A STUDY OF PROBLEMS ENCOUNTERED BY YORUBA WOMEN IN USE OF COMMERCIAL DRESS PATTERNS

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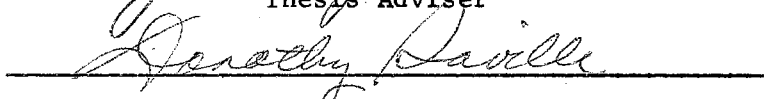

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CHAPTER I

BACKGROUND OF PROBLEM

Nigeria, a West African country which gained independence from Great Britain in 1960, is striving toward self-government and self-realization. In this struggle one of the major goals is recognition by older, more powerful countries in the British Commonwealth and in the world. The effort toward achieving an accepted position among world powers has produced an unprecedented rate of diffusion of cultural traits from these countries.

One trait being adopted, mainly from England, is mode of dress. During Nigeria's years as a British colony, English-style clothing was worn almost exclusively by the people in Nigeria who had attended school. English dress was accepted as the mark of an educated person. This practice was so strong that during a minor tax dispute in one town, when the illiterate people of the town were threatening all educated people, a young school teacher put on tribal attire and went unchallenged through the marketplace to buy supplies. Simply by changing clothes one had identified himself with the illiterate people in the town, and was accepted by them instead of being in danger of their threats. This sharp distinction between the people who wore tribal dress and those who wore English dress has almost disappeared in recent years.

Strong waves of nationalism have swept the country, and traditional values have gained importance in the minds of the people. Political

leaders have emphasized and encouraged the use of vernacular languages, traditional social customs, and tribal modes of dress. This emphasis indicated more than simple reaction against practices followed under colonialism. It also showed a new insight of the people into the values of their own culture. When leaders in government began to appear at political rallies and other affairs in tribal dress, the masses of people were both surprised and pleased. They had unconsciously attached English dress with government in their thinking, and the realization that this was not a logical association was welcome to them. Soon many people--government officials, heads of schools, teachers, preachers--began to follow the example of the political leaders in wearing tribal dress for special occasions. The practice has grown stronger, although the deeply ingrained stereotype of the educated person in English dress and the illiterate one in tribal dress was slow to fade. By 1962, traditional tribal dress was once more being worn for many religious, civic, festive, and other special occasions, and at home. One such occasion, made much more colorful by the dress of various tribes, is the convening of the federal legislative body. The opening session of this group has been pictured in magazines and newspapers.[1] English styles are still worn in most types of work outside the home, from automobile repairing to clerical work, and for street wear, by many people.

The national dress of Nigerian people is as varied in style as the national dress of the people of the United States. More than two hundred tribes inhabit the country, each tribe with its own culture. Since the present study is mainly concerned with people of the Yoruba tribe a short

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[1] "Princess Makes Good in Her New Job," Life, October 24, 1960, p. 46.

description of Yoruba tribal dress is given here. The most popular color in Yorubaland is the deep blue of the indigo plant dye[2], perhaps because it is the cheapest and most plentiful of local dyes[1]. The blue is a strong contrast to the white worn mainly by the Hausa tribe in the North, and to the bright reds and oranges which are predominant colors in the East. In their dress costume, Yoruba men wear long full trousers, gathered at the waist and tapered to a close fit at the ankles. Loose, flowing robes are worn over the trousers, often hiding them completely. Several robes may be worn at once. The ones underneath may be white or printed cotton, covered by a bigger robe of deep blue velvet, topped by an even bigger one of shining white eyelet embroidery. Caps are handmade, shoes may be either hand-made or imported from Europe. Other styles for men range from the very ornate dress costume made from expensive hand-woven cloth to the simplest work clothes. The manual laborer may wear short pants, a straight short tunic-type shirt, a handmade straw hat and rough rubber-soled thongs.

Women wear straight, very loose blouses, wrap-around skirts, a wrapped head-tie, and imported sandals. Pictures of some of the costumes may be seen in Life[3] and The National Geographic Magazine.[4] The fabric may be either hand-woven from coarse homespun cotton yarn or imported cheap cotton print for work clothes. For clothes worn on special occasions the same homespun cotton yarns are beautifully dyed then woven

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[2]W. Robert Moore, "Progress and Pageantry in Changing Nigeria," The National Geographic Magazine, CX (1956), p. 339.

[3]Eliot Elisofon (Photographer), "The Hopeful Launching of a Proud and Free Nigeria," Life, September 26, 1960, p. 56.

[4]Moore, p. 340, 345, 348.

into cloth. The garments made from the cloth are heavily embroidered. Imported satin brocade, velvet, or nylon marquisette may also be used. More variation in color has been used in imported cloth but blue is still predominant. Styles of blouses, ways of wrapping the skirts, ways of tying the head-ties, and choice of colors change from year to year. In 1966, the most popular blouse for dress wear had a low round neck, was sleeveless, and flared. It was worn outside the very tight, straight, wrapped skirt. Imported high heel shoes were popular with this dress. The most striking part of the costume was the head-tie, which was wrapped to stand very straight and tall, as much as fifteen inches above the top of the head. The tie was called the "onilegogoro", a word meaning "owner of a two-story house", because it was so tall.

The English style clothing worn by the Yoruba people and other tribes is influenced by current fashions in England. Other European countries and the United States also exert influence on Nigerian fashions. Some European clothing is imported by Nigeria from England, Switzerland, Italy, West Germany, Japan, and Hong Kong. But much more is custom-made in small shops in Nigeria, by tailors for men and boys, and by seamstresses for women, girls, and infants. The tailors and seamstresses usually learn the trade by the apprentice system. Some shops specialize in either national or English style clothing, but many make both styles. Designs are copied from pictures or from other garments. Patterns, if they are used at all, are usually made by drafting methods. An increasing number of tailors and seamstresses know how to use commercial patterns. The great majority of garments are made, however, without the use of patterns. The tailor, or seamstress, measures the individual, measures the cloth, cuts it and sews it.

The process of acculturation in dress has presented problems to the Nigerian people. Many of the fabrics used in clothing in European countries are not suitable for wear in a tropical climate. For example, cloth such as heavy wool flannel is often used for Nigerian blouses. It is heavy, very warm, and caring for it is very difficult. Wool flannel clothing is nevertheless popular throughout Yorubaland. Another problem is brought about by the conflict of some European styles with social customs in Nigeria. One example was stretch pants, which when worn by American women shocked the people in one town, because they considered it morally evil for a woman to wear what they considered to be men's clothing. In the past one did not wear red in Yorubaland because of the superstitious belief that anyone who wore red to the house of another was placing a curse on the household. Range in sizes, and proportions of sizes present yet another problem in use of imported clothing. For example, most imported shoes have wide widths. This means difficulty for many people who have narrow feet. All imported clothing has been manufactured from patterns proportioned and sized to meet requirements of European people. Therefore, the garments often do not fit the Nigerian figure. The problems concerning dress indicate a need for study and experimentation in clothing specifically for Nigerians.

These problems of fabric, style, and size in clothing have been recognized by Nigerian teachers and others who are trained in clothing selection and construction. Some teaching has been directed toward solutions of the difficulties. Consumers' choices, along with increased importation of fabrics, have resulted in a greater selection of fabrics suitable for use in the tropical area. Styles have been adapted by

individuals, and at least one trained fashion designer has begun styles specifically for Nigeria, often using native-woven fabrics. The problem of size and proportion in ready-made garments and in commercial patterns is not easily solved. It is with the alteration of commercial patterns, and the size and proportion of them for use by Nigerians, that this study is chiefly concerned.

CHAPTER II

THE PROBLEM

Statement of the Problem

The problem of the present study is to identify the differences, if any, between the average body measurements of Yoruba women 17 to 26 years of age who are enrolled in school, and the measurements used by the Vogue Pattern Service, McCall Publishing Company, Limited, and Simplicity Patterns, Limited, in the manufacture of dress patterns. The differences in measurements, if found to be significant, may be used as a basis for alteration of commercial patterns and drafting of basic patterns for use by the Yoruba women.

Purpose of the Study

The purpose of the study is the improvement in social conditions of Yoruba women, as reflected in the choice and construction of the clothing they wear. The study is specifically concerned with western style clothing so frequently worn in Nigeria and abroad by Yoruba women. The impression made by a woman for herself, her tribe, and her country, is affected by her taste in clothing. Therefore, it is important that the woman's beauty be as enhanced by western style clothing as it is by rich tribal attire. In the adoption of clothing styles foreign to them, only a small number of Nigerian women have had much

training. Some help on color and style has been offered by newspaper and magazine articles, and schools have given courses in clothing construction. However, almost no training has been given in the use of commercial patterns. It is thought that the present study may help in choice and use of dress patterns by supplying needed information. Two specific aims are involved. The first aim is the identification of problems in alteration of commercial dress patterns. The second aim is the determination of measurements which could be used in drafting patterns for Yoruba women.

Assumptions

It is assumed that measurements of the skeletal structures of the Yoruba women are different from measurements of skeletal structure of English women, since they belong to different races. According to Hoebel, "A race is a major grouping of interrelated people possessing a distinctive combination of physical traits that are the result of distinctive genetic composition."[5] The Yoruba tribe, numbering about ten million and inhabiting a large area extending from the Niger River westward through Dahomey and into Ghana, are Negroes. English people are members of the Caucasoid race.

Honigman, in a comparison of the skeletal measurements of four major racial divisions, gives a description of the body build of Negroid and Caucasoid people. The Negro woman is said to have moderate height, while the English woman is tall. The Negro woman has a narrow and very

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[5] E. Adamson Hoebel, Man in the Primitive World (New York, 1958), p. 116.

deep pelvis, moderately prominent buttocks, conical breast, and long arms and legs in relation to trunk length. The Caucasoid woman is described as having a broad, shallow pelvis, prominent buttocks, hemispherical breast, and not very long arms and legs.[6]

Since skeletal structures of races are different, commercial dress patterns made specifically for use by one race may not be suitable for use by another race. The dress patterns now available in Nigeria are manufactured in England or the United States, and have been sold in those countries for a number of years. In the last decade, some have been exported to Nigeria and may now be purchased or ordered in at least six major cities--Lagos, Kano, Kaduna, Ibadan, Enugu, and Port Harcourt. However, the patterns are the same as those available in England. The second assumption is, then, that these commercial dress patterns available in Nigeria were manufactured to fit English women, not Yoruba women.

A third assumption is that differences, if any, between average measurements of American or English women and Yoruba women could be identified if arithmetical average measurements of both could be obtained.

Hypothesis of the Study

The hypothesis for the study is that arithmetical averages of Yoruba women's body measurements, and average measurements used by Vogue Pattern Service, McCall Publishing Company, and Simplicity Patterns, Limited, in manufacture of dress patterns may be different.

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[6]John J. Honigman, The World of Man (New York, 1959), pp. 876-877.

If the averages prove different, the facts ascertained may be helpful to Yoruba women in two ways. First, arithmetical averages of body measurements of Yoruba women may provide a basis for general guides in construction of dresses from Vogue, McCall, and Simplicity patterns, to fit Yoruba women. Second, arithmetical averages of body measurements of Yoruba women 17 to 26 years of age may be used to draft dress patterns for these women.

Definitions of Terms

Definitions of terms, as used in the present study, are found in the following list.

1. English style clothing--long trousers and coats, with white shirt, worn for office work or dress wear, short trousers and sport shirts for informal wear, by men. Nylon, rayon, or cotton knee-length dresses worn by women for dress, cotton print dresses for work in offices or at school.

2. Western style dress--same as English style.

3. Hausa--a tribe of northern Nigeria and the Sudan, numbering over five million, and speaking the Hausa language.

4. Ibo--a major tribe of the eastern part of Nigeria. There are many other tribes in the area. The Ibo is simply used as one example.

5. Yoruba--a Negro people of Western Nigeria, Dahomey, and Ghana.

It was decided that data should be collected from only one major tribal group, since there may be differences between physical characteristics of tribes which would destroy the reliability of arithmetical averages. The Yoruba tribe was chosen because it comprises a large section of the population of Nigeria, and because a large number of

subjects could be reached for collection of data. Yoruba women students between the ages of 17 and 26 years were chosen as subjects. These women were physically mature, but had not yet entered changes of late youth and early middle age. The changes are brought about by childbirth, and by other reasons which are not known. Many young women of the Yorubas become overweight soon after graduating from school. Less physical activity and a tendency to eat more than student fare have been suggested as possible reasons. To avoid the possibility of the effect of these changes on average body measurements only students were chosen as subjects for the study. The pattern draft was limited to the basic hip-length blouse, since this type pattern is required by government regulations in teacher-training schools. No sleeve was included as most blouses are sleeveless, but measurements for drafting sleeves were made. Present skirt styles are straight wrap-arounds. If a skirt pattern is needed, it may be obtained from the hip-length blouse pattern by flat-pattern drafting methods.

In this chapter, the problem has been defined. Basic assumptions, purposes, and hypothesis of the study were presented, and terms peculiar to the study explained. Related literature is discussed in Chapter III. Procedure and methodology will be presented in Chapter IV. Chapter V will include the analysis of data and conclusions drawn from the analysis. In Chapter VI, a basic blouse pattern draft, based on analysis of data and experimentation in pattern alteration, will be given, with instructions for drafting the pattern. Chapter VII will contain a summary of the study and implications for its use and further research. Last will be the bibliography and the appendix which contains charts related to the study.

CHAPTER III

RELATED LITERATURE

Two types of literature which were related to the problem were sought. Information on psychology of dress is considered first, in the following paragraphs. The last part of the chapter is a discussion of literature on clothing construction, specifically concerning body measurement, pattern measurement, and pattern alteration.

Psychology of Dress

In a study involving one culture's adoption of another's clothing traits, the question of "why" arises. Very few writers have discussed the psychology of clothing, and none has answered the question as to why clothing traits are transferred from one country to another. A partial answer has been given by P. H. Nystrom, an economist who includes in his book two chapters on the psychology of dress. Nystrom's views are based on this statement: "The fact is that all people, or at least all normal people, do have many common tendencies to act in certain ways, whether these tendencies are the result of inheritance or of environment and education."[7]

Nystrom believes that tendencies to act in certain ways are the determining factors in fashion. Four of the tendencies discussed seem

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[7]Paul H. Nystrom, The Economics of Fashion (New York,) 1929, p. 57.

to apply to the Yoruba people and their adoption of western styles of dress. These "human hungers" are called desire for recognition, for new sensations, for improvement, and for self-assertion. The desire for recognition is expressed, "if necessary, by doing things differently, by thinking differently, by talking differently, or by dressing differently."[8]

Nystrom discusses the desire for new sensations as one of powerful force which aids introduction of new fashion. The person who dares to see what will happen in untried circumstances is often the adventurous one who leads in trying a new fashion.

About the desire for improvement, Nystrom states that there is among some people a real effort to discover things that are more useful or more beautiful. In the improvement of fashions, there are difficulties in introduction, spread, and final victory or adoption. The same obstacles are met in all improvements.

The desire for self-assertion, Nystrom believes, is the most effective desire underlying fashion. This desire may be part of the cause for any culture changing its own traits or adopting others. It is described as an effort to secure "... approval, influence, prestige, freedom from control, power over others, and so on."[9]

According to Nystrom, factors which influence the character and direction of fashion movements from one culture or country to another are: "(a) outstanding or dominating events; (b) dominating ideals which mold the thought and action of large numbers of people; and (c)

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[8]Ibid., p. 60.

[9]Nystrom, p. 75.

dominating social groups that rule or lead and influence the rest of society."[10]

Some insight as to why people in underdeveloped countries began to dress like people of the colonial powers is given by Allen:

> Clothes, too, have to serve the special purpose of telling other people something about us--who we are, what country we come from, what our position in the world is, even what we can do, or have done in the past.[11]

The English custom of wearing school uniforms was followed in Nigeria. Therefore, types of clothes worn may have more significance in the minds of Nigerians than of Americans. Allen discusses possible beginnings of clothing, from the viewpoint of anthropology and archaeology.

Parsons discusses the psychology of dress with much the same attitude as Nystrom and Allen. Although concerned only with dress in Europe, Parsons notes that there is a "universal need which has urged [man] to fashion things in such a way that the results shall be (as he sees it) a thing of beauty."[12] The house and clothes "express the individual and the national ideal of beauty in color and form, satisfying in this way the demands of the aesthetic instinct."[13]

During the time of Nystrom, Allen, Parsons, and other such economists, historians, and psychologists, no emphasis was placed on clothing customs of the colored races of Africa. It was generally assumed by the western world that they wore no clothing. Many tribes, however, have

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[10] Ibid., p. 83.

[11] Agnes Allen, The Story of Clothes (New York), p. 12.

[12] Frank Alvah Parsons, The Psychology of Dress (New York, 1923), p. xxi.

[13] Ibid., p. xxii.

clothing traits as deeply entrenched as those of western nations. The history and psychology of the clothing customs of an African tribe could provide a vast field of study.

Some authors have only analyzed the articles or components of dress adopted, without attempting to explain the reasons. One such writer, Campbell, discusses the contributions of some Oklahoma Indians to costume design in the United States.[14]

Another example of listing and picturing of contributions of one group to another in fashion is found in Evans' book on history of costume.[15]

No study has been made on the acculturation process as relates to the dress of the Yorubas in West Africa. In the study and improvement and construction of American clothing, however, there are publications which may be of help in setting up a study concerning African dress. The remainder of this chapter includes discussion of these sources.

Clothing Construction

Hyder studied the history of standarized measurements for use by manufacturers in the United States.[16] Concentrated efforts toward standardization date from 1932. To add to information available at that time, 450 girls from age 6 to 14 were measured and the measurements

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[14] Cuba Bell Campbell, Contributions of Some Oklahoma Indians to Costume Design in the United States, (unpub. M. S. Thesis, Oklahoma State University, 1943).

[15] Mary Evans, Costume Throughout the Ages, (New York, 1950).

[16] Grace Hyder, "A Comparison of the Body Measurements of Certain Oklahoma Girls With the Measurements of Ready-Made Garments" (unpub. M. S. Thesis, Oklahoma State University, 1934).

were compared with ready-made cotton dresses. The comparison showed that manufacturers in the United States needed to take into more serious consideration the body measurements of the girls for whom they made dresses.

A further contribution to information was made by Brooks, who studied women students of Oklahoma State University to compare certain body measurements taken with and without a foundation garment.[17] The differences in the measurements were recorded and comments were given on the effects on health of wearing foundation garments.

The most comprehensive work done in the United States has been reported in Commercial Standard CS215-58,[18] a bulletin published by the United States Government Printing Office for standardization of sizes in manufacture of women's patterns and apparel. This bulletin lists averages of measurements for different types of figures: (1) three height groups--tall, regular, and short; (2) three bust-hip groups for each height--the bust is the same for all groups, the hip types are slender, average and full.[19] The bulletin also lists, defines and illustrates the measurements used in the tables.[20] Subscription to the standards of sizes set by the bulletin is voluntary for all manufacturers of clothing and patterns. This bulletin, as compared with the information

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[17] Barbara Alice Brooks, "A Comparison of Certain Body Measurements Taken With and Without a Foundation Garment" (unpub. M. S. Thesis, Oklahoma State University, 1941).

[18] Body Measurements for the Sizing of Women's Patterns and Apparel, U. S. Department of Commerce, Commercial Standard CS215-58 (Washington, 1958), pp. 8-27.

[19] Ibid.

[20] Ibid., pp. 2-7.

given in 1934 by Hyder[21] indicates great progress in information and standardization of sizes in patterns and garments. No standardization has been done in the underdeveloped countries of the world which can compare to this. In Nigeria, for example, available patterns are standardized for English and American, not Nigerian women. Where patterns are drafted by seamstresses or students, instructions followed are from English schools in which the instructors were trained. Adjustments may be made if average measurements of Nigerian women can be obtained and placed in the instructions.

Help for the student of clothing construction is given by Armstrong, Bishop, Erwin, Mansfield, and Smith. These authors simplified instructions for taking measurements, and illustrated instructions for alterations of patterns and garments.

Armstrong presents a revised measurement chart of women's sizes, misses' sizes, half sizes, and junior misses' sizes, used by major pattern companies.[22] Twenty-two measurements are listed, with instructions for taking each, and for comparing each measurement with the revised measurements chart. Steps are included for checking and measuring the commercial pattern, and for altering the pattern.

Bishop and Arch include a chapter on alterations to ready-made clothes.[23] The alteration problems are presented by showing photographs of poorly-fitted ready-made garments. The explanations for alterations

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[21] Hyder.

[22] Ola Armstrong, Pattern Alteration, Oklahoma Agriculture Extension Service (Stillwater, Oklahoma, 1961).

[23] Edna Bryte Bishop and Marjorie Stotler Arch, Fashion Sewing by the Bishop Method (New York, 1962), pp. 18-37.

are illustrated by diagrams of the patterns, with alterations shown by dotted lines. The chapter is written for the woman who does her own alterations, and does not have major alteration problems.

Erwin lists twenty-three body measurements, with method for taking each.[24] A chart is suggested, with columns for ease to be allowed on circumference measurements, the personal measure, the commercial pattern measure, the amount to alter the pattern, and suggestions for altering.

The advice given by Mansfield is:

> "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."[25]

Part One of Mansfield's chapter on pattern alterations and fitting[26] is a discussion of the measurements used by pattern companies and ready-to-wear clothing manufacturers, with reasons for lack of uniformity in sizes. Patterns should be chosen of the right size for bone structure and distribution of flesh, for body measurements, and sample garments may be made to try these sizes. Seven body measurements are listed. Part Two includes steps for checking pattern markings, pinning pattern pieces together, using bands for anchoring patterns, and checking lines of paper patterns against these bands around neck, bust, waist, and hips. Part Three gives general procedures for pattern alteration by three methods. Parts Four through Seven have detailed instructions for blouse, jacket, sleeve and skirt patterns. Both photographs and

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[24] Mabel D. Erwin, Practical Dress Design (New York, 1940), pp. 48-58.

[25] Evelyn A. Mansfield, Clothing Construction (New York, 1953), p.49.

[26] Ibid., pp. 49-107.

diagrams are used to clarify the entire chapter.

Smith, in discussing the fitting of coats and suits, presents the method of using muslin models to check patterns.[27] Key problems in fitting coats or jackets, sleeves, and skirts are presented. The usual cause for each problem is explained. Actual photographs are used to illustrate instructions for correcting the muslin model and the paper pattern.

In another bulletin, on pattern alteration, Smith explains body measurements and pattern alterations to the woman who sews for herself and her family. Detailed instructions are given for taking twenty body measurements. Instructions for measurement of commercial patterns, to be compared with body measurements, are illustrated. In addition to a chart to record measurements, explanations are given for use of the measurements to make a basic pattern. Commonly needed alterations are included, with illustrations of the steps for doing each.[28]

Cutler writes of a project which proved helpful to Indonesian women who wish to use commercial clothing patterns.[29] The plan grew from an experiment in a teacher-training college. It was found that twenty-six hours were required to make an Indonesian dress. Standardized patterns and streamlined construction methods might have shortened the time to six hours. As a result of this experiment, a committee sought ways and

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[27]Margaret Smith, Fitting Coats and Suits, Home and Garden Bulletin No. 11 (Washington, D. C., 1952).

[28]Margaret Smith, Pattern Alteration, Farmers' Bulletin No. 1968 (Washington, D. C., 1959).

[29]Virginia F. Cutler, "Pattern Project for Indonesia," Journal of Home Economics, LII, 1960), p. 42.

means of improving methods of clothing construction. One problem attacked was that of basic patterns. Five hundred Indonesian women were measured. Averages of the measurements were categorized according to seven bust measurements. Four basic patterns were drafted, and were printed by McCall Pattern Company in New York. The printed patterns were made available to Indonesian women. The present study on body measurements of Yoruba women may result in similar help for the women of the Yoruba tribe.

The literature reviewed concerns psychology of clothing and construction of clothing as related to clothing customs and problems of the Yoruba tribe of West Africa. Available literature concerning psychology of clothing has been found to be limited largely to the Caucasoid race of Europe and America, but general statements have been made which apply as well to any ethnic group. Publications and theses on clothing construction have been chosen on the basis of the principles they contained being applicable to methods of body measurement and alteration of patterns.

The African people need factual studies to help identify and define their problems in adopting and adapting western style dress. They especially need information in the field of fitting and altering of commercial patterns. Possible differences between body measurements of different races, and of different tribes within the Negroid race, have not been investigated as they relate to clothing construction. Until recently this need did not exist. Each country was largely responsible for its own clothing construction and manufacture, although cloth has long been an item of international trade. With the present international trade in ready-made clothing and patterns for clothing construction,

studies of differences in needs of people in different countries are indicated. The only information on other cultural groups is contained in the study done in Indonesia by Cutler (discussed on the preceding page). The Yoruba people need similar help in clothing problems. It is in this field that the present study attempts to make a contribution.

CHAPTER IV

METHODOLOGY

Plans for the present study in body measurements of Yoruba women developed from the teaching of clothing construction classes in Baptist Women's College, Abeokuta, Nigeria. Problems the classes encountered in the fitting of commercial patterns discouraged the students' development of skill and interest in sewing for themselves. Similar fitting problems were found in the drafting of basic blouse patterns by instructions devised in English schools for English women. It seemed probable that differences in body structure of Yoruba women and Caucasian women were causing the difficulties in use of patterns and pattern-drafting instructions. The average body measurements of Yoruba women were needed for comparison with average measurements used as a basis for manufacturing commercial patterns and for pattern-drafting instructions. To obtain the required data, a group of Yoruba women were measured and the data were compiled, analyzed, and compared with measurements used by pattern companies. Differences found in the measurements of Yoruba women and those used by pattern companies were utilized in an experiment in pattern alteration to test the results of the study. The methods of collecting, compiling, and analyzing data, and the experiment based on the results are described in this chapter.

Method of Collection of Data

The data were collected between September, 1965 and June, 1966 by two home economics teachers in Baptist Women's College, the author and an assistant teacher, both educated in the United States. The information was obtained during the school's two-hour required study period, two days a week. Three to five students were measured per hour.

The subjects, six to ten at a time, were requested to spend one two-hour study period in the clothing laboratory. They brought books with them to study while waiting their turns for measurement. Instead of studying, however, most of the subjects observed the measuring in progress. The next day's lessons perhaps went unprepared, but the students had an unusual grasp of measuring methods in their next pattern-drafting classes. The knowledge gained by the students was an unexpected beneficial result of the study.

Four subjects at a time were involved in the collection of data. One subject was dressing in the stretch knit underwear she was to wear for the measurements; the assistant teacher was pinning tapes on the second subject and taking girth and arc measurements; the author was taking vertical, length, and width measurements on the third subject; the fourth subject was changing back to her school uniform.

The subjects were numbered as they were measured. Names and ages were also recorded, although the names were not necessary for the present study. Recording the names made possible the use of the data by teachers of pattern-drafting classes during and after the time data were being collected.

The equipment used in taking most of the measurements was simple

enough to be duplicated by any home economics teachers in Nigeria, yet accurate enough to give reliable information. For girth, arc, width and length measurements a sixty-inch cloth tape measure marked in inches and one-eighth inches was used. All measurements were made in inches, except the shoulder slope, which was recorded in degrees. Measurements were taken to the nearest one-eighth inch, to conform to Commercial Standard CS215-58.[30] Cotton twill tape, fastened with pins, marked the positions for girth and arc measurements and for vertical measurements. The subject stood in front of a locally-made three-way mirror, to enable the author and the assistant teacher to check the levels of the tapes and get accurate measurements.

For vertical measurements, a height scale was made by taping yardsticks on a wall, using a carpenter's level to insure the accurate vertical placement of the scale. A carpenter's square was then used to obtain the horizontal levels of measurement. The shoulder slope measurement was obtained by use of an adjustable triangle.

In order to obtain information which could be compared with commercial patterns, lists of measurements used by pattern companies were sought. McCall Publishing Company, Limited, Vogue Pattern Service, and Simplicity Patterns, Limited, all of England, were consulted since these companies supply the patterns sold in Nigeria. Charts of measurements published by the companies for general use in alterations were received. However, for pattern drafting, additional measurements and more accurate methods of measuring were considered necessary. Detailed methods for

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[30] Body Measurements for the Sizing of Women's Patterns and Apparel, U. S. Department of Commerce Commercial Standard CS215-58 (Washington, 1958), p. 3.

measuring are supplied to both American and English manufacturers by the United States Department of Commerce, in bulletin CS215-58.[31] Specifications for use in the present study (pages 26-30) include the methods in the Commercial Standard.[32]

Definitions of Measurements Taken

In collecting the data, it was necessary that the procedures for locating measurement positions be the same as those specified in the Commercial Standard[33] to insure obtaining comparable information. The following definitions of main body "landmarks" were used.

1. Crown: top of head.
2. Cervicale: the "seventh or lowest cervical vertebra at the back of the neck which becomes more prominent when the head is bent forward.[34] Measurements involving the cervicale are taken when the head is in an erect position. McCall's patterns call the cervicale the nape of the neck. Vogue lists the cervicale as the prominent vertebra at the back of the neck.
3. Waist: the natural waistline. Both McCall's and Vogue mention only the natural waistline or the smallest part of the waist. Commercial Standard CS215-58 locates the waistline 3/8 inch, 1/2 inch, or 5/8 inch (for short, average, or tall women) below the lower edge of the lower floating rib. The rib

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[31] Ibid., pp. 3-7.

[32] Ibid.

[33] Ibid., pp. 2-3.

[34] Ibid., pp. 2.

is located at the side of the body in a line directly below the center of the armpit.[35]

4. Abdominal extension: the level of greatest protuberance of the abdomen as viewed from the side.

5. Hip extension: the prominence on the outside of the upper end of the femur.

The armscye was not included in the definitions in the Commercial Standard, but reference was made to the various parts of the armscye as a point for other measurements, such as the shoulder length, and across-chest dimensions. Therefore, an explanation of its location is considered helpful here. The armscye is described as being "measured from a point at the armhole edge of the shoulder, midway between the acromion and the highest prominence at the lateral end of the collar bone, and through the underarm mid-point.[36]

Methods of Measuring

The measurements fall into four categories: (1) vertical, (2) girth, (3) arc, (4) width and length. The instructions used for taking the measurements, the compilation of measurements, and analysis of results will follow these same four categories. The measuring methods will be given first.

Vertical Measurements

The vertical measurements were taken with the subject standing in

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[35]Ibid., p. 2.

[36]Ibid., p. 4.

an erect position in front of the height scale on the wall. All vertical measurements were taken without shoes.

1. Stature is measured from crown to soles of feet.
2. Cervicale height is measured from cervicale to soles of feet.
3. Waist height is measured from waist to soles of feet.
4. Abdominal extension height is measured from the level of greatest abdominal extension to soles of feet.
5. Hip height is measured from hip to soles of feet.

Girth Measurements

For the girth and arc measurements, the tape was held snug, but not binding.

1. Bust was measured horizontally at maximum bust girth. Both Vogue and McCall's suggest raising the tape slightly at the back for the bust measurement, perhaps to offset a tendency to let the tape slip too low in the back. For the present study, the tape was held exactly horizontal, to conform to the commercial standard. The problem of having the tape straight across front and back necessitated having the subject stand in front of a mirror, so that the person taking the measurements could see the back and front of the tape at the same time.
2. Waist girth is measured horizontally at waist level.
3. Abdominal extension girth is measured horizontally at abdominal extension level.
4. Hip girth is the fullest extension of the prominence at the end of the femur.
5. Neck base follows the neckline, touching cervicale at back and

the upper borders of the collar bone at the front.

6. Upper arm girth is measured round the upper arm, with the arm down. The upper edge of the tape measure is placed level with the bottom of the armscye.

Arc Measurements

The arc measurements were taken at the same time as the girth measurements. They were taken horizontally, from one side to the other, the side being located by extending an imaginary vertical line downward from the mid-underarm. This line was marked at the bust, waist, abdominal extension and hip levels by twill tape.

1. Bust arc is the front portion of the bust girth.
2. Waist arc is the front portion of the waist.
3. Abdominal extension arc is the front portion of the abdominal extension.
4. Hip arc is the back portion of the fullest part of the hips.

Width and Length Measurements

Width and length measurements were taken with the subject standing.

1. Cross-chest width is measured across front of the chest from armscye to armscye.
2. Cross-back width is across the back from armscye to armscye at the highest prominence at the lateral end of the collar bone, and at the same level as cross-chest width.
3. Bust point to bust point is across the bust horizontally between points of bust.
4. Neck to bust point is from intersection of shoulder line and

neck base line to bust point.

5. Back waist length is taken along the spine from cervicale to waist level.
6. Front waist length is along center front from neck base line to waist level.
7. Shoulder length is along top of shoulder from neck base line to armscye.
8. Scye depth is along the spine from cervicale to point level with the mid-underarm point.
9. Armscye to waist, usually called underarm length, is from mid-underarm point downward along side of body to waist level.
10. Arm length, shoulder to wrist is measured from intersection of armscye and shoulder lines along outside (posterior) surface of right arm over elbow to greatest prominence on outside of wrist. This measurement is taken with the arm bent, the hand doubled and resting on the side at waist level.
11. Underarm length is from the point inside the upper arm which corresponds to mid-underarm point on the trunk to mid-point on inside of wrist in line with greatest outside wrist prominence.

As measurements were taken according to the instructions given above, they were recorded on mimeographed charts. A copy of the chart used may be found in the Appendix. Forty-five of the measurements listed in the Commercial Standard were made.[37] Many of the measurements proved unnecessary for the present study, but the data were collected in Nigeria, and the report was written in the United States. No opportunity

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[37] Ibid., p. 8.

to collect additional or missing data would be possible. For a continuation of the present type of study, or for a new study, the total number of measurements may still be useful.

Method of Analyzing Data

The recorded data were copied by Xerox copier, and one set was stored for reference. Another copy was cut into individual columns, to make convenient the division of the subjects into groups. An attempt to divide the Yoruba women into groups according to heights in the Commercial Standard[38] was not successful, as the Yoruba women's height averages were shorter than those of American women. The Yoruba women's measurements did, however, fall into three obvious divisions. These height groups were arbitrarily set by the author, to provide a basis for comparison with the groups of American measurements. The classifications of Yoruba women according to heights are shown in Figure 1. More than half of the subjects (96 women, or 53.631%) measured from 60 3/4 inches through 63½ inches tall. These subjects form the Regular Height group. About one-fourth of the subjects (44 women, or 24.581%) comprise the Tall Height group, from 63 3/4 inches through 69 inches tall. Less than one-fourth (39 women, or 21.788%) make up the Short Height range, from 55 inches through 60½ inches tall.

In compiling the data, each of the three height groups was treated separately. Each group was arranged according to bust measurement, from smallest to largest. The individual columns of statistics were taped to manilla folders to facilitate the next step, which was the

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[38] Ibid., p. 1.

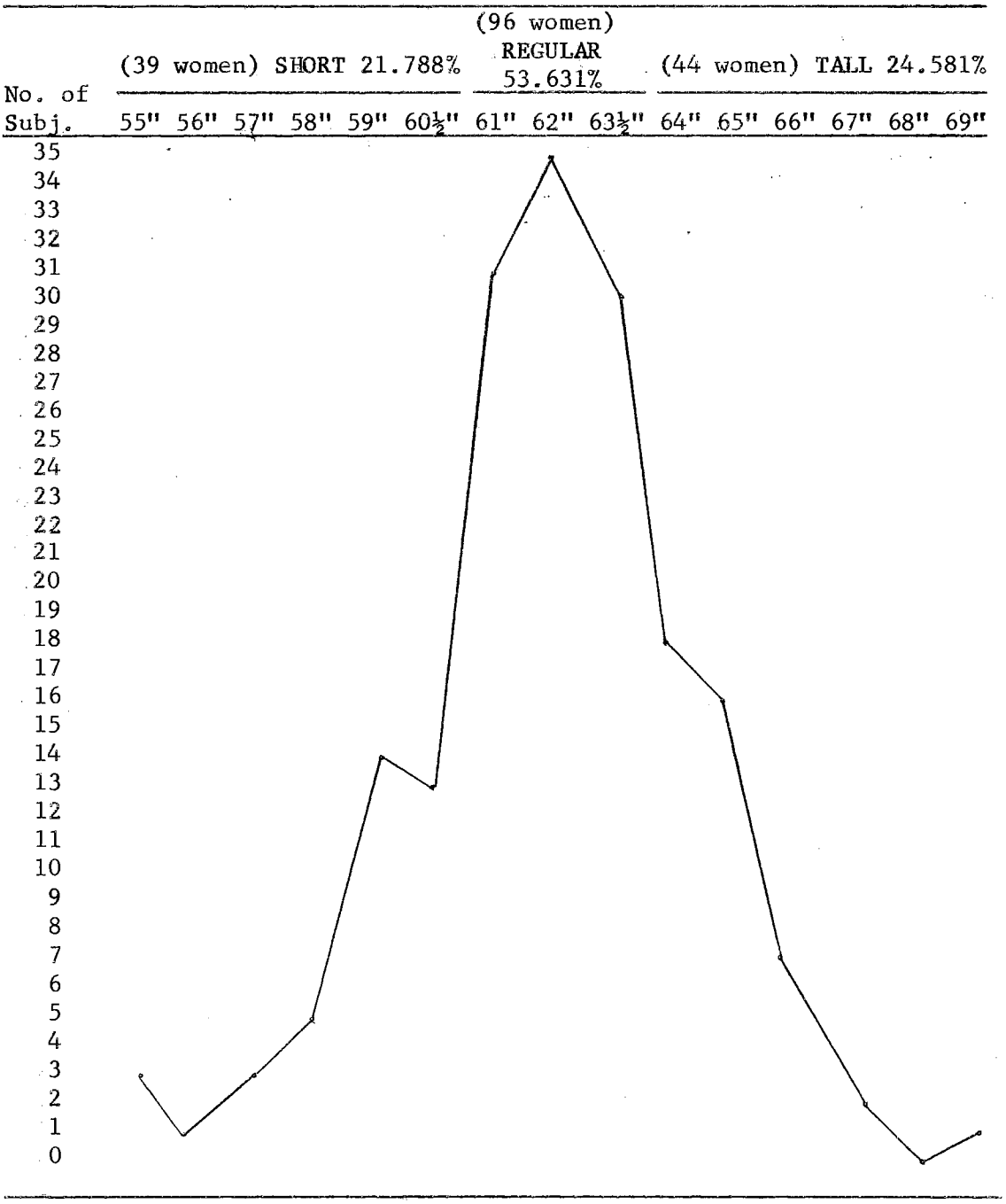

Figure 1. Height Ranges of 179 Yoruba Women

arithmetical averaging of the measurements. All the averages were recorded, then compared with the measurements nearest to them in the Commercial Standard.[39] The Regular Height group, with an average bust measurement of 33½ inches, were compared with Regular Height, size 12R, bust 34, average hip, in the Commercial Standard.[40] The Tall Height group, average bust 34½ inches, were compared with Tall Height, size 12T, bust 34, average hip.[41] The Short Height group, with an average bust measurement of 33 inches, were compared to the Short Height, size 10S, bust 32½, full hip, in the Commercial Standard.[42]

The average measurements of the Yoruba women, the Commercial Standard averages to which they were compared, and the differences between the two, may be found in Tables II-V in the analysis of results (pages 37-43). Differences of one inch or more in girth measurements, and one-half inch or more in vertical, length, and width measurements were accepted by the author as the criteria to use for determining the adjustments which would be necessary in patterns and pattern drafts. Smaller differences would not usually require major adjustments in patterns, because of ease allowances already in the patterns.

Pattern Alteration Experiment

An experiment in altering patterns for school uniforms supports some of the results in measurements. Twenty-eight subjects were in one

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[39] Ibid., p. 8, 9, 16.

[40] Ibid., p. 8.

[41] Ibid., p. 9.

[42] Ibid., p. 16.

class needing new uniforms. The measurements of these subjects were averaged. The measurements used were: bust, waist, and hip circumference; front bodice length; back bodice length; length from armscye to waist; and length from waist to hip. The pattern used for the bodice of the one-piece dress uniform was Vogue 6442. Simplicity pattern number 6296 was used for the skirt. Front and back views of these two patterns are in the Appendix.

The averages of the students' measurements were compared with the measurements given on the pattern envelopes or the actual pattern dimensions. The patterns were then altered to the students' measurements. The alterations made are listed in the following table.

TABLE I

MEASUREMENTS USED FOR ALTERATION OF COMMERCIAL PATTERN

Measurements Used	Commercial Pattern Measurements	Subjects' Average Measurements	Alterations Made in Pattern
Bust	32	33	None
Waist	25	27	Added one inch
Hip	34	35	None
Front Bodice Length	13½	11 1/8	Reduced two inches
Back Bodice Length	16	13½	Reduced two inches
Armscye to waist	8 3/8	6¼	Reduced 1½ inches
Waist to Hip	9	7 3/4	Reduced 1¼ inches

A uniform in the altered size twelve pattern was cut out by the author and constructed by the Nigerian tailor who makes all the school

uniforms. The fabric used was white Empirex, a British-manufactured cloth resembling cotton Indian Head manufactured in the United States. Thirteen of the subjects, whose bust measurements were from 31½ inches to 33¼ inches, tried on the uniform. It fit them with little or no further alteration.

The procedure followed with the size twelve pattern was then used with the size ten and size fourteen patterns. Finally, three size ten, thirteen size twelve, and twelve size fourteen uniforms were constructed. The tailor made individual alterations where they were necessary for each subject. The twenty-eight students then held an impromptu "dress parade" by going to various offices and classrooms to show their new uniforms to faculty members and classes. School staff and faculty members thought the dresses neat and attractive in fit and style. Students in other classes requested that their next new uniforms be made by the same pattern. The author and her assistant considered the experiment successful in alterations made. There were, however, indications of another alteration needed, which might improve the fit of the uniforms. On some of the students, the forward curve of the abdomen and backward curve of the hip forced the side seam into a curve. Instead of hanging perpendicular to the floor, the seam had the same appearance as a side seam on an American girl with a sway-back figure. If the alteration experiment can be repeated on another class, widening the bodice at the front waistline and narrowing it at the back waistline may straighten the fall of the side seam.

CHAPTER V

ANALYSIS OF DATA AND CONCLUSIONS

Bases for Analysis

The analysis of data for the present study is treated under the same categories used in the preceding chapter on methodology: vertical measurements, girth measurements, arc measurements, and length and width measurements. The analysis is based on arithmetical averages of the body measurements of 179 single Yoruba women students, ages 17 through 26 years. The measurements used for comparison in the analysis are found in Commercial Standard CS215-58.[43] This bulletin was based on American women's measurements, and is used by both American and English pattern companies for the manufacture of patterns according to statements received from these companies. American women's measurement averages, mentioned repeatedly in the analysis of results, refer to data found in Commercial Standard CS215-58.[44]

The Regular, Tall, and Short Height ranges (explained in Methodology, page 30), are used as the basis for comparison with measurements in Commercial Standard CS215-58[45] throughout the analysis of data.

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[43] Ibid., pp. 8, 9, 16.

[44] Ibid.

[45] Ibid.

The differences found between measurement averages of American women and of the Yoruba women measured are enumerated in the next paragraphs. Conclusions drawn from the analysis of data will be presented in the last part of the chapter.

Analysis of Data

Analysis of Vertical Measurements

In total height, the Yoruba women in the Regular Height range were an average of 62½ inches tall, as compared with 64 inches in the Regular Height, size 12R, in the Commercial Standard.[46] In the Tall range, the American woman's average height is 2 5/8 inches taller; in the Short range, the American woman is 1 inch taller. In the overall groups, the American woman's average height is frequently given as 65 inches, while the average height for the Yoruba women measured was nearly 62½ inches. The vertical measurement comparisons are presented in Table II.

Cervicale heights (from nape of neck to soles of feet) for both Americans and Yorubas were about the same in relation to total height.

The waist level of the Yorubas was higher in relation to total stature, and in relation to cervicale height. The length measurements in the waist, discussed in detail under Width and Length Measurements, (page 40), are correspondingly shorter in Yorubas. It is in this area of the body where measurements are so different that pattern-drafting is done by proportion. For example, the bustline is located by dividing the cervicale-to-waist-level-length in half. Such a division, having

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[46] Ibid., p. 8.

TABLE II

AVERAGE VERTICAL MEASUREMENTS OF 179 YORUBA WOMEN COMPARED WITH AMERICAN AVERAGES PUBLISHED IN COMMERCIAL STANDARD CS215-58[47]

Vertical Measurements In Inches	Regular Height Range			Tall Height Range			Short Height Range		
	Yoruba Average	American Average	Differences	Yoruba Average	American Average	Differences	Yoruba Average	American Average	Differences
Stature (Total Height)	62 1/2	64	1 1/2	65 3/8	68	2 5/8	59	60	1
Cervicale Height	53 1/8	55	1 7/8	55 3/4	59	3 1/4	50	51	1
Waist Height	40 3/8	39 7/8	1/2	42 3/8	42 7/8	1/2	38 3/8	37	1 3/8
Abdominal Extension Height	37 1/2	36 1/2	1	39 3/8	39 1/2	1/8	35 5/8	34 1/4	1 3/8
Hip Height	33 3/8	31 7/8	1 1/2	35	34 1/4	3/4	31 5/8	29 3/4	1 7/8

[47] Ibid., pp. 8, 9, 16.

been worked out for relatively longer-waisted figures, may be an inaccurate proportion for the shorter-waisted Yoruba figure.

The abdominal extension (largest part of abdomen) height is about the same distance below the waist level in both Yorubas and Americans. The hip height is closer to the waist level in Yorubas than in Americans. This is the third significant difference in vertical measurements. The total height, waist height, and hip height differences indicate a body form of different proportions, with accompanying needs for different basic pattern measurements and proportions.

Analysis of Girth Measurements

Only one girth measurement was found to have significant difference in all three height ranges. The bust measurements were compared to similar bust girths in the American averages, but the waist girth of Yorubas was from 2 inches (in the Regular Height range) to 3 3/4 inches (in the Short Height Range) larger than the American averages (see Table III). The hip girth of Tall Yoruba women was 1 inch larger than that of Tall American women. In predicting results, Yorubas were expected to have a larger hip girth, but this prediction proved false. Another reversal in predicted results occurred in Yoruba abdominal extension girth, in Regular Height, which was 1 1/4 inch smaller than the American abdominal extension girth. The prediction, based on the apparent prominence of the abdomen of the Yoruba woman, failed to take into account the prominence of the American woman's hip bones, at the same horizontal level. While the Yoruba abdomen may protrude more than the American abdomen, the Yoruba hip-bone is hardly apparent at all. Therefore, the American woman's hip-bone prominence may have made

TABLE III

AVERAGE GIRTH MEASUREMENTS OF 179 YORUBA WOMEN COMPARED WITH AMERICAN AVERAGES PUBLISHED IN COMMERCIAL STANDARD DS215-58[48]

Girth Measurements In Inches	Regular Height Range			Tall Height Range			Short Height Range		
	Yoruba Average	American Average	Differences	Yoruba Average	American Average	Differences	Yoruba Average	American Average	Differences
Bust	33 3/4	34	1/4	34 1/2	34	1/2	33	32 1/2	1/2
Waist	27 1/2	25 1/2	2	28	25 1/2	2 1/2	27 3/4	24	3 3/4
Hip	35 5/8	36	3/8	37	36	1	35 1/8	36	7/8
Neck base	15	14 3/4	1/4	15 3/8	14 7/8	1/2	15	14 3/8	5/8
Armscye	15 1/8	15	1/8	15 5/8	15 1/8	1/2	14 1/2	14 1/4	1/4
Abdominal extension	31 1/4	32 1/2	1 1/4	32 1/4	32 1/4	----	30 5/8	31 1/2	7/8

[48] Ibid.

her abdominal extension measurement equal to, or greater than the Yoruba woman's abdominal extension circumference. Girth measurements were expected to differ more than they did for the two groups of women.

Analysis of Arc Measurements

Differences in arc measurements correspond to two of the differences in girth. The hip arc in Yorubas in the Tall Height range was one inch larger than in Americans. The Yorubas' waist front arc was from 1 5/8 inches to 2 3/8 inches larger in all height ranges (see Table IV). This is so great a difference that a pattern alteration would be necessary to correct the placement of the side seam line. The indicated alteration, mentioned in connection with the experiment on pattern alteration, (page 34) would be the reduction of the back bodice waistline width and the increase of the front bodice width at the waistline.

The bust arc in Regular Height went contrary to expectation by being one inch smaller in Yorubas than in the American averages.

Analysis of Width and Length Measurements

Width measurements offered no differences according to the criterion accepted for this measurement category, except a one-inch wider chest in the Yoruba Short Height range. Length measurements, in accordance with vertical measurements, were very different, always in the same respect, that is, shorter in Yorubas than in Americans. The armscye-to-waist measure differed as much as 1¼ inch, in the Tall Height range. For all three height ranges, in cervicale-to-center-front-at-waist, and in both front and back waist length, all differences were great enough to require alteration, the American averages being from 3/4 inch to

TABLE IV

AVERAGE ARC MEASUREMENTS OF 179 YORUBA WOMEN COMPARED WITH AMERICAN AVERAGES PUBLISHED IN COMMERCIAL STANDARD CS215-58[49]

Arc Measurements In Inches	Regular Height Range			Tall Height Range			Short Height Range		
	Yoruba Average	American Average	Differences	Yoruba Average	American Average	Differences	Yoruba Average	American Average	Differences
Bust, front	18 1/2	19 1/2	1	19 1/4	19 1/4	---	18	18 1/2	1/2
Waist, front	15 3/8	13 3/4	1 5/8	15 7/8	13 1/2	2 3/8	15 1/4	13	2 1/4
Abdominal extension, front	17 3/8	17 1/2	1/8	18	17 1/2	1/2	17	16 3/4	1/4
Hip, back	18 5/8	17 3/4	7/8	19 1/4	17 3/4	1 1/2	18 5/8	17 3/4	7/8

[49] Ibid.

2 3/4 inches longer than Yoruba averages. (See Table V). These differences are credited with creating difficult problems in the use of commercial patterns by the Yoruba women.

The analysis of data has shown that the measurements of Yoruba women differ from the measurements of American women in the waist girth and arc measurements, and in vertical and length measurements. The differences are great enough to require major pattern alteration, or major changes in pattern drafting instructions.

Conclusions

After data were collected, compiled, and analyzed, and after an experiment was conducted in pattern alteration, three conclusions were reached. These conclusions will be discussed in the following paragraphs.

Analysis of the data collected reveals that Yoruba women's body measurements are substantially different from measurements used by pattern companies in the manufacture of commercial patterns. These differences lead to problems encountered by Yoruba women in the use of commercial patterns and in drafting of patterns by instructions based on average measurements of American or English women.

The second conclusion, that commercial patterns can be altered to improve the fit for Yoruba women, is based on experience in the use of commercial patterns in clothing construction classes, and on an experiment in pattern alteration. The experiment is described on pages 33-34. The Simplicity and Vogue patterns used in the experiment were altered and twenty-eight uniforms were made from the altered patterns. Although this experiment was considered successful in the alterations

TABLE V

AVERAGE WIDTH AND LENGTH MEASUREMENTS OF 179 YORUBA WOMEN COMPARED WITH AMERICAN AVERAGES PUBLISHED IN COMMERCIAL STANDARD CS215-58[50]

Width and Length In Inches	Regular Height Range			Tall Height Range			Short Height Range		
	Yoruba Average	American Average	Differences	Yoruba Average	American Average	Differences	Yoruba Average	American Average	Differences
Cross-back width	12 7/8	12 5/8	1/4	13	12 3/4	1/4	12 1/2	12 1/8	3/8
Cross-chest width	12 3/8	12	3/8	12 1/2	12 1/4	1/4	12 1/2	11 1/2	1
Bust point to bust point	7 1/4	7	1/4	7 5/8	7 1/8	1/2	7 1/8	6 3/4	3/8
Scye depth	6 1/2	7 1/4	3/4	7	7 1/2	1/2	6 1/4	6 3/4	1/2
Armscye to waist	6 3/8	8 3/8	2	6 3/4	8 3/4	2	6 1/8	7 7/8	1 3/4
Waist to hips	7 5/8	8 1/2	7/8	7 7/8	9 1/8	1 1/4	7 3/8	7 3/4	3/8
Shoulder length	4 3/4	4 3/8	3/8	4 5/8	4 1/2	1/8	4 1/2	4 1/4	1/4
Shoulder slope (degrees)	19	23	4	20 1/2	23	2 1/2	19 1/2	23	3 1/2
Cervicale to CF at waist	17 3/4	19 1/2	1 3/4	18 5/8	20 1/8	1 1/2	17 3/8	18 1/2	1 1/8
Waist length, front	11 1/4	13 1/2	2 1/4	11 7/8	14 1/8	2 3/4	11	12 1/2	1 1/2

TABLE V (Continued)

Width and Length In Inches	Regular Height Range			Tall Height Range			Short Height Range		
	Yoruba Average	American Average	Differences	Yoruba Average	American Average	Differences	Yoruba Average	American Average	Differences
Waist length, back	14 1/8	15 1/2	1 3/8	14 3/4	16 3/8	1 5/8	13 1/2	14 1/4	3/4

[50]Ibid.

made, large scale alterations would throw the pattern parts out of proportion in some patterns. The alteration of commercial patterns can be used to an advantage, but a better solution to the problem for their use by Yoruba women would seem to be the manufacture of patterns drafted and designed on the basis of Yoruba average measurements.

The third conclusion will perhaps be the most beneficial one to Yoruba women who sew for themselves. Based on the differences found between American and Yoruba average body measurements, and on facts gained from the experiment in pattern alteration, instructions for drafting patterns can be devised which take into account the proportions of the average Yoruba figure. A beginning toward this solution has been made by the drafting of a basic hip-length blouse pattern, with accompanying written instructions for the draft. The instructions, with a quarter-scale diagram of the draft, are presented in Chapter VI.

The three main conclusions, based on the results of the study of 179 Yoruba women's body measurements as compared with American average body measurements, are as follows:

1. Body measurements of Yorubas are different from those used by pattern companies in the manufacture of commercial patterns.
2. Commercial patterns can be altered to improve the fit for Yoruba women, but the manufacture of new patterns, drafted and designed with average Yoruba measurements as a basis, might be better for use by Yoruba women who sew for themselves.
3. Pattern drafts and instructions can be formulated, which will be more useful for Yoruba women than patterns drafted by instructions originally devised for American or English women.

CHAPTER VI

BASIC BLOUSE PATTERN DRAFT

The basic hip-length blouse pattern draft presented in this chapter is intended for use in clothing construction classes at the teacher-training level in Nigeria. The information gained from the body measurement data and from an experiment in pattern alteration has been incorporated in the drafting measurements and methods.

The pattern shown (Figure 2) was drafted to the average measurements of the Average Height range of the Yoruba women measured for the present study. The actual measurements appear on the diagram. The shaping of the neckline, and the amounts of ease allowed at back of shoulder, bust, and hip, were recommended by Hillhouse and Mansfield in Dress Design, Draping and Flat-Pattern Making.[51] The ease allowed in the shoulder was one-fourth inch, plus a one-half inch dart.[52] Three inches, were allowed in the bust.[53] In the hip, since the sitting spread of the Yoruba women measured averaged about three inches larger than hip girth, a three-inch ease was allowed.[54] An ease allowance of

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[51] Marion S. Hillhouse and Evelyn A. Mansfield, Dress Design, Draping and Flat-Pattern Making (Boston, 1948), pp. 18, 23, 24, 27, 67.

[52] Ibid., pp. 24-25.

[53] Ibid., p. 27.

[54] Ibid., p. 67.

one inch in the waist was used, as suggested in Unit Method of Sewing, a publication of the Iowa Home Economics Association[55].

The patterns for the average measurements of the Short Height range and the Tall Height range were also drafted, and proved substantially consistent in form and proportion with the one for Average Height range. The pattern drafts were checked and approved for trial by Dr. Edna Meshke, Visiting Professor of Clothing, Textiles, and Merchandising at Oklahoma State University. The draft diagram appears at one-fourth actual size. (See Figure 2, page 49.)

The instructions for drafting the pattern are included following the diagram. Some of the statements may seem elementary to English-speaking people, but the instructions are written for students who use English only as a second language. The draft diagram and instructions must be used together, as one is incomplete without the other. In labelling the parts of the pattern draft, letters were used which stand for the names of pattern parts. For example, CBN stands for Center Back Neck. Using letters in simple alphabetical order might have been easier, but would not have taught students the names of the parts. It is hoped that using the names of pattern parts will give students some concept of the pattern as related to the body shape, rather than just as flat paper with no relation to the garment finally to be made.

The pattern draft diagram and instructions are not presented as perfected or finished. Testing will be necessary before evaluation can be made, and changes or modifications may need to be made. Plans have

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[55] Iowa Home Economics Association, Unit Method of Sewing, Fourth Edition (Ames, Iowa, 1965), p. 11.

been made for the use of the draft in clothing construction classes beginning in July of 1967. The students using the draft will have had the experience of drafting patterns for baby pants, baby dresses, women's slips and panties. The students will be familiar with several of the terms used in the draft and with simple drafting techniques.

The methods of teaching the drafting vary with the size of the class. For a class of twenty the writer uses demonstration and individual instruction methods. A copy of the draft diagram and instructions is given to each student. A full-size poster of the draft is placed on the bulletin board. The teacher then demonstrates the drafting on the chalkboard, allowing time between steps for the students to do each step on their own paper. An improvement in this method has been suggested in the use of an opaque projector to show the steps one by one, rather than the time-consuming process of the teacher's doing each step on the chalkboard. The projected diagrams could be more accurate, as the width of chalk marks and roughness of chalkboard would not contribute to errors. Use of the opaque projector, however, would not give the students the advantage of actually seeing the drafting done.

After the basic pattern is drafted and tried in muslin, the designing of blouses begins by flat-pattern methods. The true test of the basic draft comes when a student wears a blouse constructed to her individual measurements and design choice from the basic blouse draft. It is hoped that the draft offered in this chapter will be an effective aid in the teaching of clothing construction to Nigerian women.

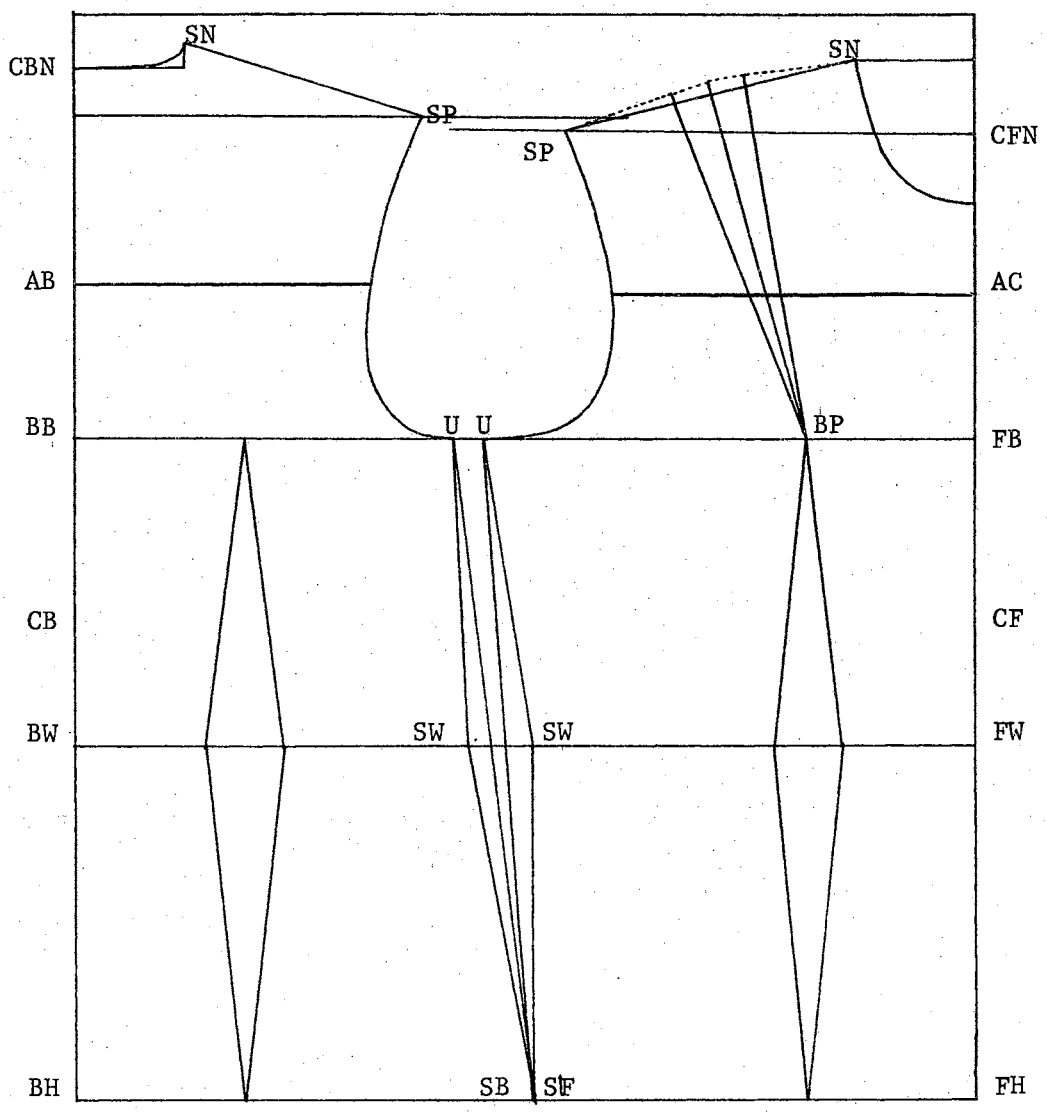

Figure 2. The measurements used for this draft (explained on page 46) were the average measurements for the Regular Height Range of Yoruba Women.

Bust - 33 3/4 inches
Waist - 27 1/2 inches
Hip - 35 1/2 inches
Armscye to Waist - 6 3/8 inches
Waist to Hip - 7 5/8 inches
Front Bustline - 18 1/2 inches
Front Waistline - 15 3/8 inches
Front Hipline - 16 7/8 inches
Front Waist Length - 11 1/4 inches
Shoulder Length - 4 3/4 inches
Back Bustline - 15 1/4 inches
Back Waistline - 12 1/8 inches
Back Hipline - 18 5/8 inches
Back Waist Length - 14 inches

Drafting Instructions for Basic Hip-Length Blouse

Measurements are to be taken with the person wearing the underwear which will be worn under the garment constructed. The side seamline should be marked by a tape pinned to the underwear at center of underarm and hanging perpendicular to the floor. The tape should be pinned at waist and hipline also to keep it accurately in place during measuring. An accurate tape measure must be used for measurements. It should be snug, not tight or loose. The person to be measured should stand naturally and relaxed.

Measurements needed:

Bust	Front of Bustline	Back of Bustline
Waist	Front of Waistline	Back of Waistline
Hip	Front of Hipline	Back of Hipline
Armscye to Waist	Front Waist Length	Back Waist Length
Waist to Hip	Shoulder Length	

Equipment required:

1. Pattern paper. (Brown paper may be used if pattern paper is not available.)
2. Rulers, one 12-inch and one 36-inch.
3. Sharp pencil and eraser.
4. A smooth, flat surface for drafting (a good table, or a piece of plywood).

Constructing the pattern block:

1. Construct a rectangle, the length and width of the blouse.

Length of blouse -- 3 inches, plus Back Waist Length, plus Waist-to-Hip Length.

Width of blouse -- ½ Hip measurement plus 1½ inches.

Label the left side of the rectangle Center Back and the right side Center Front, (CB and CF).

2. Three inches from the top left corner, make a dot and label it CBN (Center Back Neck). Draw a line from CBN straight across the paper about 12 inches.
3. From CBN, measure down 1 inch, draw a line straight across the paper about 12 inches. This line is the shoulder level.
4. From CBN, measure down the Back Waist Length, to Back of Waistline (BW). Draw a line straight across the paper, all the way to Front of Waistline (FW).
5. From BW, measure down the Waist-to-Hip Length. This will reach the bottom of the rectangle. Label BH (Back Hipline) and FH (Front Hipline).
6. From BW measure <u>up</u> the Armscye-to-Waist Length, to Back of Bustline (BB). Draw a line straight across the paper, all the way to Front of Bustline (FB).

Drafting of pattern lines:

	Back	Front
Neckline	2¼" across and ½" up from CBN. Curve neckline. Label SN for Shoulder at Neckline.	From FW, measure up the Front Waist Length. Label it CFN (Center Front Neck). Front neckline is 2½" across, 3" up from CFN. Label SN

		(Shoulder at Neck). Curve the Neckline.
Shoulder line	Rule the Shoulder Length, plus 3/8" ease, from SN to where it meets the shoulder level. Label it SP (Shoulder Point).	Rule a horizontal line from 1½" above CFN, straight across the paper, about 12". Rule the Shoulder Length plus 1½" ease to where it meets the shoulder level. Label it SP (Shoulder Point).
Side Seam		
Underarm point	From BB, measure across ½ Back of Bust plus ½" ease. Label U (Underarm)	From FB, measure across ½ Front of Bust plus 1" ease. Label U (Underarm)
Hip	From BH measure across ½ Back Hip plus ½" ease. Label SB (Side Back) Rule from U to SB.	From FH, measure across ½ Front Hip plus 1" ease. Label SF (Side Front). Rule from U to SF.
Waist	Indent the side seam ½" at Waistline. Label SW (Side Waist). Rule from U to SW. Curve SW to SB.	Indent side seam ½" at Waistline. Label SW (Side Waist). Rule from U to SW. Curve SW to SF.
Waistline darts	Remove waistline fullness in a dart from bust to hip. Determine size of dart at Waistline by subtracting ½ Back of Waistline plus ¼"	Remove waistline fullness in a dart from bust to hip. Determine size of dart at waistline by subtracting ½ Front of Waistline plus ¼"

	from BW-SW length. Points of the dart are 3½" from CB on Bustline and Hipline.	ease from FW-SW length. Points of dart are 3½" from CF on Bustline and Hipline. Label the top point of dart BP (Bust Point).
Shoulder dart		Construct shoulder dart from center of shoulder seam to BP, 1½" wide at shoulder seam, tapering to a point at BP.
Armscye	Measure halfway between CBN and BB, rule across ½ Across-Back Width. Label AB (Across Back). Use SP, AB and U as guides for the Armscye curve.	Measure halfway between CFN and FB, rule across ½ Across-Chest Width, omitting dart. Label AC (Across-Chest). Use SP, AC, and U as guides for the Armscye curve.

Cutting out the Pattern:

Cut exactly on the line. Before cutting the shoulderline, fold out the the dart, re-straighten the shoulder line, and cut on the new line. This will true the dart ends to make them fit into the seam on a straight line.

When the pattern is cut out of the cloth, add seam allowances. Allow 1½" on the shoulder, to give space for shoulder line adjustments. The hang of the rest of the blouse depends upon getting this area correct. Allow 1" on side seams, and ½" on curved seams. Cut the Center Front and Center Back on fold.

CHAPTER VII

SUMMARY AND IMPLICATIONS

The difficulties encountered by Yoruba women in clothing construction classes in the fitting of commercial patterns indicated a need for research to determine the cause or causes of improper fit. The commercial patterns available to the Yoruba women in Nigeria were manufactured by major pattern companies in England. The companies produced patterns on the basis of average measurements of American women, as published in Commercial Standard.[56] It seemed probable that the differences between average measurements used in pattern manufacture and average measurements of Yoruba women could be the source of difficulties consistently met by Yoruba women in fitting the patterns.

Similar fitting problems, especially in length dimensions, were noted in the basic blouse patterns produced by drafting method in the Yoruba classes. The drafting instructions followed by the classes had been devised for use in clothing classes in England. The drafts were based on measurements and proportions for English women and did not take Yoruba women's basic body proportions into consideration.

The problem, then, was the identification of differences, if any, between average body measurements of Yoruba women, ages 17 through 26,

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[56] Body Measurements for the Sizing of Women's Patterns and Apparel, U. S. Department of Commerce, Commercial Standard CS215-58 (Washington, D. C., 1958).

who were enrolled in school, and measurements used by major pattern companies in the manufacture of dress patterns.

The literature reviewed led to the first assumption, that skeletal structure measurements of Yoruba (Negroid) women are different from skeletal structure measurements of American and English (Caucasoid) women, for whom commercial patterns were produced, since the women belong to different races.

The third assumption was that differences between average measurements of American women and Yoruba women could be identified if arithmetical averages of both could be obtained. If the averages proved different, the facts ascertained could be used for the purpose of helping Yoruba women in the alteration of commercial patterns and in the drafting of basic patterns for themselves. The women could then improve the quality of design and construction in the clothing they construct for themselves.

The measurement of Yoruba women followed the definitions, methods, and lists of measurements published in Commercial Standard CS215-58.[57] One hundred seventy-nine single Yoruba women, who were enrolled as students in Baptist Women's College, Abeokuta, were measured.

The measurements were recorded in four categories: vertical, girth, arc, and width and length measurements. The recorded measurements were classified, according to height, into three groups, Regular, Tall, and Short, to correspond to divisions in Commercial Standard CS215-58.[58] The measurements for all the women in each height range were averaged,

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[57] Ibid.

[58] Ibid., p. 1.

and the averages compared with the list of measurements nearest them in bust size in the Misses' Size Tables of Commercial Standard CS215-58.[59] Comparison of the averages showed significant differences in measurements great enough to require alteration, based on the criteria for significance accepted by the author. The greatest differences found were in vertical measurements, with corresponding differences occurring in length measurements. Yoruba women were found to be shorter than American women. The only significant difference in girth and arc measurements was in the waist, where Yoruba women were larger than American women. No significant differences were noted in width measurements.

The results obtained were tested in an experiment in the alteration of commercial patterns. Commercial patterns were altered and used for construction of school uniforms for twenty-eight first-year students. The bodice was shortened between bustline and waistline, and enlarged at the waistline. The skirt was shortened between waist and hip, and at the hem, and enlarged at the waistline. The same alterations were done on sizes 10, 12, and 14 patterns. The experiment resulted in successful fitting, with only minor alterations for individual students. The possible need for an additional alteration of the side seam, that is the widening at the front waistline and reducing of the width at the back waistline, was noted for use in future experiments.

Facts ascertained from the analysis of data and the experiment in pattern alteration were incorporated in the instructions for the drafting of a basic hip-length blouse pattern. The instructions and the draft have been prepared for testing in clothing construction classes.

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[59] Ibid., pp. 8, 8, 16.

It is believed that this draft will prove better in fit for Yoruba women than drafts originally made for English women.

The use of the data obtained for individual subjects began immediately upon the recording of the measurements. In pattern-drafting classes, students measured each other, then compared their measurements with the teachers' research records. Any poor measuring methods used or inaccurate measurements made by students were revealed in the comparison of the lists. Students were then helped to correct their methods and measurements.

The use of the final conclusions in alteration of patterns and in pattern-drafting for teaching of clothing construction classes should eliminate several fitting problems. The improved patterns and drafting instructions can give much needed encouragement to students learning to sew for themselves. Since the school where the research was carried out is a teacher-training institution, the knowledge gained by the students may be spread to other schools through clothing construction classes as taught by graduates of the school.

A second implication for further research is suggested by experience in measuring Yoruba women. Average body measurements do not present a complete picture of body contour differences. Two figures may have the same circumference measurements, while one is wide and shallow in form, the other narrow and deep. The two figures would not require the same pattern lines, but the difference is not indicated in the measurements. Profile and silhouette studies could perhaps supply the missing dimensions and give further aid in pattern alteration and drafting methods.

The third implication for continuation of the present research is in the field of pattern production. The patterns available to Yoruba

women not only are based on American measurements, but on American and English styles as well. Patterns produced from Yoruba measurements, in Yoruba styles, might be more useful to Yoruba people who make their own clothing.

Based on the assumption that Yoruba women can benefit from patterns and drafts suited to their specific needs, a fourth implication is that other groups could be helped by similar research. Innumerable groups could be suggested, such as different segments of a population (ages, sexes, occupational groups, geographical areas), and different ethnic groups (tribes, races, or nationalities).

A final implication for further research in body measurements concerns the anthropological and nutritional aspects of body size and development. What are the differences between a generation, and the generations preceding it and following it, and why do the differences occur? Studies in these areas, with their influence upon clothing customs and practices might help answer many questions.

Five implications for use and further research concerning body measurements studies have been discussed. Briefly, the implications mentioned are as follows:

1. Use of information gained, in the teaching of clothing construction.
2. Development of Yoruba styles in commercial patterns.
3. Profile and silhouette studies to add to body measurement studies.
4. Similar studies of other groups.
5. Study of nutritional and anthropological aspects of differences in body measurements.

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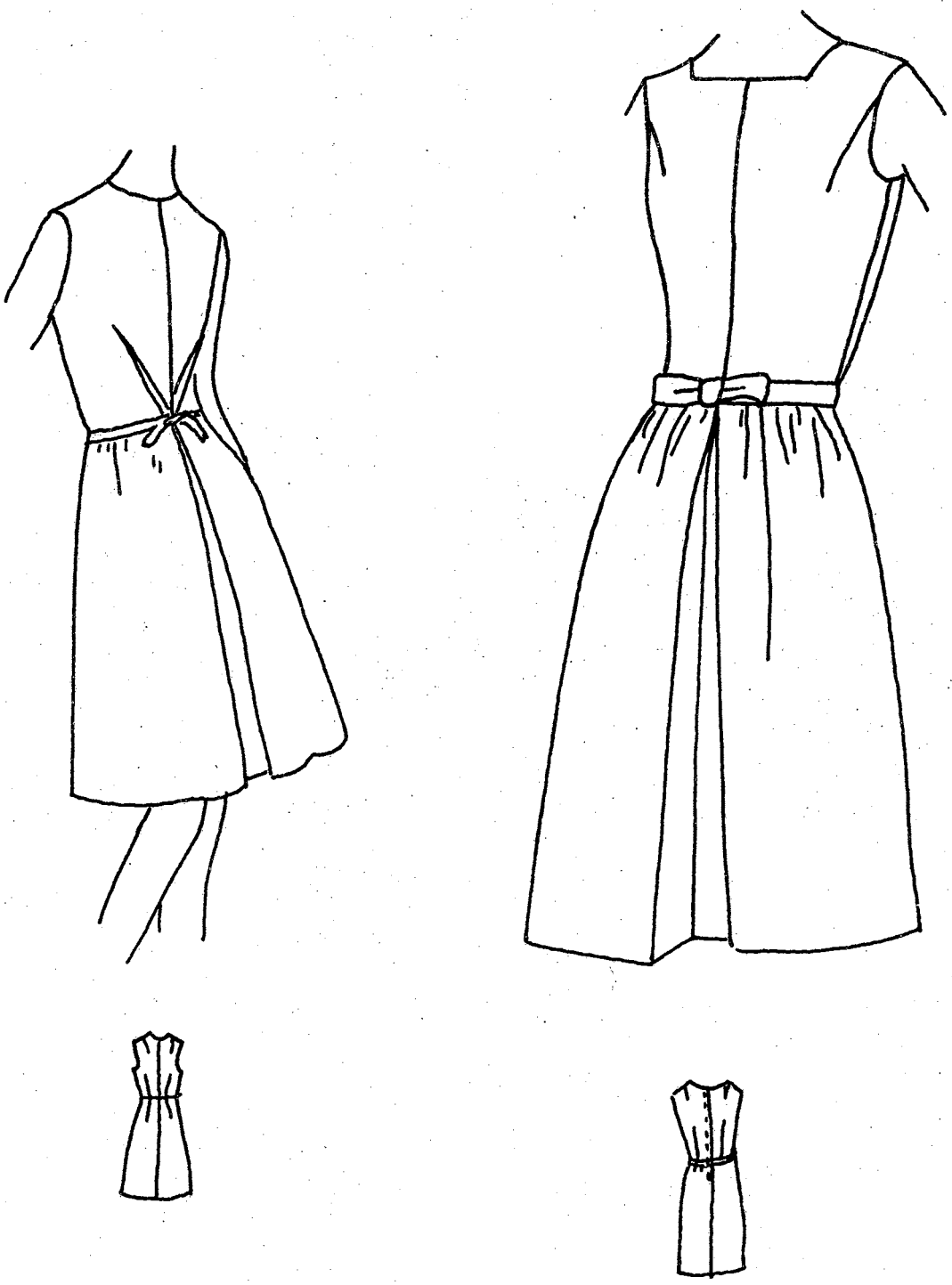
APPENDIX

BODY MEASUREMENTS

Subject Number									
Girth Measurements (inches)									
Bust									
Waist									
Hip									
Neck base									
Armscye									
Abdominal extension									
Sitting spread									
Thigh, maximum									
Thigh, mid									
Knee									
Calf									
Ankle									
Upper arm									
Elbow									
Wrist									
Vertical trunk									
Arc Measurements, (inches)									
Bust, front									
Waist, front									
Abdominal extension, front									
Hip, back									
Vertical Measurements (ins.)									
Stature (total height)									
Cervicale height									
Waist height									
Abdominal extension height									
Hip height									
Sitting spread height									
Crotch height									
Knee height									
Ankle height									
Sitting height									
Width and Length (inches)									
Cross-back width									
Cross-chest width									
Bust point to bust point									
Neck to bust point									
Scye depth									
Armscye to waist									

Width and Length (inches) cont.									
Waist to hips									
Shoulder length									
Shoulder slope (degrees). . . .									
Arm length, shoulder - wrist. .									
Arm length, shoulder - elbow. .									
Underarm length									
Crotch length, total.									
Crotch length, front.									
Cervicale to CF at waist. . . .									
Waist length, front									
Waist length, Back.									
Weight, approximate (pounds)									



Simplicity 6296 (Skirt)

Vogue 6442 (Bodice)

Commercial Patterns Used in Pattern Alteration Experiment

VITA

Bettye Jane Ewen

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Master of Science

Thesis: A STUDY OF PROBLEMS ENCOUNTERED BY YORUBA WOMEN IN USE OF COMMERCIAL DRESS PATTERNS

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