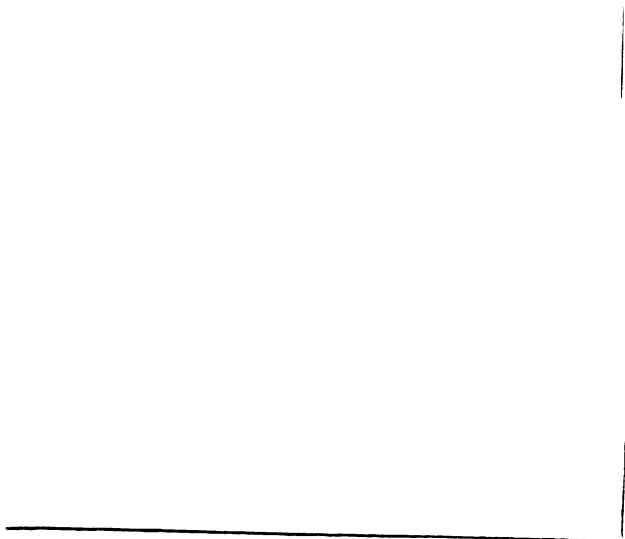
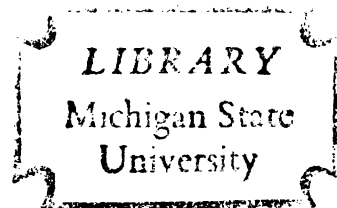


PROBLEMS IN PATTERN FITTING

**THESIS FOR THE DEGREE OF M. S.
MICHIGAN STATE UNIVERSITY**

**MARGARET THAR
1959**

THESIS





PROBLEMS IN PATTERN FITTING

By
Margaret Thar

A PROBLEM

**Submitted to the Faculty of the College of Home Economics of
Michigan State University in Partial Fulfillment of
the requirements for the degree of**

MASTER OF SCIENCE

Department of Textiles, Clothing and Related Arts

1959

602722

ACKNOWLEDGEMENTS

I would like to express my deep appreciation to Miss Marion S. Hillhouse, Associate Professor of Textiles, Clothing and Related Arts for her many hours of guidance while conducting this problem in fitting.

Also I would like to express my appreciation to Miss Hazel Strahan, Head of The Textiles, Clothing and Related Arts Department.

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INTRODUCTION

Sewing of one's own clothing can be of great satisfaction if proper fit can be obtained.

"Any garment must be judged by its appearance on the wearer, and nothing is more important to its total effect than the way it fits. For fit determines the quality of all important structural lines and either flatters or detracts from the contours of the figure; fit can make the difference between a dress that sells for \$17 and one for \$70. Dissatisfaction with a garment can more often be traced to a fault in fitting than in construction. Hence from the beginning, time should be spent only on garments cut from patterns of the size best suited to the individual, and checked and altered for proportions that vary from the average used by the pattern maker. Human figures are not standardized. The problem of sizing which confronts the pattern makers (commercial and ready-to-wear) can scarcely be solved to satisfy everyone. Their basic patterns for various sizes are based on measurements they believe will fit the greatest number of figures."¹

If the individual is to appear well-dressed clothes must fit properly. This means that the garment should follow the contours of the body in the prevailing fashion without producing wrinkles, bulkiness or uncomfortable tightness. Not only should the garment fit, but the design should camouflage the individual's figure irregularities.

1. Mansfield, Evelyn A., Clothing Construction, New York: Houghton Mifflin Company. 1953. p.49.

A proper fitting garment has the following amounts of ease - at least three inches around the bust, two inches around the hips, two inches at the sleeve girth, one inch at the wrist and one and one half inches at the top of the sleeve cap.

The purposes of the study are (1) to gain experience and develop some skill in fitting; (2) to gain experience in recognizing common fitting faults; (3) to gain experience in making corrections of fitting faults in a simple and efficient manner.

The problem areas were: (1) to determine the accuracy of fitting with a commercial paper pattern; (2) alterations which occur most frequently; (3) to determine how well a beginner can fit; and (4) how to alter muslin models as one would alter a cut out dress.

This analysis would give a teacher, whether she works in a school system or teaches groups of extension women some basis for the emphasis to put on various figure problems and the necessary pattern alterations resulting from them.

PROCEDURE

This problem has been divided into three parts. The first was a preliminary study and consisted of compiling the results of a problem by Rita Janice Adrosko and Barbara Spilker in the fall of 1956. In their study, pattern alterations necessary for proper fit were compiled. This was done by observing Miss Evelyn Mansfield's fittings of a beginning sewing class.

Part II of the study consisted of observing the master pattern fittings of ten girls in Miss Millhouse's pattern making and draping class. In this class the girls pad their own forms and drape their own master patterns so fewer alterations could be expected than when fitting the commercial pattern.

The results were combined with the tabulations from the Adrosko and Spilker study. The tabulations were made of the fitting corrections to learn the frequency with which each occurred. This tabulation had not previously been made and it was hoped that it might lead to familiarity with the alterations that generally have to be made.

Quarter-size patterns were then made of the master pattern fittings of the ten girls, to show the necessary alterations of each and the manner in which these alterations were made. The reason the patterns did not fit as initially designed and the corrections made to obtain the desired fit were listed to explain the alteration on each of the master pattern fittings.

Part III of the study consisted of the selection of six figure types to be fitted with a commercial pattern. This was done to analyze where to alter the pattern and how to make the alteration. Vogue patterns for all six

were used for this study. The other student working on the same study used Simplicity patterns, so that comparisons could be made.

The pattern size was determined by the combination of the model's measurements. These measurements include bust, waist, hips, and back waist length.

The commercial pattern was pin fitted to each model. To check the paper pattern pin fittings full size muslin proofs were then made up to see if the faults had actually been corrected. When further alterations were necessary these were made as they would have to be made in a garment that had been cut and basted for a fitting, since one of the main points to learn was the importance of seeing errors before the dress is cut.

Quarter-size patterns were made to show the necessary alterations of each of these six models and the manner in which these alterations were made. The reason the patterns did not fit and the corrections made were listed to explain the alterations on the paper pin fittings.

Lastly, the necessary alterations of the two patterns, Vogue and Simplicity, were compared to see which ones were due to individual figure differences and which to the make of the pattern.

PART I
PRELIMINARY STUDY OF DISTRIBUTION OF
FIGURE DEVIATIONS REQUIRING PATTERN ALTERATIONS

Mita Janice Adrosko's and Barbara Spilder's "Pattern Fitting Problem" completed in the fall of 1956 were used as background material for this study. They observed eighteen commercial pattern fittings in Miss Mansfield's class in beginning clothing construction and analyzed the flaws that occurred in the pattern when the individual was fitted, the reason for the flaws and the alterations that were necessary to correct them.

The number of times each alteration occurred and the fault and cause of the alterations had not previously been tabulated. This was done and the results were combined with a tabulation of alterations occurring in Miss Millhouse's class in pattern design and fitting. By combining the two sets of figures alterations most frequently needed by the twenty-eight college students could be determined.

It is interesting to note the number and variety of fitting problems that occurred during the fitting of the twenty-eight girls. See table I. Those which occurred four or more times were considered as especially significant.

Insufficient room at the back of the bodice for arm movement occurred six times. Five of these, however, occurred in the pattern design and fitting class and were because the students did not allow room across the back for reaching forward or possibly these let outs were simply made as precautionary measures.

The college girls in this group tended to have a larger bust than was allowed for by the pattern companies. In four

cases there was insufficient width at the side of the bodice because of a large bust and small bone structure. In seven cases the patterns were too wide at the shoulders. Since patterns were bought by bust measurement, shoulders were evidently narrow in relation to the bust.

Diagonal wrinkling from the neck to the bust occurred four times. All four of these occurred in the draped master patterns. This wrinkling may be caused from a neck which is larger than the pattern arc or because the shoulders slope more than the pattern shoulders. It is often seen in muslin and missed in paper since cloth wrinkles and paper does not.

Gapping at the armseye occurred very frequently. In seven cases the front underarm gapped and in seven cases the back underarm gapped. The gapping at the front underarm is again related to the large bust of the individual and indicates need for deeper darting. Gapping at the back underarm may be due to prominent shoulder blades and again shows need for deeper waistline darts.

The waistline of the pattern was more often too small than too large; there were four too small and two too large. This indicates that in six cases the waistline had to be increased or decreased and in no case could this be done by letting out or taking in the side seam but rather by increasing or decreasing the dart size.

The length of the bodice pattern was seldom right for the individual; however, it too was just as liable to be too short as it was too long. The pattern was too short seven times and too long ten times. It was too long in the back nine times due to over erect posture and five times there was excess length near the back neckline.

There were no significant conclusions that could be drawn from the fit of the sleeve. Most of the alterations required were in the height of the sleeve cap. Three had excess cap height and four inadequate cape height; in seven cases the cap height needed to be adjusted to make the cross grain fall level.

The most significant factor in the fit of the skirts was that they were too tight around the hips. This occurred eight times in the twenty eight cases. There was too much flare at the side seam in four cases. This too, is related to large hips as it is liable to be caused by a large curve at the side from the waistline to the hipline and therefore insufficient length of pattern.

Six times the patterns were too long at the center back of the skirt between the hipline and the waistline. This problem occurs when an individual has a sway back.

Although the sampling is small it is indicative of fitting problems which arise most frequently among college women and special attention should be given to an understanding of the cause and correction of those faults. If the fitter becomes adept at making the alterations which do occur most often, accuracy and speed will eventually result and with experience a better fit of the pattern may be obtained.

Without an analysis of cause and correction, trial and error experiences alone will never suffice to produce good results, since they may lead to the practice of mistakes and the development of bad habits.

PROMINENCE OF FIGURE FAULTS

Fault	Cause	Times Occurring
Bodice		
General Characteristics		
Too tight all-over.	Large bone structure.	1
Too loose all-over.	Small bone structure.	1
Insufficient room at back for arm movement	Insufficient ease.	.6
Loose at midriff.	Small rib cage.	1
Side Bodice		
Excess width	Large bust, small bone structure.	4
Too tight	Large bone structure.	1
Neckline		
Too wide an arc	Small neck.	2
Too narrow an arc	Large neck.	2
Wrinkling at side neck. . .	Insufficient clipping at neckline	3
Wrinkles at front neckline.	Hollow chest, forward head. . . .	1
Location of neck dart not flattering	Prominent shoulder blades	2
Armhole		
Gapping near front underarm	Large-busted.	7
Gapping near back underarm.	Prominent shoulder blades	7
Too high.	Large arm girth	1
Too deep.	Small arm girth	1
Shoulders - Back		
Excess fullness near seam . of shoulder	Sloping shoulders	3
Excess width at shoulder. .	Narrow shoulders.	6
Shoulder width of pattern . too narrow	Broad shoulders	2
Fullness below neckline . .	Prominent shoulder blades	3
Tight over shoulder blades.	Prominent shoulder blades	3
Wrinkles radiating from . . shoulder blades	Prominent shoulder blades	2
Bust		
Pattern too large	Small-busted.	3
Pattern too small	Large-busted.	7

TABLE 1-Continued

Fault	Cause	Times Occuring
<u>Bodice, cont.</u>		
<u>Bust, cont.</u>		
Bulge at point of bust dart	Small-busted.	2
Excess length at bust level at center front	Large-busted.	2
Wrinkling - neck to bust. .	Insufficient neckline clipping. too much darting	4
Wrapping - bust to armseye .	Large-busted.	3
Wrinkling - Point of waist. dart to side seam at waistline	Insufficient darting.	1
Point of yoke beyond armseye front and back	Design fault	1
<u>Waistline</u>		
Pattern too small	Large waist	4
Pattern too large	Small waist	2
Pattern too large at back .	Unusual body structure.	1
<u>Length</u>		
Pattern too short	Tall stature.	7
Too short at front.	Large-busted.	3
Too long.	Short stature.	10
Too long at back.	Erect posture	9
Too long at front	Slightly stooped.	1
Excess length near back . .	Erect posture	5
<u>neckline</u>		
<u>Sleeve</u>		
<u>Length</u>		
Pattern too short	Long arm.	2
Too long between shoulder . and elbow	Short upper arm	2
Too long between elbow and. wrist	Short lower arm	2
<u>Girth</u>		
Excess width at girth . . .	Small upper arm	1
Insufficient width at girth	Large upper arm	2
<u>Cap</u>		
Excess cap height	Armseye too small for sleeve. . .	3

TABLE 1-Continued

Fault	Cause	Times Occurring
-------	-------	--------------------

Sleeve, cont.

Cap, cont.

Inadequate cap height	Sleeve too small for armscye	4
Too much ease in cap.	Poor pattern design	2
Center of sleeve not falling on shoulder seam	Body posture.	2

Shirt

Waistline

Pattern too small.	Large waist	1
Pattern too large.	Small waist	2
Too much curve at waist.	Large waist	2

Hips

Pattern too tight	Large hips.	8
Too loose	Small hips.	3
Too tight at front hipline.	Large thighs.	3
Too loose at front.	Too much darting.	2
Tightness in back	Full rounded hips	1
Horizontal wrinkling at	Insufficient darting.	2
side front		
Center front dart too large	Fl. stomach.	1

Length at hipline

Pattern too long.	Small hips.	1
Too long at center back	Sway back	6
Too long at center front.	Full hips	1
Too short at center front	Protruding stomach.	2

Seams

Too much flare at side seam	Big curve from waist to hip	4
Narrows at hem line	Pattern fault or large hips	1
Side seam hangs forward	Excess pattern length center back	3
Side seam too far back.	Sway back	1
Center back seam sticks out	Sway back	1

PART II
OBSERVATIONS OF FITTINGS AND RECORDING OF CHANGES
ON QUARTER SIZE PATTERNS

The master pattern fittings of ten girls in Miss Hillhouse's class in pattern making were observed to gain ability in recognizing flaws, analyzing the difficulty and making the necessary alterations.

"To learn to fit successfully, one must observe the figure keenly and study the relationships among its contours just as a sculptor would do. One must become conscious of grain in order to know where and when to adjust it. And one must learn to trace wrinkles and unwanted bulges to their origin in order to know whether they are caused by figure irregularity, mistake in pattern shape, or posture."¹

The girls in this class had previously padded their own dress forms and draped their muslin master patterns on the dress form. Sleeves were drafted to each individual's arm measurements. The master patterns, therefore, could be expected to fit better than those from standard commercial patterns used in Part III.

Many of the inaccuracies in fit of the Master pattern were a result of the individual's lack of experience in draping. Other inaccuracies were due to posture and figure variations of the individual from the padded form.

"There are two possible fitting procedures, and both have their advantages. The first one is to open the seam lines and 'redrape' the section requiring alteration. This method is useful when some experimenting is necessary in

1. Ibid., p. 196.

order to determine what changes will improve the fit and even the design of the garment. It is also a good procedure for an alteration involving only a short seam line. But for a complicated alteration, it requires not only skill in draping on the part of the fitter but also tiresome standing for the person being fitted. The second method requires less of both persons involved. For alterations can simply be indicated during the fitting by pinning up darts and tucks where there is excess; marking lines for slashing and spreading where more ease or flare is desired; and marking in new lines with pins where a seam or a dart line is poorly placed but the fit is correct. This is really fitting through 'blocking', and has the double advantage of requiring less of the fitter's time and of being easier for the amateur to do. There is also less chance of losing the lines that are already correct - an advantage of no small value. The changes are transferred to a paper pattern which is then altered and used in remarking the correct lines on the dress."¹

In watching the fittings, a great many different fitting problems were observed. Each pattern was made in quarter-size so as to illustrate and explain the alterations that were made and to help develop skill in making alterations. Quarter-size patterns of the changes are illustrated on the following pages with the explanation of each on the facing pages.

More fitting problems were found in the bodices than in either the skirts or the sleeves. The most common fault, occurring five out of ten times, was that the bodice was too tight across the back and did not allow enough room

1. Hillhouse, Marion S., & Mansfield, Evelyn A., Dress Design. New York: Houghton Mifflin Company. 1948. p. 196.

for arm movement. This should always be checked by having the model reach with her right arm across her chest to the left shoulder. This is apt to be forgotten by fitter.

Diagonal wrinkling from the neck to the bust occurred four times. This is caused by patterns being too high in the shoulder or the neck too large. In one case this was caused by a large neck column and was remedied by simply lowering and widening the neckline; the other three had a dart pinned out from the bust running to nothing at the neckline. When this dart was transferred to the bust dart it reduced its size.

Some of the girls had trouble obtaining the correct bodice length; however, there were as many bodices too long-waisted as too short-waisted - three in each case. Three sleeves had short caps. They were raised the proper amount and the cap readjusted so as to maintain one and one half inches of ease when inserted into the armseye.

The fault occurring most frequently in skirts was that they were tight. Although this occurred four times, only one of the skirts needed to be slashed and spread; the other three were merely increased at the side seam from hip to hem evenly to avoid changing the hang of the side seam.

The number of alterations made and the reasons responsible for the alterations were combined with Part I of this study and tabulated with them. The total number of problems arising and their frequency can be determined from part I of the study.

Code for Quarter-Size Patterns

_____	original pattern line
_____	final pattern line
_____	intermediate pattern line- a line formed after an alteration, but not the final line.

FAULT

CORRECTION

Bodice

Not enough room across
back for arm movement

Increase width of bodice back
at lower armscye

Shoulder seam not straight

Straighten shoulder seam

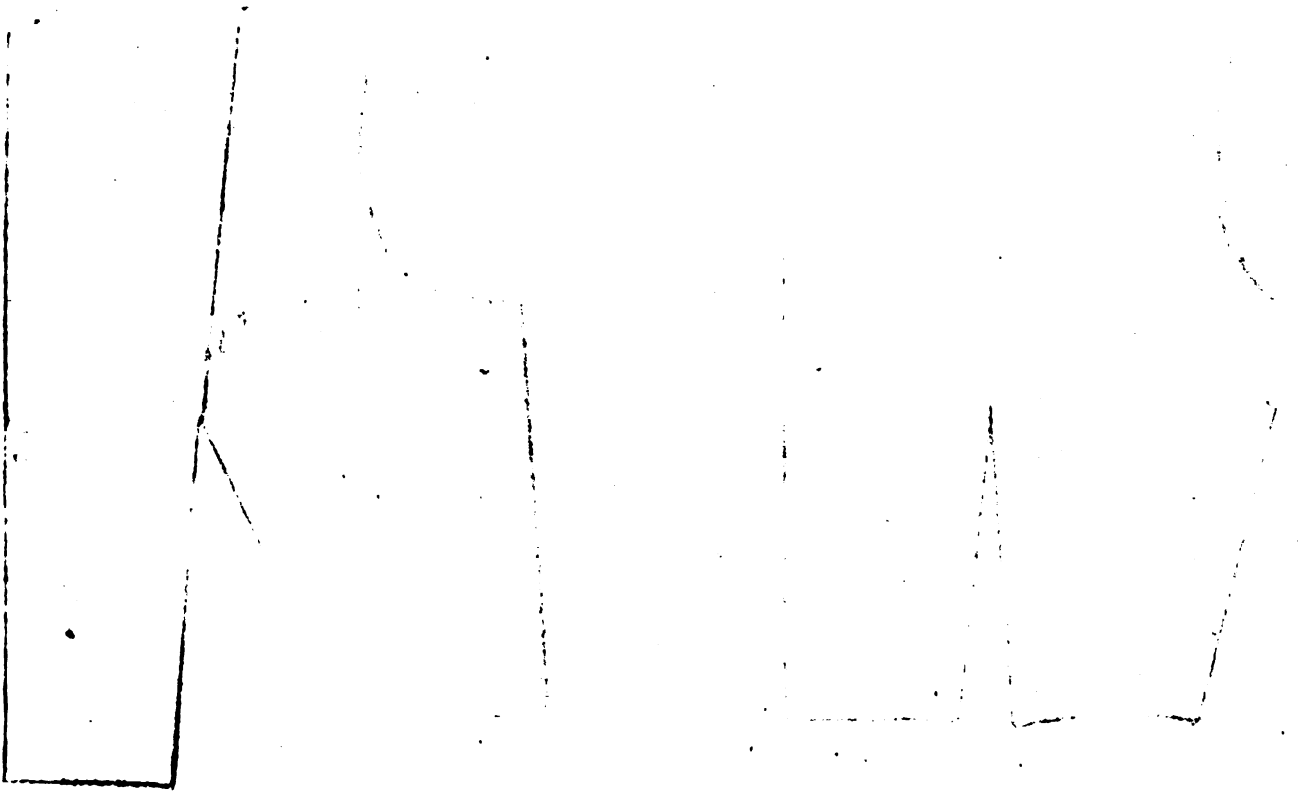
Wrinkling from neck to
bust point

Clip and lower at the neck
rework neckline
Run shoulder front dart down
to bust point

Wrinkle across front of
shoulder from prominent
neck bone

Pin out dart from armscye to
neck seam

Sleeve is good



FAULT

CORRECTION

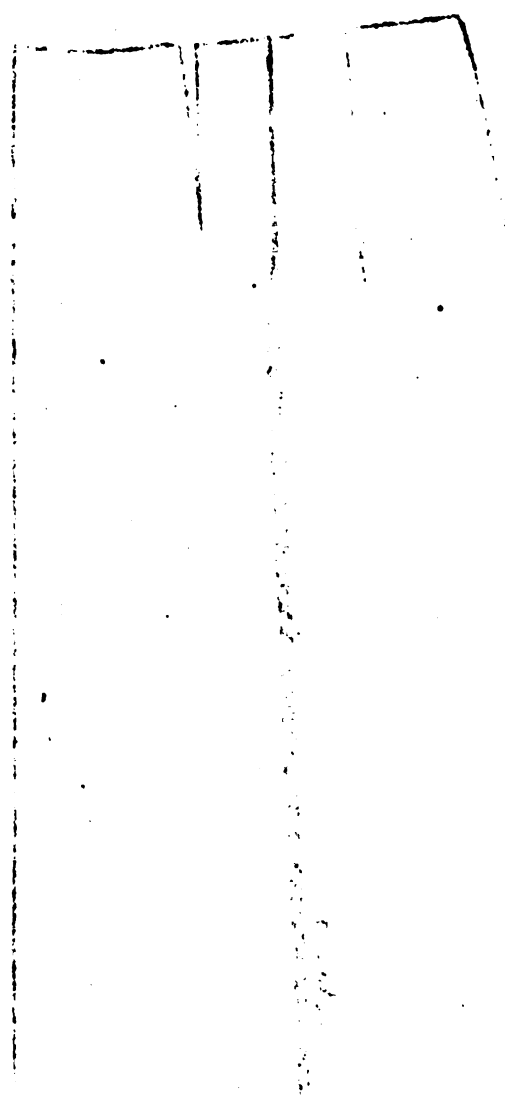
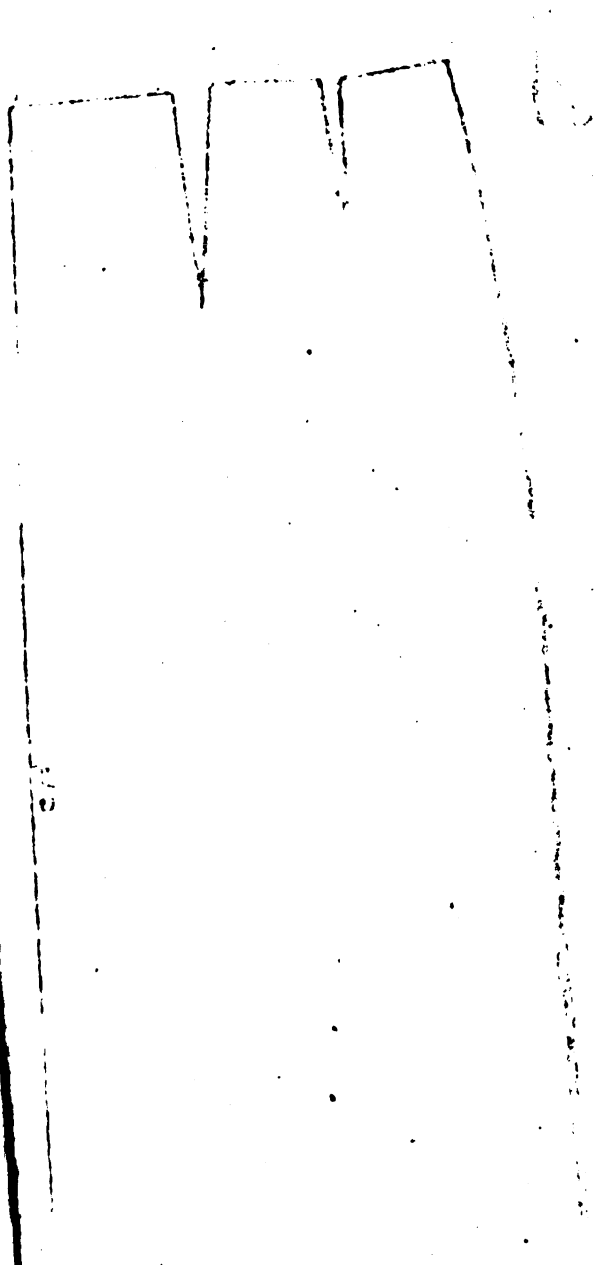
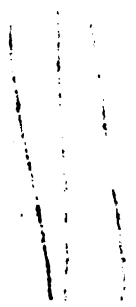
Skirt

Skirt is too tight

Slash between hem and darts on front panel and let out 1/4" at hip level

Side seam too far back

Add on to side seam from hip to hem of back panel. Remove same amount from side seam from hip hem of front panel.



FAULT

CORRECTION

Bodice

Blouses too much in back

Lap out 1/4" tuck at center back to nothing at side seam

Neck of blouse too low due to small neck

Raise neck line at the front

Tight across back of blouse

Increase width of bodice back at lower armseye

Too wide at top of shoulders

Redraw armseye, nattering it at top of shoulders

Armseye too deep

Raise at underarm

Waistline too short in front

Lower front waistline by draping

Shoulder dart not flattering

Change to a neck dart

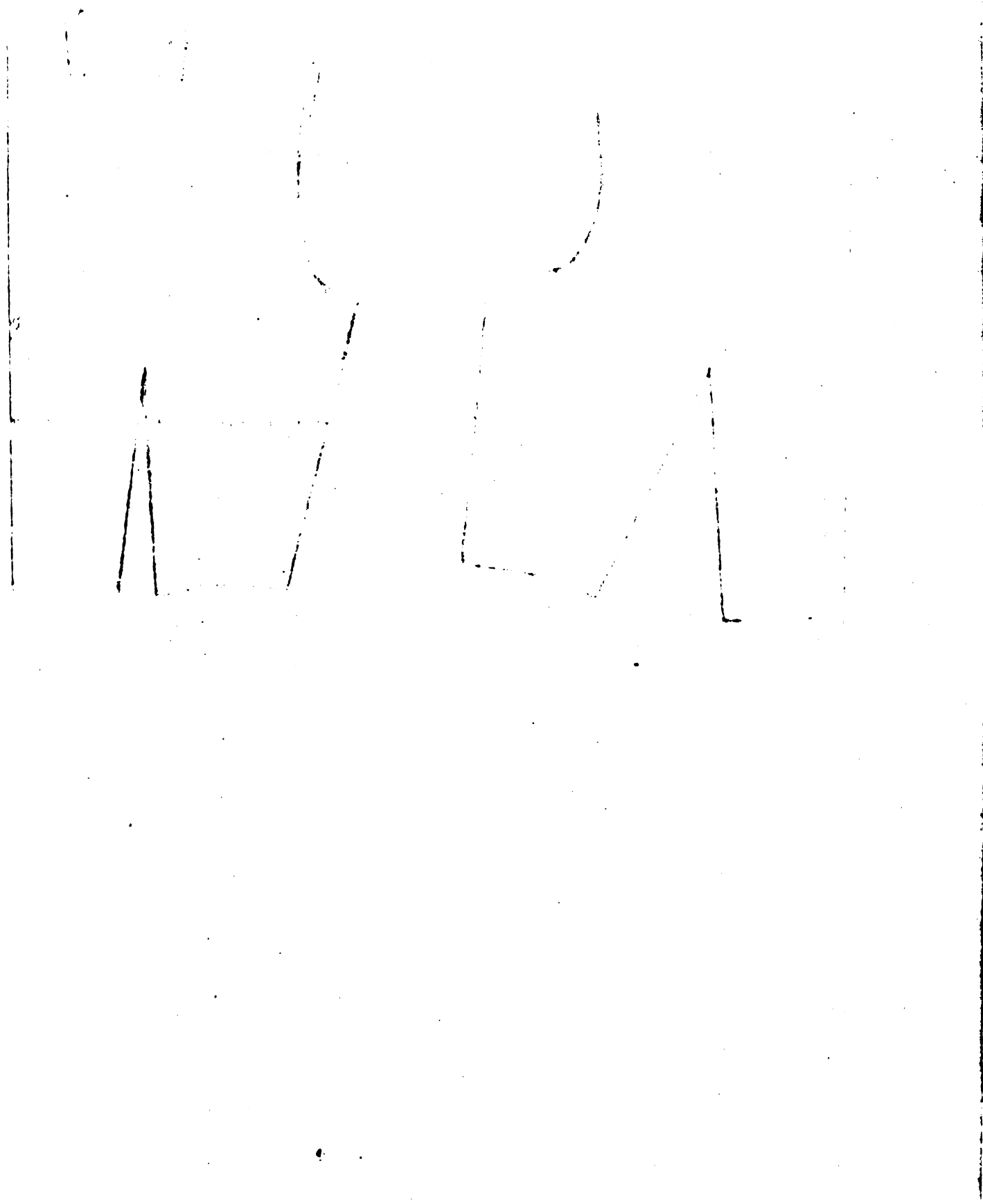
Sleeve

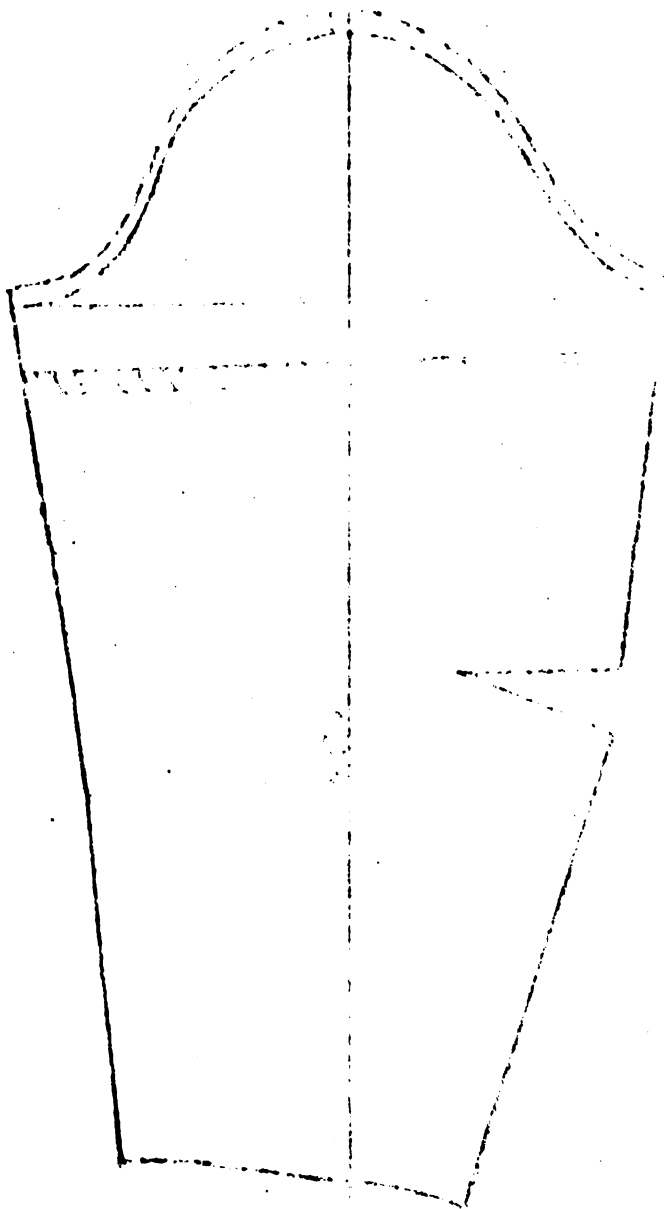
Sleeve too long between shoulder and elbow

Lap out 1/2" between shoulder and elbow

Center of sleeve cap in front of shoulder line

Move sleeve cap back





FAULT

CORRECTION

Skirt

Side seam on skirt falls forward

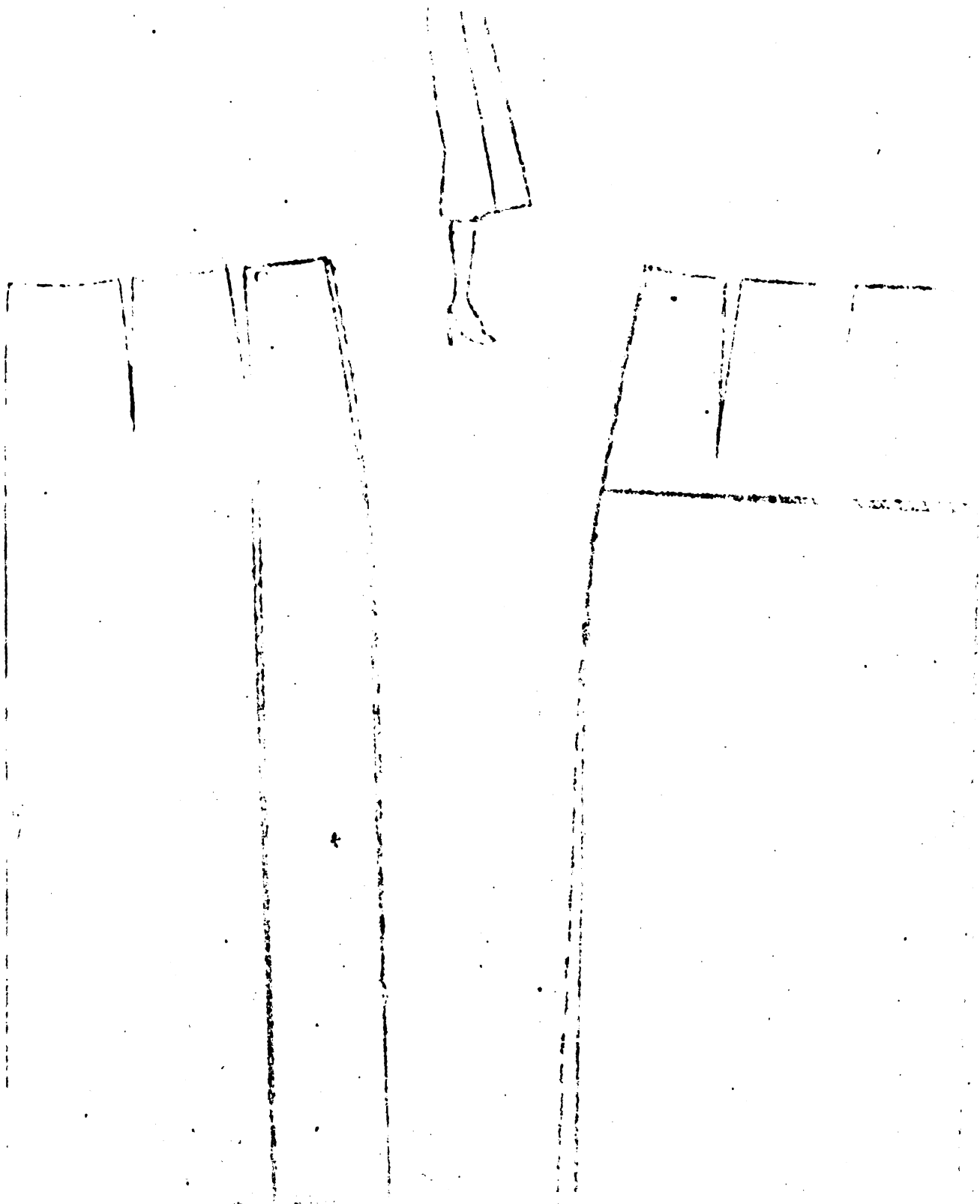
Lap out tuck from center back to nothing at side seam

Center back seam sticks out

Take out 1/4" on center back seam and straighten seam

Side front dart too big

Lap out tuck from point of dart to hem



FAULT

CORRECTION

Bodice

Neckline are too large

Raise neckline front and back

Slight too tight across bust

When transferring shoulder to waist dart, use point of shoulder dart as pivot point .

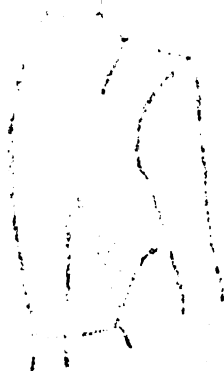
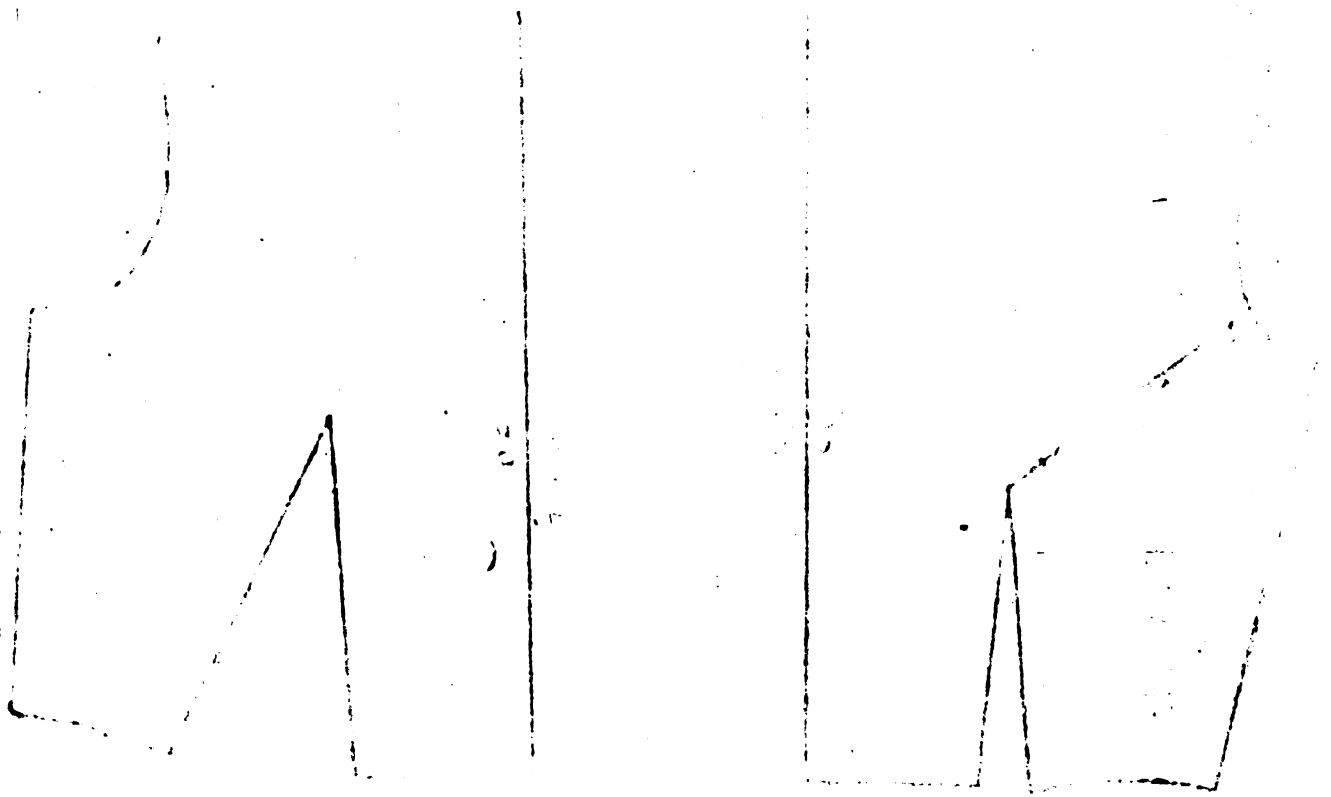
Wrinkle from point of back waist dart to bottom of side seam

Pin out dart from point of bust dart to armseye. During class was done by redrapeing the back to increase the dart and correct the armseye and side seam

Back shoulder dart not flattering

Change to neck dart

Sleeve is correct



FAULT

CORRECTION

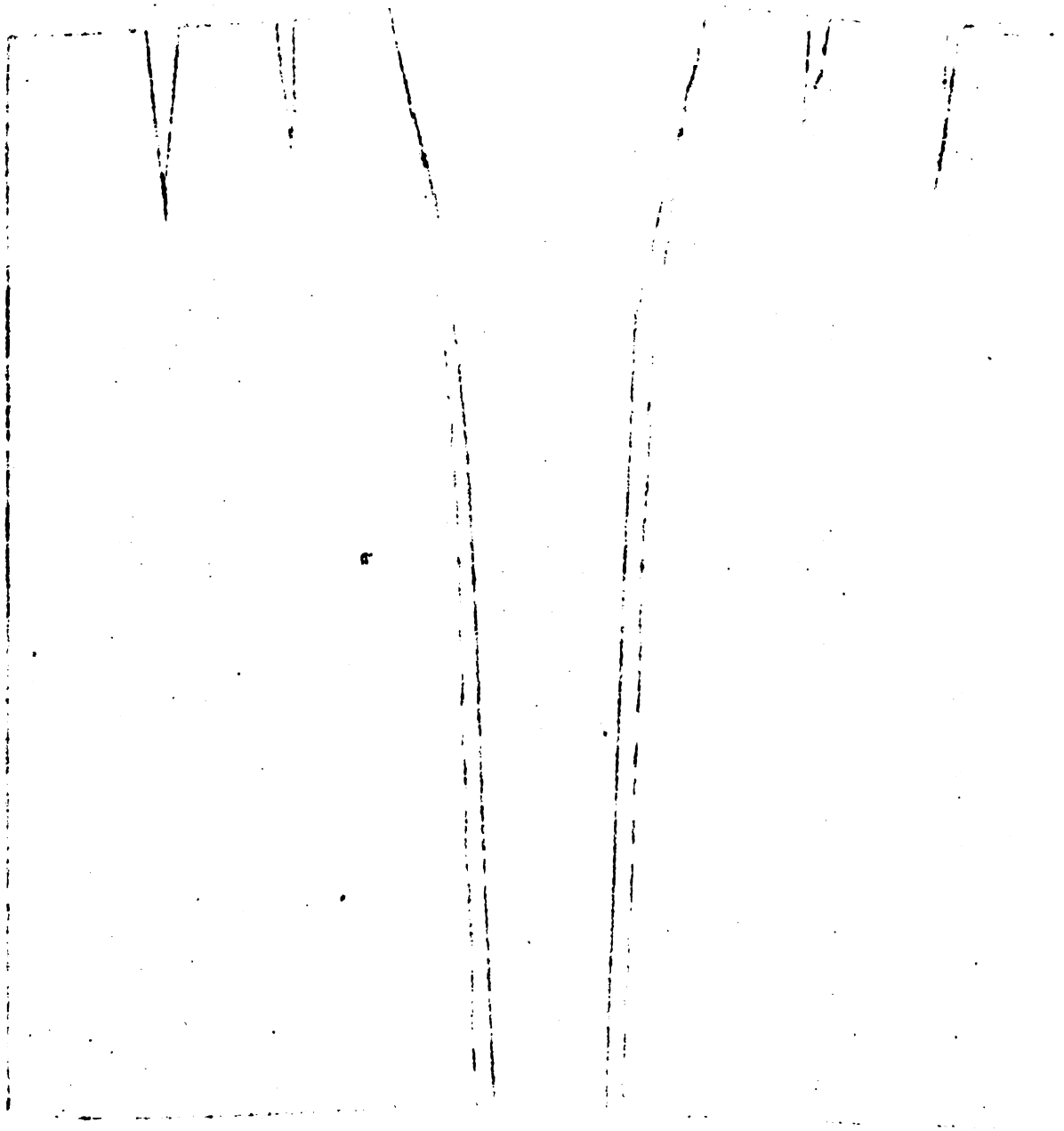
Skirt

**Center front waistline needs
to be lifted**

**Raise skirt at waistline at
center front**

Skirt too tight

**Add 1/4" to each side seam
from hip to hem line.**



FAULT	CORRECTION
Bodice	
Neckline too high at sides	Lower neckline at side front and side back
Shoulder seam pulled	Release end of shoulder dart
Back shoulder dart unbecoming	Transfer to neck dart
Fullness at shoulder seam	Increase depth of back shoulder seam
Gapping at back armseye	Pin out tuck from armseye to shoulder dart
Tight over bust	Use point of shoulder dart for pivot point
Not enough room across back for arm movement	Increase width of bodice back at armseye
Waistline too short at center front	Lower waistline at center front by draping
Waistline too long at center	Pin out tuck from center back to nothing at side seam. During class this was done by draping
Sleeve	
Cap too short	Increase height of sleeve cap

front

dart

shoulder

to

front for

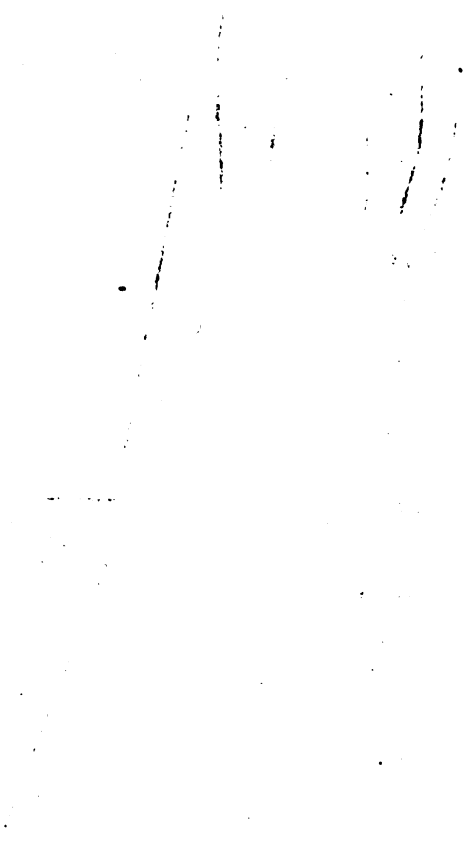
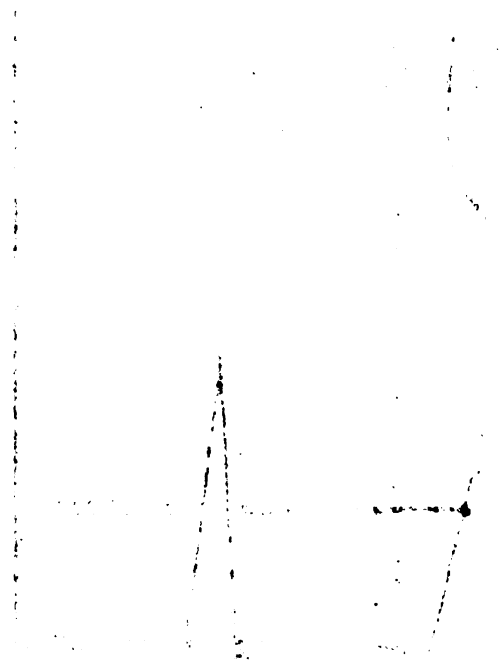
back

front

back

by

cap



FAULT

CORRECTION

Skirt

Loose at waistline

Take in at seam line from hip to waist. This could also be done by deepening the darts.

FAULT

CORRECTION

Bodice

Shoulder seam too loose

Pin up shoulder seam on both front and back

Excess fullness between bust and neck

Pin out dart between point of front waist dart to nothing at neck edge

Too long waisted at center back

Pin out tuck from center back to nothing at side seam

Not enough room across back for arm movement

Increase width of bodice back at lower armscye

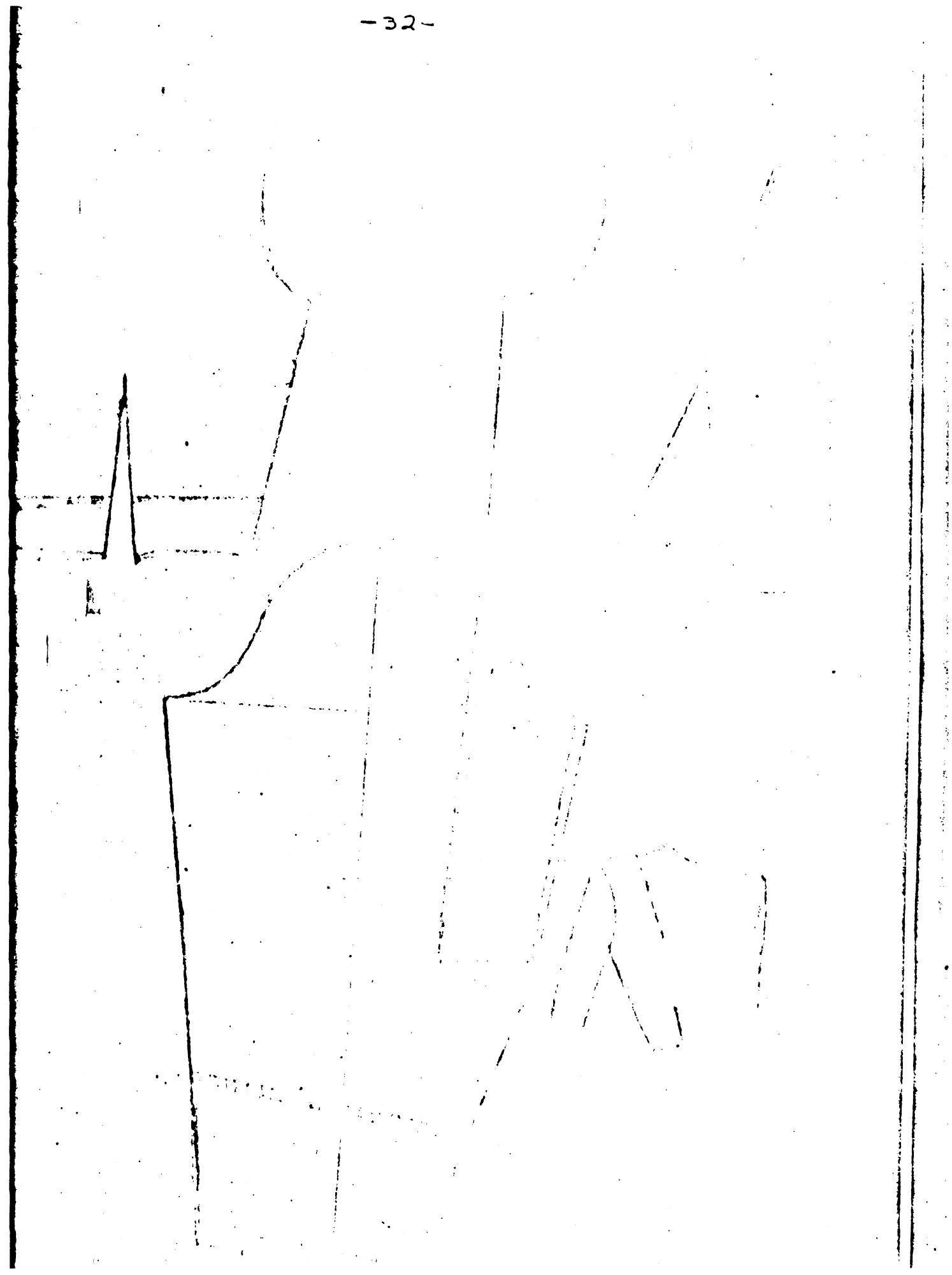
Sleeve

Sleeve too tight at girth

Add 1/2" at girth of sleeve by spreading at quarter lines

Sleeve too long between elbow and wrist

Shorten 1/4" between wrist and elbow



FAULT

CORRECTION

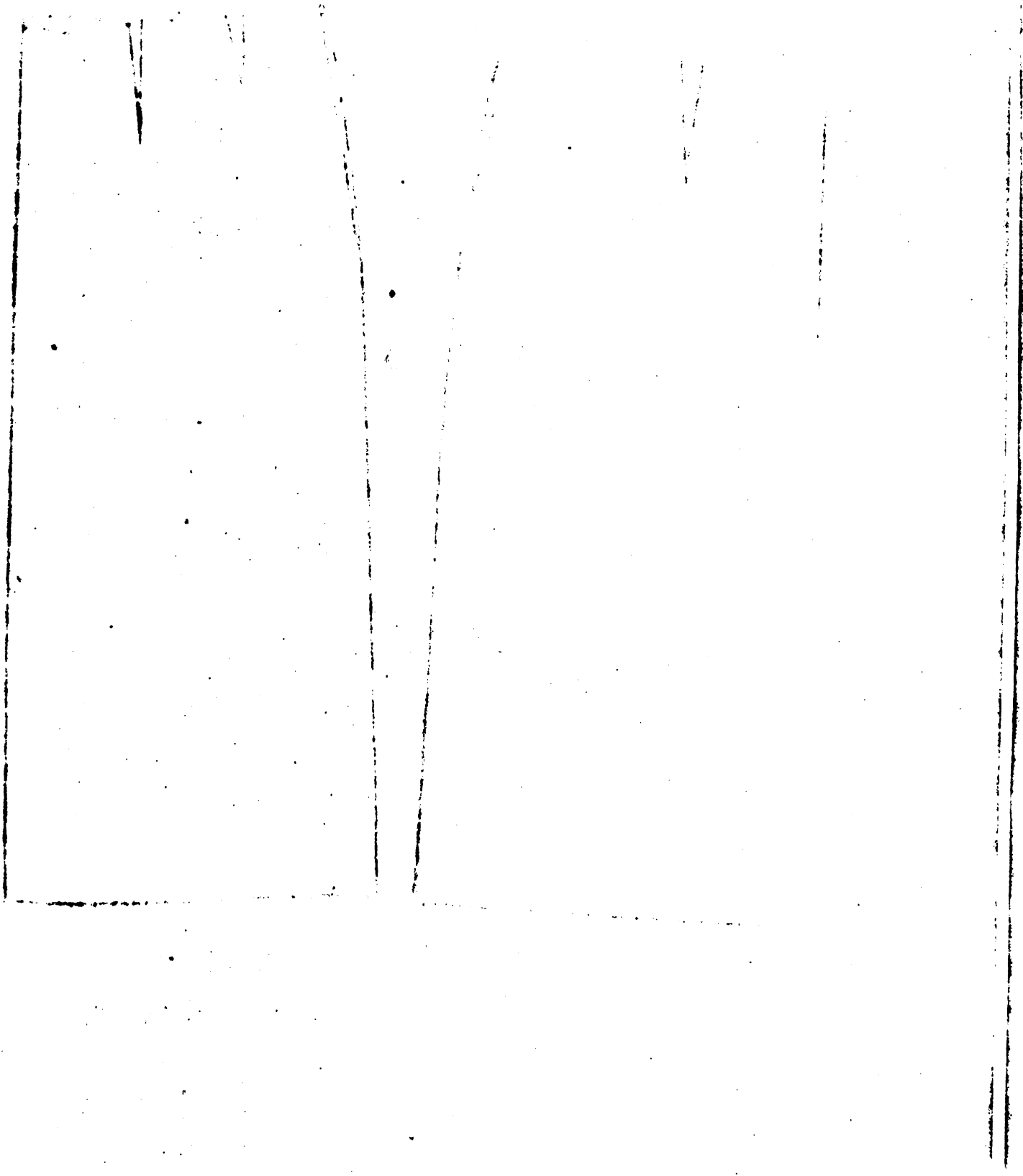
Skirt

Too large just above hip

Take up seam both front and back

Skirt wrinkling at center front below waistline

Add on to skirt at waistline at center front



FAULT

CORRECTION

Bodice

Wrinkle from bust to neck

Pin out dart from neck to bust point. During class a new neck line was marked and the depth of shoulder dart increased by draping.

Not enough room across back

Increase width of bodice back at lower armseye

Too wide at shoulder

Redraw armseye, making it narrower at front and back shoulder seam

Sleeve

Cap too short

Increase height of cap 1/2"

Sleeve too long between elbow and shoulder

Shorten sleeve 1/4" between elbow and shoulder

Center of sleeve falling behind shoulder seam

Move sleeve forward 1/2"

to bust
new neck
length of
by

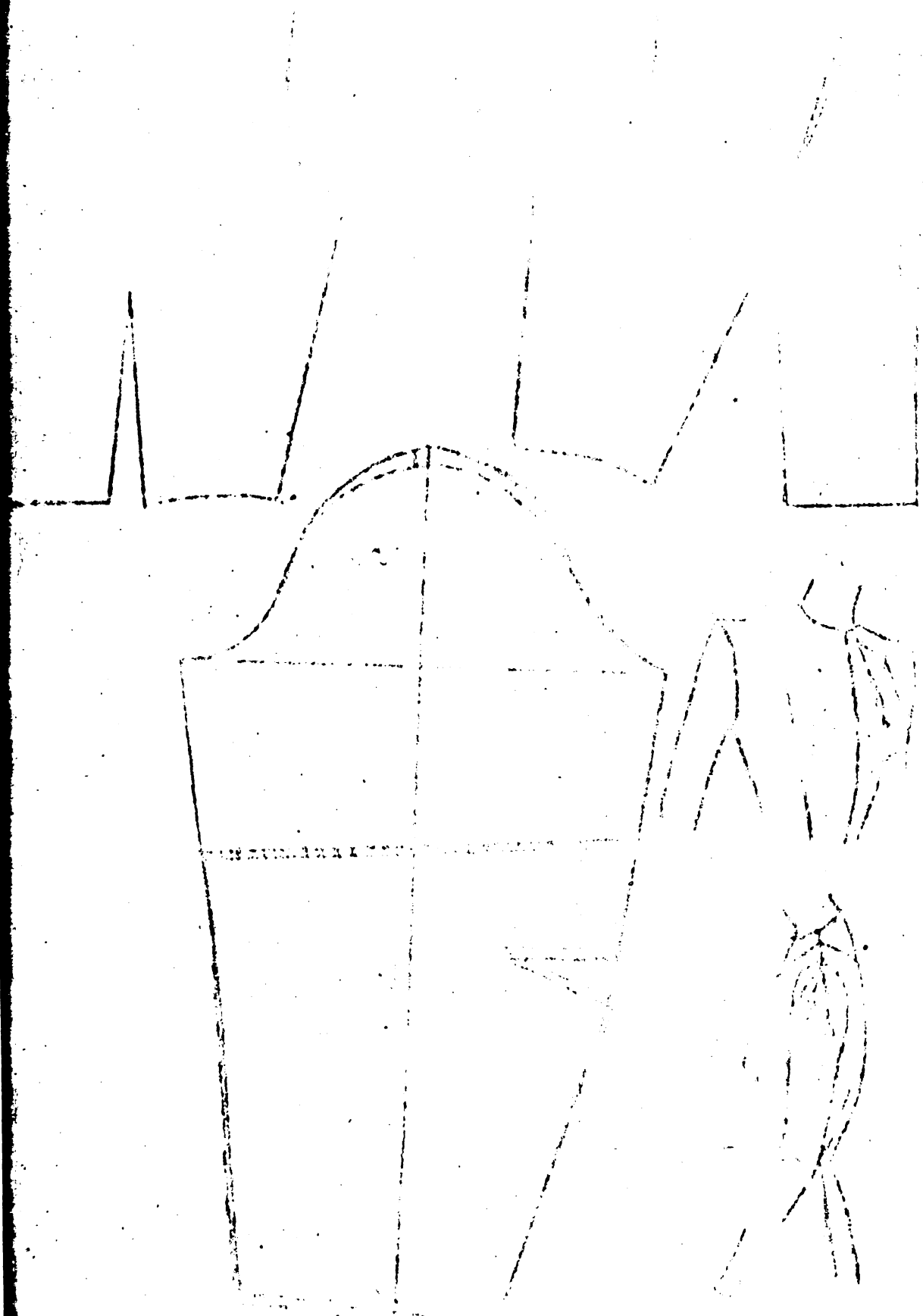
back

it
ack

1/2"

seen

.



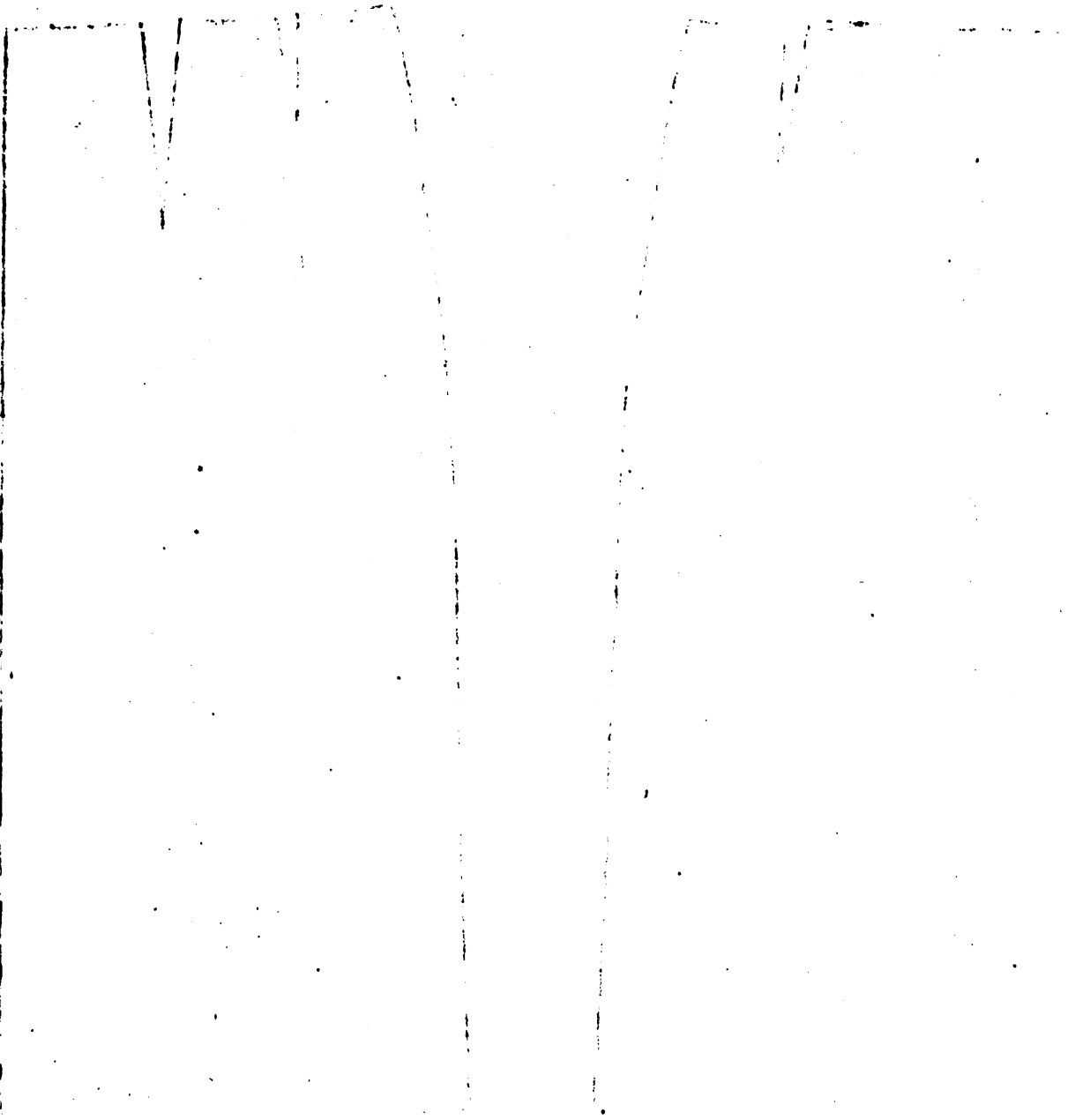
FAULT

CORRECTION

Skirt

**Waistline curve at side front
curves too far up**

**Redraw waistline curve lowering
it at side front and back**



FAULT

CORRECTION

Bodice

Darts in front too short too
fit attractively

Lengthen shoulder dart and
waistline dart

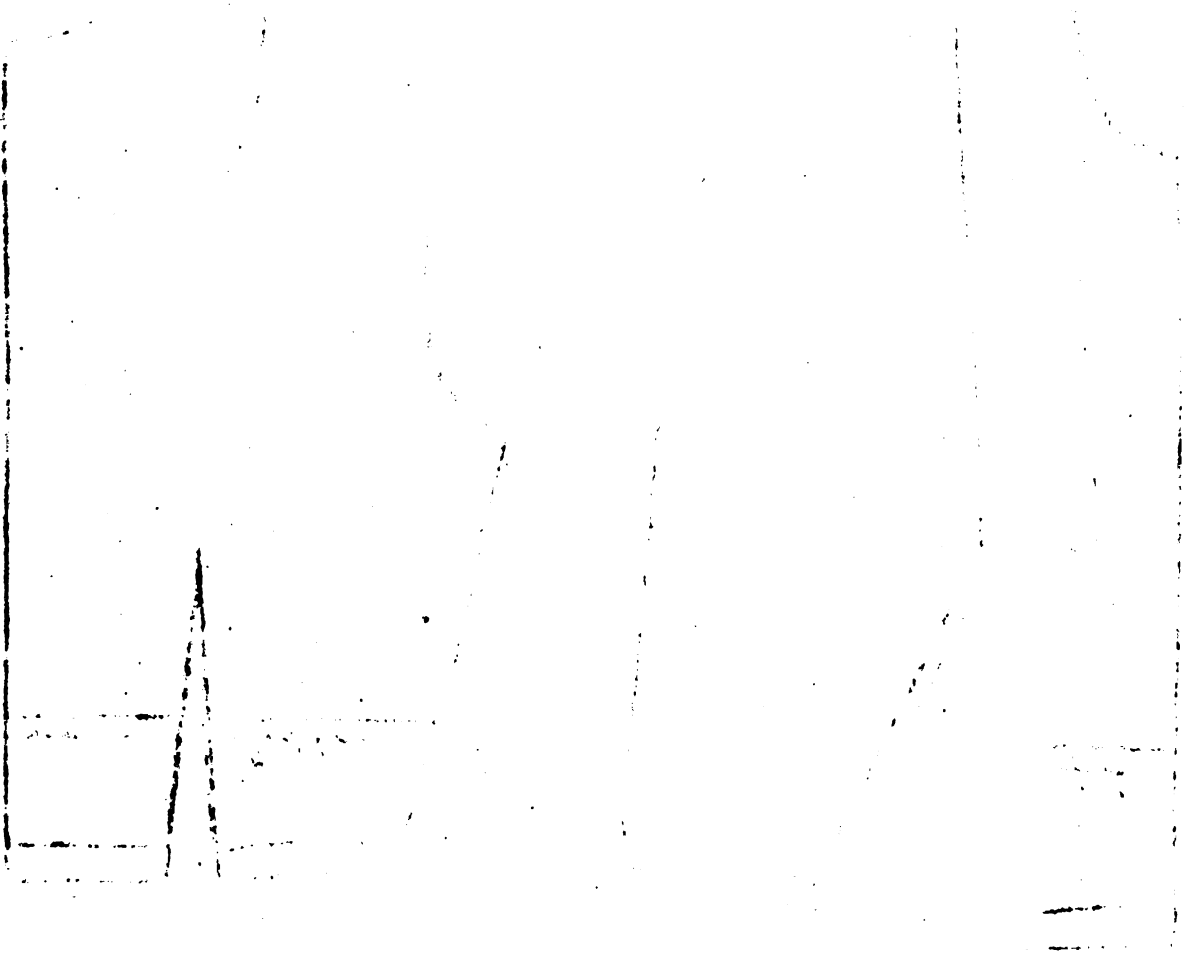
Short waisted in front and
back

Slash front and back pattern
pieces and spread

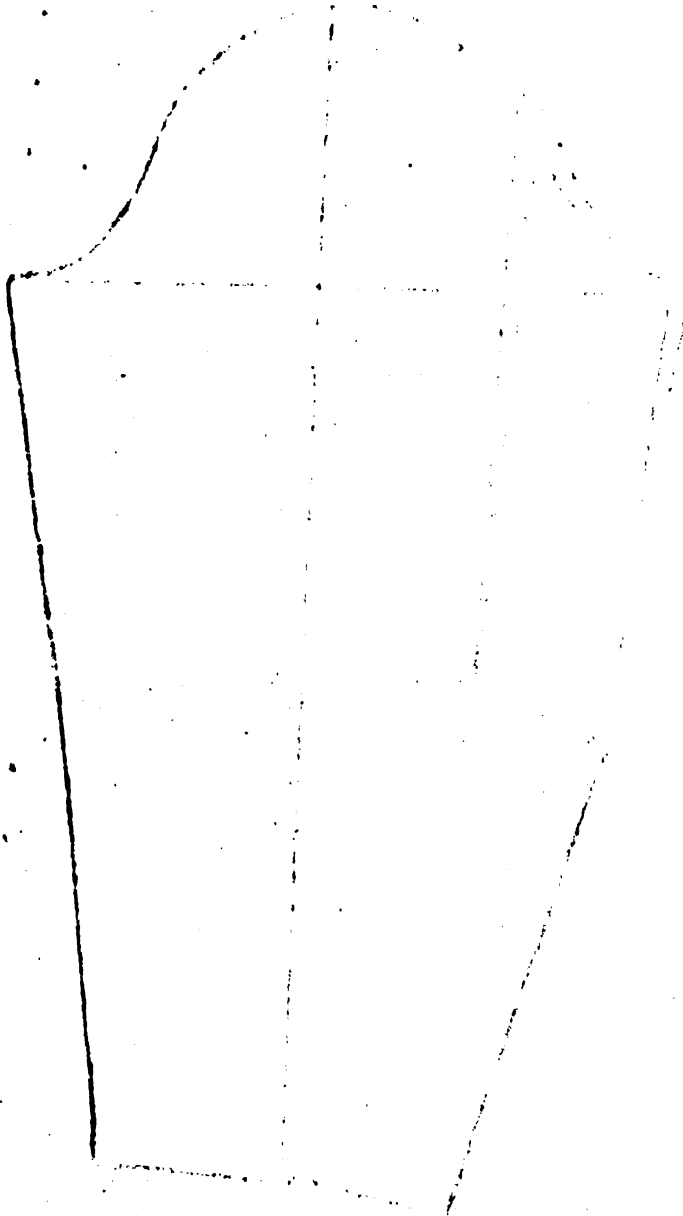
Sleeve

Tight at girth line, but fits
at wrist
Arm larger at back

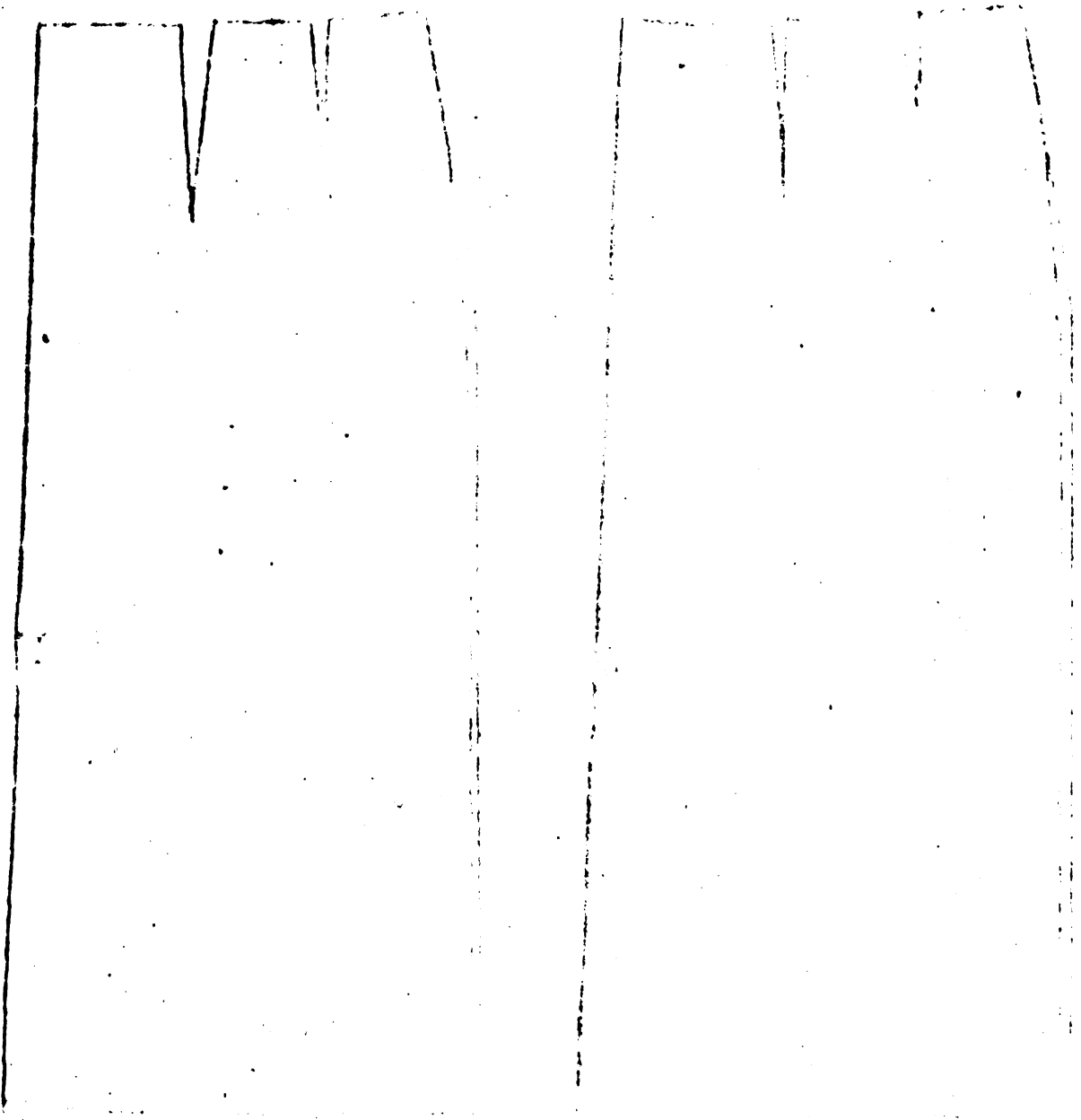
Slash on back quarter section
and spread at the shoulder to
nothing at elbow

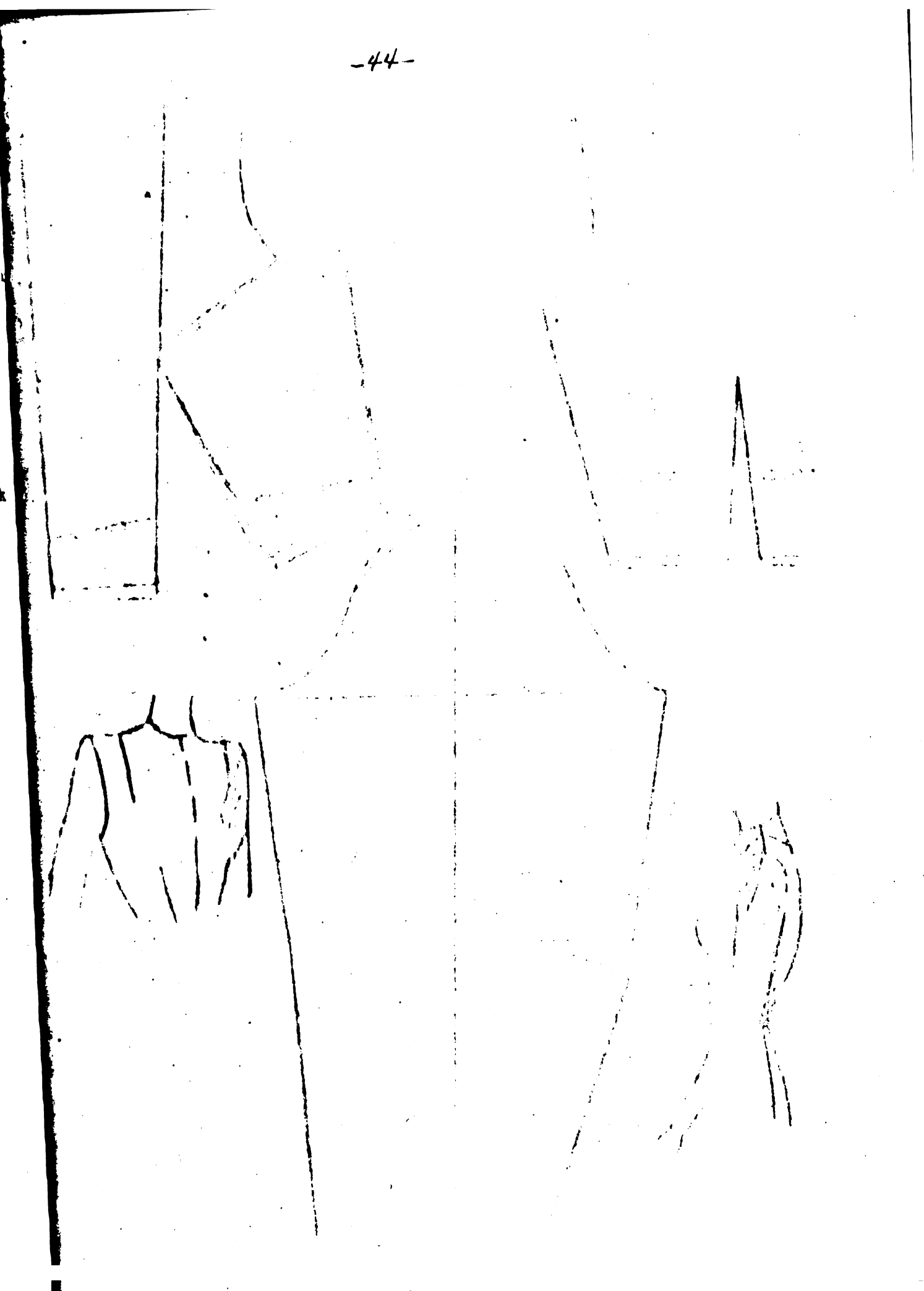


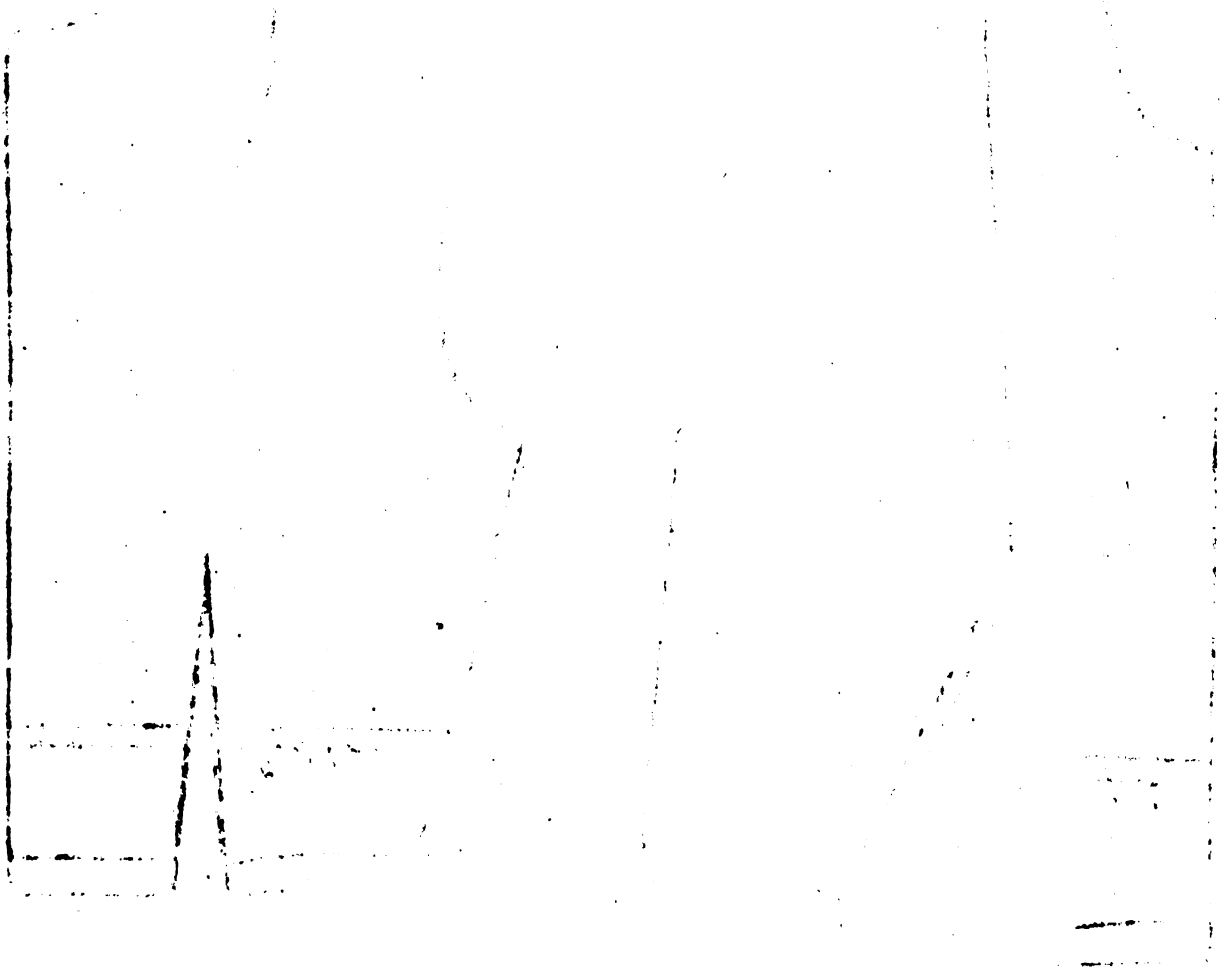
- 42a



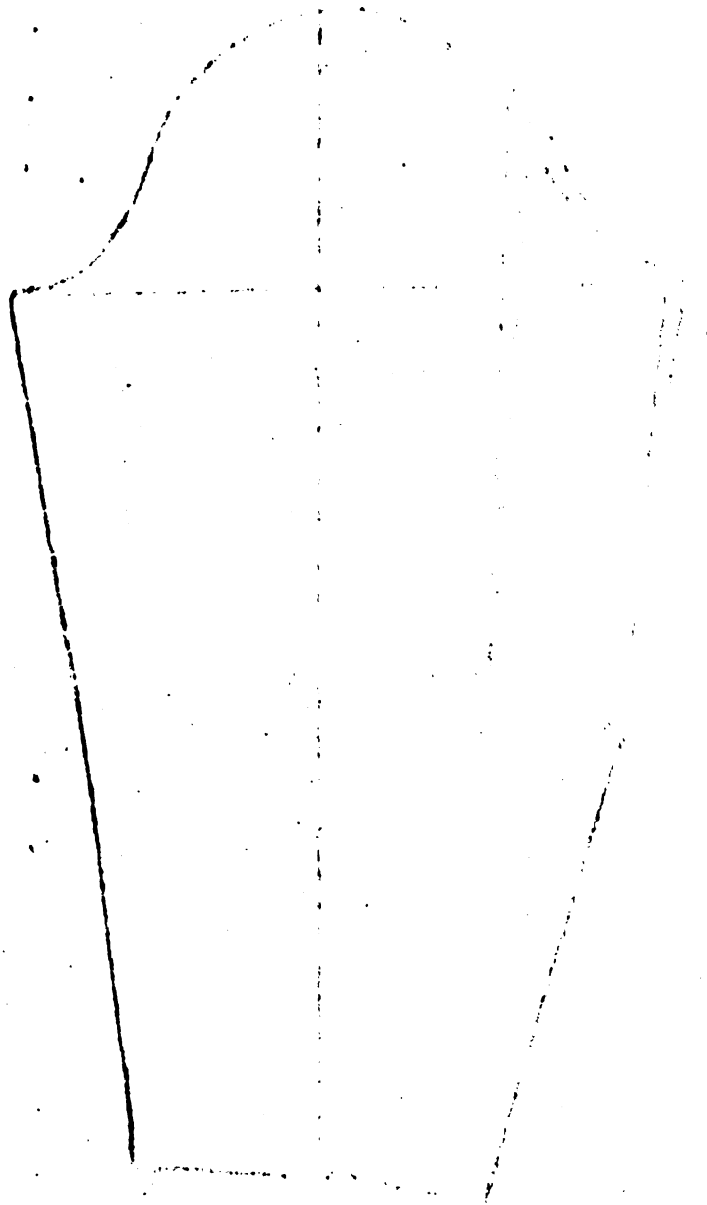
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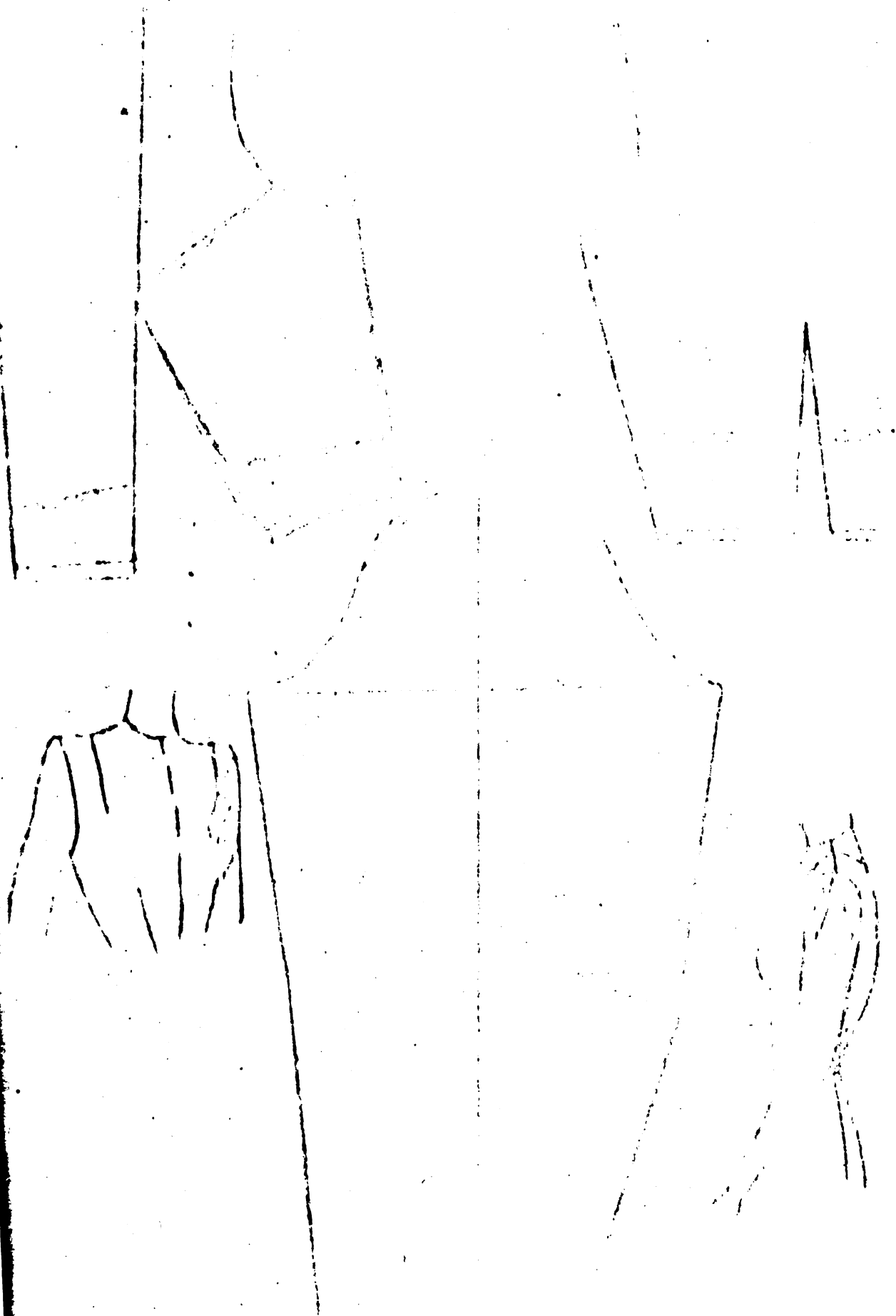






- 42a





FAULT

CORRECTION

Skirt

Side seam swings forward

Lap out dart from center back
to nothing at side seam

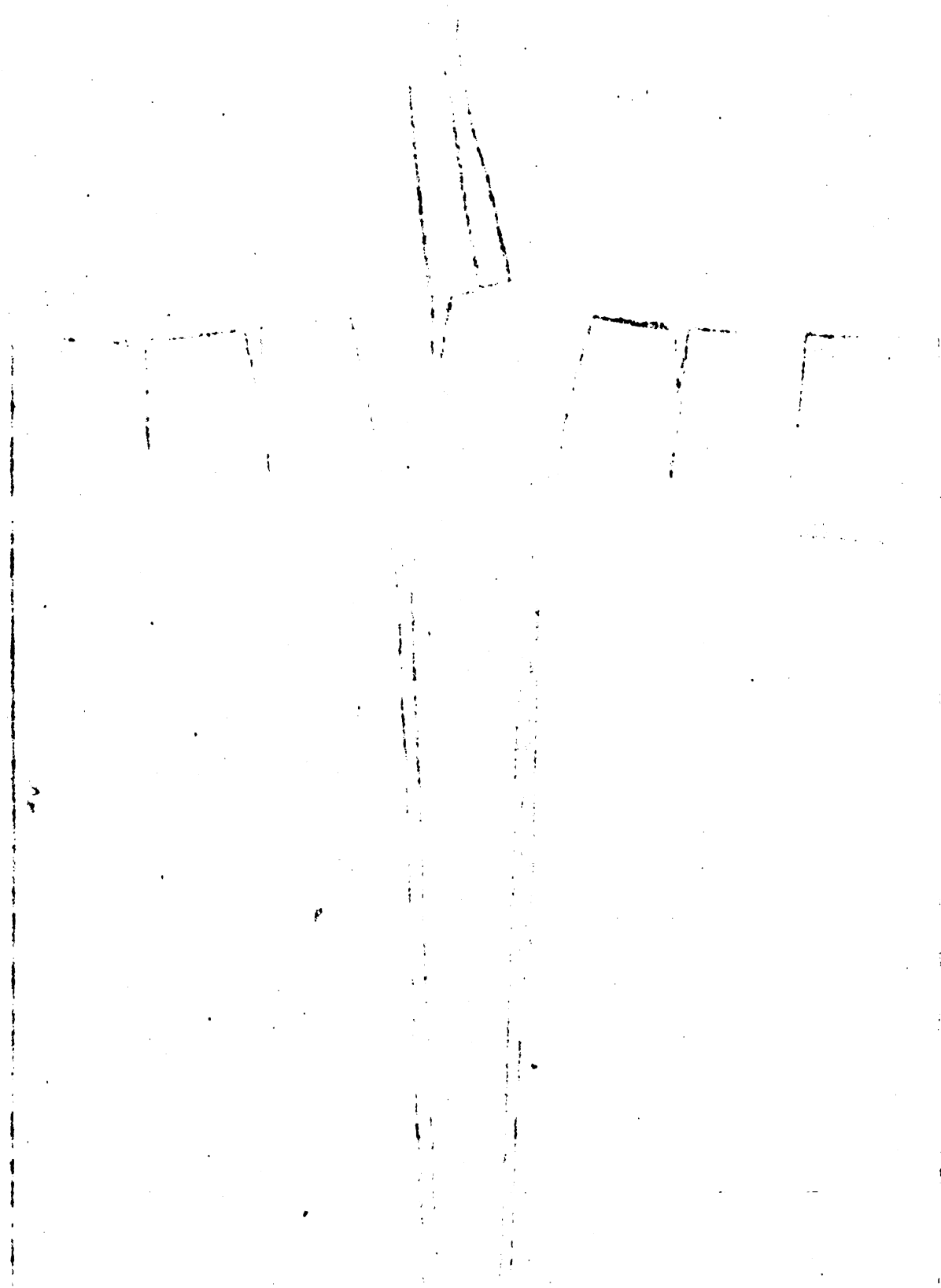
Tight from hips to hem

Let out 1/4" on side seam front
and back from half-way between
waist and hip to hem

Short at center front

Add 1/4" to waistline at center
front

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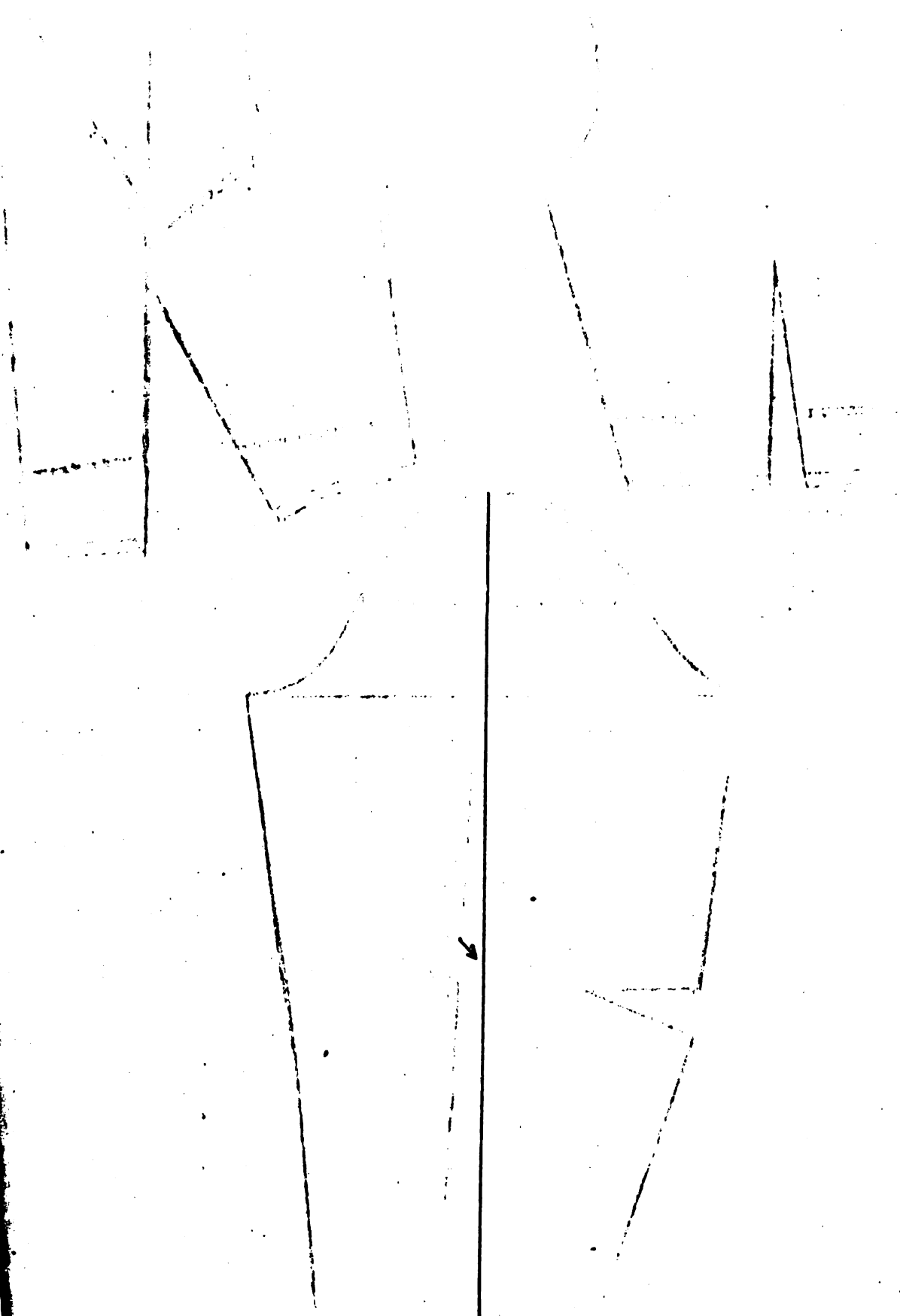
FAULT	CORRECTION
Bodice	
Fullness from bust to neck	Pin out tuck from point of bust dart to nothing at neck edge
Fullness from bust to arm-scy	Pin in underarm dart
Armscye does not fit due to underarm dart	Redrape armscye
Back neck dart unflattering	Transfer to shoulder dart
Short waisted	Lengthen pattern by slashing and spreading. In class this was done by draping
Not enough room across back for arm movement	Increase width of bodice back at lower armscye
Sleeve	
Too much ease in sleeve cap	Take out tuck across top of sleeve and restore cap. Have 1 1/2" of ease.

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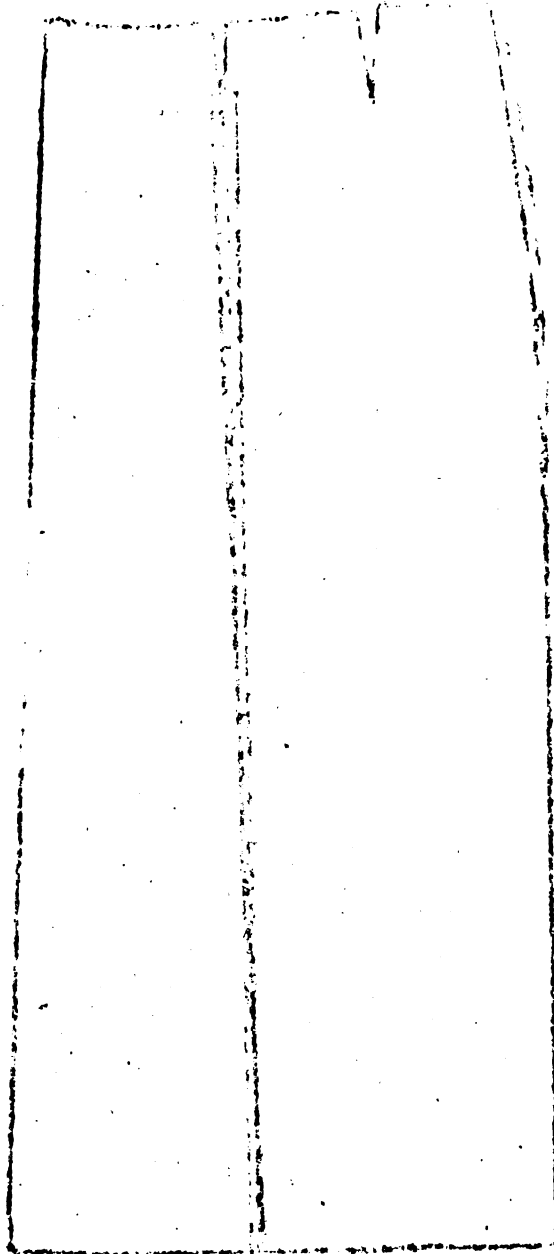
FAULT

CORRECTION

Skirt

Fullness at center front dart

**Pin out tuck from tip of
dart to nothing at hem**



FAULT

CORRECTION

Bodice

Armhole too high

Deepen armhole by draping

Wrinkle from armhole to bust point

Let out underarm seam $1/4$ " from armhole to nothing at waistline

Long waisted at center back

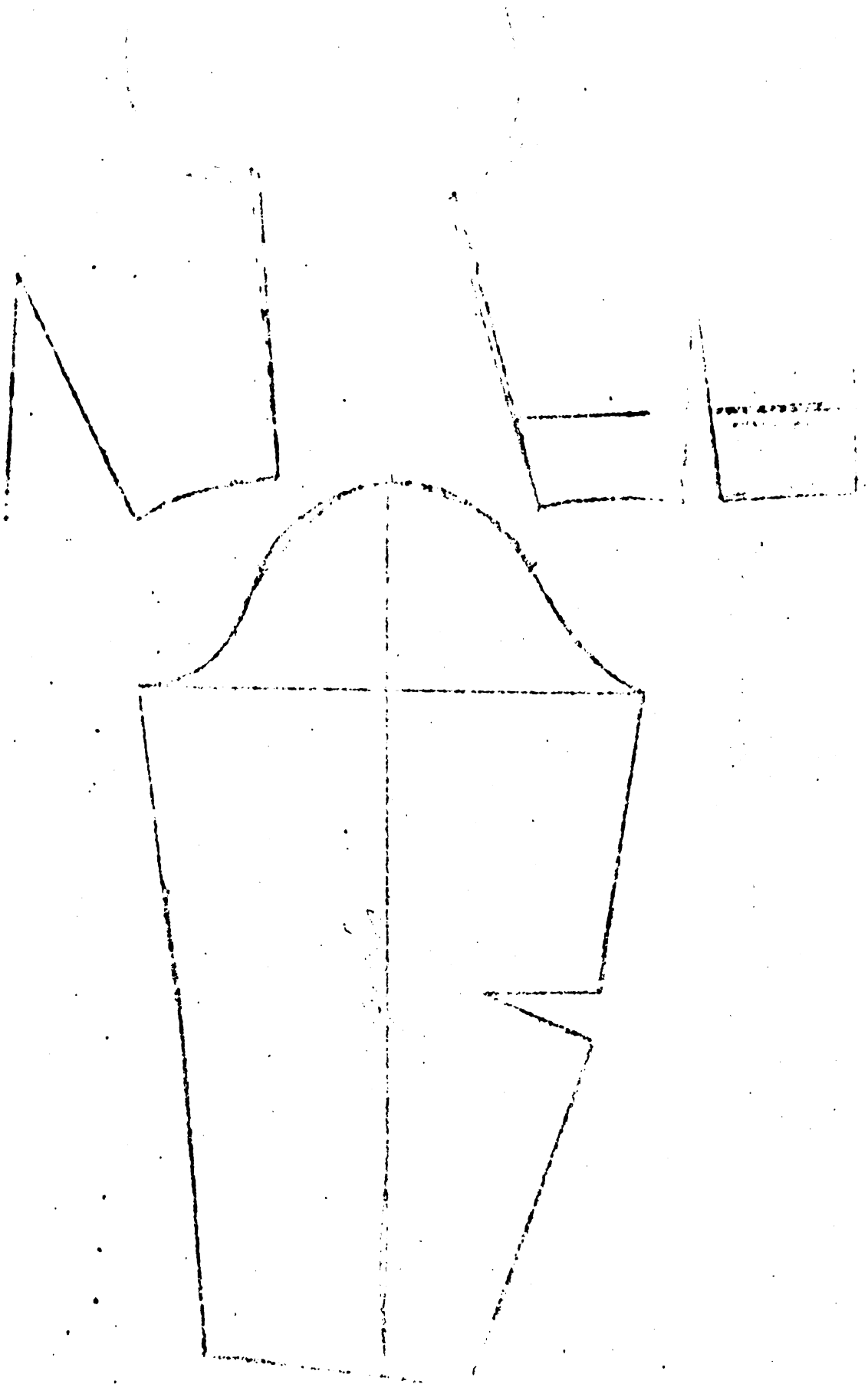
Shorten blouse at center back nothing at side seam

Sleeve

Too much fullness in cap

Narrow cap by taking in at edges

at
st-
back,



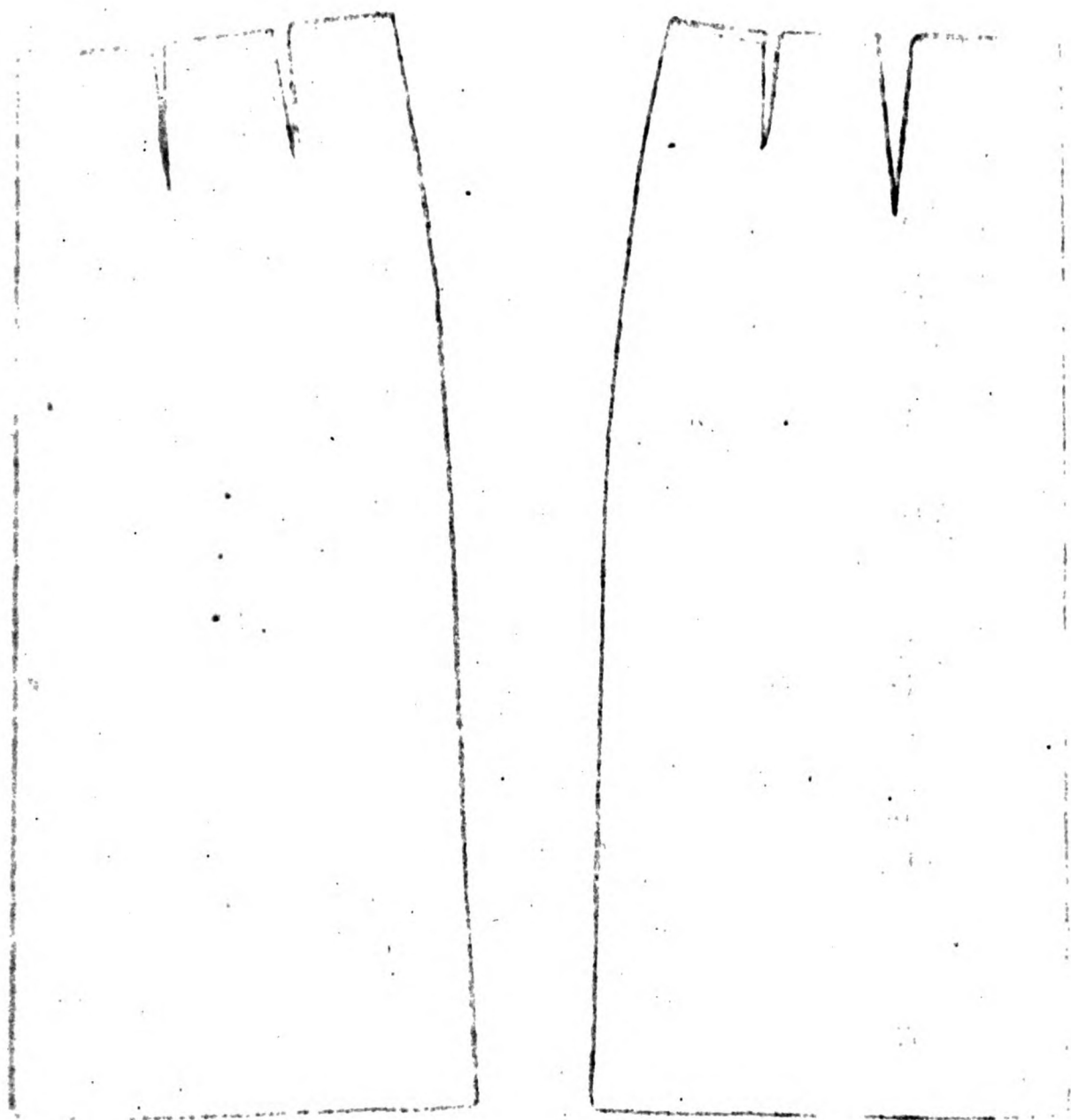
FAULT

CORRECTION

Skirt

Waistline too curved

Redraw waistline curve



PART III

EXPERIMENTAL COMMERCIAL PATTERN FITTINGS AND MUSLIN PROOF CHECKING

"Many faults in fitting cannot be corrected after the garment is cut. All alterations are easier to make in the pattern, and accurate patterns are essential to quick and easy sewing.fitting a paper pattern directly on the figure and making adjustments is easier than taking body measurements and checking them against the flat pattern. Measurements help in checking alterations already made, but do not show the kind of pattern changes needed."¹

Six college girls of different figure types and irregularities were chosen as models for this part of the study.

The size of the commercial pattern to fit each girl was determined by taking the following measurements: bust, waist, hips, back waist length and front waist length.

Vogue patterns were used in fitting all students and the method of taking measurements advocated by Vogue Pattern Company were used.

At the same time that this study was being conducted the same study was done by another student using Simplicity patterns. A comparison of the fit of the two makes of patterns will be discussed later in this paper.

A basic dress pattern was used on each of the models. Four students needed (according to Vogue) a size 14 pattern and the remaining models needed patterns size 16 and 18. The Vogue Basic pattern was used to fit all of the models.

The paper patterns were pin-fitted to each student according to the method described in Clothing Construction by Evelyn A. Mansfield.

1. Mansfield, Evelyn A. Clothing Construction. New York: Houghton Mifflin Company. 1953. p. 53.

Fitting on the Pattern

1. Fit the paper pattern over a slip and the type of foundation garment you will wear under the dress.
2. Adjust the ribbon bands around neck, bust, waist, and hip. (Mark center front and center back on the ribbon bands.)
3. Slip into the pattern carefully in order not to tear it or loosen pins. Leave unpinned the top 2 inches of the underarm seam to avoid damaging it. Do not bring the arm down close to the side during the fitting.
4. Anchor the pattern by pinning it (a) to the neckline band at center front, shoulder seam, and center back; and (b) to the other bands at center front and back.¹

All alterations were made on the paper patterns using Clothing Construction by Evelyn A. Mansfield and Dress Design Draping and Flat Pattern Making by Marion S. Willhouse and Evelyn A. Mansfield as references to determine the proper method of making the alterations.

The alterations made on full-size patterns were copied on quarter-size patterns to be used to illustrate this paper. In illustrating the quarter-size patterns, the following code was used.

—————	original pattern line
—————	final pattern line
—————	intermediate pattern line— a line formed after an alteration, but not the final line.

1. Ibid., p.56

The reason for the alteration and a description of it is on the page facing the illustrations.

Not only was the fit of the pattern analyzed, but other changes in design that would be more becoming to the figure were attempted.

The altered, full-size pattern was used to make a muslin proof for each of the six girls. This dress was again tried on each model and analyzed to see how successful the paper fitting had been.

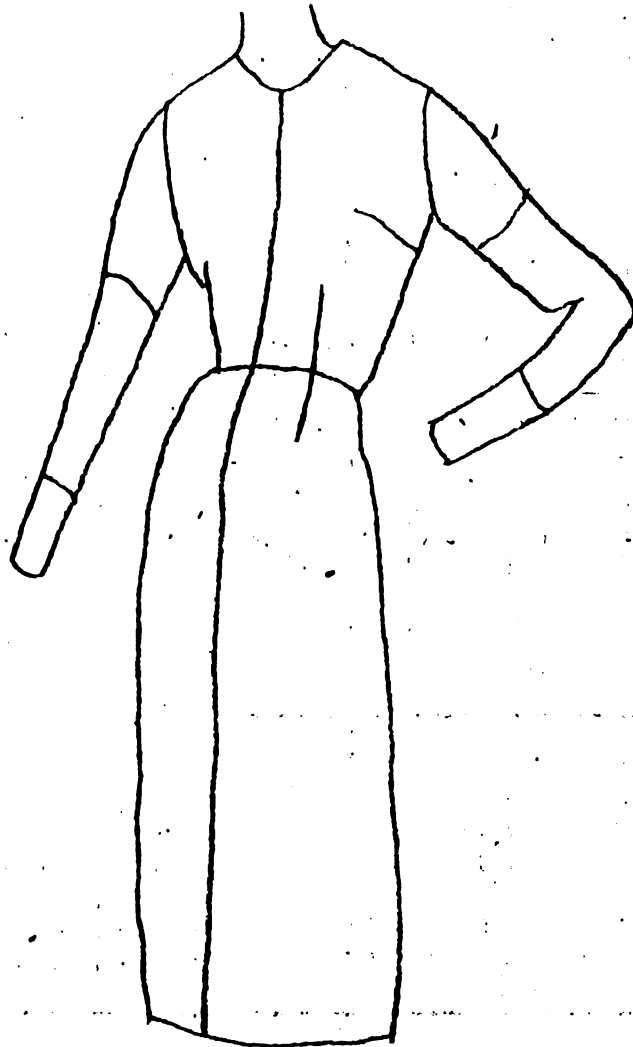
"During all fittings the model should stand before a mirror so that the fitter may see her results without having to move away from the model. Watching the progress of the fitting also encourages the model to keep her head up and face forward. The too-curious person who insists on twisting around to see what is happening is the fitter's bane. The fitter should stand or sit as she works, whichever position brings the part requiring adjustment to her eye level. All fitting should be done with the garment right side out, and it should be done on only one side. All changes should be transferred to the other half of the garment after the fitting."¹

The fitter, before making alterations should settle the muslin proof on the model, step back and view the model.

Additional alterations were made on the muslin proofs as they would be on any already constructed garment to see if they could still be corrected.

These changes are described but not illustrated in quarter-size patterns.

Vogue Master Pattern



VOGUE PATTERN

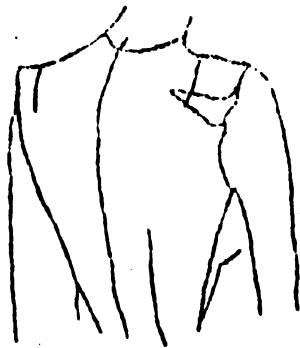
USE THESE BODY MEASUREMENTS
TO CHOOSE YOUR SIZE

FOR YOUNG	Size	8	10	12	14	16
	Bust	29	30	32	34	36
	Waist	23	24	25	26	28
	Hip	31	32	34	36	38
	Back length, neck to waist.	14 1/2	14 3/4	15	15 1/4	15 1/2
	Arm length . . .	15 1/4	15 5/8	16	16 1/4	16 1/2

FOR JUNIOR MISS	Size	9	11	13	15	17
	Bust	30 1/2	31 1/2	33	35	37
	Waist	23 1/2	24 1/2	25 1/2	27	28 1/2
	Hip	32 1/2	33 1/2	35	37	39
	Back length, neck to waist.	15	15 1/4	15 1/2	15 3/4	16
	Arm length . . .	16 1/4	16 1/2	16 3/4	17	17 1/4

FOR MID-ES AND OLD MEN	Size	10	12	14	16	18	20
	Bust	31	32	34	36	38	40
	Waist	24	25	26	28	30	32
	Hip	33	34	36	38	40	42
	Back length, neck to waist.	15 3/4	16	16 1/4	16 1/2	16 3/4	17
	Arm length . . .	17	17 1/4	17 3/4	18 1/4	18 3/4	18 5/8

Size	40	42	44	46
Bust	42	44	46	48
Waist	34	36	38 1/2	41
Hip	44	46	48	50
Back length, neck to waist.	17 1/8	17 1/4	17 3/8	17 1/2
Arm length . . .	18 1/2	18 3/8	18 1/4	18 1/8



FAULT

CORRECTION

Bodice

Front, long waisted

Pin out tuck between center front and side seam

Back, long waisted

Pin out tuck between center back and side seam

Too much fullness across shoulder

Increase size of shoulder dart

Sleeve

Sleeve too long

Shorten sleeve 2 inches between shoulder and elbow and 1 inch below elbow

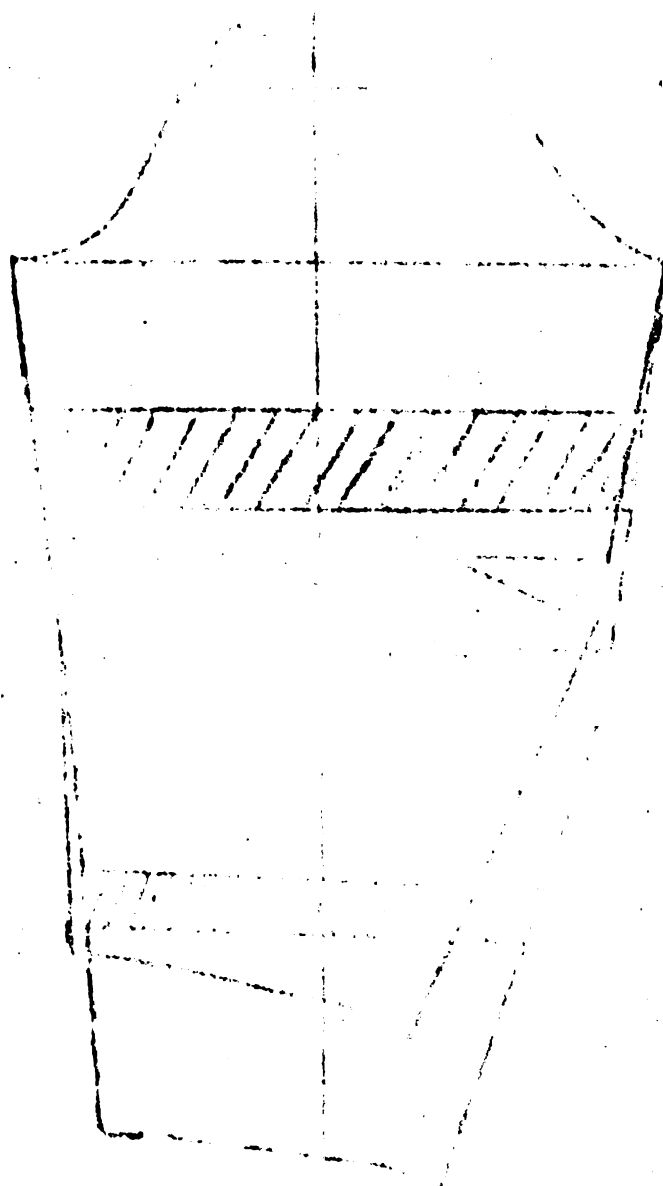
Too much ease in sleeve cap

Lap out tuck across top of sleeve. Have 1 1/2 inches of ease.

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Model No. 1 was a very small girl. Her body measurements were as follows: bust - 34", waist - 25 1/2", hips - 33", back waist length - 14 3/4", front waist length - 13". According to her measurements she needed a teen pattern, size 14, as her bust measurement was 34 inches and her back waist length was short. A Misses' size 14 was fitted to her. This was not the best size because it was long waisted and roomy across the back.

The preceding pages can be checked to see what alterations were made on the paper pattern and the manner in which these were made. When the muslin proof was tried on and analyzed the following additional alterations were necessary.

The back shoulder area was too wide so a tuck was lapped out from point of back shoulder dart to point of waistline dart. This necessitated recutting the bodice back from the corrected paper pattern.

The back bodice was too long waisted at center back and was shortened by pinning out a tuck at center back to nothing at the side seam.

Looseness at the shoulder seam was pinned up making a new shoulder seam.

The neckline arc was lowered at the center front and raised at side neck.

The sleeve was too full to be attractive. A tuck was taken out of the length of the sleeve on the front quarter line taking in more at the elbow and nothing at the cap and wrist.

The waistline of the skirt did not curve enough so was lowered at the center front and raised at side front.



FAULT

CORRECTION

Bodice

Shoulder seam too loose

Pin up shoulder seam on both front and back

Too much fullness under-arm at side front

Increase size of bust dart

Waist too short at center back

Slash and lengthen at center back

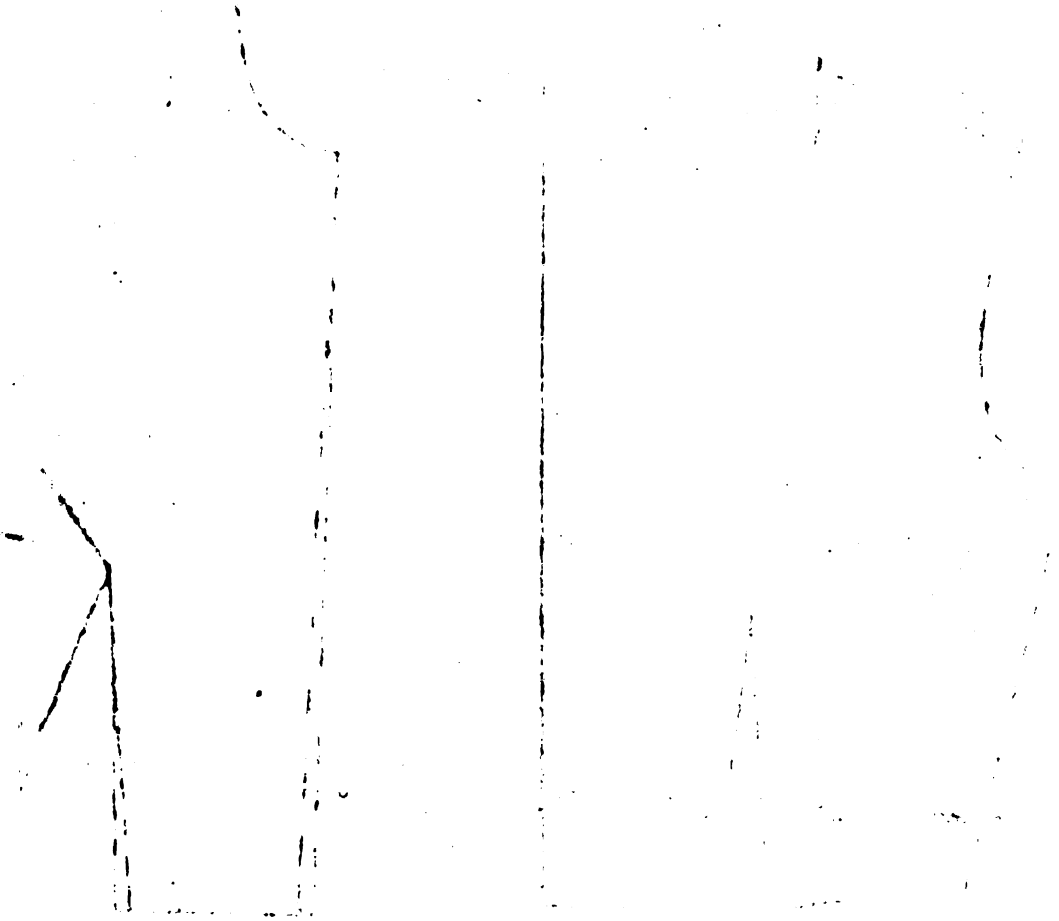
Sleeve

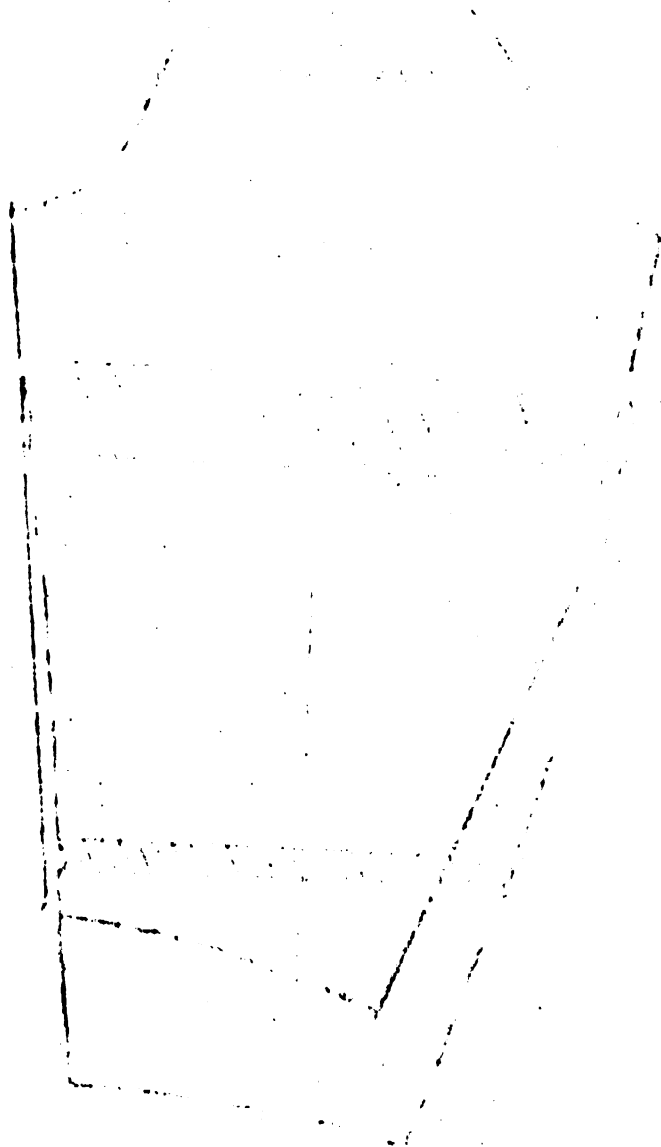
Too much fullness and height in cap

Pin out tuck through cap

Sleeve too long

Lap out 2 inches from shoulder to elbow and $\frac{3}{4}$ inch from elbow to wrist





Model II had a large bone structure with ample flesh distribution. She was very high and rather large busted and slightly sway backed. Her measurements were as follows: bust - 38", waist - 29 1/2", hips - 41", back waist length - 16 1/2", front waist length - 14 1/2". According to her measurements she needed a misses' pattern, size 18 as her bust measurement was 38 inches.

The muslin proof fitted very well through the shoulder area. A diagonal wrinkle ran from the bust to the side seam so the side seam was ripped and redraped to increase the dart size and eliminate the wrinkle. The alteration was made by draping to avoid transferring a pinned correction to paper pattern and then recutting the muslin.

The center back of the skirt was too long from waist to hip. The waistline was ripped and the top edge of skirt turned under to reduce length from the waist to hip. Any edge correction is easier to make after the dress is cut as it does not involve recutting but often does not solve the problem.

The model's left hip was noticeably smaller than the right hip. The skirt looked better when the smaller hip was padded than if the hip was tightly fitted since this made the difference more noticeable.

Like the preceding case the sleeve was too full to be attractive. The width at the girth of the sleeve was satisfactory, but needed to be reduced from the elbow to the wrist on the front quarter lines.

FAULT

CORRECTION

Bodice

Waist too large

Redraw side seam

Transfer underarm dart
to shoulder dart

Poor design for broad
shoulder

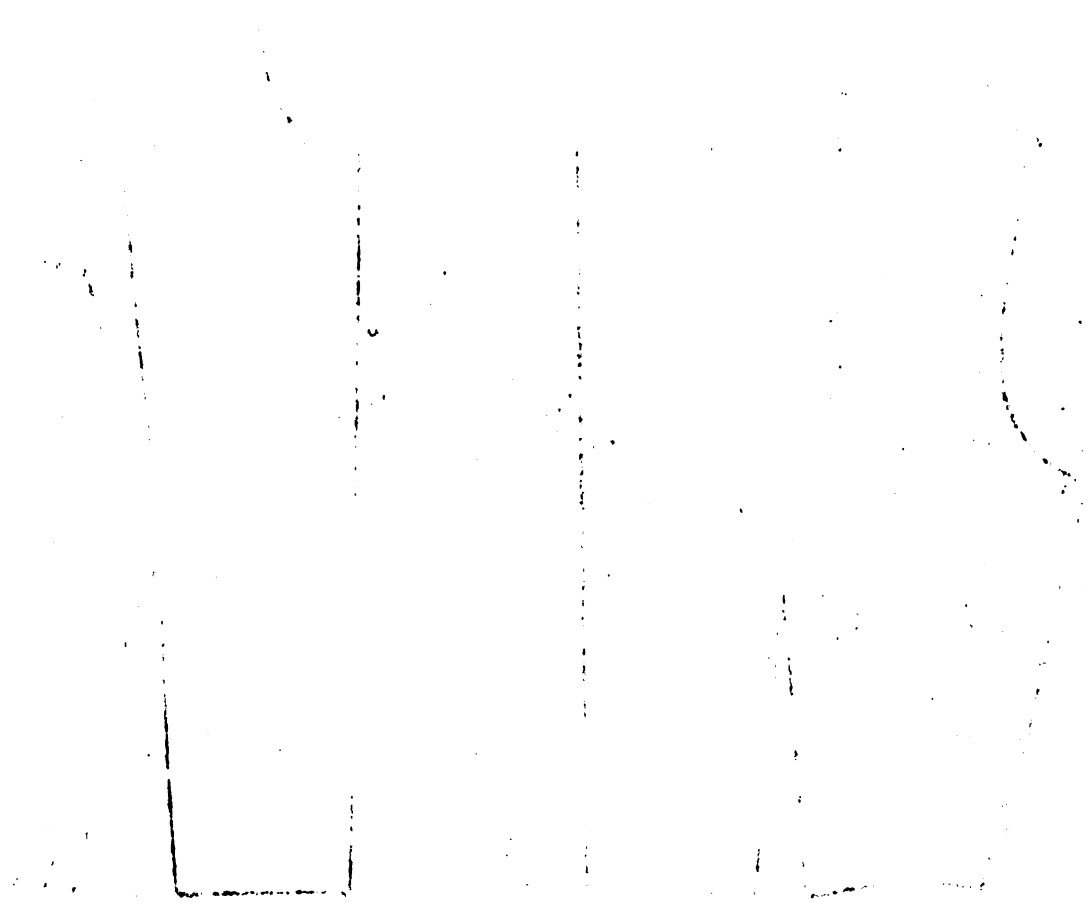
Neckline too high
at center front

Lower neckline curve at
center front

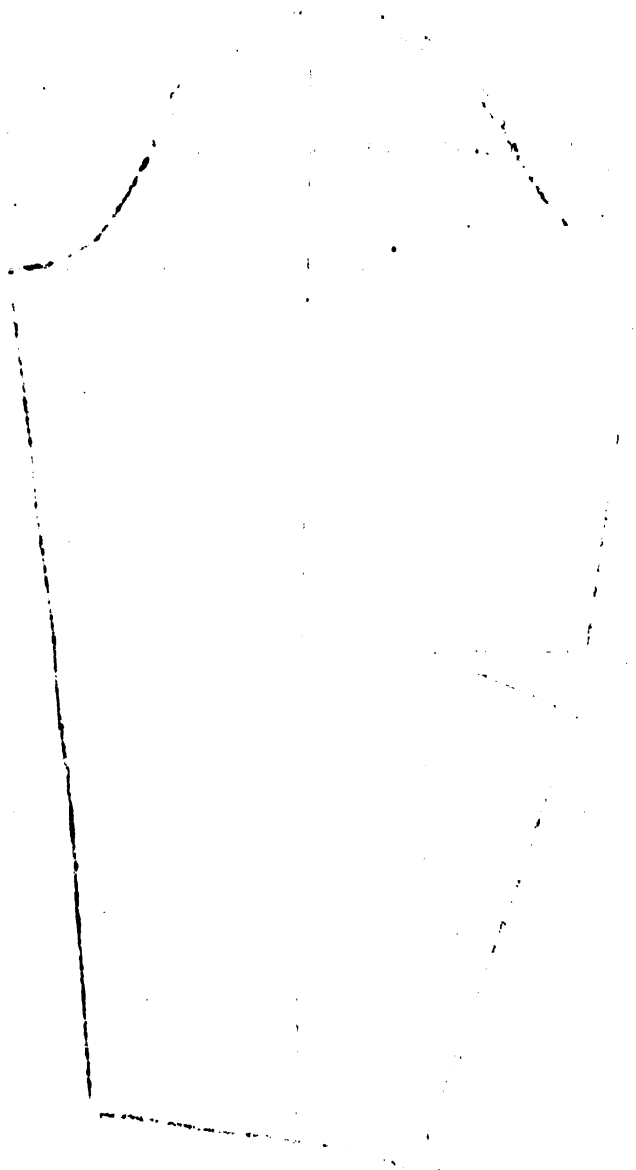
Sleeve

Too much ease and height
in cap

Lap out 1/4 inch in cap



-70 .



Model III is a tall, well-proportioned girl with broad shoulders. Her body measurements were as follows: bust - 36 1/2", waist - 27 3/4", hips - 36 1/2" back-waist length - 16 1/2", front - waist length - 13 1/4". Her measurements were quite close to those of the size 36 dress and women's pattern -- bust - 36", waist 28", hips - 36", and back waist length 16 1/2".

Very few faults were seen on the paper pattern when pin-fitting this girl. A dart above the bust line put in during the pin-fitting was much more flattering to this model. Not only did it produce better fit by keeping the bust grain line level, but also the dart line at the shoulder diminished the width of her shoulder. The bodice of the muslin proof fitted very well.

The front skirt dart was placed too far from center.

The model has a prominent shoulder ball which required additional length at the front of the sleeve cap.

The sleeve pattern was too wide at the wrist and was reduced.

FAULT

CORRECTION

Bodice

Darts poor design for individual

Change to French dart line, front and back

Front waist dart too large

Transfer into French dart line

Too tight across back

Slash at waist to nothing at armseye and spread

Gapping at back armseye

Pin out tuck from armseye to shoulder dart

Back too long waisted

Pin out tuck between center back to side seam

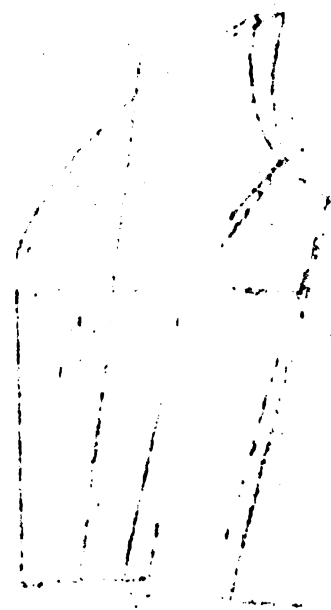
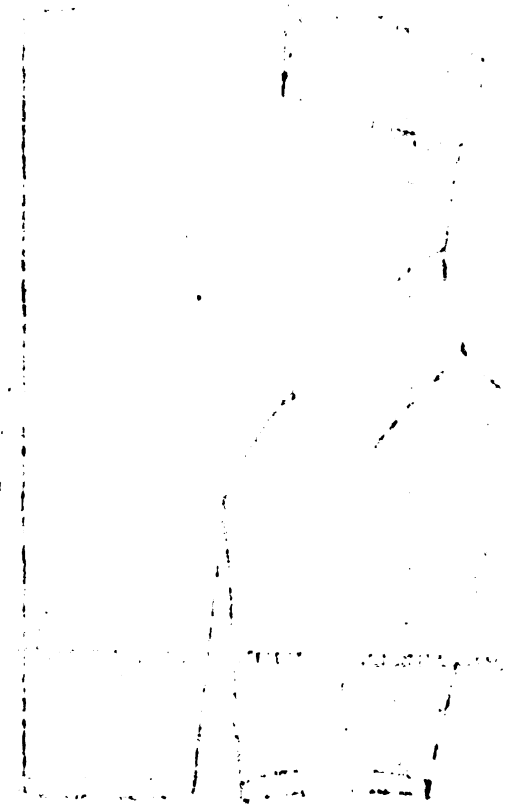
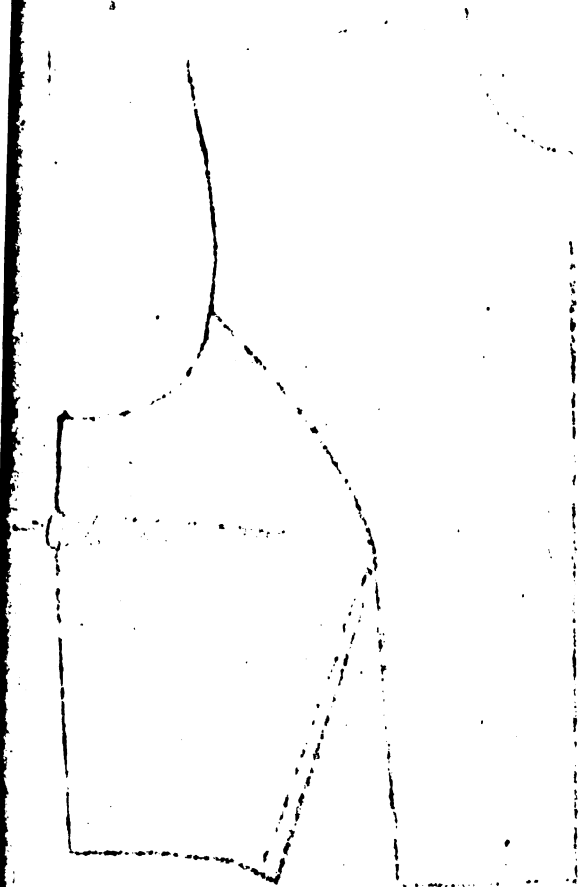
Pattern size too small

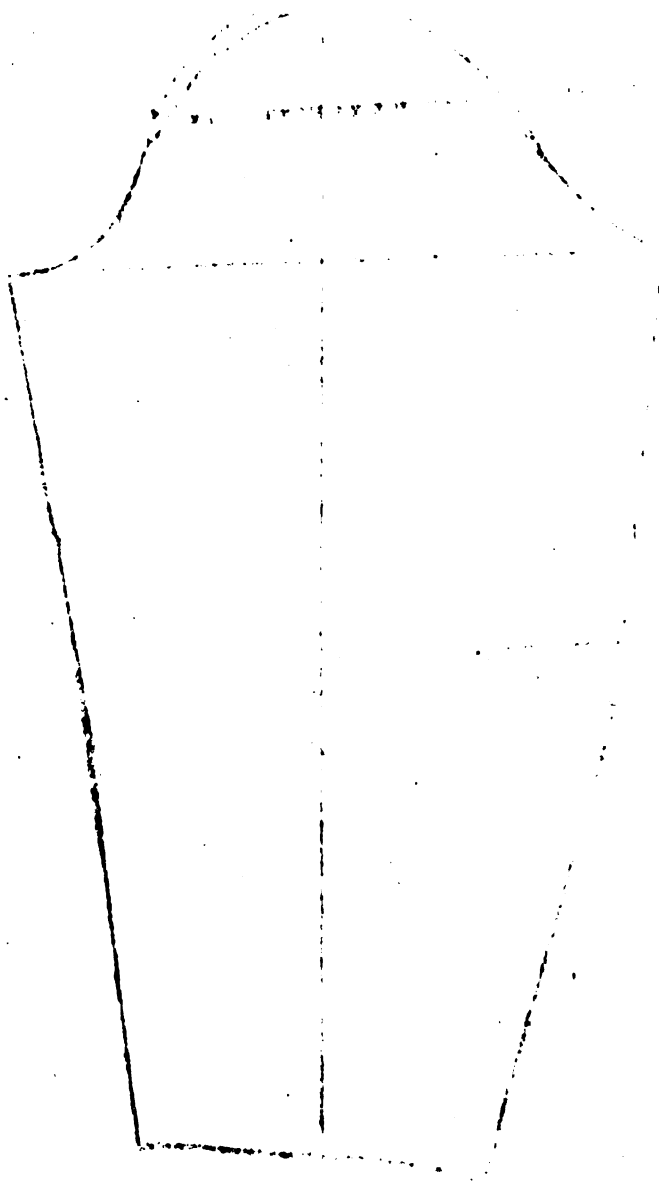
Needs a size 15, Junior Miss

Sleeve

Too much ease in sleeve cap

Lap out tuck across top of sleeve. Have 1 1/2 inches of ease.





Model

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Model IV's body measurements were as follows:

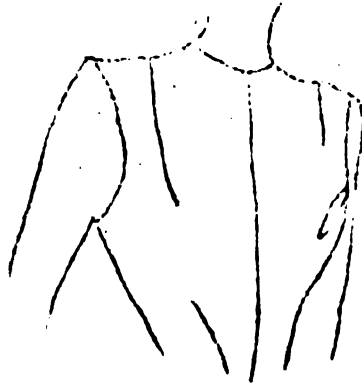
bust - 35 1/4", waist - 27", hips - 39 3/4", back waist length - 16 1/4", front waist length - 14 3/4",. Her waist was small and hips large -- the normal difference being ten inches. She was somewhat sway-backed and round shouldered. The size 14 misses' paper pattern was too small for the model. A size 15 in a junior miss would fit more closely according to her measurements.

The design of the pattern was changed at the paper pattern fitting to one with a French dart line. This design balanced the grain at the bust level by having part of the darting above the bust. It also made fitting the pattern much easier as there was an additional seam on which to make adjustments.

There was a slight bulge at the back of the armseye; however, rather than darting it out a small thin shoulder pad was tried. This absorbed the pouching as well as raised the model's sloping shoulders.

The sleeve hung too loosely. This was corrected by pinning out a tuck on the front and back quarter lines beginning with nothing at the cap to one fourth inch at elbow to nothing at the wrist. In altering the sleeve, it is helpful to check the individual's arm measurements against those of the sleeve draft to predict its probably fit.

On this model a skirt with four or six gores would have been more becoming than a two gore skirt as the additional gores flare more at side front over the thighs.



FAULT

CORRECTION

Bodice

Long waisted at center front

Shorten blouse at center front, nothing at side seam

Too narrow across shoulders

Redraw top of armseye, widening it

Neckline too high at center front

Redraw neckline curve lowering at center front

Diagonal wrinkle from bust to armseye

Pin out dart from bust to armseye

Darts poor design for individual

Change to French dart line

Sleeve

Sleeve too short

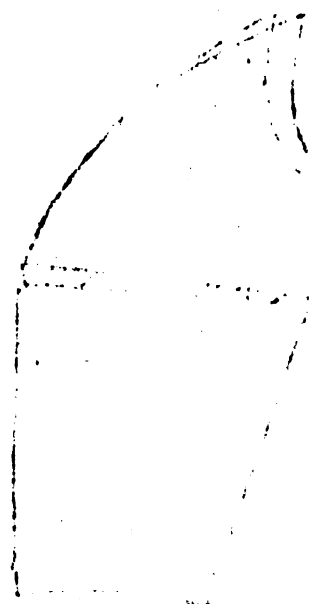
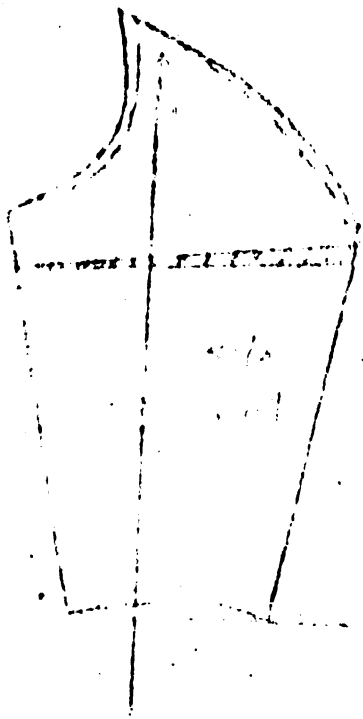
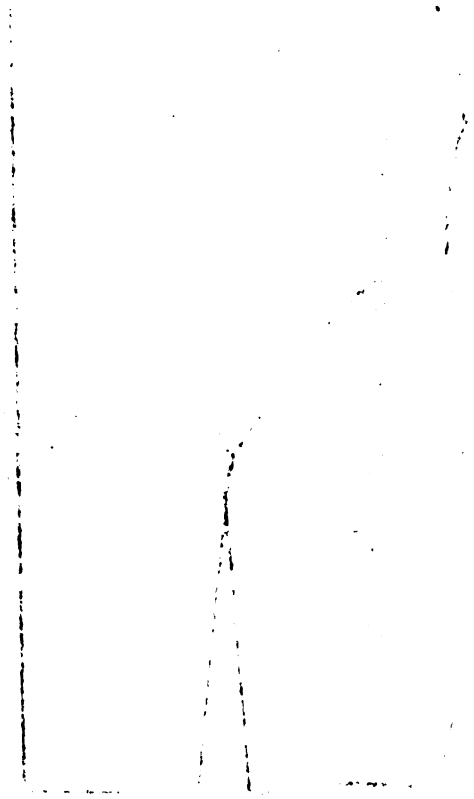
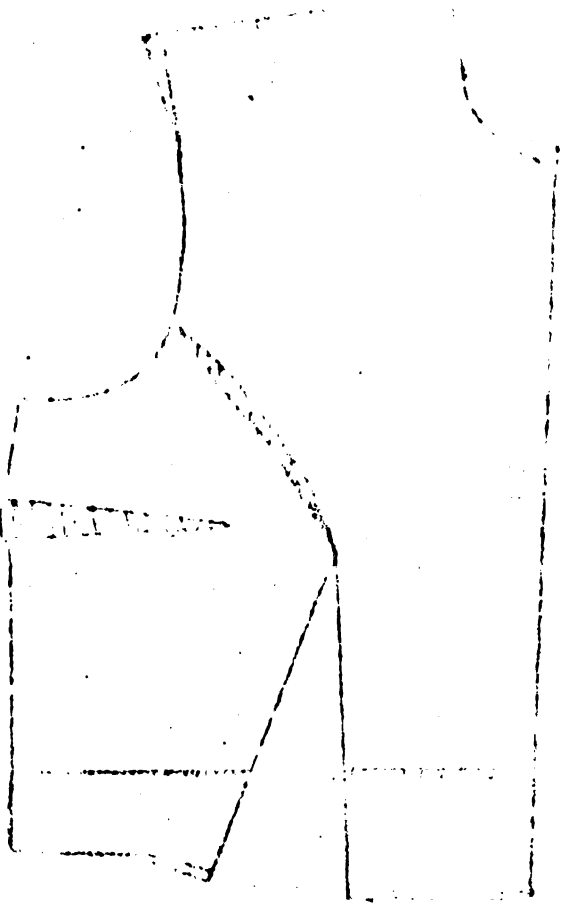
Lengthen sleeve below elbow 1 "

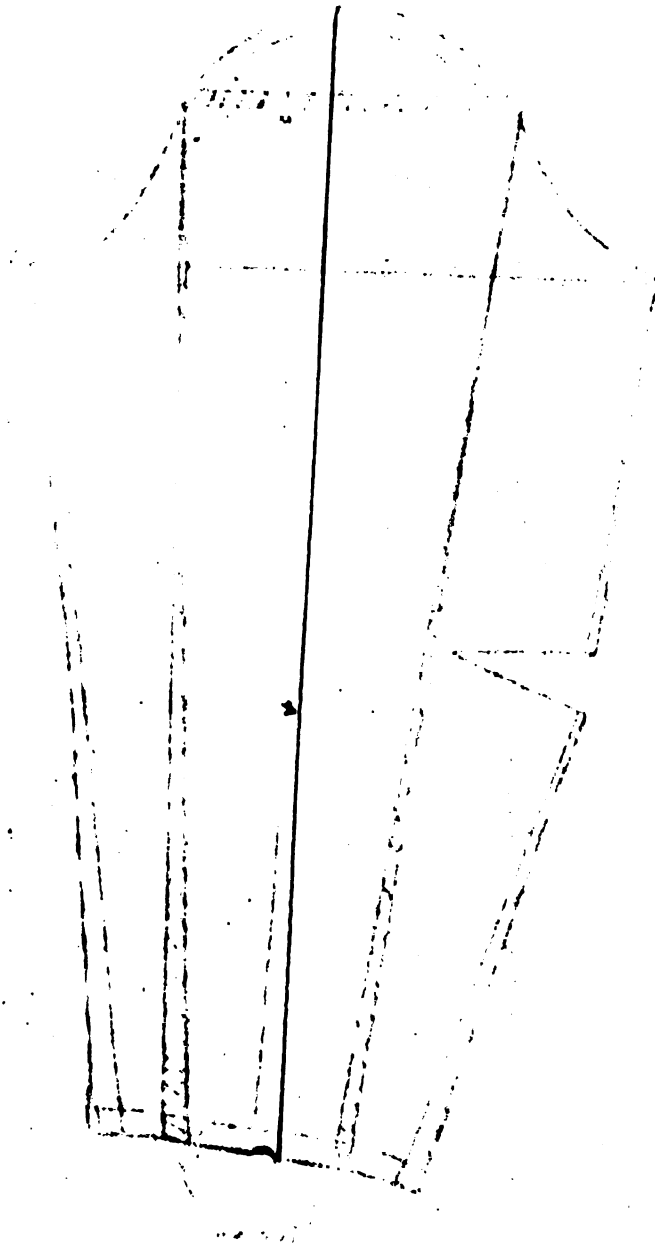
Sleeve does not fit arm-hole after bodice alteration

Pin out excess through cap

Sleeve too loose

Pin two tucks on quarter lines - 1/2 inch at wrist to nothing at cap





Model V is a tall angular, very thin girl. Her body measurements are bust - 34", waist - 24 1/2", hips - 35", back waist length - 17 1/4", front waist length - 13 1/2". The size 14 pattern which was chosen was made to fit an individual with the following measurements: bust - 34", waist - 26", hips, -36", and back waist length 16 1/4".

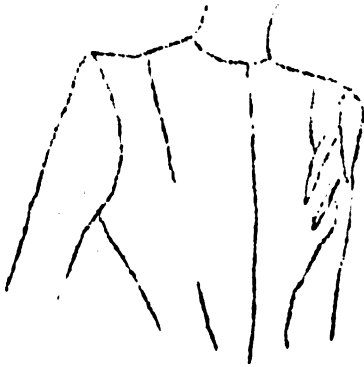
The design of the pattern was changed at the paper pattern fitting to one with a French dart line. As on the preceding model this design change balanced the grain at the bust level by having part of the darting above the bust.

The waistline of the dress fitted too loosely. It is better to fit a thin waist snugly rather than too loosely so it was taken in by increasing the darting. There was extra ease in the bustline, but this helped to camouflage thinness or flatness at the bust.

Additional length was needed at the waistline of the skirt at center front and center back.

The neckline was raised in the center back at the muslin fitting. Since it was an edge correction it was easily and quickly done.

The sleeve of the muslin pattern fitted very well and needed no alterations. However since the model was thin, a small thin shoulder pad added to the attractiveness of the garment by producing extra thickness at the shoulder from the profile view.



FAULT

CORRECTION

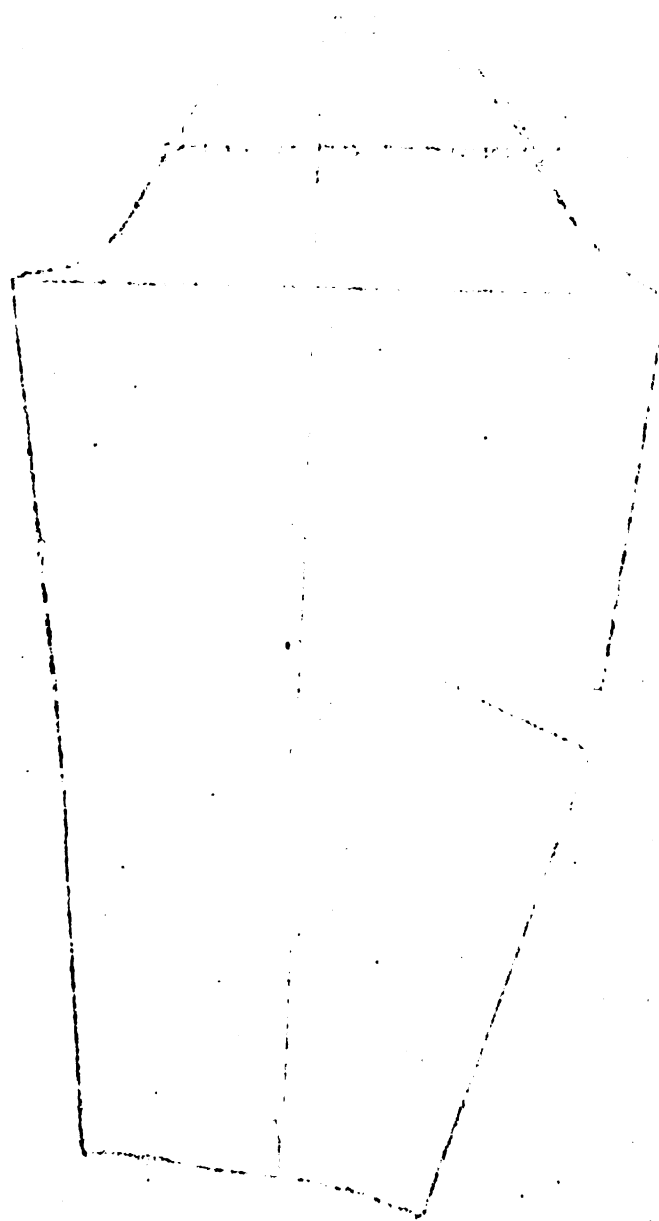
Bodice

Too short at center back	Slash and add length at center back
Neckline too high at center front	Redraw neckline lowering at center front
Too much fullness at bust	Lengthen waist dart to bust point
Too long waisted at center front	Pin out 1/2 inch tuck from center front to nothing at side seam.
waistline not at waist after alteration at side seam	Redraw waistline
armscye too deep due to draping	Redraw armscye
Too much fullness underarm at side front	Redrape side front changing armscye

Sleeve

Too much fullness and height in cap	Pin out tuck through cap
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Model VI needed a size 14 pattern as her body measurements were bust - 35 1/2", waist - 28", hips - 37", back waist length - 16 3/4", and front waist length - 12". She was slightly round shouldered, had a prominent clavicle and was large-waisted in proportion to her bust and hips. Her posture was poor and she had a tendency to lean backwards when standing.

Two alterations were made on the front of the bodice. The neck was raised at center front.

Wrinkles or pouching from the bust line to the armscye still remained and these were eliminated by easing the excess into the underarm dart. This was ripped and draped on the model.

Because of her high chest, a V-neck would have been more becoming than the high round basic neckline.

The darts in the skirt of the muslin dress were placed poorly for the model's figure. The darts were redrawn to a more becoming position.

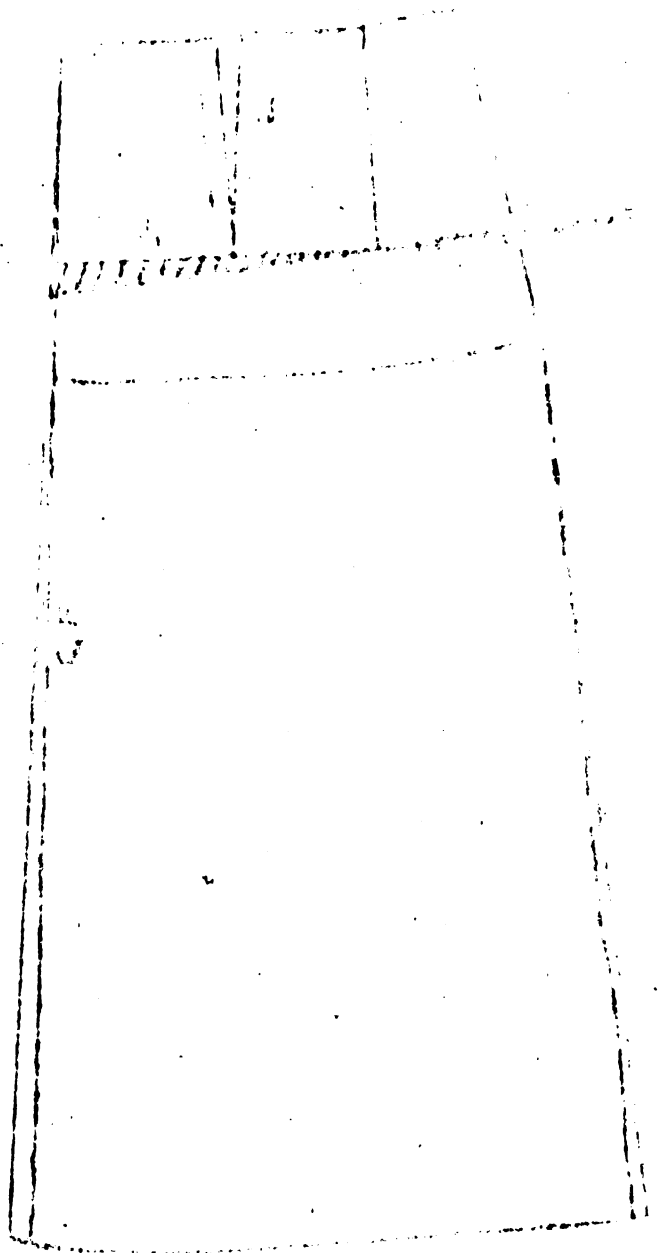
The sleeve was too long from shoulder to elbow and was shortened 1/4 inch in the muslin.

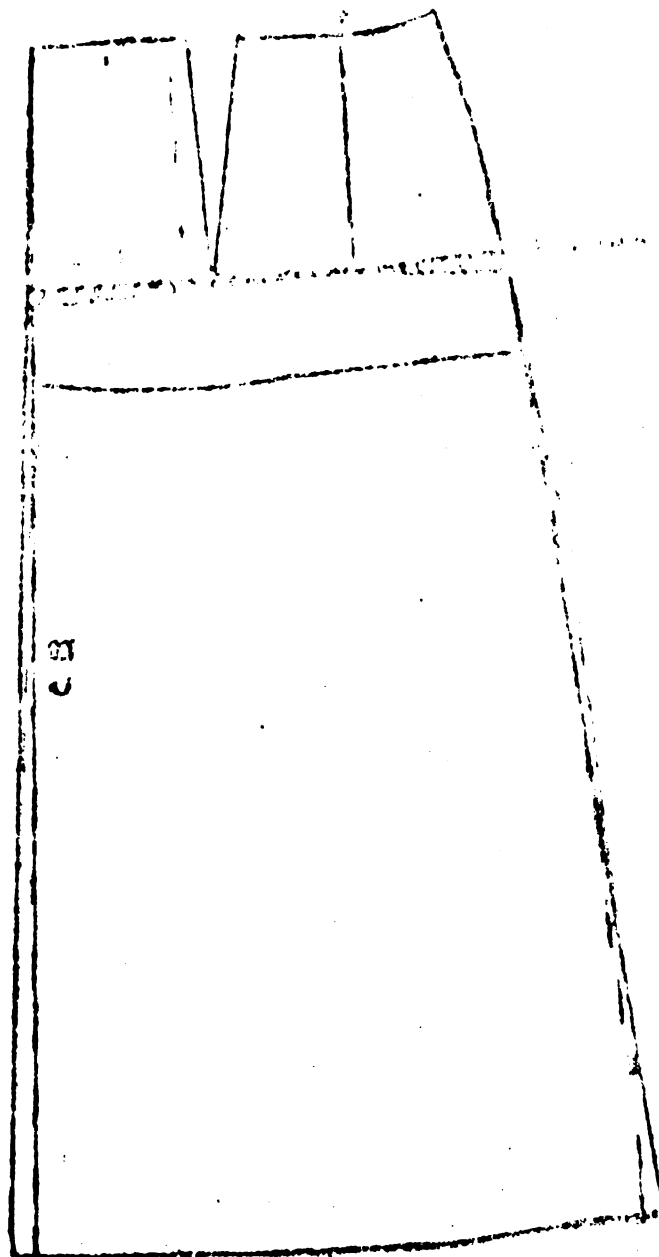
SKIRT OF VOGUE PATTERN

Fault	Correction
Skirt	
Poor fit	Add darts to center front and to center back
Side seam swings back	Dart out tuck from center front and center back to new second darts to be formed.
Inadequate width at hem edge	Redrap side seam from hip to hem adding width.

The design of the Vogue master skirt pattern is tubular in shape. The width at the hip line, the hem line were the same, being very difficult for the average figure to wear. This was true with each of the six models chosen. In each case the skirt at the paper pin fitting was completely redraped on the model.

At the muslin fitting excess width at the hip line in all cases and pouching of darts at their point, indicated that the skirt had been overdarted at the paper fitting therefore a dart at the side darts in front and back was taken to nothing at the hemline.





A COMPARISON OF VOGUE AND SIMPLICITY PATTERNS

Vogue patterns were used in fitting all of the six students. The alterations made were compared with alterations made in a second study by another student using simplicity patterns to fit the same six girls.

The simplicity pattern had more ease allowed over the bust than did the Vogue. The ease in the simplicity pattern measured $4 \frac{1}{2}$ inches. This was an inch wider across the bust and approximately $\frac{1}{4}$ inch wider at each shoulder seam than the Vogue pattern. The waistline circumference of the two patterns was the same. The Vogue pattern had a larger bust dart than did the simplicity pattern and a smaller underarm dart.

The Vogue pattern had slightly more length at the center back of the bodice.

When the sleeve patterns were compared, the width at the girth of the two sleeves was the same; the Vogue pattern was $\frac{3}{16}$ "narrower at the elbow and $\frac{1}{2}$ " wider at the wrist. Both patterns had a long sleeve cap. Vogue's sleeve cap was $6 \frac{1}{4}$ " high and simplicity's 6". The draft in the text, Dress Design, by Marion S. Millhouse and Evelyn A. Mansfield has a sleeve cap of $5 \frac{1}{4}$ ".

The most obvious difference between the two patterns was in the skirt. Vogue's skirt pattern appeared to be narrower at the hem than at the hip level, whereas simplicity's skirt flared out at the sides. The comparative measurements are as follows:

	Vogue	Simplicity
Width at hip level	$37 \frac{1}{2}$ "	38"
Width at hem	39"	$48 \frac{1}{2}$ "

Vogue had one large dart at the front and one in the back of the skirt. Simplicity had two smaller darts in the front and in the back. The two smaller darts produced a better fit. The one large dart with the narrower skirt tended to produce a peg top which is fashionable at present, however, it still left the side front from the hip to the waist tight and it strained over the hip bone.

In fitting the girls, many of the same alterations were made on both patterns. More alterations were necessary to produce a desired fit in the skirts of the Vogue patterns than were necessary in the Simplicity patterns.

The Vogue patterns generally fitted better around the bust than did the Simplicity. Many of the Simplicity patterns had too much ease over the bust. When Model I was fitted, a size 12 Simplicity pattern was used and a size 14 Vogue pattern was used.

Eather Sieman in her thesis, "A Comparison of the Sizes and Shapes of Dress Patterns Made in Five Commercial Pattern Companies", stated that Simplicity and Vogue Patterns are made to fit an individual of the following proportions.

Vogue Pattern

Neck - medium, well-proportioned front to back and side to side, medium from neck base.

Shoulders - long, medium shape, curved shoulder with high tip at armseye, rounded in back.

Chest - wide through front and back, comparatively flat in front and rounded in back.

Bustline - full front and back, medium to low front with fullness at lower bust, rounded back.

Rib cage - small to medium, tapering markedly to waist, comparatively narrow front to back.

Armseyes - deep, narrow, proportionately longer and fuller in back than in front.

Arms - long through upper arm, fairly full girth tapering to elbow.

Waist length - long center front and center back with great deal of back length from shoulder to scye to waist.

Waistline - small total circumference, wide through front.

Hip - small, flat back, prominent hip bones.

Simplicity Pattern

Neck - small to medium, well-proportioned front to back and side to side, medium front neck base.

Shoulders - short to medium, medium slope, erect, comparatively flat back.

Chest - narrow to medium front and back, rather straight back.

Bustline - medium with greatest proportion of fullness through front bust, comparatively flat in back, medium to high front bust, erect posture.

Rib cage - medium.

Armseyes - medium, well-proportioned (erect figure).

Arms - medium length, full upper arm, tapering from elbow to wrist, small wrist.

Waist length - medium length at center front, medium to short in back, medium side length.

Waistline - medium

Hip - full back, ample but gradual side hip curve coming rather low, rounded stomach.

CONCLUSIONS

Accurate body measurements must be taken before buying a pattern. For figures of average weight in relation to bone the best pattern size can be determined by following the bust, waist, hip, and back waist length measurements. The large boned angular figure will find fitting easier if she buys a larger size than her bust. The alterations can be made through the bust to remove the excess while the shoulders and waist length will fit better. A pattern of a smaller size than bust measurement will produce a neater effect and alterations to increase the bustline require only elementary knowledge of pattern shaping on the short, small-boned woman.

Speed and accuracy are important requirements for pattern fitting. The more quickly the individual can be fitted the better will be her posture and therefore the more accurate the fit. Accuracy and speed necessary in fitting will increase as the individual becomes adept at those alterations which occur most frequently and as an understanding increases the complications of fitting becomes more evident to the fitter. Fitting and pattern alteration are complicated and any attempt to simplify shows lack of understanding of the principles of fitting and experience.

There are two methods of alteration, the first is to open the seam lines and "redrape", the second is to fit by pinning up darts and tucks where there is excess, slashing and spreading where more ease or flare is desired and marking with pins the placement of a new seam line. This method is called "blocking" or flat pattern.

In the flat pattern method many alterations can simply be marked at the fitting and made after the pattern is removed. For instance, pouching below the point of a skirt

dart can be pinned out from dart point to hem, and the alteration made later. A waistline can be marked and altered later. It is also much easier to lap out a dart and make a pattern smaller than it was to slash it and increase its size. The pattern must be removed to slash, spread and taped and then tried on again. Time is saved on these alterations and the person being fitted would be much happier.

After the garment is made and if further alterations are necessary for proper fit, it is easier and faster for the fitter to fit by pinning out a dart rather than to make the adjustments by ripping and redraping. However, when a dart is pinned out, this necessitates transferring the alterations to the paper pattern and recutting that area of the dress. If the adjustment is made by redraping it on the person, all lines must be transferred to the opposite side and restitched. The garment has to be ripped however in either case and flat pattern method requires less risk and less skill.

Any edge correction on a dress already out is easy to make as it does not involve recutting but seldom is it possible to fit acceptably this way.

Darting above the bust as well as below maintains a level grain line and a bodice with a balanced grain around the bust will fit better and be more comfortable.

A french dart line because it provides a seam instead of two shorter darts, can be deepened or let out easily as the situation demands, thereby often improving fit and design as well.

The muslin proof is easier to fit than a paper pattern because the muslin tends to cling to the body while the paper is stiff and very fragile; however all changes made in the proof necessitate transferring the alteration back to the paper pattern, ripping seams and recutting the muslin. This can be done, but requires more time and patience than if caught in the paper pattern fitting. This points up the need to catch errors in the paper where they can be corrected easily.

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Knowing how to alter any pattern one can choose the paper pattern with the best design and alter it to fit her measurements.

SUMMARY

Inability not only to recognize good fit but to actually have the skill to fit a garment properly is one of the problems of women professional, teachers, or homemakers, who sew.

If a dress is cut without pattern alteration the result is bound to be an ill-fitting garment, which gives little satisfaction to the maker. The ability to analyze fitting faults and to know when and where to make alterations is essential in order to make well-fitted garments and more especially to teach others. It is necessary to have an understanding of the principles of fitting and this can be acquired by the trial and error experiences, but will never suffice to produce good results, since they may develop into the practise of mistakes and acquisition of bad habits.

Flaws in the fit of a garment were analyzed and the resulting alterations were observed by watching Miss Hillhouse fit the master patterns in her fitting and draping class.

The same methods as used above were put into practise in altering the paper dress patterns for the s/x students and the muslin proofs that were made from these altered paper patterns.

To become adept at fitting it is necessary to analyze the flaws, understand the methods used and to recognize the fact that it takes much practise to acquire skill and speed. Without an understanding of the principles of fitting, the fitter is likely to overfit.

The ability to analyze flaws in the fit of a garment

and to acquire skill in making alterations is of first importance for teachers of clothing classes, 4-H leaders or adult groups of women if the classes are to be successful. The teacher needs to know how and where to make alterations and to become adept at making those alterations which occur most frequently and to raise the standards of her students. This will enable the pupils to have better fitting garments, resulting in a greater degree of satisfaction to both the teacher and the pupil.

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