

RELATION OF PRICE TO THE SIMILARITY BETWEEN MEASUREMENTS
OF CERTAIN COMMERCIALY MADE GARMENTS AND SIMILAR
MEASUREMENTS OF A SELECTED GROUP OF WOMEN

by

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INTRODUCTION

In the selection of a dress, there is a growing tendency for the purchaser to consider the fit of the garment of as great importance as style or quality of material. Consumers recognize the lack of uniformity which exists in the measurements of ready-made garments of a given size. This irregularity in garment proportions is a source of annoyance to the purchaser because of time lost in making selections; it is the cause of considerable waste to the retailer due to the additional time required of the clerk in making a sale and in the additional cost of necessary alterations.

It is not to be expected that a perfectly fitted garment may be secured for every individual due to the wide variations found in physical proportions. However, it is felt that great improvement would result if garment proportions and the location of basic garment lines could be made more uniform so as to coincide closely with the measurements of the average figure.

The lack of conformity of dress proportions to those of the human figure has seemed more evident among low

quality garments than among those of a higher price. It appears that a direct relationship exists between price and the similarity of garment and body measurements. As the price decreases, less uniformity seems to exist between garments of the same size. There are few facts which verify these suppositions and it seems desirable to study the relationship which exists between human proportions and the proportions of dresses which fall into various price groups.

This investigation has been made:

1. To determine to what extent there is uniformity in the sizes of commercially made dresses.
2. To find if any relationship exists between the price of the garment and garment proportions.
3. To determine what relationship price bears to the similarity between the measurements of the garment and the human figure.

REVIEW OF LITERATURE

The development of the ready-made clothing industry began about 1830, but was not started upon its modern career until after the invention of the sewing machine in 1846. There is no record of the first shops or factories

where the wholesale manufacture of women's clothing began (Levine 1924). It is believed that the transition from the home to the factory took place in two ways. Some of the larger custom shops made garments in advance of specific orders and sold them to retail stores. Also the owners of department stores employed seamstresses in making up garments for stock or for sale to country stores and to "traveling merchants". The first efforts on record were directed toward the production of cloaks, coats and mantillas in 1840, while the manufacture of hoop skirts soon followed (Bryner 1916).

During the Civil War period (1860-1875) the government ordered large quantities of clothing for soldiers, but little attention was then given to sizing or to proper fitting. Since that time a more or less arbitrary standard of measurements has been developed which is based almost wholly upon the trial and error method. As complaints came into the factory, the scale of measurements was adjusted to eliminate the recognized unsatisfactory condition (Nystrom 1917).

In later years it has been commonly assumed that a great number of people were measured and results classified so that hip, bust, waist and other measurements of a

garment labeled 36, accurately represented the measurements of the great majority of women of that size. An investigation made by O'Brien (1930) showed that no such study had been made. She suggests that probably manufacturers, hard pressed, had measured small groups of people who seemed average. Their proportions were accepted as ideal 36's and 38's and by means of theoretical subtractions and additions for thin and stout figures, a proportion supposedly correct was derived. In some instances measurements of so called perfect figures have been used, but what constituted perfect proportions seemed indefinite. In other cases it is claimed that measurements have been based upon army and insurance records. These have proved inadequate since they were found to give only height, weight and chest circumference (O'Brien, 1930). A manufacturing company (Women's Wear Daily, 1927) made a study of 500 stout figures, analyzed their proportions, and finally selected forty for closer study. From these forty were developed there own pattern sizes. It is evident then, that the measurements developed for commercially made garments have not been based upon scientific study.

Garments which are little dependent upon style have been standardized in size to some extent. According to

Coles (1932) the importance of fashion constitutes a problem in setting up and using standards for garment sizes. Fashion appears as an obstacle to those who associate standardization with uniformity in type of goods and therefore with lack of individuality.

Changes in fashion may retard progress in the development of standards because of changes in fabric construction and garment design. The National Association of Cotton Dress Manufacturers (Coles, 1932) considered making a size study of cotton wash dresses with a view to establishing standard sizes, but owing to radical changes in fashions, the committee has been unable to reach a satisfactory decision as to measurements. If fundamental information is secured, the style changes would apparently not hinder development and provisions for flexibility would take care of such changes when standards have been established.

A study made by the Ohio State University in 1927 (Retailing, 1930) showed that 28.18 per cent of the returns of ready-made dresses were due to poor fitting qualities. The same article relates that in 1929 and 1930 the National Retail Dry Goods Association issued a questionnaire to retailers inquiring into the cause of alteration and the cost to the consumer. They found that 70 per cent of the

stores alter 50 per cent of their better dresses, and that 53 per cent alter over 75 per cent.

Both retailers and manufacturers are working together on the question of eliminating this "return" evil caused by dissatisfaction in fit (Eddy and Wiley, 1932). In a survey made by a group of manufacturers (Women's Wear Daily, 1928) the following difficulties in the fitting of garments, listed in the order of their frequency, have been evident:

- Shoulder line too long
- Armhole too deep
- Too much looseness in armpits
- Hips too scant
- Upper arm of sleeve too tight and armhole too tight
- Back of neck fitted poorly
- Sleeves cut on the wrong grain
- Sleeves too short from shoulder to elbow
- Insufficient width across the back
- Not enough material in the seams
- Wrong length

The recognition as to where the difficulties in fitting exist can be thought of as the first step toward improving the conspicuous errors found in the construction of ready-made garments.

Only two studies were found which deal with the relation existing between the proportions of ready-made garments and those of the human figure. The study by Dunn and Cranor (1927) indicated a lack of uniformity in both

the same size dresses in different makes and in different sizes of the same make. Great variation was found between bust and hip measurements of the different makes of garments. In some, one was larger than the other, and in others they were the same.

In the study by Johnston (1933) the measurements of 146 college women corresponding in size to 14, 16 and 18 were compared with those of 150 dresses in corresponding sizes. From this investigation it was found that the mean physical and dress measurements varied in amount from one measurement to another, and from one size group to another; that there seemed to be little relation between the increase in each measurement of the commercially made dress from one size group to another; and that in a majority of cases a fairly definite rate of increase existed between the mean measurements of the human figure from one size group to another.

Several studies have been made relating to pattern sizing and human proportions. Those by Morgan (1931), Musgrave (1932), Jernberg (1932), La Fleur (1931), and Little (1928) revealed that a great variation existed in the measurements of patterns of the same size and between pattern measurements and those of the human figure of a

corresponding size. It is felt that dress proportions would probably vary in a similar manner.

It has been assumed that price directly relates to the fitting qualities of a garment but no study has been found which deals with the effect of price on the fitting quality of ready-made garments.

Nystrom (1917) says that the price of a garment is determined by the economic laws of price, plus that added amount which the traffic will bear. This price must include both initial cost and the cost of selling the garment. Beyond this, the price is governed by the strength of the demand created by the purchaser for the article; the possession of money or means to buy it; relative strength of the desire for this article compared with desires for other articles that money can purchase; and the knowledge of what the article may be obtained for elsewhere.

The rule of custom is strong in the retail business (Nystrom, 1917). Customary prices are current in many lines. It is difficult to sell for higher prices, and in the case of rising costs, the emergency may be met more frequently by reducing quality than by increasing price. Customers do not expect to purchase goods for less than customary prices, hence when the cost of production goes

down, the old selling prices yield enlarged profits.

METHOD OF PROCEDURE

A comparison of certain proportions of a number of dresses with corresponding proportions of the human figure was made to show to what extent there was uniformity in the sizes of commercially made garments; the relationship of price to garment proportions; and the relationship of price to the similarity between the measurements of the garment and the human figure.

Body Measurements

The procedure followed in this study consisted, first, of measuring 146 college women, who varied between 31 and 36.9 inches bust measure, 100 and 145 pounds in weight and in height between 59 and 68 inches. They were grouped into three classes of approximately 50 each with bust measures of 31 to 32.9 inches inclusive representing size 14; 33 to 34.9 inches inclusive representing size 16, and 35 to 36.9 inches representing size 18.

The following equipment was used for this study: A Lufkin linen tape measure, as suggested by Hrdlicka (1919), was used. The tape was scaled for English and metric

systems, graduated in millimeters and one-eighth inches; was 60 inches in length, $\frac{1}{4}$ inch in width and had double selvage edges. This tape was found to be accurate when compared with the Standard meter stick. Three inelastic tapes were used to establish fixed lines on the body. One such tape was used to indicate the fullest part of the bust, another, the waist, and the third, the largest part of the hip. Each tape was clearly marked indicating the bust front, waist front and hip front. Paper clips were used to join the tapes and to indicate the points where the underarm line crossed these three tapes. A plumb line was constructed for marking the location of the underarm line. A piece of narrow tape was fastened to the middle of a pencil, and the opposite end weighted so as to draw the tape into a straight line. An adjustable angle constructed to establish two lines in the same plane was used to locate the shoulder line. (See Plate I.) Soft drawing pencils were used to mark certain lines on the body.

The subject clad in undergarments and with shoes removed stood erect while her height and weight were determined. All lines were established according to the system adopted by the Department of Clothing and Textiles of Kansas State College of Agriculture and Applied Science.

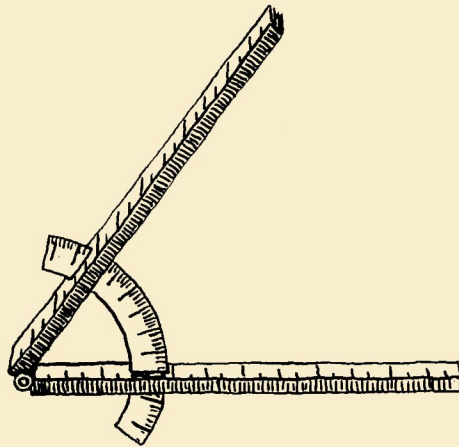
All fundamental points were established and marked upon the subject before any measuring was done, the purpose being to eliminate as many variables as possible which might result from the shifting of lines otherwise indicated.

Two investigators each measured the subject. While one investigator measured the co-worker recorded the data on especially prepared blanks. (See Form 1.) The body lines were measured twice and an average of the four measurements was made to determine the mean for each line studied.

The neck line was located by placing the tape around the base of the neck, allowing it to pass above the large bone at the base of the neck, and dropping it to the middle of the pit in the front of the neck.

The shoulder line was established by placing one arm of an adjustable angle on the crest of the bone behind the ear and parallel to the back contour line of the neck, touching the neck line. The opposite arm of the angle was so adjusted as to form a right angle with the armscye. A point $3/8$ inch back of this point on the armscye connected with the point of origin at the neck line indicated the shoulder line.

PLATE I
ADJUSTABLE ANGLE
FOR LOCATING THE
SHOULDER LINE



Form 1

Blank for Recording Body Measurements

| Name _____ | Phone _____ |
|--|-------------|
| Weight _____ | : _____ |
| Height _____ | : _____ |
| Armscye line, entire _____ | : _____ |
| Armscye line, front _____ | : _____ |
| Armscye line, back _____ | : _____ |
| Drop of shoulder, front _____ | : _____ |
| Scyeline to neck _____ | : _____ |
| Scyeline to armscye _____ | : _____ |
| Drop of shoulder, back _____ | : _____ |
| Scyeline to neck _____ | : _____ |
| Scyeline to armscye _____ | : _____ |
| Width of chest _____ | : _____ |
| Width of back _____ | : _____ |
| Bust line, entire _____ | : _____ |
| Bust line, front _____ | : _____ |
| Bust line, back _____ | : _____ |
| Waist line, entire _____ | : _____ |
| Waist line, front _____ | : _____ |
| Waist line, back _____ | : _____ |
| Hip line, entire _____ | : _____ |
| Hip line, front _____ | : _____ |
| Hip line, back _____ | : _____ |
| French dart line to bust _____ | : _____ |
| French dart line to waist, front _____ | : _____ |
| French dart line to waist, back _____ | : _____ |
| French dart line to floor, front _____ | : _____ |
| Length of arm, outer _____ | : _____ |
| Upper arm to elbow _____ | : _____ |
| Full length _____ | : _____ |
| Circumference of arm _____ | : _____ |
| Upper arm _____ | : _____ |
| Elbow _____ | : _____ |
| Wrist _____ | : _____ |
| Sleeve cap, height _____ | : _____ |
| Sleeve cap, width _____ | : _____ |

The armscye line was determined in the following manner: The thumb and first finger were placed on either side of the top of the ball of the arm as it swung in its socket. A line was drawn from these points of articulation, parallel to the center front and center back respectively, to the points where the arm joined the body. The depth of the armscye was established by measuring down $1\frac{1}{2}$ inches from the pit of the arm.

A tape measure was placed snugly around the armscye and loosened one and one-half inches; this gave the correct armscye measurement. A measurement was taken from the shoulder line around the back of the armscye to the underarm line, and from the shoulder line around the front of the armscye to the underarm line.

The underarm line was established by placing the plumb line well up under the arm, dropping the arm over the pencil and allowing the weighted end of the tape to fall straight to the floor. This line was marked to indicate the location of the underarm line.

The chest and width of back line were established by bisecting the front armscyes, and placing a tape around the body, parallel to the floor passing through the points on the armscyes.

The French dart line was located in the front by extending a line from a point on the shoulder midway between the base of the neck and the armscye line, to the tip of the bust, thence to the floor, parallel to the center front. A similar line was located in the back by dropping a line from the middle of the shoulder to the tip of the shoulder blade, and continuing it parallel to the center back. Thirteen inches from the floor was adopted as the length for a garment.

The bust line passed around the body over the points of the bust and slightly up over the tips of the shoulder blades. A measurement was taken on the bust line from underarm line to underarm line, both front and back.

The waist line was established at the smallest part of the trunk, which is located between the lower rib and top of the pelvic bone.

The hip line extended around the trunk at the largest part of the hips. This was usually about 10 inches below the waist line.

The drop of the shoulder was indicated by the difference between the measure of the inner shoulder to the chest line and the outer shoulder to the chest. The inner shoulder to chest was established by dropping a line from

the shoulder at the neck perpendicular to the chest line, both front and back. The outer shoulder to chest was established by dropping a line from the shoulder at the armscye perpendicular to the chest line, both front and back.

The length of the outer arm was found by measuring from the point of intersection of the shoulder line and armscye line, over the elbow, with the arm bent at right angles, to a point below the wrist bone. The length from the upper arm to the elbow was the distance from the point of intersection of the shoulder and armscye line to the point of the elbow.

The circumference of the upper arm was found by placing the tape measure around the arm one and one-half inches below the normal pit of the arm, with the arm held at right angles to the trunk. The arm was dropped to the side and the tape placed parallel to the floor.

The circumference of the arm at the elbow was found by placing the tape around the elbow with the arm bent at right angles.

The sleeve cap height was determined by erecting a perpendicular from the line which marked the arm circumference to the highest part of the armscye.

The sleeve cap width was determined on a line parallel

to the arm circumference, from the intersection of the chest and front armscye to the back armscye.

The wrist line was indicated as a line around the arm at the point where the hand joins the wrist, just below the end of the large bone in the arm.

Measurement of Dresses

To obtain data which would allow for comparison of dress measurements with those of the physical measurements obtained, 150 silk and rayon dresses of sizes 14, 16 and 18 were measured. There were 50 dresses of size 14, 49 of size 16, and 51 of size 18. The data were recorded on specially prepared blanks. (See Form 2.)

The equipment used for measuring the dresses consisted of the tape measure described above, and a supply of pins.

To eliminate uneven strain on the parts of the garment while being measured, the dresses were placed flat on a table so that the front laid smoothly on the back. The shoulder and underarm seams were allowed to fall as the cut of the dress determined, but where possible they were placed equidistant from the underarm or shoulder folds. Pins were used to establish points on the dress between which measurements were taken. By inserting the pins

through both thicknesses of the fabric the position of lines on the back and the front of the garment were indicated at the same time. This was possible as the chest, sleeve cap, and width of back have been shown previously in this study to form one continuous line.

In marking the bust line no attempt was made to raise the line to a definite point on the undergarment, or to the tip of the shoulder blade as it passed across the back. The design of the dresses in many cases made it difficult to gauge with accuracy a uniform position for this line, other than one which was continuous around the garment at a depth indicated by the mean French dart line to the bust measurement. This was also true for the location of the hip and waist line.

The method of establishing lines on the garments was an adaptation of the plan used by the Department of Clothing and Textiles of this college for establishing lines on dress patterns.

The chest and back lines were located by bisecting the front armseye lines and joining these two points with a line which was perpendicular to the center front.

The French dart line was established by bisecting the shoulder seam and dropping the tape from this point to the hem of the dress, parallel to the center front. Where the

Form 2

Blank for Recording Dress Measurements

Name of firm _____ Trade name _____
 Size _____ Price _____
 Special features _____

Front

Length of French dart line:

| | | | | | | |
|----------------------------------|-------|---|---|---|---|---|
| Shoulder to waist | _____ | : | : | : | : | : |
| Shoulder to hem | _____ | : | : | : | : | : |
| Armhole line entire | _____ | : | : | : | : | : |
| Shoulder seam to underarm | _____ | : | : | : | : | : |
| Width of chest | _____ | : | : | : | : | : |
| Drop of shoulder | _____ | : | : | : | : | : |
| Scye line to shoulder at neck | _____ | : | : | : | : | : |
| Scye line to shoulder at armhole | _____ | : | : | : | : | : |
| Bust line | _____ | : | : | : | : | : |
| Waist line | _____ | : | : | : | : | : |
| Hip line | _____ | : | : | : | : | : |
| Length of sleeve, outer | _____ | : | : | : | : | : |
| Upper arm to elbow | _____ | : | : | : | : | : |
| Full length | _____ | : | : | : | : | : |
| Sleeve cap | _____ | : | : | : | : | : |
| Height | _____ | : | : | : | : | : |
| Width | _____ | : | : | : | : | : |
| Width of sleeve | _____ | : | : | : | : | : |
| Base of cap | _____ | : | : | : | : | : |
| Elbow | _____ | : | : | : | : | : |
| Wrist | _____ | : | : | : | : | : |

Back

| | | | | | | |
|----------------------------------|-------|---|---|---|---|---|
| Shoulder seam to underarm | _____ | : | : | : | : | : |
| Width of back | _____ | : | : | : | : | : |
| French dart line | _____ | : | : | : | : | : |
| Shoulder to waist | _____ | : | : | : | : | : |
| Drop of shoulder slope | _____ | : | : | : | : | : |
| Scye line to shoulder at neck | _____ | : | : | : | : | : |
| Scye line to shoulder at armhole | _____ | : | : | : | : | : |
| Bust line | _____ | : | : | : | : | : |
| Waist line | _____ | : | : | : | : | : |
| Hip line | _____ | : | : | : | : | : |

normal neck line did not exist, a distance of $2\frac{1}{2}$ inches from the armscye line marked the origin of the French dart line. No attempt was made to direct the French dart line toward the tip of the bust since variation in design of the garment minimized the value of such procedure.

The bust line was located perpendicular to the center front at a depth indicated by the mean body measurement from the mid point of the shoulder line to the tip of the bust, and continuing to the underarm seam. A measurement of nine inches on the French dart line was used to mark the depth of the bust line for size 14; $9\frac{1}{2}$ inches for size 16; and 10 inches for size 18.

The waist line was taken at the point indicated for the location of the belt when such a line was not clearly defined by the style of the dress.

The hip line was marked at 10 inches below the normal waist line, this distance being commonly accepted as the proper location for the hip measure.

The base of cap was established at right angles to the underarm seam of the sleeve at a point where the sleeve was joined to the underarm seam.

The sleeve cap width was marked by a line parallel to the base of cap, and passing through the bisected front armscye line.

The sleeve cap height was indicated at a point perpendicular to the sleeve cap width and continuing to the highest point on the armhole.

The elbow was indicated by the position of darts or elbow fullness on the sleeve.

The outer sleeve length was determined by measuring from the highest point of the armhole to the bottom of the sleeve.

The wrist measure was taken at the bottom of the sleeve.

The drop of the shoulder was indicated by the difference between the measurement of the inner shoulder to the chest line and the outer shoulder to chest line. The inner shoulder to the chest was established by dropping a line from the highest point on the shoulder seam perpendicular to the chest line, both back and front. The outer shoulder to the chest line was established by dropping a line from the shoulder seam at the armhole perpendicular to the chest line, both back and front.

INTERPRETATION

In order that the data under consideration might be compared, it was necessary to apply some measure of central tendency to the measurements collected. A study of the

relative value of the mean and median as a suitable measure was made. Previous studies indicate that either may be used. Holzinger (1928) points out that the mean is the most important and generally most reliable. This makes it possible to obtain a definite average for any quantitative series, and gives a result which is truly characteristic of the whole distribution.

The data for the 150 dresses measured in this study are found in Table 1. Minimum, mean and maximum measurements are listed for sizes 14, 16 and 18 of the 25 measurements taken. With the exception of the full length of sleeve, measurements taken upon the sleeve seemed unsatisfactory for comparison with the human figure.

The mean sleeve measurements were influenced by style to a great extent and were based upon too few instances to be statistically valuable.

Extent of Uniformity in Dress Sizes

Analysis of the data found in Table 1 indicated to what extent uniformity existed in the sizes of commercially made dresses. There was some degree of uniformity between the measurements of dresses of the same size. The greatest variations from the mean for the various dress measurements

Table 1. Minimum, Mean, and Maximum Measurements (in inches) of 150 Commercially Made Dresses

| Garment lines | Measurements | | | Size : Groups | Number : of : dresses |
|---|------------------|--------|------------------|------------------|-----------------------------|
| | : Mini- : mum | : Mean | : Maxi- : mum | | |
| Armscye line, entire | 14.75 | 17.25 | 20.25 | 14 | 50 |
| | 14.38 | 17.75 | 21.63 | 16 | 49 |
| | 15.63 | 18.25 | 21.75 | 18 | 51 |
| Drop of shoulder Chest to neck, front | 4.25 | 6.00 | 7.13 | 14 | 50 |
| | 4.13 | 5.75 | 7.25 | 16 | 49 |
| | 4.63 | 6.25 | 7.63 | 18 | 51 |
| Chest to armscye, front | 3.50 | 4.25 | 6.00 | 14 | 50 |
| | 3.75 | 4.50 | 6.38 | 16 | 49 |
| | 4.00 | 4.50 | 5.38 | 18 | 51 |
| Chest to neck, back | 4.63 | 6.00 | 8.13 | 14 | 50 |
| | 4.13 | 6.00 | 8.00 | 16 | 49 |
| | 4.00 | 6.25 | 8.13 | 18 | 51 |
| Chest to armscye, back | 3.00 | 4.50 | 6.13 | 14 | 50 |
| | 2.50 | 4.50 | 7.00 | 16 | 49 |
| | 3.00 | 4.50 | 6.50 | 18 | 51 |
| Width of chest | 12.50 | 13.75 | 16.00 | 14 | 50 |
| | 12.75 | 14.00 | 16.88 | 16 | 49 |
| | 13.25 | 14.50 | 16.38 | 18 | 51 |
| Width of back | 12.38 | 14.00 | 15.50 | 14 | 50 |
| | 13.25 | 14.25 | 15.38 | 16 | 49 |
| | 12.50 | 14.75 | 17.38 | 18 | 51 |
| Bust line, front | 16.63 | 18.25 | 20.00 | 14 | 50 |
| | 17.13 | 19.00 | 21.25 | 16 | 49 |
| | 16.13 | 19.25 | 21.38 | 18 | 51 |

Table 1, cont'd

| Garment lines | Measurements | | | Size | Number |
|--|---------------|--------|----------------|----------|-------------------|
| | Mini- :mum | : Mean | :Maxi- :mum | : Groups | : of : dresses |
| Bust line, back | 15.00 | 17.50 | 19.38 | 14 | 50 |
| | 15.63 | 18.25 | 19.38 | 16 | 49 |
| | 17.25 | 19.00 | 20.38 | 18 | 51 |
| Waist line, front | 13.63 | 15.00 | 16.63 | 14 | 50 |
| | 13.75 | 15.75 | 17.13 | 16 | 49 |
| | 14.88 | 16.50 | 18.25 | 18 | 51 |
| Waist line, back | 13.00 | 14.25 | 16.00 | 14 | 50 |
| | 13.25 | 15.00 | 16.50 | 16 | 49 |
| | 14.50 | 16.00 | 18.00 | 18 | 51 |
| Hip line, front | 17.38 | 19.00 | 20.88 | 14 | 50 |
| | 18.00 | 19.75 | 22.00 | 16 | 49 |
| | 17.88 | 20.75 | 23.00 | 18 | 51 |
| Hip line, back | 16.38 | 18.75 | 20.00 | 14 | 50 |
| | 15.50 | 19.75 | 21.50 | 16 | 49 |
| | 19.00 | 20.50 | 22.13 | 18 | 51 |
| *French dart line to bust | 9.00 | 9.00 | 9.00 | 14 | 50 |
| | 9.50 | 9.50 | 9.50 | 16 | 49 |
| | 10.00 | 10.00 | 10.00 | 18 | 51 |
| French dart line to waist, front | 13.65 | 15.50 | 17.50 | 14 | 50 |
| | 13.75 | 15.50 | 18.00 | 16 | 49 |
| | 14.50 | 16.00 | 17.75 | 18 | 51 |
| French dart line to waist, back | 13.25 | 15.00 | 16.88 | 14 | 50 |
| | 12.75 | 15.25 | 17.00 | 16 | 49 |
| | 14.00 | 15.50 | 18.38 | 18 | 51 |
| French dart line to bottom of dress | 43.00 | 48.00 | 52.00 | 14 | 50 |
| | 45.00 | 48.50 | 52.38 | 16 | 49 |
| | 45.38 | 48.50 | 52.00 | 18 | 51 |
| Length of sleeve to elbow | 12.00 | 13.50 | 15.50 | 14 | 17 |
| | 12.75 | 14.50 | 16.50 | 16 | 18 |
| | 12.50 | 13.75 | 16.00 | 18 | 11 |

*Arbitrarily established from body measurements

Table 1, cont'd

| Garment lines | Measurements | | | Size | Number |
|-----------------------------|---------------|--------|----------------|----------|-------------------|
| | Mini- :mum | : Mean | :Maxi- :mum | : Groups | : of : dresses |
| Full length of sleeve | 21.00 | 23.25 | 24.75 | 14 | 24 |
| | 21.13 | 24.00 | 26.25 | 16 | 27 |
| | 21.63 | 23.50 | 26.50 | 18 | 26 |
| Base of sleeve cap | 11.00 | 14.25 | 18.50 | 14 | 31 |
| | 11.88 | 13.75 | 17.00 | 16 | 30 |
| | 12.00 | 13.75 | 16.38 | 18 | 38 |
| Width of sleeve at elbow | 10.00 | 11.00 | 13.00 | 14 | 19 |
| | 8.75 | 10.75 | 12.00 | 16 | 19 |
| | 10.13 | 11.75 | 13.13 | 18 | 14 |
| Width of sleeve at wrist | 6.50 | 7.25 | 8.50 | 14 | 22 |
| | 6.50 | 7.50 | 8.13 | 16 | 22 |
| | 5.88 | 7.75 | 11.00 | 18 | 23 |
| Sleeve cap height | 3.00 | 3.75 | 5.00 | 14 | 41 |
| | 2.88 | 3.75 | 5.13 | 16 | 42 |
| | 2.63 | 3.75 | 4.88 | 18 | 45 |
| Sleeve cap width | 6.38 | 8.50 | 11.00 | 14 | 39 |
| | 5.88 | 8.00 | 11.00 | 16 | 41 |
| | 6.25 | 7.75 | 10.25 | 18 | 44 |

were as follows: the width of back for size 18 dresses, 5 7/8 inches; the French dart line to the hem for size 14 showed a range of 9 inches; and the back hip line for size 16 dresses, 6 inches. In the remaining measurements the variation from the mean, among the three size groups, was in most cases from three to four inches. It is recognized that this is a significant variation because of the desire for a close conformity of these garment lines to lines of the figure.

Many of the variations appear to be the result of differences in fitting qualities rather than the effect of style upon the garment.

A fairly definite rate of increase existed in the mean dress measurements from size 14 to 16 and from size 16 to 18, although no uniform plan of gradation seemed to exist. There was an increase of 1/4 to 1/2 inch in the width of chest, width of back, and back French dart line to the waist. The bust line, armseye line, waist line and hip line showed an increase of 1/2 to 1 3/4 inches. In some cases, namely, the French dart line to the hem, the full length of sleeve, and the drop of shoulder in the front and back, there was no increase from size 14 to 16, but a definite increase existed from size 16 to 18. In other

instances the reverse order was found. The French dart line to the waist was the only instance studied which showed a uniform increase of 1/4 inch from one size group to the next.

Relation of Price to Garment Proportions

In order to find what relationship existed between the price of the garment and garment proportions it was necessary to compute the mean measurements for each of the three price groups within each size. Table 2 shows the variations due to price in dress proportions of size 14; Table 3 gives similar data for size 16; and Table 4 presents data for size 18 dresses.

Price seemed to bear some relationship to garment proportions. The minimum and maximum measurements of the highest priced group did not vary from the mean to the same extent as in the other two groups.

In size 14, the width of chest, bust line, French dart line to the hem, and armseye line, decreased as the price decreased. The width of back, the French dart line to the waist, in front and back, and the waist line show the highest priced group as having the most ample measurements; the medium priced group as showing a decrease; and the

Table 2. Minimum, Mean and Maximum Measurements of Size
14 Dresses, Grouped According to Price

| Garment lines | :Number : :of : :dresses: | :Price group | : Measurements | | |
|-------------------------|---------------------------------|--------------|----------------|--------|----------------|
| | | | :Mini- :num | : Mean | :Maxi- :num |
| Armscye line, front | 9 | 29.75-16.85 | 7.50 | 8.88 | 10.00 |
| | 20 | 16.75-10.85 | 7.38 | 8.75 | 10.25 |
| | 21 | 10.75- 5.95 | 7.38 | 8.63 | 10.13 |
| Armscye line, back | 8 | 29.75-16.85 | 8.00 | 8.88 | 9.63 |
| | 16 | 16.75-10.85 | 7.25 | 8.63 | 10.00 |
| | 21 | 10.75- 5.95 | 7.50 | 8.63 | 9.50 |
| Drop of shoulder | | | | | |
| Chest to neck, front | 9 | 29.75-16.85 | 6.00 | 5.88 | 6.75 |
| | 20 | 16.75-10.85 | 6.00 | 6.00 | 7.13 |
| | 21 | 10.75- 5.95 | 5.75 | 5.88 | 7.00 |
| Chest to armscye, front | 9 | 29.75-16.85 | 3.75 | 4.38 | 6.00 |
| | 20 | 16.75-10.85 | 3.68 | 4.50 | 5.25 |
| | 21 | 10.75- 5.95 | 3.68 | 4.50 | 5.75 |
| Chest to neck, back | 9 | 29.75-16.85 | 4.63 | 6.13 | 8.00 |
| | 20 | 16.75-10.85 | 4.88 | 6.13 | 7.88 |
| | 21 | 10.75- 5.95 | 4.63 | 6.00 | 8.13 |
| Chest to armscye, back | 9 | 29.75-16.85 | 3.63 | 4.75 | 6.13 |
| | 20 | 16.75-10.85 | 3.00 | 4.50 | 5.75 |
| | 21 | 10.75- 5.95 | 3.63 | 4.75 | 7.00 |
| Width of chest | 9 | 29.75-16.85 | 13.50 | 14.00 | 14.50 |
| | 20 | 16.75-10.85 | 13.00 | 13.88 | 15.50 |
| | 20 | 10.75- 5.95 | 12.50 | 13.75 | 16.00 |
| Width of back | 9 | 29.75-16.85 | 13.63 | 14.25 | 15.25 |
| | 19 | 16.75-10.85 | 12.50 | 13.88 | 14.88 |
| | 21 | 10.75- 5.95 | 12.38 | 14.13 | 17.13 |
| Bust line, entire | 16 | 29.75-16.85 | 19.13 | 17.63 | 36.75 |
| | 39 | 16.75-10.85 | 18.13 | 17.50 | 35.63 |
| | 41 | 10.75- 5.95 | 18.00 | 17.50 | 35.50 |

Table 2, cont'd

| Garment lines | :Number : :of : :dresses: | :Price group | : Measurements | | |
|---------------------------|---------------------------------|--------------|----------------|--------|----------------|
| | | | :Mini- :num | : Mean | :Maxi- :num |
| Bust line, front | 8 | 29.75-16.85 | 17.63 | 19.13 | 20.00 |
| | 19 | 16.75-10.85 | 17.38 | 18.13 | 19.50 |
| | 20 | 10.75- 5.95 | 16.88 | 18.00 | 19.50 |
| Bust line, back | 8 | 29.75-16.85 | 15.13 | 17.63 | 19.38 |
| | 20 | 16.75-10.85 | 15.00 | 17.50 | 18.75 |
| | 21 | 10.75- 5.95 | 16.50 | 17.50 | 19.00 |
| Waist line, entire | 18 | 29.75-16.85 | 15.38 | 14.25 | 29.63 |
| | 40 | 16.75-10.85 | 14.75 | 14.00 | 28.75 |
| | 42 | 10.75- 5.95 | 15.00 | 14.38 | 29.38 |
| Waist line, front | 9 | 29.75-16.85 | 13.75 | 15.38 | 16.63 |
| | 20 | 16.75-10.85 | 13.63 | 14.75 | 16.13 |
| | 21 | 10.75- 5.95 | 14.00 | 15.00 | 16.50 |
| Waist line, back | 9 | 29.75-16.85 | 13.25 | 14.25 | 15.63 |
| | 20 | 16.75-10.85 | 12.00 | 14.00 | 15.88 |
| | 21 | 10.75- 5.95 | 13.00 | 14.38 | 16.00 |
| Hip line, entire | 18 | 29.75-16.85 | 18.88 | 18.63 | 37.50 |
| | 40 | 16.75-10.85 | 19.25 | 18.75 | 38.00 |
| | 42 | 10.75- 5.95 | 19.13 | 18.75 | 37.88 |
| Hip line, front | 9 | 29.75-16.85 | 18.00 | 18.88 | 20.13 |
| | 20 | 16.75-10.85 | 17.38 | 19.25 | 20.75 |
| | 21 | 10.75- 5.95 | 17.63 | 19.13 | 20.88 |
| Hip line, back | 9 | 29.75-16.85 | 17.25 | 18.63 | 19.88 |
| | 20 | 16.75-10.85 | 16.38 | 18.75 | 21.00 |
| | 21 | 10.75- 5.95 | 17.50 | 18.75 | 20.00 |
| *French dart line to bust | 9 | 29.75-16.85 | 9.50 | 9.50 | 9.50 |
| | 20 | 16.75-10.85 | 9.50 | 9.50 | 9.50 |
| | 21 | 10.75- 5.95 | 9.50 | 9.50 | 9.50 |

 *Arbitrarily established from body measurements

Table 2, cont'd

| Garment lines | :Number : :of : :dresses: | :Price group | : Measurements | | |
|--|---------------------------------|--------------|----------------|---------------|----------------|
| | | | :Mini- :mum | : : : Mean | :Maxi- :mum |
| French dart line to waist, front | 9 | 29.75-16.85 | 14.75 | 15.63 | 17.50 |
| | 20 | 16.75-10.85 | 13.75 | 15.00 | 16.13 |
| | 21 | 10.75- 5.95 | 14.13 | 15.25 | 16.70 |
| French dart line to waist, back | 8 | 29.75-16.85 | 14.63 | 15.00 | 15.38 |
| | 20 | 16.75-10.85 | 13.63 | 14.75 | 14.75 |
| | 21 | 10.75- 5.95 | 13.88 | 15.25 | 15.13 |
| French dart line to bottom of dress | 9 | 29.75-16.85 | 48.00 | 49.00 | 50.63 |
| | 20 | 16.75-10.85 | 46.38 | 48.00 | 50.50 |
| | 19 | 10.75- 5.95 | 45.00 | 47.63 | 50.25 |
| Length of sleeve to elbow | 2 | 29.75-16.85 | 14.88 | 14.88 | 15.00 |
| | 7 | 16.75-10.85 | 12.00 | 13.38 | 15.38 |
| | 9 | 10.75- 5.95 | 12.50 | 13.63 | 15.50 |
| Full length of sleeve | 2 | 29.75-16.85 | 24.13 | 24.13 | 24.25 |
| | 9 | 16.75-10.85 | 20.00 | 24.13 | 26.38 |
| | 11 | 10.75- 5.95 | 20.00 | 23.25 | 26.38 |
| Base of sleeve cap | 2 | 29.75-16.85 | 14.13 | 15.00 | 17.50 |
| | 10 | 16.75-10.85 | 12.00 | 14.63 | 18.50 |
| | 16 | 10.75- 5.95 | 11.50 | 13.50 | 18.00 |
| Width of sleeve at elbow | 2 | 29.75-16.85 | 10.25 | 10.50 | 10.63 |
| | 6 | 16.75-10.85 | 10.00 | 11.13 | 13.00 |
| | 11 | 10.75- 5.95 | 10.13 | 11.13 | 12.50 |
| Width of sleeve at wrist | 2 | 29.75-16.85 | 7.25 | 7.50 | 7.75 |
| | 8 | 16.75-10.85 | 6.50 | 7.13 | 7.88 |
| | 12 | 10.75- 5.95 | 6.50 | 7.66 | 10.00 |
| Sleeve cap height | 6 | 29.75-16.85 | 3.25 | 3.88 | 4.38 |
| | 16 | 16.75-10.85 | 3.00 | 3.75 | 5.00 |
| | 18 | 10.75- 5.95 | 3.00 | 3.25 | 4.50 |
| Sleeve cap width | 6 | 29.75-16.85 | 6.75 | 8.75 | 10.13 |
| | 15 | 16.75-10.85 | 6.50 | 8.63 | 11.00 |
| | 17 | 10.75- 5.95 | 6.50 | 8.25 | 10.63 |

Table 3. Minimum, Mean and Maximum Measurements of Size
16 Dresses, Grouped According to Price

| Garment lines | :Number : :of : :dresses: | :Price group | ; Measurements | | |
|--|---------------------------------|--------------|----------------|---------------|----------------|
| | | | :Mini- :mum | : : : Mean | :Maxi- :mum |
| Armscye line, front | 10 | 29.75-16.85 | 8.50 | 9.13 | 9.75 |
| | 16 | 16.75-10.85 | 7.38 | 8.88 | 9.75 |
| | 22 | 10.75- 5.95 | 8.50 | 9.25 | 10.13 |
| Armscye line, back | 8 | 29.75-16.85 | 8.00 | 9.00 | 9.75 |
| | 16 | 16.75-10.85 | 7.13 | 8.88 | 10.50 |
| | 23 | 10.75- 5.95 | 7.38 | 8.88 | 10.00 |
| Drop of shoulder Chest to neck, front | 10 | 29.75-16.85 | 5.25 | 5.88 | 6.75 |
| | 16 | 16.75-10.85 | 4.88 | 6.00 | 6.38 |
| | 23 | 10.75- 5.95 | 4.13 | 6.13 | 7.75 |
| Chest to armscye, front | 10 | 29.75-16.85 | 4.13 | 4.50 | 4.88 |
| | 16 | 16.75-10.85 | 3.75 | 4.50 | 5.13 |
| | 23 | 10.75- 5.95 | 4.00 | 4.50 | 6.00 |
| Chest to neck, back | 10 | 29.75-16.85 | 5.38 | 6.63 | 7.25 |
| | 16 | 16.75-10.85 | 4.75 | 6.00 | 7.25 |
| | 23 | 10.75- 5.95 | 4.25 | 5.75 | 7.00 |
| Chest to armscye, back | 10 | 29.75-16.85 | 3.88 | 4.88 | 5.75 |
| | 16 | 16.75-10.85 | 3.25 | 4.50 | 5.50 |
| | 23 | 10.75- 5.95 | 2.50 | 4.38 | 6.00 |
| Width of chest | 10 | 29.75-16.85 | 12.75 | 13.88 | 15.13 |
| | 16 | 16.75-10.85 | 13.13 | 14.13 | 16.88 |
| | 23 | 10.75- 5.95 | 13.00 | 14.13 | 16.00 |
| Width of back | 10 | 29.75-16.85 | 13.38 | 14.25 | 15.38 |
| | 16 | 16.75-10.85 | 13.25 | 14.38 | 16.50 |
| | 22 | 10.75- 5.95 | 13.50 | 14.13 | 15.38 |
| Bust line, entire | 20 | 29.75-16.85 | 19.25 | 18.13 | 37.38 |
| | 32 | 16.75-10.85 | 19.88 | 18.63 | 38.50 |
| | 45 | 10.75- 5.95 | 18.88 | 18.25 | 37.13 |

Table 3, cont'd

| Garment lines | :Number :of :dresses: | :Price group | : Measurements | | |
|---------------------------|-----------------------------|--------------|----------------|--------|----------------|
| | | | :Mini- :mum | : Mean | :Maxi- :mum |
| Bust line, front | 10 | 29.75-16.85 | 17.38 | 19.25 | 21.25 |
| | 16 | 16.75-10.85 | 17.13 | 19.88 | 20.25 |
| | 23 | 10.75- 5.95 | 17.13 | 18.88 | 20.88 |
| Bust line, back | 10 | 29.75-16.85 | 17.00 | 18.13 | 19.25 |
| | 16 | 16.75-10.85 | 17.13 | 18.63 | 19.38 |
| | 22 | 10.75- 5.95 | 17.38 | 18.25 | 19.38 |
| Waist line, entire | 20 | 29.75-16.85 | 16.00 | 14.88 | 30.88 |
| | 32 | 16.75-10.85 | 15.63 | 14.63 | 30.28 |
| | 45 | 10.75- 5.95 | 15.75 | 15.25 | 31.00 |
| Waist line, front | 10 | 29.75-16.85 | 14.00 | 16.00 | 17.00 |
| | 16 | 16.75-10.85 | 13.75 | 15.63 | 16.38 |
| | 23 | 10.75- 5.95 | 14.13 | 15.75 | 17.13 |
| Waist line, back | 10 | 29.75-16.85 | 13.63 | 14.88 | 16.00 |
| | 16 | 16.75-10.85 | 13.63 | 14.63 | 16.00 |
| | 23 | 10.75- 5.95 | 13.25 | 15.25 | 16.63 |
| Hip line, entire | 20 | 29.75-16.85 | 19.88 | 19.88 | 39.75 |
| | 31 | 16.75-10.85 | 20.00 | 19.88 | 39.88 |
| | 45 | 10.75- 5.95 | 19.75 | 19.75 | 39.50 |
| Hip line, front | 10 | 29.75-16.85 | 19.38 | 19.88 | 20.75 |
| | 16 | 16.75-10.85 | 18.63 | 20.00 | 21.50 |
| | 23 | 10.75- 5.95 | 18.00 | 19.75 | 22.00 |
| Hip line, back | 10 | 29.75-16.85 | 18.50 | 19.88 | 21.50 |
| | 15 | 16.75-10.85 | 18.25 | 19.88 | 21.38 |
| | 22 | 10.75- 5.95 | 18.25 | 19.75 | 21.38 |
| *French dart line to bust | 10 | 29.75-16.85 | 9.50 | 9.50 | 9.50 |
| | 16 | 16.75-10.85 | 9.50 | 9.50 | 9.50 |
| | 23 | 10.75- 5.95 | 9.50 | 9.50 | 9.50 |

 *Arbitrarily established from body measurements

Table 3, cont'd

| Garment lines | :Number : :of :dresses: | :Price group | : Measurements | | |
|--|-------------------------------|--------------|----------------|--------|----------------|
| | | | :Mini- :mum | : Mean | :Maxi- :mum |
| French dart line to waist, front | 10 | 29.75-16.85 | 14.50 | 16.13 | 17.88 |
| | 16 | 16.75-10.85 | 14.25 | 15.50 | 16.88 |
| | 23 | 10.75- 5.95 | 13.75 | 15.50 | 16.50 |
| French dart line to waist, back | 10 | 29.75-16.85 | 15.50 | 16.38 | 17.00 |
| | 16 | 16.75-10.85 | 13.50 | 15.25 | 16.38 |
| | 23 | 10.75- 5.95 | 14.13 | 15.13 | 16.00 |
| French dart line to bottom of dress | 10 | 29.75-16.85 | 47.00 | 49.38 | 51.38 |
| | 16 | 16.75-10.85 | 46.75 | 48.13 | 50.00 |
| | 23 | 10.75- 5.95 | 46.66 | 48.50 | 52.25 |
| Length of sleeve to elbow | 5 | 29.75-16.85 | 13.88 | 14.88 | 16.00 |
| | 3 | 16.75-10.85 | 13.25 | 15.13 | 16.13 |
| | 9 | 10.75- 5.95 | 12.75 | 14.25 | 15.00 |
| Full length of sleeve | 7 | 29.75-16.85 | 22.63 | 24.13 | 24.88 |
| | 7 | 16.75-10.85 | 23.00 | 24.25 | 25.50 |
| | 10 | 10.75- 5.95 | 21.50 | 23.75 | 26.00 |
| Base of sleeve cap | 8 | 29.75-16.85 | 12.00 | 13.50 | 15.38 |
| | 10 | 16.75-10.85 | 12.50 | 14.25 | 17.00 |
| | 9 | 10.75- 5.95 | 11.88 | 13.13 | 16.13 |
| Width of sleeve at elbow | 6 | 29.75-16.85 | 10.50 | 10.88 | 11.50 |
| | 4 | 16.75-10.85 | 10.13 | 10.63 | 11.38 |
| | 9 | 10.75- 5.95 | 8.75 | 10.50 | 12.00 |
| Width of sleeve at wrist | 8 | 29.75-16.85 | 6.75 | 7.25 | 7.63 |
| | 5 | 16.75-10.85 | 6.50 | 7.63 | 8.13 |
| | 8 | 10.75- 5.95 | 6.63 | 7.38 | 7.88 |
| Sleeve cap height | 9 | 29.75-16.85 | 3.00 | 4.00 | 5.13 |
| | 13 | 16.75-10.85 | 3.00 | 3.75 | 4.63 |
| | 20 | 10.75- 5.95 | 2.88 | 3.75 | 4.75 |
| Sleeve cap width | 8 | 29.75-16.85 | 5.88 | 8.13 | 10.00 |
| | 10 | 16.75-10.85 | 6.88 | 7.75 | 8.63 |
| | 19 | 10.75- 5.95 | 6.00 | 7.50 | 9.38 |

Table 4. Minimum, Mean and Maximum Measurements of Size
18 Dresses, Grouped According to Price

| Garment lines | :Number : :of : :dresses: | :Price group | : Measurements | | |
|--|---------------------------------|--------------|----------------|---------------|----------------|
| | | | :Mini- :mum | : : : Mean | :Maxi- :mum |
| Armscye line, front | 7 | 29.75-16.85 | 8.38 | 9.50 | 10.00 |
| | 16 | 16.75-10.85 | 8.50 | 9.38 | 10.13 |
| | 28 | 10.75- 5.95 | 8.25 | 9.25 | 10.00 |
| Armscye line, back | 7 | 29.75-16.85 | 8.38 | 9.38 | 10.00 |
| | 15 | 16.75-10.85 | 8.25 | 9.38 | 10.25 |
| | 27 | 10.75- 5.95 | 8.00 | 8.88 | 10.13 |
| Drop of shoulder Chest to neck, front | 7 | 29.75-16.85 | 6.38 | 6.50 | 6.63 |
| | 16 | 16.75-10.85 | 4.63 | 6.13 | 7.25 |
| | 28 | 10.75- 5.95 | 5.25 | 6.13 | 7.13 |
| Chest to armscye, front | 7 | 29.75-16.85 | 4.25 | 4.63 | 5.13 |
| | 15 | 16.75-10.85 | 4.13 | 4.63 | 5.00 |
| | 28 | 10.75- 5.95 | 4.13 | 4.63 | 5.38 |
| Chest to neck, back | 7 | 29.75-16.85 | 5.50 | 6.50 | 8.13 |
| | 15 | 16.75-10.85 | 5.00 | 6.25 | 8.00 |
| | 28 | 10.75- 5.95 | 5.00 | 6.13 | 7.25 |
| Chest to armscye, back | 7 | 29.75-16.85 | 3.63 | 4.63 | 6.38 |
| | 16 | 16.75-10.85 | 3.00 | 4.63 | 6.50 |
| | 28 | 10.75- 5.95 | 3.50 | 4.50 | 5.75 |
| Width of chest | 7 | 29.75-16.85 | 14.00 | 14.75 | 16.38 |
| | 16 | 16.75-10.85 | 13.50 | 14.75 | 16.38 |
| | 27 | 10.75- 5.95 | 13.25 | 14.38 | 15.63 |
| Width of back | 7 | 29.75-16.85 | 14.00 | 14.88 | 15.50 |
| | 15 | 16.75-10.85 | 13.88 | 14.75 | 16.25 |
| | 28 | 10.75- 5.95 | 12.50 | 14.38 | 16.38 |
| Bust line, entire | 14 | 29.75-16.85 | 21.25 | 19.75 | 40.00 |
| | 30 | 16.75-10.85 | 19.25 | 18.88 | 38.13 |
| | 55 | 10.75- 5.95 | 19.00 | 18.88 | 37.88 |

Table 4, cont'd

| Garment lines | :Number : :of : :dresses: | :Price group | : Measurements | | |
|---------------------------|---------------------------------|--------------|----------------|---------------|----------------|
| | | | :Mini- :mum | : : : Mean | :Maxi- :mum |
| Bust line, front | 7 | 29.75-16.85 | 18.75 | 20.25 | 21.25 |
| | 15 | 16.75-10.85 | 17.00 | 19.25 | 21.38 |
| | 27 | 10.75- 5.95 | 17.38 | 19.00 | 19.88 |
| Bust line, back | 7 | 29.75-16.85 | 18.25 | 19.75 | 20.38 |
| | 15 | 16.75-10.85 | 17.50 | 18.88 | 20.13 |
| | 28 | 10.75- 5.95 | 17.25 | 18.88 | 19.88 |
| Waist line, entire | 14 | 29.75-16.85 | 16.25 | 15.75 | 32.00 |
| | 30 | 16.75-10.85 | 16.75 | 15.75 | 32.50 |
| | 56 | 10.75- 5.95 | 16.63 | 16.25 | 32.88 |
| Waist line, front | 7 | 29.75-16.85 | 15.50 | 16.25 | 17.38 |
| | 15 | 16.75-10.85 | 15.25 | 16.75 | 18.25 |
| | 28 | 10.75- 5.95 | 14.88 | 16.63 | 18.13 |
| Waist line, back | 7 | 29.75-16.85 | 14.50 | 15.75 | 16.63 |
| | 15 | 16.75-10.85 | 14.50 | 15.75 | 17.50 |
| | 28 | 10.75- 5.95 | 14.50 | 16.25 | 18.00 |
| Hip line, entire | 14 | 29.75-16.85 | 20.50 | 20.63 | 41.13 |
| | 29 | 16.75-10.85 | 20.75 | 20.63 | 41.38 |
| | 54 | 10.75- 5.95 | 20.50 | 20.50 | 41.00 |
| Hip line, front | 7 | 29.75-16.85 | 19.75 | 20.50 | 21.00 |
| | 14 | 16.75-10.85 | 19.63 | 20.75 | 21.63 |
| | 26 | 10.75- 5.95 | 18.75 | 20.50 | 21.75 |
| Hip line, back | 7 | 29.75-16.85 | 19.75 | 20.63 | 21.63 |
| | 15 | 16.75-10.85 | 19.38 | 20.63 | 22.13 |
| | 28 | 10.75- 5.95 | 19.00 | 20.50 | 21.00 |
| *French dart line to bust | 7 | 29.75-16.85 | 10.00 | 10.00 | 10.00 |
| | 16 | 16.75-10.85 | 10.00 | 10.00 | 10.00 |
| | 28 | 10.75- 5.95 | 10.00 | 10.00 | 10.00 |

 *Arbitrarily established from body measurements

Table 4, cont'd

| Garment lines | :Number : :of :dresses: | :Price group | : Measurements | | |
|--|-------------------------------|--------------|----------------|--------|----------------|
| | | | :Mini- :num | : Mean | :Maxi- :num |
| French dart line to waist, front | 7 | 29.75-16.85 | 15.63 | 16.63 | 17.63 |
| | 16 | 16.75-10.85 | 14.88 | 16.13 | 17.75 |
| | 28 | 10.75- 5.95 | 14.50 | 15.63 | 16.75 |
| French dart line to waist, back | 6 | 29.75-16.85 | 14.88 | 16.00 | 17.50 |
| | 16 | 16.75-10.85 | 14.00 | 16.00 | 17.25 |
| | 28 | 10.75- 5.95 | 14.50 | 15.25 | 16.50 |
| French dart line to bottom of dress | 7 | 29.75-16.85 | 48.00 | 50.38 | 52.00 |
| | 15 | 16.75-10.85 | 46.13 | 48.88 | 51.50 |
| | 28 | 10.75- 5.95 | 47.38 | 47.88 | 50.75 |
| Length of sleeve to elbow | 5 | 29.75-16.85 | 13.50 | 14.25 | 14.50 |
| | 4 | 16.75-10.85 | 12.50 | 13.75 | 14.50 |
| | 2 | 10.75- 5.95 | 12.50 | 12.63 | 12.75 |
| Full length of sleeve | 4 | 29.75-16.85 | 23.13 | 24.00 | 24.75 |
| | 13 | 16.75-10.85 | 21.63 | 23.50 | 25.50 |
| | 9 | 10.75- 5.95 | 22.00 | 23.13 | 24.00 |
| Base of sleeve cap | 4 | 29.75-16.85 | 13.00 | 14.00 | 14.50 |
| | 12 | 16.75-10.85 | 12.13 | 13.75 | 16.25 |
| | 19 | 10.75- 5.95 | 12.38 | 13.63 | 16.00 |
| Width of sleeve at elbow | 5 | 29.75-16.85 | 10.50 | 11.88 | 13.13 |
| | 4 | 16.75-10.85 | 10.38 | 12.00 | 12.50 |
| | 4 | 10.75- 5.95 | 10.63 | 11.75 | 12.75 |
| Width of sleeve at wrist | 4 | 29.75-16.85 | 6.00 | 7.50 | 8.38 |
| | 12 | 16.75-10.85 | 6.50 | 7.63 | 9.38 |
| | 7 | 10.75- 5.95 | 5.88 | 7.38 | 9.63 |
| Sleeve cap height | 6 | 29.75-16.85 | 3.25 | 3.75 | 4.00 |
| | 16 | 16.75-10.85 | 2.63 | 3.88 | 4.88 |
| | 23 | 10.75- 5.95 | 3.00 | 3.75 | 4.50 |
| Sleeve cap width | 6 | 29.75-16.85 | 6.50 | 7.63 | 9.00 |
| | 15 | 16.75-10.85 | 6.50 | 8.00 | 10.25 |
| | 23 | 10.75- 5.95 | 6.25 | 7.50 | 9.75 |

cheaper group showing a slight return to larger proportions. In the remaining measurements price does not seem to affect the size.

In size 16 price did not appear to influence the measurements of the garment and great irregularity was found.

In size 18 the width of chest, width of back, bust line, French dart line to the waist, back and front, French dart line to the hem, full length of sleeve and armscye line were directly affected by price, the measurements decreasing with the decrease in price. The hip line, and back and front drop of shoulder varied, independent of price.

Relationship of Price to Similarity Between Garment and Physical Measurements

In order to find what relationship existed between price and the similarity of garment and body measurements, it was necessary to compare the minimum, mean and maximum physical measurements of the three size groups with similar garment measurements. The physical measurements are to be found in Table 5.

The rate of increase of physical measurements from size 14 to 16 and from size 16 to 18 was fairly definite although not uniform, the amount of increase varying from

1/4 to 1/2 inch. In some instances the rate of increase was greater from size 14 to 16 than from size 16 to 18. In general the physical measurements showed a more regular increase from one size to the next than the dress measurements.

From the data collected, charts were constructed showing comparisons between the mean physical measurements of some of the lines studied with those of the mean dress measurements and with measurements of dresses in the three price groups. Figure 1 presents these comparisons. From the group of 25 measurements taken, 13 proved unsatisfactory for comparison. Of this number seven proved unsatisfactory due to style influence; six of the measurements were combined with others for ease of comparison. Of the 12 satisfactory measurements in the three size groups there were 28 of the 36 instances in which the mean dress measurements exceeded the mean physical measurements.

It is recognized that measurements of the dress should be in excess of those of the human figure to allow for ease of movement. In all but four instances the mean measurements of the garments were larger than similar body measurements. These instances were the French dart line to the hem, drop of the shoulder line, front and back and full length of sleeve.

Table 5. Minimum, Mean, and Maximum Measurements
(in inches) of 146 Women

| Body lines | : Measurements : | | | : Size : | | : Number : of : subjects |
|---|------------------|--------|---------|-----------|---------|--------------------------------|
| | : Mini- | : Mean | : Maxi- | : Bust | : Size | |
| | : mum | : Mean | : mum | : measure | : group | |
| Armscye line, entire | 14.38 | 15.75 | 16.13 | 31-32.9 | 14 | 51 |
| | 14.38 | 16.25 | 17.63 | 33-34.9 | 16 | 51 |
| | 15.38 | 16.75 | 18.38 | 35-36.9 | 18 | 44 |
| Drop of shoulder Chest to neck, front | 4.13 | 5.00 | 6.13 | 31-32.9 | 14 | 51 |
| | 4.38 | 5.25 | 5.88 | 33-34.9 | 16 | 51 |
| | 4.38 | 5.25 | 6.13 | 35-36.9 | 18 | 44 |
| Chest to armscye, front | 3.13 | 3.50 | 4.25 | 31-32.9 | 14 | 51 |
| | 3.00 | 3.50 | 4.13 | 33-34.9 | 16 | 51 |
| | 3.25 | 3.75 | 4.88 | 35-36.9 | 18 | 44 |
| Chest to neck, back | 4.13 | 5.00 | 6.25 | 31-32.9 | 14 | 51 |
| | 4.13 | 5.00 | 6.25 | 33-34.9 | 16 | 51 |
| | 4.38 | 5.00 | 6.13 | 35-36.9 | 18 | 44 |
| Chest to armscye, back | 1.75 | 2.75 | 3.75 | 31-32.9 | 14 | 51 |
| | 2.00 | 2.75 | 3.75 | 33-34.9 | 16 | 51 |
| | 2.00 | 2.75 | 3.75 | 35-36.9 | 18 | 44 |
| Width of chest | 10.63 | 12.00 | 13.50 | 31-32.9 | 14 | 51 |
| | 10.63 | 12.25 | 14.25 | 33-34.9 | 16 | 51 |
| | 11.25 | 12.50 | 14.88 | 35-36.9 | 18 | 44 |
| Width of back | 10.63 | 13.00 | 14.38 | 31-32.9 | 14 | 51 |
| | 11.25 | 13.25 | 14.63 | 33-34.9 | 16 | 51 |
| | 12.00 | 13.50 | 15.75 | 35-36.9 | 18 | 44 |
| Bust line, entire | 16.25 | 15.75 | 32.00 | 31-32.9 | 14 | 51 |
| | 17.00 | 17.00 | 34.00 | 33-34.9 | 16 | 51 |
| | 18.50 | 17.50 | 36.00 | 35-36.9 | 18 | 44 |
| Bust line, front | 14.50 | 16.25 | 18.38 | 31-32.9 | 14 | 51 |
| | 15.00 | 17.00 | 18.75 | 33-34.9 | 16 | 51 |
| | 16.25 | 18.50 | 20.50 | 35-36.9 | 18 | 44 |

Table 5, cont'd

| Body lines | Measurements | | | Size | | Number of subjects |
|-------------------------------------|---------------|------------|----------------|--------------------|-----------------|--------------------------|
| | Mini- :num | : :Mean | :Maxi- :num | : Bust :measure | :Size :group | |
| Bust line, back | 12.88 | 15.75 | 18.00 | 31-32.9 | 14 | 51 |
| | 14.75 | 17.00 | 19.25 | 33-34.9 | 16 | 51 |
| | 15.63 | 17.50 | 19.25 | 35-36.9 | 18 | 44 |
| Waist line, entire | 13.75 | 11.50 | 25.25 | 31-32.9 | 14 | 51 |
| | 14.50 | 14.50 | 29.00 | 33-34.9 | 16 | 51 |
| | 15.00 | 15.00 | 30.00 | 35-36.9 | 18 | 44 |
| Waist line, front | 11.00 | 13.75 | 15.25 | 31-32.9 | 14 | 51 |
| | 10.38 | 14.50 | 17.13 | 33-34.9 | 16 | 51 |
| | 11.50 | 15.00 | 17.38 | 35-36.9 | 18 | 44 |
| Waist line, back | 10.00 | 11.50 | 14.25 | 31-32.9 | 14 | 51 |
| | 10.38 | 14.50 | 17.13 | 33-34.9 | 16 | 51 |
| | 11.50 | 15.00 | 17.38 | 35-36.9 | 18 | 44 |
| Hip line, entire | 18.75 | 17.75 | 36.50 | 31-32.9 | 14 | 51 |
| | 19.00 | 18.50 | 37.50 | 33-34.9 | 16 | 51 |
| | 20.00 | 19.00 | 39.00 | 35-36.9 | 18 | 44 |
| Hip line, front | 16.63 | 18.75 | 21.13 | 31-32.9 | 14 | 51 |
| | 15.75 | 19.00 | 22.75 | 33-34.9 | 16 | 51 |
| | 17.38 | 20.00 | 22.75 | 35-36.9 | 18 | 44 |
| Hip line, back | 15.13 | 17.75 | 25.00 | 31-32.9 | 14 | 51 |
| | 14.38 | 18.50 | 23.00 | 33-34.9 | 16 | 51 |
| | 15.68 | 19.00 | 23.25 | 35-36.9 | 18 | 44 |
| French dart line to bust | 7.50 | 9.00 | 10.13 | 31-32.9 | 14 | 51 |
| | 8.50 | 9.75 | 11.00 | 33-34.9 | 16 | 51 |
| | 8.50 | 9.25 | 13.38 | 35-36.9 | 18 | 44 |
| French dart line to waist, front | 12.88 | 14.50 | 15.88 | 31-32.9 | 14 | 51 |
| | 13.50 | 15.00 | 16.25 | 33-34.9 | 16 | 51 |
| | 13.75 | 15.50 | 16.50 | 35-36.9 | 18 | 44 |
| French dart line to waist, back | 13.00 | 14.50 | 16.38 | 31-32.9 | 14 | 51 |
| | 13.00 | 14.75 | 16.38 | 32-34.9 | 16 | 51 |
| | 13.25 | 14.75 | 16.38 | 35-36.9 | 18 | 44 |

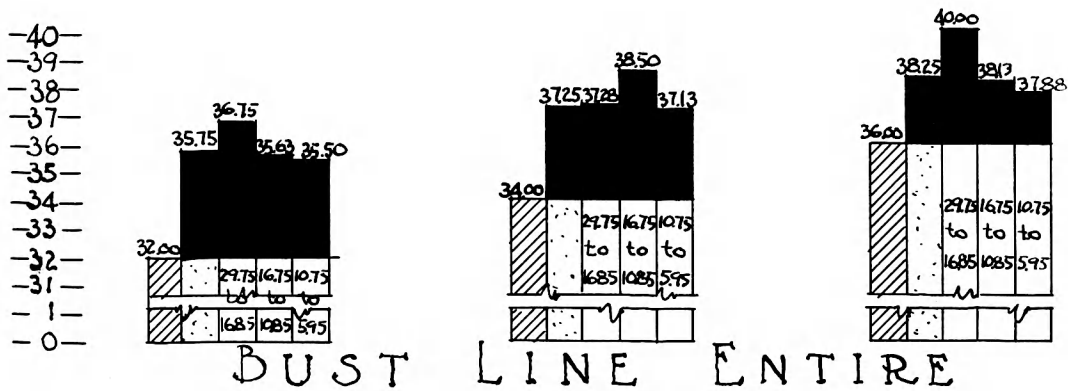
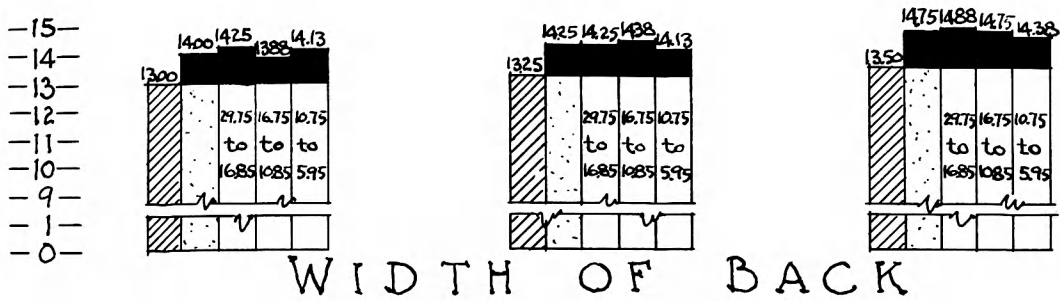
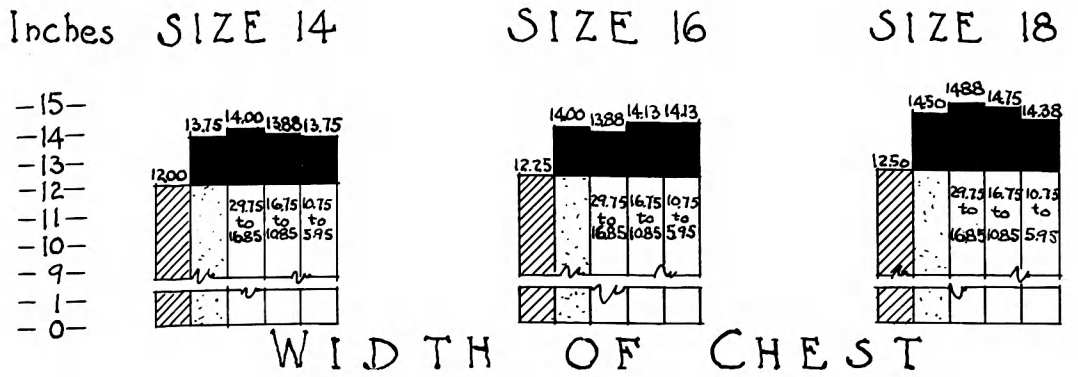
Table 5, cont'd

| Body lines | : Measurements : | | | : Size : | | : Number : of : subjects |
|---------------------------------|------------------|---------------|------------------|---------------------|-------------------|--------------------------------|
| | : Mini- : mum | : : : Mean | : Maxi- : mum | : Bust : measure | : Size : group | |
| French dart line to floor | 53.00 | 57.00 | 61.00 | 31-32.9 | 14 | 51 |
| | 53.38 | 58.00 | 62.75 | 33-34.9 | 16 | 51 |
| | 55.38 | 58.50 | 62.75 | 35-36.9 | 18 | 44 |
| Full length of outer arm | 21.50 | 23.00 | 24.88 | 31-32.9 | 14 | 51 |
| | 20.75 | 23.25 | 25.25 | 33-34.9 | 16 | 51 |
| | 22.00 | 23.50 | 25.00 | 35-36.9 | 18 | 44 |
| Outer length of arm to elbow | 11.75 | 13.25 | 14.75 | 31-32.9 | 14 | 51 |
| | 11.88 | 13.50 | 15.63 | 33-34.9 | 16 | 51 |
| | 13.00 | 13.75 | 15.50 | 35-36.9 | 18 | 44 |
| Circumference, upper arm | 8.75 | 9.75 | 10.88 | 31-32.9 | 14 | 51 |
| | 8.38 | 10.50 | 12.25 | 33-34.9 | 16 | 51 |
| | 9.63 | 11.00 | 12.75 | 35-36.9 | 18 | 44 |
| Circumference, elbow | 9.25 | 10.00 | 10.75 | 31-32.9 | 14 | 51 |
| | 9.38 | 10.25 | 11.63 | 33-34.9 | 16 | 51 |
| | 9.50 | 10.50 | 11.75 | 35-36.9 | 18 | 44 |
| Circumference, wrist | 5.25 | 5.75 | 6.38 | 31-32.9 | 14 | 51 |
| | 5.25 | 6.00 | 6.38 | 33-34.9 | 16 | 51 |
| | 5.50 | 6.00 | 6.75 | 35-36.9 | 18 | 44 |
| Sleeve cap, height | 4.25 | 5.00 | 6.38 | 31-32.9 | 14 | 51 |
| | 4.00 | 5.25 | 5.88 | 33-34.9 | 16 | 51 |
| | 4.50 | 5.25 | 6.00 | 35-36.9 | 18 | 44 |
| Sleeve cap, width | 4.25 | 5.25 | 5.88 | 31-32.9 | 14 | 51 |
| | 4.63 | 5.50 | 6.13 | 33-34.9 | 16 | 51 |
| | 4.75 | 5.50 | 6.25 | 35-36.9 | 18 | 44 |

Data revealed three outstanding variations from the mean physical measurements in the three groups of dresses. In size 14 the French dart line to the hem exceeded the mean physical measurement; in size 16 the mean physical measurements exceeded the mean dress measurements; while in size 18 the same was true with the exception of the highest priced group where the garment measurements exceeded the physical measurements by $\frac{5}{8}$ inch. It seems evident that as the size of the garment increases the length does not proportionately increase.

The front drop of shoulder in sizes 14 and 18 show some excess in dress measurement over the mean physical measurement, but in size 16 the physical measurement exceeds dress measurement, with greater conformity to the human figure as the price decreased. No regularity of any kind was evident in the back drop of shoulder, although the physical measurements exceeded the dress measurements in every instance except the highest priced group in size 16 which was $\frac{1}{2}$ inch in excess. This would probably indicate incorrect slant of the shoulder seam more than insufficient material to cover the shoulder.

The full length of sleeve in size 14 and 16 showed ample proportions for each price group. Size 18 sleeve




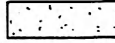
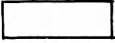

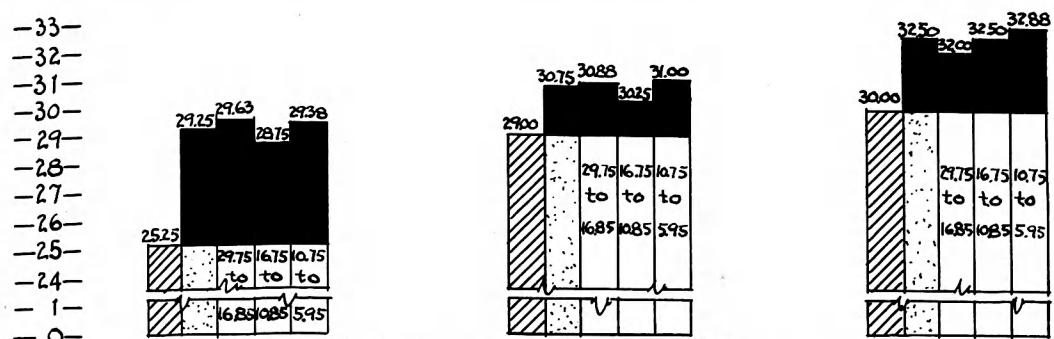
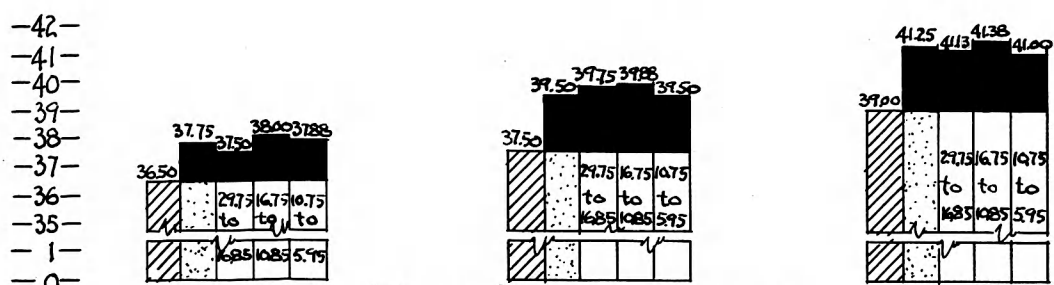
 Physical Measures
  All Dress Measures
  Dresses of Three Price Groups
  Measurement in Excess of Physical Measures

FIGURE 1.
 COMPARISON OF CERTAIN MEAN DRESS MEASUREMENTS WITH PHYSICAL MEASUREMENTS AND WITH THOSE OF DRESSES IN THREE PRICE GROUPS FOR SIZES 14, 16, & 18.

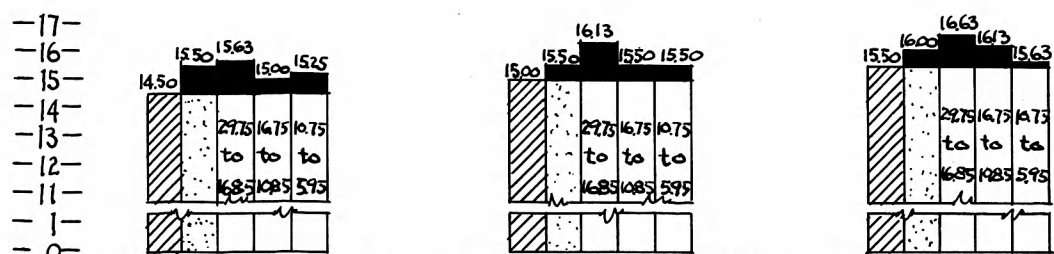
Inches SIZE 14 SIZE 16 SIZE 18



WAIST LINE, ENTIRE



HIP LINE, ENTIRE



FRENCH DART LINE TO WAIST, FRONT


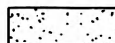


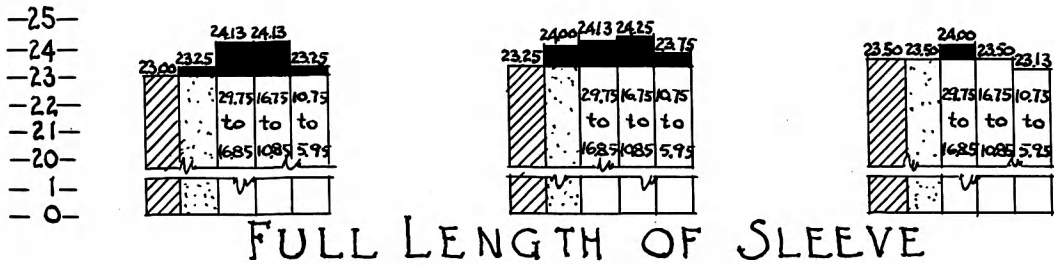
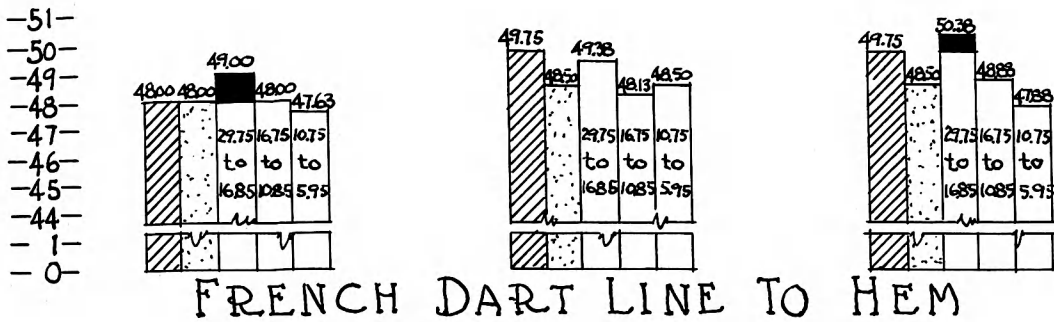
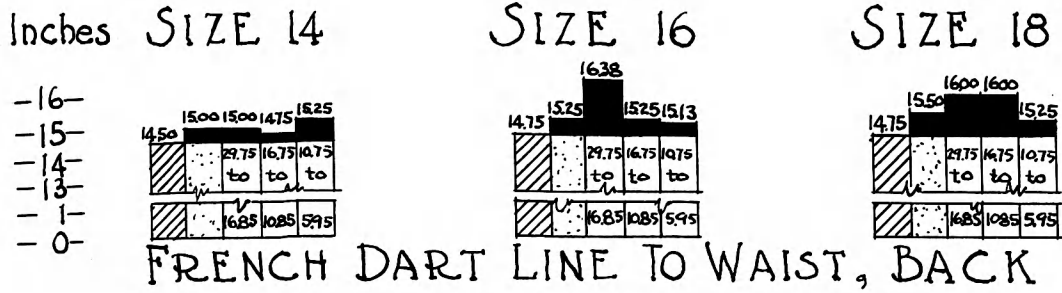
 Physical Measures
  All Dress Measures
  Dresses of Three Price Groups
  Measures in Excess of Physical Measures

FIGURE 1. (CONT.)

COMPARISON OF CERTAIN MEAN DRESS MEASUREMENTS WITH PHYSICAL MEASUREMENTS AND WITH THOSE OF DRESSES IN THREE PRICE GROUPS FOR SIZES 14, 16, & 18




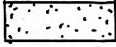
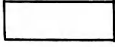

 Physical Measures
  All Dress Measures
  Dresses of Three Price Groups
  Measures in Excess of Physical Measures

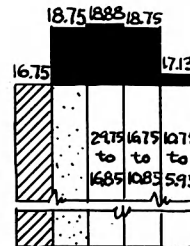
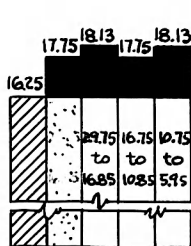
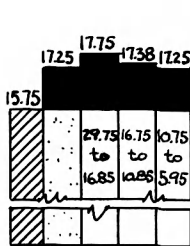
FIGURE 1, (CONT)
 COMPARISON OF CERTAIN MEAN DRESS MEASUREMENTS WITH PHYSICAL MEASUREMENTS AND WITH THOSE OF DRESSES IN THREE PRICE GROUPS FOR SIZES 14, 16, & 18

Inches SIZE 14

SIZE 16

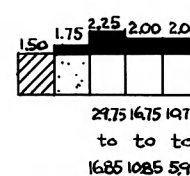
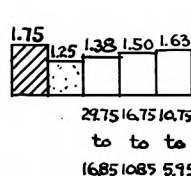
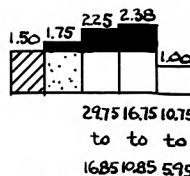
SIZE 18

-19-
-18-
-17-
-16-
-15-
-14-
-13-
-1-
-0-



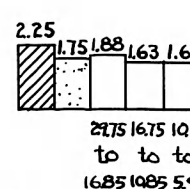
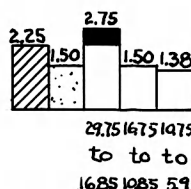
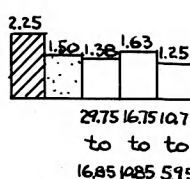
ARMSCYE LINE ENTIRE

-3-
-2-
-1-
-0-



DROP OF SHOULDER, FRONT

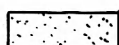
-3-
-2-
-1-
-0-



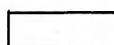
DROP OF SHOULDER, BACK



Physical Measures



All Dress Measures



Dresses of Three Price Groups



Measurement in Excess of Physical Measures

FIGURE 1. (CONCLUDED)

COMPARISON OF CERTAIN MEAN DRESS MEASUREMENTS WITH PHYSICAL MEASUREMENTS AND WITH THOSE OF DRESSES IN THREE PRICE GROUPS FOR SIZES 14, 16, & 18

decreased in length directly with the price from 24 inches to 23 1/8 inches. The remaining nine instances showed an excess of the mean dress measurements over the mean physical measurements. No attempt was made to determine whether this excess was the desired amount for ease of movement.

A further discussion is omitted of the relation of price and the similarity of garment and body measurements, since, for these lines, namely, width of back, width of chest, bust line, French dart line to the waist in back, armseye line, waist line, hip line and the French dart line to the waist in front, the statements made in a discussion of the relationship of price to mean garment proportions so closely parallel the existing relationships that it seemed unnecessary to repeat the statements.

The correlation coefficient and probable error between certain dress measurements taken by two investigators show a relation of significance to exist. The coefficients of correlation were as follows: Full length of arm $0.994 \pm .0009$; chest line $0.978 \pm .0012$; front hip line $0.985 \pm .003$; armseye line entire $0.944 \pm .011$. This was determined by the product-moment correlation coefficient, the formula for which is

$$r_{xy} = \frac{xy}{x^2 y^2}$$

when x and y are the measurements taken by two investigators.

The probable error of coefficient of correlation was determined in five cases by using the following formula

$$\text{P.E.} = \frac{.6745 (1-r^2)}{N}$$

From these results, it is seen that the relationship existing between the measurements taken of the same garment by two investigators is significant.

SUMMARY

Certain measurements were taken of 150 silk and rayon dresses of size 14, 16 and 18, ranging in price from \$29.75 to \$5.95. Each size group was subdivided into three price groupings, the first including those from \$29.75 to \$16.85, the second, from \$16.75 to \$10.85, and the third from \$10.75 to \$5.95. The measurements of these dresses were compared with those of 146 college women who varied from 59 to 68 inches in height, 100 to 145 pounds in weight and from 31 to 36.9 inches bust measure. It was found that:

1. Some uniformity existed between the measurements of dresses of the same size, but there was little relation-

ship between the increase in measurement of commercially made dresses from one size group to another.

2. Price bears some relationship to garment proportions. The minimum and maximum measurements of the highest priced group did not vary from the mean to the same extent as the other two groups.

3. The highest priced group showed the most ample proportions; the medium priced group showed a decrease over the above measurements; and the cheapest group showed a slight return to larger proportions in some of the lines studied.

4. Three dress measurements among the three price groups studied showed a marked variation from the mean, and were in each case less than the mean. These were the French dart line to the hem, front drop of the shoulder, and the full length of the sleeve. All other dress measurements showed an excess over physical measurements, but no attempt was made to determine whether the excess was the desired amount for ease of movement.

5. The reliability of the measurements taken by two investigators was high, as shown by the coefficient of correlation of five measurements: Full length of sleeve $0.994 \pm .0009$; chest line $0.978 \pm .0012$; front hip line

0.985 \pm .003; armscye line entire 0.944 \pm .011.

ACKNOWLEDGMENT

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