line on the machine could be set to the exact measurement of the neck, which gave a perfect neck line without disturbing the shoulder width or length. A simple bias band collar, made from a bias strip, as seen on the black costume in the historic costume collection (PLATES I, II, III), was put on all three. There were no facings, but the front edges were turned under to form a double edge in which to work buttonholes and sew on buttons. Collars, other than

the band, consisted of revers (glossary) and some lapels. The revers were usually sewn on to the front of the basque. Mr. Work gave instructions for a lapel (Work, 21:45) (PLATE XV), but Mr. McDowell only gave instructions on how to draw a collar. Mr. Thompson neglected to even mention collars, although collars were used in the 1880's.

Of the three methods, Mr. Work gave the best directions for drafting a skirt pattern. Besides the ladies' half circle skirt used in this study, there was the ladies' seven gored skirt and ladies' yoked skirt. Mr. Thompson gave directions for only one skirt, which has been described. Mr. McDowell gave no skirt, therefore one was designed based on information gained from Mr. Thompson's skirt. All three skirts fit smoothly across the front with the excess fullness gauged into the back of the waist. To keep the fullness pulled to the back, Mrs. Emma H. Hooper, who wrote, "Hints on Home Dressmaking" for the Ladies Home Journal (Hooper, 25:16) suggested:

You must use one steel 12" long and put 2" below the belt, or run a drawstring in a casing at that point and draw the skirt back. Another plan has been renewed for keeping skirts back, that was used before the days of steel, viz, sewing tapes or elastic to the back seams 12" and 24" below the belt and this drawing back the fullness (Hooper, 25:16).

She later recommended putting elastic in the side seams at ten and twenty inches below the waist (Hooper, 26:16). Mrs. Hooper also recommended two triple box pleats, each about

three inches wide, instead of a gathered back (Hooper, 25:16). All three skirts had the two strips of elastic placed in them as Mrs. Hooper suggested. Skirts at that time were normally lined, but due to excessive expense these skirts were made of unlined gingham. This presented the problem of the outline of the corset showing. Therefore, the second petticoat was worn on top of the corset to help camouflage the corset. All three skirts had a smooth front with all the fullness held back creating the bell-shaped silhouette of the 1890's (PLATES XXIII, XXVIII, XXXIX).

B. CONCLUSION

Of the three methods, Mr. McDowell's gave the most precise and accurate instructions; Mr. Work's gave the greatest variety in drafting different styles. None of the authors gave instructions on how to construct the garments. They assumed the nineteenth century seamstresses knew how to construct the garment once it was cut out. Since the author of this research had no reference book on nineteenth century sewing techniques, the construction methods used were based on personal experience, examination of authentic garments, and articles on sewing from 1890's women's magazines. Mr. McDowell's system was the favored method since its fit conformed to modern standards and presented a number of challenging prospects. Mr. Work's great variety of patterns aided in a fuller understanding of garment styles of the 1890's, while Mr. Thompson's basque aided in understanding the silhouette of the 1880's.

A thorough understanding of a chosen method of pattern drafting was required before it could be manipulated into current styles. Each author stated his method was complete within itself, but this was incorrect. For example, Mr. McDowell did not explain how to make a cut-on lapel or

a double-breasted basque, and neither did Mr. Thompson. Mr. Work gave a great variety of styles, but neglected to explain how they worked, for example: the ladies raglan sleeve (PLATE XIV), the chemise (PLATE XLIV), and the balloon sleeve (PLATE XII). Therefore, there was much "guesswork" involved in designing costumes by these systems, in modern times, without the experience of an 1890's seamstress. Each method was stated as self-explanatory. However, many books on modern technology and knowledge were used to reason through supposedly simplistic methods.

This research could lead to further study in developing a history of American pattern drafting systems, since one is not available at this time. Two systems found in the latter portion of this study, which warrant investigation are: Dr. Wampen's World Renowned System of Anthropometry, "simplified and Americanized by J. Happle-Hutcheson" in 1903 and Clute's Actual Measurement System by J. Redfield Clute in 1891. The Standard Square Inch Tailoring System patented in 1896, is another system which should be included. These old systems are important in understanding the evolution of modern pattern drafting.

APPENDICES

APPENDIX I

PLATES FOR CONTEMPORARY BASQUE

**THIS BOOK
CONTAINS
NUMEROUS PAGES
WITH PICTURES
THAT ARE CROOKED
COMPARED TO THE
REST OF THE
INFORMATION ON
THE PAGE.**

**THIS IS AS RECEIVED
FROM CUSTOMER.**

**THIS BOOK
CONTAINS SEVERAL
DOCUMENTS THAT
ARE OF POOR
QUALITY DUE TO
BEING A
PHOTOCOPY OF A
PHOTO.**

**THIS IS AS RECEIVED
FROM CUSTOMER.**

(45)



PLATE I

FRONT VIEW OF 1885 BLACK COSTUME
FROM HISTORIC COSTUME
COLLECTION



PLATE II

SIDE VIEW OF 1885 BLACK COSTUME
FROM HISTORIC COSTUME
COLLECTION

(47)



PLATE III

BACK VIEW OF 1885 BLACK COSTUME
FROM HISTORIC COSTUME
COLLECTION



PLATE IV

FRONT VIEW OF CONTEMPORARY BASQUE



PLATE V

SIDE VIEW OF CONTEMPORARY BASQUE



PLATE VI

BACK VIEW OF CONTEMPORARY BASQUE

APPENDIX II

PLATES FOR MR. WORK'S SYSTEM

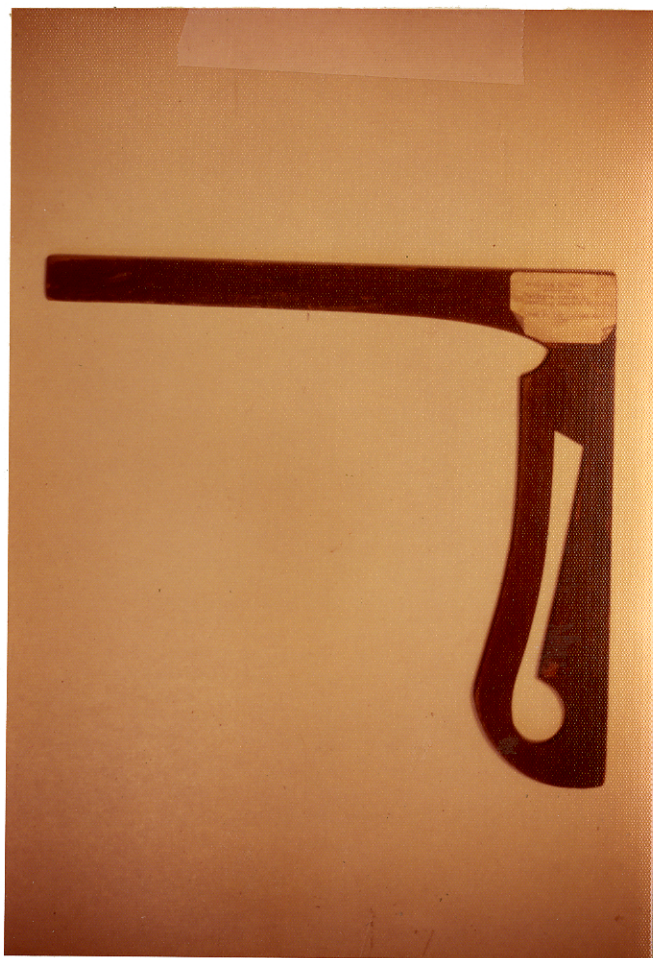


PLATE VII

1850 SQUARE (MINUS THE ARROW)

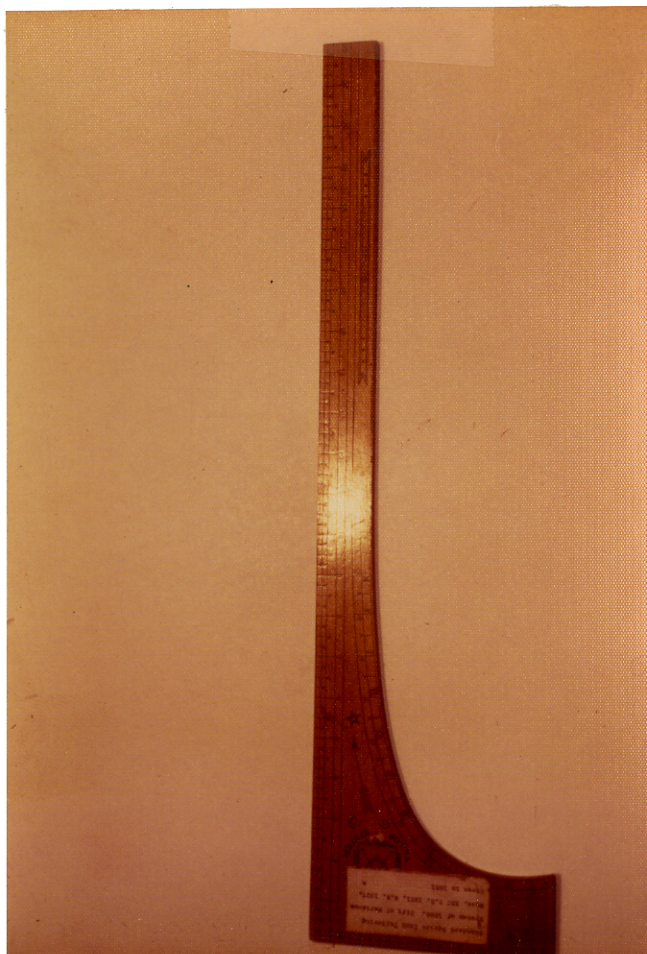


PLATE VIII

1896 SQUARE FROM THE STANDARD
SQUARE INCH TAILORING
SYSTEM



BACK OF LADIES' BASQUE
(WORK, 21:16)

FRONT OF LADIES' BASQUE

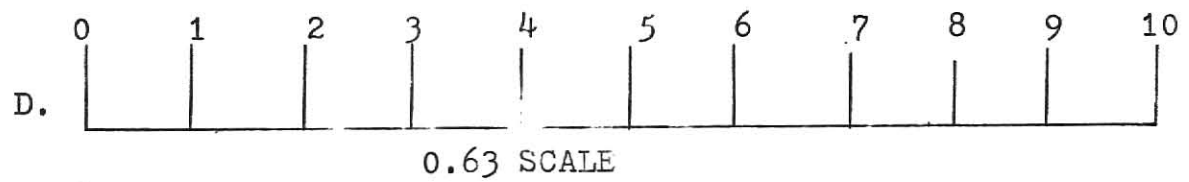
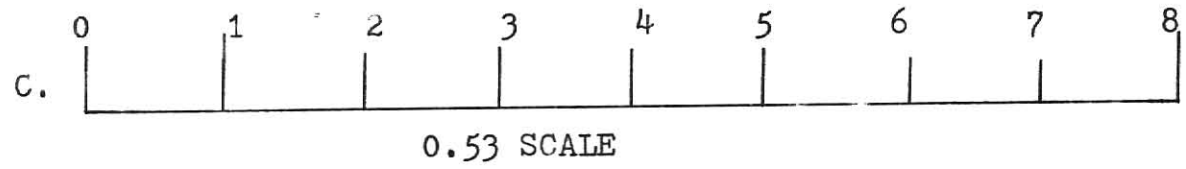
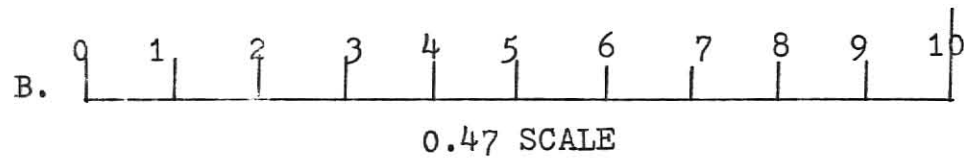
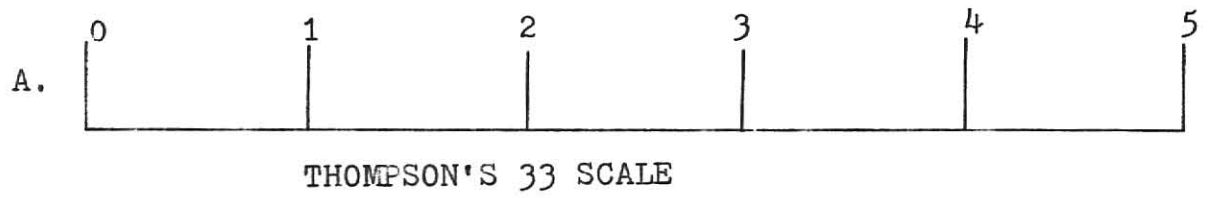


PLATE XI

SCALES

THE BALLOON (OR MELON) SLEEVE PATTERN PIECES
(WORK, 23:26)



PLATE XIII

FASHION ILLUSTRATION OF BALLOON SLEEVE
(WORK, 21:27)

(58)

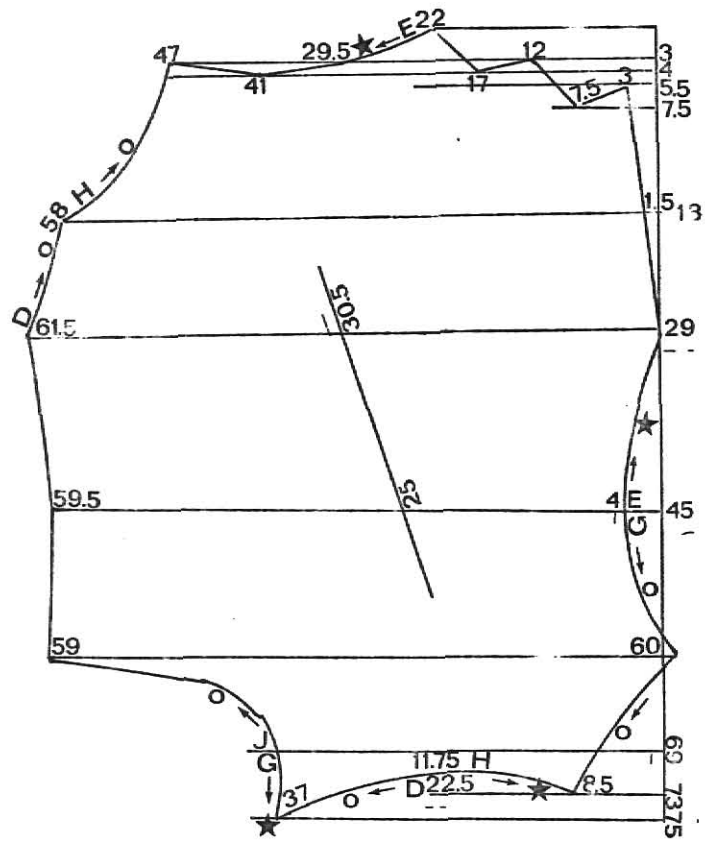
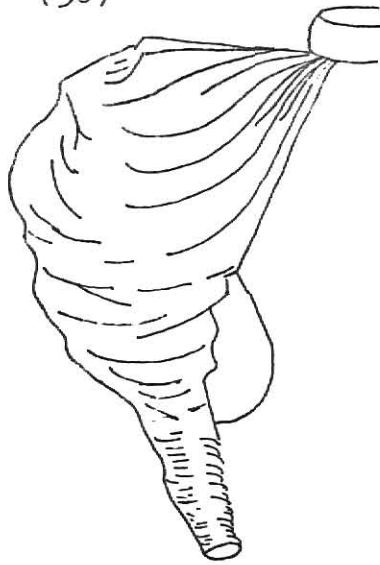


PLATE XIV

LADIES' RAGLIN SLEEVE
(WORK, 21:29)

(59)

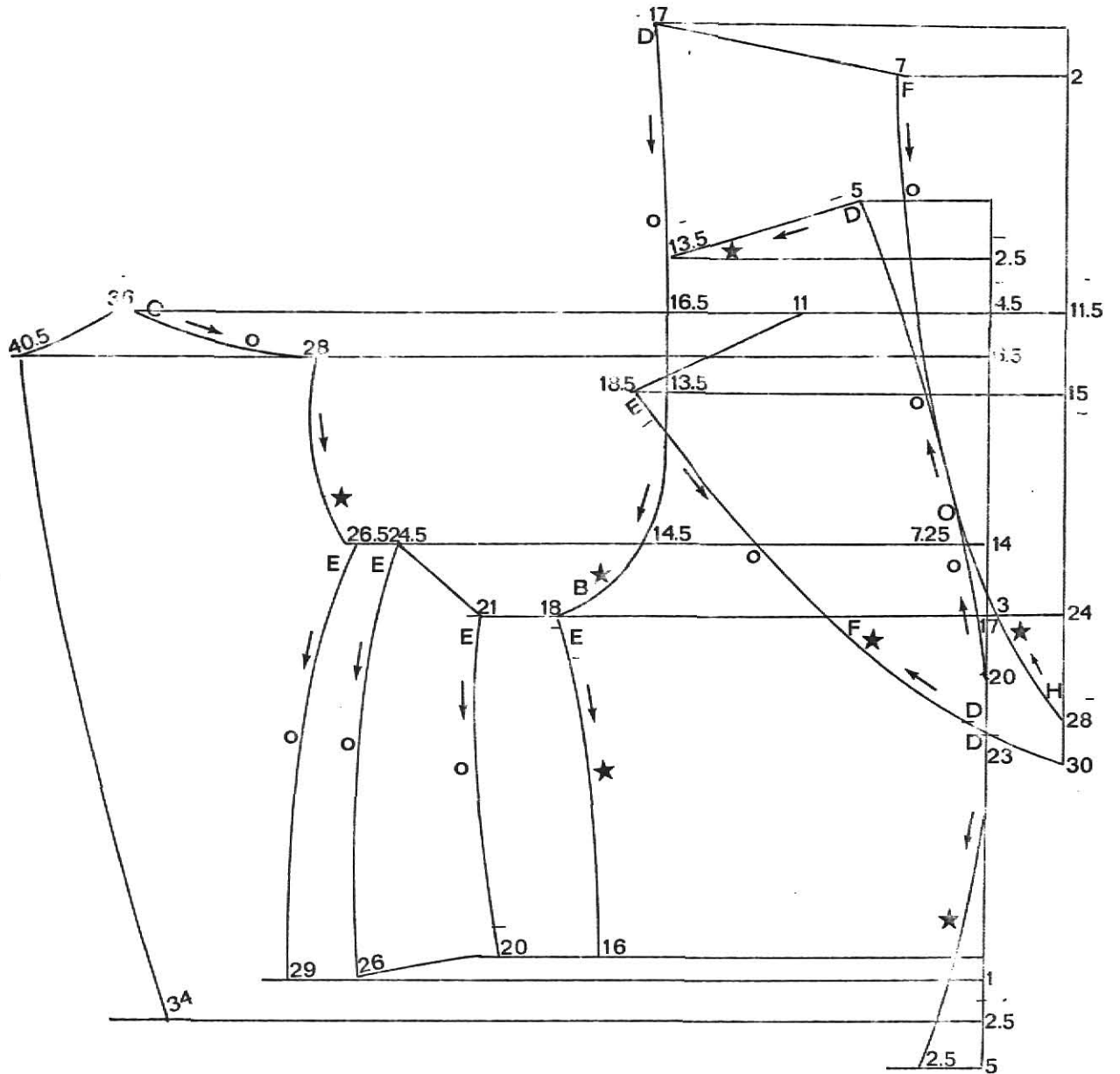
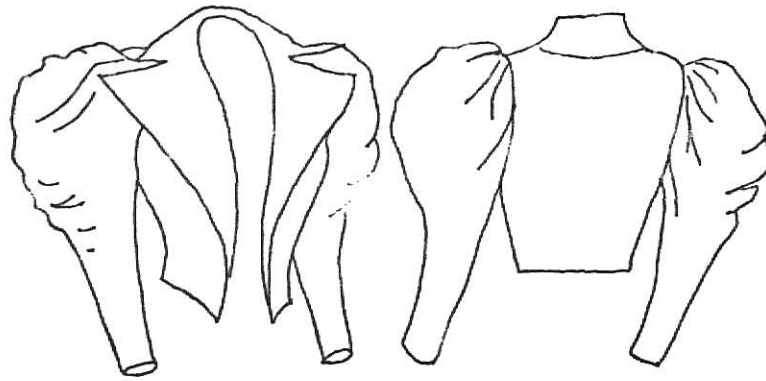


PLATE XV

LADIES' EATON JACKET (WITH LAPEL)
(WORK, 21:45)

(60)

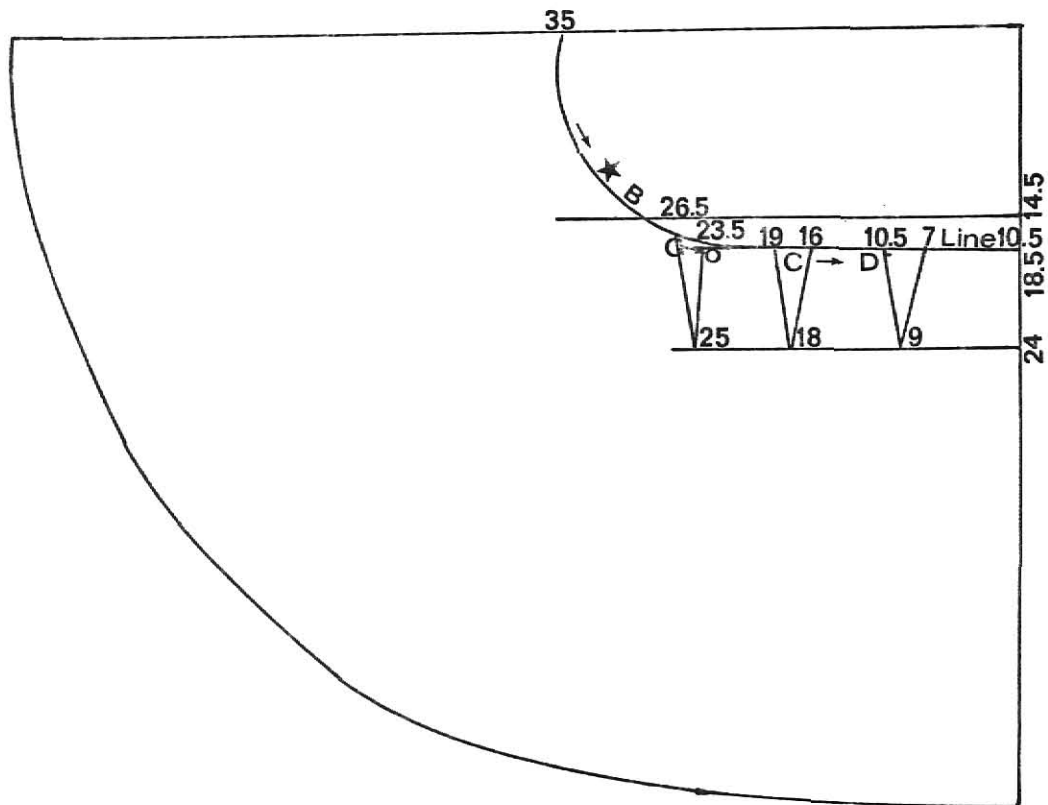
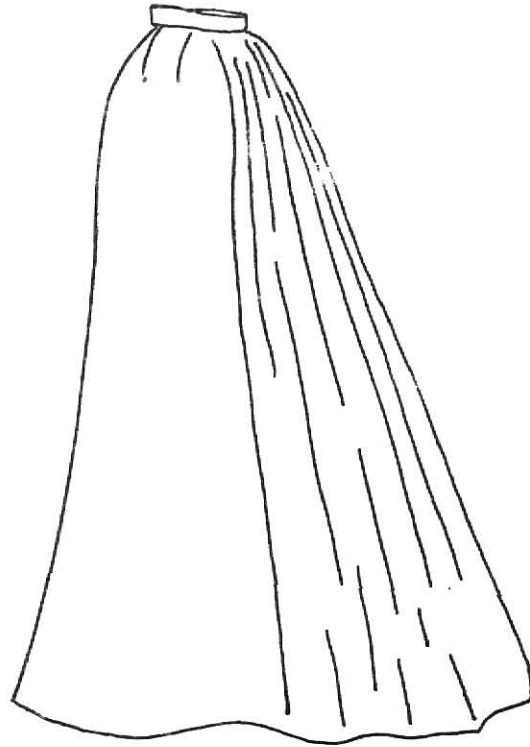
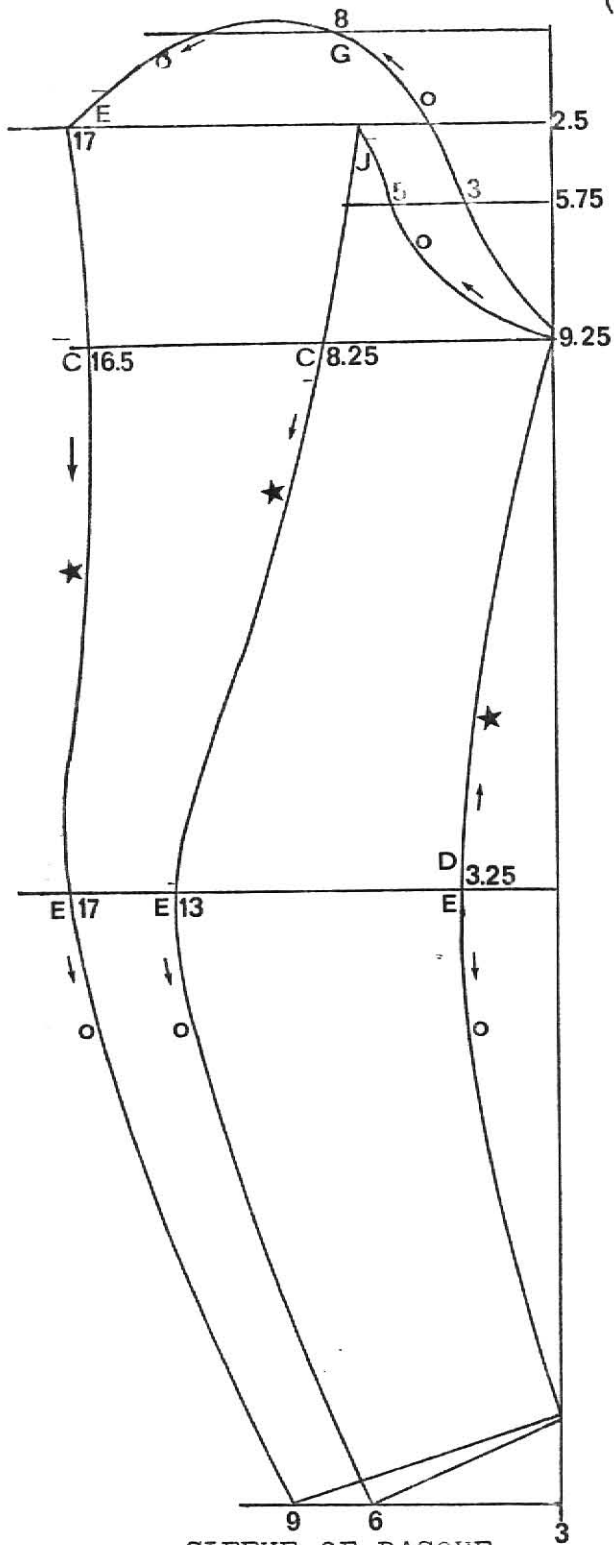
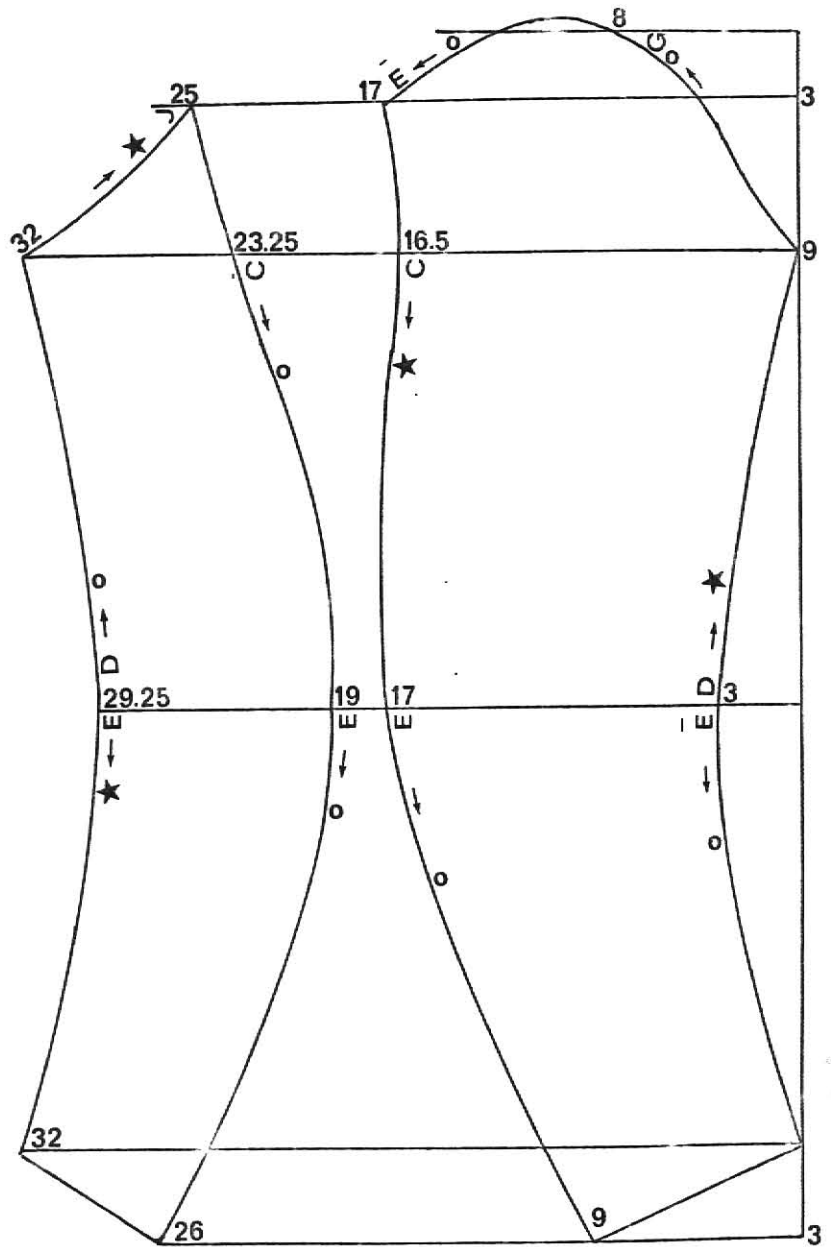


PLATE XVI

LADIES' HALF CIRCLE SKIRT WITH FULLNESS AT BACK ONLY
(WORK, 21:35)



SLEEVE OF BASQUE
(WORK, 21:16)



LADIES' TIGHT FITTING SLEEVE
(WORK, 21:30)

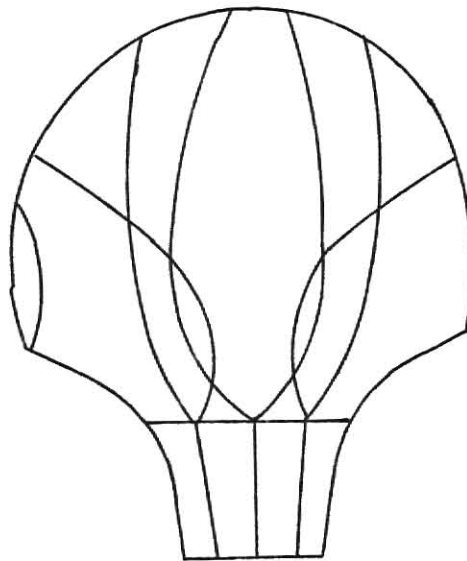


PLATE XVIII

THE STANDARD SQUARE INCH TAILORING SYSTEM'S
GORED SLEEVE PATTERN
(THE STANDARD SQUARE INCH TAILORING SYSTEM, 14:26)

(63)



PLATE XIX

FRONT VIEW OF BASQUE WITH STRAIGHT
SLEEVES AND CIRCULAR SKIRT

(64)



PLARE XX

SIDE VIEW OF BASQUE WITH STRAIGHT
SLEEVES AND CIRCULAR SKIRT



PLATE XXI

BACK VIEW OF BASQUE WITH STRAIGHT
SLEEVES AND CIRCULAR SKIRT



PLATE XXII

FRONT VIEW OF BASQUE WITH BALLOON
SLEEVES AND CIRCULAR SKIRT



PLATE XXIII

SIDE VIEW OF BASQUE WITH BALLOON
SLEEVES AND CIRCULAR SKIRT



PLATE XXIV

BACK VIEW OF BASQUE WITH BALLOON
SLEEVES AND CIRCULAR SKIRT

APPENDIX III

PLATES FOR MR. THOMPSON'S SYSTEM

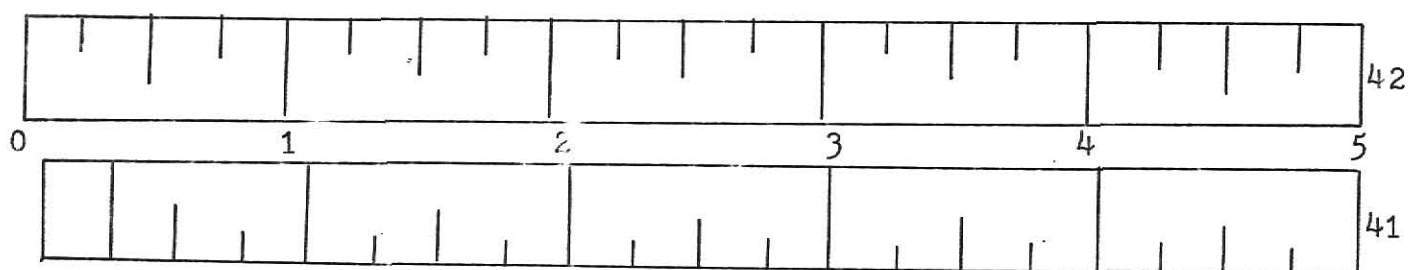
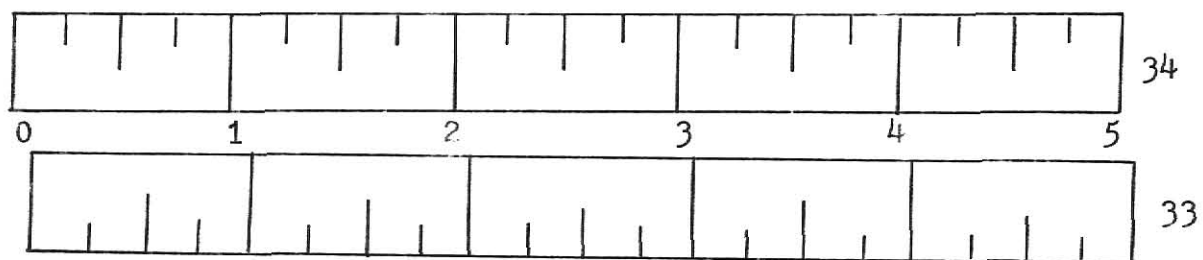
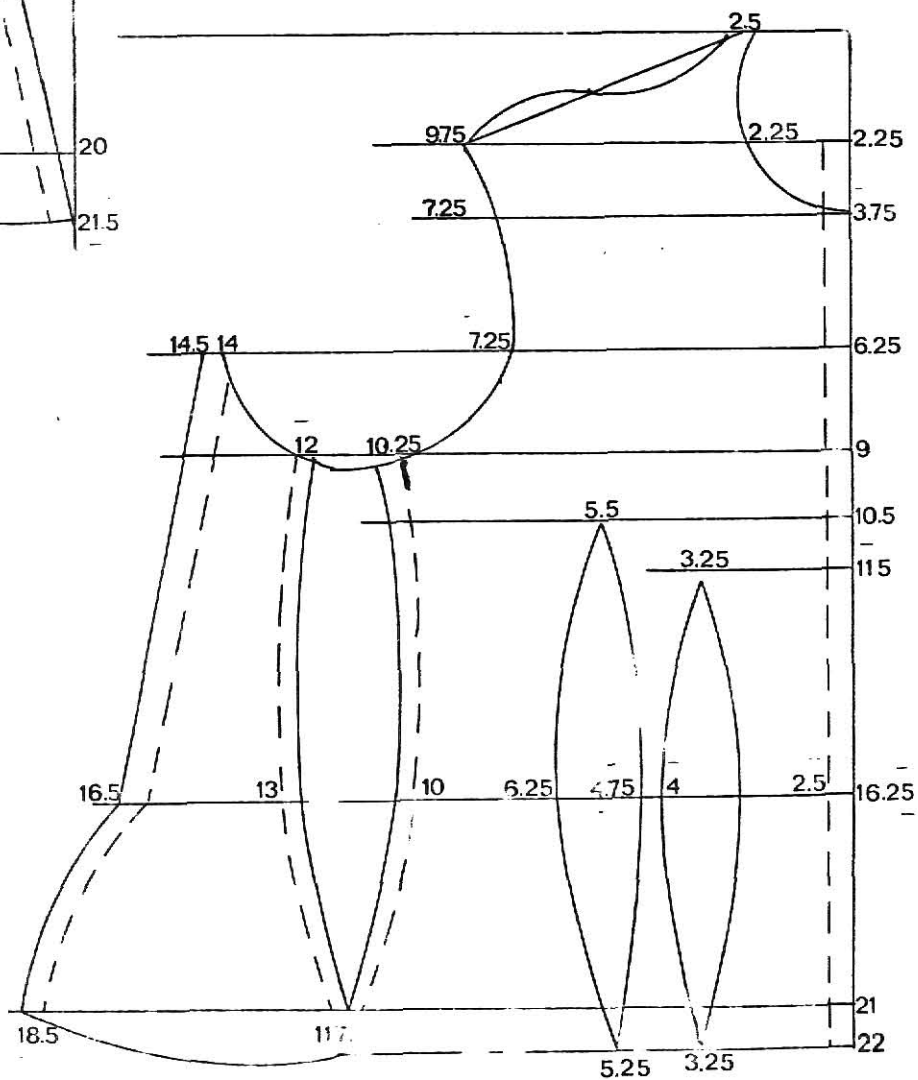
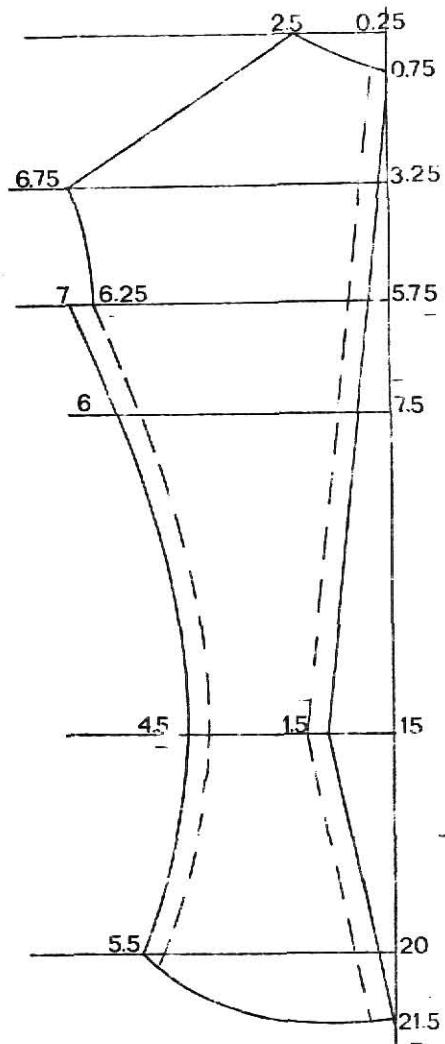


PLATE XXV

SCALES

(70)



(71)



PLATE XXVII

FRONT VIEW



PLATE XXVIII

SIDE VIEW

(73)



PLATE XXIX

BACK VIEW

APPENDIX IV

PLATES FOR MR. MCDOWELL'S SYSTEM

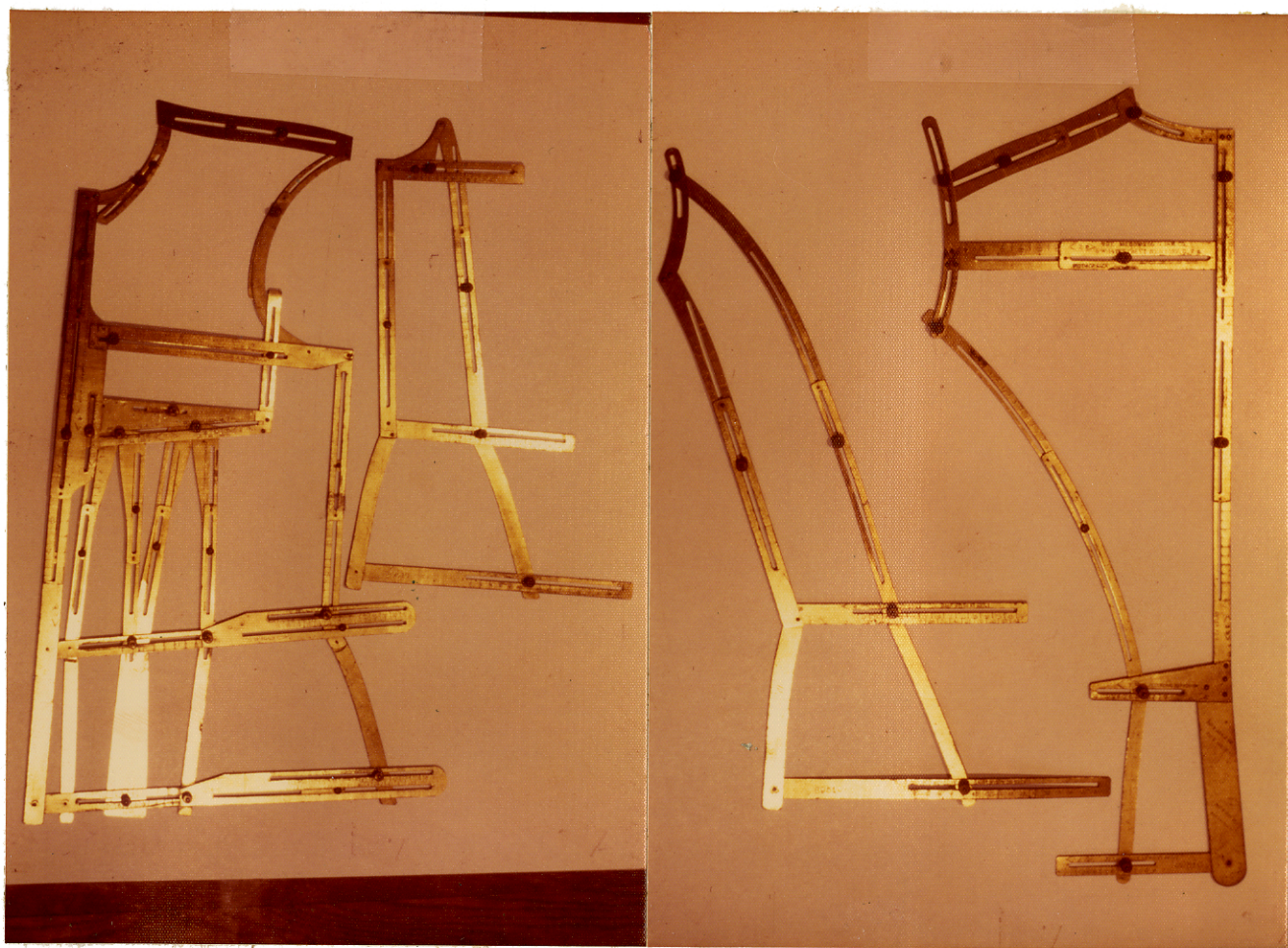


PLATE XXX

1891 MCDOWELL MACHINE

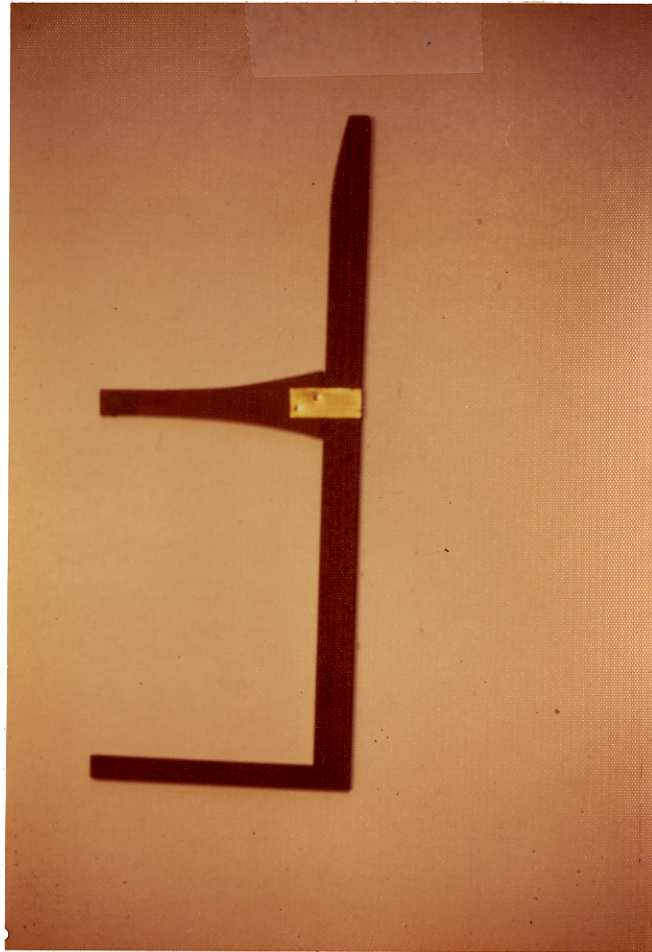


PLATE XXXI

SQAURE WITH SLIDING ARM

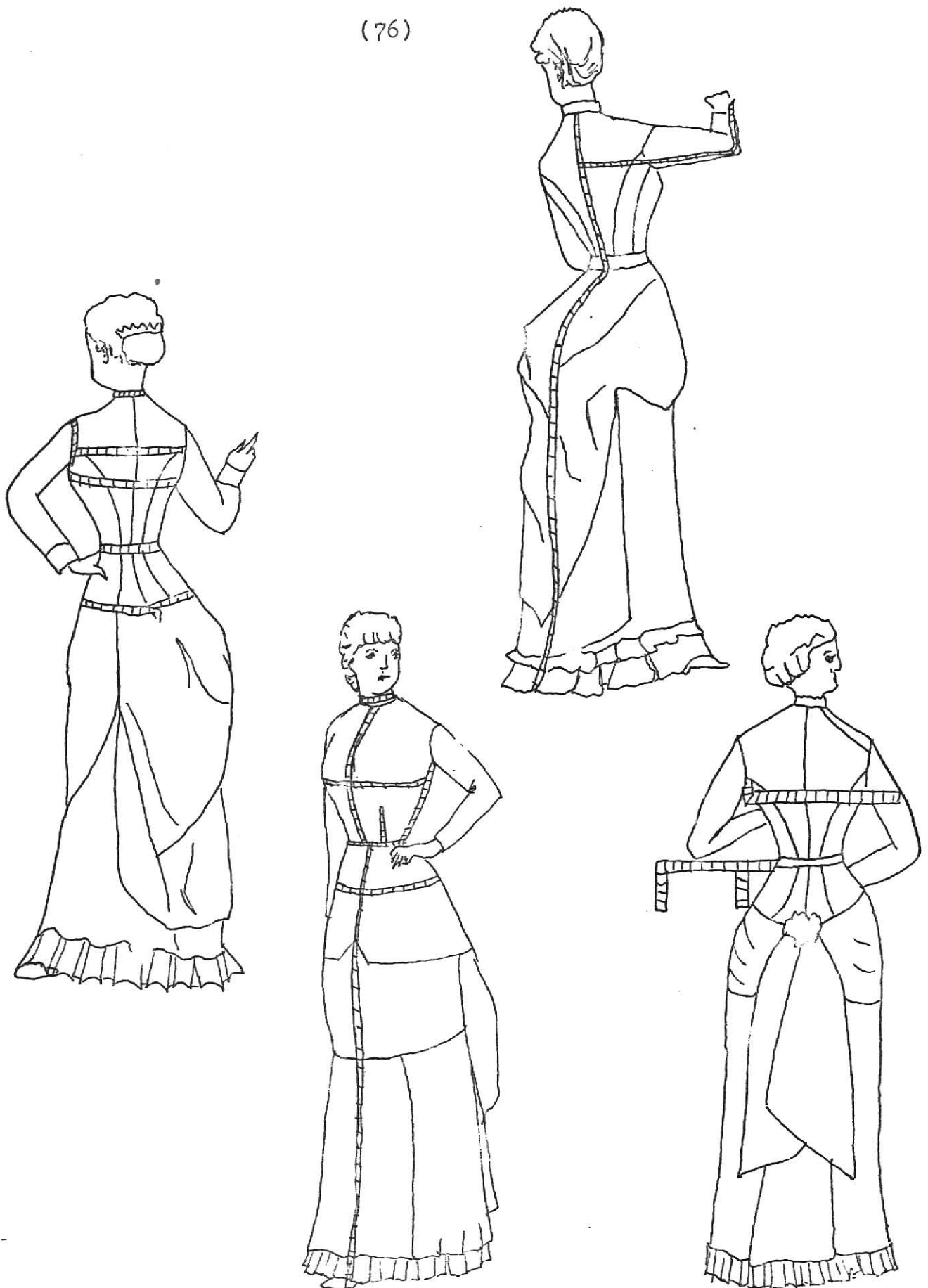
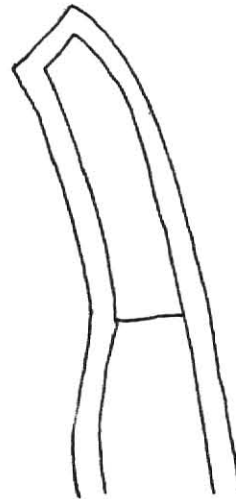


PLATE XXXII

HOW TO TAKE MEASURES
(MCDOWELL, 11:4-7)



SHAPE OF SIDE FORM
OF MACHINE



HOW SIDE FORM WAS PLACED
ON FABRIC

PLATE XXXIII

HOW TO LAY MACHINE SO WAIST IS
PERPENDICUALR TO SELVEDGE
(MCDOWELL, 11:13)

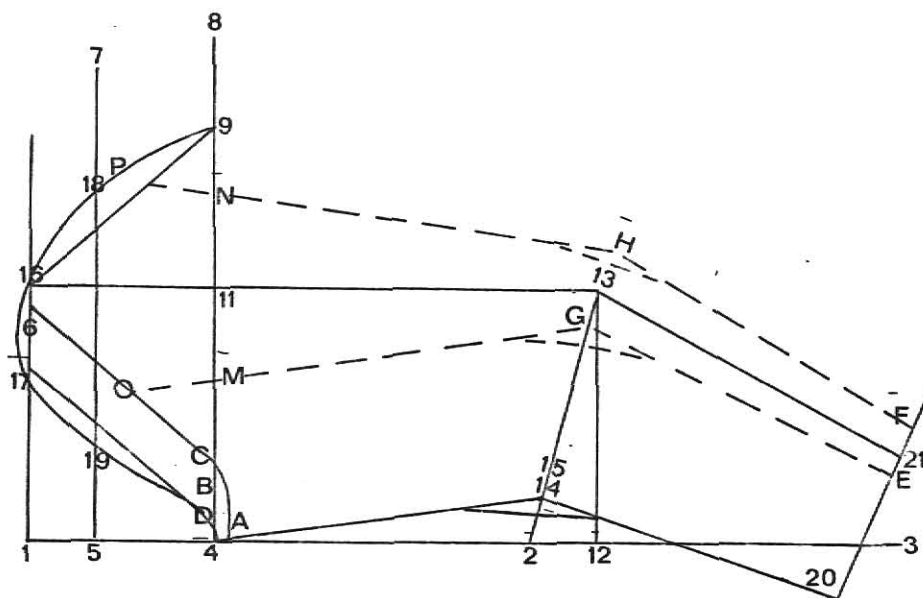


PLATE XXXIV

SLEEVE PATTERN
(MCDOWELL, 11:38)

(79)



PLATE XXXV

FRONT VIEW OF BASQUE WITH
STRAIGHT SLEEVES



PLATE XXXVI

SIDE VIEW OF BASQUE WITH
STRAIGHT SLEEVES



PLATE XXXVII

BACK VIEW OF BASQUE WITH
STRAIGHT SLEEVES



PLATE XXXVIII

FRONT VIEW OF BASQUE WITH
BALLOON SLEEVES



PLATE XXXIV

SIDE VIEW OF BASQUE WITH
BALLOON SLEEVES



PLATE XL

BACK VIEW OF BASQUE WITH
BALLOON SLEEVES

APPENDIX V

HISTORY OF UNDERGARMENTS OF THE 1890" WITH PLATES

UNDERGARMENTS OF THE EIGHTEEN NINETIES

The silhouette of the eighteen nineties as was explained in the Historical Review, consisted of a wasp-waist. The next step was to understand what kinds of undergarments helped and maintained this silhouette. There were five basic garments: chemise, drawers, petticoats, corset, and corset cover. (The bustle disappeared in 1889). The purpose of this portion of the research was to construct each of these garments by authentic methods, and to use them in the analysis of the fit of the basques and skirts constructed by the three pattern drafting methods.

PROCEDURE

CHEMISE

The chemise was a light-weight, slip-like underdress. It was usually made of fine cotton or silk. The typical style was sleeveless, scoop-neck, and knee-length. The armscye and neck were trimmed with lace. Good examples were included in Victorian Fashions and Costumes from Harper's Bazaar: 1867-1898 by Stella Blum.

The chemise pattern used was drafted from Professor W.A. Work's Champion Fitter, a proportional measure system. A sketch was given of the pattern piece and the completed

garment (PLATE XLIV). But there were no instructions on how it should be constructed. The pattern gave only a basic outline with a curved neck line, but the finished garment had a square neck line. The pattern was drafted and cut out of one hundred percent white cotton batiste. After three futile attempts to copy the square neck line, it was put on a dress form and the neck line draped to a scoop neck line. (The square neck line was discarded due to personal fashion preferences.) Once the neck line was established, a self-fabric, bias binding finished off the raw edge. An eyelet trim was stitched around the neck and black satin ribbon was run through it. The armhole was cut on the bias, therefore a clean-finished edge could be made before the eyelet ruffling was stitched on. It was hemmed just above the knees, where the ruffling began on the drawers (PLATE XLI).

DRAWERS

These were the fundamental, basic undergarment. They were very wide-legged, knee-length, 'trousers', that were gathered to a waistband or yoke. They were usually made of cotton or silk, with up to a ten inch lace frill around the knees. Because they were 'open' in the stride, they were called split drawers. By the 1890's a new style drawers was replacing split drawers, these were knickerbockers. They were gathered in at the knee and had a buttoned flap in the back (Cunnington and Cunnington, 7:196) (PLATES XLI, XLII, XLIII).

The pattern used to make the drawers was drafted from Professor W.A. Work's Champion Fitter (PLATE XLV). After the pattern was drafted, it was cut out in fifty percent polyester/fifty percent cotton, white broadcloth. The drawers were designed without a side seam, so the inseam and stride seam formed the shape of the drawers. The fullness at the top was gathered to a waistband. The legs were hemmed at the knees and two rows of eyelet ruffling trimmed each leg. The drawers were very full and the crotch depth extremely long, coming halfway down to the knees.

PETTICOATS

In 1891 petticoats are $2\frac{1}{2}$ yards wide at the hem, close gored at the top, with a draw-string behind; trimmed with one or two scanty frills of scalloped embroidery with insertion.

The white petticoat, which had been temporarily eclipsed by the coloured, recovered its supremacy in 1894, enriched with accordion-pleated frills and coloured baby ribbons. And the next year this elaborate affair 'now at the zenith of its glory', might be 'of spotted net with endless rows of tucks, lace insertions, frillings, and puffings.' By this date it was becoming very much gored at the top and wide at the hem, where it was often edged with ruching (Cunnington and Cunnington, 7:196).

A petticoat guaranteed to produce an intriguing rustle as the wearer moved was made of moreen (Cunnington and Cunnington, 7:197).

Once again Professor W.A. Work's Champion Fitter pattern drafting system was used. But as usual there were

no instructions on how to make the petticoat (PLATE XLIX). Once the pattern was drafted, the petticoat was cut out of fifty percent polyester/fifty percent white cotton broadcloth. The upper portion of the petticoat was sewn together and the darts put in the front. A draw-string arrangement was tried at the waist, but it could not be pulled small enough. It was then decided to try a standard waistband in the front and an elastic casing in the back, but this still did not pull the waist small enough. The final solution was to gauge the excess into the center back of the waistband. The circular flounce was added, but the flounce was smaller than the width of the upper portion; meaning the upper portion had to be tapered some. It was found that the two seams in the flounce were meant to be in the center front and center back. The hem of the petticoat was marked before the eyelet ruffling was attached (PLATES XLVI, XLVII, XLVIII). The second petticoat was made from the pattern for the upper portion and a gathered ruffle added on instead of a flared flounce. The second petticoat was made of eyelet, to be worn as a top skirt at a later date (PLATES LI, LII, LIII).

CORSET

"The 1890's saw a somewhat shortened form, with a considerable degree of tight-lacing. It was a girl's ambition to have, at marriage, a waist-measurement not

exceeding the number of years of her age--and to marry before she was twenty-one" (Cunnington and Cunnington, 7:197-198).

To make an 1890's corset three sources were used: Norah Waugh's Corsets and Crinolines, Stella Blum's Victorian Fashions and Costumes from Harper's Bazaar: 1867-1898, and an 1890's corset from the Kansas State University historic costume collection. The first two sources were limited, but gave good pictures, descriptions, and Norah Waugh even gave instructions on how to construct a corset. However, the actual proportions and pattern pieces were vague. By carefully studying the actual historic corset (PLATE LIII), it was discovered that the outer boning and shaping did not correspond to the inner seam construction. The inside was shaped from a basque pattern and this corset had six pieces on each side. Using McDowell's Garment Drafting Machine (PLATE XXX), set to actual measurements, a pattern for a two dart (on each side) basque was drawn out. The first dart was $1 \frac{3}{8}$ " wide at the waist and $\frac{3}{4}$ " wide at the bottom. The second dart was $1 \frac{3}{8}$ " wide at the waist and $1 \frac{1}{4}$ " wide at the bottom. It was decided to get a single dart which would be 2" instead of $2 \frac{3}{4}$ ", because the large dart would put too much curve onto the first seam. It was found that by measuring across from the center of the first dart two inches the outer points of the new dart were obtained. The terminating point of the new dart was half way between the terminating points of the two old darts. The width at the

bottom was $1\frac{1}{4}$ ", instead of two inches. This extra $\frac{3}{4}$ " was taken off the side piece. To form the center front corset pattern piece (#1) the dart was cut out. The side front pattern piece (#2) was formed from the section cut off. The two side forms were used to form three side pattern pieces of the corset (#3, #4, #5). The back corset pattern piece (#6) was formed from the back pattern piece of the basque. It was important to mark the waist line seam across each piece. The outline of the top was seven inches above the waist line at the center front and center back. The other proportions were estimated from measuring the historic corset and the actual figure of the researcher. The waist line of the finished pattern piece was made to be 24 inches. No seam allowances were allowed. Each piece was cut in muslin; the waist line marked; and each piece numbered above the waist, because it was difficult to tell the top from the bottom. (The waist line was parallel to the crosswise grain and perpendicular to the lengthwise grain.) An eighth of an inch seam was stitched and pressed open. This was a fitting copy, and problems were immediately obvious. The muslin was then fit to a dress form and another piece was needed in the side front area to fit in the waist and open over a very abrupt, high hip line. This fit in between pieces 2 and 3. The pieces were now numbered one through seven, front to back. The second muslin copy fit very well, therefore, the final copy was cut out in white, cotton sateen for both the front and

the lining. After the seams were sewn and pressed open (in both the front and the lining), the pieces were laid wrong sides together and basted.

The next step was to make casings for the boning. The seams were not on straight grain, therefore not as strong. Strips of cotton sateen, cut on the straight grain, were used to make the casings. The structural seaming does not necessarily affect the placement or shaping of the bones. Using the historical corset for reference, the casings were placed in the following manner on the front of the corset:

- a three boned section 1/2" from center front
- a three boned section centered over the first seam
- a two boned section next to the previous section,
meeting at the waist and from there following
up the second seam line
- a single boned casing over the third seam
- a three boned section centered over the fourth seam
- a three boned section centered over the fifth seam
- a three boned section centered over the sixth seam
- a two boned section 1/2" from center back

After these were sewn in place, between the first and second casings and the second and third casings, radiating rows of stitching (which formed 1/4" casings) were stitched in to form the bust area. The corset was now ready to bone. Using commercially available nylon boning (which had the fabric covering stripped off) each casing was filled. For the quarter inch casings, two small strands of nylon were used. The boning stopped 1/2" above each opening so a bias cotton sateen strip could be sewn to the raw edges and turned over. The finishing touches were left: the raw edges of the center front and

center back were turned in a quarter of an inch and slip-stitched together; twenty metal eyelets, set 1/2" apart, were worked down each side of the center back; thirteen metal trousser hooks, set one inch apart, were sewn down the front (to cover the metal hooks, a piece of grosgrain ribbon was run along the edge); the eyelet trim and ribbon was sewn along the top and bottom edges; and the finishing touches were embroidered X's on each individual boned casing, top and bottom (PLATES XLI, XLII, XLIII).

CORSET COVER OF CAMISOLE

"High and close-fitting for day wear, with a low V neck line for evening; either plain or trimmed with lace edging. In 1891 it was sometimes made without fastenings, the fronts, cut on the cross, crossing over and tucking under the petticoat band" (Cunnington and Cunnington, 7:198-199). This was a description of a corset cover or camisole as it was also called, which was designed to keep the corset clean.

McDowell's Garment Drafting Machine was used to make an eyelet corset cover. It was made the same as a basic basque, but was sleeveless. The neck line was scooped, to coordinate with the chemise, and trimmed with eyelet ruffling. The armscye was also trimmed with it. It buttoned up the front with twelve small buttons (PLATES L, LI, LII). There were numerous neck treatments, including yokes and high collars. The style depended on the choice of the individual.

This item completed the study of undergarments. The process of dressing began with the drawers, chemise, petticoat, corset, corset cover, and a second petticoat could be worn on top of the corset or under it--this was up to the individual's preference. On top of all this was worn the skirt and basque made of a heavy fabric which was generally lined.



PLATE XLI

FRONT VIEW OF CHEMISE, CORSET, AND
DRAWERS



PLATE XLII

SIDE VIEW OF CHEMISE, CORSET, AND
DRAWERS



PLATE XLIII

BACK VIEW OF CHEMISE, CORSET, AND
DRAWERS

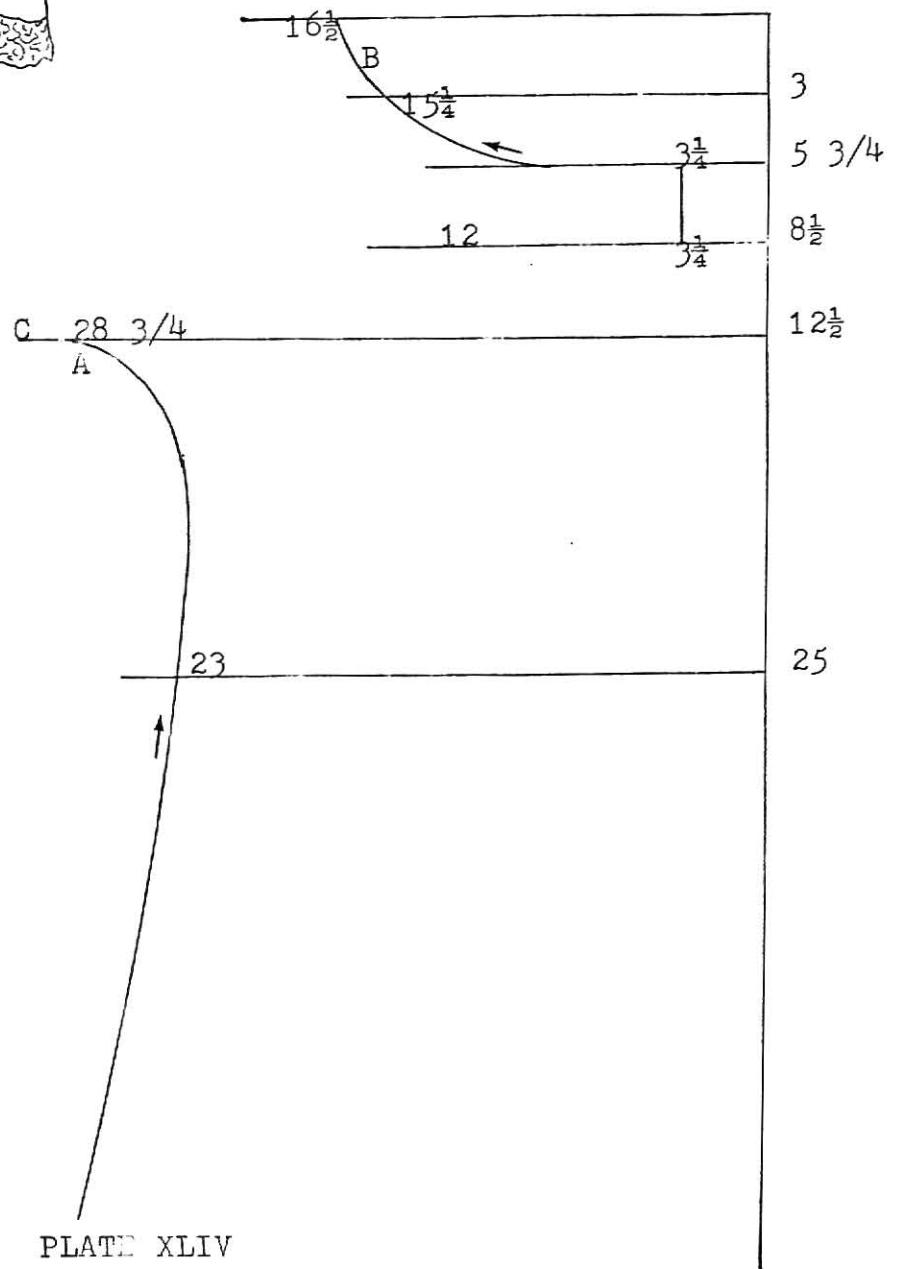
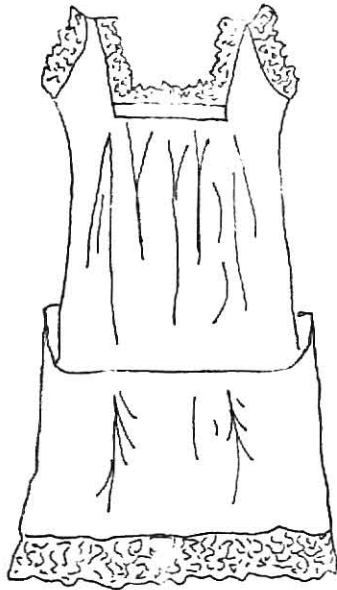
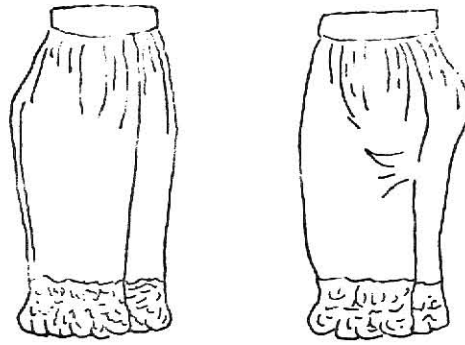


PLATE XLIV

LADIES' CHEMISE
(WORK, 21:57-58)



LADIES' DRAWERS

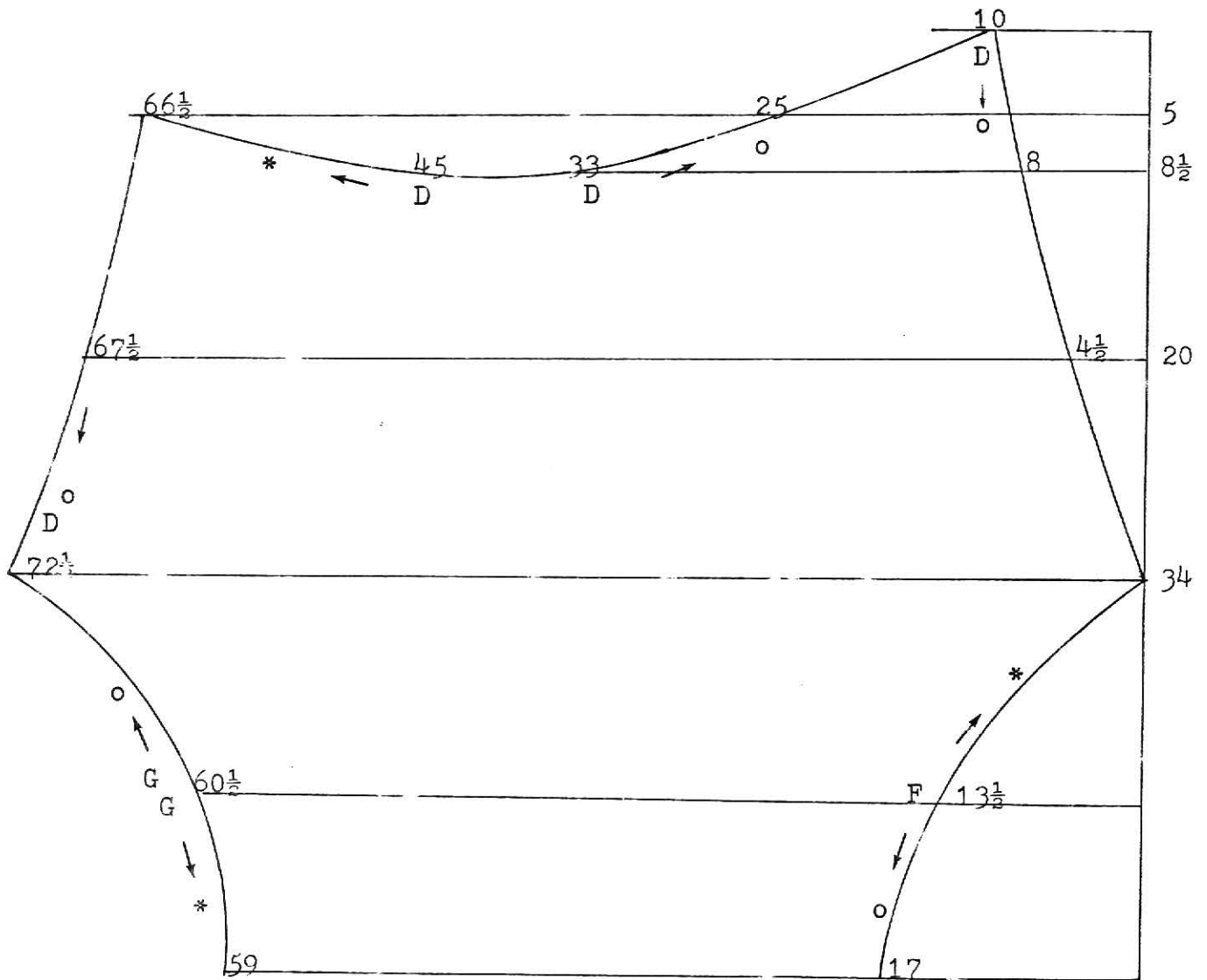


PLATE XLV

PATTERN FOR LADIES' DRAWERS
(WORK, 21:62)



PLATE XLVI

FRONT VIEW OF CHEMISE, CORSET,
DRAWERS, AND PETTICOAT

(100)



PLATE XLVII

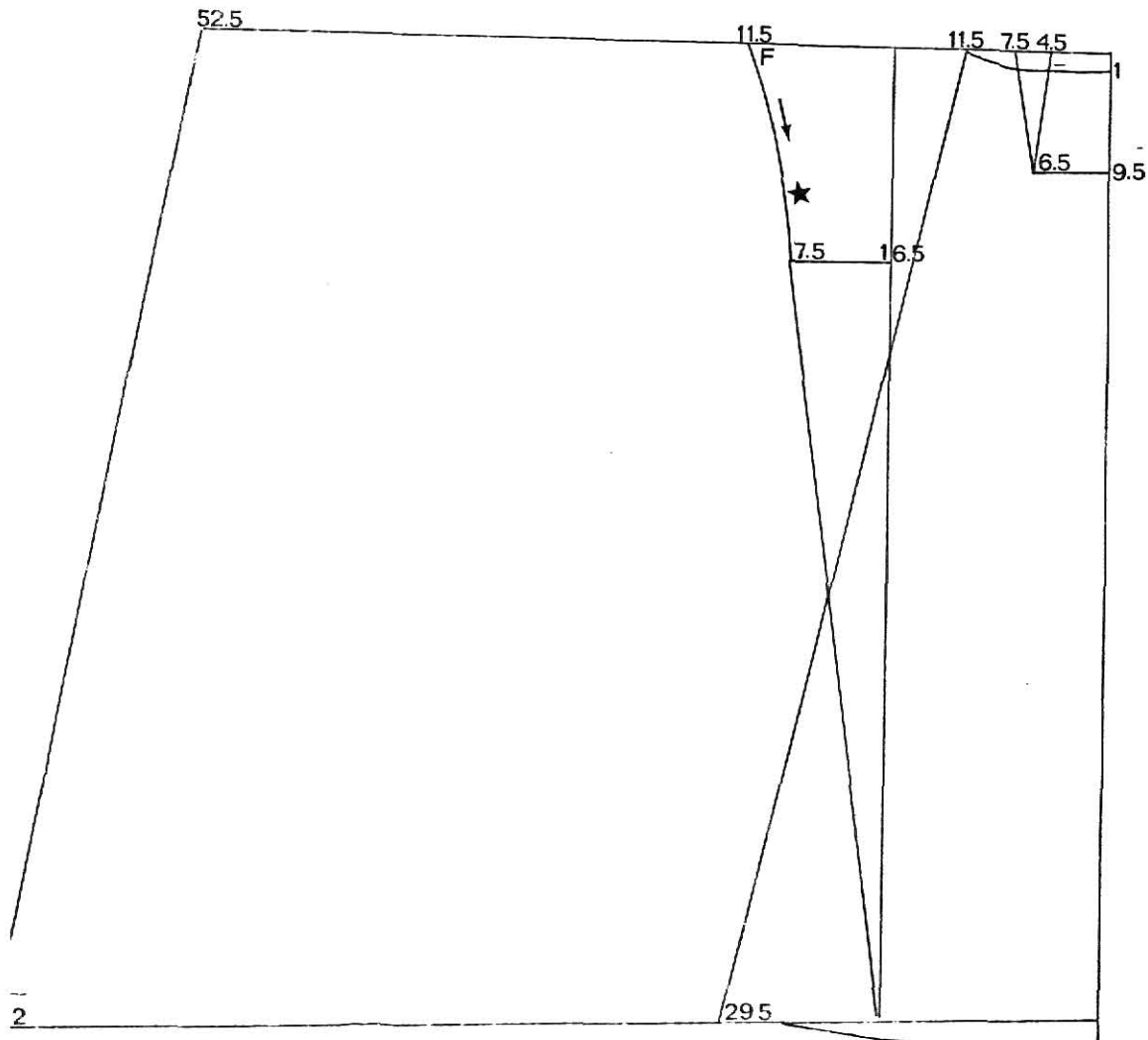
SIDE VIEW OF CHEMISE, CORSET,
DRAWERS, AND PETTICOAT



PLATE XLVIII

BACK VIEW OF CHEMISE, CORSET,
DRAWERS, AND PETTICOAT

LADIES' UMBRELLA PETTICOAT PATTERN
(WORK, 21:16-17)



(103)



PLATE L

FRONT VIEW OF CHEMISE, CORSET,
DRAWERS, PETICOATS, AND
CORSET COVER



PLATE LI

SIDE VIEW OF CHEMISE, CORSET,
DRAWERS, PETTICOATS, AND
CORSET COVER



PLATE LII

BACK VIEW OF CHEMISE, CORSET,
DRAWERS, PETTICOATS, AND
CORSET COVER

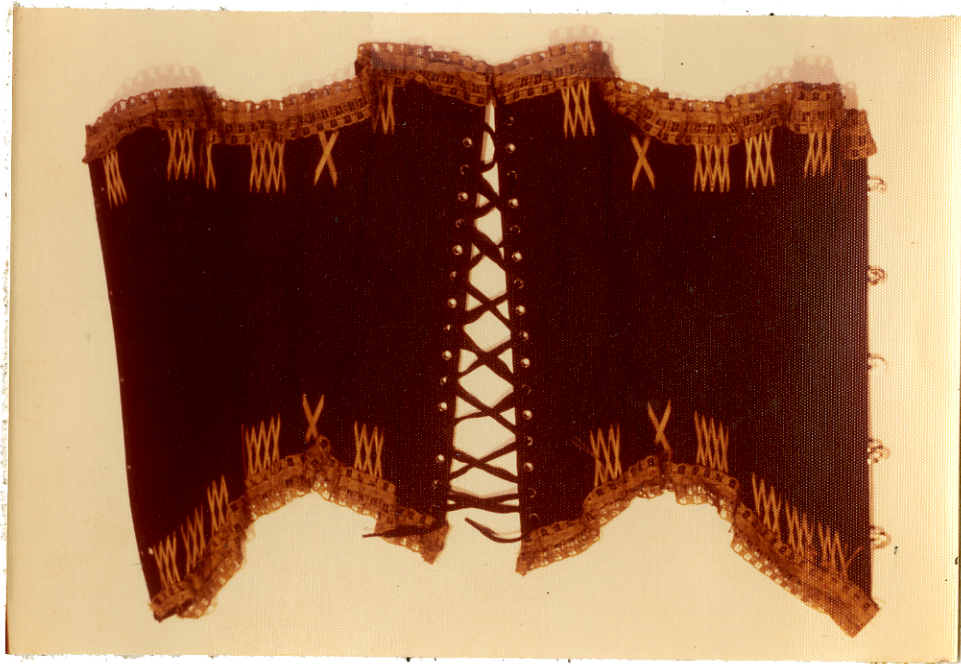


PLATE LIII

BLACK CORSET FROM HISTORIC
COSTUME COLLECTION

GLOSSARY

armscye	the opening for the sleeve; armhole
balloon sleeve	the upper portion of the sleeve is round and full giving the shape of a ball or balloon. It is straight from the elbow down. This is done with a number of shaped pattern pieces tapering in at the elbow and forearm.
basque	tight-fitting, jacket-like bodice of the nineteenth century, usually having several bust darts in the front and elaborate seaming to fit the back without darts.
buckram	fabric stiffened with paste or glue, very boardy
bustle	artificial substructure worn under the skirt to hold it out in the back, often called a tournure.
camisole	corset cover or 'petticoat bodice' worn over the corset to keep it clean
corset	a close-fitting bodice shaped with whale-bone, cane, or steel. Laced down the back so it could be pulled tightly at the waist. It was usually without straps, but some that were only boned with cording do have straps.
crinoline	artificially stiffened petticoat, usually stiffened with horsehair. Later the word was associated with the 'cage' which supported the full skirt silhouette of the 1850's and 1860's.
ease	the amount of extra fabric needed for unrestricted movement

gauging	a method of gathering a large amount of fabric into a small area by making small accordion pleats or standing pleats. $21\frac{1}{2}$ " of fabric pleated into $\frac{1}{4}$ " folds equals $1\frac{3}{4}$ " finished length. The top edge of the skirt was turned over along the waist line's seam line, the pleats were held in by running a thread through the center of the pleats, the skirt was attached to the waistband by catching the center of each pleat and tacking it to the lower edge of the waistband. The pleats were then free moving.
gored sleeve	very full in the top and fitting at the forearm. The sleeve is formed by four shaped pattern pieces. The fitted lower arm may be cut in one with the upper half or a separated seam may be used around the elbow.
leg-of-mutton sleeve	a full sleeve tapered at the forearm, usually made from a single pattern piece.
passementerie	any woven ornamentation applied to a garment
polonaise	a bodice with a skirt attached which is worn with the skirt open in the front and draped up over the hips revealing the under skirt in the front
revers	applied lapels sewn down to the front of the bodice.
stance	in the 1890's the corset pulled the figure very erect, pulling the shoulders back causing a narrow back shoulder width.
tournure	see bustle

BIBLIOGRAPHY

BOOKS:

1. Arnold, Janet. The Handbook of Costume. London: Macmillan, 1973.
2. _____. Patterns of Fashion, Englishwomen's dresses and their construction, c. 1640-1860, Vol. I and c. 1860-1940, Vol. II. London: Wace Publishers, 1966, pp. 40-50 Vol. II.
3. Blum, Stella. Victorian Fashions and Costumes, From Harper's Bazaar: 1867-1898. New York: Dover Publications, 1974, pp. 216-294.
4. Bono, Edward de. Eureka. New York: Hold, Rinehart, and Winston, 1974, pp. 216-294.
5. Boucher, Francois. 20,000 Years of Fashion. New York: Harry N. Abrams, Inc., pp. 388-402.
6. Cooper, Grace Rogers. The Invention of the Sewing Machine. Washington D.C.: Smithsonian Institute, 1968, pp. 3-54.
7. Cunnington, C. Willett and Phyllis Cunnington. The History of Underclothes. London: Michael Joseph, 1951, pp. 184-199.
8. Giles, Edward B. The History of the Art of Cutting in England. London: F.T. Prewett, 1887, pp. 72-192.
9. Happle-Hutcheson, J. Mr. Wampen's World of Renowned System of Anthropometry. Chicago: J. Happle-Hutcheson, 1903.
10. Kybalona, Ludmila, Olga Herbenova, and Melina Lamarova. The Pictorial History of Fashion. London: Hamlyn, 1968, pp. 293-327.
11. McDowell, A. Garment Drafting Machine. New York: McDowell Garment Drafting Machine Company, 1891.

12. Payne, Blanche. History of Costume. New York: Harper and Row, 1965, pp. 529-555.
13. Saunders, Ann ed. La Belle Epoque: Costume 1890-1914. London: Victoria and Albert Museum, 1968.
14. The Standard Square Inch Tailoring System. Chicago: The Standard Garment Cutting Company, 1896.
15. Thompson, F.E. Universal Garment Cutter. Kansas City: Press of Ramsey, Millett, and Hudson, 1884.
16. Waugh, Norah. Corsets and Crinolines. New York: Theater Arts Books, 1954, pp. 75-169.
17. _____. The Cut of Men's Clothes 1600-1900. London: Faber and Faber Limited, 1964.
18. _____. The Cut of Women's Clothes 1600-1930. London: Faber and Faber Limited, 1968, pp. 185-232.
19. Wilcox, R. Turner. The Mode of Costume. New York: Charles Scribner's Sons, 1948, pp. 319-327.
20. Work, W.A. Champion Fitter. St. Louis: W.A. Work, 1885.
21. _____. Diagram and Instruction Book, revised. St. Louis: W.A. Work. 1896.
22. _____. Work's Quarterly Fashions. St. Louis: W.A. Work, January, 1896.
23. _____. Work's Quarterly Fashions. St. Louis: W.A. Work, April, 1896.

PERIODICALS:

24. Born, W. "Crinoline and Bustle." Ciba Review 46 (May, 1943): pp. 1658-1692.
25. Hooper, Emma H. "Hints on Home Dressmaking." Ladies' Home Journal (March, 1890): p. 16
26. _____. "Hints on Home Dressmaking." Ladies' Home Journal (May, 1890): p. 16.

A QUALITATIVE STUDY OF THREE AMERICAN PATTERN
DRAFTING SYSTEMS OF THE LATE NINETEENTH CENTURY

by

KAREN SUNDBY BURFORD

B. S., Auburn University, 1974

AN ABSTRACT OF A MASTER'S THESIS

submitted in partial fulfillment of the

requirements for the degree

MASTER OF SCIENCE

Department of Clothing, Textiles, and Interior Design

KANSAS STATE UNIVERSITY
Manhattan, Kansas

1976

ABSTRACT

The purposes of this study were (1) to examine three late nineteenth century American pattern drafting systems and (2) to provide an explanation of how to use the systems, so that historians and designers may reproduce authentic garments by employing the original methods. The three methods chosen were: Professor W.A. Work's Champion Fitter (patented 1885), Mr. F.E. Thompson's Universal Garment Cutter (patented 1881), and Mr. A. McDowell's Garment Drafting Machine (patented 1879). The first two were proportional measurement systems using sets of graduated scales, while the last one was a direct measurement system.

Each method was tested by drafting an identical style and constructing it in gingham. The next phase was to analyze each system's strengths and weaknesses in relationship with the others, using fit as the primary comparative factor. Other factors compared were: grain lines and manipulation of grain; structural details; amount of ease; darts and seaming; and the set of the sleeves and waist lines. A separate study was made of undergarments from the 1890's and how they affected the silhouette and fit of the garments.

In conclusion, of the three methods, Mr. McDowell gave the most precise, accurate instructions and best fit;

Mr. Work gave the greatest variety in drafting different styles. None of the authors gave any instructions on how to construct the garments. They assumed the nineteenth century seamstresses knew how to construct the garment once it was cut out. Since the author of this research had no reference book on nineteenth century sewing techniques, the construction methods used were based on personal experience, examination of authentic garments, and articles on sewing from 1890's women's magazines. Mr. McDowell's system was the favored method since its fit conformed to modern standards and presented a number of challenging prospects. Mr. Work's great variety of patterns aided in a fuller understanding of garment styles of the 1890's, while Mr. Thompson's basque aided in understanding the silhouette of the 1880's.

The results of this research could lead to further study in developing a history of American pattern drafting systems, since one is not available at this time.