

CLOTHING

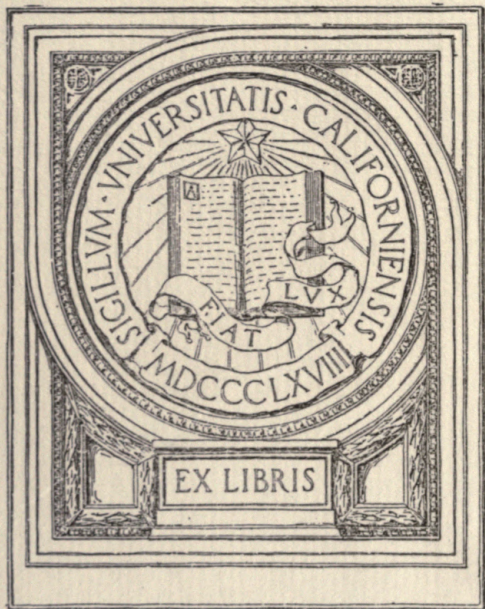
CHOICE-CARE-COST

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LIPPINCOTT'S FAMILY LIFE SERIES

EDITED BY BENJAMIN R. ANDREWS, PH.D., COLUMBIA UNIV.

CLOTHING

CHOICE CARE COST

BY

MARY SCHENCK WOOLMAN, B.S.

AUTHOR OF "A SEWING COURSE," "THE MAKING OF A TRADE SCHOOL," "A CLOTHING INFORMATION BUREAU," AND JOINT-AUTHOR WITH ELLEN BEERS MCGOWAN, B.S., OF "TEXTILES, A HAND BOOK FOR THE CONSUMER."

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ILLUSTRATED

SECOND EDITION, REVISED



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TO THE
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PREFACE

WASTE is one of the main causes of high prices. It has become a habit with large numbers of people, but must be checked or prices may go still higher. This can only be accomplished by each individual consumer and family buyer locking her pocketbook and only opening it when an article is absolutely necessary for health and comfort in living, is a worthy article, and is not too high in price for its intrinsic value. To do this wisely will require the education of many of our citizens in the entire field of expenditure, including the wise selection of textiles and clothing.

As long as there are more buyers than commodities prices will continue high. Therefore earnest effort for thrift in clothing will react to advantage on the family and on the nation. During the war the citizen saved as never before for the gravity of the issue was realized. The appeal for thrift fell on willing ears, and it was a surprise to find the giant in anticipation dwindled to a dwarf in realization and the household, though limited in its outlay, continued to thrive.

A riot of extravagance in buying followed the war. The ease with which money had been made in America has made extravagance, or at least thoughtless buying, a national habit. It is the great opportunity now of every citizen to study the best way to economize and also to spend. The clothing bill of twenty-three million families is said to be in the neighborhood of five billions a year. Every individual and family should endeavor to lessen this as a national service. It will not only create a personal margin to meet the high cost of living in the family, but save material and labor for the entire nation. Giving up luxuries and lavish clothing and purchasing reliable and substantial garments are desirable. It is not so much to stop spending as to buy with wisdom with the needs of the present era in view that is needed.

This book faces the every-day living conditions of the people and treats clothing in its selection, use, care, and cost. It is the result of many years of personal experience in technical and popular

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instruction in textiles and clothing to college students at Teachers College, Columbia University, and at Simmons College, Boston; to Women's Clubs; to young wage earners at the Manhattan Trade School for Girls, New York City; to buyers and managers in the retail trade, and recently, during the war, as a textile specialist in the service of the government among home keepers and extension leaders.

Help in obtaining information on the conditions of the time and for the best procedure on the part of the consumer was sought from federal, state, municipal, and household sources; editors of trade magazines, manufacturers, and the retail trade also willingly gave their suggestions—to all of whom the author wishes to express her gratitude. It now goes out with the hope that it may help solve some of the home problems of the present and have some part in creating a more sagacious consumer—one who is wise in the business-like organization of the family budget, who appreciates her influence on the output of the great textile and clothing industries which she sways and who has patriotism to forward the Thrift Movement in every way in her power. The hope is to reach many groups of people—buyers and sales people in the retail trade, and the advertisers of clothing, that they may assist the consumer by appreciating the value of staple goods, by knowing the intrinsic worth of the stock under their charge, and by being absolutely honest in their statements; the extension service of the United States Agricultural Department with its clothing workers who are meeting hundreds of thousands of women and girls in rural clubs; the staff of teachers of Home Economics in universities, colleges, normal, technical, vocational, home-making, secondary, elementary, continuation and evening schools that they may more than ever emphasize the wise selection of clothing and textiles; the vast body of children and young women in the schools, who are the future consumers of the nation, that they may individually do their part for National Thrift, and the two million club women who for some years have been at work to better conditions in textiles and clothing.

If the reader wishes more information on methods of manufacture it may be of service to consult "Textiles," Woolman and McGowan.

THE AUTHOR.

ACKNOWLEDGMENTS

WITH the warmest appreciation the author acknowledges her debt to the unfailing kindness of Mr. James Chittick, Consulting Textile Specialist, who gave his help in the chapter on "Silk Clothing," and contributed the section in that chapter on "How to Tell Textile Materials"; to Mr. Samuel Dale, editor of "Textiles"; to Mr. George F. Smith, President of the Smith-Dove Manufacturing Co.; to Mr. A. B. Clough, of Lawrence & Co.; and to Lieutenant Colonel D'Olier, who organized the American Army Salvage Plants in France, all of whom read parts of the manuscript and made suggestions in line with the latest conditions in the textile trade; to Dr. Evangeline Young, who reviewed the chapter on "Clothing and Health"; to Miss L. R. Balderston and Mrs. Evelyn S. Tobey, of Teachers College, who have read sections of the book and given their suggestions; to Mrs. N. B. Judy, who prepared the charts on clothing renovation which were the result of her personal work at the University of Washington at Seattle; to Miss Helen Louise Johnson, who in her busy editorial life wrote the description of the Biennial Dress which she has standardized; to Miss Grace Wilson Ripley, who drew the designs for the simple yet attractive gowns that anyone can make; and to Mr. Wilbur N. Nugent, Circulation Manager of *Women's Wear* and the *Daily News Record*, who has shown constant coöperation; to Dr. Benjamin R. Andrews, who has given constructive suggestions and helpful criticism on the entire book, and finally to Mrs. Ellen Beers McGowan, instructor in Household Chemistry and Textile Chemistry in Teachers College, Columbia University, to whom special thanks are due for skilled and sympathetic aid upon the whole manuscript, thus renewing a literary association of years standing in the field of textiles.

THE NEW CONSUMER

Is aware of the fact that to buy clothing wisely requires the development of her *intelligence* on new lines, a more perfect understanding of methods of *thrift*, and a thorough application of the laws of *health*.

Lives on a budget and makes a plan, after due consideration of her income, before buying the season's clothing.

Knows the names of staple materials and can identify them.

Has trained her hand to feel and her eye to see differences between fibers and between poor and good cloths.

Knows the properties and values of the four leading textiles.

Knows the prices of staple goods in relation to their reliability.

Has a sufficient knowledge of the growth, manufacture, dyeing and finishing of textiles to aid her in judgment.

Has methods of testing the value of fabrics which she uses to determine their worth before investing in them.

Demands good material, good design, and good workmanship in ready-to-wear garments and clothing accessories.

Makes an effort to find where reliable materials are made and asks for goods from those factories.

Requires honest information from the sales force and from advertisements, and frequents those stores which have proved themselves reliable. If she has been misinformed she returns the goods, demanding reimbursement.

Realizes her responsibility as a consumer for the costs of special services in the department stores and endeavors to improve conditions and to meet the requests of the stores.

Is anxious to have standard materials on the market which she can identify, and is willing to pay a good price for them.

Believes rapid changes of fashion with the attendant showiness and weakness of fabrics to be a disadvantage to producer and consumer alike.

Is working for the standardization of the every-day business dress which means not uniformity, but economy, modesty, personality, and beauty.

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CLOTHING

CHAPTER I

CLOTHING AND PROBLEMS OF THE DAY

Clothing Industries.—The average person seldom takes time to consider that the supplying of the clothing he wears is made possible by a series of interrelated industries of huge proportions employing people of all nations. The majority of the 1,702,520,366 inhabitants of the world need clothing, and among them are the 105,110,620 citizens of the United States of which he is one. Political and commercial problems of the time are involved in these world-wide industries and frequently the demand of the consumer is a factor in preventing adequate solution.

It is reported that 96 per cent. of the dry goods of this country are bought by women. It can be appreciated that their wishes must largely sway the market. As buyers, therefore, it is economically essential that they should understand conditions in these occupations and buy with wisdom, not only for the sake of themselves and their families, but for the sake of the well-being of the nation.

The enormous extent and huge investments of capital in the textile and clothing industries make them influential in world affairs. The great increase in the value of the finished product (cloth or clothing) over the raw product (wool, cotton, silk or flax) puts them in the forefront of importance. In 1914 the textile and clothing industries of the United States were reported to have the following value:—

CLOTHING

*Textiles **

Value of Products		Value Added by Manufacture	
Cotton	\$701,300,933	Cotton	\$257,778,418
Wool	464,249,813	Wool	166,186,315
Hosiery and Knit Goods	258,912,903	Hosiery and Knit Goods	112,225,445
Silk	254,011,257	Silk	109,568,936
Cordage and Twine and Jute and Linen Goods	83,235,068	Cordage and Twine and Jute and Linen Goods	22,760,651
Total value of products	\$1,761,709,974	Total value added	\$668,519,765

Capital Invested

Cotton	\$899,764,682
Wool	497,699,293
Hosiery and Knit Goods	215,826,340
Silk	210,071,679
Cordage and Twine and Jute and Linen Goods	98,561,044
Total capital invested	\$1,921,923,038

*Ready-to-Wear Clothing * †*

Value of Products

Men's clothing	\$458,211,000
Women's clothing	462,005,000
Total	\$920,216,000

Capital Invested

Men's clothing	\$225,051,000
Women's clothing	153,549,000
Total	†\$378,600,000

Total value of products in the
United States in textile and clothing

Textiles	\$1,761,709,974
Ready to wear	920,216,000
Total	\$2,681,925,974

* Census of Manufactures, 1914.

† Fairchild's National Directory, 1920.

NOTE: It must be remembered that the United States imports large quantities of textiles and also some ready-to-wear clothing.

The problems involved in successfully conducting these industries are many of them intimately connected with the expressed wishes of the consumer. If he would be worthy as a citizen he should give careful consideration to matters related to his influence on the market. To understand and give aid requires that he develop knowledge on many related subjects, that he take into account the problems of sanitation and health in connection with clothing manufacture and its personal care, and study methods of thrift and also practice them as a result of the knowledge he has gained. The chart "Textile and Clothing Interests," gives some of the every day matters which need consideration and thought. "Clothing, Choice, Care, Cost" has been written with the object of presenting phases of these economic questions. It is the same aspects of the Clothing Problem which are the concern of the political and commercial world.

The Importance of Dress.—An undue and wrongful amount of time is often given to dress. Extravagance and vulgarity are shown in connection with it for which there is no excuse. On the other hand, individuals are to be found who consider that spending even a small amount of time in making themselves attractive is sinful and who consequently wear homely, inappropriate and often repulsive garments. These extremes show a wrong psychology, for attractive, simple, suitable clothing is a part of dignified personality. Self-respect requires adequate attention to appropriate dress for our station and our income.

The World Judges us from our Appearance.—Now that we are clothed animals our covering is an important item in the impression we make upon those we meet. Neatness, beauty and dignity in dress win respect and admiration, whereas slovenly attire is a factor in lack of success—suit, neckwear, hat, shoes and gloves all combining in the effect. To be overdressed is, in reality, to be poorly dressed no matter how beautiful the fabric or charming the design of the garment. Those who apply for positions and are illy clad or are overdressed, are judged as lacking in common sense. Their appearance is against them, for the way we dress is, to a large extent, an evidence of our mental and moral equipment. It is the personality thrust forward into the attention of the world and, in general, it receives its rightful diagnosis. It is important

to give sufficient thought to it to appear before the public with the effect we would like to make. In New York, many years ago the street cleaners were a despised class dressed as they were in their personal clothing which was often ragged and dirty. The Street Commissioner, General Waring, inaugurated the wearing of washable white cotton duck and changed the attitude of the entire city toward these public servants. Not only was the influence of the neat uniform felt by the citizens but the cleaners gained in self-respect for themselves and for their task.

Dress Largely Influences our Actions.—Those, who on account of poverty, are poorly dressed will usually avoid churches, public assemblies, and the brilliantly lighted, frequented streets, for they fear appearing out of place and being ridiculed. Often the attitude of trying to escape notice becomes a habit and results in lessened efficiency. Well-dressed people have the personal efficiency that comes from knowing that if their clothing happens to attract attention, the judgment called forth will be favorable.

The homemaker who continually wears perishable gowns when doing her housework, is apt to develop a dislike for such tasks and often neglects them. Garments which can be easily soiled make the wearer shrink from the touch of dirty little fingers, even of a well-loved child, and this discourages the natural show of affection. A short, amply wide skirt, or bloomers if desired, a loose tunic and comfortable low heeled shoes will make housework a matter of ease or even of joy. A wise young mother has special clothing made for her work—short, comfortable, attractive, easily laundered and cheerful in color. These she wears during the hours when the housework is to be done and the children are to be cared for. The babies crawl all over her without fear of hurting her gown and they love the bright color.

The Way we Clothe Ourselves has its Effect on Mind and Soul.—While dress is proclaiming to the world the sort of men and women we are, it has its influence upon our attitudes and thoughts and influences us for good or bad. When an undue amount of money is spent on clothing or an over amount of time taken to adorn, alter or purchase it, more worth-while occupations have to be neglected. There is not time for both and the choice of the former has its narrowing effect. The world usually is quick to grasp the self-

centered, trivial intellect of the one who spends all of her time on her clothing and the wearer develops more and more a selfish attention to her own personal adornment. Able young women are thus lost from the world's work.

Obtrusive dress may be an end in itself when those who are so attired wish to attract attention. When people turn and stare at our clothing we may be sure we are overdressed or something is amiss, for dress should be merely an attractive background to personality. Clothing has been worn for many purposes—ornament, protection, snobbery, allurements, and impressive dignity, but always it has its psychological influence on those who see it (though not always the effect the wearer desires) and also its effect on the one who wears it. Dress may have a refined, artistic, lovely effect or it may be a harsh, discordant note, it may breathe a subtle vulgarity or it may be simply weak and foolish. Each kind of dress indicates the personality of the one who so expresses herself.

Clothing Reflects the Spirit of the Age, and the common thought of a nation is indicated in the style of its garments. The peasant dress of Europe and the great historic eras of fashionable dress are history in the concrete. The love of beauty and simplicity appears in the Greek gown, Gothic garments resemble the architecture of the time with its high points and pinnacles, the clothing of the Renaissance is full of ornament in fine detail and design, the dress of the Friends (Quakers), in its quiet grays and simple lines, tells of the tenets of their faith, and Sisters of Charity in their religious garb still reflect the spirit that gave the movement birth. Eccentricity, freedom, unrefinement, restraint, dignity and beauty appear at intervals in the fashions as the people are controlled by these sentiments.

Our great-grandmothers of the well-to-do class wore heavy, long, full skirts, tight corsets, close-fitting waists, lace berthas and caps, hoop skirts, many petticoats, thin silk stockings and light-weight slippers. They had ample servants to rely upon and were expected to be frail in health and to direct the work rather than do it themselves. The demand upon them was different from the present and their delicate appearance and manner were considered marks of breeding. They would not have had sufficient energy for the requirements of this age and their dress would still further hamper

them. Economic conditions now require the majority of women to work, for servants are as scarce as hoop skirts. The dress of the past had to be discarded for something more useful, thus fashion echoed the voice of the age.

Efficiency Requires that we have Comfort in Our Clothing.

Dress can ruin health and spirits and cause failure in the given task. When garments are too tight the free movement of the body is impeded, the heart's action is affected, the mind cannot act as well and health is threatened. Not only is skill dependent upon bodily comfort but the adequate and graceful use of the body requires that it have easy action. The wasp waists of the past have disappeared for the demand on women in modern industry and the increase in out-of-door games could not be met in such a hampering garment. Tight clothing will keep people from adequate exercise and even from eating enough. Women now can walk, hike, play golf and tennis, and ride horseback, thus developing their bodies more than in past generations. The result is that the height of women has increased, their physical and mental alertness is greater, the nerves are stronger, and their natures are more poised.

The clothing of the present is undoubtedly much more efficient than was that of the past, but there are still bad points to be eliminated. The dress of the day is accused of being immodest but it is not so of necessity. It may be made so by those who wish it as can be done in every era of dress. There never was a time when clothing for active women was nearer the ideal. The short skirt is comfortable, hygienic and sensible. It does not gather dirt which, carried into the home, endangered health. It is not heavy with numerous pleatings, linings and trimmings, hence is less fatiguing than it once was. It need not be so scant that walking is difficult or the figure is outlined. Garments are not tight, underwear is not cumbersome, but is suited to warm interiors, and outside garments can be put on for out-of-doors, the muscles are given room to develop and the lungs to obtain air. Personality in dress is more encouraged than ever before.

Dress has its Influence in Portraying Emotion.—Artists in drama, motion picture and portraiture know the importance of dress in gaining effects. They study its psychology and that of color in order to help the beholder to easily obtain the impression

they desire to give. The emotions they wish to arouse may be intensified by the garments worn—the nurse dressed in fresh tailored dress with white apron and cap, the Madonna in flowing soft blue, the unsuccessful woman in dingy colors and threadbare gown, the maiden, full of joy and life, in soft light garments and streaming scarf, the ceremonial occasion with its rich brocades, and heavy silks. Ponderous stuffs such as velvets, stiff satins and brocades, sweeping cloaks, furs and rich laces give dignity. Flowing, sheer draperies communicate the feeling of life, joy, youth and freedom. A well groomed man or woman in clothes of subdued, rich hue and refined lines announce in their appearance the wealth and culture natural to them.

Color has its influence also and grief is portrayed in black, truth and womanliness in blue, joy and cheerfulness in yellow, innocence in white and royalty in rich purple. Vulgarity is represented in loud colors or strong contrasts, and refinement in harmonious, broken, soft, pure tones. Monotony is relieved by a dash of a contrasting color complementary to the prevailing tone, such touches being like a clear, musical note.

The artist must study each model individually in relation to dress and its color if he would obtain the highest success. The complexion, eyes, hair and personality must be considered in order to bring out the charm desired or the repellent note. Some colors give a feeling of warmth, a hot day may become unbearable by the use of tones in their intensity or by emphasizing red, orange or yellow. White, broken blues, quiet greens and soft violets have a cooling influence. Bright colors will increase the apparent size of the wearer. An artist would never dress a stout woman in such colors unless he wished to give a displeasing effect. Subdued tones are refined and soft, graceful fabrics make colors softer, for gray appears in the folds. Color also has its influence on the wearer, exciting, depressing, refining or coarsening as the case may be.

Some Callings Require Special Dress.—In the Middle Ages artisans wore their characteristic dress. This practice fell into disuse as ideas of democracy developed for it was felt to lead to class distinction. The present demand for it is on account of efficiency. The army, navy and other branches of the service wear their practical uniforms, municipal servants (policemen, firemen, letter

carriers) have their distinctive garb fitted to the needs, nurses in the hospitals and deaconesses in the churches have their distinguishing dress. Business women of the better class, wear tailored suits (so simple as to be almost a uniform) realizing that strong, sensible garments aid in personal concentration and readiness for action and have their good influence on the atmosphere of the office. Special garments are worn for sport. In the far West, where the mountains are very high and rugged, the women wear trousers for climbing, for skirts are dangerous, and in the East similar garments are being adopted. Home makers, especially in the rural districts, feel that a gown fitted to the heavy housework and cooking and for work in the garden is an essential. Women are freer than they once were to wear the dress suited to the activities, for many varieties of attractive uniforms were worn by them for war service and the public became used to seeing them so attired.

A style of dress, long considered the correct thing for middle-aged women, fortunately has passed. No longer is it considered necessary for women over forty to put on a cap and a somber gown and act as if youth and cheer were over, as was the custom a few generations ago. While too juvenile clothing is not dignified for the matron, she can now revel in beautiful fabrics and colors and wear sport clothing as long as she has the energy and inclination to do so. Clothing can make for happiness and it is well to be so clad that the joy of living is secured for thus health is retained. A happy being can do more in a day than a sad one and clothing can have its share in causing cheerfulness or gloom.

To be Well-dressed is a Genuine Satisfaction.—The soldier enjoys his well fitting uniform:

“When I first put this uniform on,
I said as I looked in the glass,
It's one to a million if any civilian,
My figure or form can surpass.”

The society woman revels in her harmonious gown, the débutante, in her party frock, while the vigorous man appreciates his golf suit. Those who cease to care how they look are descending in the scale of life and are losing self-respect. It is a delight to meet an older person, man or woman, who, while wasting no time on unnecessarily frivolous garments, does care to look the best possible.

“Thank God for clothes!
Not that they shield us from the winter rude,
Not that they foster social rectitude,
And cloak deficiencies—for none of these;
But for the warm uplift that furbelows
Can kindle in this sorry human clay—
The glory and the strut of fine array;
Thank God for clothes!”

Julia Wilbor Tompkins.

Elimination of Waste.—The standard of living in the United States is higher than in other nations but much money is spent unnecessarily, consequently the savings of the people are small. The per capita savings in this country before the war were less than in other nations. Switzerland saved per annum about \$85 for each individual; New Zealand put aside \$98, but this country saved but \$50. The citizen of the United States receives higher wages than are paid elsewhere, but the inclination to thoughtless spending has been universal. The National Treasury Department has been making an earnest effort to increase thrift and has met with some success, for the investment of small amounts in Government Securities is larger than in past years. Wastes still occur, however, as a result of methods and practices long prevalent in the homes and in industry. It is largely in eliminating wastes that the citizen can do his share in improving the family assets and in advancing national wealth and strength. No longer should any one say “My parents ran things this way and it is good enough for me.” The world economic conditions have changed and to be successful as a people it is necessary to meet the new era with methods adapted to it.

In January 1921, Herbert Hoover, at that time President of the Federated American Engineering Societies, appointed a committee to survey wastes in six representative industries. Among the specific occupations selected three were connected with clothing, ready-made clothing, boots and shoes, and textiles. Unproductive or wasteful methods have been reported in the first industry. The consumer is equally responsible with the manufacturer for some kinds of clothing waste, as, for instance, in the many styles offered at any one time, and the demand for rapid changes of fashion. A variety of garments between which to choose is demanded by the

shopper and the manufacturer offers many models to stimulate purchase and for fear a competitor will outdo him. Only a few of the designs are truly popular and the remainder are usually sold at a losing reduction. Statistics given in the September, 1921 number of the *Annals of the Academy of Political and Social Science* state that "one concern offered its customers in the heavy-weight season of 1920, thirty-one models of overcoats, twenty-one models of sack suits, each in three styles of lining construction, three combinations of lining materials, and nearly 1,100 varieties of cloth. Thus each customer has a free choice among 278,000 possible combinations." So large a series of opportunities are not, in general, offered but the trend is in this direction.

Seasonal employment in the ready-made industry is declared to be heavy waste. The consumer is much to blame for this condition in demanding frequent changes of fashion for, as a result, the workers are rushed, at intervals, to supply the markets and are idle between times. Industrial ill-will is thus fostered. A leading trade organ* states "The policy of seasonal shutdowns and the 'sell-then-make' policy that is necessary for clothing manufacturers to pursue are a direct result of the consumers' demand." Many purchasers will cry out against wastes as they read about them in the daily papers but few realize their own responsibility or, if they do, are too indifferent to endeavor to organize a reform among the consumers.

Constructive tendencies in clothing industries that eliminated waste in production and in selling would undoubtedly result in some lowering of prices and thus the shopper would be benefited but, on his side, there is an even more serious waste in the conduct of the purchasing for household. Extravagance in time and money are to be found in the choice, purchase, making, care and renovation of the family clothing. An "appraisal of wastes" is needed in the homes as well as in industry. Unnecessary buying, demand upon non-essentials, the wrong use of materials, the throwing aside of good garments before they are half worn out, taking too much time or paying another for doing worthless things are some of the textile wastes of the household. The Home Economics Division of the General Federation of Women's Clubs and the Textile Section of the American Home Economics Association are

* *Daily News Record*, October 1, 1921.

considering the efficient way to conduct those occupations of the home dealing with the clothing problem, and to eliminate waste in purchase. The consumer should do all possible to encourage and follow such suggestions as may be offered.

Costs of Clothing.—Complaints of the undue cost of textiles and clothing are frequent but if the consumer would take time to study the commercial and industrial undertakings required to deliver a ready-to-wear suit to the purchaser the wonder would be that so little is charged. The preparation of the raw materials, the storage in costly warehouses, the long distances to travel to the factories, the elaborate manufacturing processes, the various finishes and the dyeing, the many middlemen (when big business is concerned neither grower nor manufacturer has time or strength to market his own goods), the ready-to-wear makers (cutters up), and finally the retailer all add to the costs. The price of the cloth or garment includes all the costs of all of the steps taken to get it to the consumer. In the better grade of ready-to-wear the labor costs are often more than half. In all the textile trades the labor costs are a huge factor. The President of the National Association of Wool Manufacturers states* that 85 per cent. of the costs of finished cloth consists of wages of labor direct and indirect. The demand for many models and many varieties of fabric increase the expense. It is rarely that all sell to equal advantage and the cost has to be met by the next lot sent out. Rapid changes of fashion figure in the final costs.

What Can the Citizen Do?—The proper "choice" of clothing, and the proper "care" of clothing will go far to solve the problem of the "cost."

Keep accounts and use a clothing budget.

Study values in textiles and know their costs and learn how to test the quality of cloth.

Study the construction of clothing to know how many yards it will take to make a gown before shopping for the cloth.

Use to advantage the clothing and textiles already in the home before buying new. Garments often lie forgotten for years in trunks, drawers and closets.

* Mr. John P. Wood in *Bulletin of the National Association of Wool Manufacturers*, July, 1921.

Shop only after considering the needs of the year ahead in relation to the money there is to spend.

Have clothing so made or so choose ready-to-wear garments that the style, being simple and conservative, will not go out of fashion and making over later will be an easy task.

Care for all clothing so that garments may wear long and well.

Keep the number of articles in the wardrobe at the minimum for economy and comfort.

Such renovation as will continue the life of a good garment or make a useful article for another should be a part of the economy of every household. Clothing should be looked over at intervals to see what can be put to use or given to another, but the stock should be kept low.

Shop considerately, realizing the responsibilities of the store and the trials of the sales force. Bills should be paid promptly.

American design in textiles and clothing must be encouraged.

Patriotism in the consumer requires that he take interest in American-made products.

American dyes are increasingly successful. The consumer should recognize this.

• QUESTIONS

1. What are the textile and clothing conditions of the present in the United States that are influencing the price of goods?
2. For what wastes in the textile and clothing industries is the consumer to blame?
3. What factors make attention to dress important?
4. What world wide interests are influenced by clothing?
5. What can the citizen do with regard to dress to improve industrial conditions? Artistic conditions? Costs?

TOPICS FOR FURTHER STUDY

1. Review the agricultural, industrial and commercial undertakings connected with textiles and clothing.
2. Look up the latest statistics on the costs in the textile and clothing industries.
3. Consider the plans already operative for increasing thrift in clothing purchase and state the best way to make them successful in your community.

CHAPTER II

WOOLEN AND WORSTED CLOTHING

The Wool Situation.—"Woolen" cloths and "worsted" cloths, the two chief types of cloth made of wool, are preëminent in value for serviceable garments. The world's stock of shorn wool is entirely inadequate, however, to the demand, and were it not for the development of economic methods of extending the supply the scarcity of this textile would make the price prohibitive for the 1,702,520,366, of which 1,169,000,000 live in climates where wool garments are needed.¹ The world's wool production in 1920 was estimated at 2,965,410,682² pounds in the grease. When this wool is washed it loses weight, consequently three-fourths of a pound is all that would be available for each individual if it were divided equally. This would allow but one new woolen garment a year and a very small garment at that. The reworking of mill wastes and of woven cloth and combining them with shorn wool has made possible the general wearing of wool.

The total number of sheep in various countries reported in 1920 was 566,235,117, a decrease of 13,687,816 over 1919. In addition to the war situation, there are economic reasons for the decrease in that large stretches of land in Australia, South America, and the United States once available for pasturage, are being used for farm lands and large flocks of sheep are less frequent than in the past. The wool supply of the United States is never sufficient for its needs. As the country increased in population and wealth the demand for wool clothing grew larger. In recent years before the war the import of raw wool or cloth exceeded the domestic production somewhat as follows: Of all the wool cloth consumed, "five-eighths was imported from other countries in wool or in cloth made from wool."³ Large importations of raw wool have come from Australia, South America, South Africa, and New Zealand, and

¹ An Explanation and Defense of Shoddy, Samuel S. Dale, Boston, Mass.

² Annual Wool Review, Jan., 1921. National Association of Wool Manufacturers.

³ Samuel S. Dale, Boston, Mass., Editor of "Textiles."

small quantities from other countries. Before the war the United States used normally about 600,000,000 pounds of raw wool (in grease) and it produced in 1920, of sheared wool, 259,307,000 pounds (in grease) and pulled wool, 42,900,000 pounds, a total of 302,207,000 pounds. During 1918 on account of the war the United States used 750,000,000 pounds of wool (in grease) or two and a half times the amount produced.

On account of the scarcity of ships it was difficult to obtain abroad the extra amount of wool. There was naturally an increase of price for raw wool in the wool-growing states, which is shown in the following statement, that even before we entered the war wool prices advanced from a rate per scoured pound of 65 to 67 cents in 1915 to 85 to 86 cents in 1916, and \$1.50 to \$1.55 in 1917 in the primary markets in American wool-growing states, Montana, Wyoming, New Mexico, and Ohio.⁴

Since the war began wages have further increased, and hours of work have become shorter, which add to the price of cloth per yard.⁵ It seems likely that pre-war prices for cloth will not be touched again for some time after the country is on a peace basis.

Raise More Sheep!—The need for a larger supply of shorn wool annually has brought forward a campaign for increased flocks. England has two sheep for every five acres, but the small farmers in the United States have largely given up sheep growing, consequently, east of the far western ranches, there is only one sheep for 31.8 acres. If the farmers would raise more sheep there would be ample wool for the requirements of the country.

There is need of both mutton and wool, and almost every farmer could afford to keep a few sheep, even though feed is scarce and labor high. The U. S. Department of Agriculture is endeavoring

⁴Annual Wool Review, 1917, National Association of Wool Manufacturers.

⁵Some changes in the wholesale prices from 1914 to 1919 for some varieties of worsteds are as follows:

	Fall 1914	Fall 1915	Fall 1916	Fall 1917	Fall 1918	Fall 1919
Washington Standard						
Clays	\$1.37½	\$1.55½	\$1.82½	\$2.37½	\$4.15	\$3.50
Unfinished Worsteds ...	1.60	1.72½	2.17½	2.75½	4.97½	3.72½
Serges	1.25	1.42½	1.77½	2.25	3.70	3.15

to interest the farmers in this matter. The raising of sheep is possible on most farms, and is proving to be an advantage to the land. Some states are doing much to increase their flocks. Laws are being enacted to protect the sheep from the ravages of dogs and predatory animals; breeding centers are being established to stimulate wool growing, and better methods of marketing are being considered. In the rural districts sheep clubs for both boys and girls have started and promise assistance. The President of the United States had a flock of sheep on the White House lawn, and in 1918 had 90 pounds of wool which was sold for the Red Cross. The campaign brought results for there was a gain for a couple of years in the number of sheep in the country (48,866,000,) but the estimates for 1920 and 1921 show decided decreases of more than three million sheep (45,067,000).⁶

Wool and the Sheep.—There are many varieties of wool and hair-bearing animals which offer different grades of stock, from the short, soft, crimped, dull, serrated wool from $\frac{1}{2}$ to $2\frac{1}{2}$ inches in length, to the long, silky fleece of the Angora goat, which is about 10 inches or more in length. England has been justly noted for worsted suitings made from the wool of long-haired sheep, such as the Lincoln, Leicester, and Romney Marsh (Fig. 1). Other varieties of moderately long-haired sheep are also used in the English industry, being noted for their flesh as well as for their wool. France offers cloth of the finest combed wool made from fleeces of the Rambouillet sheep—a variety of the Merino (Fig. 2). The wool of the latter is adapted to the making of cloth of the finest quality, such as billiard and broadcloths. The cross-bred sheep, secured by crossing the short-haired Merino with a long-haired breed, has a soft, strong fiber longer than the Merino and very desirable for army service and for enduring civilian cloth. The number of the cross-bred sheep in the United States is increasing, as the flesh can be used for mutton and the wool for cloth. The United States has also flocks of Angora sheep. The wool of cross-bred sheep of one-quarter to three-eighths Merino blood—that is, of one-quarter Merino blood and three-quarters of the long-staple breed, up to three-eighths Merino and five-eighths long-haired—is used for military purposes. The one-half blood wool has been considered too fine for uniforms, but is used for the olive drab shirt-

⁶ Annual Wool Review, 1921. National Asso. of Wool Manufacturers.



FIG. 1.—Lincoln shearing ewes in full fleece.



FIG. 2.—Merino ram with heavy folds on the neck.

ings. Extreme demand upon wool supplies must follow the war, for large amounts have been destroyed, there has been need to cloth the millions of returning soldiers in civilian dress, and civilians themselves must make large replacements for clothing giving longer service than usual as a part of war economy.

Wool By-Products.—The use of wool by-products to increase the supply of shorn wool has been growing in importance for more than half a century. The business in these wastes has become a great industry, and the output is an important factor in lengthening the wool supply and providing good but less expensive cloth. They consist of soft wastes which come from wool in the various preparatory processes, and hard wastes from defective woollen and worsted yarn, clips from the making of new garments and old rags collected by junkmen (Fig. 3). When cotton has been combined with wool in yarn, it is carbonized out, and the recovered wool is known as "extract." The ragman collects the old pieces or garments and sells them to the junkman, who deals directly with the mills. If it were not for the use of these reclaimed wools or shoddies, there would be a shortage of warm, enduring, moderate-priced cloth needed by the majority of the people living in the northern part of the United States. There has been an unjustified prejudice against use of these regenerated fibers, arising from lack of knowledge of their true value—that the product is all wool, possibly of a choice variety, and that its use is entirely sanitary. They originally come from the sheep, and as is the case with shorn wool, may be either of the highest value or poor and weak, according to the kind of sheep, its life history before it was shorn, or the length and sort of wear to which the cloth has been subjected. In many instances, a cloth made entirely of reworked wool may give better service than one made of weak virgin wool. The processes through which the material goes to reduce it to fiber again sterilize it as thoroughly, if not more so, than is the case with the shorn wool which is scoured only. The terms "reclaimed," "regenerated," "reworked," and "shoddy" are all used to indicate the reduction of manufactured wool into a fibrous state again. The preference is for the other terms in place of the word "shoddy." The product is used almost exclusively in what is called the carded wool industry, for the short reclaimed fibers com-

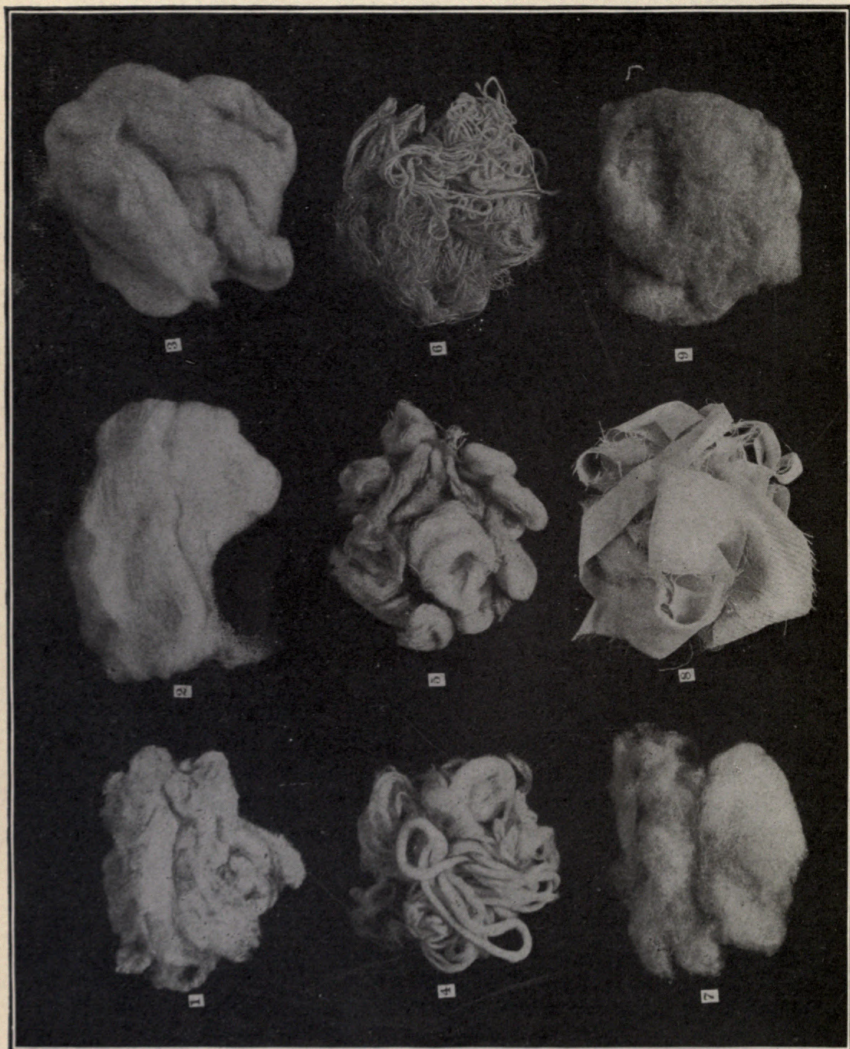


FIG. 3.—Wool in various forms: 1, scoured wool; 2, top waste; 3, slubbing waste; 4, worsted roving waste; 5, ring waste; 6, worsted thread waste; 7, garnetted worsted waste; 8, new white serge clippings; 9, shoddy made from old white sweaters. (Courtesy, Philadelphia Textile School.)

bine well with short wools. Shoddy or reclaimed wool is seldom used by itself, but is combined with shorn wool and also with cotton. Factories usually consume their own soft wastes by running them back again into the various machines with the new wool. Cloths both old and new are reduced to a fibrous condition by the shoddy picker, and waste yarns are passed through the garnet machine which is similar to the picker. The resulting fiber is usually very short, but by moving these machines slowly the fiber has greater length.

It is important that all woolen or worsted rags shall find their way to the shoddy mills. During the war clips from the military olive drab cloth were reduced to fiber and combined with shorn wool in yarn which was used in uniforms. The government allowed 35 per cent. to 50 per cent. of reworked wool in cloth for the soldier. Merchant tailor clips and clips from women's clothing are regularly employed in cloth making. Old rags, if they are in good condition, are also used in cloth, but the poorest, after they have been ground up, are utilized in felt paper or for other purposes.

The process of dealing with old clothes by the junkman is about as follows: If a fairly good old cheviot coat is brought in, it would be first stripped of its lining and all of the threads used in sewing it together would be removed—it would then be in a well torn-up condition. Second, the pieces would be laid on a pile of similar color, condition, and grade, and third, the collection would be sold to the mills. These rags are carbonized to remove all cotton or vegetable matter, either by a destructive gas or by soaking them in sulphuric acid and drying at a high temperature. This converts the vegetable matter into carbon, which is removed by subsequent processes. The rags are now ready for the shoddy picker. The picker consists of two rollers between which the rags are held as they pass to a cylinder covered with coarse teeth or spikes which ravel out the yarn of the cloth, thus reducing it to fiber again. The strength of the wool is a little reduced by the process and it does not take dye as well. A good reworked wool combined with shorn wool makes an excellent yarn, and no one should feel that it is a sacrifice to be asked to wear woolen clothing made of good varieties of wool by-products. The fact is often overlooked that the preparation of the yarn and the manner of weaving it into cloth

and finishing it are as important in the final strength as the raw material.

Representative Materials.—Carded wools (woolens): Broadcloths, billiard cloths, doeskin, melton, kersey, Thibet, covert, cheviot, frieze, Mackinaw, cassimere, Venetian, Zibeline, uniform cloth (dark blue and olive drab), faced flannel, beaver, chinchilla, velour, bolivia, silvertone, duvet de laine, polo cloth, tweeds, homespun, velvet ratiné, wool Jersey, Bannockburn.

Combed wools (worsted): Serge, diagonals, suitings, Panama, gabardine, tricotine, basket cloth, diagonal cheviot, plaid, shepherd's plaid, coating, skirting, crêpe, poplin, voile, nun's veiling, bunting, challie, shoe tops, grenadine, Bedford cord, etamine serge, flannel, pin stripes, cravenette, whip cord, corkscrew.

Cotton warp: Silician, brilliantine, Alpaca, mohair.

Cotton and silk: Duvetyn, flannel, poplin, Henrietta, Lansdowne, gloria.

Carded or combed: Flannel, covert, cheviot, sweater yarn, ratiné, Jersey cloth, Bannockburn.



FIG. 4.—A, woolen yarn; B, worsted yarn.

The Industry in Woolens and Worsted.—Shorn wool, pulled wool, waste wool, cloth, new and old, reduced to fiber, and combinations of wool with other textiles are used in the manufacture of cloth. There are many branches of the industry, such as woolens or carded wools, worsteds or combed wools, knitted goods, felt and union goods.

Carded wool yarns are used in such fabrics as homespuns, tweeds, broadcloths, meltons, and kerseys (Fig. 4). Short-fibered wool, such as is found on the Merino sheep, is used for making carded wool fabrics. The fibers are full of scales or serrations which draw up or shrink when placed in warm water. Moisture, heat and rubbing add to this tendency. This felting quality is greater in some wools, and is utilized in the making of broadcloths and other goods which have a soft, felt-like surface. Carded wool yarn is

prepared by being passed over rollers covered with fine teeth (card clothing) which open and clean the fiber; these machines are called cards or the carding engines. The result is a roving which is spun on the mule frame into a soft yarn with the fibers in more or less irregular order, the little ends pushing out in all directions, for thus they will shrink more readily. Even if the cloth is not to be shrunk (milled or fulled) the soft, rough, napped surface is warm and attractive. The weave in carded wool is usually indistinct or obliterated entirely. The making of the raw wool into carded yarn is less expensive than is combed wool yarn, for there are fewer processes. It is the finishing of face cloths, such as broadcloths and kerseys, which are made from carded yarn, that takes time and makes the expense high.

Fine broadcloth and billiard cloth are made from Merino or other serrated wool. They are manufactured more extensively in Europe than in America, Austria having sent much to the United States before the war. Good qualities of broadcloth, however, are made here. The cloth is woven very wide, perhaps 80 inches, then sewed together by joining the selvages with the right side turned in. To shrink or full it, it is wet with warm soapy water and placed in a large cabinet, where it passes over rollers twisted to increase the felting. It is removed from the cabinet when it has reached the thickened condition desired and the necessary width—about 54 inches. In order to increase the solidity of the cloth without adding greatly to the expense, fine cuttings of wool, called flocks, from the napping machine, are felted into the back of the cloth in the fulling cabinet. When the flocks are from the finest virgin wool they felt closely and wear well, but when from reworked wool are less satisfactory. These fine clips can be seen in the seams or in the hem of a skirt after it has been worn for a time, resembling hair-like dust. After the cloth is fulled sufficiently it is taken from the cabinet and washed and dried. Gigging or napping follows, the surface of the cloth being raised with vegetable teazles, laid in slots placed on a cylinder which revolves, bringing the teazle in contact with the cloth. Wire would tear the fine surface, and it is only employed with inferior varieties of face goods. Both wet and dry napping are used. After the nap is raised the surface is sheared off with circular knives placed on a cylinder which looks much like a lawn mower. The

finishing processes are usually steam lustering, brushing and pressing, and the result is a smooth cloth with a satiny luster when the wool is good; or with poor fabrics a special treatment can be given to obtain a surface luster which is, however, less enduring than the natural one. The best "face cloths" do not wear rough but preserve their finish. If the broadcloth is made too thin, as is the case with some varieties of women's cloth, it will slit easily, for the surface is weak.

Various mixtures of shorn wools, or of the latter with wastes, shoddies, and cotton, blended as the result of experience in the mills, are used for making carded wool yarns. These formulas are guarded carefully, each mill having its own. Good woolen cloths wear well and face cloths are enduring if not too thin; but even in some highly priced broadcloths the effect of a soft, thin, graceful fabric is secured at the expense of its strength.

Combed wool (Fig. 4B) or worsted yarn is made into such cloths as serges, worsted suitings, bunting, henriettas, and challies, and into carpet and knitting yarns. A long staple hair-like wool is used for many of the worsteds, such as the English diagonals, but shorter wools are also combed, France making a specialty of these fabrics. The fibers are carded first and then combed carefully before they are twisted into yarn. Worsted suitings when taken from the loom look much as they will when finished. Generally, the weave is distinct, but is also softened by fulling and napping. Shoddies and hard wastes are not used in worsted yarn, as the long staple wool cannot have shorter wool combed into it. A cotton yarn can have worsted twisted about it and a sliver of cotton may be combined with a sliver of worsted and then twisted into yarn, but this is not so common as a combination of cotton with worsted in the weaving, as in alpaca, mohair, and brilliantine, where the warp is cotton. In general, a good quality of wool is used in worsteds. The quality of the raw stock used and the expense of making combed yarn cause high prices in many of the cloths made of this yarn.

If cared for and of a good quality, worsteds will last for years. On account of the close twisting of the yarn and the distinct weave, the cloth will sometimes become shiny in places where friction occurs. When this shine is the wearing off of the surface it can

often be remedied by dampening the place and rubbing it gently with a piece of rough cloth or of very fine sandpaper. Unfinished worsteds which have a soft napped surface like a woolen, are apt to lose this pile in places where the cloth is being constantly rubbed and thus to show the weave too distinctly. With care the pile can be again raised as mentioned above. It is well to press the material on the wrong side after the treatment in order to dry the cloth evenly. Shine sometimes is caused by oil from the hands and can be removed by washing the cloth with warm water and soap, and, if necessary, a little ammonia can be added. The cloth can be rubbed gently to raise the surface. (See Chapter XI, section "Care of Clothing as a Part of National Thrift.") Heavy pile goods such as plushes are generally made with worsted yarns on the face. A worsted filling is sometimes used in broadcloth, but the warp face is carded wool. Wool crêpe, Panama, and Bedford cord are examples of worsteds made of the shorter, softer, and less hair-like wools.

Many fancy effects are obtained by the way woolen or worsted yarns are twisted or by the sort of weave. The finishes and dressings used to give cloth a fine surface are factors in the final appearance. For substantial wear, however, the plain weave or the various twills, the dark solid colors or black and white mixtures, give the greatest satisfaction.

Knit Goods.—Hand-knitting yarns are often a combed product and vast amounts were used during the war in the making by hand of sweaters, socks, and other articles for the Army and Navy. These garments are also made by machine and the United States is turning out an excellent class of goods. Knit goods are growing in favor, and the newer machinery gives a result as good as that of a trained hand. Both carded and combed yarns are used and cotton is found in combinations. The employment of the carded yarn and cotton makes it possible to provide sweaters, cardigan jackets, underwear, and hosiery at a reasonable price. Combed wool knit goods, and Jersey cloth are high in price. Knitted wool underwear when combined with cotton is more hygienic in contact with the body than if made of all wool and is more easily laundered. (See Chapter VII, section "The Part Textiles Play.")

Union goods are made of wool and cotton, wool and linen, and

wool and silk. Cotton warps with wool filling are used in alpacas, mohairs, Silicians, brilliantines, and other goods. These give excellent wear and can be procured at average prices. Serges are sometimes made with cotton warps to lower the price. Shepherd plaids are made of all wool and are also made available to all classes by having cotton inserted at regular intervals in the goods—it may be a black and white plaid in which all the black is cotton and the white wool, or a few cotton threads may be inserted in certain blacks only. Pin stripes are also lowered in price by having the stripes of cotton, and many other goods are thus cheapened, but not injured in the wear or appearance. It is true, however, that if the cotton is used to a very large proportion, the conditions inherent in wool fabrics are changed and those of cotton take the place. For instance, a shepherd's plaid with a large amount of cotton will, after a time, have a cockled look as the damp air affects the cotton and wool differently, and constant pressing may be necessary to keep the garment looking well, or it will soil easily and must be carefully watched for spots and laundered frequently. As cotton does not hold the dye well, it is advisable to buy union goods of wool and cotton in colors which do not fade readily. Silk combined with wool, as in a silk and wool poplin, may make an excellent though expensive cloth. The cord of the poplin is made of worsted and the silk warp crosses it, but if the silk is too weak and thin, the material will wear out quickly. Wool poplins are often made with a cotton cord, and heavy coatings, such as chinchilla, have frequently much cotton in their construction.

Felt is manufactured by carding short wool fibers into wide sheets and placing one on top of another until the requisite thickness is reached; the mass is then wound on a roller and submerged in warm water and steam, while the roller moves from side to side and increases the felting. At present, much of the so-called felt is really a woven cloth which is felted or shrunk after weaving. Horse blankets of the cheaper kind are made by placing sheets of carded wool on either side of a coarse cloth, such as burlap, and subjecting the layers to thousands of needles, which push the wool through the burlap, thus making a solid mass. The soft attractive surface is given in the finishing processes.

Properties of Wool.—The properties of wool fit it preëmi-

nently for outer wear. It is enduring, keeps its shape well, holds the dye, does not have to be frequently laundered or cleansed, and is not heavy unless woven into a thick, solid cloth, or is wet (wool can hold large quantities of water in its meshes, even to 30 per cent. or 50 per cent.). It holds moisture at the temperature of the body, consequently does not feel cold, even if it is wet, unless the garment is next to the skin and the wearer is in a draught. It holds air in its elastic fibers, which makes it feel warm; loosely woven cloths have this quality especially. It can also be so woven that the cold outer air is excluded. For wear as underclothing, it is far from ideal, although it feels comfortable, for it becomes felted into a mass when damp and subjected to friction, and when shrunk does not give sufficient ventilation to the body nor allow for free movement. On account of its tendency to shrink, it requires more care in the washing than is given in the ordinary laundry. The impurities which have been absorbed from the body are not apt to be washed out, and germ life grows more rapidly on wool than on other textiles. Carded wool shrinks more easily than combed wool. While it is less hygienic than other textiles next to the body, this can be minimized by combining the wool with cotton, silk, or linen. Careful home washing will also help to keep it clean and pliable. (See Chapter VII, section "The Part Textiles Play," and Chapter XII, section "Home Laundering.")

Suggestions.—The family buyer should train her hand as far as possible to know whether or not a cloth made of wool is a good fabric. If she learns to recognize the feel of the best wool, she will the easier note the change when poorer stock or when cotton is present. It is impossible, however, under ordinary tests to recognize how much shoddy is combined with shorn wool. Even chemical tests will not determine, as both give the reaction of wool. Surface finishes may feel deceptive, but the eye or hand can often detect them. The strength of the yarn should be noted as well as the general appearance of the fabric. The weave, too, is important. Taking an all-wool cloth and a cotton and wool one of the same style and consistency, the latter will be heavier, for cotton has more specific gravity than wool. When a large percentage of cotton is in a fabric, the wiry, elastic quality of wool gives way to the softer and more yielding feel of cotton. This is very noticeable in blankets, as

an increasing amount of cotton is added. An all-wool blanket of the finest kind is high in price. As cotton is added, the price is lowered and the qualities are changed. (See Chapter III, latter part of section "The Industry.")

QUESTIONS

1. What is the present demand for and supply of wool?
2. What are the wool by-products, and how are they prepared for spinning?
3. What are representative materials made of wool and their values?
4. Compare the carding and the combing industries in methods and results.
5. What are the properties of wool in relation to its service for outer and under clothing?

TOPICS FOR FURTHER STUDY

1. What is the status of wool raising and manufacture in the principal countries of the world, and where are the leading wool markets?
2. Trace the preparatory and manufacturing processes in wool from the fleece to the finished cloth.
3. In what ways was the wool industry of the world affected by the war? What did the United States learn from the conditions experienced?

CHAPTER III

COTTON CLOTHING

The Cotton Situation.—The United States is the cotton-growing country of the world, producing, it is said, about 60 per cent. of the supply, varying in different years according to the size of the crop. The importance of cotton as a textile is little realized. It is used by everyone, the poorest and the richest. It will keep indefinitely without appreciable deterioration which fact adds to its value. Many households take advantage of this by buying large stores of household materials and bedding to use when needed. Cotton cloth is woven in the gray (undyed) and kept in warehouses in huge quantities until needed or until higher prices can be obtained.

Cotton is vital to industry, no other crop is so influential in business affairs; with the exception of foodstuffs it is the most important commercial product. Shortly before the war it ranked first in value of all commodities in international trade, amounting to \$1,127,000,000, with wheat second, valued at \$774,000,000.¹ In 1920 cotton, including its by-products, brought to the cotton raising section of the United States in one season \$2,513,000,000. The spinning of cotton has increased 20 per cent. in ten years. Europe manufactures more cotton cloth than the United States, but the latter country is increasing its output. In 1911–1912 it used 33 per cent. of its own crop, but by 1917–1918 it consumed 58 per cent. The United States is less productive per acre than Egypt, for it averages less than 200 pounds of lint where the latter country has 450 pounds. The record of India is less than that of the United States. The weight of the United States bale is about 500 pounds. It is often carelessly baled and handled which brings much complaint from foreign countries importing it.

In spite of the large available supply of cotton in this country

¹ World Conditions in the Cotton Industry, by William Whittam. Arrangements Committee of World Cotton Conference, 1919.

the great demand upon it during the war, from Europe as well as here, raised the price of manufactured goods until in some grades they were almost prohibitive for the average citizen. This was hard upon those in very limited circumstances who rely on cheaper fabrics almost exclusively. Many conditions united to bring about the abnormal height of prices in the United States. The crop of 1917-1918 was smaller than in former years for the acreage was decreased 8.7 per cent. and in 1920-1921, with the acreage reduced almost one quarter, the crop is estimated at less than 8,340,000 bales, exclusive of linters, much less than the usual yield. Many countries are dependent upon the American crop to supply their factories, especially for the finer class of goods. The United States alone requires about 6,200,000 bales of lint cotton and 342,000 bales of linters, the United Kingdom takes from us annually 3,700,000 bales and the Continent of Europe 3,660,000 with other countries desiring about 4,000,000 bales more. The short crop is, therefore, a disaster for the world. It has been the result of various conditions such as the reduced acreage (the South has found with high wages and scarce labor it is impossible to grow cotton to advantage unless the price per pound is higher); the terrible ravages of the boll weevil, and the bad weather when the crop was growing. The fluctuations in price of standard cotton (Middling Upland) have been severe during the past years, running from 7 to 10 cents a pound in 1914, rising to a peak price in 1920 of 43.75 cents and then declining to 10.85 cents by June 1921. The latter part of 1920 and early part of 1921 was a time of great depression in the Cotton Industry for not only the growers but the manufacturers also. The market was inactive, imports and exports declined, factories were closed or running on reduced time, and millions of spindles, amounting to one-fourth of the entire industry had stopped. Conditions have improved greatly and by October 1921 the mills of the United States were running 90 per cent. of normal. The prices of raw cotton, staple yarns and fabrics were more stable. Manufactured goods must still be higher in price than before the war for wages are almost double, the hours of labor are about 11 per cent. less and taxes have increased.

² Monthly Statistical Summary of the Cotton Industry, The Merchants National Bank of Boston, October 1921.

The total world output of cotton piece goods has been estimated at 7,816,500,000 pounds³ of which the United States produces 1,900,000,000, exports 99,000,000 and imports 11,000,000. It imports also about 417,000 bales of foreign cotton which are needed in special industries, the largest amount coming from Egypt, but Mexico, the United Kingdom and China also send us supplies. The United States consumes 95 per cent. of her production.

The following tables are indicative of the effect of war conditions on the prices of representative cotton cloths :

*Prices of Staple Cloths in the United States **

	Date	Print cloths 28" 64×64**	Brown sheetings 4 yards 56×60**	Standard ginghams
	November 1, 1919	<i>Per yard</i> \$0.18½	<i>Per yard</i> \$0.21½ to .22	<i>Per yard</i> \$0.22½
	November 1, 1918	0.12¼	0.17½	0.19½
	November 1, 1917	0.07¾	0.12½ to .12¾	0.12½
	November 1, 1916	0.05¾	0.09	0.08½
	November 1, 1915	0.03½	0.05¾ to .06	0.06¾
	November 1, 1914	0.03	0.04½ to .04¾	0.06¼

* From "The Monthly Statistical Summary of the Cotton Industry" compiled by The Merchants National Bank of Boston, Mass.

**The count of threads in warp and woof.

The gradual increase of prices during the years 1915 to 1919 was often several hundred per cent., *e.g.*, material costing 10 cents a yard rose to 30 or 40 cents a yard. By October 15, 1921, print cloths were selling at \$0.07, brown sheetings at \$0.11¾, and standard ginghams at \$0.14½. The following table shows the changes of cotton prices in representative cities within one year. While these prices are gradually going down, they will be slow in reaching former costs until many problems of labor, transportation, low production, and foreign competition are settled:

³ Cotton Facts, 1920, report of the Research Committee of the National Council of Cotton Manufacturers, Melvin T. Copeland, Sec.

Comparison of Rise of Retail Prices in Several Sections of the United States¹

Unit	New York City, N. York				Boston, Mass.			New Haven, Conn.				
	1917		1919		1917		1919		1917		1919	
	May	Aug.	May	Aug.	May	Aug.	May	Aug.	May	Aug.	May	Aug.
Calico.....	\$0.109	\$0.265	\$0.270	\$0.100	\$0.197	\$0.217	\$0.097	\$0.190	\$0.097	\$0.190	\$0.145	\$0.145
Percale.....	.180	.357	.419	.177	.325	.367	.177	.290	.177	.290	.346	.346
Gingham, apron.....	.117	.281	.290	.125	.305	.261	.125	.290	.125	.290	.241	.241
(27 to 28 inches)												
Gingham, dress.....	.168	.315	.361	.166	.310	.293	.167	.296	.167	.296	.333	.333
(27 inches)												
Muslin, bleached.....	.152	.343	.349	.157	.309	.367	.150	.331	.150	.331	.334	.334
Sheeting, bleached.....	.428	.809	.892	.465	.751	.802	.417	.773	.417	.773	.825	.825
Sheets, bleached.....	1.112	2.055	2.199	1.242	1.950	2.107	1.201	1.878	1.201	1.878	2.003	2.003
Outing flannel.....	.170	.366	.304	.160	.391	.323	.157	.295	.157	.295	.276	.276
Unit	Newark, N. Jersey			Minneapolis, Minn.			New Orleans, La.			Portland, Oregon		
	1917		1919		1917		1919		1917		1919	
	May	Aug.	May	Aug.	May	Aug.	May	Aug.	May	Aug.	May	Aug.
Calico.....	\$0.095	\$0.200	\$0.198	\$0.107	\$0.183	\$0.192	\$0.100	\$0.200	\$0.269	\$0.094	\$0.179	\$0.195
Percale.....	.183	.350	.366	.187	.313	.376	.150	.400	.450	.175	.300	.400
Gingham, apron.....	.117	.260	.250	.129	.220	.250	.117	.288	.250	.108	.250	.250
(27 to 28 inches)												
Gingham, dress.....	.179	.328	.340	.194	.306	.349	.150	.313	.312	.147	.263	.350
(27 inches)												
Muslin, bleached.....	.149	.293	.345	.149	.313	.354	.125	.267	.324	.143	.290	.371
Sheeting, bleached.....	.450	.776	.839	.427	.750	.855	.900	.660	.705	.450	.732	.897
Sheets, bleached.....	1.150	1.877	2.113	1.142	1.998	2.186	.900	1.667	1.795	1.213	1.993	2.300
Outing flannel.....	.154	.354	.341	.155	.328	.354	....	.300	.296	.167	.360	.336

¹ Monthly Labor Review, July, 1918, page 69, and October, 1919, page 68.

Women who paid 16 cents per yard for the best bleached sheeting a quarter of a century ago, when they were married, have paid lately in the neighborhood of 45 cents per yard for the same kind of sheeting for their daughter's wedding outfits.

A factor in the price of cotton cloth is the demand on raw stock for the automobile industry which needs long staple cotton for tires, both fabric and cord. It has been said⁴ that in 1920 from one-tenth to one-fifth of the world's entire production of raw cotton would be used in the manufacture of tires. The heavy pneumatic tires used in trucks take each 14 pounds of cotton.

Cotton Fabrics.—Cloth made from cotton has a wide range of usefulness. It is employed for the heaviest service in automobile tires, canvas, and awning fabrics, and also for gossamer material, such as lace and fine net. It can be made by treatment to look like linen, silk, and wool. In its poorer qualities, it has sold for a few cents per yard, and in the more elaborate dress goods reaches several dollars per yard. Standard materials are shown in the following list:

1. *For Medium-Priced Dress Goods.*—Gingham, chambray, calico, lawn, muslin, dimity, crêpe, Indian head, flannelette, percale, piqué, and madras.
2. *For Undermuslins or Dress Goods.*—Seersucker, nainsook, lawn, organdie, cambric, crêpe, batiste, muslins, dimity and longcloth.
3. *For Serviceable Wear.*—Jean, galatea, Devonshire, kindergarden and, endurance cloths, drill, and khaki.
4. *For Warm Outer Garments.*—Velveteen, poplin, gabardine, ratiné, éponge, plush, and corduroy.
5. *For Underwear.*—Flannelette, knitted goods, and hosiery.
6. *For Dressy Wear.*—Voile, marquissette, challie, organdie, grenadine, Brussels net, lace, and mull.
7. *For Linings.*—Percaline, sateen, net, buckram, and silesia.
8. *For the Household.*—Awnings, cretonne, denim, huckaback, towelling, sheeting, mosquito net, burlap, Turkish towelling, damask, curtain material such as voile, scrim, and nearsilk, and sewing threads.
9. *For Heavy Service.*—Duck, canvas, tires, ticking, webbing and drilling.
10. *To Take the Place of Silk.*—Mercerized materials, nearsilk, pongee, velveteen, sateen, and plush.
11. *To Take the Place of Wool.*—Tapestry, cheviot, chinchilla, velour, gabardine, covert, serge, beaver, éponge, poplin, ratiné, diagonal, shepherds plaid, blankets, outing flannel and serge flannel.
12. *To Take the Place of Linen.*—Damask, towelling, handkerchief lawn, bird's-eye, flaxon, linon, huckaback, and santex.
13. *For Hospital Use.*—Gauze, lint, sheetings, towelling, and absorbent cotton.

⁴ *Atlantic Monthly*, November, 1920, Melvin T. Copeland.

The Industry.—Cotton is the fiber surrounding the seeds of certain plants of the Mallow family from which come also the hollyhock and the marshmallow. It grows best in warm climates. The southern part of the United States, Egypt, and India are especially noted for their cotton, of which there are many varieties. The staple (length of fiber) runs from $\frac{3}{4}$ to $\frac{7}{8}$ inch in the Uplands of the Carolinas, Georgia, and Alabama; $\frac{7}{8}$ to $1\frac{1}{8}$ inch in the Gulf sections of Alabama, Mississippi, and Georgia; $1\frac{1}{8}$ to $1\frac{3}{8}$ inches for Texas cotton; $1\frac{1}{2}$ inches for Mississippi bottom cotton, and up to as high as 3 inches for Sea Island cotton, which grows on the islands off the coast of Georgia and Florida. This latter cotton is the finest in the United States and probably in the world, and is in demand for making the highest class of goods in Europe and America. The crop is not large, for out of a total acreage in 1918 of 34,925,000 planted in cotton, but 376,000 acres were Sea Island.

The length of staple and the quality of cotton are influenced greatly by the seed used, the soil, the care, and the conditions of cultivation. The Peeler and Gulf (grown near the Gulf of Mexico) are among the best varieties. It has been found that planting Sea Island or other long-staple cotton seeds, such as the Long Egyptian, in other localities will frequently bring good results. This procedure leads to some confusion, however, for advertisements will often state that Sea Island cotton has been used in some product when in reality it may be a variety grown from that seed, but far from the sea where it grows best.

Noted cottons from other countries which are used more or less in the United States are the Long Egyptian, which, next to the Sea Island, is perhaps the longest and best, and is grown often from the seeds of the latter. Some Egyptian cottons are far below the grade of the "Long" variety. Less than one-tenth of the world's supply comes from Egypt. India grows about one-third of the average crop and it is, in general, a low-grade cotton not used to any extent in the United States. Peru, Brazil, and a few other countries grow about a tenth more, which leaves six-tenths for the American crop. The seeds of the Long Egyptian cotton are being planted in formerly arid sections of Arizona and California with the promise of future success. The product is long-stapled and very productive. It is called "Pima." Short-stapled cotton is

also grown in these states. In addition to the regular cotton fiber or lint the soft down is removed from seeds such as those of the Upland cotton (the Sea Island seeds are without down), and is used for various purposes; the fiber is called linters.

There are many enemies of the cotton crop which yearly threaten its success. The ravages of the boll weevil have been so serious that many counties in the United States have ceased to plant Sea Island cotton, and the acreage for other cotton has been reduced. Every effort possible is being made by the Department of Agriculture to eradicate this scourge which threatens the entire American crop.

Cotton is picked by hand. Many machines have been invented to do this, but as yet none has been as satisfactory as the slower method. After cotton is picked it is ginned to separate the lint from the seeds. There were 18,810 active ginneries in the United States in 1919⁵. The cotton lint is automatically carried from the gin to the press and baled, in which condition it can be carried to mills within a radius of 200 miles. For northern factories or for export it is re-compressed, often at the shipping port, into a smaller bale which will pack into the trains and boats better and at smaller expense. The usual bale is rectangular and weighs about 500 pounds, but there are also circular bales for which many advantages are claimed. The rectangular bale is partially covered with a loose jute bagging which is readily torn, and as it is customary to cut a piece from the covering to sample the lint much is lost from the package before it arrives at the mill. It is also continually exposed to the weather and becomes wet and soiled. The complaints of the disgraceful condition of our cotton bales are widespread and merited, and our baling methods should be improved.

After the ginning the lint is in the best condition for spinning, but the tremendous pressure of the compress which follows crushes the fiber. When the bale arrives at the distant mill it must again be subjected to mechanical processes to open up the cotton as it was before baling. This tends to weaken it still more. The seeds yield large returns, being used for many purposes. The down covering them is removed and used for low-grade fabrics and for explosives; the hulls make fuel and fertilizers, and the inner meats are crushed for oils, cottolene, and other lard substitutes, and for soaps and for cotton-seed cake for feeding cattle.

⁵ Cotton Facts, edition 1920, Shepperson.

There is every reason for our cotton industry to expand, as the world needs this textile. More cotton and better cotton should be our aim. The price of raw cotton has been too low in the past; an adequate price must be paid the growers.* At the present time the labor problems, the boll weevil, and the need of a good machine picker are difficulties to be surmounted. In order to improve the present wasteful baling and handling it is purposed to study the system for the purpose of reorganizing it.

The grading of cotton is very important, and the buyer of the raw stock has to select carefully, as mills require special qualities to gain the results they wish. Several kinds of raw cotton are usually united in one variety of yarn, and foreign cottons are imported to assist in attaining desired effects. Peruvian and Brazilian cottons are rough, resembling wool, and are used when the appearance of wool is needed. Egyptian cotton is selected for fine materials and threads, and for mercerizing. Upland cotton is used for print goods, velveteens and medium-priced goods. Peeler is in demand for fine dress goods, such as organdie, and for fabrics where silk is alternated. Gulf cotton is employed in fine lawns and gingham; Mobile cotton makes drilling, sheeting and duck; Pima cotton is said to be equal to Sea Island cotton for bleaching, dyeing, and mercerization, and has been used for tires and aeroplane fabrics; and Sea Island is used in sewing threads, fine dress goods, and laces, and is frequently mercerized and mixed with silk. The appearance of the cloth, if the best cotton (carefully spun) is used, is much better than when short, defective fibers are made into yarn. In general, the warp yarns (those which run the length of the cloth), which have the greater strain upon them, are made of the longer, better cotton twisted into a strong thread; the filling yarns are more apt to be loosely twisted and soft, and shorter staple cottons are used in them.

Cotton wastes have been used more in Europe than in the United States. The demand, however, is increasing here. The poor of Europe depend upon them largely for their blankets, shirtings, trousers, suitings, and dress goods. There was much suffering there during the war from the lack of cheap cotton goods. The preparation of cotton wastes for spinning is similar to that for

* Supplement to Manufacturers Record. Baltimore, October 23, 1919.

reworked wool (see Chapter II, section "Wool By-Products"). Soft wastes come from the preparatory spinning processes and hard wastes from woven goods, new and old. Much of our cotton rags have been exported to Germany, England and Belgium where they are made into cheap goods for the poorer classes. Soft waste is used again in our own mills or sold to those making cheaper goods.

The Beginning of Modern Industry.—The invention of the cotton gin in 1792 by Eli Whitney was an important factor in beginning the present industrial era of civilization. Before that time it took one man a day to pick the seeds from one pound of cotton. The modern saw gin made after the Whitney model can clean 5000 pounds in a day. Small domestic workrooms fitted with spinning wheels and hand looms were the textile factories in the latter part of the eighteenth century in England. The manager and owner worked with the other workers and knew them personally. The goods were sold to itinerant merchants or at fairs. The need for cheap fiber was great, and America could not send enough cotton. The demand for warp thread was incessant, for only the best spinners could be relied upon to make it. The pressing demand for yarn brought forth the inventions of spinning frames which could spin a number of threads at once where the wheels usually spun but one. Hargreaves, Crompton, and Arkwright introduced their spinning frames toward the end of the eighteenth century, and these were the forerunners of the great mule and upright spinning machines of the present day. Steam power was soon applied to these inventions and the power loom made its appearance about the same time. The invention of the saw gin by Whitney made possible a goodly supply of cotton on which the new spinning frames could work. The new machinery was more expensive than the old and it took much capital to build and furnish a factory. At first the frames were worked by horse or water power, but later by steam, and had to be placed in specially constructed buildings. The domestic workrooms passed and factories were started, the workers having to live near—small towns sprang up about the mills. The owner no longer knew the workers and frequently did not understand the business. The manager was interested in making money for his employer. It was not long before all the modern labor questions and troubles appeared, from which the world has been suffering

ever since. Materials were made in quantities and cheaply, but were frequently poorer in construction than under the domestic system, and the women of the households, no longer being called upon to weave and spin, lost their knowledge of the value of textile materials and their wise judgment in selecting and testing them. The division between poverty and wealth became wider. Gradually the great factory system took textile production from the home, and now the construction of garments is rapidly following it into the factories.

Cotton Yarn Making.—All cotton is carded (a sort of combing) in order to clean it, open it up, and lay the fibers in a condition for spinning. Although the fiber of cotton is short, it is naturally twisted, which is a large factor in the strength of the yarn. This twist cannot be seen with the naked eye, but through a strong glass the fiber looks like a twisted piece of baby ribbon. The cheaper yarns are carded but once, but the better grades are twice carded and thus made smoother, cleaner, and more attractive. The best yarns are carded, combed and even double combed, which greatly improves the appearance and also adds to the price, but does not always increase the strength. The newer combing machines can comb even the very shortest fibers. The processes that follow the carding and combing are preparatory to the spinning; the spinning or twisting is the final step before the yarn is ready for bleaching, dyeing, weaving, and final finishing. The majority of cotton goods are woven in the plain or tabby weave, as in muslins and sheetings; twill weaves are also used, as in khaki and drilling, and even the Jacquard loom is called upon for elaborate designs.

Cotton Finishing.—The finishing of cotton goods is a very important part of their appearance and the number of methods is almost endless. Some of these final processes are harmless, as regards their effect on wearing quality, some are advantageous, and others weaken. The resemblance of cotton to other textiles is largely a matter of dressings and finishings. Many of the familiar materials, such as cambric, nainsook, and muslin, look much alike after weaving, but the finish changes their appearance. Gloss can be imparted by mucilage or gum, as in many lining materials; softness by oils, as in mulls; a solid appearance by clay, as in cretonnes; the sheen of silk by dressing and calendering or by burning

off the surface fluff. Full finishes are given by starch. Dressings followed by pressure with milled rollers give special effects. Materials are made waterproof or non-inflammable by treatment. Cotton is not naturally absorbent, but can be made so by removing the wax, oil, and mineral salts. If a fabric is made of cotton yarn with short, imperfect fibers, and is loosely woven, it can be given a surface finish which looks well to the superficial glance, but after wearing or laundering the dressing passes, and the poor fabric is disclosed. Cheap neckwear, inexpensive lace-trimmed underwear and night gowns, or low-priced blouses are apt to be thus treated and are not good investments. If good stock had been used in the first place, and the weaving was strong, the price would be higher, but the endurance would make up more than the difference in price. A good material can have much of the finish which is lost in service restored by starch and pressing in the laundry. It is difficult, however, to restore the crisp look and feel of some cottons, such as organdie and stiff lawns; therefore, for the economical housekeeper it is better to buy those fabrics which will be more satisfactory in the long run.

Pressing or calendering is a main reliance in the finish of cotton goods. Sateen, for instance, after weaving the cloth in a twill, is dressed with glycerine and then passed many times through the calender. Many materials are gassed to rid the surface of fluff, and heavy pressure brings out further light which lasts for a time at least. The scroop or rustle characteristic of silk can be put into cotton goods by treatment. A more permanent silk effect is given by mercerizing the yarn or the cloth itself with a caustic alkali, which causes shrinking, but by preventing this, the fiber takes on a high degree of luster. The fabric is finished by heavy calendering. Some of the sheen is lost when it is laundered, but much remains. Mercerized material is stronger than the ordinary cotton and holds the dye better. Seersucker effects in stripes can be obtained by printing the cloth in narrow stripes with caustic soda which contracts it. Many novelties are made by combining printing and mercerization. In mercerizing the chemical structure of the cotton is changed and it becomes translucent which effect is more permanent than when cotton is simply dressed and calendered. The cotton is treated with caustic soda which contracts and strengthens

it. By preventing the shrinkage the cotton takes on the silk-like appearance known as mercerization. This effect is still further accentuated by surface treatment.

Lisle thread, which is often mistaken for silk, is made of long-stapled cotton, combed, closely twisted, and gassed. Linen effects are obtained by spinning the cotton with little knots at intervals to make it look like linen yarn, weaving it in a linen pattern, such as huckaback or damask, and dressing it. After calendering, the glistening effect of linen is emphasized by beetling (hitting the cloth with hammers as it passes over a cylinder). Wool effects depend upon the way the yarn is spun and woven, and treatment with chemicals, which give the effect and feel of wool. Cotton, when specially prepared, takes dye as wool does, and the final gigning roughens up the surface and adds the dull, soft appearance of wool. Cotton blankets, for instance, look and feel like wool, and cost less than one-half the price. They give fair service, but they will act like cotton, and are not as satisfactory for the purpose as wool. Chenille curtains look like wool, but are cotton woven from a yarn which has ends protruding. When finished the effect is attractive, but the wear in the lower priced ones is unsatisfactory and the inflammability great. Materials can be so treated that they are soft on the surface and stiff on the back, as with piqué and velveteen. Many of these effects are temporary, as cotton soils and crushes, consequently, needs frequent washing or cleaning, and the finish soon passes away. It is well to remember these facts in buying cotton fabrics that look like wool or silk, for if the garment is made up as if it were truly one of those textiles, it will soon be soiled, and if it has to be cleaned continually it will be expensive.

Warp yarns must be sized before they are woven or they would not stand the heavy strain upon them in the loom. If, in addition, the cloth is loosely woven and filled with dressing the wear may not be satisfactory as the finish passes away. Many cotton dress materials, even of the best kinds, such as gingham, will shrink in the laundry, for in their final finish they have been stretched to dry on the tentering frames, and drying at full tension they are smooth and even; when washed they lose some of the dressing and consequently contract.

Printing Designs.—The printing of designs on cotton fabric as it comes in the natural color from the loom (gray goods), as in calico, instead of weaving the pattern in with dyed yarn, as in gingham, is extensively used with cotton cloths, and good effects are gained. Organdies, lawns, percales, voiles, cretonnes, chintz, and silkalines often have patterns printed on them. When the printing is done carefully with good dyes, as in some fine percales, the figure is enduring, but the price will be higher than when rapid, cheap methods are employed. Raw stock dyeing is done after the cotton has passed through the pickers or on the slub, which is a process preceding spinning. If good dyes are used in yarn dyeing, the color sinks more deeply into the yarn than in printing and is apt to be fast. Some cloths are dyed in the piece after weaving, but are less enduring than yarn dyeing. To tell the difference between the various ways that the dyes have been used the cloth can be frayed, both warp way and woof way, for a little distance, and the appearance of the yarn noted. If dyed in the raw stock or in the yarn the threads will be of a solid color, the former being more satisfactory, as the color spreads through the fiber. If dyed in the piece the color will be irregular on the yarn, for the dye does not sink in evenly; if the design is printed on the cloth the yarn will have blotches of color at intervals. Much duplicate printing is done (printed on both sides) which at a quick glance looks as if the material were woven of dyed yarn. Gingham, chambray, madras, zephyr, kindergarten cloth, seersucker, Devonshire cloth, and some crêpes are woven of material dyed in the yarn. Imitation ginghams are made by printing the pattern on the surface of gray goods. Poplins, crêpes and other solid colored cloths are often dyed in the piece. Cheap varieties of printed goods are seldom fast colors.

Laces and Findings (Cotton).—Laces are made by machinery to imitate hand-made pillow and needle-point linen laces. They may be very useful for clothing and underwear if they are carefully selected as to strength. Embroideries and passementeries are also made of cotton, those worked with mercerized cotton being used in place of silk. There are several varieties of embroidery machines, the best turning out an excellent product and the other machines bringing out cheaper imitations. In St. Gall, Switzerland, large quantities of these products are manufactured, the old-

time hand work, the finer machine embroidery, and the cheaper machine product all being made there. In the last, effects are often gained at the expense of value. In both laces and embroideries of cotton the cheaper product is of little value, and the wise housekeeper will buy only such decoration when she is assured that the strength of edge is good and satisfactory laundering is assured. Plauen, Germany, is noted for its machine embroideries, and Nottingham, England, for its machine laces. France also does a good business in cotton laces, and the United States is increasing its industry in both laces and embroideries. Much of the thin imitation Valenciennes (Val) laces found on ready-to-wear underwear are too valueless to be anything but an extravagance. Narrow, strong laces are the only satisfactory ones for undermuslins. The more familiar varieties of these are Torchon, Valenciennes, Filet, Irish, and Cluny. Embroideries are made on batiste, nainsook, Swiss and cambric. Large quantities of cotton are used in narrow goods, such as tapes, bindings, braids, and lacings for shoes, and for corsets, or other articles.

The Properties of Cotton.—The characteristics of cotton make it of service in an endless variety of products and purposes: for light-weight summer clothing and indoor dress all the year; in household purposes for curtains, draperies, sheets, pillow cases, and rugs; for porous underwear next to the skin, since it can be easily washed and sterilized; for clothing for cold weather and for bed covering, since it can be made warm and is not expensive, although it needs care to keep it in good condition; and for heavy use in bagging, sails, and awning material. In fabrics made to represent other textiles it has wonderful capability.

The natural twist of cotton fiber gives it *strength*, especially in the longer-stapled varieties, hence it has much endurance for clothing or other purposes. It *absorbs* water and launders easily, but does not dry quickly, therefore, as underwear, if the wearer has been in a perspiration, it is apt to keep damp. This quality is not good for health. (See Chapter VII, section "The Part Textiles Play.") It is a good *conductor of heat*, which makes it satisfactory for summer clothing, especially in light colors, but in winter this quality makes the wearer of solid cotton underwear feel chilly, especially if perspiration is present. It can *stand great heat* in the

laundry, consequently, can be sterilized easily, which makes it admirable for undermuslins for household and hospital use. It has *little elasticity*, crushes easily, and readily becomes mussy. It has much oil in it, which catches the dust, so that it needs to be laundered frequently, and the oil increases its inflammability. It *does not hold dye* well and often after a few washings will begin to look gray. Stockings in dark colors, which to keep in good condition should be washed out every night, will often lose their dye, and soon appear shabby. The *lint comes off easily*, which is a detriment, especially when cotton is used for tea towels, for it is left on drinking glasses and china. It is easily set on fire, and soft finished, napped goods, such as outing flannels and chenille, are dangerous on this account. As cotton *shrinks, tears, and fades* easily, it must be laundered carefully. Its specific gravity or weight is greater than wool, which is noticeable when cotton blankets are over one at night in the place of an equal number of all wool blankets.

Suggestions.—Cheap cotton laces, embroidered handkerchiefs, dress goods, and undermuslins, and poorly-woven, over-sized lawns and cambrics should be avoided. Cotton laces may be enduring, but the thread must be well twisted and run diagonally, making an interlocking edge. A narrow, strong lace for undermuslins wears well, but the usual thin laces soon tear and become shabby.

Cottons must be washed carefully, and if colored, dried in the shade. (See Chapter XII, section "Home Laundering.") Cotton garments should be unlined and made simply, so they can be laundered and pressed frequently. A cotton shepherd's plaid, for instance, will give excellent service if it is so made that it can be laundered. If a cloth is very heavy it is not easy to get rid of the soiled spots, and if dyed may streak in the laundry. Bright or dark colors must be avoided or be tested for endurance before buying. Colored fabrics, made of alternate color and white, often bleed in the wash, and unless care is taken the color will tinge the white. The United States has made great progress in solving the dye question, and fast American dyes are now being manufactured which will help cotton to hold its color. (See Chapter XII, section "Dyeing and Tinting.") It is not advisable, however, to purchase cheap colored cottons, for the best dyes and methods are seldom used upon them. When desiring to buy a cotton fabric of

which there is doubt of the fastness of the color, test out a sample for a few days in a sunny window. (See Chapter VIII, section "Tests.") It is not well to wear colored cottons next to the skin; the dye is apt to come off. Many complaints have been made of colored flannelette shirting and black stockings the dye from which poisoned the skin.

A good cotton dress is no longer cheap, and should be bought with much thought. White or cream colors in a well twisted voile, and dress muslins, such as Indian Head, are apt to be more satisfactory for long service than colored ones. Piqué, corduroy, and jean wear well in white, but are heavy to launder. The dark-colored denims, galateas, khakis, and other substantial twilled goods are apt to streak in the laundry, but the lighter weight twills are easier to launder satisfactorily. Serges, gabardines, covert cloths of cotton in dark colors are difficult to keep clean, unspotted, and well pressed, but may look well if care is taken of them.

Before buying, the consumer should see if the weave is good, the dye fast, the yarn strong, and if stiffening and starches are too heavy. The yarn should be evenly twisted and the number of threads approximately equal in the warp and woof way.

Cotton pile fabrics, if well made, such as plush, chinchilla, and corduroy are warm and enduring; the colors chosen should be serviceable ones. Cheap velveteens with the color printed on them are not worth buying.

Cheap cotton stockings do not wear well; the better grades are more enduring, but all stockings repay good care. (See Chapter VI, section "Knit Goods and Hosiery," and Chapter XI, section "The Care of Various Articles.")

Elaborate woven patterns in cotton do not always wear as well as the more simple ones. Some goods are made with a design which requires long floats of yarn at the back which are cut off by machinery before the goods are finished. When a garment made from such material has to be laundered frequently there is danger of the pulling out of the pattern threads from the surface.

Many knitted goods are made of cotton and are most useful, such as hosiery, underwear, sweaters, caps, and jackets. For underwear next to the skin, knitted cotton is worn more than any other

textile, for it is cheap. When solidly knitted with a napped surface the garments may feel soft and warm, but are less hygienic than the open-mesh variety. (See Chapter VII, section "The Part Textiles Play.")

Cotton blankets and bath wrappers are used largely in place of wool ones, for they are within the limits of the pocketbooks of the majority of people. They are of service, but it is well to remember their limitations. The soft surface, which imprisons the air, makes them feel warm, but as cotton soils quickly they must be washed frequently, and the downy appearance is lost unless great care is taken to restore it—for cotton is not as elastic as wool and therefore crushes down more easily. Dyes are not usually so fast in cotton as in wool; cotton is more inflammable and with a napped finish is especially so, and thus becomes dangerous when near a fire or open flame. A warm and serviceable blanket material, less expensive than all wool and lighter in weight than all cotton, is made of a foundation of knitted cotton with wool held in the meshes. This is finished to have a solid wool surface and is called Eiderdown.

Cotton towels are taking the place of linen ones on account of the scarcity of flax, but the properties of cotton make it not so sanitary for household purposes as is linen. (See Chapter V, section "Linen for Clothing and Household," and Chapter VII, section "The Part Textiles Play.") If cotton towelling is used it should be washed and boiled very frequently to keep it in a hygienic condition. Turkish towels are made of cotton and come in various grades. The surface loops hold the air and help in drying the body when a smoothly-woven cotton cloth would be less effective. There is a double set of warp threads, some of which are used for the ground and the remainder for the loops. A weave similar to that used for uncut velvet is used, or the loom can automatically release certain warp threads which appear as loops on the surface. The best towelling is made of good yarn, two or more threads are in each loop, and the ground is substantial. The filling is double and several alternating threads hold the loops well in place, consequently, the structure is strong and the loops do not readily pull out. The poorer varieties are altogether less substantial, as is evident on examining the end of the towel where the loops do not occur.

It is worth while to pay the higher price for the better quality. Newer kinds of bath towels and washcloths are made of porous materials, the air being a factor in drying. Some of these are made in a gauze texture resembling knitting with open spaces of some size. Soiled spots on the heavier towelling of this kind are often hard to eradicate, but the drying quality of the towel is good.

The serge weave used in many cotton dress goods will usually stay clean longer than will the plain weave, but when it does become soiled it is more difficult to launder, as the dirt clings to the weave. As cotton crushes readily a gown of heavy material is apt to have many creases across the back of the dress which are difficult to press out.

On account of the necessary dressings in cotton dress goods and the drying of the cloth on the tenters after finishing, it is well to wash such fabrics before making them up to allow them to shrink. As this takes away some of the attractive "new look," many make their gowns larger and longer than necessary at first, thus allowing for the shrinkage in the laundry.

Before buying cotton materials the wise housekeeper will consider the following questions: Is this material suited to the purpose for which I am buying it? It makes considerable difference whether an active child is to wear the gown or a careful, older woman, who only uses such a garment a few times in a season. Will the material launder or will it lose its color and finish? Will it wash easily, or will it be apt to collect dirty spots which will be hard to remove and streak from rubbing. Is it an enduring fabric, or is it full of dressing which will soon pass, and will the material easily tear? For example, rosebud sprigged dimity is alluring, but the cords in the weave are not easy to iron without much heat, and the heat may not be the best thing for the printed buds or the sheer material between the cords.

QUESTIONS

1. What are the reasons for the present high prices of cotton goods?
2. Give the leading cotton materials, their uses and possible endurance.
3. Collect samples of the kind of cotton goods which would be most satisfactory for the clothing of children between eight and fourteen.
4. What are the properties of cotton, and how do they affect its usefulness for outer clothing, underwear, and household purposes?

5. From actual experience with dyed cotton materials state which of the following yield the most satisfactory results: Dyed in the raw stock; in the yarn; in the piece; and also woven-in design or printing.

TOPICS FOR FURTHER STUDY.

1. Why is cotton of such great importance in industry?
2. What are the main principles of cotton manufacture? Give the effect of various finishes as related to the service of cotton materials.
3. Consider and state the advantages and disadvantages of modern power machine production over the domestic system.

CHAPTER IV

SILK CLOTHING

The Silk Situation.—The United States is one of the most important silk manufacturing nations, but relies for its raw materials on other countries. Silkworms have been and can be grown here, but for many economic reasons the rearing of the worms has not been developed to any extent.

During the war production costs advanced in all branches of the industry, for labor was scarce and expensive, consequently, the costs of throwing (twisting), weaving, dyeing, and finishing were greater. Retail prices naturally rose for wholesale ones were, in some instances, 70 per cent. higher than before the war. The war over, the difficulties attending the reconstruction to a peace basis began, labor being still difficult to obtain, high in price, and restless; raw material scarce and orders from the retail trade curtailed, for many customers waited a decline in prices before purchasing. The range of prices in some well-known silks is significant of conditions in the industry. The figures below were given by one of the largest silk manufacturers in the United States. They show the highest and lowest range in any one year from 1915 to 1919 (this does not include remnants or job lots). They were based upon actual production costs and a fair profit. In the case of satin the increase was as high as 100 per cent. Some manufacturers expect still higher prices, if shorter working hours are established, but other firms are looking for a decline. Until the unsettled conditions incident to reconstruction pass there can be no certainty as to price and a slow decline will be more advantageous for the market.

COMPARISON OF SILK PRICES ¹

	1915	1916	1917	1918	1919
Georgette . . .	\$.90-\$.95	\$.95-\$1.30	\$1.20-\$1.45	\$1.30-\$1.75	\$1.45-\$1.95
Satin	1.10-1.50	1.10- 2.10	1.90- 2.45	2.00- 3.00	2.50- 3.00
Foulard . . . . .	.77	.77- 1.40	1.30- 1.55	1.15- 2.30	1.85- 2.05
Pongee	1.75	1.10- 2.50	2.00- 3.00	2.25- 2.75	3.00- 3.25
Tussah	1.00	1.00- 1.50	1.25- 2.15	1.65- 2.15	1.65

¹ *Women's Wear*, February 20, 1919, page 6.

A serious break in the Japanese market in 1920 increased the price of silk goods in the United States. The best Japanese reeled silk (Double Extra Crack) rose to \$18.39 a pound (more than 300 per cent. over pre-war prices). Many orders for fabrics which had been given to silk manufacturers were cancelled, causing much distress. Business has again reacted, prices are more normal and there is a steady demand for woven and knitted materials.

The raw silk (including Tussah) production of the world in 1920-1921 was 46,467,500 pounds. Japan exported in this year 24,300,000 pounds, China 12,378,500, and Italy 7,330,000. The imports into the United States in the fiscal year, 1920-1921 were:²—

	Pounds	Foreign Invoice Value
Raw silk (including Tussah)	29,462,745	\$181,882,615
Spun silk	2,545,817	10,050,851
Waste silk	5,289,923	8,399,986
Manufactured silk	3,472,258	22,508,836

Spun silk yarn, made from waste silk, was used during the war for cartridge cloth. The powder for discharging heavy artillery is placed in bags which are inserted directly behind the projectile. The firing of these bags of powder gives the force to hurl the missile to its target. Silk has been used for the bags, as this textile meets the necessary conditions of complete disintegration when the gun is fired. If a particle of smouldering fabric is left it may cause a premature explosion when a new charge is inserted. Approximately 3,000,000 yards of cartridge cloth was on hand when the Armistice was signed. An outlet for this material was suggested in women's sport suits, the price ranging from \$1.75 to \$3 per yard.

As large amounts of tin were needed in war industries, and the supply was limited, the silk dyers were asked to report on the amount of this metal which is used in weighting silk. The president of a silk dyeing company, in his testimony before the tariff commission, gave the following statement: "Five hundred to 600 drums, weighing 900 to 1000 pounds, of tetrachloride of tin are used monthly by the silk dyeing industry. This is in liquid form and tin constitutes about 45.4 per cent. of the solution. Some of this is washed off in the frequent washings of the silk."³ Much is

² Statistical Bureau of the Silk Association of America.

³ *Women's Wear*, June 9, 1918, page 7.

recovered in a special treatment of the wash water, but the fact remains that large quantities of tin are used to increase the weight and thus make the supply of fiber go further. The consumer has long been aware of this treatment of silk, but has not always understood the effect upon the endurance of the material. The urging of thrift in the households during the war and after has aroused the consumer to interest in the endurance of clothing. This new temper in the purchaser of goods (*i.e.*, the desire to know whether material will endure) has begun to be appreciated by the silk buyers of some of the retail houses, and they are refusing to buy silks that are not of good value, for they see that the price has become less important to many customers than the quality. Large numbers of women are buying textiles for real service and not for effect alone. The dyer and manufacturer are willing to make pure dye silks if the consumer desires them and if she is willing to pay for them. The weighting is done just before dyeing and this work is usually placed in the hands of big commission dyers who dye for anyone. It is not always, therefore, the weaver and finisher of the silk who can tell the condition of the yarn, as it has been treated before it comes to them and there is nothing in the appearance of weighted silk to indicate its weakness until deterioration begins. There are, however, tests which the consumer can try at home which will reveal conditions.

The Silk Industry.—Silk is the fiber spun by the silkworm for its cocoon. It is an unbroken filament which comes from the body of the silk caterpillar before it enters the pupa state. The latter subsequently emerges from the cocoon as a moth. The fiber is later unwound from the cocoon by the raw silk reeler and furnishes the silk used in commerce. It is the costliest and most beautiful of the textile fibers.

Cultivated and wild varieties of silk are both in use. The *Bombyx mori* or cultivated silkworm is produced in China, Japan, and Italy principally, but is grown elsewhere. It has been under cultivation for thousands of years and is called the "domesticated silkworm." Spacious, well-ventilated rooms or sheds are used for the work, and extreme care is given to feeding and rearing that the best quality of silk may be obtained. Practically all of the fine silk fabrics are woven of silk from the "domesticated" variety.

The wild or uncultivated species, such as the Tussah, has a rougher fiber, little attention is given to the worms, and the cocoons are gathered from the trees when they have been spun. The irregularity of the filament as found on pongee is characteristic of the wild silks. Silk fiber consists of two substances, the actual silk or fibroin, and the gum or sericin, which covers it.

Reeled silk is the filament unwound from the cocoon. The best silk is thus prepared. The method of removing it is simple, though taking delicate and skilled handling. The cocoons are first soaked in boiling water to loosen the gum. They are later immersed, a few at a time, in fairly hot water held in a specially constructed basin. The imperfect fiber on the surface is laid to one side with all defective cocoons and the remaining ones are reeled off by catching several (four to six) ends of filaments on a small brush made of twigs, uniting them (this is easily done on account of the gum), attaching them to a reel, which is directly in front of the basin, revolving the reel and gradually winding the silk upon it. The filaments come off easily, making a long, smooth thread (called "singles") full of silk gum and therefore rather stiff but beautiful in appearance. Hand reels are still in use in the East, but are apt to give imperfect results. The steam filatures are more reliable, for the heat of the water can be regulated, making the yarn smooth, and the reels are run by power, causing a more even winding. Large quantities of raw silk come to the United States in the reeled form. If the silk is to be used in "skein dye" it goes to the throwster to be twisted or "thrown," so as to hold the fibers together. This is the sort of spinning adapted to the long lustrous fibers and differs from the methods used in cotton and wool yarn. Some yarns are not twisted or thrown but are used as "singles."

In addition to the reeled silk, whether domestic or wild, there is a waste product which consists of short fibers of rough silk taken from the outside of the cocoons before the long fiber is reeled off; of torn or broken fibers from the reels; of silk from imperfect cocoons, or cocoons from which the moth has escaped, which are difficult to reel; of wastes from manufacturing processes and of silk shoddy (clippings from new and old woven silk) reduced to a fibrous condition. The waste or floss silk is prepared for weaving by boiling the gum out of it, straightening, cutting, and combing it,

and then spinning it much as cotton is spun. The very short fibers may be carded only and then spun. Such silks are called spun silk or schappe in distinction from the reeled silk, and are excellent for many purposes. The best kinds are used in woven and knitted fabrics for dress goods, stockings, trimmings, cheap embroidery, knitting silks, dental floss, and coverings for electric wiring. Spun silk and cotton are sometimes woven together in a fabric and the former is also used, at times, to give fancy effects in wool dress goods. Reeled as well as spun silks are twisted about yarn or woven into the design in some worsted fabrics. Filling wastes, torn into short lengths and dyed in dark colors, are at times mixed with wool in woolen yarns which are made principally of shoddy, thereby strengthening the yarn. Thrown Tussah silk is used in insulations about electric wires as silk is a poor conductor of electricity. The lowest grades of wastes do not come to this country at all. Spun silk fibers, being short, will draw apart when the yarn is untwisted, but reeled silk yarn shows a continuous filament.

Although the United States grows few silkworms, it does a large business in throwing, weaving and knit goods, and in knitting, sewing, and other threads. It imports great quantities of raw and considerable spun silk, New York City being the principal market. Silks from Italy and other parts of Europe come directly to New York, but Oriental silk comes *via* the Pacific coast. The ships unload their precious cargoes at Vancouver, Seattle, or San Francisco, and the bales are carried across the country to New York in special trains. The great value of these "silk specials" gives them the right of way, and except to change engines, they seldom stop, nor are other goods usually carried on the same train. One loaded train is often worth \$2,000,000. There has been much complaint of late concerning thefts of silk. With the fiber so costly the disappearance of even a comparatively small package becomes serious. The silk mills of the United States are situated principally in New Jersey, New York, Pennsylvania, and New England. They excel in plain rather than in fancy silks. The highest priced brocades, embroidered chiffons and novelty silks are made in France and England. The best raw silk comes from Italy, but during the war the crop was much reduced. Japan and China, beside raw silk, send us many varieties of fabrics, such as habutai, shantung, and pongee.

Pure silk is costly, for an enormous number of cocoons are required to meet the demand. The growing of the worm takes extreme care and crops are often lost; the reeling needs delicate handling; the raw material is transported from great distances, and the throwing (twisting), weaving, dyeing, and finishing add to the expense.

Many silk materials have the designs printed upon them instead of being woven in—foulards, chiffons, and ribbons are frequently printed, and often in elaborate patterns. This may be done in the piece, on the skein, or on the warp before weaving. In the latter case the outline of the design is softened by the weaving of the filling. Patterns can be made also on piece-dyed goods by discharging the color with chemicals as in polka dots on a dark ground. (See Chapter XII, section "Dyeing.")

The thrown yarn prepared for warp is called organzine and is twisted in a special manner to give it strength. The filling yarn (tram) is usually made of an inferior grade of silk and is less twisted than the organzine. Silk is dyed in the yarn and also in the piece, the former being the usual procedure. Before dyeing the majority of silks are "boiled off" to rid them of gum and to clean them. In this process weight is lost, as gum represents from 18 to 22 per cent., and sometimes even higher, of the weight of raw silk. It is to restore this loss that practices have become common which, while adding to the weight, weaken the fiber. If a "pure dye" silk were wanted (one to which no weighting is added, but which after "boiling off" is given a dye bath only) the manufacturer having a pound of silk yarn to be so dyed would receive it back many ounces less in weight, as the loss of gum would not be made up. This would naturally increase the price of the woven goods (perhaps one-quarter more, according to the loss of weight), and the consumer, frequently desiring only a temporary fabric which will wear until the fashion changes, does not wish to pay more than she has been accustomed to give for the weighted fabric. Formerly sugar or other harmless substances were used which did not weaken the silk, but at the present time tin salts are largely employed which not only restore the lost weight but add heavily to it, cheapening the fabric but also beginning its deterioration. Some silks have all of the gum boiled out and are called "bright." Those

on which the greater part of the gum remains are called "souple."

The United States uses more silk than other nations, for its citizens have relatively high incomes, and everyone loves the beauty and the shimmer of silk; so the demand for it is constantly on the increase. All classes of people have wanted it, and as the call has been largely for inexpensive fabrics it has become customary to use methods to extend the supply by substitutions and adulterations. Unless the retail house can help her there is no way the consumer can know pure dye silk from the adulterated varieties, unless she takes a sample home and tests it, for the appearance is the same and the price does not always indicate value. There is need of honest statements about the quality of silk for sale on the counters. The buyer could perhaps obtain more accurate information and give it to the sales force who can inform those who ask for it. This will not be done, however, until many customers ask for it. The silk of long ago, even the taffeta, was remarkably enduring, and should be, for silk properties are of the best. Pure dye silk, while expensive, repays the one who buys it by its long service. It is at present found more frequently in piece-dyed than in yarn-dyed fabrics. Both kinds of silk are needed, but there should be some more satisfactory way of distinguishing between them than to take a sample home and test it. The thoughtful consumer during this era of high prices wishes to buy enduring material, for rapidly changing fashions have passed, temporarily, at least. In order to practice thrift in the household it is necessary to buy materials that will repay one for the money and time spent on them. If silk is desired for serviceable gowns, petticoats, underclothing, umbrella covers, and household drapery, thrift requires some assurance of reliability, especially when good prices are paid. Trade-marked silks are increasing in number which is a distinct advantage, for some names become a guarantee of worth, helping the shopper to buy wisely. To pay a high price for silk and the charges of a good dressmaker and then have the silk go to pieces before it should is disheartening and discourages one from buying this material unless one has some assurance of quality.

Properties of Silk.—Pure silk is the *strongest* of the textile fibers when the gum has not been boiled off. For this reason it has long been in use in scientific laboratories. It has great *avidity*

for moisture, and will absorb as much as 30 per cent. of its weight. This extra moisture makes the silk heavier, therefore conditioning houses are found in silk centers to test the fiber before it is paid for, to see if it contains an undue amount of water placed there often to obtain money unjustly. Silk is a *poor conductor of heat*, which quality makes it valuable next to the body in cold weather, and its *light weight* and *smooth softness* add to its worth for garments. It takes *dye easily*, and when the best dyes are used the colors are fast, but the process is difficult and expensive, hence less costly methods are employed with less satisfactory results. Silk has *luster*, the filament is *fine*, and the fabric falls in graceful folds, unless especially woven into stiff brocades. When the gum is boiled out, it becomes very soft and can be woven into exquisite materials. It *sheds the dust* and *keeps clean* for a long time, giving it value for clothing. Some silks can be laundered and are used for underwear and blouses, but very hot water sometimes causes yellowing and stiffening unless great care is taken, hence sterilization in the laundry is not as easy as with cotton. It is a *poor conductor of electricity* which causes its use for insulating electric wires. A little rustling noise, called "scoop," is characteristic of some silks. This can be produced artificially and, at times, fashion emphasizes this sound in petticoats and gowns. Silk is very elastic when the gum is still in it, stretching one-seventh to one-quarter of its original length; weighting reduces this.

Leading Silk Materials.—Dress goods, upholstery goods, linings, umbrella covers, ribbons, velvets, tie silks, knitted underwear, sweaters, gloves and scarfs, hosiery, trimmings, nets, laces, sewing silks, and embroidery and knitting silks are made of this fiber. The fabrics range from the thinnest chiffons to heavy brocades and pile goods. Silk is used combined with cotton and also with wool in dress fabrics. We rely largely on our own country for our silks, but the Orient is sending an increasing product. Until the market is more stable the silks mentioned below are being made as needed and not in large quantities.

Silks with much body are found in plush, velvet, grosgrain, duvetyn de soie, ottoman, bengaline, and some satins. These materials are often combined with cotton or wool. The filling threads in grosgrain are often heavily weighted, cheap varieties sometimes

carrying more than three times the weight of silk. Pile goods have the substitute material on the back and wear well if the silk face thickly covers the backing. Heavy materials of pure dye silk would be very high in price and out of the reach of the general public, consequently, corded silk, such as poplin, ottoman, and grosgrain, have cotton or worsted imbedded in the fabric as a cord, over which the silk warp passes and is held down by the woof or filling. The warp in these materials is made of raw silk which crosses the cord, and although it is not weighted, it is not always strong enough to endure the friction of the cord and breaks. The filling is apt to be weighted.

Medium-weight silks are found in crêpe de Chine, crêpe météor, and Georgette crêpes, China silks, light-weight wash silks, foulard, messaline, Louisine, satins of many kinds, peau de soie, charmeuse, surah, taffeta, Jersey cloth, and some of the eastern silks. These fabrics are enduring, if they are not subjected to a strain for which they are unfitted, but they cannot stand every variety of service. It is well to buy them at a reliable house, taking the advice of a buyer or salesman who can be depended upon. The softer, shimmering silks, when not heavily weighted, wear well if no great strain is put upon them. Crêpes are duller in appearance, but more enduring on account of the close twist in the yarn. Those used are some of them right-hand and some left-hand, and when the fabric is woven and finished the electricity in the fiber makes the yarn crinkle slightly, giving the well-known crêpe effect, for one kind of yarn draws up different from the other. In preparing for weaving, the yarns twisted one way are dyed slightly so that if a thread breaks it can be united to the other end of its own thread, otherwise a bad place would appear in the finished cloth. Crêpe effects are obtained also by the manner of weaving or by combining silk with cotton and mercerizing the cotton which will draw up and produce a crépon effect. Taffeta silks are very closely woven with organzine for the warp and tram for the woof. The tram is often over-weighted, which affects the wearing quality. Pure-dye taffeta silks (dyed in the piece) are on the market, however, which wear excellently. Some taffetas are unduly stiff, crease easily, and if over-weighted deteriorate rapidly in the folds. Surah silks are frequently weighted. Crêpe météor, China silk, wash silk, foulard, charmeuse,

and eastern silks are not usually weighted, but are sometimes unenduring owing to weak construction.

Light-weight silks are found in chiffon, chiffon cloth, gauze, maline, mull, mousseline de soie, lace, net, marquisette, and some Georgette crepes. When made of a good quality, pure-dye silk and taken care of, they will give good service for more dressy wear, but they are frequently used for constant wear for which they are not fitted. Many of these lighter fabrics, made for effect only, are heavily weighted and will not endure. Foulards and crêpe de Chines may be light in weight, yet enduring, but it is often hard to distinguish them from poorer stock unless the store can be relied upon for honest statement. Even then, the buyer of the store cannot always know, for he purchases from a consignor who is frequently ignorant of the real condition, and even the manufacturer would have to refer to the dyers to obtain the truth, and the latter have not been in the habit of testing the amount of weighting given. If, however, women wish this information sufficiently to insist on having it, there would be an effort to obtain the facts. Already there is distinct improvement over the past in the number of available pure-dye silks. It is, however, wise to put good-sized dress shields under the arms in all silk gowns to keep the silk from rotting from perspiration, as weighted silks are common.

Knitted silk stockings, gloves, scarfs, sweaters, and dress goods may wear satisfactorily if the silk is strong and unweighted. Fiber or artificial silks are used with much success for the same purposes. Hosiery made of the best reeled silk, closely knitted, is very expensive, but wears well. Many silk stockings are made from yarn spun from waste or floss silk which decreases the expense, and may be enduring if they are not too thin. Weighting in stockings makes a very poor article, for perspiration will cause the silk to deteriorate rapidly. (See Chapter VI, section "Knit Goods and Hosiery.") It is never wise to buy stockings, sweaters, and dress goods of weak silk, for it does not pay for the outlay in money.

Silk knitted underwear may be very enduring, but much of it is not. It may be made of spun silk, cost less than the reeled, and still be strong. The high price has stood in the way of the manufacturer of much good reeled silk underwear, for it is not in demand, yet it may be an excellent investment. The public has not

known how to judge of the real value and has been attracted by the cheaper garments. The mass of silk chemises, camisoles, and knickerbockers on the market are not worth buying. They please the taste for luxury and are bought in quantities to take the place of muslin garments. Lace-trimmed, billowy, flimsy articles with unenduring ribbons and embroidery are for sale at low prices. Underwear of this kind is an extravagance, for it is not worth the amount paid for it, and no one should feel satisfied to waste money on personal adornment. It is used with the sheerest waists over it and little under it but the flesh, and is immodest and vulgar, tending to the lowering of high standards of life. This insufficient covering, when worn in cold weather, depresses the bodily temperature below the normal and gradually undermines health. Such clothing habits become important questions for the life and vigor of the coming generation. (See Chapter VII, section "Keeping Warm.") Good health requires the preservation of energy through adequate clothing that it may be used for more important things than solely making one's self attractive through appealing to low ideals. The laundry costs for cheap garments are high, and repairs, if made at all, must be well-nigh incessant to keep so much weak decoration and poor silk in decent condition. It is possible to have a good quality of washable silk, such as crêpe de Chine or glove silk made into simple garments which will wear if they are carefully laundered.

Union Goods.—Silk and wool, and silk and cotton are found in admixture in fabrics and when well constructed are satisfactory in wear. A heavy cord of cotton or worsted inserted in the filling of silk fabrics, as in poplins, may rub against the warp threads wearing them out quickly unless the yarn is strong and closely inserted, making a mass against which the friction of the cord has little effect. Some fabrics are loosely constructed, so that the silk warp shifts and is worn out by the cord. A silk poplin with a cotton or worsted cord may be a satisfactory material if well woven.

Spool Silk.—Sewing and machine twists; crochet, knitting, darning, and embroidery silk; dental floss and surgeon's silk are made in various grades. The first two are similar to tram, but are harder twisted in their first stages. Sewing silk has two strands twisted together in the opposite direction from the first twist (called

two-ply). Machine twist has three strands twisted together and is called three-ply. Large amounts of these threads are made in the United States. Some of them are strong, but other varieties will not stand much strain. The low price at which such threads are sold and the fact that all grades of one kind usually are sold at the same price makes the best condition of manufacture difficult.

Finishing of Silk.—Many varieties of finishes are used to give differing effects to silk fabrics. Stretching the yarn will soften it and dressing will give it stiffness. Silk in the piece can be polished, giving it a brilliant appearance. If silk is too stiff and papery, after gumming, it can be softened with a special breaker which does not remove the dressing. It is the cheaper grade of silk fabric where much dressing is used to thicken it, thus taking the place of silk, which needs this special softening finisher. Silk can also be softened by heat and pressure with calenders, cylinders, and presses; treatment which is often given to better class goods containing ample silk. There are also smoothing and lustering machines to give finish and feel to the goods. Gas singeing is used on fabrics that have too much fluff on the surface, and the rustling noise called “scroop” can be imparted by acids, if it is not present in the silk. Special pressure with engraved rollers, running unevenly, will give the moiré look; smooth pressure on velvet produces panne velvet and printing is used largely for decorative effects. Printing may be done on the yarn, as in some ribbons which thus have a design with a soft outline, or on the piece, as in foulards which show the figure distinctly.

Adulterations and Substitutions.—The demand for silks at prices which the public can pay and the high price necessary for those with pure dye have led to various ways of increasing the supply and lowering the price. *Artificial silks* are made by the chemical treatment of cellulose, wood waste, pulp, or gelatine. These materials have the appearance of silk and often wear fairly well, but have not such characteristics of silk as elasticity or strength when wet. They are being constantly improved, however, and are used in braids, ribbons, upholstery, millinery materials, drapery, hosiery, sweaters, scarfs, and dress goods. There are several methods of making artificial silks, the one principally in use in the United States being called the “Viscose.” *Cotton* is used

largely as a substitute for silk, being found in brocades, velvets, satins, and poplins. The cotton is found in the backing or in cords over which the silk warp passes. It is also used one way of the goods, or in alternation with the silk which it can be made to resemble closely. Such union material is often stronger than if the fabric were made of heavily weighted silk. Sea Island or other long-staple cotton, closely twisted with all the soft fluffy fiber removed by gassing, looks much like silk, and is found in lisle-thread stockings, in gloves, in weaves with a special finish, as in silkoline, and woven in a satin pattern and given the required finish, as in sateen. The mercerization of cotton yarns gives them a translucent effect which resembles the light of silk; such yarns can be woven by themselves or in combination with silk and will scarcely be detected in the cloth. (See Chapter III, section "Cotton Finishing.") With too much cotton present, however, the fabric will soil and crush more quickly than when silk alone is used.

The cheapening of silk becomes more serious when the yarn is over-weighted with tin salts, for their deterioration soon begins. Such fabrics can not be allowed to remain long on the counters or they will show signs of weakness. They must be sold as quickly as possible, even if they have to be greatly reduced in price. In the home they must be made up immediately, for they are on the road to ruin. Weighted silk laid away will slit and crumble and will do the same thing if it is worn. Perspiration will cause rapid decay, as will also salt water or even tears. At the sea shore parasols as well as gowns will often rot quickly. Rapid changes of fashion have hidden the seriousness of these facts from many consumers who wore their gowns for a season only, but they have been regarded as a tragedy by people with small incomes who have tried to get the worth of their money.

Silks are usually weighted in the yarn after throwing and boiling off and just before dyeing. The tram or filling yarn is more apt to be heavily weighted than the warp or organzine; sometimes the latter is not weighted at all. It is usually heaviest in the silks with much body, for thereby the price is lowered. Reeled silks are more likely to be weighted than spun silks, for the latter are so much more bulky that weighting increases the size unduly, but the latter are sometimes treated to give them a richer feel, as in neck scarfs

and muffers. The process of weighting is somewhat as follows: Silk fiber has an avidity for moisture and an affinity for some substances when in solution. In boiling off 18 to 22 per cent. (or even more) of weight is lost, and it has always been customary to use various methods to restore this, but originally the substances added were not destructive. The present use of metallic tin dissolved in dilute hydrochloric acid has increased, for it can be used even when the most delicate colors are to be dyed. Iron has been used for weighting black silks, but lately tin is used almost exclusively. After the gum has been boiled off the yarn is given a bath of the tin solution. It is then washed and dried, but this process can be, and often is, repeated until the yarn is carrying a very heavy weight of tin. A slight use of weighting will not usually injure the fiber, but this cannot be relied upon, for it sometimes happens that even a slight application will cause weakness. Careless methods will often cause deterioration even when the weight is not in excess. It is also true that care in the weighting has been followed by much endurance, even in a heavily-weighted material. It becomes difficult, therefore, to judge of the wear from merely knowing the amount of the weighting. It would be well if dyers tested the amount of weight lost in boiling off thrown silk and then merely restored this weight, whereas often it is increased three or even four times. After the weighting the silk is ready to be dyed. A silk heavily weighted with tin is called "dynamited." A pure-dye silk can be laid away for a hundred years or more without deterioration, but weighted silks begin to disintegrate as soon as the process is completed.

Tests for Silk.—Simple tests of the value of a fabric can be made in the home which help to determine the wisdom of purchase. Pure-dye and weighted silks burn in the manner described at the end of this chapter, under section "Pure-dye and Weighted Silk."

If silk is loosely woven, so that the threads easily push aside, it should not be made up in a way to have any drag on the fabric, as in tight sleeves and tight waists, for it is apt to fray as the threads are pulled to one side. Even if such silks are unweighted, they will endure better if draped lightly. To test for ability to stand this strain when a solidly-woven material is required, place a needle in a double fold of the silk and draw the fabric away from it to see if

the threads will stand such pressure. Placing the finger-nail against the yarn warp way and then woof way will also show the possible shifting of threads which may mean wear in a seam. Another method is to twist a corner of the silk tightly and then stretch it out smoothly and look through it to see what the effect has been on the threads. Silks are made for many purposes and will not all stand the same kind of wear. It has nothing to do with imperfection if a silk intended for soft folds is found not to stand heavy service. Too stiff a silk will often crease and cut; if heavily weighted at the same time it will soon break in the creases. Taffetas are sometimes stiffened artificially, and if also weighted unduly will soon wear out.

Some varieties of silk will spot, as is the case with pongee, and should be sponged before making up, if they have not been so treated at the factory, as any sprinkling with water may ruin the appearance of the gown. It is well to test a silk before buying it to see if it spots.

Silk will hold its color well if good dyes are used and care is taken in the process, but the difficulties and expense incident to obtaining the best results bring to the retail market many silks which will fade. A fast alizarine pure dye will cost about six times as much as an ordinary pure dye per pound. This difference will be a considerable item in the price per yard of the material, consequently, the former is not much in use in women's dress goods. It is well to try the effect of air and light on the color of a sample of silk before buying it. (See Chapter VIII, section "Testing.")

A cord inserted in alternation with finer yarn is frequently seen in wash silks, but they are apt to wear alongside of the cord. Plain fabrics wear better, but the cord is attractive. If a silk which will launder is wanted it is well to try the effect of soap and water on a small piece before buying it. (See Chapter XII, section "Home Laundering.")

Washing of Silk.—Silk should be washed in water that is not too hot, and ironed with a fairly cool iron. Liberty silks, satin, taffeta, peau de soie, crêpe de Chine, and other underwear silks will wash excellently if care is taken. Prepare a basin of warm, not hot, water with some white soap in lather and soak the silk for a very short time, rubbing it lightly if necessary. Lay it on a smooth

surface and take off any dirty marks with a soft brush or piece of cloth. Rinse in clear water. Press the water out between two folds of cloth, and iron between two folds also. Some silks will stiffen if care is not taken in pressing. If stiffness is needed, put a few drops of vinegar in the rinsing water. Chiffon in good quality and in light colors can be washed readily and successfully. Plenty of warm water should be used, in which a little borax is dissolved. Do not rub soap on the silk, but make a solution of pure white soap. The chiffon can be gently passed through the hands and the dirt squeezed out. It can then be rinsed in clear water. The material should be shaken gently and dried by pinning down on a flat surface on which a clean piece of cotton cloth is spread. Plenty of pins should be used to keep the material in shape. Sponging grosgrain silk with coffee will often take out greasy marks. Strain the coffee through muslin, sponge the silk on the right side, and iron on the wrong side when partially dry. Small spots of mud on silk can usually be cleaned by rubbing with a piece of flannel, larger spots are helped by lightly rubbing with alcohol. To renovate black silk in the piece, sponge it with alcohol and then with potato water, and wind the silk around a roller without ironing it. To prepare potato water slice a good-sized potato, then pour over it a pint of warm water, and let it stand in a warm place for a time.

How to Tell Textile Materials.⁴—*Pure-dye and Weighted Silk.*—Pure-dye silk, whether fabric or thread, when burned, goes out leaving a small, crispy coal, or ash, at the end of the burned place. If weighted with sugar (many years ago sugar weighting was largely used with light colorings) a much larger ash remains, after the fashion in which sugar will boil up when it falls on the stove. If weighted with iron (largely used with blacks) a soft, reddish ash remains in which the fire glows for a few moments before going out. If weighted with tin, a firm, black ash remains behind in the semblance of the cloth or thread, this remainder being partly the ash of the silk, but mostly the mineral adulterant.

⁴The following valuable suggestions have been compiled for this book by Mr. James Chittick, of New York, Consulting Textile Specialist and lecturer at Columbia University. Mr. Chittick is one of the best known textile experts in the United States on silks, woolens, cottons, linens, velvets and plushes. His Book, "Silk Manufacturing and Its Problems," is a standard reference book in the trade.

Artificial Silk and Natural Silk.—Artificial silk being almost always made from cellulose (cotton, wood fiber, etc.) burns much like vegetable fiber. Natural silk burns as already explained.

Spun Silk and Reeled Silk.—Spun silk is made from waste silk materials reduced to relatively short fibers and then twisted, as a cotton yarn might be. When untwisted, the fibers can be drawn apart. In reeled silk the fibers run continuously and cannot be so separated without breaking them.

Spun Silk and Cotton.—Distinguish by burning.

Spun Silk and Wool.—Wool is crinkly; spun silk smooth and shiny. Hard-twisted spun silk, when untwisted, looks crinkly like fine wool. If wet out, spun silk becomes straight again; wool remains crinkly.

Raw Silk and Thrown Silk.—Raw silk is a thread composed of silk fibers as reeled from the cocoons sticking together by their natural gum, and without twist. The thread looks solid before dyeing, though after dyeing (and it cannot be dyed in the skein) it opens up into its original fine filaments. Thrown silk is raw silk threads in combination, twisted in various ways, making organzine, tram, etc. Any such silk with twist in it (except spun silk) is thrown silk.

Ordinary Silk and Tussah.—Tussah is the fiber produced by the wild silkworm. Originally of a brown color.

Tussah is harsher in touch, and the individual fibers are much coarser, being about twice as coarse as the fibers of cultivated silk. It usually has a good luster and firmness. Under a powerful microscope Tussah fibers look flat and ribbon-like, while cultivated silk fibers are round and glassy.

Cotton, Mercerized and Unmercerized.—Mercerizing is the treating of cotton under tension in a solution of caustic alkali. The mercerized cotton is silkier in appearance. Under the microscope the fibers of cotton appear to be twisted and ribbon-like. Mercerizing changes the fibers so that they then present a round, rod-like, glassy appearance.

Cotton and Linen.—Cotton fibers in fabrics are of uniform thickness, and reasonably uniform length. Linen fibers vary greatly in thickness, and also in length, and are always much longer than cotton. Abrupt changes in the thickness of the fibers will be found

in linen yarns (owing to the hackling or splitting of the fibers), but in cotton yarn variations in thickness will be of a more gradual character. Examine an all-linen handkerchief and a piece of cotton shirting against the light, and these differences will be apparent.

To Tell Per Cent. of Cotton in Mixed Fabrics.—For cotton and wool, or cotton and silk, weigh accurately a small sample, perhaps three or four inches square, and boil for five or ten minutes in a small vessel of water in which a stick of caustic potash has been dissolved. The potash destroys the animal fiber. Remove sample, wash thoroughly, dry, and hang up until it returns to normal moisture. Weigh again, and add 3 per cent. (for loss in boiling) to the weight. This corrected weight is vegetable fiber, and the difference is animal fiber. Keep the caustic potash away from hands and clothing.

QUESTIONS

1. Give reasons for the present high price of silk.
2. What are the leading uses of silk? Classify the various silk fabrics.
3. What are the properties of silk and what relation have these qualities to endurance and value?
4. What are the causes for the weakness of silk?
5. What is silk weighting, how applied, and what tests can be used to show the condition of silk or indicate its union with other fibers?

TOPICS FOR FURTHER STUDY

1. Discuss the economic reliance of the United States upon the silk-raising countries of the world, with particular regard to present conditions of production.
2. Study the growth of the silkworm, primitive as well as modern methods of reeling silk used in the East, and silk throwing in the United States.
3. Consider modern methods of weaving and applying color and design, with their effect on beauty, price and endurance.

CHAPTER V

LINEN FOR CLOTHING AND HOUSEHOLD

The Situation.—Linen is primarily the textile for household and hospital service and for certain special uses which can be met best by its peculiar properties. The war has had a serious effect on its production and manufacture, for the European nations engaged in the conflict were those that led in its growth and conversion into cloth. Linen has been virtually off the market as far as importations into the United States of household linens and dress goods are concerned. Hence, cotton took the place of linen for towel-ling, table cloths, and handkerchiefs, but it is lacking in the qualities which have made linen so desirable for household use. Cotton, too, is scarce, and the price of mercerized table cloth made of it is as high as was the linen before the war. Ramie fiber comes the nearest to linen in its qualities, but could not always be pro-cured. Hemp was frequently used in combination with flax.

The flax of Belgium has been the best for fine linen, for it is grown with great care and retted (rotted) in the waters of the Lys to remove the wood and release the fiber. These waters are espe-cially suitable for this purpose, and the fiber is soft, fine, and strong. Other countries beside the United States have relied largely on Belgium for their fine yarns with which to weave the best table linens and towelling. Ireland which is a center of the manufact-uring industry, grows its own flax to some extent, but it does not equal the beauty and fineness of the Belgian product and cannot compete with the price of Russian flax. England and France grew little, but relied largely on Belgium for yarns. Russia provided huge amounts of the fiber for these countries as well as for its own use, but it is now completely crippled. In the very section around Courtrai, Belgium, where flows the Lys, on whose banks stacks of golden flax awaited retting, came the German army. The fertile flax fields were trampled down and became "No Man's Land." The homes of the thrifty spinners of yarns and weavers of fine cloths were destroyed. The machinery of the scutching, spinning,

and weaving mills, which provided the nations with the finest of linen, were taken by the enemy or destroyed. The stores of fine linen were looted. It may be many years before flax will be produced again in its perfection in Belgium. In order to meet the shortage of linen, England increased her acreage during the war. The possibilities of the various parts of the Empire for flax cultivation are being studied. Ireland, too, has increased her acreage under cultivation, and Canada has been experimenting with the growing of it there. Russia was depended upon for the coarser flax and the Riga seeds were considered the best for planting, even in other countries. On account of the unsettled condition of the country, agriculture has been almost destroyed.¹

The Industry.—The flax plant is an annual grown in many parts of the world, but especially cultivated in a few countries. It has an erect, slight, willowy stem with a small pinkish or bright blue flower. The fields with the bending flax are attractive, but require great care to bring the crop to perfection. Belgium has grown the best flax; Russia has had the largest crops, and France, Ireland, Holland and other European countries produce in smaller quantities. The crop grows like wheat, and is usually pulled up by the roots. It is dried, tied in bundles, and sunk in water—in a river, as in the Lys in Belgium, or in a stagnant pool, as in Ireland, or left on the field for dew retting, as in many parts of Russia. The object is to rot (ret) off the woody parts of the stem that the fiber may be released. Cleaning, combing (hackling), laying the fibers in order, and spinning follow. Flax preparation requires special machinery, which is expensive. Large amounts of dirt and wood must be cleared away and in combing the fibers careless work will reduce them to tow or broken pieces, whereas the object is to obtain as much long fiber or line as possible with the minimum of tow. The combs or wires in the hackling process gradually become finer, for flax fiber will subdivide many times. The spinning or twisting follows the preparatory process, both wet and dry methods being used. The spinning of the line is said to cost four times as much as does the spinning of cotton. The weaving is simple, except in damask, which requires an elaborate harness, such as in the Jacquard, or in other looms, capable of dealing with many changes of pattern.

The finish is important to the appearance of the linen and

¹ Spinner and Weaver. Leipzig, 1921.

consists principally in bleaching, dressing, pressing, and beetling. The latter process is the bringing out of luster by having the goods subjected to the action of many hammers on a cylinder. In the past, bleaching was done on the grass, but chemical bleaches are now largely used. They hasten the process, but experience has proved that linen whitened by chemicals is not as strong as if the old grass method were used. One difficulty with the chemical bleaching is leaving the fabric too long in the bath, which destroys the fiber. Crofting (laying on the grass) is harmless, even if the cloth is long exposed. The finest Irish linen is woven of half-bleached yarn. It is then crofted for six weeks or two months. It is impossible now to bleach all goods by crofting, and the chemical methods have become the only practical ones for medium-priced goods. There is much difference in the way materials are bleached by chemicals; when the chemicals are too strong, and the work is done hastily, the fiber is likely to be greatly weakened. Many of the best goods are half crofted and half chemically bleached, thus minimizing the injury to the fiber. There are several grades in linen bleaching—quarter, half, three-quarters, and full bleach. These terms are not always used, but the idea is the same. The fuller the bleach, the weaker the fibers become, but the appearance of the cloth is improved. Much weight is lost in bleaching; in full bleach 20 per cent. is lost. The expense of the linen per yard increases with the amount of bleaching. Many housekeepers prefer to buy their household linen unbleached, and complete the bleaching themselves. This is easy to do if a garden space is available, where the linen can remain on the grass for some time. If the cloth is in use after each washing, it is well to expose it to the sunshine and air, and gradually whiten it. A little borax in the washing water and a few times on the grass will bring good results. The housekeeper thus saves her money, and has stronger linen. The care of the linen after it is bought is also a factor in its life. Mild soaps, plenty of water (not too hot), and little, if any, starch are needed. The wringer is bad for starched linen. Ironing should be done when the linen is damp and with not too hot an iron; continuing the pressure back and forth over the goods will bring out the luster in good cloths. (See Chapter XII, section "Home Laundering.")

Countries Producing.—*Irish linen* has always had a high reputation, being noted for its snow whiteness, its simple patterns, and its endurance. Much of the finer Irish linen is still grass bleached, and some of it is hand woven in the better grades of damask. The noted old firms continue to keep their reputation for honest linen. The yarns for the finer damasks have come largely from Belgium, as the quality of fiber is better than is grown in Ireland. Large quantities of flax have been imported from Russia. The United States buys much medium-priced linen from Ireland. The feel of a good Irish-linen table cloth is representative of how the best linen should feel; the patterns, however, are less showy and effective than in French damasks. Ireland also manufactures towelling, fine cambrics, lawns, and batistes.

Scotch linens, especially from a few good houses, have a high reputation. Sun and grass bleaching are still used to some extent for the better grades. Scotland does a large business in the heaviest linens, such as sail cloths, sacking, carpet yarns, canvas, and tarpaulin. Much of the medium-priced linen has been exported to the United States. The designs in the damask are more elaborate than the Irish ones. Scotland has relied less on Belgium for its yarn than have other countries.

Austria, Belgium, and France have sent their finest linens to America. The French damask has been noted for its exquisite design and effective appearance.

Russia has sent to this country the heavy crashes.

German linens range from very good to lower grades. The medium grades have been used in the United States. Good unbleached linens and colored linens have come from that country.

The United States depends on Europe for its supply of fine linen, for with us flax is grown for seed rather than for fiber. The seeds are pressed, to be made into linseed oil or varnishes, and a profitable business is conducted. When the crop is grown for seed it cannot be used for the finest fiber. For fiber the crop is harvested before the seeds are ripe, and the planting must be close enough together to keep the flax from branching. If the plant is full of branches—which increases the yield of the seeds—it will spoil the smoothness of the long fiber. The crop in the United States is used, however, to some extent for coarse fabrics, bagging, binding twines,

and ropes. To grow the flax for fiber requires much labor, yet, out of a large field of flax but a comparatively small amount of fiber is obtained; other crops are less trouble, and give better returns. There is a great amount of waste, for the woody matter has to be removed before the fiber is released. The cleaning, spinning, and manufacturing processes are also expensive. Linen cannot therefore be in common use, on account of the difficulties and expenses of its growth and manufacture.

The University of Oregon is making a special effort to encourage the cultivation of flax for fiber in that state. The soil and climate of western Oregon are much like Ireland and Belgium, and the streams have no minerals in solution, which is favorable for flax retting. Three hundred acres were planted in 1917 and materials woven from the fiber were exhibited, such as novelty yarns, household and dress materials, crash, sheetings, and insulating felt. The Chamber of Commerce in Portland, Oregon, has been active in forwarding the idea. In New York State, also, flax has been grown from which fine linen has been woven.

The tow (the waste from combing or hackling) can be prepared into yarn more quickly and less expensively than can be done with the line or long smooth fiber. Tow is being manufactured in New York, Massachusetts, and Minnesota. It has the qualities of flax, but less endurance and luster than the line. Efforts to develop a flax industry which may yield line as well as tow and yet save the seeds are being made. The flax is grown in the United States, is sun-dried and threshed in order to remove the seeds, and the woody part is removed by a decorticating machine in place of the foreign method of retting in water. The fiber obtained has the gum still in it, but is given a special treatment to soften it and prepare it for hackling and spinning.

Changes in Supply.—The European harvest of 1920 was less than one half of the 1914 crop. The United States in 1914 imported linen fabrics (a small amount of ramie and hemp were included) to the value of \$41,457,334.² By the close of the war such importations had virtually ceased. The stock imported before the war was depleted and prices had risen materially. One result of the shortage was the increased use of cotton for towelling

² Census of Manufactures, 1914, U. S. Dept. of Commerce.

and table cloths. Even Ireland used it in place of flax. By 1921 a good trade with Ireland was established. More flax was available and the use of cotton had decreased. Plans are being made for the use of a trade mark to identify pure linen. The continent of Europe is again producing and exporting linen but is keeping the bulk of the flax for its own factories. It will be several years before the industry is normal and prices will continue to be high. England has heretofore had a good business in manufacturing fine linens for dress or table use, and also in tickings, sheetings and Hollands, which will be curtailed until flax is again produced as it was before the war.

Properties of Linen.—Linen *absorbs* water in quantity about equal to cotton, but in the former the water spreads through the meshes, while in cotton it stands longer on the surface. If linen is sized, it does not take up the water as quickly as when not dressed. One way of telling linen from cotton has been to drop some water on each fabric, and note the way it is absorbed. Cotton seems to feel wetter than the linen, for the water is on the surface. A drop of ink or one of glycerine on unsized linen are other tests used. The latter is a good test, for it makes linen appear transparent and has not this effect on cotton. If the goods under consideration is a union of cotton and linen, it will show the transparency in a less degree than if of all linen. Water *evaporates* more rapidly from linen than from cotton, but in rapid evaporation there is a feeling of cold which can be noticed if a closely-woven linen garment is worn next to the skin. The fact that linen dries rapidly is a high recommendation for its use for mesh undergarments, for keeping the body dry is an important factor in health. (See Chapter VII, section "Clothing and Bodily Heat.") This quality is valuable also for towelling of all kinds and for handkerchiefs. If cotton and linen of the same consistency are saturated with water and left to dry, the linen will be dry first. Linen is the most *cleanly* of the textiles. It sheds dust, especially in the line, for the yarn has few small ends protruding, and there is less oil in flax than in cotton to catch the dust. It *washes* readily. The sanitary condition and cool feeling make it of great service in surgery. Cotton is treated to make it available for hospital use (when the cotton wax is removed it becomes absorbent), for the expense of linen makes it

prohibitive for common use in this way. It has become customary in well-organized households to keep all pieces of old linen to use in accidents; they can be sterilized and kept covered from dust. Germs do not grow as rapidly upon linen as upon wool and silk. The *wear* of linen is justly noted, but chemical bleaches and hasty finishes lessen its endurance. Unbleached linen is stronger than the bleached. The length of the filament is a factor in the strength, therefore the line is more enduring than the tow. Linen does not deteriorate quickly when stored away if it is without dressings and starch. Bleaching powders and alkaline solutions in the laundry injure linen and boiling water is not good for it. During the war poison gas was found to have a serious effect on linen stored away in presses, as it had also on leather; the linen was found to have disintegrated completely when it was opened, and the leather had hardened and shrunk.

The *tenacity*, *solidity*, and *toughness* of linen are the qualities which make it of the highest value in ropes, twines, and cordage. These qualities are a part of its strength. It is possible to spin linen to the finest filament. Even then, the strength is notable and has made it possible to keep the most gossamer laces for centuries. The knowledge of historic weavings and lace has been made possible by the qualities of flax for no other textile would have endured so long. Even after thousands of years buried in tombs, the linen of Egypt will stand washing. The *luster* of linen is almost as high as silk; when retted too long in its preparation it loses this quality; beetling (hammering) will increase the sheen in well-prepared linen. The tow has less luster than the line, for the fiber is shorter, but treatment gives it much gloss, which it loses as the little fibers again protrude from the yarn. Tow has much more permanent gloss, however, than cotton which has not been mercerized. Neither linen nor cotton holds ordinary dyes well. Colored dress linens are apt to fade, therefore they are generally more attractive and reliable in the various bleaches than in color. Linen has some *suppleness* when unsized, but when heavily dressed it creases and even breaks if stored away for a time. It should be stored without dressing in it.

Representative Materials.—*Heavy Grades.*—Sail cloth, tarpaulin, canvas, sacking, carpet yarns, ropes, cordage.

Medium Weights.—Towelling, sheeting, Hollands, crash, but-

chers' linen, dress linen, velour, collar and cuff linen, pillow-case linen.

Twill and Pattern.—Drilling, diapers, damask, huckaback.

Fine Linens.—Cambrics, lawns, handkerchief linen, batiste.

Printed and Dyed Fabrics.—Luncheon sets, table linen and table covers, dress linen.

Miscellaneous.—Lace, warp of oil cloth, harness, shoe and sewing threads, twines, fish lines.

Union Goods.—Towelling, dress goods, lawns, cambrics, sheeting, mesh underwear, pillow cases, handkerchief linen.

Comparing Cotton and Linen.—The properties of linen are very different from those of cotton, and as the latter, on account of the destruction caused by the war, is temporarily taking the place of linen, it is well for housekeepers to consider the differences, and if cotton must be used, to obtain its best service by taking care of it correctly. Even before the war cotton was coming into service in many cases where a century before only linen was used, as in men's shirts and collars, towelling and bed linen. A test on the daily use of each fiber was made before the war at a home-keeping house connected with a Girl's Trade School. New towels of both linen and cotton were provided of equal consistency and quality. They were to be used regularly in the work of the house and compared: (1) How each absorbs water; (2) which dries more quickly; (3) which soils more quickly; (4) which washes more easily; (5) which is more linty; (6) which wears the longest; finally, which is the best to buy, even if the expense of one is much greater than the other. The linen towels when bought cost about three times as much as the cotton ones. Linen towels are scarce at the present time, and cotton towels cost now about the same as the linen ones did then. The conclusion after ten months was: "After constant use the linen towel has kept whiter and laundered to look better than the cotton. Stains are much more easily removed from the linen, and dirt does not discolor the linen as it does the cotton. The linen dries the hands with less effort than the cotton. Whenever there could be a choice the linen towel was used in preference to the cotton. The linen towel wore longer."

The following can also be demonstrated by tests: The cotton fiber being short and full of oil easily catches the dust after the

finish placed on the new towel has gone. After use for a short time, towelling made from cotton becomes gray and dull looking, and requires constant boiling to keep it sanitary. Cotton dries more slowly than linen and as a result several towels are needed where two linen ones would serve. When cotton towelling is new, it seems almost as satisfactory as linen, for it has a smooth, glistening finish, but this passes away in frequent washings, and the short cotton fibers and lint come off in flecks and cling to the china and glass, which is not hygienic. As cotton is used often at present in place of linen it is well to remember that to keep it cleanly it must be washed more frequently than linen, and occasionally boiled to keep it sanitary. Table cloths of mercerized damask appear well at first, but soon lack the luster of good linen cloths and become in time dead looking, mussy, and not quite clean and fresh.

The union of cotton and linen in fabrics, towelling, and bed linen is frequent. Such goods may be very satisfactory for some purposes, but the good qualities of flax are reduced in proportion as cotton is added. It is hard to detect the substitution when the product is new, but wear will indicate it before long. (See Chapter VIII, section "Home Tests.") Cotton is combined with linen in porous underwear, the linen thus spinning better, it is said. The mesh underwear has qualities which make it hygienically desirable, for it keeps the body clean, dry, and well ventilated. (See Chapter VII, section "The Part Textiles Play.") But when flax is the main fiber the garment is expensive. Some of this union underwear is not strong and cotton mesh is being increasingly used in place of the linen.

Suggestions.—If the properties of linen are wanted, the purest, unsized material should be purchased. When linen is very stiff and creases easily, it probably contains much dressing, and the weave may be quite open under it. When the dressing goes, it will be sleazy and wear out quickly. Good linen has considerable weight and is sold by weight. If the finger-nail is pressed against a heavily dressed cloth, the sizing will come off in flecks. Double damask (a double thread is placed at least in the filling) is more beautiful and enduring than the single, and the pattern shows more distinctly on the wrong side. Both sides of a damask table cloth can be used, but the effect is better in the double. The pattern in damask is in

the warp threads. The right side of the cloth shows the vertical lines (warp) light, and the filling (woof) threads dark.

The hem on a linen table cloth should be very narrow, made by hand with the napery stitch (a fine overhand stitch), so that the cloth may launder better, the hem last longer, and the effect be neater. It pays to keep the linen in the best repair; the good housekeeper knows the value of good linen, and the linen of a household is often taken care of when other textiles are neglected. A close all-over pattern will launder better than bands and twill alternating, for the pattern part will shrink less than the twill, and when the alternations are far apart the cloth is apt to cockle after laundering, for the twill and pattern shrink differently.

In judging linen it is well to have definite points in view. The best linen is sized very little, and a round thread is better than a flat one. In the poorer qualities, loosely woven material is heavily dressed and beetled to look smooth and shiny; the beetling flattens the yarn which has not been round in the first place. The number of threads per inch is important; in good damask the warp will have at least 180 and the filling 280. A small magnifying glass used by linen testers is useful for counting. It is well to feel the weight of the cloth—if it is light and heavily sized, it is not worth buying. In the hand a linen should not be stiff and crackly, but smooth, leathery, tough, and yielding. If it is crackly and crushes readily, it is either over-dressed poor linen or cotton finished to look like linen. Crushing cotton and linen in the hand and noting the differences is a good way to learn the feel of each.

Grass-bleached linens in normal times come to this country about the first of January, having been bleached during the previous summer. The sales of linen that occur in the winter time of short stock and goods left on hand are worth the attention of the careful housekeeper. She should, however, buy at reliable houses and ask the assistance of the buyer if she herself does not know how to judge. As linen does not hold the dye well, the colored linens are doubtful investments, but linen in any of the bleaches will be satisfactory if made of good line. Unions of cotton and linen have their uses for dress goods, bed covering, pillow cases, and towelling, but are not as apt to give good service as all linen. Cloths with a border are more expensive than buying by the yard. In buying bed

linen, the machine-made hemstitching does not wear as well as a regular hem. Machine-scalloped edges soon become ragged. Much tow is used in the cheaper linen sheeting, and will wear rough after a time. Fringed cloths and napkins do not give good service.

Modern colored dress linens have not worn well on account of the rapid chemical bleaches, the coarse structure filled with dressing, and the lack of fastness in the dyes. Cotton dress goods will often give better service than will linen, the Indian Head muslin, for instance, being much like linen in appearance and costing much less, yet giving good service. Machine-made linen lace, if it has a strong edge, is excellent for trimming undermuslins.

QUESTIONS

1. What are the special uses of flax, and why?
2. What qualities make it pre-eminent for the home and the hospital?
3. Compare cotton and linen for household purposes.
4. What are the main factors in judging linen?
5. What is tow, and what is its particular field of service?

TOPICS FOR FURTHER STUDY

1. What is the economic basis for the fact that the United States depends upon other countries for its finer linen? What do we do with the large amount of flax grown in this country?
2. Where and how is it cultivated, what has been the effect of the war upon it, and what is the present status?
3. Give details of flax preparation into yarn, the weaving of it for ordinary and for exclusive purposes, and methods of bleaching and dyeing.

CHAPTER VI

CLOTHING ACCESSORIES

Leather Goods.—Leather is made from the skins of animals by a process called tanning which keeps it from decay. Skins of cattle, sheep, goats, horses, and pigs are used principally. Tanning is treating the skin with tannic acid after the hair is removed. The leather used in the United States comes from Russia, South America, India, China, Asia Minor, Mexico, and Mediterranean ports. Russia, which was before the war, a chief source of leather can no longer be depended upon but South America promises to become a leader.

Shoes are, in general, -made in four ways:—(1) The welt shoe, which has a small strip of leather sewed first to the “upper” and then to the sole, the highest grade shoes are made in this way: (2) The “upper” and the sole are sewed together directly, this is done with the cheaper shoes: (3) The “turned” shoe in which the sole is joined to the “upper” with the entire shoe inside out and then turned, as is done with women’s pliable shoes; and (4) the nailed, pegged or screwed on sole, for cheap shoes. The greater number of shoes are made by machine, it requires about fifty machines, two hundred processes and one hundred workers for one pair of shoes. The cost of shoes is said to be 30 per cent. labor.

Shark hides are being used for leather. The horny outer covering is removed and the elastic under skin is tanned. The stomach covering of the older sharks and the under skin of the young ones are used for gloves, pocketbooks and cases. The shark is procured in large numbers in the ocean from Virginia, around Florida into the Gulf of Mexico.

Artificial leather has been in use for the soles of shoes. A pair with composition soles will cost probably \$1.50 less than if the soles were leather. Shoes are made entirely without leather by using cloth or canvas for the uppers and composition soles. Such shoes

sell for much less than leather ones. Experiments in substitutes for leather are being tried, among which is the tanning of porpoise skin, with, it is stated, some satisfactory results. Rubber is used largely in composition soles, which are enduring, but heating to the feet. (See Chapter VII, section "Keep the Body Unhampered and Comfortable.")

Good leather is always expensive; cheap shoes will not give good service. In general, it may be said that the higher priced plain shoes are more durable than the lower priced ones. Fancy shoes are high in price, due to labor cost and novelty cost, and are unenduring for service. For ordinary street wear single soles of moderate thickness and soft, thin uppers are usually the most satisfactory. Patent-leather shoes and shoes with thin, delicate uppers and soles cannot stand rough usage. They are expensive, but are not fitted for heavy street wear or for rainy weather. (See Chapter XI, section "Care of Various Articles.")

The person who wishes long service should buy as good a shoe as the market provides, practical in shape, well made, and with a strong sole. He can buy cloth or canvas shoes with composition soles and save money. He should buy a shoe longer than his foot, of the shape of the foot, and with a flat heel under the heel of the foot. Low shoes should be put on with a shoe horn.

Gloves are made from the skin of the deer, the sheep, the pig, the reindeer, and other animals. Sheep skins from Arabia are, however, largely used for the usual kid gloves which have been imported from France to a considerable extent. The United States is producing gloves in various qualities, but the suede glove is imported. England furnishes some excellent, durable varieties. Mocha skins come from Arabia. The wear of kid gloves depends largely on the care given to them. They should be put on and taken off carefully. Washing or cleaning can be successful if directions, that often come with the gloves, are followed accurately. (See Chapter XI, section "The Care of Various Articles.") Chamois gloves are made from doeskin and are washable; the glacé glove is a brushed leather, and the capes are a dipped grain leather. The leather glove industry of the United States is largely in Gloversville and other towns in Fulton County, New York. Of the 352 factories in the United States 216 are in New York.

Gloves are also made of cotton, silk and wool. Cotton gloves are used by the majority of people, for the price is lower, they wear well, and wash easily. A high grade of cotton glove is made with a chamois (suede) finish, and double (duplicate) gloves are attractive, but high in price. Before the war many of the cotton gloves were imported, 90 per cent. of these coming from Germany. Chemnitz, Saxony, was the center for suede gloves. Prior to 1914 all suede gloves were imported, but since that time the industry has rapidly increased in this country. The sueding and duplicating are secret processes, the latter being not yet done in the United States. Our sueded gloves are now as strong as the earlier imported ones, but as yet have not the same velvety finish. The cloth used is made by the "Atlas" process, which is knitting rather than weaving. The necessary machines also are being made in this country. The fabric is very elastic lengthwise and therefore fits well; it is less so crosswise, consequently keeps its shape. Fine lisle thread gloves wear well and are used extensively. Before the war they were imported, Japan furnishing a large number, but now 50 per cent. are made in the United States. Lisle and suede gloves are made principally in or near New York City. Thin, cheap, silk gloves do not wear well, but when made of good silk, well cut, well finished, and double in the fingers are attractive and enduring. They take the place of kid gloves for dressy wear in summer time. Silk gloves of excellent quality and shape are made in the United States.

Knit Goods and Hosiery.—Knit goods of plain or mercerized cotton, wool, silk, or artificial silk, and unions with linen are extensively manufactured. Underwear, hosiery, headwear, coats, sweaters, cardigan jackets, scarfs, leggings, gloves, mittens, and other articles are thus made. Jersey cloth in wool, silk, or artificial silk is made for dress goods and a cotton knitted background is used in some fabrics, as in eiderdown flannel. Knitting machines are constantly improved, and equal the work of skilled hand knitters. A complete garment can now be made by passing it from one machine to another, as changes are needed such as knitting sleeves into the arm holes of a sweater. A great variety of stitches are possible, and two or more are frequently combined in one garment, as in a sweater with both the plain and the ribbed stitches. Knitting mills are increasing in the United States and excellent

goods are produced. New York and Philadelphia are manufacturing centers for knit goods. This industry increased rapidly before the war. The Census of 1914 reports 1,622 establishments with a capital of about three million dollars. The war retarded the growth but by 1921 business had adjusted itself with the promise of further success. The value of the industry in 1920 was \$286,500,000, 437 per cent. over 1914. Thirty-four states have knitting factories. Prices have been high and will continue so for some time.¹ In November, 1919, full-fashioned mercerized stockings for women were being sold to jobbers at \$12 the dozen in contrast to \$3.50 the dozen in 1914. In the latter year the two-ply mercerized yarn to make these stockings cost the manufacturer but 55 cents a pound, whereas the price in 1919 was in the neighborhood of \$3.25 a pound.

Knitting is a catching of one loop into another and not the passing of one thread under the other, as in woven goods. The quality of the yarn used; the variety of machines required, and the methods of finishing are factors in the price. When buying knitted underwear it is well to examine the fabric to see if it is evenly knitted. If cloudy and irregular with thick and thin places the structure is weak.

Hosiery is found as "cut goods," "seamless," and "full-fashioned." The first is the cheapest and consists in knitting a long web on a circular knitting machine. When this tube is taken from the machine, it is cut in lengths for socks or stockings, and the foot part is formed by shaping one end of the webbing into the form of the foot, sewing it together on a machine, and shrinking the stocking into a good shape on a board. Ribbed tops are sometimes placed on these stockings. They are not perfectly shaped, the seams are more or less uncomfortable for sensitive feet, and they are usually made of a cheap, poor cotton yarn. They are very inexpensive and largely used by those of limited incomes.

Seamless hosiery is knit on a special circular machine which forms the foot and heel on the end of the tube-like web. The join for closing the stocking is made on a looper machine and is across the top, below the toes. These stockings are more expensive than the "cut goods," but are cheaper than the full-fashioned hose. The newer machines give them a good shape, and when they are shrunk

¹ Daily News Record, November 21, 1919.

and finished they look well, but they are apt, after being laundered several times, to stretch at the ankle. Some find the joining near the toes uncomfortable. Many object to the absence of a seam down the back, which is found in the full-fashioned hose, and a machine has been invented which places a mock seam down the back over the seamless web. Newer varieties are being shaped better at the ankle and toe and resemble the full-fashioned kind. The finishing processes—shrinking and pressing—help the appearance; a good stocking of this kind wears well. At the present time, with prices of hosiery very high, the seamless variety costs about the same as the full-fashioned did before the war. This condition will pass as industry becomes normal. Varieties of seamless stockings are especially advertised for their endurance; an excellent long-staple cotton is used in them, and the sizes are said to run a little larger than in other stockings, which helps in the endurance. The majority of people wear stockings too short and the fabric breaks at the toes and heels.

Full-fashioned stockings are the highest type. They are knitted flat in several sections in the shape of the foot, and joined together, by a special machine, down the back, under the foot, and at the end beyond the toes. The knitting frames are complicated and expensive and automatically drop stitches in forming the ankle, heel, and gusset. Several frames are needed to complete a stocking, and the web has to be carefully removed from one to another in order that each loop may be placed exactly where it should be on the needles.

The finishing of stockings is important. Dyeing may be done in the yarn or in the finished article. As cotton does not in general hold the dye well, hosiery should be well dyed to stand the constant washing or it will become grayish and unattractive. The solving of the dye problem in America (see Chapter XII, section "Dyeing and Tinting") will give fast dyes in cotton as well as in wool and silk. Stockings should be bought a little longer than the foot. (See Chapter XI, section "The Care of Various Articles.") Seconds (stockings with some defect) can be bought at reduced prices and are often satisfactory. Plated hosiery in which silk is knitted above cotton are on the market. The appearance when new is satisfactory, but the silk surface sometimes becomes rough.

Manufacturers are endeavoring to strengthen weak places in hosiery where the strain is greatest, and are reënforcing the web at heel, toe, and where the garter catches. Cotton is placed in the feet and in the upper leg of silk stockings of the less expensive varieties, which makes them last longer. A cheap all-silk stocking is seldom worth the money it costs, and weighted silk is not enduring. (See Chapter IV, sections "Knitted Silk" and "Adulterations and Substitutions.") A good silk stocking is expensive, but should give service. Stockings are made of fiber silk and many of them are giving satisfaction. It pays to buy the best hosiery, to know the names of firms which are doing satisfactory work, and what retail firms are selling their goods. Some stocking manufacturers are selling direct to the public.

Rubber Goods.—Rubber is made from the sap of certain trees that grow in the tropics, incisions being made in the bark and the sap caught in receptacles as it flows from the trees. Brazil and the East Indies provide rubber. The Amazon Valley yields the largest amount of wild rubber, but the demand for it has developed plantations of rubber trees elsewhere which have greatly increased the supply. Rubber has to be treated to make it available for practical service. The increase in its use has been so great that waste rubber is reclaimed to augment the supply; and while not equal to the crude material, it renders useful service. Rubber is used for many practical purposes in dress, among which are waterproof coats, hats, rubber shoes, rubber heels and soles, dress shields, bibs, aprons, and gloves. Cloth can be made waterproof by putting a thin film of rubber over it. The heating of rubber and sulphur together, or vulcanizing, is a process which gives elasticity and endurance. Overshoes and gum boots are made largely from reclaimed rubber and they can be repaired by vulcanizing again if the holes are not too large. Rubber is being experimented with as a substitute for leather in the soles of shoes, and hard rubber is used for combs, brushes, and other purposes. The difference between hard and soft rubber is largely in the amount of sulphur in combination. The elasticity and waterproof quality of rubber are important properties. Rubber goods easily deteriorate in heat, in sunshine, or in contact with oil. Rubber shoes and garments should never be put near the heat to dry, and a cool, damp place is the best for storing

them. If oil comes in contact with rubber it should be wiped off quickly, or the article will soften and become gummy.

QUESTIONS

1. From what countries do we get leather, and how can we lengthen its service?
2. What is artificial leather and how does it wear?
3. Describe the difference between knit goods and woven goods.
4. Of what different materials are gloves made and for what service are they adapted?
5. From where does the rubber come? Name some of the many purposes for which it is used.

TOPICS FOR FURTHER STUDY

1. Arrange in tabular form a comparative study of the four leading textile fibers and of leather and rubber as to physical characteristics which aid in their recognition.
2. Look up the increase of knit goods manufacture of the United States and list the product.
3. How is leather prepared for use in shoes and gloves?

CHAPTER VII

CLOTHING AND HEALTH

Clothing as a Factor in Health.—Clothing is important in conserving the bodily energy or heat. The influence of it in maintaining a good physical condition has not received the attention it should, for few have realized the gravity of the situation. The Life Extension Institute gives as one of its twelve laws of health: "Wear light, loose, and porous clothes!", but as yet, only a few men and women are living up to this law as fundamental to their well being.

At the present time, one of the chief duties of every citizen is to keep well and vigorous, for the times are calling for service. Our bodies when normal tend towards health, and we must do nothing to obstruct this tendency. Every factor in efficiency should be observed. Clothing plays its part in giving endurance, cheerfulness, happiness, and health. It is, therefore, incumbent upon every citizen to be so clad that energy is conserved, ability is unhampered, and health is furthered rather than impeded.

The resistance of the body is lessened or increased by our mode of dressing. In many particulars the clothing of women has been lacking in hygienic features. It may be appropriate, beautiful, and healthful at the same time, if thought is given to it, and if some old conservative notions are thrown aside for new and health-promoting standards. Men's clothing is over-heavy, and impervious to air, but is an improvement over women's in fitness for service and in comfort and lack of pressure.

Clothing and Bodily Heat.—The body in its ideal condition is *maintained at a constant temperature of 98.6° F.* Small variations from this are dangerous. When the body is uncovered or insufficiently clad, it automatically attempts to regulate its heat. In so doing, energy is taken that either could be conserved if the clothing were adequate, or that being used to excess, leaves the body in a lowered and unsatisfactory physical condition. Unclothed races more readily react from extremes of heat and cold than do those individuals who, wearing garments, unnecessarily expose

themselves. The maintenance of an even degree of heat, the raising of the temperature if it has fallen too low, or rejecting an over-amount of heat are automatically accomplished in two ways: First, chemically, through the nerves in the skin which cause a constriction of the blood-vessels supplying it the moment cold air strikes it, and an enlargement of the blood-vessels when hot air strikes the skin. As the blood thereupon goes to the body tissues, heat is increased by oxidation; it is as if a furnace had had extra coal put into it and therefore gave more heat. In the second place, there is physical regulation of heat—that is, the supplies of blood to the surface are increased or decreased without changing the rate of oxidation. These variations in the quantity of blood sent to the skin control loss of heat by conduction, convection, radiation, and evaporation. Since much body heat is taken up in evaporating the secretion of the sweat glands, perspiration is an important factor in physical regulation. If the body when hot is subjected to a draught, the temperature will be suddenly lowered, and the result may be fatal to life, as only slight variations are normal. Overheating and underheating are both dangerous, yet these conditions are very common and few realize their significance.

Heat *conduction* is transfer of heat through contact of material substances, the heat passing from the warmer substance to the colder. When heat is applied to a substance, the particles first heated transmit heat to those next them, until the mass is heated throughout. Some substances have greater conductive powers than others. If a piece of metal and a piece of wood are heated equally, the metal conducts more heat than the wood to the hand. Dry air is a poor conductor of heat, consequently, the clothing should be kept dry and full of air so that the bodily heat may be maintained, and porous garments which hold air and help in the ventilation of the body rather than closely woven materials should be worn in contact with the skin. Textiles of various kinds are not warm or cold in themselves, but act upon the body by conserving or conducting away the heat. Cotton and linen, especially when wet, are good conductors of heat, and are desirable in warm weather, when the body is apt to be overheated, but need to be carefully used in cold weather as far as conductivity is concerned. Wool, and to a less extent silk, are poor conductors of heat, and even when damp feel

warm, unless the body is subjected to a draught, when heat is lost by evaporation. Both absorb the bodily moisture and hold the heat. Solid masses of cotton and linen, on the contrary, condense moisture on the surface of the skin, and heat is conducted away, requiring the body to furnish more of it to maintain the correct temperature; the moisture these textiles take up enters the fibers, the pores close, the circulation of air ceases, and the solid cloth lies in close contact with the skin, and feels wet and cold against the body, for moisture is evaporating and heat is passing away. The napped surface often given to cotton to hold the air and thus make it feel warm soon mashes down and loses its effect as cotton lacks the elasticity which wool has. For out-of-door life in cold weather the textiles which absorb water readily and conduct the heat away will soon lower the bodily temperature unless special care is taken, but those that are poor conductors of heat, keep air imprisoned in their fibers and do not allow the moisture in them to evaporate rapidly, have these factors in their favor.

The loss of heat by *convection* is caused by the fact that warm air rises and cold air takes its place. The heat from the body thus is rising continually, giving the effect of a chimney on air currents. When a person is lying down the heat no longer passes up the length of the body, but rises through a short distance along the entire length. Moreover, the relaxed body burns less fuel and so lowers its heat supply. For this reason it needs added covering when recumbent.

The body gives off heat continually by *radiation*, and if the clothing is not sufficient the heat may pass too rapidly for health. Conductivity, convection, and radiation are acting together continually in causing loss of body heat.

Clothing is primarily intended to conserve bodily heat and to make chemical regulation unnecessary, thus freeing energy for other purposes. This ideal is accomplished when clothing is adapted to the climate, evenly covers the body, is without pressure, and keeps the body dry and clean. Exposing the chest, legs, and arms in cold weather, as is customary with women and girls, and the legs and knees of children menace health. The joints are particularly sensitive and less capable of resistance to cold, and, therefore, in special danger when exposed. Clothing should prevent undue

evaporation and loss of heat, but not interfere with the perspiration. The results of such exposure are in many instances cumulative rather than immediate, and therefore not realized, for the health is undermined gradually and when a strain comes, breaks under it.

An attempt to harden the body by exposure is seldom a success in the life we lead, the most of the day being spent in overheated houses, consequently the time in the cold air is short. In general, homes, public buildings, street cars, and railroad trains have been overheated, and going into the cold and dampness of the outer air from summer heat draws heavily on the bodily energy to maintain its best condition unless the clothing is adequate. When coal is scarce, and underheating indoors is the rule, warmer garments should be worn. To use the same kind of light clothing with the temperature many degrees lower than is customary is dangerous. The menace to health from incorrect clothing is many-sided, and every point requires due consideration before it is possible for any one to select the covering that is best.

Keeping Warm.—The body should be kept moderately warm. The garment next to the skin is of great importance, especially in cold weather. Dwellers in towns and cities live chiefly indoors in winter, and the garments worn should be adapted largely to a warm atmosphere. When going into the outer air, extra coverings should keep the body at the right temperature. If conditions are such that the indoor temperature is low, a knitted combination suit of wool and cotton may seem necessary next to the skin for those who are cold blooded. In general, however, a porous union garment of linen or cotton gives adequate heat indoors. Two light-weight garments are warmer than one heavy one, consequently, if the body feels chilly, a second piece of thin underwear put under or over the combination suit is usually enough. The union suit is better than shirt and drawers, for the heat is more evenly distributed than when garments overlap. To wear too little clothing wastes the heat of the body, but to have on too much is enervating for perspiration increases, and on going into the outer air, evaporation of the moisture causes loss of heat and a feeling of chill follows. An underwear fabric that is so thick that the air cannot get through it is in reality less warm than those that are loose in structure and

hold the air in the meshes. The body becomes sensitive if too heavy clothing is worn during the day indoors or too warm covering is used at night. Each one must find the minimum for himself, as there are fundamental differences in people in their need of covering.

A general fault is to wear too light covering when going into the cold air, forgetting that indoors the temperature was summer heat and it is putting a heavy demand on the body to react from extreme cold without the assistance of extra clothing. In cold, wet weather the legs, feet, arms, and chest need special attention, yet it is no unusual thing to see these parts exposed while others are over-protected. Heavy furs are worn about the neck and at the same time thin silk stockings and low shoes are on the feet. Heavy wraps will be worn in a train for hours and the wearer will then go into the cold outer air with no extra protection. Even if a severe cold is not taken, the physical condition is lowered and the body is storing up difficulties for the future. Many dislike the look of heavy, high boots and wear into the damp street the low shoe which has been worn in the warm house; the penalty, however, is being exacted, even if the wearer is unconscious. A garment fitting loosely is warmer than a tight one. A light scarf is often sufficient to keep the bodily heat from passing away. Even thin veils or net underwaists will help to keep the warm air from passing too quickly. The Chinese rely on a lightly padded garment or on a number of light weight ones, one over the other, to keep them warm, for the air imprisoned between holds the body to the normal temperature. It is no unusual thing for those who go out in the evening to remove heavy underwear in order to appear in low-necked dresses. If the temperature of the place to which they go is at summer heat, and a wrap is at hand if cold air is suddenly brought into the room through many open windows, no harm may follow, but a very different state of affairs usually occurs. The overheated dancer delights to feel the sudden cold on the perspiring body and seeks the draught rather than covering the body from it. So serious is the danger from lowering the temperature even a few degrees below the normal, that physicians are considering with alarm the present tendency of fashion toward inadequate covering of the upper part of the body—in the winter time especially. The thin Georgette waist with merely a lacy camisole under it is draw-

ing on the energy of numbers of our young women to such an extent that their strength is being sapped in order to keep up the body temperature—a condition which is likely to result in a lowered birth rate in the next generation. This style of garment may well be criticised for its immodesty, to which must be added its danger to the health of the nation. It is unthinkable that women will continue thus to risk the better physical life of the nation for the sake of fashion and personal conceit, especially now, when the war has drawn so heavily on the health of the young men.

The dwellers in Arctic regions wear in general an outer coat or garment made of material which is windproof and will not allow the cold air or dampness to pass through. Peary wore a heavy duck covering; whalers wear khaki, sailcloth, or duck; and the Esquimaux use frequently a scraped sealskin coat with hood fitting down on the forehead, the trousers are made of the same, are loose and roomy, and without a fly. Inside of these, next to the skin, is a garment of wool, of fur or of soft bird skins, with the feathers turned in. This last-named garment is said to be the warmest in the world, but it harbors vermin. Two or three pairs of woolen stockings and light sealskin boots are worn. No pressure is allowed anywhere, and the heat of the body is retained within by the non-conductor next to the skin and the impervious coat outside.

For sleeping out-of-doors in cold weather, in addition to the bed covering, a warm union suit, a bathrobe, wool bedsocks, and a helmet of wool are recommended.

Keeping Dry.—The body must be kept dry to be in good health. Too warm underwear of wool will cause unnecessary perspiration, the products of which collect on the garment; therefore, for keeping dry and clean a linen or cotton porous mesh garment would be much more sanitary. A solid fabric of any kind next to the skin is not hygienic, for it becomes wet more readily than the porous mesh. An active child running and playing, wearing heavy cotton knitted underwear with a napped surface may be damp almost all day long—this is a ready way of taking cold. Dry, warm air takes up moisture readily, but cold, damp air does so slowly, if at all, and feels colder than dry air even at the same temperature. Water is a better conductor of heat than dry air, and if next to the skin will conduct it away through evaporation until the temperature is below

the point of health. Every effort must be made, therefore, to keep the body dry by having the right sort of underwear next to it. An overwarm atmosphere will cause perspiration and the textile next to the skin should absorb it rapidly and let it pass quickly. Wool promotes perspiration, feels dry and warm, even if wet, and holds large amounts of moisture, but for many reasons it is not the best textile next to the skin; nevertheless, as it feels comfortable on a cold day, it is worn largely by those who have not given much thought to ideal clothing conditions for the body. (See Chapter II, section "Wool Properties.") The feet must be kept dry, and to own overshoes, from sandals to goloshes, should be regarded as an absolute necessity. If the feet get wet, the shoes and stockings should be changed immediately on entering the house, and the feet should be rubbed with cold water and a rough cloth to increase the circulation. Wet feet will very quickly lower the temperature to a dangerous point. So much of a distaste is felt for rubbers that it is an exceptional thing to see them at any time on the majority of young women, and often thin-soled, low shoes with thin, silk stockings are worn on the snowiest and wettest days without any protection.

Keeping the Body Clean.—A quick, daily sponge bath with cold water should be taken by everyone in normal health. A hot bath is not necessary every day, but should be taken at least once a week in cold weather. Clean clothing must be worn next to the skin, but if the body is in health, it is not necessary to use a large number of clean undergarments weekly; it is well to alternate daily the garment next to the skin with another, allowing one to air while the other is in service. The clothing worn during the day should be taken off at night and aired and a night garment take the place. Cotton has some advantages next to the skin, for it can be easily laundered and made sterile with boiling water which other textiles will not stand. Wool worn directly next to the body and carelessly laundered is not as good as a porous mesh of linen or cotton, but linen is difficult to obtain and very expensive at present. The growth of germ life on textiles is more rapid on wool than on silk, cotton or linen. Clothing so made that it is difficult to wash and expensive to clean becomes unsanitary after a time. The habit of making removable linings for clothing so that they can be laundered without difficulty is hygienic and should be encouraged. The sweat

glands of the body give off daily about 50 ounces of secretion, and the clothing takes this up and needs cleansing at intervals, especially if the garment is in constant use. The perspiration must pass that the body may be cooled, but to keep it in the garment against the skin is not wholesome for the pores become clogged, which is dangerous. Clothing which can be washed frequently has great advantages; therefore, the laundry becomes an important factor in health. Steam laundries properly conducted are more apt to sterilize clothing than the home laundry, and the latter may be a menace to health if clothes are not boiled and if air and sunshine are lacking and disease is present. The sweatshop manufacture of garments, so common in large industrial cities, may also communicate disease if the clothing has been made when contagious disease was present in the shop. The dust of the street should be brushed out of constantly worn garments to prevent the spread of disease. Veils, hats, and neckwear may also be carriers of infection unless care is taken to buy only from places which do not rely on sweatshop workrooms and from a department store which refuses to allow them to go out on approval.

Keeping the Body Well Ventilated.—Porous, light-weight garments are better for keeping the body in good condition than solid woven ones, for air passes through them. The skin needs ventilation as much as the lungs. Even the outer clothing should not be impervious to air for any length of time. The habit of wearing dress linings that are so closely woven that air cannot readily get through them is not good, but those of thin silk or net allow for ventilation. Women are more apt to wear lighter and more porous clothing than men. The heavy clothing next to the skin, such as the thick wool or napped cotton undershirt and drawers, or union suit, or the closely woven muslin combinations, the starched shirt and collar, the heavy wool suit and waistcoat worn by many men really defy the access of air to the skin during all the day. Women are learning that the thick rubber waterproof coat is uncomfortable from its lack of ventilation, and they are discarding it generally for a light weight and rainproof cloth. Porous underwear has long been made for men, and has appeared to some extent for women, and some of the knit underwear is in fairly loose mesh and is made for both men and women. Some women, appreciating the advan-

tage of the very porous varieties, are buying men's garments and altering them to suit their needs. It is a mistake to wear solidly woven muslin underwear directly next to the skin as many men do, for the moment perspiration enters it, the pores close and the muslin lies close to the body, stopping the ventilation and causing a feeling of chill as the heat is conducted away from the body too rapidly. It would be better to wear one of the varieties of porous mesh shirts first, in either winter or summer, and put the muslin one over, if desired. The same weight of porous underwear of cotton or linen is worn by many, winter and summer.

Keeping the Body Unhampered and Comfortable.—The body should be unrestricted. Tight waists, shoes, hats, corsets, collars, neckwear, belts, and garters impede the circulation and keep the individual from doing efficient work. Tight skirts are often dangerous and are always impeding. Many accidents have occurred through them, especially on the railroads where damages are often refused, when the company successfully points out the skirt has been the main cause of the accident. Tight clothing about the waist and abdomen prevents the necessary expansion and is therefore injurious. Wherever the clothing is tight, the blood does not circulate as it should, and such pressure should be avoided so that the normal functions of the body may proceed without interruption. Men's clothing in general is better in this particular than women's, but it has too much weight in the heavy underwear, the thick wool suit, and the heavy overcoat. The belt, the tight hat, and the starched stand-up collar interfere with the circulation. The hat should be light in weight, well balanced, well ventilated, and without pressure on the scalp. The unventilated derby, high hat, and motor cap worn by men have distinct disadvantages. Experiments show that the thermometer under them rises many degrees higher than the outside air—with the air 78° outside, the temperature in an unventilated motor cap was 98°. Women's hats are frequently better than men's, for they are lighter and looser. There should be a space above the crown of the head. The summer hat of straw should be so lined that the sun's rays do not strike the head; a dark lining is the best. The present unrestricted neck in women's dress is an advantage over the high, tight, boned collars of a short time ago. Corsets are injurious if they are tight, do not fit well, do not

allow ventilation of the chest and abdomen, and exert a heavy downward pressure on the organs. They do not need to be harmful if they are loose at and above the waist, are made of light weight, porous material, fit perfectly, but not closely, and the suspended garters are not made so tight that there is a drag on the body. They should not interfere with active work, but allow for reaching, stretching, and bending. If the muscles are strong and the gown suspended from the shoulders, the corset is unnecessary. Garters



FIG. 5.—The fashionable shoe.

worn around the leg are apt to be so tight that the circulation is much impeded. Fatigue is caused from working with cramped muscles, and overfatigue is a danger signal.

Shoes should be the shape of the feet and wide enough to allow room for them to expand as they are pressed on the floor. These conditions are seldom present in women's shoes. (See Fig. 5 for the fashionable form of the shoe.) The shape of the normal foot is straight on the inner side from the big toe joint to the end of the toe (Figs. 6 and 9). The majority of women have distorted feet from wearing a short, narrow, pointed shoe with a high heel, for the big toe is twisted around throwing the joint into prominence and bunions are frequently formed at the joint (Fig. 7). The narrow shoe does not allow the foot to lie flat on the ground, hence

the flesh is folded together and callous places come under the ball of the foot. The high heel throws the foot forward into the point and the toes are crowded together, consequently, corns appear between the toes. The high heel prevents the body from taking its correct poise and its weight is not well supported. Strain comes on the arches of the feet and they often weaken and break down, causing flat foot (Fig. 8). The bad poise of the body makes an undue strain on the muscles all the way up, frequently causing

FIG. 6.

FIG. 7.

FIG. 8.

FIG. 9.



FIG. 6.—Comfortable shoe of correct shape.

FIG. 7.—Foot distorted in shoe.

FIG. 8.—Flat-foot.

FIG. 9.—Normal foot.

(Courtesy of *Hygiene for the Worker.*)

rheumatic pains and even eye trouble. The most serious arraignment by physicians of wearing this kind of shoe is the increase of internal trouble among women on account of them. There are two arches: The front, anterior or transverse, and the back or longitudinal arch. The pointed-toed, high-heeled shoes cause the feet to toe out, but the correct way to walk is with the feet straight ahead in Indian fashion. Walking with the feet turned out weakens the insteps or longitudinal arches, and the high-heeled shoes throw the weight of the body forward on the ball of the foot and weaken the transverse arch.

It is no unusual thing to hear women excuse their wearing of the fashionable shoe on account of the height of their insteps, but this does not require them to wear a short, narrow pointed shoe with the high heel under the instep instead of the heel of the foot. If any one has long worn incorrectly shaped shoes the foot has probably changed from the normal, and when she begins to wear the correct shoe she experiences discomfort as the foot endeavors to resume the correct shape adapted to holding the weight of the body. A woman who looks with horror at the Chinese shoe will be quite placid over a similar maiming of her own feet. If any one wishes to know how high the arch of her foot is she can press her bare foot on damp sand and note the impression made (Fig. 9), or she can put a piece of paper under her foot and draw the shape as it touches the floor. A very high arch will be indicated by the almost, if not complete, separation of the two parts of the foot. Feet differ greatly in the height of the instep and a correct shoe for one may not be the perfect shape for another. If the arch is quite low or broken down a very low heel and a flat shoe are likely to be comfortable. When conditions are extreme, however, an orthopedic physician should be consulted. The better class of shoe stores are now providing a special salesman to give advice on this subject and they have various types of hygienic shoes on sale. An increasing number of the best factories are giving attention to the needs of nurses and other professional and working women and providing a shoe that is the shape of the foot, and also finishing it in an attractive manner. Supports of various kinds are being made to aid weak ankles and arches. Some of these shoes are not high in price, but good leather is costly at the present time, and enduring shoes require the best of materials and workmanship. A shoe must not be too loose, or it will rub on the flesh, bringing blisters and callous places. It should fit well about the heel and into the instep, that the foot may be supported.

The tendency to wear too short a shoe is prevalent among men as well as among women. In the first days of the war the soldiers were found to have incorrectly shaped shoes which interfered with their endurance on long marches. A study was made of the best shaped shoe for service, with the result that the efficiency of the army was increased. Each outfitting station was provided with a

special instrument for determining the correct shape of shoe for any man. Self-supporting women are called to stand for long hours in the hospitals, in elevators, in street cars, and in business as well as in their homes, and much of the fatigue experienced comes from the incorrect shape of the shoe. A wise woman will give attention to this matter and be correctly shod during her hours of work, even if at the end of the day when she is sitting most of the time she gives in to fashion's decree and wears the high-heeled shoe. If any one insists upon wearing pointed shoes during her working day she should at least obey the following rules: The width across the ball of the foot should be as wide as the foot when pressed on the ground, the heel should be broad and not high and directly under the heel of the foot. The shoe should be at least one-half inch longer than the foot to allow the point of the shoe to come well beyond the toes. (A flexible shank in the shoe is an advantage, as the muscles are thus exercised and become stronger.) If the heel is low the foot will not be crowded into the point of the shoe. It is desirable that the foot should be ventilated. The low shoe in the house has advantages over the high one, and gaiters can be put on when going into the cold air. The wearing of sandals in summer is good and the canvas low shoe is better than the one of heavy leather in the hot weather. Rubber soles heat the feet and should be avoided unless the ground is damp. It is absolutely essential that children should have the right sort of shoes, or they may suffer for life from the thoughtlessness of the parents in this particular. The wearing of old run-down, high-heeled slippers about the house is bad for the ankles and for the poise of the body. The muscles are strained and weakened and the instep injured.

There has been of late years considerable improvement in the weight of women's clothing—heavy crinoline has gone from the skirts and there is less material used; few petticoats, if any, are worn, a bloomer taking the place in cold weather; combination garments have succeeded the overlapping two-piece ones; heavily lined waists, bones, and belts have disappeared; and outer garments are in one piece to a great extent and are light in weight. At one time, not so many years ago, it was no unusual thing for the thicknesses about the waist (on account of the double muslin belts on numerous garments) to count up to 18 or 20 layers. At present, five to six !

layers are considered sufficient. As few garments as may be necessary to secure warmth is the ideal; a porous union suit, a corset, a muslin combination or a brassiere, bloomers or a petticoat, and a one-piece dress is the usual amount, weighing from four to six pounds even in winter. This is a great step forward in health for women, and men would well eliminate much of their heavy wool clothing.

The Part Textiles Play.—Each textile has special qualities which have their effect on the body. These properties can be minimized by making the article porous or can be increased by the solidity of the weave. It is now conceded that weave has much to do with the effect of any of the textiles next to the skin. *Wool* is of the highest service in winter weather for out-of-door wear, for it keeps the cold air from the body and does not conduct the warm air away from it. For underwear next to the skin it feels comfortable and has some recommendations, but many drawbacks (see Chapter II, section “Properties of Wool”), for it cannot stand hot water and rubbing in the laundry without shrinking, unless the greatest care is taken, hence, is often unsanitary after being washed a few times. (See Chapter XII, section “Laundry.”) The poor qualities of wool are lessened by combining it with other textiles; but, on the other hand, a knitted garment made principally of cotton has lost some good qualities belonging to wool.

Wool hosiery has good and bad points. The hand-knitted stocking, made of a good quality combed wool, feels soft and warm to the feet and more comfortable for long hikes in cold weather (while the wool is still pliable) than cotton, which is harsher and feels colder. Such hosiery is expensive. Machine-made stockings of cotton and wool are less satisfactory than the all-wool hand-knitted ones when they are new. If, however, the feet perspire much or the wool stockings are carelessly washed, shrinking occurs and the fabric becomes hard and tight on the feet, and does not allow sufficient ventilation, hence the good points are lost. Wearing wool stockings indoors in a warm atmosphere keeps the feet overheated and is apt to make them sensitive. If wool stockings are worn out of doors it is well to change them for a lighter, less heating kind when in a warm house.

Cotton is of great use for undermuslins and for summer cloth-

ing, and in normal times the price is low, consequently it can be bought by all—it is the universal fabric. (See Chapter III, section “Properties of Cotton.”) For underwear next to the skin, cotton is not advisable if it is solidly woven like a muslin or thickly knitted and napped, for it keeps the body moist and conducts away the heat, but when made in an open mesh, these poorer qualities are lessened, and the ease with which it is kept in a sanitary condition is an advantage. As it is easily laundered it is useful for dresses for children.

Linen has the best properties for underwear, especially when the fabric is porous, for it keeps the body clean and dry and launders readily. It conducts the heat from the body, consequently feels cool when solidly woven but comfortable when in a mesh. It will be hard to obtain until the flax industry is again in running order and will be very expensive. Unions of linen and cotton are being made for underwear, but are also high in price. A porous cotton underwear makes the best and cheapest substitute for linen mesh at the present time.

Silk has many excellent qualities for both outer and under-clothing. Its high price puts it out of reach of the majority of people. In good qualities it wears well as underwear, and if care is taken will launder satisfactorily, and hence may be a good investment. (See Chapter IV, section “Properties of Silk.”)

Summing Up Efficient Clothing.—Having considered the many phases of health in clothing, the ideals may be stated as follows: There should be as few garments worn as possible to secure warmth, the weight should be light, the body unrestricted, the covering even, and providing for good ventilation. If extra warmth is needed, a light undergarment can be put over the one next to the skin. The garment next to the skin should be porous, easily kept clean, and of a fiber and texture to keep the body dry. Double-fold underwear is manufactured, made of porous cotton mesh and of light wool, but as these textiles react differently in the laundry, it is a question whether two separate garments are not more satisfactory. A union garment is preferable to two pieces, for it covers the body without overlapping at the waist. It should be selected to preserve the heat of the body in the temperature in which the most of the day will be passed. To remain in an office all

day in summer heat and wear thick woolen underwear, a heavy worsted suit, and a waistcoat of the same, as many men do, is depleting. The undergarment should be the principal means of retaining heat and the remainder of the clothing can be for drapery. Those who are indoors most of the day do not need as heavy underwear as those who are most of the time in the cold air. The out-of-door covering should not be so heavy that it wearies the wearer. Two light-weight garments (a coat and sweater, for instance) are often warmer than one heavy solid one.

Shoes may be light indoors, but when going into the cold air the sole of the shoe and the upper should be sufficiently heavy to protect the feet from the cold and damp. Gaiters or high shoes should be worn if it is wet or cold. Rubbers should be worn in damp or wet weather. The shoe, during the working hours, at least, should conform to the shape of the foot and have low, flat heels. If one is sitting, the pointed-toed, high-heeled shoe is less injurious.

Older people feel the cold more than the younger ones, and should be kept warm, consequently wool may be the only comfortable textile for either underwear or outer wear. It would be well, however, for them to try the effect of a porous knit cotton or linen shirt under a light-weight union garment of wool and cotton, and see if it is not sufficient. A very heavy outer coat is too taxing to their strength and a light-weight coat with a warm sweater or knitted waistcoat under it will be better for them.

The health of the little child depends much on clothing. A baby is warmer than older people and is often too hot in its wool coverings. It is very sensitive to changes and must be so dressed that a sudden lowering of temperature does not take its bodily heat below the normal. An all-wool shirt next to the body is generally too heating in a warm house, and has also the objections stated for wool underwear in general. (See Chapter II, section "Properties of Wool," and Chapter X, section "The Wardrobe.") A cotton and wool or a silk and wool shirt is better. The band for an infant can be of the same materials, and not of all wool. An all-wool band is apt to shrink in laundering and constrict the body. It is well to cut it on the bias, for it gives better to the movements of the body. The edges should be unhemmed and the band loose enough for breathing, crying, and moving without producing pressure on the

body. Rubber diapers are too heating and should not be used. As few bands as possible should be about the body, consequently all of the garments should be hung from the shoulders. The dresses should be unstarched and have little trimming. The baby should be kept dry and the clothing should be changed immediately, if it becomes wet. Shoes must conform absolutely to the shape of the feet and be amply large. Babies' feet are often twisted out of shape by shoes that are the wrong shape and too small in size. It is better to throw away a pair of shoes than, for the sake of economy, to continue their use when they are not amply large.

For out-of-doors older children should be evenly, lightly, and warmly dressed, according to the temperature. A heavy napped cotton garment next to the skin is apt to be wet with perspiration from the play and running, and is not hygienic, and the all-wool garment is too hot. The porous knit linen or cotton is again more sanitary next to the body both indoors and out-of-doors, for it keeps it dry and well ventilated. The feet, ankles, knees, and legs must be kept warm by stout shoes, leggings, or heavy stockings. It is especially necessary to keep children sufficiently warm, for they need reserve energy for growth. Bloomers are better for little girls than petticoats, and can be made to match the dress or to be in harmony with it. A child's clothing needs frequent washing, consequently cotton goods have advantages for easy washing and sterilization. The outer coats should be light in weight; a light coat with an extra garment underneath will be better than a heavy coat, for it will not fatigue the body, and on warmer days it need not be worn. There should not be anything to bind or weigh down on the body of the growing child.

Dangers.—There are actual dangers lurking in clothing if it is soiled, if the dye is likely to come out and be absorbed by the body, if the laundering has been carelessly done, if the clothing has been made in tenements where disease is present, thus carrying infection, or if nets, veils, hats, and other accessories are not sterile when they are bought.

Success in life depends on the physical condition as well as on mental faculties. One out of three of our young men were unfit for military service. If girls had been subjected to this test, they would have fallen further below this average, as their clothing prevents

development, and is often really injurious. Health from every standpoint needs greater emphasis in the schools of the United States so that the next generation may be more physically fit, and clothing needs consideration as well as other factors. We are here to bear burdens, not to be burdens.

QUESTIONS

1. What different conditions must clothing meet to be considered hygienic?
2. What are the ideals for outer clothing that will healthfully cover the body?
3. What are the ideals for adequate underwear and corsets?
4. What are the ideals for correct shoes?
5. What effect on the vitality will follow disobedience to these laws?

TOPICS FOR FURTHER STUDY

1. State the laws of health in relation to clothing, and select materials and accessories for winter and summer under and outer wear which obey these laws.
2. From the above, plan inexpensive outfits for the following:
 - a An infant.
 - b A child of school age.
 - c A woman working under exposed conditions.
3. Consider the possible dangers in the choice and use of clothing; give concrete illustrations of the effect on the body, and the remedial procedure.

CHAPTER VIII

INTELLIGENT SHOPPING

The Shopping Situation.—New and difficult economic conditions confronted the households of the country during the war. Spending money in the customary way was neither wise nor patriotic. New methods had to be learned. Conditions which have followed the war, in the necessary reconstruction of industry in Europe and also in America, presented different problems—if anything more serious. American business men and social workers, after considering the industrial situation, have sounded a note of warning to America and proclaimed it as her duty to help solve the critical situation abroad by economizing in our use of materials and hastening industrial readjustment so that our industry can produce at its full capacity in order to supply Europe. Women are of paramount influence in the textile and clothing industries, and their cooperation in national conservation is essential.

Prices of commodities have reached a higher level than before the war largely on account of increased labor costs and scarcity of supplies. These facts must be faced and offset by increased intelligence in buying and by purchasing only when absolutely necessary. The prices of labor are not likely to go down for some time, and costs will remain high. The main hope of the present in coping with increased costs is, therefore, to buy with so much wisdom that more is obtained for the money than before, and to use methods of care and conservation of commodities that their life is lengthened.

The family buyer of to-day (the wife and mother usually holds this office, at least until the children grow up) needs more than ever before to know how to spend money, to estimate the household wants, to understand values, to determine between needs and mere desires, and to be of service to the industries of the country by appreciating the difficulties that confront them, the possibilities of future success, and, instead of considering foreign goods to be more desirable, to demand the best of American factories. Women, therefore, must understand their business as buyers even as a wise

producer knows his, or fail in their economic duty as worthy citizens. They must no longer stand aside and allow the thoughtless and extravagant to rule the market. A wise spender of the present must know her effect upon the manufacture of goods in the United States, and also upon retail selling and exert her influence both to improve the product and the distribution when it is needed. In order to do this with intelligence she needs the best training and experience. The majority of women have bought lavishly in the past, for money has been available and luxurious dressing has been the rule. The sudden change to higher prices, reduced supplies, and often no larger incomes finds many unprepared for the responsibilities which have come to them.

The Working Basis.¹—Intelligence in shopping requires a well-organized plan of annual expenditures. (See Chapter X, section "The Clothing Division of a Budget.") The purchaser, whether for herself or for the family, must have a basis on which to make her estimates. Hit-or-miss buying is never economic. In many families the percentage of income used for clothing is entirely too large, and such items as food, recreation, and higher life have suffered in consequence. If the buyer knows how much clothing income to expect annually, she can divide it among the members of the family as seems wisest. For instance, in a family of five adults, the division is often equal. The income might be \$5000 a year, which would give about \$625 (one-eighth of it; some allow more than this) for clothing, and thus each one would have \$125 for the year's supply. When the buyer of the family or the individual consumer faces the fact that under and outer clothing, shoes, stockings, hats, and miscellaneous articles are all to be bought from the allotment, she realizes that great care has to be taken in selection, to utilize the money wisely. If the family lives in a large city, and is trying to appear to be quite well-to-do, \$125 for each for the year is not large, yet a \$5000 income is more than many professional men are getting and they are supporting large families upon it. If more than 12 per cent., or one-eighth, is taken for clothing, other items must be reduced in proportion. (See Chapter X.)

With prices higher than before the war, the problem of clothing has increased. Supposing the income is \$3000 a year in a family

¹The Business of the Household, Taber, Lippincott's Home Manuals, deals in a clear, detailed manner with the conduct of the expense account and the budget.

of five of which three are young children. About \$375 per year would be the basis for clothing expenditures, if one-eighth of the income were taken. If the father and mother each took \$125, there would be left \$125 for the three children. In the industrial population of large cities, families of five are trying to live on \$900 per year, and sometimes even on less. Yet late returns (September, 1919) give \$1500-\$1600 as a minimum requirement for the annual budget for a family of five at the present time. Many incomes have risen, but the results of spending are no better than from the smaller income before the war. The need of intelligence in the buyer of clothing is great in incomes below the minimum, yet it is frequently lacking. In the majority of families there has been no regular amount set aside for clothing from the standpoint of a specified percentage of the income. The mother knows approximately what is to be spent and buys more or less wisely when she has money or feels the need.

In some families money comes easily and no accounting is asked of the buyer. In other households money for clothing is difficult to obtain from the holder of the purse strings. Many women, often unsuccessfully, urge a statement of what there is to spend from the head of the family, that they may not be completely in the dark. On the other hand, the buyer is sometimes urged to a strict accounting which she does not know how to give. There is not always extravagance in buying the clothing; in fact, there is often an effort for economy, but there is lack of business knowledge and system in both the money maker and the buyer. The result is that money is dealt out by the former in small sums when pressure for a garment comes from any member of the family, which method tends to extravagance. In some instances the father, seeing his wife is a poor manager, has taken over the buying of the family clothing, usually with disappointing results, as he does not know the needs nor has he time or discernment to consider them wisely.

The use of charge accounts in the stores makes it easier to buy without taking into consideration whether there will be money to pay or not. (See below, "Retail Trade.") Thus, many unnecessary purchases are made. The department stores have become so attractive that the habit of constant visits to get ideas on the newer styles has grown, and it has led to frequent purchases of little knick-knacks which waste money. The demand for inexpen-

sive, effective clothing in the latest style, yet at low prices, has brought to the department stores and specialty shops quantities of unenduring materials and garments which last while in the style. They are then put aside for new ones. The habit of constant shopping and an insatiable desire for something new in clothes with no check in the knowledge of what there is to spend nor thought for the actual needs can but lead to an unnecessary outlay of money. The greatest waste in the household is said to be in the buying of clothing and its accessories, for whims and fashions are frequently determining factors.

Suitable, attractive clothing can and should be provided for the family. There is no reason why extreme economy, simplicity, good line, and pleasing effects in dress should not be attained by the majority of people. The aim should be to buy wisely of the best goods, to have as few garments as possible, and to go without non-essentials. (See Chapter XIII, section "Clothing Commandments.") Ideals of the past as to the necessity for richness and variety of costumes should be revised, and simple, appropriate, enduring and artistic dress take their place. The only safe course is to buy the cloth or garments which will serve the longest and look the best. If there are several young children in a family, they can often be largely provided for by made-over clothing handed down by other members of the family. This can only be done satisfactorily when good fabrics have been chosen.

The wise use of old material is one of the possible economies for the buyer to consider in her annual plans. It may happen in a family of small means that the clothing money may have to be spent chiefly by one member. This may be the father, who must be well dressed for the profession which gives him his small income, or the bulk of the money may go to the daughter who is perhaps in outside employment or attending an educational institution. Each family has its own problems which must be discovered and faced.

Making Plans.—The buyer's first strong anchor, therefore, is to *know the amount she has to spend*. Her next step should be twice a year (early in the fall for the winter garments and late in the winter for the summer ones) to look over all the family clothing to see how much is available for the approaching season, before she apports out a part of the income to each member of the family. If she has been wise enough to keep an inventory of the

clothing on a card catalogue (one for each member), she can look over these and plan her campaign without having the trouble of taking the clothing out of the storage places. The cards could be arranged somewhat as follows:

1. OUTER GARMENTS FOR——

Clothing Inventory

Kind of garment	Number	Garments in use	Condition garments are in and renewal necessary	Cost to repair	Place of storage: (drawer, closet, box trunk)
Outer:					
Coats.....					
Wraps.....					
Suits.....					
Gowns.....					
Blouses.....					
Sweaters.....					
Furs.....					
N negligees.....					
Headwear:					
Hats.....					
Caps.....					

2. UNDERGARMENTS, SHOES, ETC. FOR——

Clothing Inventory

Kind of garment	Number	Garments in use	Condition garments are in and renewal necessary	Cost to repair	Place of storage: (drawer, closet, box trunk)
Underwear:					
Knitted.....					
Muslin.....					
Brassieres.....					
Camisoles.....					
Petticoats.....					
Nightgowns.....					
Shoes:					
High.....					
Low.....					
Slippers.....					
Rubbers.....					
Stockings:					
Cotton.....					
Silk.....					
Wool.....					

After reviewing the situation, she is ready to make her lists of needs with estimated expenses for each, for repairing the old and for new garments. With these in her shopping bag she is fortified against the temptation to buy attractive novelties, or even practical bargains, for she knows the money is needed for more important purposes.

Wastes and Economies.—The usual shopper gives little thought to how much she has a right to spend annually or for any occasion. She needs, or thinks she needs, a new hat or feels that one of the children must have a new dress, or the shop windows are appealing, or the advertisements with glowing statements attract, or the stores show reduced ready-to-wear clothing or special bargains. Not having any regular plan to indicate how many other articles and garments will be needed by the family, she buys the one which attracts, and later finds every other member of the household must suffer. Or perhaps she may put the purchase on the charge account, even though she fears it is running high, trusting that when the bill comes there will be ready money and willingness to pay for it. Without a regular plan and list it is hard for the buyer to realize that ready money may belong to some other urgent need, and should not be taken for anything else.

The wage earner of the family often suspects that there is unnecessary extravagance in the purchasing branch of the household, but feels helpless to right it. He may be an excellent financial conductor of his own business, but is at a loss how to proceed with the household expenses. He is often too impatient to train the buyer who sometimes really wants to know business-like methods of running the house. The trouble, however, is largely with the buyer, who has not been taught business methods and finds it hard to distinguish between needs and wishes. She does not know how to make a budget of clothing, nor how to judge the values of the materials she buys, and has inherited and is constantly urged, even by the money maker, to extravagant ideas of dress. The majority of women need a practical course in simple accounts and in textile buying. It is only by the use of systematic methods that thrift can be developed and extravagance stopped. A woman may not be naturally extravagant, but if she has no plan of buying, no estimates on the probable costs of keeping the family satisfactorily

clad, and no lists to hold her back from unnecessary purchases, she feels preëminently the immediate need and buys on the spur of the moment. (See Chapter I, "Elimination of Wastes.")

Extravagance in dress is always an offense. Neat, adequate, attractive dress has a moral effect upon the wearer. Over-fashionable, luxurious clothing for mere adornment influences disadvantageously both the mentality and the spirituality of the one so dressed. The original textiles and the labor or costs of making, keeping garments in repair, and laundering are all to be considered in the estimates. Simple dressing does not necessitate an unattractive appearance, and many of the most elaborately dressed and wasteful spenders have the poorest results.

Rapid changes of fashion have their effect on the output of the textile factories as well as on the economy of the home. Garments are cast aside before they are worn out. As all classes wish to appear to dress with similar luxury, a call comes for effective rather than for enduring material. Fashion also demands a great variety in clothing; consequently, one person has many gowns, wraps, undergarments, shoes, stockings, neckwear, and miscellaneous supplies. The factory in endeavoring to meet the request for varied and inexpensive materials, resorts to industrial chemistry for finishes which simulate those of the best materials. Enduring material for women's clothing is less in demand than formerly, and it becomes hard to distinguish the best values in the mass of attractive, up-to-date, but easily worn out stock. Even prices cease to be indicative of worth, and some new article or fancy fabric can be sold at a high price, though it is but a showy, quickly passing novelty. An increasing amount of labor is demanded to make garments and keep them in repair, and to launder elaborate lingerie.

The need of the present time is for women to revolutionize their customs in buying clothing by reducing the wardrobe to a minimum, and by buying the most enduring, staple fabrics, moderate in style and color, and by willingness to eliminate rapid changes of fashion. Transportation difficulties and costs have curtailed the use of the big trunk, therefore, fewer undergarments, hats, and gowns can be taken. A couple of bags, which, if necessary, a woman can carry herself, have come to be the criterion of variety in dress in some circles. Professional women, in the past, were expected to be

elaborately dressed when they spoke to large audiences, but now the business suit is *en règle* for them as it is for men. Over-luxury in too many changes of lingerie waists, underwear, and nightgowns per week, as well as too much lacy trimming, were characteristic of the past and should not become common again. Women who never before laundered their own clothing have had to do so, and have thus, on account of the labor shortage, come to realize the amount of time that they have heretofore demanded of others in washing, ironing, and putting in order delicate, lace-trimmed garments. The vast number of styles to choose from is curtailed. Now is the time for women to unite in a campaign for a satisfactory basis of clothing manufacture and purchase. (See Chapter XIII, section "Sensible Standards of Dress.")

Every citizen should consider what are the fewest garments necessary for appearing neatly and appropriately clothed. In the past, it was not infrequent for a waist or coat to be discarded as the skirt was worn out. But now cloth should be selected for a suit of a weave and color that will harmonize with other clothing, and thus, if one part wears out before the other, the remaining piece can still be used. Thoughtful men shoppers are buying two pairs of trousers with one coat, and women, two skirts with one coat. Good quality blue, black, or dark brown serges, gabardines, tricotines, Oxfords, tweeds, and other enduring cloths can be of service until partly worn out and the best part can then be made over for the younger members of the family, or for use in social relief work. Rapid changes of fashion are beginning to be resented by the intelligent buyer and extreme styles in clothing are being discouraged. "One of the most serious wastes is labor waste." Ladies' maids and innumerable servants to take care of unnecessary belongings; garment makers to attend to constant fashion changes; fine laundry hands or workers on flimsy neckwear and undergarments should be released for more important work.

Bargain counters seem at present to be essential to dispose of the vast amount of materials and commodities left over which could not otherwise be sold. The sales consist largely of garments, shoes, and neckwear which have been taken home on approval and returned in bad condition or too late for the height of sale, of novelty goods of numerous kinds which were sold at first at a high profit

and must be closed out at cut rates, of short stocks, of styles that have not taken or have gone by, of merchandise bought in quantities at reduced prices on account of failure or "fire," of out-of-season goods, and of seconds or merchandise with some flaw. In this vast amount of material much is excellent, but few shoppers know how to choose, and many buy more material than needed in order to get the low price and thus gain nothing, for they have material left over. Bargain-counter offerings tempt to too hasty decisions, unless the buyer is trained. It seldom is economy to buy something, thinking it may in time be needed. The "bargain basements" of the best kind, however, offer opportunities for the intelligent shopper to purchase at out-of-season prices. Such goods bought at auction can be sold cheaper than the regular stock; the overhead store expenses are less; goods are carried home in place of being delivered; and the elaboration of store display is lessened. For the buyer who plans carefully and is a judge of values, the out-of-season sale offers economic possibilities.

The buyer must cling to thrift ideals, and not buy if there is not specific necessity, but if she needs and has the money she must not let the family supply of required articles and garments run down until they must be replaced in quantities at unnecessary expense to the budget. No good business man allows his stock to run out, but keeps careful account of it, and regularly replaces it that an even level of supply may be always on hand. Thus, must the household buyer plan. She should know which garments must be replaced regularly, and allow for them in the clothing budget. Her duty now more than ever before is to see that the strongest and most easily taken care of articles are purchased, that the necessary replacing may come at longer intervals. The higher class of advertising men are urging honest advertising that may help the public, and the intelligent consumer can assist this movement by asking for absolute truth in statements, by showing appreciation when she finds it, and, when goods have been misrepresented, by returning them to the store with her just complaint.

Learning to Shop.—The woman consumer of America is now in process of development. The way she meets her duty to the country at present—using business methods in the conduct of the home; planning the family budget, and exercising thought and thrift

in all her purchases; choosing merchandise from actual knowledge of its value and use; demanding honest statements concerning goods; eliminating wastes in rapidly changing fashions, in methods of shopping (see below, section "Retail Trade") and in the lack of care of clothing—all these things will determine her future influence on the huge problems of industry confronting the country. As yet, the majority of women know little of methods of manufacture as related to endurance of fabrics, the properties of textiles as related to specific service, how much material to buy for various kinds of clothing, how to take care of it, and the relation of clothing to health. Experience is a good teacher, but if there is much technical knowledge needed, it is a slow one. The business manager of a family wardrobe in the majority of families cannot afford to make mistakes. She needs some training to enable her to make usable clothing budgets, estimate expenses, and keep accounts. She should know the names of staple materials in the four leading textiles, how they should look and feel, and their values, approximate widths and prices, when in the best condition, and firms producing the most reliable goods. Each textile has its own characteristic properties which enable it best to serve certain purposes. The shopper should know which materials will wear, hold their dye, and launder to the highest advantage, or she is likely to exchange her money for something which has not been worth the cash she has spent upon it. Poor materials with effective finishes, but little endurance, are to be found everywhere, for rapidly changing fashions and lack of knowledge on the part of the consumer have called them forth. Materials may fade, tear, ravel, pull out of shape, become rough, spot, shrink, crease or fail to launder well. The buyer must know when these defects are apt to occur and how to renovate and lengthen the life of clothing. She should be able to make many simple home tests of material in order to judge the strength or weakness of doubtful goods before she buys them. (See below, section "Tests.") She should have definite standards for satisfactory clothing. (See Chapter XIII, sections "Clothing Commandments" and "Sensible Standards.") The position of the family buyer is a very responsible one, especially if she has charge of the wardrobe of a family of small means, for the dollar cannot buy as much as in the days before the war.

The best way to obtain a foundation for wise buying is to take a course of instruction leading to practical knowledge in selecting clothing and textiles. If a full course is impossible, a short one will at least give a good basis for learning by experience, and if each buyer keeps a card catalogue showing standard cloths, tests, and information gained by experiment, she will soon find herself growing in wisdom and economy.

Retail Trade.—Intelligent buying includes not only keeping expenditures within the income and careful planning before purchasing, but also shopping with due regard to business standards. The department stores and specialty shops have given the consumer many privileges which have facilitated trade and added to the comfort of buying, but brought no money in return. The costs attending these privileges are large and are borne by the store and also by the customer in the added price of merchandise. Unfortunately, the thoughtless shopper has misused her advantages, and not realizing the expenses attending these accommodations, has brought heavy burdens to the store and higher prices of goods to herself.

The main wastes in retail stores may be cited as follows: The wrong use of the charge account and the slow payment of bills, taking out an undue amount of goods on approval, delay in returning approval goods not desired or to be changed, the condition in which the goods are returned—soiled, crumpled, and even having been worn, the many free deliveries a day, the special and C. O. D. deliveries, and the returning of goods after Christmas to obtain credit for them.

Before the war began the retail trade realized that these privileges had gone too far and that if some relief were not forthcoming many firms must fail. The condition was felt over the entire country, but was more serious in the middle and northwestern states. Various methods of appealing to the public were tried, but few consumers paid much attention to them, and many had become chronic returners of goods and resented interference. The beginning of the war brought a still more serious condition, for the need of extreme thrift on the part of the nation was felt by the retail trade in the lessened purchases by the public. The Commercial Section of the War Industries Board saw the situation and took measures for eliminating these wastes. Regulations were made

after consultation with leading merchants from all over the country. The war being over there is naturally a relaxing of these admirable decrees, but the conditions remain serious. These suggestions were considered and acted upon as the merchants felt would best suit their communities. It is for the wise consumer to accept and personally live up to the spirit of the recommendations, even if some of the stores are not yet demanding full compliance, for the public is largely responsible for the conditions. The higher prices of commodities made necessary are heavy on those who have small incomes and unjust to those who do not use the privileges.

Some of the suggested reforms have been:

One to three days' limit for returning goods on approval.

Goods to be taken back only when in perfect condition. Perishable goods cannot be sent on approval. Goods that have been altered and delivered cannot be returned unless defective. Goods that may become unsanitary cannot go out on approval.

Accounts should be paid monthly.

The free deliveries should be reduced, if possible, to one a day for all routes.

Special delivery should be stopped or greatly restricted.

A deposit of money should be required for all C. O. D. or "will-call" purchases.

Still other reforms are being made or suggested as follows:

Stopping the free alteration of suits, coats, and dresses.

Shopping early before the rush hours and thus better utilizing the salesforce.

Not taking unnecessarily the time of salespeople in looking over goods.

Reducing the wrapping of merchandise to save paper and labor.

Reducing the number of fancy boxes and varieties of form and decoration in them.

Eliminating unnecessary numbers and styles of merchandise in any one kind and the innumerable methods of displaying them.

Eliminating the number of illustrated catalogues and advertisements.

Increase of self-service methods of sales.

Charging for the delivery of goods and for the use of the charge account.

Retail stores all over the country are still considering and acting upon these reforms, as they gain the coöperation of their clientele. Such slogans as "shop early," "carry your bundles," "take it home and keep it there," have become familiar to the public and should be observed by a good shopper. The stores are endeavoring to aid the customers by training the sales force to know the merchandise and to give intelligent advice. They do not wish the sales people to

urge the purchaser to take goods home on approval or to buy if she is not satisfied. There is no excuse for the shopper, however, even if the sales person is importunate, for the duty of the former is clearly to refuse to take goods on approval if she does not definitely expect to purchase the same; the sales person is naturally anxious to sell as much as possible that her rating with the firm may be satisfactory.

A well-known house in a leading city endeavored to improve the retail situation by charging the bare cost of maintenance for the use of the charge account and the delivery. A fairer arrangement was thus made, for those who desired special privileges paid for them. A large number of customers, who do not use the charge account and who carry home their packages, have for some time objected to paying for services they were not using in added cost of merchandise. They saw that this arrangement was right and rejoiced that at least one firm tried to lower prices to those who did not use privileges. Some stores, desiring to improve their business and hold their clientele, are still giving the customer every advantage, even when she is in the wrong, but more thoughtful women do not wish to be given privileges at the expense of other women, nor to be allowed favors they do not deserve. The reduction of costs on accommodations will lower the price of goods in the store, which is good for business as well as for the customer. It is as important for women to understand their business as spenders of money as for men to know their business as producers of goods.

The textile industries and the retail trade rely on women as their chief support. The class of goods and commodities made or sold is largely the result of the demand or of the willingness to buy of the majority of consumers. The factories manufacture those goods which they have reason to think they can sell. They obtain their ideas largely from the demand of the retail-store buyers, who are in direct contact with the consumers. If women will endeavor to understand the situation in industry at the present time and act with intelligence and sympathy they will greatly help business. A more efficient consumer is in process of development as a result of home economics teaching in colleges, technical institutes, and schools, of the work in textile training in the extension field, and also of the efforts of the Federation of Women's Clubs. This move-

ment will be hampered and retarded unless the majority of women show themselves ready to study their relation to our industries and distributing centers, and then facilitate suggested reforms. (See "The New Consumer," page VIII.)

In addition, the shopper should be mindful of the effect of her shopping upon the sales force. Few realize the relation there is between the many goods they return on approval and the wages of the sales girl. The amount she receives is based largely on the actual sales made. She frequently has a regular wage and an additional one for sales beyond a definite sum. If the goods do not stay sold, even if she has worked hard, she has nothing to her credit. An entire hard week of work may result only in discouragement for her. The additional sales from which she hoped for a bonus, perhaps to make those at home more comfortable, have proved but a delusion, for the articles have been returned. A thoughtless customer will try on suits or hats for an hour or more with little idea of purchasing, or will look over stock at a counter taking the precious time of the sales person. Another shopper may wish only to be directed as to the possibility of getting what she needs at that counter, yet the hesitating purchaser will greatly object to the sales girl answering the questions. Customers are frequently irritable and exacting without sufficient cause. The sales girls try to be attentive, amiable, and patient, but are often sorely tried. A smile and consideration will often change the aspect of a whole day for them.

Home Tests of Fabrics.

*What was the matter with Mary's last dress?*¹

Did it fade?

Did it shrink badly?

Did it go to pieces when rubbed on the washing board?

Did it look like linen at first, smooth and glossy, and then after washing look coarse and open and dull?

Did it spot when Mary was caught in the rain?

Was it more cotton than wool, even though the salesman assured you it was "all wool"?

Do you really want to know about all these things before buying Mary's next dress, or coat, or underwear?

If so, don't go by looks alone. Get a sample of the material and test it!

¹ From pamphlet prepared by Anita M. Earl, issued by Clothing Committee of Child Welfare Exhibit, New York, 1911.

When a thoughtful consumer is about to buy cloth or a ready-to-wear gown, she has some such questions as the above in the background of her mind. To judge the worth of a fabric by its appearance requires training and experience. The old-time buyer relied on the look and feel of the cloth, but the wonders of industrial chemistry as applied to textiles were not then in existence. At present, the manner of finishing can give a good appearance and feel even to inferior fabrics, but it cannot make such material wear well. The careful modern buyer when uncertain of the value of a piece of cloth takes a sample home and tests it. There are chemical and mechanical tests that will show the real state of the fabric. Such tests are used by the Government for all cloth purchased by it for federal purposes, for such material must come up to the specifications or it is turned back on the manufacturer. Testing stations for Government cloth are in different parts of the United States, one being on Governor's Island in New York Harbor. The laboratories at such stations are filled with elaborate testing apparatus. The home buyer cannot have such laboratories to rely upon, but can discover much from simple home methods. (See Chapter IV, section "How to Tell Textile Materials.")

If a wool cloth is to be given hard wear out-of-doors, it should be enduring, should keep its shape, should be fast to sunlight, and should not spot with rain or mud. Cottons must be well woven, must launder and hold their color; silks, when colored, should be as near pure-dye as possible; and linen should be strong.

Cotton and linen (vegetable fibers) are sometimes mistaken for each other, but the fiber of the latter is longer and has a greater shine upon it and the yarn has little inequalities in it. Cotton fiber is short, the yarn is dull and soft looking, and evenly spun, as a rule, unless especially prepared to look like linen. Linen in the hand feels cool and leathery and when crushed has more wrinkles remaining in it than cotton, unless the latter is full of dressing. Before testing either linen or cotton the starches and stiffenings should be boiled out. When linen yarn is broken, the end is more compact than cotton, which spreads out in a brush-like manner. When tearing linen the sound is shrill, whereas in tearing a fabric of equal weight in cotton the sound will be duller. Ink dropped on unsized linen and unsized cotton will spread differently; on the

former the spot passes quickly into the surrounding fibers, but with cotton is apt to lie on top of the fabric. Glycerine dropped on un-sized linen makes it translucent, but it has not this effect on cotton. If the yarn of both materials is unravelled and the fibers pulled apart, the cotton will be short and curly and the linen (if made of the line) will be long, straight, and glossy, but if made of tow, the differences are less apparent. A weaver's glass, which can be purchased for a small sum, is useful in noting these conditions. The microscope shows variations in the appearance of linen and cotton, and color and chemical tests are used in testing laboratories. Cotton and linen do not hold ordinary dyes well. Colored cotton hosiery, underwear, or linings may quickly lose their color and be dangerous for health, and black stockings have poisoned some skins. By rubbing a colored fabric smartly against the hand or against a white cloth, the loss of color can sometimes be detected.

A fabric can be tested for color changes by taking a sample two or three inches long, covering one part with a card and exposing the remainder to the weather for a week or so and noting the result. Some fabrics fade in the laundry, and it is well to test a doubtful sample by washing it. Or, a textile may be fast to washing but not to sunshine, and if exposed to the direct rays for a time will show it. Many materials spot in the rain and can be tested by throwing drops of water on them in which a little lime has been dissolved. Wools are usually fast to dye but when combined with vegetable fibers are more apt to lose color. The fastness of dye depends not only on the class of dye but on the way the work is done.

Cotton can be made to look and feel like wool and is frequently combined with it to reduce the price of the cloth. Animal fibers (wool and silk) burn slowly and jerkily with a smell of burning feathers, the fire goes out quickly, and a rolled up ball of gummy ash is left. Vegetable fibers burn easily from their cellulose nature. Cotton has an acrid odor when burning and a soft easily disintegrated ash is left. It has a special tendency to combustion on account of the oil in it. Cotton linters, when treated with nitric acid, become gun cotton. This treatment makes cotton feel like wool. The quick burning of cotton makes a special risk to be guarded against. A cloth with a soft napped surface, as in flannelette, is dangerous if a spark from a fire or match touches it for it is imme-

diately in flames. Many serious fires have occurred from carelessness with cotton drapery, blankets or clothing. As wool does not burn easily, an all-wool blanket can be used to extinguish such a fire in its beginning. The differences in the way animal and vegetable fabrics burn make a good test of a material of doubtful content. In a mixture of the two the vegetable fibers will still burn when the animal fibers are extinguished. Cotton continues to glow when the flame is out, often until the entire mass is consumed, if it is all cotton.

A simple home test for the presence of cotton in wool is to dissolve one or two teaspoonfuls of household lye (caustic potash) in a pint of water and boil the sample in it for five to ten minutes, noting the result. If all-wool the sample will be dissolved; if mixed with cotton, the latter will remain. By washing the residue to rid it of the wool which has become gummy, the cotton is left, and if it has been inserted at regular intervals in the warp and woof, it will be in the form of a coarse mesh. Such tests as this must be made carefully, as in too weak a solution, boiled too short a time, the wool may not be dissolved. About 5 per cent. of the cotton is lost in a satisfactory test.

In a microscope the difference between cotton and wool fibers is very clear, and even the naked eye can note the crimpiness and wiriness of the wool as against the fuzziness of the cotton.

Pure silk, when burning, gives off an odor similar to wool, but less decided. It burns slowly and less continuously than the vegetable fibers and soon goes out. It leaves an ash in a small ball. When combined with mercerized cotton the latter burns like cotton and can be detected. Weighted silk will burn, and the weighting keeps more or less the form of the textile while the pure silk is consumed. The form of the ash soon breaks, but lasts long enough to indicate the presence of weighting. Artificial silk being cellulose burns readily and in a manner different from pure silk. Silk fiber under the microscope is long, shiny, and smooth. Wool or silk take dye more readily than cotton or linen, and in the combination of animal and vegetable fibers, there are difficulties in retaining an even color after exposure to the air and light. (See Chapter XII, section "Dyeing and Tinting.")

The way cloth is woven is a factor in its endurance. If the

yarn is poor and the weaving irregular or sleazy, or long threads float on the surface, the fabric will not wear well if subjected to much strain. By holding the cloth to the light or by grasping a piece of it with the fingers about an inch apart and pulling steadily, weakness is often shown. Staple cloths, such as nainsook or wool serge, have a regular number of threads per inch for certain qualities. This can be determined by a weaver's glass. Pushing the nail against the cloth to see if the weave is strong will at times show unexpected looseness and weakness. Cloth will be more enduring if the yarn both ways is about even in strength; the lengthwise threads (warp) are usually somewhat stronger than the filling (woof). If the yarn is unravelled and broken, it will sometimes show weakness, which does not promise well for the endurance of the fabric. Material that has a heavy cord at intervals alternated with fine yarn, such as in dimities and some gingham, does not always wear well. Dimity which has cords in both warp and woof near each other at regular intervals will wear better than with the cord only one way. The heavy cord (often of cotton) in a wool or silk poplin will sometimes break down the finer warp threads, and such material should be tested before buying by pushing the warp threads away from the cord and noting the strength and the closeness of the yarn in the weave.

Perspiration will discolor some fabrics. A test for it is lactic acid, or a piece of the cloth can be put against the skin and worn for a while to see if the color changes. Government cloth is sometimes tested by placing it under the saddle next to the skin of the horse.

If it is feared that a cloth may become shiny, it is well to rub it smartly with a similar piece of cloth and note the result. Diagonal worsted suitings, dressed or undressed, and closely woven serges are apt to become shiny where there is friction. Long, lustrous fibers become shiny sooner than shorter duller ones. Some diagonal suitings have a soft finish partly obliterating the weave. This is apt to wear off when friction occurs, unless the pile is thick and strong. In general, closely twisted yarns wear better than loosely twisted ones, *crépe de Chine*, for instance, is more enduring than taffeta, and lisle thread than the softer cottons. Napped goods which are soft and thin are liable to wear off. Surface finishes soon pass

away and the consumer should see whether the dressing is easily removed. Starch and clay can often be loosened with the nail or tasted with the tongue; the gloss from extreme pressure can be washed off and the glue and starch dressings can be boiled out, often leaving a coarse, weak structure. Fine clippings from the gigning machine (flocks) may be felted into a cloth to make it close in weaving, and these can be detected by a good brushing on the back with a stiff brush, for they fall out like dust. (See Chapter IV, sections "Tests for Silk" and "How to Tell Textile Materials.")

The consumer wishing to learn how to judge material should begin by studying the feel, look, weave, and fastness of dye of representative fabrics in cotton, linen, wool, and silk. She should keep a card catalogue and place a sample of cloth on cards, making notes of facts she has discovered. (See below for plan of card.) These records will be of use to her in future judgments.

Name of Textile as wool, cotton, etc.

Sample of Cloth	Name of fabric Width Cost Fiber content Weave Place of purchase date Manufacturer Condition Wearing Tests
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Remarks

Labels and Legislation.—The Congress of the United States has brought forward many bills for increasing textile honesty. Several labelling bills have appeared, but it is generally conceded that they are not workable, for they require too much complex data from the manufacturer and contain within them the possibility of fraud. Great Britain has for thirty years had in operation an act which punishes for misrepresentation in merchandise; this is called the "Merchandise Marks Act." It has worked successfully and efforts are being made to have such a bill introduced into the Congress of the United States. Consumers, honest merchants, and manufacturers are suffering from numerous misstatements and fraudulent

brands on commodities, and have heretofore had no adequate protection. Under this bill misbranding becomes a crime punishable by fine, imprisonment or both. Misstatements in textiles and leather have been the cause of much wasteful buying, and intelligent women object to being thus misled. The consumer can improve shopping conditions by giving this bill, and other bills which can help her, favorable consideration. (See Chapter XII, section "Dyeing and Tinting" for mention of legislation on supporting an American dye industry.)

A movement is on foot also to have a national label on goods. The idea is being endorsed by large mercantile associations. It will not interfere with the use of firm names or labels on which the consumer has relied for obtaining dependable goods, for many of them have become certificates of worth. As a nation, however, we have not always appreciated our own advance in textile manufacture. The consumer, in many commodities, asks for imported goods, thinking they are more attractive, more enduring, and of more permanent dye. Thus, our own manufacturers have been forced frequently to make the medium goods or those that will sell at lower prices. Many factories making the best fabrics have had to use a foreign label to sell their output in the United States. Our goods have been bought in foreign countries, their label affixed to them, and they have been sold to us as foreign goods. Law is controlling this of late. The war has brought us to new views of the ability of our own country to compete with the industrial world. Every consumer should take pride in the plan for a national label and further the spirit of the movement by buying goods made in the United States in preference to those of other countries, even though our prices at times are in excess of the foreign ones. Guarantees for the trustworthiness of fabrics have been given sometimes with too little basis in fact, but the consumer has it in his power to demand that such assurances shall be absolutely dependable.

QUESTIONS

1. Taking the shopping situation as a whole, what are the principal economic wastes?
2. What factors enter into intelligent shopping?
3. What is the duty of the consumer in lessening some of the costs in the department store?

4. Give tests of textiles which will aid the consumer in judgments of the values of fabrics.
5. What does the consumer need to know to make her equal to her responsibilities as the spender of money?

TOPICS FOR FURTHER STUDY

1. Go to a store, and with ideals of good and worthy merchandise in mind, see how many things may be eliminated.
2. What questions do you ask a salesperson that you should be able to answer yourself?
3. What are the leading economic evils which the workman faces in the manufacture and sale of textiles and clothing?

CHAPTER IX

SERVICEABLE CLOTHING

Conditions in Women's Dress.—Thoughtful women have been endeavoring for many years to bring about changes in dress which will give it greater simplicity, beauty, and efficiency, eliminate rapidly changing fashions, produce a more or less standard business or every-day gown, and base the purchase of clothing on economic principles. The conditions of the time have given force to this movement. The training of women was needed to accomplish these reforms with any permanency, and Clothing and Textile Sections of Home Economics Departments in colleges and technical schools began to prepare the ground with excellent results which have been more evident every year. The courses offered have increased in value and scope, and now cover such subjects as methods of manufacture of textiles with laboratory work in testing, courses in laundering, spot removal, dyeing, and cleaning; the relation of the consumer to those who make garments and those who sell them; intelligence in shopping; the budget of clothing and the selection of the wardrobe for differing incomes; sociology as related to the home, the employment and the civic life of women; business methods; practical economics for woman's life; the retail trade and the elimination of abuses which have grown up through woman's ignorance of business; art and historic dress; interior furnishing and decoration and practical work in dressmaking, millinery, embroidery, and costume design.

The General Federation of Women's Clubs in 1914 took up with enthusiasm the movement toward more sensible clothing for women. The conclusion was reached that a standardization of women's street garments was immediately needed. By the word "standardization" it was not intended that all women should go into uniform dress. In the words of the Federation what was needed was "a principle and not a uniform." The chairman of the Home Economics Department, Miss Helen Louise Johnson (once editor of the *General Federation Magazine*), took the lead in considering the

subject from many angles. A gown was later brought out, called the Biennial Dress (Fig. 10), to meet the demand. Miss Johnson has contributed the following description of the work done and of the gown:

"The Biennial Dress" was the result of a resolution passed by the delegates of the General Federation of Women's Clubs at the Biennial Convention held in Chicago in 1914. The resolution put the convention on record as favoring more modest, simple, and better designs in women's clothes. Following this convention a study made by the Home Economics Department of the Federation revealed the unrest and dissatisfaction with prevailing conditions on the part of both producer and consumer. The seasonal conditions of the trade, the constantly changing styles, and their extremes made the cost of manufacture and the selling prices high, and of necessity added to the expense of women's clothes. What could be suggested as a remedy? The answer was "more complete standardization."

Later it became necessary to formulate some ideas or rules upon which standardization might be based. To do this a number of experts were called in consultation. They decided that any dress designed and presented as a style to be universally worn must be straight in line, adapted, if proportioned correctly, to varying sizes, capable of reproduction in all kinds of fabrics, and of being made as a suit or a dress.

The illustration (Fig. 10) shows the dress selected and presented at the New York Biennial Convention of the General Federation in 1916. *A* is the first one designed and is still being worn by its owner. It is made of oyster-white pongee, the under waist, to which the skirt and sleeves are attached, being of lighter weight silk. The Russian tunic may or may not be separate from the under slip. The fronts and collar of washable material are snapped on. *B* is made of crêpe-de-Chine and fastens at one side under the collar. *A'* and *B'* show the underslips. If desired, the dress can be made in one piece. In fact, the garment is improved by a straighter waist line than is shown in the illustration. These gowns are pleated, but they can be gathered or made plain. The style is capable of such modifications in material, length of tunic, kind of collar, belt, or sash as men's coats display in such minor



FIG. 10.—The Biennial Dress.

details. The idea is the same as that underlying men's garments which to the feminine eye seem to vary comparatively little from year to year. A man wears a suit without comment or feeling conspicuous until it is worn out. A woman's suit often goes out of style in a few months.

The reason why a man's suit, made of excellent material and well tailored, can be sold at half the price asked for a woman's is due to more complete standardization. If women desire as great emancipation from the rapid and absurd changes of fashion which exhaust time and energy; if they wish freedom expressed in sane, attractive, stylish garments, they must work out for themselves some form of dress that will always remain in style, will always be worn, will always be found in the market, and for which there is sufficient demand to enable the ready-to-wear trade to sell for reasonable prices.

The desire was to present a form of dress, which was becoming, smart, and attractive; adapted to all the little changes to which men's coats are subject that prevent monotony even when the style is virtually the same. There may be more variety with the same style of gown in women's clothes on account of the greater range of fabrics from which to choose.

The dress has been put on the market in many modified forms. It has never appeared as the Biennial Dress, copyrighted and manufactured as such for the ready-to-wear trade. Patterns sufficiently like it to serve as a basis for its home manufacture are now to be found. Any good dressmaker can make it, and the drawings show the details exceedingly well. A dressmaker made *B*; a tailor made *A* (Fig. 10). Suits have been made like it and when properly proportioned are becoming and attractive. At one exhibit of these dresses given January, 1919, six were made on the same model, yet no two alike.

Women can no longer afford to be careless or selfish in their dressing. The disastrous effect on other women is too great. Simplification means standardization. It does not indicate that women should resort to less attractive or beautiful modes of dressing. The house-gowns may vary within the widest range of fancy. It is the street clothes, the office, the school, the business clothes of women that we must try to have made and worn in sane, sensible and economic

ways. Many women in the United States are already wearing standard dress in their every-day occupations in that they buy garments so made that they can be used until they are worn out—simple in construction, requiring little repair or renovation, and easy to put on. Their time is not wasted, therefore, in innumerable petty adjustments or in the tiresome fitting and making of new, fashionable garments as heretofore. The call on women during the years of war for national service has still further emphasized the need of more appropriate dress for every-day wear.

The Effect of the War on Clothing.—All the warring nations suffered from lack of clothing. England brought out standard cloths in chevots and serge which gave the maximum efficiency with a minimum cost. There were also manufactured for the people standard gloves, hosiery, underwear, suits, and blankets. Experiments with paper textiles were also a success, cloth being made with the warp cotton and the filling of paper yarn. These fabrics were waterproofed and used for sou'westers and waistcoats. The experience of England during the war as stated by one of her retail merchants (himself an American) was that "business was good, but had changed from the sale of elaborate, showy dress and accessories to good substantial clothing, that the English women had not ceased to buy, but had changed their demands to a more enduring class of garment, and were buying fewer luxuries than before"; consequently, the stores were ceasing to offer them. The extravagant buyers there, as here, were women who were making more money than ever before in the war industries. France made standard cloth for her refugees, the price being one-half of the market prices for other goods. Long cloaks were planned for women and Russian blouses for children, made of black, brown, and gray mixtures of cotton and wool. In the United States war changes appeared in the style of making men's suits and overcoats, unnecessary parts being eliminated. The National Association of Manufacturers of Women's Garments also adopted resolutions (at their meetings) to make ready-to-wear garments for women with less material and fewer modes, but the changes in this direction were insignificant.

Germany and Austria and Russia were particularly short in the raw materials used in clothing. Requests for all varieties of cloth

were made by Germany on Belgium until little was left there. Even though the war is over, there will be need of strict conservation in clothing for a long time, for the European peoples are almost destitute of supplies, and the United States must furnish them.

Clothing Conservation.—Dress has many phases—economic, æsthetic, ethical—which makes the subject difficult to deal with by enactment. The lives of women vary so fundamentally that a single standard suit set up for women's dress would not be satisfactory to all. It is said that 80 per cent. of the women of the country do their own housework. For every woman to wear the same style of dress as an economic measure would defeat itself, for no one kind could meet the conditions. A uniform fitted for office service would be of little use to home workers in their housework. Supplies of partly worn garments are stored away in many homes, during the period of after-war economy these should be worn out before the owner buys or makes others. While it is impossible for any one person to decide upon the sort of standard garment fitted for the women of the nation, there is immediate need for every woman to face the question for herself. She should consider the demands of life upon her, the advantages in buying staple textiles, the minimum requirements for her clothing, and then plan to standardize her own dress. Lavish expense for personal adornment is wrong at the present time when nations are suffering from inadequate clothing, and the temptation placed before women to buy such goods should be discouraged. It would help industry during the reconstruction period if the consumer would cease to ask for the non-essentials and rapidly passing fashions in fabrics and garments and keep to staples.

There is no need for woman's dress to be any less attractive because less is spent upon it, unless the buyer has reached the poverty line where no commodity can be purchased in the best condition. A neat, attractive appearance should be the aim of every woman. The soldier fights better when well dressed, and he is obliged to wear well-cut and well-kept uniforms. He is inspected daily to see that he does not relax in his personal appearance. His clothing is adapted to its use and is lacking in extravagance, but absolute perfection is demanded in it. Clothes are as important

to the workers at home as to the soldier. Well-appearing, strong garments appropriate to the work to be done cannot be called non-essentials, for they will keep the wearer at hard, dull tasks while slovenly attire will take the courage and enthusiasm out of him. Self-respect requires that the individual should be neat and pleasing in dress, and success in life requires it. Poorly dressed people keep away from their fellows, for they feel conscious of inferiority beyond the mere outward clothing. Satisfactory attire does not require showy clothing, innumerable changes, or expensive decoration. Serious conditions all over the world are calling for the readjustment of ideals of dress of both men and women; the foolish extravagant dressing should pass, and something suited to the conditions of the times, which is both dignified and pleasing should take its place. (See Chapter I, "The Importance of Dress.")

Many women are trying to get a rational view of the entire clothing situation that they may know how to meet it, and thus dress themselves and their families with due regard to sensible standards as well as to their personal appearance and health. The problem has many puzzling sides to it, for materials and clothing are still expensive and labor is hard to obtain and high in price. The educated class that has a fair income but no increase over former times, and business and professional women with small incomes are endeavoring to find the wisest way to spend the money they have with good results, even though everything is higher than before. Many of these women are standardizing their dress and are having made or buying good conservative models that will last for several years.

Uniform Dress.—Women were summoned to all varieties of service during the war and their clothing was often little adapted to the heavy work required of them. When the call first came, they trooped to work in anything they had, and middy blouses, outing clothing, lingerie waists, good cloth suits, and high-heeled shoes were all in evidence, and were soon found to be inappropriate and extravagant. Gradually, varieties of service clothing appeared; some, such as the overalls and farmerettes, seemed at first extreme and were denounced by many as unwomanly, but even these finally won their way. College girls helped to introduce styles in service uniforms or overalls through using them in land service and in fruit

picking. Many southern home demonstration agents adopted an inexpensive and appropriate summer travelling dress of gray-blue wash material with white collars and cuffs and a plain black hat. These uniforms were ordered in wholesale quantities, thus reducing the expense, each agent buying about four. Special classes of work require appropriate uniform; overalls and trouser suits are the only safe and fitting garments for heavy work in mechanical trades and for farm work in the field. During the war there gradually appeared twenty or more officially recognized styles of uniforms, and thousands of women were thus attired. The majority of these suits had substantial coats or capes and skirts with a hat or cap of some special style and a brassard on the arm to denote the branch of service. The dress of yeowomen, some United States Government workers, the Shipping Board, the Food Administration, the Red Cross, the Young Women's Christian Association, the Radio Corps, the Telephone Unit of the United States Signal Corps, the Motor Corps, nurses, doctors, overseas workers, trolley conductors, police reserves, and other branches soon became familiar and was pleasing to the eye as well as useful in service. Such uniforms, bespeaking efficient clothing, set a foundation for sensible business dress for women. Many, attracted by the dignity and endurance of the uniform, wish that all women could dress in as satisfactory a way for their daily work. Clothing for every day which will eliminate changing style features, will not hinder or endanger the wearer, and will give long service is needed now and for the future. Already, without real appreciation of the fact and as if in preparation, women's garments have been eliminating unnecessary features, and for several years there have been few changes of style, yet clothing has been attractive. Utility has become a dominant note in the service dress of to-day and every effort to retain this step ahead should be made. (See Chapter I, "Some Callings Require, etc.")

Every-day Clothing.—If a number of influential women would adopt for constant use a few conservative garments, such as a coat and skirt with a simple waist, or a one-piece gown and an out-of-door coat, each style being made in a number of models and with a variation of material, the manufacturers of textiles would be glad to provide strong, enduring cloth for the purpose, the ready-to-wear trade would bring out satisfactory suits and gowns, and the better

class of retail houses would gladly carry them. Cloth for women's clothing will not be made as strong and simple as men's suiting unless many women demand it, and the manner of making ready-to-wear suits for every-day wear will continue to be according to constantly changing fashion and in passing materials as heretofore, unless the manufacturers see that there are a sufficient number of women desiring more enduring garments and willing to pay a fair price for them. The willingness of the trade to please the public has been already shown in the gowns for every-day wear during war-time which were brought out in response to the request of groups of young women. Wanamaker, of New York, and Filene, of Boston, have produced conservative garments of cotton, silk, and mohair designed by members of the Junior League of those cities. These models were suited to all ages, required the minimum of material, were not high in price, and conserved the class of wool needed by the army. They were for sale also to the general public. If this could be done during the war, a sufficient demand would bring a similar result at the present time.

The two-piece tailored street suits or the one-piece coat suit are virtually standard, and it will not require any real change in methods of dressing for women to select the models that suit them and the quality of fabric that will endure, and wear them until they are worn out. A well-made business suit fits the majority of occasions in life, and for home makers simple tailored cotton garments are on the market.

Definite principles which would underly the selection of outer clothing are as follows: A gown should be *appropriate* to the occupation, to the wearer, and to the part of the country where it is used. The climate in some sections of the United States demands light material rather than heavy wool. The duties of the housekeeper make cotton a usual textile for service in the homes, but as 12,000,000 women¹ are at work outside of the homes, and many of them are in parts of the country where warm garments are required much of the year, one wool suit for daily service becomes a necessity. The plain tailored cloth is the best for business, but a dark, simply made cotton gown is more suitable for many domestic occupations. If there are old suits on hand, they should be made

¹ Hearing of Joint Committee on Labor, 66th Congress, 1920.

to serve as long as possible, thus making unnecessary the purchase of new garments, but the habit of wearing old finery at one's work, such as light silk waists, soiled chiffon, and dressy gowns tends to extravagance and slovenly attire and should be stopped. A pale blue cotton gown with white apron, collar and cuffs is often worn by a woman for her light housekeeping, for supervision in community service, or for the teaching of cookery, but for heavy cleaning or for gardening, it is not appropriate, for it soon becomes soiled and worn, and the dress of heavy cotton twill, overalls, or the trousers and tunic are better suited for this. The woman thus attired continues to look well in spite of the dirt, and her clothing is not injured. The business woman and the housekeeper have, therefore, altogether different problems, but, on the whole, a few models will cover all requirements. The every-day dress should be made with due regard to comfort. Too tight clothing either to walk or work in shows a lack of common sense in the wearer. Such garments should not take much time to put on or off, and should have the minimum of fastenings and trimmings which are not easily disarranged or soiled. Pockets, which can be used, should be in every gown.

Flimsy silk stockings also are not fitted for heavy service, and it is an extravagance to buy them for such a purpose. Silk hosiery that will endure is too high in price for the majority of working women, and the temptation to buy those that are not good has been too great for many who have not realized that they will not wear as well as a good cotton stocking. (See Chapter VI, section "Knit Goods.")

The clothing should be *hygienic*, meeting the requirements for the best bodily development and service. The dress of the day, in its inadequate covering of the body is not only immodest, but endangers health. To wear such thin clothing that it is necessary to shave the hair from under the arms is repellent to people of refinement. The tight skirt is a menace, and one railroad, at least, has refused to grant damages to women injured by the trains, when wearing such skirts.

One of the greatest needs for woman in her working life is the sensible shoe. Work as well as health require a good, firm, low-heeled shoe, the shape of the foot. Old worn-out slippers, shoes

with run-down heels, high-heeled, pointed-toed shoes or slippers are not appropriate for work and will soon undermine the health. Many women who complain of excessive fatigue at the end of the day while running an elevator or working in a store or office have their shoes to thank for their condition (Figs. 5 to 9). (See Chapter VII, section "Keep the Body Unhampered and Comfortable.")

The cloth in suits and gowns must be *durable*, for only thus can it be depended upon to give the wear required by an economical buyer. Plain or mixed suitings in soft, dark hues are more satisfactory for constant wear than brilliant or pale colors. Elaborate trimming is apt to be quickly dulled, thus giving a shabby look to a gown, therefore, business dress should be without it, except in bands, belts, collars, and cuffs of the cloth itself. In order to enliven a dull gown a small bright bit of color can be used, or simple white collars and cuffs or vestees, which are detachable and can be laundered frequently, give the individuality desired. It is in the power of girls and women to make huge savings by simplifying the decoration of outer clothing, by omitting all unnecessary laces or ribbons in underclothing, and by going without elaborate belts, cheap jewelry, and showy neckwear. Self-trimming on gowns and underclothing can be attractive, and a bit of hand embroidery can be more beautiful than elaborate passementerie and insets of cheap lace.

Life in large cities demands more formal attire than does life in the country. The cooler parts of the country require a greater outlay in warm garments. Each woman, therefore, must decide for herself and family the essentials in clothing for health, comfort and endurance. There should be in the wardrobe as *few garments* as possible at any one time. Each dress should be worn to the end of its service, that fewer new ones may be needed. Labor is called upon for all we buy and the continued buying of poor and unnecessary garments is followed by the effort of the market to supply the kind of commodities to take the place of that which has gone. "What we buy we make." The labor going into millions of yards of cheap, transient wool and cotton goods would be saved for the cheapening of the cost of living in our own country, or for furnishing supplies for Europe, if the men and women of the United States would restrict their use of them. The average person can readily

get along with fewer garments, for it has become a habit to have many changes, and in the end the garments are not worn out, but are simply laid aside for some new style. One good, new wool gown annually should be sufficient for any citizen at the present time and many do not need that. Pleats, stripes, and fancy cloths take more material than plain goods. Some patterns require more yards of cloth than others and more labor to complete. Selection should be made with conservation as its aim.

Inconspicuous and *unobtrusive* clothing should be the ideal. It should be repellent to all while nations are faced with famine, cold, and hardships, to wear extremes of fashion, which denote the thoughtless and irresponsible citizen drawing unnecessarily upon limited supplies of labor and materials.

The Personal Element.—Style is a part of the gown, but is emphasized or lessened by the way it is worn. An immaculate, well-groomed appearance, even with a very simple garment, goes far toward making the wearer pleasing to the eye. A soiled, crushed blouse; an untidy skirt; a hat with faded finery; stockings with breaks in the knitting; shabby, run-down-at-the-heel shoes, and gloves with holes in them will ruin the appearance of even an unusually attractive person. The carriage of the body is also important, and a cheerful, pleasant expression and an erect bearing will increase the good effect of the costume. Personality is indicated by dress—the selection of textile, of color, and of form of garment; the condition of it when worn and the manner of wearing. The world is forming its judgment of the individual largely by these outer marks of inner traits. Personal appearance becomes, therefore, a factor in success.

Harmonious dress is not of necessity an expense, and simplicity can go with the highest ideals of beauty. The study of art as connected with woman's dress has not had the attention it should have had in the United States, for style has been the ideal rather than artistic line and comfortable, enduring garments. Even artists thoroughly conversant with principles of beauty have failed in carrying out those ideals in costume. The United States has been negligent in training its school children to use art practically in designs of the simplest household articles and garments of everyday life. France has not neglected this, consequently that nation

has been the designer of woman's dress as well as the leader in textile design. A movement for American dress design has begun, and every citizen should feel it his duty to forward it. At first, the majority of people will be appealed to more by the foreign modes they are used to seeing, for French ideals of dress have long been with us and France has been prepared for the work by long art training, while this country is only beginning. American artists are endeavoring, however, to meet the situation, and almost every large city has people at work designing, on paper or on cloth, garments which are founded on principles of beauty and which will continue to be attractive in line and color as long as they last. Associations of Dress Designers are emphasizing the use of cloth and clothing designed and made in America. Exhibits have lately been held showing excellent results, and trade journals have given space to illustrations of textiles and garments designed in the United States. Our museums are visited more than ever before for suggestions from the primitive arts of our own or foreign countries, and stencilling, batik work, coarse embroidery, and bead work are being used to embellish garments. Each woman should study the laws of art in relation to her dress, that she may judge wisely, selecting good line, right proportion, worthy workmanship, and attractive color in relation to her own personality. Thus she will have harmonious clothing. It pays to give time to attain this, for once gained it is a companion for life. The world needs beauty and attention to the laws governing it will increase it. Artists who can design and make artistic clothing are becoming more numerous, but their services are too expensive for the majority of people. The best thing is for each woman to make herself intelligent in these matters. She will thus select to better advantage and this will react on the ready-to-wear trade.

Dress Hints.—Some workers are especially interested in solving the business or street suit. The Norfolk jacket, the Russian blouse, the peasant cape, and the tailored suit have been used for foundations for designs, and garments are appearing uniting conservation, moderate expense, good cloth, and attractive results (Fig. 10). Artistic workers are designing gowns for dressier occasions, the one-piece type having been the basis for many of the best models. The tunic has been largely used, for it is full of

artistic possibilities and allows for much variety of treatment as well as material. It is becoming to the majority of people, is quickly and easily made, and takes the minimum of cloth. The long tunic

FIG. 13

FIG. 12.

FIG. 11.

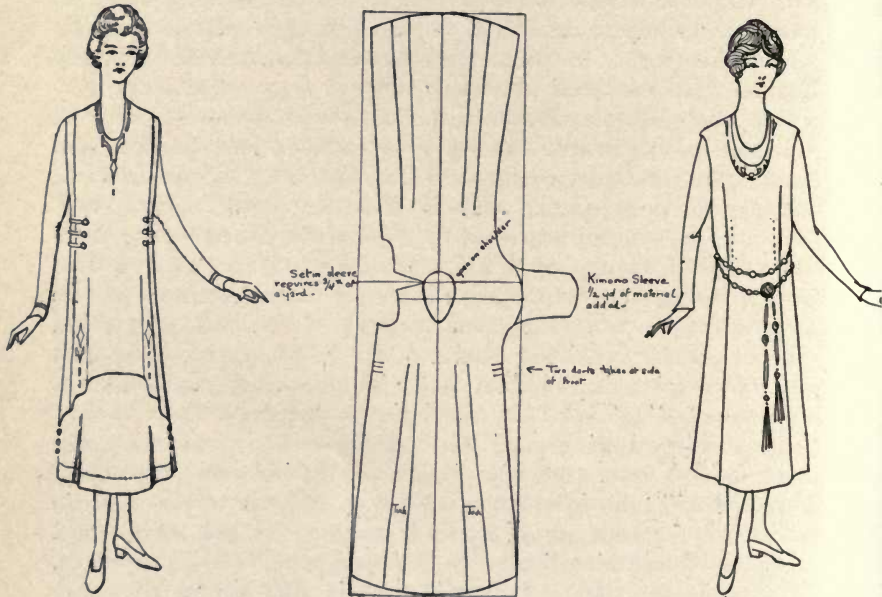


FIG. 11.—Simplest slip dress. Designed by G. W. Ripley.

FIG. 12.—The simplest slip pattern. The easiest way to make this slip is to cut the neck size first, and slip the cloth over the head, then pin the front to the back into an under arm seam. Take up two tucks, one each side of the front and the width necessary to make the skirt hang well. Designed by G. W. Ripley.

FIG. 13.—Tunic of georgette cr pe, chiffon cloth or marquisette. It may be stenciled or embroidered or trimmed with beads or fringe. Half a width of 40" material is sufficient. Frogs of gold braid fasten the back and front together. This overdress is to be worn over Fig. 11. Designed by G. W. Ripley.

can take the place of a complete garment and soft sashes, cords, or bead-strung belts are used to girdle it. The short tunic lends itself to dressy effects, or in the jumper form made of cloth, velvet, or cotton goods is useful for simple every-day gowns. Touches of embroidery in harmonizing or contrasting colors give these garments personality and distinction.

Slips or underfrocks with detachable sleeves have also been designed (Fig. 11). The garment is so constructed that it can serve for an outer gown or can be worn under a tunic, an overdress, or a fancy coat. It thus becomes an especially economic form of dress, serving for several occasions. For the traveller it is very desirable, for a slip of some dark silk serves for a travelling dress, and a tunic of velvet or thin material can be carried in the suit case and make an effective gown for special occasions. For a pattern for such a slip see Fig. 12. Many of the slips are made without sewed-in linings, a detachable net underwaist being used instead, which can be laundered frequently. Two sets of sleeves are made for one garment, thus making it comfortable for cold or warm weather, and still further increasing its service. The slip is made fitted to the figure or loose and drawn in by a cord inserted in the material at the waist. The tunics which are worn over the slip are made of pile fabrics, of soft cottons, of crêpes, chiffons, marquissettes, or lace (Fig. 13). Coats, long panels, and draped overdresses have also been designed to wear over slips. Many of these American models are charming; numerous fittings are unnecessary, and as the majority of them are not close fitted, they are more easily adapted to any figure than were the former tightly fitted garments. The ready-to-wear trade, quick to seize ideas, is bringing out similar models. A woman making her clothes at home can have a simple foundation pattern, which fits her, and from it make numerous changes. Thus she can have ample variety with the minimum of time spent.

The art of practical design must be developed to a higher point with us, however, if we are to succeed industrially. The Art Alliance of America is working for this in all branches of industry. It is felt that a reaction toward beauty will come as a result of the terrible war conditions under which the world has been living, and the development of the garment trade toward better designing will be a part of the movement.

Two important points have been reached already: First, in the recognition that women looked well in their neat war service uniforms. The appropriateness and dignity of this style of useful dress are appreciated and women, in general, are showing a desire to increase the efficiency, comfort, and beauty of their every-day

attire in a similar way, but not by adopting uniforms. Second, the artistic possibilities of the underslip and the variations of overtunics which are making gowns for dressy occasions beautiful yet outside of the extremes of fashion and not necessarily expensive.

Dress should be considered important enough, on account of its effect on the public at large and on the individual, for adequate attention to be given to its selection. It should then be forgotten unless repairs are needed. But to buy a dress and then spend time trying to find ways to change it or to wander about stores to see if some new idea has come out which can be immediately utilized on it, or to put it aside for some infinitesimal lack of the latest style, is foolishness and complete waste.

The choice of color is significant in the effect dress may have on the eye and the nerves of the public. Black and all very dark colors make a figure look smaller, consequently are desirable for very stout people. In general, a thick, dull, black is unbecoming, for it makes the person look sallow and old. A thin, transparent black, especially if relieved by a little creamy white or soft broken color at the neck is apt to be becoming, and a touch of bright orange, blue, or rose will often make the entire effect of a black gown more pleasing. Dark blue can be worn by the majority of people. The grays are becoming to some, especially if running toward cream rather than toward blue. Broken colors of all kinds (those which are slightly gray in tone) are more pleasing than the crude blues, reds, purples, and greens. Harmony may be attained in a costume by using related colors, as when a brown dress has a touch of orange in it. Contrasts of violet with yellow or red with greenish blue are apt to be too pronounced, unless the very gray tones of these colors are used and the designer is an artist. Outer coats of crude reds, yellows, blues, and greens are not becoming, for the coloring of the complexion loses brilliancy in contrast. The main body of a gown or the outer coat is more becoming and harmonious to the wearer if it is in the duller, softer colors. It is safe for a person to note the tones in her skin, hair, and eyes, and buy garments that will make them more attractive, and not try to outdo them. Sport clothing out-of-doors can have the brilliancy of crude color and not offend good taste. Older people with hair gradually losing color and with the complexion dulling cannot afford to wear any-

thing but the soft, broken tones for the main body of the gown with a splash of bright color only to relieve it. In winter the warmer colors are more pleasing than the cold ones, but in summer the pale blues, violets, grays, and whites are refreshing to the eye.

The demand of the consumer is the main factor in the supply of fabrics and gowns. The articles offered for sale would not be made if the promise of selling them were not good. If enduring materials, more efficient dressing, and less rapid style changes are wanted, the woman shopper must show it or the present conditions will continue. To demand the best and to express disapproval when a store has misrepresented goods will make the store buyer more careful in his selection.

All left-over clothing should be used, therefore, every woman should look at the garments and articles hanging in the closets or laid away in drawers and boxes before buying new ones. The one who wears made-over clothing, half-soled and repaired shoes, and has a limited number of new garments and those of the best quality is in good company, for thoughtful, patriotic men and women of the country are doing it. In one of the states during the war the women of one county saved \$2500 by remodelling their old clothing and hats. If one county can thus help, the nation at large could do a marvellous work of conservation. With the advance in the cost of cloth and of ready-to-wear garments, each woman who has dressed well on her income in the past must now reduce the amount of clothing she has been accustomed to have, as prices are likely to be high for a number of years. The woman who feels this to be her duty and opportunity will look carefully over old clothing before buying anything new.

It is not expected that every woman will make her own clothing, for many have their time too full of more important occupations for that, but if a woman has the time, which can be better occupied this way than in any other which presents itself to her, she can save money by so doing, if she buys material carefully and is a good worker on garments.

Every woman who buys or makes clothing should select materials and styles with the idea that health is to be conserved by them. Those living in cold climates should be kept warm, but wool is not absolutely necessary for this purpose. Layers of cotton in

padded linings or jackets, or paper made into a waistcoat will keep the heat from passing away; even thin fabrics over a knitted or netting underwaist help to conserve the heat of the body, though they may not be sufficient in very cold weather. To buy wool with the idea that health requires one to wear it in winter, and then have chiffon sleeves in the gown is defeating its service and making an unnecessary call on the body to keep up its heat. (See Chapter VII, section "Keeping Warm.")

Overalls are appreciated by women who have used them for performing work in which the skirt impedes. When the man of the household is away and the wife has to attend to the work in or about a suburban home, she finds the overalls a boon in such tasks as making the furnace fire, digging up the garden, getting the ice from the icehouse and putting it into the refrigerator, rubbing down or harnessing the horse, repairing the shingles on the roof, cleaning the automobile, or even in cleaning the house. The garment may not be a thing of beauty, but most women have not time to be solely things of beauty during the working hours. A skirt is not only impeding, for many household demands, but is sometimes positively dangerous. The overall, which is the cheapest form of hard-work dress, or the trousers and tunic, which may be made very attractive, have come to stay as measures of conservation. The majority of women do not want to wear a uniform of any kind all of the time, but if they are to do the hard work of the world they must be allowed to dress in the way to save their strength. After the work of the day is over, they will be glad to slip into the soft textures and sweeping lines of the old-time dress and rest and enjoy life.

A gown made of good material, in a quiet, harmonious color, simple in line, conservative in use of cloth, and suited to the wearer is a pleasure to the eye which rests upon it. Every woman can have clothing of this kind.

A garment can be too broken into spaces for good results. The effect is tiresome to the eye to see lines stopped and cross lines intervening, no matter how beautiful the trimming may be in itself. Over decoration will mar the beauty of any garment. The most attractive gown follows the line of the body and never contradicts it. Fashion will at times dictate excrescences which injure the dignity of the human form—bustles, hoop-skirts, Grecian bends,

huge sleeves, hobble skirts, and wasp waists come and go in a freakish manner, but the eras of chaste drapery following the form are always considered to be times when beauty and art triumph.

An excellent conservation method is for each woman to select the color for the general tone of her wardrobe which suits her own coloring, and keep all of her coats, suits, and gowns in harmony with it. She can thus reduce the number of her outer coats to a minimum, and waists that have been made in one season can be used with new suits in the following one. Hats can also conform to the same scheme. Those who have tried this plan have found it satisfactory for the wearing out of old clothing and conserving new. Blue, black, or dark brown can be worn by many, and many of the varieties of taupe are becoming to both old and young.

Accessories to dress, such as shoes, gloves, and hats are very important and they should always be in the best condition, but should be non-assertive.

In making a dress, the warp threads of the cloth should run the length of the gown, for these threads are stronger. If there is a right or wrong side to the cloth, an up or down to the design, or a nap to the material, it must be noted, so that all parts may be harmonious in effect when the garment is completed.

In cutting out a dress, much material can be saved if the different parts of the pattern are so carefully fitted on the cloth that nothing will be wasted.

Materials which deteriorate quickly should not be bought. For one who wishes to have one gown serve all occasions, two sets of sleeves should be made for it, and a special guimpe or vestee can be used for dressy occasions. Strict economy should be exercised in choice and elaboration of trimmings; those who are doing this are interested to find how little they are missed. It is often wise in ordering a suit to have two skirts to go with one coat, as the latter does not wear out as quickly. If, however, the coat can be worn with other clothing in the following year this may be unnecessary.

Self-trimming in bands and pin tucks, eyelets, scalloped edges, simple embroidery and hemstitching; guimpes and vestees; collars of good material, and good narrow laces take away the severity of a gown. A touch of some national embroidery, such as the brilliant needle work of Russia or China will lend personality and distinc-

tion. Trimming that will soil or easily tear should be detachable that it may be put into good shape again without the necessity of cleaning the whole garment. White, fresh collars give a neat, smart look to a gown.

Napped goods, such as broadcloth and kersey, should be cut so that the nap runs down, but in velvets and plush the nap should run up. If the material is striped the main stripe should be placed in the center of the gown.

The popular dress of the present is largely a one-piece gown in a coat form with little fitting at the waist, and therefore requiring the minimum of adjustment in a ready-to-wear garment. On account of the simple form, it is now possible to order garments from a distant city or from mail order houses that will be more satisfactory in appearance than was true when a tightly fitted waist and skirt were the mode.

Pattern houses are bringing out paper patterns on conservation lines. Designs for skirts or the one-piece gowns can be bought requiring the minimum of cloth, yet simple in construction and attractive in appearance.

The outer dress of the present has few fastenings and in some cases slips over the head, thus saving time and money. These easily made and easily adjusted garments are increasing rapidly in favor with the public, for they have beauty as well as utility. The skirt in the illustration (Fig. 14) has but two pieces, one at the front and one at the back. It can be made in two lengths of 42-inch material. For a very slight person, 36-inch goods can be used. The folds in the waist for this skirt should conform with those in the skirt, giving a long line from shoulder to hem. An old shirt waist suit can be made over to give a similar effect by adjusting the folds in the waist and skirt and fastening the two parts together (Fig. 15). A soft crushed belt of silk or a girdle of cord should cover the joining at the waist. In general, the effect is more pleasing if the girdle is raised a little above the regular waist line or allowed to bend gently below it in the middle of the front or all around. It is well to try on the gown before it is finished to see which method is the more pleasing. (Figs. 20 and 21, p. 195.)

When cutting a skirt the pattern of the front should be laid on double material that there may not be a seam down the center front.

FIG. 15.

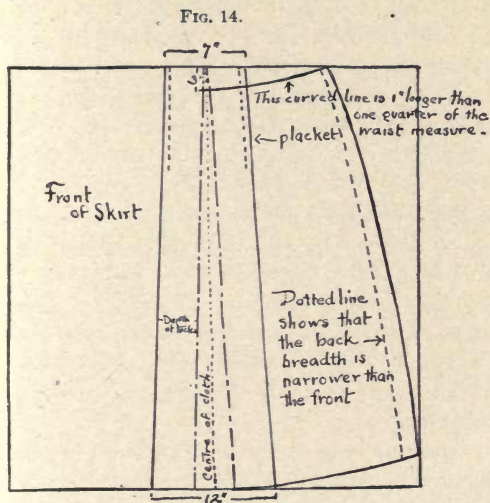


FIG. 14.—A very simple and pretty skirt. First, cut two pieces of cloth the required length plus the width of the hem. A yard and a quarter for each piece is the usual amount. The material should be 42" wide unless the skirt is for a very thin person. Second, baste the center line in both pieces of cloth. Third, lay deep tucks to form a panel back and front. The panel may be seven inches at the top and twelve at the bottom. The tuck meets in the center of the panel at the top. The tucks are to be stitched down ten inches and left free at the bottom. Fourth, measure down $3\frac{1}{2}$ inches on center front line and cut the curve of the upper part of the skirt. The front of the skirt is one inch wider than the back on each side. Fifth, baste the side seam making the front of the skirt 4" wider than the back at the bottom. Sixth, baste skirt on belting. Open the placket on left hand side of front panel. Designed by G. W. Ripley.

FIG. 15.—Simple skirt with shirtwaist. The lines of the skirt and waist should always be harmonious. Pattern of skirt is shown in Fig. 14.

(Fashion at intervals, however, decrees such a seam.) The cloth should be so folded that it is only as wide as the widest part of the pattern, thus, material can be saved on one side to use for some other purpose. A circular skirt is one of the easiest to make and fit, but the additional material needed to make the back long enough must be joined carefully (a straight edge to a straight edge) and well pressed open or it will not look well. A very simple skirt, suitable for a cotton petticoat, can be cut from three lengths of material which is the same on both sides, as in muslins and some silks. If the length of the skirt, including the hem, is one yard, three yards of the material will be sufficient. One length can be used for the front by taking a gore off at each side. The second piece can be folded over diagonally so that two-thirds at one end will meet one-third at the opposite end. This can be cut through to make the two side gores. The third piece is for the back. The bias sides of the front piece are joined to the straight edges of the side gores and the back with its straight sides is joined on each side to the bias on the side gores. The joining of pieces should be from the top down, and care should be taken not to draw the bias out of shape when sewing the seams together.

It is advisable for one who purposes to make a garment to test the pattern on the person before cutting the cloth. It frequently happens that minor changes can be made that improve the appearance and serious mistakes are thus obviated.

In making over old clothing for another person, it will pay one who is not experienced to study carefully methods of changing waists, sleeves or skirts. "Clothing for Women," by Laura I. Baldt (Lippincott), gives simple and helpful information on dressmaking.

It is seldom attractive to have a break in color at the waist. If a two-piece gown is to be worn, the effect is more pleasing if the colors of each part are in complete harmony. The best points in a person should be brought out in the dress and the poor ones concealed. Blue eyes can be accented by a blue dress of the same tone. The beauty of red hair can be increased by the wearing of velvets or soft materials in brown tones darker than the hair; on the other hand, the hair can be made unattractive by wearing a gown of some tones of blue or violet. A stout person should have a gown with long, simple lines to reduce the appearance of flesh,

dark colors being better, and a thin one can by the judicious use of drapery, the elimination of long lines, and the use of cross lines conceal her emaciation. Striped goods running lengthways on the latter would make her look even thinner. Art principles are concerned vitally in dress and should have consideration.

QUESTIONS

1. What are the main reasons for the movement among women to standardize their every day dress?
2. What are the changes which are suggested?
3. Give the principles which should underly the selection of clothing.
4. What is being done to meet the need?
5. What part should art and color take in the improvement of women's dress?

TOPICS FOR FURTHER STUDY

1. Study the changing fashions, consider the relation of woman's dress to the need of thrift in the country, and state the proper procedure in your own case.
2. Consider the use of uniform for women as a solution of the dress problem, and the influence of personality and of beauty upon the problem.
3. Enumerate the various phases of the movement for the development of design in America for women's dress. How can women aid in the movement?

CHAPTER X

THE CLOTHING BUDGET AND THE WARDROBE

Budget Making.—Methods of making household budgets are not new, for they have been dealt with in numerous books and pamphlets, and some families are using them. Definite percentages to be set aside from the income for the various items, such as food, shelter, clothing and personal expenses, have become familiar. Many women anxious to spend money wisely are taking courses of instruction in conducting the household accounts and in the making of a budget. As yet, however, there are comparatively few people who are really living on a budget. Nevertheless, there is no other way that gives as many economic suggestions for the wise use of the income. The main difficulty in actually planning one for use is the finding of the special problems to be met by the particular family or individual. The general budget plans given out are suggestions only for methods of procedure in any special case, and the first steps toward regulating the expenses for any one family or individual must be to decide on its own basis of spending according to its personal needs. The beginner feels baffled by the questions which arise in her mind as to the best way to apply a representative budget in her case and gives up the attempt after a short trial. Her easiest method of procedure would be for her to keep her personal expenditures for a year (see "Budget Suggestions" below) in order to find out how the money is spent, and then make her estimates for the following year from the known expenses of the preceding year. With some facts out of her own experience she can study a general budget with more intelligence and divide her income into a few large divisions which may serve her for another year. There is, indeed, no royal road to budget making, but after a budget is once established the later adjustments are much more simple, and new subdivisions and grouping of expenses can be made.

Families vary greatly in the emphasis they place on various items. One for professional reasons lives in an expensive neigh-

borhood in a large city, and a larger proportion of the income than is usual must go to shelter, consequently, other items must be reduced to meet it. It is easier in this case to adjust the difference over several heads than to take too much out of any one. Another family lives in a suburb where rents are low, but travel to and from the city for several members is an expense which makes this item disproportionate with its usual amount in the budget. The homemaker living in some country town does not require the class of clothing that a professional woman in a large city needs; they may have the same income, but their percentages for food, shelter, and clothing will probably differ to some extent. Social demands and daily occupations are factors in the size of the items. A man with a small income and with daughters above sixteen years of age who are not employed, living at home and going out in a society which demands dressy garments will find the clothing section of the budget running higher than the amount usually allowed for it, unless some one is at the helm to manage this problem in an economic manner. At the present time commodities are scarce, expenses have risen rapidly, special savings and thrift are asked of all, and the incomes of large numbers of the people are no larger. Conditions are by no means stable and tentative budgets are alone available for every one is estimating and experimenting. Some who have fair incomes are still using the old percentages, but are reducing the amount and kind of food, household articles, and clothing. Other families have entirely readjusted the size of percentages to meet the higher costs of the main items of the budget. The budget given below is representative of the first group. In order to keep expenses within limits the commodities formerly bought were altogether changed in many instances and experiments in equivalents were constant and still continue. The wardrobe has been limited, out-of-style clothing has been utilized, and methods of care and renovation have been developed. The manager of this budget is a self-supporting woman in a large city, and her income is \$3300. At the beginning of each year she adds up her expenses for the past year, considers her extravagances and economies and makes her estimates for the following year. She alters her percentages and amounts slightly as unexpected demands come, such as an advance in rent or board. In order to meet this she has to lower allow-

ances on several items. Such a budget would need many changes to fit it for a family, but as it stands should be suggestive to a beginner for divisions and percentages for one person; and with some adjustments it will have suggestions for a family.

The first step taken by this particular woman in her use of income is to set aside a portion for savings and insurance, removing it directly from the budget. In this case \$300 was taken, leaving

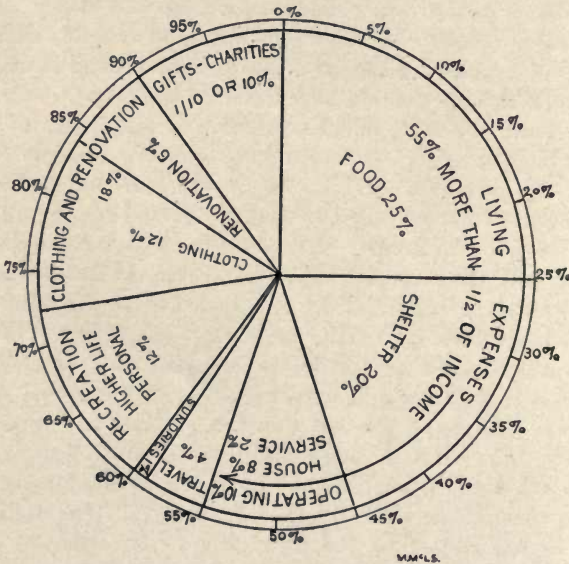


FIG. 16.—Division of an individual annual budget of \$3000.

the remainder, \$3000, to be divided into the various items of the year's expense items. The expenditures are given in round numbers and the percentages without fractions. The amounts of the different parts of a budget are seldom exactly the same from year to year, for unexpected conditions occur, prices vary, and needs change. The divisions, as given, are sufficiently true to keep the user of it from unnecessary spending in any direction, and if she does use more of any one item than is allotted she must deduct that much from another division. (See Fig. 16 for a graphic repre-

sentation of the divisions of the entire budget, and Fig. 17 for the various parts of the clothing expenditures.)

A REPRESENTATIVE INDIVIDUAL BUDGET

<i>Living expenses</i>					
Rent or house expense	....	20%	\$600	}	55% → \$1650
Food	.....	25%	750		
Operating					
House (repairs, light, heat telephone)	.....	8%	240		
Service	.....	2%	60		
 <i>Clothing</i>					
Large, small, miscellaneous		12%	360	}	18% \$540
Laundry, repairs, cleaning.		6%	180		
 <i>Recreation and higher life</i>					
Gifts, charities	.....	10%	\$300	10%	\$300
Travel	.....	4%	120	4%	120
Personal—Doctor, dentist, clubs, entertainment	...	12%	360	12%	360
Sundries—News papers, writing paper, stamps, incidentals	.....	1%	30	1%	30
				100%	\$3000

Budget Studies.¹—When incomes are low, the percentages for shelter, food, and clothing will require most of it. There will be little money to spend on higher life and recreation, and savings, if made at all, are usually taken to provide burial insurance. At the present time, with prices of necessities so high, many are carried below the efficiency line, for there is no room to adjust to new methods of buying food or clothing. Studies have been made of the annual purchase of clothing under present conditions which are suggestive for minimum expenditures for health and efficiency. The increase in the cost of living from July, 1914, to November, 1919, has been considered by the National Industrial Conference Board. The result of this investigation is that, taking the entire budget, the rise has been about 83 per cent. The basis on which the averages were determined was that food constituted 43 per cent. of the budget, rent 18 per cent., clothing 13 per cent., fuel and light 6 per cent., and sundries 20 per cent. The increases over 1914 costs were found to be for food 91 per cent., for rent 40 per cent., for cloth-

¹ National Association of Wool Manufacturers, October, 1919.

ing 135 per cent., for fuel and light 48 per cent., and for sundries 75 per cent., these being combined to determine the average increase of 83 per cent. to November, 1919. On clothing, the retail stores throughout the country were asked to furnish prices for goods retailing at a specified price in 1918, and also to report the changes, for the same quality of goods, from 1915 to July, 1919. Women's blouses were found to have advanced 50.5 per

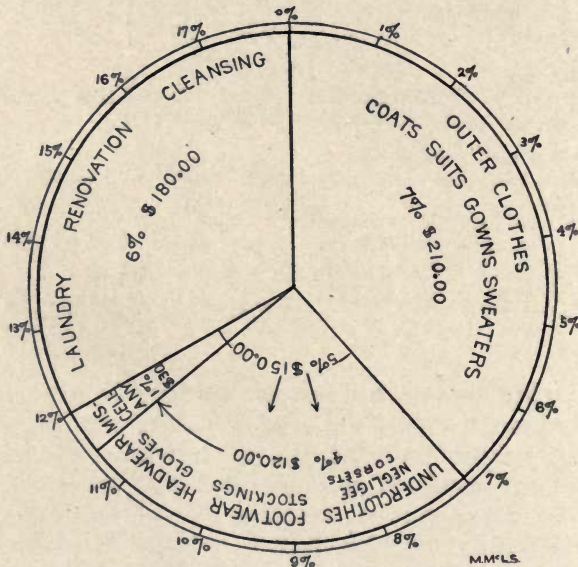


FIG. 17.—Divisions of an individual clothing budget in which 18 per cent., or \$540, was used.

cent., men's overalls had reached 161 per cent., many yard goods were 100 per cent. advanced. Men's hosiery costing 15 cents per pair in 1914 were at least 25 cents, and those costing 25 cents in 1914 had reached 45 cents. Knit underwear was nearly 100 per cent. higher, women's shoes 88.5 per cent., and men's 69 per cent. Kid gloves previously selling at \$1 had reached \$2. Changes of the same character were reported in other standard articles of clothing.

A study made by the United States Department of Labor (see Chapter VIII, section "The Working Basis") and released in May,

1919, gives the income of \$2500 for a family of five (4.9 as stated, and representing 518 families) as necessary for "bare necessities" and the "simplest comforts." The record is as follows:

Food	\$640.92
Clothing	253.68
Rent	214.62
Fuel and light	64.20
Furniture	61.05
Miscellaneous expenses	284.25
Simplest comforts	991.08

The annual cost of maintaining a minimum reasonable standard for a family of five in Lawrence, Mass., is given by the National Industrial Conference Board in November, 1919, as \$1385.79. This is an increase since 1914 of 84 per cent. The amounts were made up as follows: Food, \$600.60; shelter, \$182; clothing, \$265.61; fuel, heat, and light, \$71.34; sundries, \$26.24; this would require a steady income of \$26.65 per week. A somewhat more liberal standard is given by the board as \$1658.04. A similar study at Fall River, Mass., places the minimum and reasonable cost of living in that city at \$1267.76, and the more liberal one at \$1573.90. Thus conditions differ in cities.

When it is remembered that it is only a comparatively few years since a comparable income for such a family was estimated at \$800 or thereabouts, the rise in living costs can be appreciated.

The Bureau of Labor Statistics has considered also the expenditures for clothing in 1917 among a special group of six hundred women wage earners of Washington, D. C.² Of this group 82 per cent. spent less than \$150 annually for dress, 93 per cent. spent less than \$200, and but 6.5 per cent. spent as much as \$200. A special study was made of fifty-three women out of the group of six hundred who were between the ages of nineteen and thirty-five years, were living away from home, and were strictly self-supporting. The wages ranged from \$258 to \$1096 annually, and the yearly expenditures for clothing were from \$22 to \$260, which brought the average to about \$125 per annum—this is somewhat higher than the minimum standards arrived at in other cities, which is explained by higher clothing requirements in Washington and the

²Monthly Review of the Bureau of Labor Statistics, 1918, February, April and June.

increased cost of commodities since the other investigations were made. In 1915 the New York State Factory Investigation Commission³ stated, "the matter may be summed up by saying that a girl may respectably clothe herself on between \$85 and \$90, and she can maintain a fairly good appearance with about \$100." By 1917 this minimum was not sufficient for satisfactory attire.

The cost of being well dressed for the fifty-three Washington women showed these average expenses: Outside clothing (suits, coats, sweaters, dresses, waists, dress skirts), \$57.58; hats, \$11.59; shoes, \$14.20; gloves, \$3.32; stockings, \$5.53; underwear, \$7.18; and miscellaneous, \$14.27. The sort of garments purchased was approximately as follows: Suits or coats were bought in alternate years and cost from \$25 to \$30; shirtwaists, \$6 to \$15; one-piece dress, \$15; wool skirts, \$5 to \$10; summer skirts, \$3 to \$5; party dress (worn for two years), \$25; shoes, \$12 to \$17; stockings, \$3 to \$7; corsets, \$2 to \$5; gloves, \$2.50 to \$5; underwear, \$5 to \$10; and miscellaneous, \$10, approximately. Outside clothing cost from \$70 to \$75, or a little more than half of the \$125, and the other articles about \$50 or \$60.

The following is one of the budgets, the owner of which did not rely on the ready-to-wear or custom trade, but made practically all of her own clothes, trimmed her own hats, and did her own mending. The amounts spent were as follows:

Material for 2 dresses (1 at \$4 and 1 at \$6)	\$10.00
Material for 8 shirtwaists	7.00
Material for 2 dress skirts	1.60
One sweater	5.00
Three hats (1 at 10 cents, 1 at 98 cents, 1 at \$7) . .	8.08
Five pairs of shoes (1 at \$8, 2 at \$3.50, 1 at \$5) . .	20.00
Eight aprons at 25 cents	2.00
Four pairs of gloves	4.25
Fifteen pairs of stockings (\$5 worth of gifts)	12.28
Two corsets	7.00
Underwear (including gift of material of \$2.25) . .	5.25
Miscellaneous	4.54
Total for clothes	\$87.00

On account of wide variations of taste, of knowledge of values in material, of opportunities to buy advantageously, of ability to

³Fourth Report of N. Y. State Factory Investigating Commission, 1915, vol. 4.

sew, repair, and make garments, and good habits in wearing and in caring for clothes, it was felt that accurate minimum standards in the amount of money that should be spent for clothing per annum could not be set up.

The occupation figures largely in its demands upon the wage earner. The factory worker has less need to appear well dressed than the sales girl. The laundry worker, the clerk, and the stenographer all have standards of dress set for them that affect the amount they must spend annually. Success in life as well as self-respect require women in some occupations to spend a goodly amount of their salary for clothing. An applicant who is not well dressed when applying for a position is apt to be refused. This fact has its influence on the amount of money spent by workers.

In general, all wage-earning women consider a suit necessary and at present they want one worth buying that will last for constant wear for two years. It will cost \$25 as a minimum, and, at the present time, is not very satisfactory at that figure. The higher priced suit, if simple in design, is apt to wear longer, for a better class cloth is used in it. The latter is worth buying even though money must be saved up for it in advance. Looking ahead is difficult but not impossible. It is wiser to buy outright than on the instalment plan. It is advisable to buy the suit one year and the outer coat or wrap the next year. Coats will usually wear longer than skirts, for they are not used so much. Some workers prefer to buy a fairly light weight suit for the entire year and wear a sweater under it if the weather is cold and another coat over in the extreme winter weather. The blouse or shirtwaist is still in demand, for the one-piece suit has not completely superseded the shirtwaist and skirt.

The Clothing Division of a Budget.—The percentage of the income to be used for clothing runs on an average from 12 to 20 per cent. See Fig. 18 for a suggestive chart of the clothing divisions where about 12 per cent. (one-eighth of the entire income) was used, giving \$300 for clothing of which one-half was used for outer garments; and Fig. 17 for a chart showing where 18 per cent., or less than one-fifth (\$540) of the income, was used for clothing. In this latter case less than one-half was used for new outer garments, but much was spent on renovation and cleaning of

those in use. A family of five living on \$3000 will probably spend 20 per cent. (\$600) on clothing, but an individual living on that income can get along easily with 12 per cent. (\$375) and dress well. If a family has a small annual budget, the proportion for clothing may sometimes run even higher than 20 per cent., if

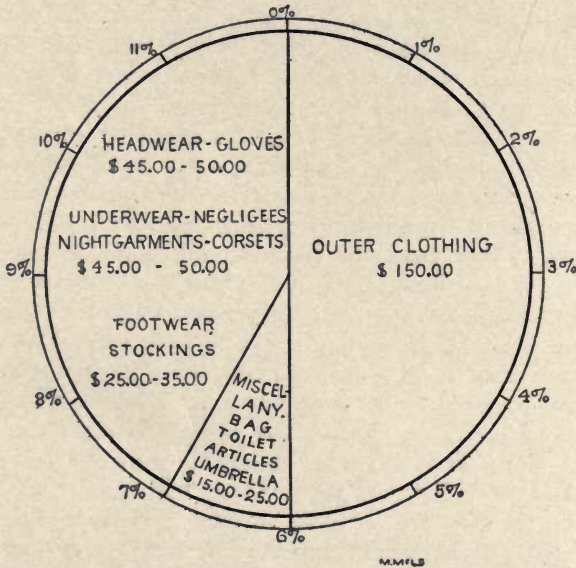


FIG. 18.—Divisions of an individual \$300 clothing budget for which 12 per cent., or one-eighth, of the total income was taken.

appearing well dressed seems obligatory, but it should run much smaller, for the income is required for food and shelter principally, and other items must suffer. With working girls on low salaries 10 to 13 per cent. is frequently all that can be afforded for clothing. There are thoughtless women who demand an unnecessarily large percentage of the income for their own personal adornment. In incomes of \$1000, with several children in the family, 20 per cent. may have to be spent on clothing in a cold climate, but food and shelter will take practically all the rest.

In 1911 a clothing budget for a father, mother, and three children was made for the Child Welfare Exhibit in New York by its

Clothing Committee. (See Chapter VIII, section "Tests," and Chapter XI, section "Care of Clothing as a Part of National Thrift.") To indicate graphically the best use of the money, representative garments and articles were shown in ready-to-wear and made-at-home clothing. It was found even in 1911 on account of the rising cost of living that the lowest income at that time which allowed for the purchase of enough clothing for five people was \$900, and that the supply was only fairly adequate. The percentage taken for clothing was about 12 per cent., which gave \$112 for the year for five people. It is well to remember that a salary of \$900 was then above the average, and that large numbers of working people were living on \$600 or even less. In the income mentioned above, the father and mother had \$47 for all their clothing and the three children had \$65 between them. Clothing which could be provided under such an income for several ages of children was shown. The amounts spent in 1911 were as follows, but the garments could not be duplicated at less than twice these prices at the present time. The minimum for clothing for five being, in 1919, \$253.68, more than twice as much with no better results. (See above "Budget Studies.")

	Home-made	Ready-made
Baby 1-3	\$8.65	\$9.00
Kindergarten age, 3-6	13.69	17.46
Primary age, 6-8	17.16	20.61
Boy, 10 .....	.....	23.28
Girl, 8-12	21.02	19.98
High school girl	31.27	35.99

One interesting feature of the exhibit was the showing of the relative values of ready-to-wear and home-made garments when the income was so low. At first, the ready-to-wear clothing appeared to better advantage. The cloth chosen for the home-made articles was all tested, the strongest possible material was selected, and decoration was almost eliminated, yet the garments were attractive. The ready-to-wear clothing was bought as near the price of the home-made as possible, but was more showily trimmed, as simpler styles were hard to find. After a time the clothing which was almost exclusively of cotton, as wool could not be purchased for this price, became soiled from exposure at the exhibit and had to be laundered. The ready-to-wear clothing would not stand this as well

as the home-made. A good example of endurance versus style followed, as the ready-to-wear clothing washed thin and lost its color in the laundry and the decoration became worn and shabby, while the home-made garments stood the test well. A mother who has time to work and is a judge of materials can make clothing which will in general outwear the ready-made and cost less.

The Wardrobe.—There are differences of opinion on the most economical and satisfactory ways of obtaining the season's clothing. In many families the women's and girls' garments are made principally at home by a visiting dressmaker who comes each season to help with the remodelling of old garments and the making of new. Those who prefer this method feel that it is distinctly more economical than ready-to-wear or custom clothing. It may be questioned as to whether the results in attractive garments are in general satisfactory, whether the time spent in assisting the dressmaker or in finishing garments after her departure could not be spent to better advantage, and whether the effect on the nerves from the excessive strain of work does not interfere with the harmony of family life.

Ready-to-wear clothing is relied upon by a large number of families, the purchasing being done through the department stores, the specialty shops, and mail order houses. As soon as such garments lose their freshness, new ones are purchased. It is claimed that this method is no more expensive and is more hygienic, for a gown that is long in service, unless it is frequently cleaned, is not as sanitary. Men and boys as well as women and girls depend for almost their entire wardrobes on the retail trade. The garments are up-to-date, the expense is not as high as if they were ordered from the best custom trade, and the time of making them at home and the fatigue of repeated fittings are saved. In men's and boys' clothing it is possible to obtain conservative models made of the best of cloth by dealing at reliable houses. In women's clothing, however, the habit of rapid changes of fashion and the desire for garments at low prices have brought on the market numerous models made of effective materials, but less enduring than those found in men's suitings. Many business women consider ready-to-wear garments a boon in their busy lives. For the success of these gowns much depends on the conformity of the purchaser to the model, as the clothing comes in regulation sizes and refitting

the garments to any extent is expensive and apt to be unsatisfactory.

The custom trade of the best quality that can be afforded is preferred by another group of women. Perhaps one gown of the highest class is ordered each season—quiet, exclusive qualities are selected, and the style is artistic. Each gown is expected to last for several years, and if adjustment is necessary, it is taken back to the tailor or dressmaker who made it. There is no doubt that if a dress is really beautiful and becoming, a woman is not anxious to throw it aside and is sorry when it is beyond wear. The women who use this method state that they can thus present a good appearance at no more cost than it would take to have a number of ready-to-wear suits, and they can have business and dressy garments of greater dignity than the passing fashions. There are many who use to advantage all three of the methods. Much can be said in favor of ready-to-wear garments, but an increasing number of women wish better materials and more artistic and conservative styles than are usually found in them.

A pre-war study of the comparative prices of made-at-home, ready-to-wear, and custom trade brought the following results: The dressmaker was moderate in price; the quality of cloth in the first two methods was probably better than in the third. These pre-war prices would be increased at the present time, but the relation between the three methods would be approximately the same.

	Made at-home	Dress- maker	Ready to-wear
1. Simple service gown	\$20.00	\$35.00	\$30.00
2. Tweed coat..pressed at the tailor's..	24.00	45.00	37.50
3. Silk, dressy gown	37.00	60.00	50.00
4. Black and white check dress of wool..	16.25	30.90	25.00

During the war, the majority of women found they could get along with fewer clothes. They ceased to wear the gayer varieties of garments, consequently chiffon blouses, lacy camisoles, showy neckwear, and light evening wraps were not considered so essential as before. For most occasions a service dress, a tailored suit, and a simple silk one-piece gown were found to be sufficient. Many women wore uniforms. Since that time a large number who have tasted the freedom of simpler dress have been asking why it is essential to return to the old ways which were unsatisfactory and have

been proved to be unnecessary. A movement toward the readjustment of clothing ideals has been launched and is gathering strength. (See Chapter IX, section "Conditions in Women's Dress," and Chapter XIII, section "Sensible Standards of Dress.")

If a woman has but one gown which she wears all the time, it will not last as long as if she uses another—even an old gown—in alternation. The length of service of both gowns will be greatly increased by giving each intervals of rest. A good cloth suit with care should last several years, if not worn every day. Each woman should cut her wardrobe to the minimum, but have sufficient changes to keep all garments in good condition. She will probably need to have most of the outer garments mentioned below, but many of them will be already in the wardrobe. The purchase of garments should be so planned that only a few need be bought in any one year. For instance, a coat can be purchased one year, a suit the next year, and furs once in several years.

WARDROBE NEEDS

- I. *Coats*—1 light weight coat—a suit coat can serve for this purpose.
 - 1 heavy winter coat or wrap; this should last three years or more.
 - 1 waterproof or storm coat; this should last three or four years, and an old long coat can serve for the purpose.
 Sweater—1 in three to five years is sufficient.
- II. *Gowns*—1 tailor-made suit or a one-piece gown—three years.
 - 1 service gown—two years.
 - 1 dressy gown. An inexpensive one each year or a good one every other year.
 A slip with one or two tunics will make several changes, and serve both winter and summer. (See Chapter IX, section *Every Day Clothing*.)
 - 3 cotton one-piece gowns or shirtwaist suits—two years.
 Skirts—1 wool serge skirt—to last several years.
 - 2 cotton skirts—2 years.
- III. *Blouses*—2 substantial ones for constant use with the suit or skirt. (One or two will be needed each year.)
 - 1 dressy blouse—2 years.
 - 3 cotton blouses for summer—2 each year.
- IV. *Negligée or Wrapper*—1 should last for a number of years.
- V. *Hats*—1 summer hat
 - 1 winter hat
 —by thoughtful selection and care one hat only need be bought each year.
- VI. *Underwear*—Knitted and muslin; shoes; stockings; gloves; corsets; petticoats and miscellaneous articles are purchased yearly, but the entire stock does not have to be renewed.

Those who have small incomes are feeling especially the pinch of high prices in clothing. For them wool is too high to purchase and cotton, as high as it is, must be used. Cotton for service gowns would better be of a color that will wash well. Plain weaving soils more quickly than twill, but launders more readily. The shepherd's plaids, the grayish, serge-like materials and flannels launder better than the bright or light colored cotton cloths. The cotton pile goods, such as plush, velveteen, and corduroy, if interlined with several layers of old woolen material, are warm for a winter coat. The better qualities are more enduring and justify the added price. A well-chosen corduroy suit makes a satisfactory garment. Waistcoats can be made from pieces of old kid gloves or soft leather. Consumers living near textile mills can sometimes buy mill ends (pieces of cloth left over or defective) and make garments from them. Samples of cloth (swatches) can also be bought and put together for linings at a lower price than materials by the yard would sell at the stores. The self-service stores and bargain basements offer cheaper articles than can be bought elsewhere, for the overhead expenses are lower. Seconds (garments with some flaw) can be purchased at considerably reduced prices. The development of greater intelligence in buying would help many families to purchase to better advantage. By looking ahead, by careful planning, and by buying out of season, good garments in conservative styles can be purchased which will last for years, and then can be made over for a younger person, where poorer materials or extreme fashions would soon be gone. For the younger children dark rompers and overalls can be made at home and thus save their other clothing. Coverall aprons should be used by girls and older women in housework. Dealing with reliable firms when their goods are reduced is better than relying upon unknown dealers. Buying clothing on instalment is an extravagance in the end, and can be avoided by forethought.

Clothing for Various Ages.—For the *infant* the main thing for the mother to bear in mind is that amply large, simple, untrimmed, unstarched garments are the only suitable ones, and the baby must be kept warm but not too warm. The infant requirements are as follows: Bands of wool and silk and wool and cotton cut on the bias, shirts of wool and cotton or wool and silk for

winter (all wool is too heating and less hygienic), and porous cotton shirts for summer, petticoats of light-weight part-wool flannel, diapers of soft absorbent material, a protective pad of quilted cotton (better than a rubber diaper) (see Chapter VII, section "Summing Up Efficient Clothing"), a few dresses or slips of strong, fine, soft cotton, a couple of knitted sacks, and a simply made, light-weight cloak of thick, soft, white wool or of some fabric lined with wool batting. On account of the expense of wool, an exterior of silk in habutai or pongee, of wool challie or of corduroy can have an interlining of several layers of fleecy cotton and be warm. Stockings should be amply large; silk and wool ones or cotton and wool are good. The shoes should be of some soft material, amply large and the shape of the foot. (See Chapter VI, section "Shoes.") Night wrappers of flannelette or stockinette should tie at the bottom to protect the feet, and a slipover of soft, thin wool or flannelette should open down the front to be worn over the dress on a cold day. The shirt and band should always be changed to another at night. In making the sleeves of the baby's slips, it is well to put a tuck at the wrist through which a ribbon can be slipped. (When the sleeve is on a band, it soon becomes too tight for the growing arm and has to be altered.) By loosening the ribbon or letting out the tuck, the sleeve can be quickly adjusted. If ready-to-wear clothing is purchased it should be selected for simplicity, endurance, easy laundering, and comfort.

Undressed batiste, nainsook, longcloth, and cambric are satisfactory for the baby's dresses. They should be made to slip on easily, should have little trimming; a narrow lace edge or a few spots of hand embroidery or hemstitching at the neck or sleeves being sufficient. For further information on infants' clothing consult three excellent pamphlets by Mrs. Max West, "Prenatal Care," "Infant Care," and "Child Care," issued by the Children's Bureau of the United States Department of Labor in Washington.

Little children should be dressed in material that is chosen for endurance and fast colors. Cotton is usually preferred to wool, as it can be washed more frequently. In general, yarn-dyed materials, such as ginghams, chambrays, Devonshire, kindergarten, and endurance cloths, and some cotton crêpes give greater satisfaction than printed calicoes, lawns, and percales, unless the latter are well

woven and are printed in fast colors. A child is apt to get spots on its clothing and a fabric that can be easily and quickly rubbed with soap and water is better than those which do not stand such emergency treatment. Many prefer to dress growing children in white cotton most of the time. Indian head, piqué, poplin, long-cloth, soft and unbleached, and other muslins are satisfactory and enduring for this purpose and can be quickly washed. Wool does not wash so easily as cotton, and for continual wear for a child it is not so practical, but it is excellent for an outer coat or for a gown to be worn on special occasions. The serges in all-wool and of firm weave wash well. In making or buying a child's dress the mother should consider the amount of time it will take in the laundry. Plain weaves wash more quickly than fancy ones, but a twill keeps clean longer than the plain. Light-weight goods are easier to wash satisfactorily than heavy ones, such as khaki, galatea, and jean. Fancy trimmings take time for their care and soon tear. It is not only cheaper, but is apt to be more satisfactory to launder children's clothing at home. The commercial laundry frequently uses soaps which contain too much alkali. The use of white soaps and careful methods of washing garments can be insisted upon at home. If a commercial laundry must be used, it should be selected carefully. Charges are frequently higher in a laundry which uses the best methods, but clothing will wear longer and offset the added expense. If the washing is to be done in the small room of a tenement in a large city, the mother should be very careful to know that the conditions are good. In general, the steam laundry sterilizes clothing more perfectly than the small home laundry in the city where grass and sunshine are missing. (See Chapter XII, section "Laundry.") Light-colored cottons are apt to fade in the wash unless great care is taken. Some cotton materials shrink badly in water, and should be shrunk before making or made large enough to allow for the changes in length and width which will occur. Seersucker and crêpe have the advantage of not requiring ironing after washing and thus save time. Mothers are using these to an increasing extent. They are warmer than are the smoother cottons, such as long-cloth, nainsook, and batiste. Loosely woven materials wash easier than those that are solid and tightly woven. The minimum cost of clothing for a child of three was in the past considered to be from

\$10 to \$12. With the present high cost of materials and labor the minimum would probably be 100 per cent. higher. A child's romper takes $1\frac{1}{2}$ yards of 36-inch material; these were made in the past of cotton goods of about ten cents a yard, but now the same kind of material is from 25 to 30 cents a yard. A dress with bloomers takes 3 yards. (Bloomers to match dresses save making white petticoats.) When 25-cent gingham was used the cost was not great, but now such gingham runs from 39 to 50 cents a yard. For dressy occasions a small amount of smocking, cross-stitching, feather stitching, and hemstitching will lend attraction and distinction to a simple cotton dress. In one family, a boy of eight and a girl of six were so dressed that the boy's clothing was used by the girl the second year. The mother bought strong cotton material for the boy's suits and made them herself in a sailor or Russian blouse style. The boy's sailor suits, kilt and blouse, were worn by the girl with the addition of bloomers to take the place of a petticoat. Winter coats were bought for the boy with the idea that they should be worn by the girl the following year. Sailor hats for the boy readily passed to the girl. There were some garments made especially for her, but they were box-plaited with a deep hem and could then be adjusted the following year for her increased size. All underclothing was made with tucks and bands to be let out. The market supplies such clothing if the mother cannot attempt the work at home, but the price will be a little higher or the material not quite so good. The boy's clothing cost \$65 and the girl's \$50 per year, but the prices for cloth were then lower than now.

Children of school age require more money to be spent on their clothing than the younger ones. The minimum cost, even if everything is made at home, will be probably \$20 or \$30 per annum, and twice as much can be wisely spent. Making clothing at home not only somewhat reduces the price, but a better and more enduring class of material can be chosen. The ready-to-wear garment as generally found is too elaborate in design and less enduring, but a little insistence on the part of the majority of consumers would bring to the market simply made clothing of the best material. This is worth doing, for the mother whose time is occupied with more important matters could thus rely entirely on ready-to-wear clothing which, while costing somewhat more, would have good

wearing quality. The materials mentioned above with more emphasis on wool are also satisfactory for children of school age. Instead of buying new cloth it is possible to cut down clothing of the older members of the family. For girls between eleven and fourteen simple one-piece dresses, sailor suits, Russian blouses, and middy jackets made of wool or cotton are attractive, easily made and taken care of, if substantial fabrics are selected. Absolute freedom should be allowed the body to develop; underwear which has become too small, stiff heavy underwaists, garters drawing down or tight around the leg are not good for the health (see Chapter VII, section "Keep the Body Unhampered and Comfortable"), and shoes should be of correct shape for the feet. (See Chapter VI, section "Shoes.") Growing girls should be dressed hygienically, with the utmost simplicity, and in garments with attractive lines. As they wear out clothing quickly a few gowns at a time worn constantly is wise. With the younger girls bloomers should be made to match dresses, or dark ones can be worn and thus save many white petticoats. A good beaver or felt hat for winter is a wise investment for it can be reblocked the following year.

High school girls should not dress as if they were in society. The Georgette waist, the silk stocking, the pointed-toed and high-heeled shoe with the hair put up in the latest fashion have been more common than appropriate. Commencement has been a time of extravagance in giving the young graduate unnecessarily costly garments. This has been especially hard for poor parents who have struggled to give their children as good clothing as the rich would have. The United States Commissioner of Education makes a strong plea for such wastes to cease, and many wise mothers and schools have acceded. Courses of sewing and dressmaking in the schools are preparing girls to do excellent work, which is admirable, but if the pupils make elaborate cotton, wool, silk, velvet, or lace gowns for their personal use, it increases their inclination to wear extravagant clothing not only for school service, but later to take time from other things to make such finery at home. If it is impossible for the school to take orders for costly clothing on which experience is needed, there should be at least a strong accompanying effort on the part of the teachers to impress upon the students who are making the gowns the need for the wise and economical use

of material, the inappropriateness of perishable garments for school service, the relation of clothing to the family income, the need for every one to use time judiciously, and the significance of the Thrift Movement. The tendency toward spending an undue length of time in making hand-work on garments is contrary to thrift. Even if a girl can make fine lingerie for herself and therefore does not have to buy it, it does not alter the fact that she must use time to better advantage. A point should be made of fostering simple dressing in the schools. School girls are full of enthusiasm for patriotic service and have been found willing to sacrifice many things for the good of the country. A campaign for simple, enduring school clothing, the elimination of pressure and weight about the body, correct shoes, and stronger stockings, if started correctly among the girls themselves, would result in overcoming the present inappropriate style of dressing, frequently immodest and unhealthful, and would relieve families of unnecessary expenses. One great step toward it would be for all the teachers to cease to wear left-over dressy clothing during school hours, and set the fashion for strong, simple garments on good lines.

Working girls, college girls, and business women need also to select appropriate styles of garments for their work. Some have been wearing uniforms required by the national service in which they are engaged. In many department stores a simple style of dress is required, which makes the effect of the sales force harmonious and dignified. The thousands of working girls who are not under such regulations should now standardize their own working dress into some comfortable, enduring style which will not impede the activity of arms, body, or feet. Sleeves that can be rolled up, a well-fitted loose corset or girdle, a collar that is not too tight, and shoes in which one can stand without fatigue are needed. High-heeled shoes and tight dresses have been responsible for many accidents. In the factory or workroom the colors should be those that will not easily soil. White, simple cotton gowns, thick enough to need little clothing underneath, are provided for their employees by progressive laundries. The overall is necessary in the machine shop. Clerical or secretarial work requires neat tailored suits in simple lines. College girls have begun to wear appropriate clothing for the varieties of service in which they are engaged

—the overall for land work, the simple, strong suit for motor service, and the domestic science laboratory dress are familiar.

If mothers for their children and working, business, and college women for themselves would take this matter seriously, a good work would be accomplished. The homes would feel an interest and could simplify and reduce the clothing expenses, the textile factory would be able to make large amounts of strong, staple materials in place of small orders for passing fancies in cloth, which would simplify the difficulties before them. The thrift problems of dress are receiving consideration by women's clubs and other groups, and the time is ripe for a concerted movement toward a more satisfactory solution of woman's service dress. If the daily work dress were simplified the budget of clothing would have fewer problems.

Budget Suggestions.—The following suggestions are the result of a study of many personal budgets in use from 1914 to 1920. The prices of articles of clothing were higher than they would be in normal times. The budgets show the effort to meet the conditions incident to war and reconstruction, and as those using them could spend no more money on clothing than they had in the past, much elimination of non-essentials was necessary. They are individual rather than family budgets, and only cover smaller incomes. In consulting them for suggestions for a family budget, data should be taken as it seems to cover needs in mind. When times are again normal prices can be adjusted and thus the clothing plans will still hold for conservative wardrobes.

On the lower levels of income the obtaining of adequate clothing is difficult and one who has been trained to a knowledge of values in textiles and to intelligent selection has a great advantage. The clothing cannot be ideal, however, in such cases. The following budget of clothing is from the Bureau of Labor Statistics mentioned above. It was used by a mangle hand in a laundry earning \$5 per week, and shows what the girl could do with so inadequate a wage, which is below the health line. Her total annual wages were \$188 and \$45 of this was spent for clothing. She lived with her parents, had lost her husband, and had a young child. The likelihood of slack times in many occupations makes a low salary a tragedy. This girl had many of them, but if she had had work the whole year, the wage would have netted \$260.

CLOTHING EXPENDITURES ON A \$5 PER WEEK INCOME ⁴

One suit (this is being paid for at \$1.00 per week)	25.00
Two shirtwaists at 50 cents	1.00
One hat	1.98
Two pairs of shoes	8.00
Twelve pairs of stockings at 25 cents	3.00
Underwear	3.00
Miscellaneous	3.02
Total	\$45.00

Girls living on low wages buy much of their outer clothing on the instalment plan and their accessories from push carts and bargain sales. In discussing with working girls their method of meeting the clothing situation, it is clear that they try to do the best they can, but are untaught in the most intelligent way to use their money. Community service plans could help such workers by demonstrations, exhibits, and advice on clothing selection and purchase. (See Chapter XIII, section "A Clothing Information Bureau.") At present, if the annual amount for clothing is below \$125, it takes much planning to appear well dressed, especially if there is little time to make or repair clothing at home. When the wage is small, shelter, food, and clothing are the main items. A Washington girl making \$350 annually, spent \$200 for food and shelter, leaving \$150 for all other expenses. If she had to pay carfare daily to and from her business, she would indeed be handicapped in saving enough for clothing and any recreation. On such a salary, if the occupation required her to be well dressed and to pay carfare also, she would have little left for decent shelter and food, and recreation and savings would be cut out.

If every one who has not yet begun to live on a budget would keep all income disbursements for a year, it would help toward estimating expenses and planning a budget for the following year. The kind and amount of calls on the salary would then be realized, and division into various items could be made more readily. The following is a simple tabulation which suggests a method of keeping the accounts—the headings can be changed as the life of the individual requires. The name of the purchased article should be put down under "Name of Purchase," and the amount spent upon it

⁴ Monthly Review of Labor, April, 1918, U. S. Bureau of Labor Statistics.

under its appropriate column. At the end of each month the columns should be totaled, and a new account started for the next month. Every year all items should be counted up to note the amount spent under each head, and the expenses for the following year should be estimated from this basis. If any one division has been too high for its rational place in the budget, the expenditures during the following year for this item must be lowered. It is well to keep in the pocketbook a slip of paper or memorandum on which constantly recurring, daily, small expenses can be kept during a month and they can be added at intervals to the disbursement sheet. It is not necessary for a very busy person to feel obliged to keep her account balanced to the last penny and spend valuable time trying to remember a carfare, a stamp, or a newspaper. What is needed is to get the interrelation between the items and find out where the wastes are. The item "Laundry" may be included under "Clothing" or "Personal," as the individual prefers. This form above can be used either as a daily record or a monthly summary page to which totals can be transferred from a daily memorandum of receipts and expenses.

The incomes of many teachers and business women will allow them to spend for clothing from \$150 to \$350 per annum, which will be about 12 per cent., or one-eighth, of the income. (See Chapter VIII, section "The Shopping Situation.") The following budgets suggest ways by which the clothing demands of the present are being met:

CLOTHING BUDGET OF A WORKING GIRL ON A SALARY OF \$1200
WITH \$150 FOR CLOTHING.

Items of the budgets

Outer clothing	\$75.00
Underclothing	20.00
Hats	13.00
Gloves	5.00
Stockings	6.25
Shoes	20.75
Miscellaneous	10.00
Total	<u>\$150.00</u>

Details of Clothing for the Budget Above.—Outer clothing is

generally bought with an idea of lasting over two years at least, but some articles are renewed yearly. A regular number of the remaining items are bought each year. About one-half of the clothing budget is apt to be spent on outer clothing (Fig. 18). The plans for purchase of garments in different years is shown below:

Outer clothing:

	1920	1921	1922
Coat	\$50.00		
Shirtwaists (1 silk and 4 white cotton) ..	10.00	\$10.00	\$10.00
Serge skirt	5.00		
Summer gown	10.00		
Service gown		25.00	
Separate skirts (cotton)		5.00	
Silk gown		35.00	
Cloth suit			40.00
Light-weight coat			15.00
Cotton skirt			2.00
Sweater			8.00
	<hr/>	<hr/>	<hr/>
	\$75.00	\$75.00	\$75.00

Underclothing:

6 nightgowns at \$1.50 each (2 each year)	\$3.00
6 knitted combinations at \$1.25 (2 each year)	2.50
6 summer petticoats (2 each year)	3.00
6 muslin combinations or chemise at \$1.50 (3 each year) ..	4.50
1 camisole each year	2.00
2 brassieres each year at \$1.00	2.00
1 corset each year	3.00
	<hr/>
	\$20.00

Stockings, shoes, et cetera:

Stockings—6 for \$2.75 (cotton) and 2 for \$3.50 (silk) . . .	\$6.25
Shoes—1 @ \$9.00 (high); 2 @ \$4.00 (low) (composition soles); 1 pair slippers @ \$3.75	20.75
Gloves—3 pairs	5.00
Miscellaneous (rubbers, handkerchiefs, neckwear, hairpins toilet articles)	10.00
	<hr/>
	\$42.00

CLOTHING BUDGET FOR A TEACHER ON A SALARY OF \$1600,
SHOWING OUTER CLOTHING ONLY

(Using \$200, $\frac{1}{3}$ of the income and more than $\frac{1}{2}$ of the clothing budget on
outer clothing.)

	First Year	Second	Third	Fourth
Tailored suit	\$75.00			\$75.00
The best of cloth is used and custom work is considered necessary. The suit has cost but \$75.00 for it is ordered out of season.				
Service dress	35.00	35.00	35.00	35.00
This gown is relied on chiefly for constant use. It is a ready-to-wear garment and bought in the late spring for the next winter. It is a coat suit and by the use of varied collars and cuffs is made extremely attractive and full of personality.				
Coat		70.00		
A long warm dark wool with excellent line and no trimming. Bought ready-to-wear out of season. It wears 4 years.				
Dressy gown			70.00	
Of silk for school receptions. It is custom-made at a good house and can be used for four years by simple changes of guimpes or collars.				
Party gown	35.00	35.00	35.00	35.00
This is bought annually, quite in the mode, and ready-to-wear. Bought out of season.				
	\$145.00	\$140.00	\$140.00	\$145.00

Estimate of a \$250 Clothing Budget.—The average annual clothing budget of an employee of the Canadian General Electric Company was tabulated for the company and shows annual clothing cost for a well-paid worker. It is as follows:

ESTIMATE OF A \$250 CLOTHING BUDGET

Suit at \$35.00 to last two years, and \$5.00 for alterations, cleaning, et cetera	\$20.00
Winter coat to last two years, \$35.00	17.50
Sweater coat to last two years, \$10.00	5.00
One serge skirt to last two years, \$10.00	5.00
One white skirt	3.00
Summer dress at \$30.00 to last two years	15.00
Three waists to last with suit at \$3.50 each	10.50
Four working waists at \$2.00 each	8.00
Three working aprons at \$1.00 each	3.00
Boots	27.00
Rubbers, and repairs to boots, rubber heels, etc.	8.00
Hats (summer and winter)	38.00
Underwear, undershirts, nightgowns, et cetera	29.00
Corsets	15.00
Hosiery and gloves	10.00
Collars, et cetera	5.00
Handkerchiefs (20 cents each)	2.40
Furs to last five years at \$65.00	13.00
Raincoat to last three years at \$15	5.00
Total	\$239.40

The foregoing table gives suggestions for those with a moderate income who are beginning to form a conservative budget. The prices are those of 1918.

The \$350 Clothing Budget of a Business Woman.—The following estimates were made at the beginning of the year:

Outer clothing—more than half of the budget	\$230.00
Underclothing	43.00
Boots, shoes, and stockings	21.00
Hats and gloves	45.00
Sundries	15.00
	<hr/>
	\$354.60

(The end of the year found the estimates fairly accurate and the amount set aside sufficient, though prices had risen.)

Cost Table of Individual Budget from 200—330 a Year.

No. to have in use (old and new)	The garment or article	Probable cost	Length of service	Annual expense	
				First year	Second year
1	<i>Outer clothing:</i> Tailored suit (repairs/ second year \$5.00).....	\$35.00—\$50.00	2 years	\$17.50—\$25.00	\$22.50—\$30.00 (plus \$5 repair)
2	Coat or wrap (bought on alternate years from the suit).....	35.00—60.00	2 or 3 years	17.50—30.00 (or less if it will last 3 years)	17.50—30.00
2	Service gown or skirt and waist.	30.00—45.00	2 years	17.50—22.50	17.50—22.50
2	Silk dressy gown.....	35.00—60.00	2 years	17.50—30.00	17.50—30.00
2	Cloth skirt.....	10.00—18.00	2 years	5.00—9.00	5.00—9.00
3	Blouses—1 silk.....	10.00—15.00	2 years	5.00—7.50	5.00—7.50
	2 lingerie.....	3.50—5.00	2 years	3.50—5.00	3.50—5.00
2	Cotton service dress.....	12.00—15.00	2 years	6.00—7.50	6.00—7.50
2	White dress skirt.....	3.00—6.00	1 year	3.00—6.00	3.00—6.00
3	Blouses—cotton { 2.....	2.00—4.00	1 year	2.00—4.00	2.00—4.00
	{ 1.....	3.00—5.00	2 years	1.50—2.50	1.50—2.50
1	Furs.....	50.00—75.00	5 years	10.00—15.00	10.00—15.00
1	Light weight coat or sweater.....	8.00—16.00	2 years	4.00—8.00	4.00—8.00
1	Raincoat.....	15.00—20.00	5 years	3.00—4.00	3.00—4.00
1	Wrapper or negligee.....	6.00—10.00	2 years	3.00—5.00	3.00—5.00
6-8	<i>Under clothing:</i> Knitted or porous, winter.....	1.50—4.00	2 each year	3.00—8.00	3.00—8.00
8-12	Knitted, summer.....	1.00—1.25	3 each year	3.00—3.75	3.00—3.75
4-6	Muslin chemise or combinations	1.25—2.50	2 each year	2.50—5.00	2.50—5.00
3-6	Muslin nightgowns.....	1.25—3.00	2 each year	2.50—6.00	2.50—6.00
2-4	Petticoats { silk.....	5.00—8.00	1 each year		
	{ cotton.....	1.00—3.00	1 each year		
	{ cotton.....	1.50—1.00	1 each year		
	{ wool.....	1.50—2.55	1 in 3 years		
	{ silk.....	3.00—5.00	1 in 2 years		
	Bloomers {			8.50—15.35	8.50—15.35

2-3	Corsets.....	2.00-	8.00	1 each year	2.00-	8.00	2.00-	8.00
3-6	Brassieres.....	1.50-	2.50	1 each year	1.50-	2.50	1.50-	2.50
2-4	Camisoles.....	1.50-	2.50	1 each year	1.50-	2.50	1.50-	2.50
<i>Hats:</i>								
2	Summer.....	5.00-	8.00	1 each year	10.50-	16.50	10.50-	16.50
1	Sport.....	3.00-	5.00	2 years				
1	Winter.....	8.00-	12.00	2 years				
<i>Gloves:</i>								
3	Kid, short.....	1.50-	2.00	2 each year	8.50-	15.00	8.50-	15.00
1	Kid, long.....	4.00-	8.00	1 each year				
2	Silk.....	1.50-	3.50	2 years				
2	Cotton.....	.75-	1.50	1 year				
<i>Shoes:</i>								
2-3	High.....	4.00-	12.00	1 each year	4.00-	12.00	4.00-	12.00
2-4	Slippers.....	3.00-	5.00	1 each year	3.00-	5.00	3.00-	5.00
1-2	Sport.....	2.50-	4.00	1 each year	2.50-	4.00	2.50-	4.00
2-3	Low.....	6.00-	9.00	1 each year	6.00-	9.00	6.00-	9.00
1	Rubbers or storm.....	1.00-	1.00	1 each year	1.00-	1.00	1.00-	1.00
1	Sandals.....	.75-	.75	1 each year	.75-	.75	.75-	.75
<i>Stockings:</i>								
8-10	½ dozen at \$.40 } or	2.40-	4.50	1 year	2.40-	4.50	2.40-	5.04
8-12	½ dozen at .75 }	3.50-	6.00	1 year	3.50-	6.00	3.50-	6.00
3-5	2 at \$1.75-\$3.00.....							
<i>Miscellaneous:</i>								
	Handkerchiefs.....							
	Aprons.....							
	Ribbons.....							
	Toilet articles.....	10.00-	25.00	Each year	10.00-	25.00	10.00-	25.00
						\$192.65-\$331.00	\$197.65-\$336.10	

QUESTIONS

1. What questions would you consider and how would you proceed to make an annual budget?
2. What varying proportions of the general budget are used for clothing and what are the reasons for the differences?
3. What is the use of keeping yearly accounts and what method of procedure is suggested?
4. What articles of clothing should be planned to last for several years, what proportion of other items must be bought yearly, and how would you plan the clothing budget that it may cover purchases for several years ahead?
5. What suggestions can you give for the sensible clothing for infants, school girls, and working women?

TOPICS FOR FURTHER STUDY

1. What should a woman do to obtain her garments in the most economic and satisfactory way—make them at home, buy ready-to-wear, go to a good custom dressmaker, or combine all three? What is the best procedure in your own case?
2. How will you dress a 14-year-old girl for the winter when the income is moderate? What will it cost?
3. Should a woman's clothing budget be larger than a man's? Compare the needs.
4. Try to plan a wardrobe for the minimum of expense and the maximum of service and pleasing effect.
5. Plan the business-like conduct of annual clothing expenses with regard to production, consumption, care and repair.

CHAPTER XI

THE CARE, REPAIR, AND RENOVATION OF CLOTHING

Care of Clothing as a Part of National Thrift.—Ease of living has led to careless, happy-go-lucky ways of using every-day articles and garments. Few have felt it was necessary to spend time on keeping clothing in good condition, even if they were not reckless in their treatment of it. When a garment is mussy, it goes to the tailor's, or when it is slightly soiled to the cleaner's, or it is cast aside instead of cleaning it quickly at home by simple methods which in the majority of cases are sufficient to restore the article to good condition and thus save expense and hiring of labor. The war has brought to us a new era, and economy in clothes will be required probably for years ahead as a part of a strenuous campaign of thrift in order to pay the obligations the country has taken on itself, and to supply the necessities of the prostrate countries "over there." European countries are feeling the scarcity of new clothing and are obliged to husband the old. Mr. McAdoo has pointed out that saving to amount to anything worth while must be in the *general habits of life*. It is, therefore, our patriotic duty to see that wastes do not occur and that the care of clothing is regularly practiced. The citizens of the United States would do well to study the methods which were used in the Reclamation or Salvage Plants during the war under an executive of the American Expeditionary Force,¹ and be equally provident in the care and renovation of their clothing, and in saving every piece of junk in the home—old clothes, rags, twine, leather, paper, and rubber. Such scraps can be sold to the junkmen if no other method seems better. The reclamation work in France saved the government millions of dollars annually. No usable article of clothing or piece of equipment was wasted. Disabled soldiers, refugees and helpless French women were employed. To those who have never been thoughtful of their clothing, the requirements mentioned in this chapter will seem numerous, tiresome, and trivial, but the housekeeper who has always felt the need of doing her best to prolong the life of the

¹ Colonel D'Olier.

family garments has become so automatic in the care that she hardly realizes that thought or time is being taken.

Systematic Care.—The following suggestions for thrift were made by the girls of the Manhattan Trade School of New York City when planning the best way to use a small wage:

*Care and Small Repairs.*²

Mend your clothes as soon as they tear.

Air your clothes before putting them away.

Hang your clothes up so they will not become wrinkled.

Sponge and press woolen dresses, skirts, and coats.

Launder shirtwaists at home if you can.

Keep all buttons and hooks and eyes carefully sewed on.

When skirt bands wear out, put on new ones.

Keep skirt braids sewed on.

The skirt of an old dress can be ripped and washed and made into a petticoat.

Put new ruffles and facings on old petticoats.

Make your own corset covers at home; corset covers that will wear a year can be made for 25 cents.

Keep your corsets clean; remove the bones, wash and dry the corset; replace the bones and bind the top with a piece of ribbon.

An old sheet or nightgown can be made into a bag to keep the best dress in.

Darn your stockings.

Keep your shoes clean and nicely polished.

Keep your gloves clean, always mended, and buttons sewed on.

Put your gloves away neatly when not in use.

Wash your own ties and jabots.

Make jabots from pieces of lawn and lace left over from waists and dresses.

Keep your hats well brushed.

Keep your best hat in a box or pillow slip when not in use.

On a stormy day, wear a veil over your hat.

When your hat becomes dusty and shabby, take off the trimming, brush and steam it thoroughly and retrim the hat.

Keep your coat on hanger. A coat keeps its shape longer when kept on a hanger.

The following was also prepared for the New York Child Welfare Exhibition:

*Care of Clothing Saves Money.*³

Every child should be taught to take care of his own clothing; hang up or fold up clothes when not in use; wear an apron when at work (clothes

²"How to Live on \$6.00 per week." Prepared for the Clothing Committee of the Child Welfare Exhibit, New York, 1911. (by Cleo Murtland.)

³"Hints on Clothing," by Mary Schenck Woolman, chairman of Clothing Committee of Child Welfare Exhibit. Issued by Teachers College, Columbia University, New York City, 1911.

last longer if kept clean); mend holes in clothing immediately to avoid bigger ones; wash out stains as soon as possible; press clothing frequently to keep it looking fresh; keep buttons, hooks and eyes sewed on clothing and do not use pins; keep shoes clean; make rompers and overalls for the little ones. It pays to darn good stockings. Learn to make old material look like new.

Old ribbons can be washed and pressed and used for hair ribbons or for trimming hats; old flowers can be steamed and painted. Belts, collars and ties should be made of material that can be cleaned.

Wash carefully and frequently the flannel, serge, shepherd's plaid, or worsted dresses and see how nice they look. Wool should always be washed and rinsed in lukewarm water, soap should not be rubbed on it, and it should not be wrung out or it will shrink.

Remove spots of grease from a wool dress by first brushing each spot carefully, then washing in lukewarm water with Ivory soap, being careful to have clean, soft, cotton cloth underneath to absorb the water, or it will spread into an ugly ring. Remove all soap by using a clean cloth and clean water. Rub dry very gently, and press on the wrong side with an iron which is not too hot.

Colored cotton dresses can be soaked in salt and water before washing to set the color.

Newspapers are very warm as an interlining in a coat or placed between bed coverings.

Cotton flannels burn very quickly and are dangerous if a spark of fire touches them. Wool does not burn quickly and can be used to put out a fire.

Settlement classes can be found which teach the making of clothes and hats.

Clothing will wear longer if taken care of regularly. One suit a year if given attention will look better at the end of that time than will three that are neglected. Every time the outer clothing is taken off it should be brushed, shaken, smoothed if crushed, or stretched into shape and then carefully placed on its hanger in the closet. Skirts and coats should have hangers of a form to keep the garment in good shape. Trowser hangers are satisfactory for skirts, for they grasp the belt and the garment hangs straight. A cheap hanger of wood (five or ten cents) is all that is usually necessary, but for delicate blouses or one-piece dresses a foundation covered with cotton batting or soft tissue paper and some soft fabric to hold the padding in place is better. If the bought hangers are too expensive, a stick of wood with a string tied in the middle can be used, or skirts can have two big safety pins in the band to hang over hooks. Light-colored gowns or waists should be covered with soft muslin bags to keep them from dust and light.

Acting Quickly.—If there are spots on a suit they should be brushed or washed off as quickly as possible, unless they are too serious for home removal and need to go to the cleaner. Money can often be saved if spots are removed while they are fresh. If a garment can stand cold water, it is well to wash the spot immediately after it is made. For instance, if some olive oil has fallen on the front of a silk gown, it can often be removed with almost no trouble by gently rubbing the spot in a circular motion with a little cold water on a clean, soft handkerchief. A moment of attention may save a gown or at least dollars of cleaning costs. Even spots of color thrown from a kettle full of dye can often be removed from a washable gown if the places are immediately wet with cold water and the garment put in the sun and wet again at intervals until the spots disappear. If once allowed to dry, strong chemicals would be needed to remove the dye. To put a garment into the laundry expecting such a spot to be removed will result usually in a permanent stain, as soap and hot water will be likely to set it. If spots have become dry, special methods must be used to eradicate them. (See Chapter XII, section "Removing Spots and Stains.")

When suits, stockings, or underwear are taken off, they should be quickly looked over to see if a stitch or darn is needed. Without this stitch buttons may be lost which cannot be matched, trimming ruined by a lack of care, or hours of work needed when a moment in the beginning would suffice. A garment soon looks shabby if the minor repairs are not attended to before wearing it again. It takes very little time to mend the small breaks or press a crease. Every woman should take care of the small repairs for herself, and thus save paid labor for better uses. If she buys only the most enduring garments with little trimming, she will find that only a small amount of time is required to keep them in order. The mother of a family is to blame if she does not train the younger members to take care of their own clothing. Sewing on buttons can begin early with the little children, both boys and girls, and there is no reason except prejudice why older boys should not be trained to mend their own underwear and knitted garments.

There are some women who waste time doing an unnecessary amount of exquisite sewing in repairing old clothing, but they are lost in the great army who let clothing go to pieces for lack of care

at the right time. There is need for dainty handwork, but the hours taken in over-elaborate repairs to garments which are not worth it are a waste of time. There are many, on the other hand, who rather exult over the fact that they cannot sew at all, seeming to feel it is a thing in which to pride themselves. They either waste cloth from letting it go to pieces from neglect or they unnecessarily call on labor to work for them.

Everyone should learn quick but adequate ways of keeping clothing in good condition. Good sweaters will soon be destroyed if every little break is not caught immediately, for knitted material will stretch into a gaping hole, difficult to mend in a way that will be invisible. If an old stocking is torn and worn through in several places, time would be wasted in darning it with great care, but if a large hole is torn in an otherwise good stocking, a thread can be run around the hole to keep it from stretching, and it can be darned in a short time diagonally across the hole instead of at right angles; double or even three threads at a time can be used to make the work go quickly. Busy mothers keep needles threaded with darning cotton ready to catch a break in the knit goods of the younger members of the family before the material stretches. If one needle is threaded with one strand, another with two, and a third with three strands, she is ready to do quick work and save herself a long process later. Stockings can be refooted by cutting up an old stocking for the purpose or new feet can be bought at the stores and sewed into the leg after the worn part has been cut away.

Muslin underclothing is in constant need of minor repairs and knitted underwear is apt to break at the point of strain or friction. If patched as soon as they look thin, they will wear for a long time if they are made of good material and have not been ruined by careless laundering. A small hole in a knitted garment can be darned, or if the material is thin a piece of the same fabric can be laid under the broken place, and its raw edges catch-stitched down on the back and on the face in a short time, so that it will withstand wear. The sewing machine should be used to patch every-day muslin underwear rather than taking the time to do it by hand. It is not requisite to make an elaborate overhanded or hemmed-down patch in muslin underclothing when the life of the article is seen to be short, but it is almost criminal at the present to allow gar-

ments to be thrown aside sooner than necessary when a few minutes spent upon them will make them last for a long time. To wear them in ragged condition lowers one's self-respect, produces irritation and discomfort, and shows lack of thrift. Careful people reinforce the garment at the points most apt to break and thus save time later. Corsets are apt to cut through where the heavy steel or bones are inserted and will have to be repaired there before the rest of the garment shows much wear. A small piece of heavy tape or a double piece of firm muslin can be overhanded over the bone to keep it from pushing through. The garter suspenders are also apt to break soon and can be easily repaired by sewing on new elastics. Men's shirts wear out quickly at the neckband and a new one will make the garment as good as new. The edge of the starched collar will often wear through the fabric in front. This can be readily repaired by cutting a yoke from the tail of the shirt several inches deep, thus making a new front about the size of a dicky. By matching the pattern this repair is not noticed.

Repairing Supplies.—Every citizen, rich or poor, should be willing to wear mended clothing and thus save money and labor for more important objects. The simplest, strongest underclothing is the best, for it will wear the longest without need of repair. Laces, cheap embroidery, and poor ribbons run through weak beading mean constant repair and difficult washing. (See Chapter XII, section "Home Laundering.") Pieces of various muslins, scraps of suits and gowns, cotton net in black and white, and tape of different widths, should be at hand to be used for repairing. If it is impossible to mend an article as soon as it shows a thin place, it is well to lay it aside until there is time. A regular period should be taken weekly to do this work; otherwise, it will accumulate and will seem a big task. It is not wise to allow many of these partly worn garments to be out of commission, as their absence from service will increase costs in the annual clothing budget, for new garments will have to be bought to take their places. Systematic work in renovation makes the task seem small. Clothing should be in repair when needed. Cotton nets are of value in mending fine lingeries, laces, chiffon and Georgette waists, collars, cuffs, and spencers. Mending tissue can be of service in repairing a badly torn wool or silk gown. The method of use is on the package. It can be bought at any

department store. The tissue does not last long after it is once opened, but is not expensive. The principle of mending with it is that one piece of material can be glued down on another with the tissue, and as the ragged threads on the edge of the hole are held down it will look better than if the repair were made by a sewed down patch. The place will be almost invisible, and if the garment is not given hard service or put into the laundry, it will wear a long time. If it needs staying, a few small stitches can be inserted to hold the repairing piece more strongly to the garment.

In order to keep clothing well brushed a whisk broom, a small clothes brush, a velvet hat brush (or a piece of velvet), a fine wire brush, and a piece of sandpaper should be at hand. There are many other varieties of brushes which are useful, but they are not absolutely essential. If one is living in a city hotel or in a boarding house, it is well to have a small electric iron to press crushed materials, to steam velvet, or to remove grease, and a large one for pressing skirts or coats. Dust causes clothing to deteriorate quickly. It is well, therefore, to remove frequently such dust as has accumulated on outer garments. A good method of prolonging the life of clothing is to alternate in the wearing. This should be planned with outer and under garments, shoes, stockings, and corsets. Shine is apt to appear on serges and on other tightly twisted worsted suitings. This may be due to the wearing off of the surface of the yarn, which thus reflects the light to a greater extent than the parts not subjected to friction, or to grease from the hands or body. If of the latter kind, it can sometimes be removed by moistening the place with water and rubbing gently with a piece of cloth. If due to the wearing off of the fiber the place should be moistened and rubbed lightly, but too much friction will cause the spot to appear different from the rest of the cloth. A wire brush or a piece of fine sandpaper or emery board can be used. Pressing the place on the wrong side after the rubbing will help the appearance.

Textile Requirements.—Each textile requires attention adapted to its own qualities. *Wool* needs frequent brushing to rid it of dust, and also the removing of spots when they are fresh, first by brushing them and then by washing with white soap and water, or if dry, some household reagent fitted to remove the special class of stain may be tried. (See Chapter XII, section “Removing Spots

and Stains.”) Sending the garment to the cleaner should be the last resort. A wool suit which is damp should be pressed as soon as possible, but if it is very wet it will have to be almost dry before pressing. It must not be hung away in a closet when damp and dirty and left to draw up and wrinkle, but after it is dry it can be pressed with a warm iron, with a damp cloth over the material. Dirt must be taken off before pressing. If it is pressed on the right side with the iron against the cloth, a shine will appear which will spoil the appearance. Wool, when not in constant use, must be protected from moths. (See “Putting Away Clothing for the Winter,” below.) Wool cannot stand very hot water or wringing or rubbing in the laundry, for it shrinks easily. Soap should not be put directly on it, but a suds of some pure soap made and the garment put in it and lifted up and down. Broadcloths and other napped goods are improved after washing and drying by rubbing up the nap with a piece of soft wool cloth. It will often improve a suit which begins to look seedy to hang it up for a time and not wear it. Alternations of heat and cold will tend to raise the nap, which is elastic, and improve the appearance. If a cloth suit is full of wrinkles it can be improved by hanging it in a room filled with steam. A bath-room can be used for this purpose.

Cotton cloth, if not too mussy, can be smoothed into shape by the hand and made to look quite new. It requires frequent washings, but can be kept in excellent condition even in a boarding house room by dampening and ironing it. Cotton is so easy to launder that it sometimes pays a person to wash dainty neckwear or lace at home rather than to send it to the laundry, where the expense is high and the delicate parts may be torn. Color fades quickly in cotton, and care in laundering is a large factor in preserving it. Fine cottons quickly go to pieces if frequently laundered in winter, for the starching and hanging in the cold air weaken the fiber. Muslins must be mended carefully before being sent to the laundry. Lingerie waists and gowns should be carefully folded and have soft paper in the sleeves and in front of the waist when put away for a time. Colored tissue papers are better to use for this purpose than white, on account of the strong bleach used in the latter. Starched clothing is apt to deteriorate if kept in storage.

Silk which is pure dyed will last long, even if stored away, but

if full of weighting, as is frequently the case with modern silks, it will rapidly deteriorate. There is nothing that can save the garment, for it would go to pieces if it was not being worn. Chiffon and other soft, thin, silk waists should have tissue paper in the sleeves when put away. A silk waist will stay clean a long time, but one of cotton and silk will soon soil.

Linen must be kept from dampness or it will mildew. It is enduring in white or unbleached color, but the gown needs constant pressing to keep it looking well. It will keep clean a long time, but creases and crushes readily. It should not be put away with starch in it for any length of time. If it has become yellowed, it can be whitened by putting powdered borax into the wash water, or by laying it on the grass in the sunlight and keeping it wet. Valuable linen laces can be laundered readily at home. If very soiled they should be soaked for several hours in water, softened with suds of white soap. After the final washing and rinsing the lace should be stretched carefully on a board covered with a clean white cloth, and every part should be pinned to the board in perfect shape. When dry the lace should look like new.

The Care of Various Articles.—*Shoes* will last longer if given care. (See Chapter VI, section "Shoes.") They should be put away every night with shoe trees in them to preserve their shape. If the expense of trees is an item, a roll of soft paper can be pushed well into the toes and an old corset steel sprung in against the paper. For garden or housework a strong leather or canvas low-heeled, broad-toed shoe will wear longer than a narrow French kid one with high heels. Shoes should be repaired the moment that a heel begins to wear down or a sole to show holes, for the life will thus be prolonged. Mud should be removed immediately, as it stains the leather, and if the shoes are damp, they should be dried before putting away in the closet. If the shoes have become stiff, clean them perfectly, and when dry rub vaseline into them. This may have to be repeated several times before the leather becomes pliable. Damp shoes should not be placed near the heat or the leather will be injured. Shoes quickly weaken at the sole when wet, for the stitches soften and break. They should be kept well cleaned and polished at all times. Vaseline or castor oil rubbed at intervals on heavy walking boots is a help to the leather. Patent leather

shoes can be polished with milk on a cloth and then rubbed up with a piece of soft silk. It is difficult to repair shoes at home, but small precautions can be taken, such as inserting an extra sole in the shoe if the one in it seems defective, or mending small holes in the leather with adhesive plaster which can be colored to keep it from showing. Fiber tops can be bought to fasten on the soles of shoes or sneakers to prolong the wear or to repair a worn place. A pair of shoes that is used in alternation with another pair will wear much more than twice as long. Wearing rubbers in damp or wet weather helps to prolong the life of shoes, for the sewing thread is kept dry. A simple outfit for blacking shoes, consisting of a small dauber for the paste, a strong bristle brush for brushing, and a buffer for polishing should be in the possession of every family. Liquid polishes are frequently injurious to leather and the pastes and blackings should be bought from reliable firms. It is well to have a small brush to put on oil or paste polishes (an old tooth brush, if not too soft, can be used), a stiff brush to remove dirt (brushes that can serve this purpose can be bought at the five-and-ten-cent stores), an extra buffer or soft cloth (an old stocking can be used), a small bottle of castor oil for softening the leather, and one of linseed oil for waterproofing heavy leather. If a pair of shoes becomes too dirty to be cleaned by a brush, they can be washed with warm water, placed on shoe trees, and rubbed with castor oil before they are quite dry. Linseed oil rubbed into a pair of heavy walking shoes and well dried will tend to waterproof them. The soles can be waterproofed by soaking in a little neat's foot oil. A shoe horn should be used when putting on low shoes, rubber shoes should be cared for persistently to keep them in good condition as long as possible. A paper wad put into the heel helps to prolong their service, and they should always be put away clean, and stuffed with soft paper. If a pair of rubbers wears out in the heel they can still be useful if the worn part is completely cut away, making them into sandals. Adhesive plaster can be used to repair small holes in them. Rubber shoes beginning to wear can be repaired by vulcanizing, as is done with rubber tires for automobiles. Commercial preparations for mending holes and cuts in rubber are on the market at a low price.

Stockings will wear better if slightly longer than the feet. (See

Chapter VI, section "Knit Goods and Hosiery.") The feet of stockings worn during the day should be washed out at night and another pair put on the next day, perspiration and dirt deteriorate the fiber, consequently, washing out and alternation will help in the endurance. Stockings should not remain long in the water nor should soap be rubbed on them, washing them quickly in a solution of warm water and some white soap is good. The life of silk stockings can be prolonged by sewing a piece of soft silk inside of the toe and heel and where the suspenders draw, or these parts can be darned over and strengthened. A heavier yarn is now being introduced into the knitting at this point, and cheap silk stockings have cotton in the feet and upper leg to improve the wear. The manner of putting on a stocking is a factor in its endurance. The foot part should be put on first and the leg of the stocking should be gathered together with both hands and gently pulled up without strain on the texture. A stocking should be mended as soon as a small hole appears, and thin places should be repaired with a slanting darn. The lining of the shoe should be mended the moment it becomes worn, or it will rub the stocking into a hole. A piece of soft leather pasted in the heels of shoes will help the stockings to wear longer, for the lining of this part of the shoe is apt to break and rub against the stocking, causing it to wear out. A smooth, soft leather heel can be bought to slip over the stocking before putting on the shoe, which prolongs the life of the stocking. Old stockings are very useful in the household. Excellent floor mops can be made by cutting them into strips $\frac{3}{4}$ of an inch wide and fastening them into a holder. They make good dusters; baby shirts can be made of fine white lisle or silk stockings, and smaller stockings can be cut from the good parts of larger ones. (See Frontispiece and charts in Appendix.)

Gloves of silk, kid, or cotton can have their life extended by putting a little cotton batting into the end of each finger, for the nails do not then have a chance to rub or to cut through. As soon as a seam in a glove breaks, it should be mended for the appearance of a broken seam is slovenly, and only a moment is needed to sew it together. Cotton is better than silk for mending seams on kid gloves. Kid gloves do not keep well for any length of time for they are apt to mildew, spot, and dry out. It pays to buy the

best, as they wear longer. Black or dark kid gloves often rub and whiten at the finger tip and are not the most economical purchase; a good white pair wears better for it can be cleaned. Kid gloves are less satisfactory for wear in hot weather than in cold, for they become stiff with perspiration and lose their color. When worn inside of a muff they are apt to stain from the heat. Cotton and silk gloves are better for this purpose. Washable kid gloves are sometimes satisfactory, but it is well to buy only the best and to observe carefully the rules for cleaning. If gloves fit too snugly they can be improved by placing them on a piece of cloth on a radiator for a short time to soften before putting them on. If they are damp with perspiration when taking them off, air should be blown into them that they may dry in better form. The habit of always pulling gloves into shape when taking them off is an excellent one. Soapy cold water is best to wash fabric gloves.

Appropriate Dress a Factor in Wear.—It is important to wear garments that are appropriate to the occasion if one would keep them in good condition. A good tailor-made suit, dainty lingerie, light, delicate waists of Georgette or chiffon are not appropriate for work in the kitchen, for gardening, or for housework, yet they are constantly so used, both when new and when over shabby. The best garments for such service are those that will not soil or tear easily, yet will launder without undue labor. The dark apron dress, the "Hoover" suit, the overalls, or a working gown adapted to indoor or out-of-door work should be worn in place of new or old finery. Service clothing can be bought ready to wear or can be quickly made at home. If necessary to do some piece of work when there is not time to change to a working dress, a dark apron of jean or gingham can serve as a coverall. The nurse's large white apron is excellent to cover clothing from injury, if the work is not of a character to soil it quickly, and a small apron of good muslin can be of service in keeping the front of a dress clean where the hands touch it, but most of the lace-trimmed "tea aprons" are a trouble to launder and keep in repair. Little children should be provided with apron dresses, rompers, or other play garments; school children should be dressed in plain, quickly washed and easily repaired clothing, and not in lingerie and easily destroyed frocks fitted for dressy wear only; college girls and business women should

be clad in sensible, enduring clothing, and homekeepers during their work hours should wear service garments.

Putting Clothing Away for the Winter.—The climate of the United States offers varieties of heat and cold that demand differing weights of garments. In the winter in many parts heavy wools and furs are needed, but in summer lighter cotton clothing is adequate. If the winter clothing is left hanging in a closet all summer, it is apt to suffer deterioration from moths or even rats. (It is said that so great are the annual ravages of the latter in food, clothing, and shelter that the work of 200,000 men is needed to make the loss good.) In the northern part of the country the moths begin to lay their eggs between April and June. In the south this may occur at any time. The little gray moth miller can be seen flying about the rooms trying to find a place to deposit her eggs, so that the larvæ when they appear may have the best of food. The larva of the moth is of special danger to woollen garments, and those suits that are not clean, well brushed and in use are more apt to become infested. If the larvæ are once hatched in the cloth, they are apt to begin their ravages, minding little the many preparations placed there to destroy them. The only safe method of caring for clothing and furs is to keep the flying moth out of them by putting the garments away in tightly closed paper packages, in boxes, in cedar chests, or in heavy tar paper bags. Garments that are not to be put away should have frequent shakings, brushings, beatings, and exposure to sunlight. Camphor and naphthaline balls, cedar chips when fresh, sprayed benzine or formaldehyde, and other remedies are of service if the eggs are not already laid in the cloth. Experiments by the Bureau of Entomology, United States Department of Agriculture,⁴ indicate that naphthaline is particularly effective in protecting woolens from clothes moths, that the red cedar chest kills adult moths, and that red cedar chips used freely have an appreciable effect in driving moths away. The garments that are to be put away should be dry and clean; spots should be removed; and the brushing should be thorough, so that lapels, pockets, and spaces under the collars, etc., may not harbor the eggs.

⁴ Farmers' Bulletin 707. Copies of this can be obtained from the Government Printing Office, Washington, D. C., for five cents. Also Department of Agriculture Weekly News Letter, March 19, 1919.

The folding of the garment should be orderly, and parts apt to crush, such as sleeves, should have soft, dark tissue paper inserted. If the housekeeper does not know the way to fold cloth garments, she should learn the art at a tailor's or at a dressmaker's, so that when clothing is taken out in the fall it will be in perfect condition to wear. In folding woolen garments two parts of cloth should not touch each other, but paper should come between. Newspapers are very satisfactory for wrapping dark cloth suits. When folded the garment is ready to be stored. The package or box should be made secure by pasting a piece of paper over any part where a moth could crawl in; and it should be marked carefully, so that its contents may be easily distinguished. If care is taken there is no reason to pay for the cold storage of even valuable furs. In putting away evening gowns or waists dark tissue paper should be used freely in the sleeves, between the parts, and to hold the front of the waist from crushing, so that the soft fabric and laces may keep in good shape. Fine lingerie should be carefully pulled into shape before folding. Starched clothing is apt to weaken when kept long in storage, therefore, it is well to put summer clothing away clean without starch. Cotton and linens mildew more readily than other textiles and must be kept in a dry place. Clothing that is to be remade would better be ripped and brushed and the spots cleaned, and the cloth laid away in flat pieces. It will then be ready to work on and will be fresher and more satisfactory in appearance than if left in its former condition. Heavy clothing should not remain hanging all summer, as the shoulders or bias seams are often pulled out of shape. When putting away flat goods, such as ribbons or material by the yard, it is well to roll them on bolts or boards as is done in the factories where they are made ready for sale. Shoes that are not to be worn for a season should be cleaned, oiled, put on trees, and stored carefully.

Conservation of Hats.—It has been customary for women to have a number of hats to match different costumes, consequently the cost of millinery has been a large item in many budgets. To order a hat at a house with a big reputation meant a large outlay of money that seemed greater than was warranted, even when the amount of trimming and cost of labor were considered. Conditions in the millinery trade, however, have been factors in the cost of

hats. It is a seasonal occupation which is very busy for spring and winter trade, and then has long months intervening when work is slack or closed down altogether. Large prices must of necessity be paid to the designers and trimmers during their work time, and these costs go into the hats. There is both the ready-to-wear and the custom trade. Many prefer the latter, for they feel that personality can then have consideration, but in general, even in the custom trade, fashion has controlled the shape and trimming of the hat rather than the particular need of the individual. On account of rapidly changing fashion in the style of hats, it has become the habit to use effective, temporary materials in silks, velvets, feathers, and decorations, so that unnecessary costs may be lessened. The custom trade of the better class has been able in the past to obtain good prices, from \$12 to \$50 not being unusual.

The present times demand thrift and the hat must bear its share. Methods of saving on the cost of hats have been presented by the ready-to-wear trade in the sport silk hat, which can be worn in most seasons, and in velvet, silk and straw hats in many differing models from \$5 to \$10 apiece. The custom trade during the war offered conservation models which, with a slight adjustment, could be worn for differing occasions—a crown in another color can be inserted, or a change of ornament or a series of colored bands put on as desired can make one hat serve for various costumes. This might well be continued. Waterproof maline hats can be used both winter and summer by the addition of a little fur or velvet in the winter season. The need to conserve is bringing shapes of greater simplicity and of equal, if not of greater beauty, than former styles. A turban of good straw will last for several years by having small adjustments made each summer. Trimming has been reduced in amount, and when really good can be renovated and used again. Those who realize that the one hat must be worn for many months with every gown become more particular that the shape shall not be extreme, that the color shall suit all garments, that the materials shall be of the best and easily renovated, and that the hat shall be becoming. Extremes of style are less in evidence, and yet there is no diminution in good appearance. The hat is important to the success of the toilet and needs thought, but not of necessity great expense.

Two hats, one for summer and one for winter, with perhaps one or at most two sport hats, could cover the annual requirement. They need not be bought each year if care is taken. Many girls and women are trimming their own hats. Courses of instruction are plentiful, which enable any one with taste to make her own and the family headwear at home and remodel without much time being spent. The methods of renovation taught are proving that good materials are worth buying. In planning the shape of the hat the entire figure should be taken into account. Many who have faces for which a large hat is becoming will find, when looking in a long mirror, that the general effect on the entire figure is not good, and that a small hat will be better.

Straw hats can be restored after they are limp with dampness by light pressing with a warm iron over a damp cloth. There are various ways of bleaching white straw hats, among which are to wash with ivory soap and luke-warm water, then brush well with oxalic acid or lemon juice and sulphur made into a paste. There are many reliable cleansers on the market. The solution of oxalic acid must not be too strong and ought to be tested by dripping some of it on a clean white pine board, then if bubbles appear it is too strong and should be diluted. When using this solution brush the hat well first, using the solution and then clean water. The brim should be covered with a cloth and pressed with a warm iron. Black straw hats can be freshened by rubbing them with a piece of velvet dipped in kerosene or gasoline. They may be blackened again with a commercial dye made for this purpose. White felt hats can be cleaned by rubbing them with French chalk and then brushing well; and all felt hats can be improved by rubbing them with sandpaper. The cleaning should begin at the top of the hat and the brush should be moved in a circle. Colored straw hats can be renovated by the use of commercial dyes in hot solution. The shape of a straw hat can be changed by dampening the brim and bending it into the desired form until it is dry, and wiring the edge to preserve the shape. Velvet can be steamed and brushed to renew it. Old velvets can be panned (pressed on the right side when damp with a long stroke, always in the same direction), or if much faded they can be shirred and thus make good hat trimming. A new brim can be easily cut from a big felt hat by marking the

desired shape with chalk, and then stitching around the line with a fine stitch on a sewing machine. By bending back and forth, the extra felt will come off and yet leave a soft edge. To clean dark fur rub into it fine bran very hot and then shake it out. White fur can be cleaned by rubbing it with gasoline or alcohol and then combing with a coarse stiff comb. Ribbons can be sponged with alcohol and water, and pressed under a cloth when nearly dry. The iron should not be hot, and the ribbon should be held up a little in the hand as it is ironed. Chiffon and laces can be washed by carefully dipping them up and down in warm water with white soap in solution, and then dried by pinning carefully into shape on a board. Chloroform will often restore color to faded materials, and spots on velvet and plush can be removed by it. Feathers can be made flexible by holding them over the heat of the radiator and curled by drawing the flues over the dull edge of a silver knife. Light colored ones can be cleaned with gasoline, then drawn through the fingers until the liquid is almost gone and dried in corn starch: to do this turn the feather over in the starch and shake it out well. Dark feathers can be cleaned in wood alcohol and shaken dry. Another method of cleaning feathers is to dip them up and down in a solution of white soap and warm water and dry them between soft clothes. The feathers should then be waved back and forth over a heater until thoroughly dry, and curled over the back of a knife. Colored flowers can be retinted with water color. A curling iron can be used to freshen bows in hats by dampening the ribbons and steaming them with the hot iron.

An old hat made on a buckram frame can be renewed by taking off all covering, trimming and wires, then cutting the shape as desired and removing all dents by pressing the hat when it is damp. A cloth should be placed over the buckram when it is being ironed. The hat can then be rewired, covered, and trimmed. If a covered hat is too hot and heavy for comfort, the buckram crown can be cut out under the material used for the crown. Hats should be brushed and the trimming adjusted if necessary each time they are worn. The best hat should be kept in a box with tissue paper to keep it in place, and if necessary soft paper can be put into the bows to

keep them in shape. All hats when not in use, should be kept away from the dust.

Hints for Care and Repair.—Skirts should have silk braid back of the lower edge to preserve them. Mercerized braid is less satisfactory than silk braid. A silk petticoat will wear much longer if a piece of cotton cloth in the form of a scant ruffle of the same color is placed under the skirt at the back where the shoe strikes the silk. This strip does not need to go all around the skirt.

The buttons on children's clothing should be reinforced by tape to keep them from pulling off.

Shields should be washed regularly to keep them in good order.

Boys' gloves and pumps are cheaper than those for women and are generally stronger. Many women and girls wear them and thus save money.

A damask table cover usually begins to wear in the folds. It can have its service lengthened if a piece is cut off from one side and across the width and then rehemmed. The folds will thus come in another place.

The darning of thin linen or cotton material can be done on the sewing machine by running the stitches back and forth over the place, both warp and woof way. Muslin underwear can be mended with a patch sewed down by the machine instead by hand.

Furs can be kept free of dust by beating them in the sunshine several times during a winter, which will prolong the life of the fur.

Silk fabrics when split can be mended with a simple stitch called "fine drawing." This is a slanting stitch which shows little as it alternates from one side of the break to the other.

Thin silk blouses wear quickly under the arm. As soon as a worn spot appears a piece of the same material should be placed under it and carefully darned down. This should not show when the arm is raised and will enable the blouse to give longer service. Some careful people have an extra piece of silk placed inside under the arm when the garment is made.

In cleaning cloth it is well to make a small roll of the same material with which to rub on the cleaning liquid. A rubber band put around the roll will hold it in shape.

For repairing and patching a garment, old material is usually more satisfactory than new. A patch shows less if the repairing piece is of the same material, and if warp, woof, and up and down of the cloth and pattern are matched. In heavy dress goods a hemmed-down or overhanded patch shows too much, and a piece of cloth can be carefully darned down over the hole, or, if the material does not fray, the "fine drawing" stitch will hold the patch to the fabric, or mending tissue can be used.

Good work in pressing clothing can be done at home even if it is not as expert as the tailor's. If the regular laundry equipment is not available, a board can be covered with a blanket and with a smooth piece of muslin pinned tight over that. A sleeve board is of service in pressing trimmings and neckwear as well as sleeves, and being small can easily be put out of sight, even in a hall bed-room.

An old coat can be improved if the worn buttonholes are sewed up, the buttons placed over them, and new buttonholes made on the opposite side of the coat.

Kid gloves can be repaired by overhanding the broken seams or if there is a hole by making the buttonhole stitch around it in cotton of the same color, and holding it together with a network of the same stitches. Commercial cleaners clean kid gloves well and at a low price, consequently if a good place is available it often pays to use it. In home cleaning the gloves can be put on the hands and washed in naphtha or benzine, stretched into shape carefully, and hung up in the air to dry. To do the work successfully takes care and patience. Each finger and the back and front of the gloves should be rubbed separately with a soft cloth which is wet with the liquid. Naphtha and benzine are so inflammable that the bottle containing them should be kept corked. It is well to do the work near an open window and far away from any flame. Fresh milk or turpentine are also used for the purpose.

Renovation, Remodelling, or Making Over.—Making over an old gown into an elaborate garment is seldom worth while. Many do it from the love of extreme fashion changes or for the reason that they have no better method of spending their time. New gowns should be selected or planned that are not apt to go out of style, and with trimmings that will clean readily or can be changed without spoiling the gown. If this were the general practice, much

time would be saved in renovation. Good tailors, dressmakers, and many department stores are willing each year to make such small adjustments as the gown they have made or sold is apt to need. As soon as a suit needs new buttons, facings, linings, bindings, cleaning and pressing, it should be put in order at home or at the place from which it came. Small repairs of this kind are necessary, but the entire making over of a gown is a different matter and is only justifiable when the cloth is in excellent condition throughout and the color good, so that money will be saved.

The ripping up of an entire garment and the renovation of the cloth and trimming take more time frequently than to make a new suit, and the one who has to do it must consider the value of her time when deciding on the sort of remodelling she will attempt. With labor scarce and expensive at the present time, the expense of the process must also be taken into account. A garment to be made over must be ripped carefully and brushed; then spots should be removed and the cloth washed, sponged or cleaned, and often turned or dyed; only then is it ready to be recut and made up. Old material has a subtle way of looking its age which is indescribable, and often, after spending days working on an old gown, it is an old gown still and looks little better than before. If a dressmaker has been employed, the cost of the changes may be so great as to make the result anything but an economy. It does pay to make over or renovate a gown when the changes of form are few and the time of the worker is not taken from something more important. The question to consider, therefore, is—Will the result justify all of this work, or will it be better to make the garment over for some one who is smaller, and thus save ripping, eliminate all the rubbed and poorer parts, make a simple quickly constructed gown, and one which is more apt to look and feel like new. Minor renovations, such as the removal of spots, washing or pressing neckwear, mending small breaks, replacing the soiled or worn parts, or sewing on buttons are almost daily needs on some part of the wardrobe. Much money can be saved if these things are done at home either by the family or with the aid of a seamstress.

The following record shows the cost of making and renovating a gown in a country neighborhood. The prices are those of 1914. In this case the remodelling was well worth while:

First season:

Cloth 54 inches wide, 4 yards at \$2.00 per yard.....	\$8.00
Trimming, buttons, .75; lace, .35; strip of velvet, .15..	1.25
Dressmaker at home	6.00
	<hr/>
	\$15.25

Second season:

Dry cleaning	\$1.25
Replacing the old trimming with some left over goods..	
Dressmaker for alteration	2.50
	<hr/>
	\$3.75

Third season:

Dry cleaning	\$1.25
Taffeta silk, 2 yards at \$1.50	3.00
Dressmaker for alteration	3.00
	<hr/>
	\$7.25

The entire cost of the gown for three years' wear was, therefore, \$26.25; the gown was a very neat and attractive one. More money would have to be spent at the present time on cloth and labor in this locality, and the visiting city dressmaker would be much more expensive, but the conditions are the same for keeping a gown in service without spending much money.

At the end of the winter and summer seasons the housewife should look over the family clothing to see what can be used the next year, what renovation or making over will be necessary, and whether some of the clothing would better be sold to the junkman. (See Chapter VIII, section "Making Plans" and above "Putting Clothing Away for the Winter.")

An old garment is apt to be worn thin in a few places and to be in good condition elsewhere. It is not to be expected that long service will follow the repairing of the worn parts, but the gown is often too good to throw away. Some cloth can be turned to the wrong side advantageously. Before positively deciding on the manner of making over it is well to spread out the material on a table (having marked with chalk all the weak places), and lay a couple of patterns on the fabric to see which will require the least work and bring the best results. It is not wise to select a pattern which will require the careful overhanding together of many pieces of cloth in order to have enough material for some special kind of garment, when another pattern would not need so much ingenious

fitting of parts. Nor does it seem wise to spend much money in new material for trimming. Cuffs, collar, and belt of new material or of some harmonious old material will give a sufficiently fresh and attractive appearance to a made-over gown.

Old two-piece dresses belonging to a woman do not usually cut well into a one-piece gown for a young girl, but it is possible to obtain the effect of a one-piece garment by fastening a blouse and

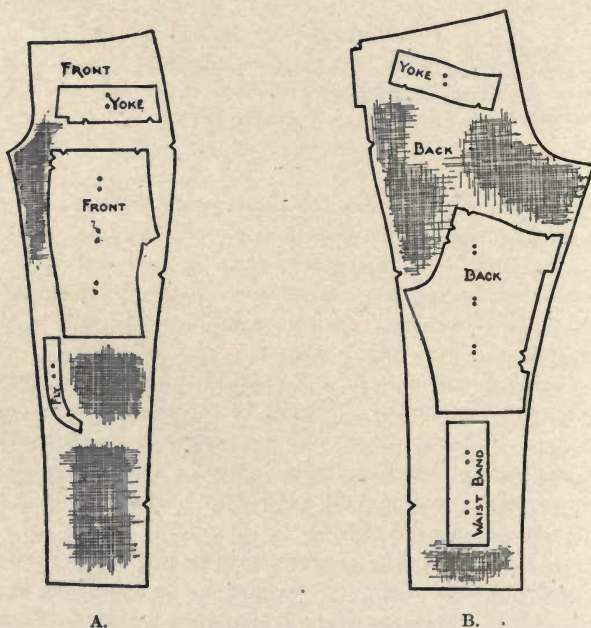


FIG. 19.—Pattern of boy's trousers cut from man's trousers. Designed by G. W. Ripley

skirt together at the waist, and covering the joining with a cord or soft belt (Fig. 15, p. 141, and Fig. 21). If the color of the cloth has changed it can be dyed at home by one of the commercial dyes which are made for the purpose. (See Chapter XII, section "Home Dyeing.") An old shirtwaist and pleated skirt can be made into a very attractive gown. (See Fig. 20 for such a garment as it looked before it was made over, and Fig. 21 for the same gown after it was remodelled.) Old grain bags can be dyed and made into an attrac-

tive dress, into window curtains, or into linings for quilts. One young woman made two summer gowns from such bags. First, she ripped the bags open, then she boiled out the firm names, and dyed the material with soap dyes. One set of bags was dyed gray-green and the other was rose color. They were made simply, worn alternately, washed frequently, and were a success during an entire

FIG. 20



FIG. 21



FIG. 20.—This plaited skirt was ripped and pressed and made into a straight simple skirt. The pieces taken out of the sides of the skirt made the pieces which adorn the waist and extend below the belt. See Fig. 21. The dress was much prettier when made over than it was originally. Designed by G. W. Ripley.

FIG. 21.—Showing dress in Fig. 20 made over. Designed by G. W. Ripley.

season with the likelihood of carrying over into the next summer.

In making over clothing for other people it is well to select simple patterns. The pattern houses are putting out conservation models using the minimum of material. The Red Cross and other organizations have good patterns originally intended for making refugee clothing. Faded cotton or wool gowns can be dyed with little trouble, pieces left can be made into trimming for another

gown or used for bags or cushions, so that nothing may be wasted. Fig. 19 (A and B) shows the use of a man's worn trousers for a boy's trousers. The worn places indicated in the diagrams are avoided in cutting the garment. A clever woman made herself an entire suit out of a man's coat, waistcoat, and two pairs of trousers. She made a skirt out of the four trouser legs, arranging the parts so well that pockets covered joinings in the front. She made a belt from the waistcoat to make the coat fit her better and look up-to-date. The garment was a complete success. (See Appendix for suggestions based on actual experience for using old clothing for many varieties of garments.)

Men's garments are useful for remodelling, as the cloth is usually strong and good. Old coats are apt to be worn at the neck, sleeve, and on the edges of the front; the trousers are usually worn at the end of the legs, in the seat, and at the pockets; shirts at the neck, elbow, and cuffs; nevertheless, there is apt to be in all of these garments ample good material left for making over for smaller garments. The following are suggestions of the ways they may be used:

Coat—dress for little girl, coat for boy.

Cotton shirt—shirt for boy, rompers for child, dress for girl, waist for woman.

Wool shirt—night dress for baby, coat for a child, shirt for boy, shirtwaist for a woman.

Smoking jacket of velvet, washed and steamed, and used for girl's jumper, knitting bag, coat for child.

Dressing gown—girl's wrapper or dress—the neck and sleeves can be completed with a crochet or blanket stitch.

Underwear—cut down for younger members of the family (the seams should be well finished or they will fray out), wash cloths, broom covers, and house cloths.

Trousers—Russian coat for a boy or girl, trousers for a boy, a little boy's suit. (See figures 19A and 19B.)

Overcoats—coats for children, coat for a woman, a boy's topcoat.

Hosiery—to mend other hose, to refoot stockings, bed socks, child's stockings, scrub cloths, floor mop.

Sweater—for a sleeveless underjacket, child's sweater; hand knitted ones can be unravelled and reknit into stockings or sweaters. If faded, they can be redyed or by knitting into a different stitch, the fading may be concealed.

Women's Clothing:

Suits—two-piece or three-piece ones can be combined into one garment for a younger girl (see figures 20 and 21), or into a suit for a boy.

Skirts—*Circular*—cape coat, one-piece dress for a girl, suit for a small boy.

Skirts of good material—

of wool—a Russian blouse for a woman or girl, a boy's suit, or if the skirt is worn at the top, a yoke can be put on and made into a good skirt for a woman.

of silk—a slip for a girl to wear under a thin dress or overdress, short window curtains, petticoats.

of cotton—a voile or lawn can be made into a dress or slip for a child or a skirt for a young girl.

Very old skirts—bloomers, interlining for coats, child's leggings.

Waists—underwaists, guimpes, muslin chemisettes; children's underwear can be made of the good parts.

Muslin underwear—aprons, children's undermuslins, guimpes, underwaists, pot holders, middies. Nightgowns and undermuslins can have new tops and still give wear. Nightgowns make good dress covers, teddy bears, or blouses.

Knitted underwear and sweaters can be used as suggested for men's knitted clothing.

Stockings for women being long can be cut open and made into a shirt for the baby, dust cloths, mop covers, sleeve protectors.

Coats—boys' and girls' coats.

Children's clothing—cut down for younger children.

Odd Materials:

Old kid gloves—a waistcoat to wear under a coat by opening the gloves and machine stitching the pieces on a sleeveless cotton jacket prepared for the purpose. Shoes for the baby.

Waterproof coats—cases for toilet articles, covers for travelling bags, bed-covers for out-of-door sleeping.

Bags—grain, salt, flour, and other bags can be used for curtains, linings, dresses, waists, and covers for garments.

Old table linen—for napkins, towels, table covers, runners, wash cloths, and a package of linen sterilized and put away for accidents.

Old sheets can be cut apart in the center and sewed together up the selvages, giving almost as long service again as in the past; sheets can be made for children's beds, aprons, pillow cases, laundry bags, and smaller pillows.

Velvets, silks, laces, feathers and flowers can be renovated and used for trimmings on hats, or neckwear and camisoles. Old silk is good for polishing furniture or patent leather.

Cotton material—for bloomers, underclothing for children, bags, collars, cuffs, belts.

Embroidery and laces often outwear the garment, and can be used again in blouses, underclothing, petticoats and nightgowns.

Neckties of silk—for dress or hat trimmings, repairing pieces or patch work.

Small pieces for rag carpets or for the junkman. Divide the rags into different textiles and colors, and sell in packages.

(See Appendix for suggestions for remodelling, and the Frontispiece for the appearance of garments made for children from those of older people.)

QUESTIONS

1. What are the main methods of care for clothing and the accessories—shoes, stockings, gloves and hats?
2. What special points from this chapter would you use in a campaign for National Thrift?
3. What materials and utensils should every family have at hand in order to keep clothing and its accessories in good condition?
4. What specific care does each textile require and how should they be stored to keep them in good condition?
5. What principles of renovation and making over should become a habitual part of family economy?

TOPICS FOR FURTHER STUDY

1. Look into modern business methods of cataloguing and making inventories and apply to the care and repair of clothing in the household. Determine how much time can be wisely spent for this purpose.
2. Consider how much time you put yearly in the making over of clothing. Are the results justified in time and money?
3. In what way could the methods of clothing reclamation developed during the war be applied to community needs?

CHAPTER XII

DYEING, LAUNDRY; AND SPOT REMOVAL

Dyeing and Tinting.—Dyes are both natural and artificial.

The natural colors cover: The vegetable dyes, such as indigo, madder, logwood, fustic and cutch.

The mineral dyes, such as Prussian blue, iron buff and chrome yellow.

The animal dyes, such as cochineal.

The artificial colors, aniline dyes and others, are made from coal tar.

The modern dye industry largely utilizes coal tar products. Chemical equivalents of madder and indigo are made also and are in general use. These synthetic colors are competing successfully with the natural dyes.

The industry in dye chemicals has been proved to be of the highest service to a country: (1) The manufacturing interests are many of them dependent upon the satisfactory use of color; (2) the chemical laboratories for dye products are necessary for the study of serums and anti-toxins and have yielded some of the great advances for the control of disease; and (3) the dye chemicals are the necessary ones for certain classes of explosives and for noxious gases. In case war should come the chemical dye factories can be utilized while otherwise ministering to the arts of peace. The fact that France, England and America had relied on Germany for their coal tar chemicals was the cause of delay in quickly preparing themselves for war and caused unnecessary loss of life and territory. It should not be allowed to occur again unless the world is nearer to "turning swords into pruning hooks" than it is at present. The German dye industry is gigantic. England and France have enacted laws against the entry of these dyes and similar legislation is necessary here if our dye industry is to survive.

As previous to the war (1914) the United States had depended almost exclusively upon Germany for chemicals and aniline dye-stuffs, the cutting off of the supply was a serious blow to our

manufactures. The stock we had on hand gradually lessened and we found ourselves in an increasingly difficult position. The problem, at first, seemed unsurmountable, for the basic materials had to be American in origin, supplied as quickly as possible, and were not yet developed.

There were a few chemical companies at work on aniline dyes before the war, and they had to struggle against adverse conditions. The natural dye industries were less affected. The chemists in the United States who understood the manufacturing end of the dye industry were mostly German subjects. Coal tar distillates and intermediates were essential, yet but 25 per cent. of the coke manufacture of the country was in the class of ovens which save the by-products, and these were in demand by the Government for use in the production of explosives. When the coal tar situation in crudes was improved, there was still the need of the intermediates which had to be produced as a new industry in America, the process being difficult and complicated. It was natural that there should be a shortage of the best aniline dyes during the transition period and that many unsatisfactory colors should be put on the market. Consumers knowing little of the difficulties that the manufacturers were meeting complained of the lack of fast colors in dyed goods, thinking that it was carelessness or indifference on the part of our dyers.

In an incredibly short time, however, the entire situation has changed and the dye problem is being solved by the energy and devotion of chemists and manufacturers of dyestuffs. The work which is being done by the Dupont Company and the American Aniline and Chemical Company is representative of the success of other companies which now supply in vast quantities fast American coal-tar dyes made from American raw material. The range of colors is increasing and since the early fall of 1918 two colors which have been extremely difficult to obtain and greatly needed have been developed and are being manufactured. Dr. Louis I. Matos, chief chemist of the National Aniline and Chemical Company, says in a letter that they have "commenced to manufacture two fast blues for wool that will be of the utmost value to dyers of fast shades on worsted and woolen goods. It has been the absence of these two blues that has been at the bottom of many fashionable

shades fading so rapidly." They are used in compound tones ranging from brown to gray, as in mole and taupe, in which fast blue and violet are essential. In a compound color it is necessary that all the hues in the blend should be of even fastness. In the early days of the war garments in blues of various kinds were continually returned to merchants on account of fading.

The Dupont Company has spent hundreds of thousands of dollars in research on the vat dyes and other fast colors which are used especially on cotton and on unions with cotton. These dyes are complicated and require a well developed industry. The making of many of the vat dyes, made heretofore in Germany only, have been solved and new fast dyes have been discovered.

Our dyes have been found to be as fast to the various influences as were similar ones made in Germany. It must be remembered that there are many influences affecting the fastness of color and that dyes are not expected to be fast to all conditions. A cloth continually exposed to light and weather is apt to change from the original in course of time. The felt for a hat is dyed with the idea of being fast to light but not to withstand washing. A dress print, on the other hand, should be fast to laundry as well as light. When an article is dyed it is expected that it will give satisfaction under ordinary circumstances. Modern methods of commercial laundering are hard on colored cottons and even the home relies largely on soap powders which are too strong for some colors to resist. The old-fashioned laundry methods were less destructive. Light, weather exposure, rain, sun, laundry, street dust, perspiration, and many soaps are inimical to dyes. Some colors resist better than others, the vat dyes being of this character. The properties of the fibers are factors in color fastness.

The National Aniline and Chemical Company Inc. had an exhibit of dyed fabrics at the Textile Exposition held in New York in 1918 which showed the relative fastness of dyes of known German origin and of their own dyes, in regard to light, exposure to weather, scouring, fulling, etc. In 1921, at the International Exposition in Boston they were able to show the great progress that had been made during the intervening years. Type for type the American dyes are now equal to pre-war standards. The National" dyes, in the words of Doctor Matos, "possess the solubility,

level dyeing, permanency under the influence of exposure to light, and such other properties as the imported dyes possess." Up to the present it has not been deemed wise to attempt to duplicate all of the colors available before the war. Those needed by the textile and allied trades are well developed as proved by letters from dyers of numerous American mills, and published by a well-known trade journal.* The Benzol Works at Marcus Hook, Pennsylvania, belonging to the National Aniline and Chemical Company, is said to be the largest and most completely equipped aniline plant in the world. The present groups of artificial dyes are:

The acid colors, principally used for dyeing wool, but also employed for silk fabrics. The level dyeing acid colors were largely in use before the war for higher grade goods, and are capable of producing every possible hue and tone of color.

Direct colors, frequently termed *substantive colors*, are used for dyeing unmordanted cottons and are valuable for dyeing unions of wool and cotton. A mordant is a substance placed on a fabric before dyeing to hold the dye in a cloth.

Developed colors are applied to cotton by the "three-bath process" and are, as a rule, very fast when the final dye bath is properly developed.

Sulphur colors are almost exclusively used for cotton. Khaki for the army and navy, corduroys, and stockings are dyed with this dye.

Chrome colors give fast dyes for men's suitings and for women's outer garments. They are principally used on wool and produce fast colors with the aid of salt of chromium fixed on the wool before dyeing (chrome mordanted), or by adding chrome to the dye bath, or the dyed wool may be put into a chrome bath (after chromed).

Basic colors are used on cotton which has been mordanted with tannin and for producing bright shades upon silk.

Vat dyes are complicated. They are used principally on cotton and on unions with cotton. They are especially fast to laundry and light, and are taking the place of the mordant dyes. They were invented in Germany and have been made there almost exclusively. The method of manufacture is now known and soon they will be produced in America in the quantities needed.

The dye problem of the United States is, therefore, well on the

* Fiber and Fabric.

way to complete solution, and standard dyes will gradually take the place of inferior ones. A considerable and increasing number of dyes formerly imported from Germany and used for women's clothing have been duplicated and produce identical results with those formerly imported. The class of dye used is a factor in the expense of the cloth. The raw materials for the dye may be cheap, but the processes to make them into standard colors may require expensive apparatus, consequently the dye is high in price, which increases the cost of the cloth. A cheap dye costing but five to ten cents per yard may be on a cloth, or the highest class of dye at fourteen to twenty-eight cents per yard. The cost of the fabric naturally will differ in the two cases. The best of dyes may be sold to a factory, but if while there they are combined with adulterants to cheapen them, the result may be unsatisfactory in cloth dyed with them. Men's suitings and coats and women's outer coats of good quality are generally colored with the best dyes, but less permanent ones have been used for some of the fashionable fabrics for women's clothes. Suitings for women may be divided into two classes: The better quality is all-wool on which the dye holds well; the second class is wool mixed with cotton, and as the latter has not the affinity for dye that wool has, the colors are not so fast. The newer American dyes, however, are holding well in these union goods and are being improved. The staples in women's goods are found in blacks, blues, and other dark colors. Such standards are made in quantities, for they can always be sold. Materials in new and fashionable colors, on the contrary, are only manufactured in sufficient amount to satisfy an immediate demand, as heavy losses may follow if fashion changes suddenly, such fabrics often having to be redyed to sell. It is necessary that the American dye industry should be placed on a permanent basis. Germany has led the world in these dyes and is anxious again to be supreme. France and England have taken special measures to protect their beginnings of a dye industry and the United States must do so also. Legislation is pending for this purpose and should be vigorously sustained.

Dyes are applied at different stages of the manufacture of fabrics. With wool, for instance, the dyeing may be upon the *raw stock* (dyed in the wool), or on the *slub* (an early step in the spinning process); these methods yield fast and even colors. Some Oxford mixtures are slub dyed, for instance, a black wool is thus

dyed and is then combined in the yarn with white or gray yarn. A variety of slub dyeing is called Vigoureux; in this case the slub is printed at close intervals with a contrasting color (as a black on white). When the yarn is spun it has a grayish effect which is used in gray mixtures. *Yarn or skein dyeing* is used extensively in all textiles with satisfactory results. *Piece dyeing* (in the woven cloth) is practiced largely but is apt to be less satisfactory than skein dyeing. Piece-dyed materials can have a pattern placed on them by *discharging* the design from the surface by chemicals as in polka-dotted fabric. *Cross dyeing* or *resist* is used when a vegetable and animal fiber are woven into one piece of cloth, as in a wool with a pin stripe of cotton, or pepper and salt mixtures which combine cotton and wool in the yarn. In these cases when the cloth is dyed with a wool dye, the cotton will be only slightly tinged with color and can be washed perfectly white without affecting the color of the wool. Another method of using the *resist* is to weave the material in white with a dark or black stripe and dye the fabric later in a lighter tone. The dark stripe will hold its color. This is frequently done in a cloth with a black stripe on a blue ground, or a dark brown stripe on a light brown ground. A modification of *resist* dyeing treats part of the fabric with a chemical which prevents it from taking up the dye. This is on the principle of the Batik work of Java. (See Chapter III, section "Printing.")

The consumer can be of the greatest service if she will give the American dyestuff industry her loyal support and will endeavor to eradicate the idea that foreign dyes are better. All that the American industry needs now is time to develop and the coöperation of the public. If women would be willing to depend on a few staple fabrics dyed with the dyes we now make, instead of asking for fashionable rather than enduring material in a large number of unusual colors, they could help the situation. They should accept willingly the fact that our dyes must cost more than the German dyes (Germany is willing to lower her prices below cost to secure our trade), for our labor is better paid and our crudes and intermediates are not yet in abundance. Loyalty to the country should make all consumers willing to work for the permanence of the industry and accept the conditions of development. In a few years the problem would be solved.

Home Dyeing.—With the call to prolong the life of clothing and to conserve labor, home dyeing and tinting has become more important than heretofore. Garments faded or in unattractive colors can thus be given a new lease of life and make a new gown unnecessary. An amateur can obtain good results with home dyeing if the directions on the commercial packages are followed exactly. Fabrics of animal origin take dye differently from those of vegetable, and one or two kinds of ten cent package dyes are especially prepared to meet this condition. Dyeing in the home is more apt to be successful on flat goods than on elaborate gowns or heavy coats. Fragile material is difficult for many amateurs to handle correctly. If an entire garment is to be dyed, the seams should be opened, the belt removed, and the hem at the bottom let down that the color may spread more evenly to all parts, and if there is any shrinkage, the letting out of material will not then show.

In preparing for dyeing, all spots should be removed from the fabric, for they will show if allowed to remain. The cloth or gown should then be thoroughly washed in a solution of pure soap in soft water, and a little ammonia will help in the cleansing. It sometimes takes two warm water washings and two cold water rinsings to do this. If the garment is wool, it must not be rubbed, but it must be clean, or the dye will not be clear, and after the washing the water must be removed as completely as possible without undue twisting in the wringing. The cloth should be moist but not wet, when it is put into the dye bath. The directions on the soap dyes do not require the garment to be washed before dyeing, but it is an advantage if it is clean before dipping. Cloth which has been worn for a long time will look better if dyed in a darker color, for thus the faded or rubbed parts will show less. Material which is but slightly worn can be freshened by dipping it in a bath of the same color. It is safer to try a sample of the material in the dye before putting the cloth or the entire garment into the liquid. If the dye is not strong enough, the dyestuff can be increased; if too dark, it can be weakened with water. Union goods such as cotton and wool are more difficult to dye successfully than cloth made of one fiber. A wool dye on a cotton and wool fabric may leave the cotton untouched, but a cotton dye will color wool, for it takes the color more readily than will cotton. The

former fact is made use of in commercial cross dyeing when union goods are dipped and the dye is left on one fiber and not on the other, as in pin-striped cloth, which is woven of wool with the stripe of cotton. It is well to remember that white goods will take any color, but dark goods will only take their own hue, a darker tone, or black. A lustrous satin loses some of its brightness in home dyeing and pongee and other fabrics made of wild silk are apt to look oily. Cotton goods with much dressing should have it boiled out before putting the fabric into the dye. If more than one kettle of the same dye has to be used, the quantities of water and dye must be measured accurately or the color will not be the same. Two smooth sticks (broom handles) are needed to lift the material in the dye bath that the color may be evenly distributed.

The procedure of dyeing is about as follows, but the amateur should do exactly as stated on the commercial package she has selected:

1. Dissolve the dye in a cupful of warm water, stirring constantly until it boils.

2. Strain the dye through a clean cloth that any adulterations may be removed.

3. Have water in the dye kettle warm and stir in the dye. (The kettle should be amply large, absolutely clean, and free from rust; a wash boiler is often used.)

4. Put the moist cloth or garment into the dye and stir constantly with the smooth sticks. (The dye must get to all parts or the cloth will be streaked.)

5. Boil the allotted time, having a sample of the cloth in the dye which can be taken out to test the color.

6. Take out the sample to see if the color is right (wet cloth will look much darker than when dry). Wash the sample out in water to see if the color is fast.

7. When the color and fastness are satisfactory lift out the cloth or garment with the sticks, rinse, wring out, dry and press. A wringer can be used for flat goods.

Home Tinting.—Tinting like bluing is not permanent, but it is useful to restore a slightly faded garment to its original or to a deeper color. A Georgette waist, a cotton voile gown, silk or cotton lingerie, or a blouse can be dipped into the desired color after

washing. The tint will last until it is washed again. Commercial tinting powders give excellent results; colored crêpe tissue paper can be soaked in water and give tinting liquid, and coffee or tea will give a good ecru. The process is very simple—a teaspoonful or more of the color is dissolved in a gallon of warm water. The garment already clean is dipped up and down in it until the needed tone is obtained. If a very deep tone is desired, the garment can be dried, moistened, and dipped again. Commercial tints which clean while they color are also on the market.

Home Laundering.—Commercial laundries are rapidly taking the place of home work in large cities. This saves the home from a tiresome occupation, but hard water, soap powders, chemical disinfectants and bleaches, and the careless use of machine ironers are causing more destruction of clothing than is dreamed of by the public. The steam laundries are safer for health than those in the small tenement house or in the so-called “home hand laundry.” Every housekeeper should know the conditions under which her clothing is being laundered in order to safeguard health and keep garments from unnecessary deterioration. The scientific laundering of clothing, including spot removal, would require an elaborate description of methods of procedure which cannot be undertaken in a book of this kind. For those who wish further information on this subject, many books and reports are available, such as “Laundering,” by Balderston; “The Laundry,” by Rose, Cornell Reading Course; Chapter XIV in “Textiles,” by Woolman and McGowan; “The Removal of Stains from Clothing and Other Textiles,” by H. B. Lang, Farmer’s Bulletin No. 861, and “Housewifery,” by L. R. Balderston, Lippincott.

Some simple essentials of home laundering are given below. These can be practiced by the home woman in a small kitchen laundry or even in a room in a city apartment house. With the desire to save labor and money, many women and girls are washing out waists and underclothing in their own homes. This need not be either a difficult or lengthy performance if the clothing is made of good cloth and is simple in design. A busy business woman should not attempt to launder all of her clothing in her room, as she needs rest and relaxation after her long week of work, but if she can, at intervals, wash out her fine lingerie or silk waists herself,

she will find she can save much money and prolong the life of the garment. Clothing should be mended before laundering, for the garments will look better if this is done, and if it is not done they will be apt to tear further during the various washing processes.

Definite things must be considered and attended to if the clothing is to look well after it is washed. There must not be such a feeling of haste that too strong soaps are used. The water should be clean and soft. If it is hard washing soda or borax can be added to it. Borax in moderate quantity is not injurious to fabrics. Washing soda must be used sparingly; it injures wool, silk, and colored fabrics. There must be a free use of water in both washing and rinsing and plenty of good soap is essential. Soap solutions are much used for they readily make a lather. Some of the commercial ones are injurious, but when made of a good white soap satisfactory work can be accomplished. The yellow soaps have resin in them and are apt to make white clothes yellow. Soap bark can be used in place of soap in washing woolens and other textiles. Machine methods of forcing water through soiled clothing rather than rubbing on the washboard, and also the sterilization of it, are worth considering. If electricity is available, a mechanical washer can be purchased to save time. It is possible also to buy at small expense a washer which can be easily worked by hand. If the clothing has dirty spots on it which are not removed by the mechanical washer, they can be separately rubbed with soap. Soap is a sterilizing agent, but boiling may be necessary in addition. Washing soda, ammonia, and washing powders all assist in the removal of dirt, but must be used intelligently. Fresh air and sunlight will not only dry the clothing well, but will whiten and sterilize. If there has been illness a method of sterilization recommended by doctors must be used. Each textile must be given the special care its properties require, that the garment made of it may be kept in its most enduring condition. (See Chapter XI, section "Textile Requirements.") Soiled clothing should not be retained long in the house, but should be washed at least weekly.

Before beginning to wash the very dirty clothes should be separated from the rest, the colored from the white, and the dark from light colors. It is not well to wash garments differing in color in the same water, for the colors often bleed and spoil other garments.

If there has been a member of the family with a cold in the head the handkerchiefs should be sterilized and washed by themselves. White clothes other than wool or silk underwear, if soaked over night or for a few hours in warm soapsuds before they are washed will not need so much rubbing. Colored clothing, which is fast in color, may be soaked if very dirty. Very soiled articles, body linen, and table linen and towels should not be washed together, but in separate tubs. If it is necessary, one of the alkalies, such as ammonia or borax, can be put in, or kerosene can be used as a grease solvent. After soaking the garments can be wrung out from the water in which they have been soaked, and then washed in plenty of warm, soapy water. A board may be necessary on which to rub the soiled places, whether a mechanical washer is used or not. The washer, however, saves a great deal of heavy rubbing and wear and tear on the garment. The colored dresses, the stockings, and the wool flannels must be washed by themselves according to the requirements of the textiles of which they are made. (See Chapters II to V, inclusive, section "Properties.") If the water becomes soiled, fresh hot water must be added from time to time. It is customary to boil white cotton garments in order to sterilize them as bacteria increase rapidly on soiled cottons. The clothing should be clean before it is boiled. The water should be in light suds and the boiler itself should be absolutely clean. The final rinsing should be in hot water to dissolve soap and grease scum. The clothes should not stand in the water, but be lifted up and down and then taken out, passed through the wringer, and after bluing or tinting and starching, dried in the air and sunlight, unless the color in a garment will fade, in which case drying in the shade is better. The depth of tint in bluing or tinting can be made as desired, and should be developed in the water before the clothes are added. Blue can be bought in ball form or in solution. Ball blues are insoluble and will spot the clothing unless squeezed through a bag into the water. Other tints can be purchased in powder or soap form and should be put into the water until the color desired is obtained. The soap used in washing should be well rinsed from garments before any tint is applied.

There are many varieties of starch which are used in raw or cooked form. The starching liquid should be made of the con-

sistency desired and the garments dipped in it; those that are to be very stiff should be starched first, as the moisture in the articles weakens the solution. Starched cotton clothing keeps clean longer than the unstarched, but the garment should not be laid away for a long time with the stiffening in it.

After the clothing is dry it should be taken from the line and laid in a basket where it can be kept clean. Some time before ironing each article should be dampened; overnight is long enough, for damp clothing will quickly mildew. A clean whisk broom is good for a sprinkler. The clothes should not be too wet and should be rolled and packed closely ready for ironing. If the garments are hung straight on the line, folded when taken down, and pulled into shape before pressing, it will facilitate ironing. The ironing should be along the warp. A sleeve board will help in the pressing of waists and sleeves; trimmings and ruffles should be ironed before the body of the garment. Linens should have a good, long, firm stroke with an iron that is not too hot. Hand ironing is better for the life of clothing than machine pressers.

Washing Special Articles.—The water should not be too hot in washing stockings, and there should be plenty of soap in solution, but soap should not be rubbed on them. A little borax in the water softens it. The stockings should be turned wrong side out, washed quickly, and rubbed briskly between the hands. They can be rinsed a couple of times in clean water with or without borax in the first water and squeezed in the hand, pulled into shape, and hung on the line with the toe up as they dry better that way. Ironing is apt to injure the color in hosiery, especially if the iron is very hot. Black cotton stockings frequently become grayish from the daily washing out (see Chapter XI, section "Stockings") added to the weekly wash, but as the dye situation in the United States becomes stable and fast colors are developed, this difficulty will undoubtedly be lessened. (See section "Dyeing and Tinting," above.)

Corsets can be scrubbed with a small stiff brush and soapy water and kept in good condition for a longer time than if sent to the commercial laundry or to the cleaners. If the corset is made of good material, has bones that will not rust, and has been worn in alternation with another one, it can be worn for years, if carefully washed and kept in repair.

For colored cottons the water should not be too hot and some good white soap should be in solution. The means used in setting the color depends on the character of the dye. It is difficult at present to state the best method of setting colors in manufactured goods, for as yet many varieties of dyes are in use, some of which are entirely unreliable. The wisest procedure at present is to take extreme care in laundering, drying, and ironing. Directions in the past were somewhat as follows, and still apply to some of the older dyes: Green and purple can be set by alum; blues by vinegar; lavenders by sugar of lead (poison); and blues by salt. American dyes will naturally take the place of foreign ones and rules for setting colors will be announced if these are necessary, but the promise is that careful methods of laundry will be all that is necessary. (See section "Dyeing and Tinting," above.)

A light-weight colored cotton apt to lose its color or appearance if laundered can be renewed, if it is not too soiled, by sponging on the wrong side with starch or gum arabic water, followed by a good pressing.

For washing silk blouses and underwear, baby cotton and woolens, blankets, challie and other fine wool clothing, shave a cake of white soap or use the prepared flakes. The soap is put in a clean basin or tub and hot water poured over it until the lather is soft and full, cool water is added until the water is not too hot for the hand to be held in it. The garment is put in and dipped up and down until clean; it is then rinsed. It must not be wrung out, but only squeezed lightly. Blue, tea, crêpe paper, and commercial tints in any desirable color can be added to the final rinsing water. These colors are not fast, but will last until the garment is again washed. Sweaters should be stretched into shape before attempting to press them. If laid flat on a table they need no pressing. Napped goods after washing can be rubbed with flannel to soften the surface. Velveteen and velvet can be washed with soap and water and steamed before they are dry. A hot iron over which the back of the wet velvet can be used for steaming it, or a wet cloth can be laid on the iron and the velvet held above that, or steam from a tea kettle can be allowed to pass through the velvet.

The commercial laundry is careless with the silk ribbons that are inserted in underwear. The money spent in buying ribbon to

take the place of that which is destroyed or lost, and the time taken in putting in new ones, become a considerable item. The majority of women tie from three to six strings every morning. It would be a step in thrift so to make underwear that ribbons are unnecessary or to buy only the most enduring lingerie tape and fasten it in the middle of the back of the garment with very short ends protruding from each opening in the front, so that the machine ironers will not catch them.

Other Treatments.—Bleaching of cotton and linen can be done by water, air, and sunshine, but it takes time. Chloride of lime and lemon and salt can be used. Javelle water and peroxide of hydrogen are useful bleaches. Methods of bleaching should be studied, as garments may be ruined by lack of knowledge of the action of strong bleaches.

Wrinkles can be steamed out of gowns by drawing a bathtub or wash boiler full of very hot water and hanging the gown above it, or steaming with a tea kettle.

Dry cleaning is done by dipping the garment in benzine. It is cleaned without shrinking and sterilized at the same time.

Cottons and linens should be shrunk before they are made up or they may shrink in both directions in the first wash, and may be too small to wear again. (See Chapter III, section "Cotton Finishing.") The new cloth can be laid in water which is first hot and then cold. It should be pressed before making up. It is possible in many cases to estimate the possible amount of shrinkage and make the garment large enough to allow for it instead of shrinking the material before making.

Sponging and pressing are necessary for some wool cloths and pongees to keep them from spotting in the rain. This is often done at the factory or at the store. In making over old cloth, sponging and pressing will frequently make it look like new. It may be done by laying an evenly wet cotton cloth over the material and pressing it with a fairly hot iron.

Removing Spots and Stains.—Spots and stains should be taken out of garments before they are laundered, otherwise the soap, hot water, and pressing may set the mark permanently. Woolens should be well brushed before removing a spot. It is necessary, however, to know the character of a stain before deciding

how to proceed, as by using the wrong remedy the opposite effect from the one desired often results.

There are many agents for spot removal; gasoline is used for grease or dirt stains on wool and silk. A thick pad of clean white cloth or blotting paper can be put under the place and another clean cloth used to rub the gasoline gently on the spot in a circular motion from outside toward its center to keep a ring from forming. Salt is added to the gasoline by many and brushed off after the latter has evaporated. Chloroform is one of the most satisfactory stain eradicators, but is expensive. Ether, alcohol, carbon tetrachloride, benzine, and turpentine are in constant use as solvents for grease. Hydrochloric (muriatic), acetic, and oxalic acids, Javelle water, and the alkalis—ammonia, borax, and washing soda—have cleansing or stain-removing qualities. Dirt and soiled spots can be removed from garments which do not easily lose their color by the solvents named, but garments of delicate color and texture should have such absorbents as French chalk, magnesia, and corn starch used upon them. Ammonia and water are helpful in cleaning woollens. Light silk waists, scarfs, and dainty neckwear can be cleaned in gasoline or benzine by giving them successive dippings in the clean liquid. It is generally true that animal fibers (wool and silk) are injured by alkalis, and that vegetable fibers (cotton and linen) are more affected by acids. A few simple remedies for constantly recurring stains are given below, but for adequate discussion of the subject, the reader is referred to one of the many books and pamphlets dealing with spot removal, especially "Removal of Stains from Clothing and Other Textiles," Farmers' Bulletin No. 861, U. S. Department of Agriculture. A few books are mentioned above under section "Home Laundering," and the subject is treated in many books and pamphlets listed in the Bibliography.

Fruit, chocolate, tea, and coffee stains on white table linen when fresh can be removed by pouring hot water on the material held tightly over a basin. The water should come down with some force. When the stains are dry, soaking them in Javelle water diluted with hot water will often help. The cloth must be rinsed afterward in boiling water and dilute ammonia.

Grease.—Gasoline, benzine, chloroform, etc., are of service in removing grease from collars of wool or silk fabrics. Hot water

with or without soap is used also when the stain is fresh and the material can stand water. Brown paper laid over the soiled place and pressed with a warm iron will remove many grease spots. French chalk or magnesia can be placed thickly on the stain and left for a day and then brushed off; sometimes several applications are necessary to remove it completely. Wagon grease can be rubbed with lard and then washed. For a small fresh spot of grease from ice cream or from milk, rubbing with the white edges of newspaper is often efficacious, for the friction softens the grease and the paper absorbs it.

Mildew is a microscopic plant like mold. It frequently attacks cotton and linen when they are stored in a damp place. If left on the garment it will destroy both color and material. If very fresh wash in cold water and place the article in the sunshine. On white goods it is said that to rub lard on the spot and spread the garment in the sun for several days will take it away. Old mildew stains are hard to remove. Use Javelle water or potassium permanganate on white cotton or linen goods, then wash with hot water.

Ink is not easy to remove, for it is made of many different ingredients and it is puzzling to know what to use at any one time. When fresh soaking in milk will sometimes help, but has to be repeated many times in some cases. As soon as the milk becomes discolored it should be drained off and fresh milk added. Color will not be removed, nor silk and wool injured by the milk treatment. When the spot is old, oxalic acid can be applied to white materials; then the material allowed to stand for a few minutes and rinsed out with fresh water. Salts of lemon, oxalic acid, and ink eradicators are the usual remedies for white cotton or linen goods, but cannot be used on colors.

Pitch and tar are removable by rubbing with lard or other grease and then washing with soap and water to get rid of the grease.

Greasy overalls can be cleaned by washing with soft soap made from ashes of hard wood, or by soap and dissolved washing soda.

Blood stains.—If the stain is fresh, starch moistened with water and placed on the spot will absorb it, but often the starch must be applied several times. The spot can be washed in cool water and then rubbed with naphtha soap and soaked in warm water. Ammonia is also efficacious.

Scorch can sometimes be taken out with sunlight if the article is moistened and exposed to the rays.

Perspiration discoloration can sometimes be removed by washing the place in soapsuds and water and exposing to sunlight; if this does not succeed the remedy for rust can be tried.

Rust can be removed by soaking in oxalic acid for a few minutes and rinsing thoroughly, then wash with soapsuds.

Grass stains can be removed by milk, alcohol, or ammonia.

Fresh paint can be eradicated by sponging with alcohol or turpentine, or washing with yellow kitchen soap and water. If on a delicate color, chloroform can be used to better advantage. If the spot is dry, softening with vaseline and rubbing with vinegar can be tried. Amyl acetate (suffocating to breathe) removes old hard paint spots.

Acid stains can be removed by alkalies, for instance, lemon spots can be taken out with dilute ammonia, or wine stains with salt.

Black cloth which is spotted with mud can be cleaned with a potato cut in half and rubbed on the place, or carbonate of soda (washing soda) can be applied with flannel.

QUESTIONS

1. What sources are there of dye stuffs?
2. What is the procedure for dyeing a garment at home?
3. How proceed in laundering light colored cottons?
4. What main factors in the home laundry?
5. What are main factors in the removal of spots?

TOPICS FOR FURTHER STUDY

1. How can the consumer help in the development of an American dye industry? Is it worth while? Give reasons for opinion.
2. Why should we not expect dyes in a cloth to be fast to all influences? List the many ways in which color may be changed in manufacture and in wear.
3. Try out some of the recipes for spot removal, note results and try to improve upon the method.

CHAPTER XIII

A CLOTHING INFORMATION BUREAU

“Every woman who practices strict economy puts herself in the ranks of those who serve the nation.”—Woodrow Wilson.

Community Centers.—The service Home Economics can give in Community Centers was clearly demonstrated during the war. In rural and urban localities in the United States intensive work was done in food conservation which was soon followed by training in other subjects connected with the life of the home. Farm and Farm Home Bureaus have been organized for many years and are successful agencies for improving farms and farm homes, but the urban conservation centers began their service under the War Emergency Bill, when approximately one thousand additional workers were appointed for demonstration and extension work to add to the six thousand persons already on duty in the Agricultural Extension Service. The numbers of citizens who have come to these centers for help indicate the great service which can be given to the home by them, and shows that the permanent establishment of Home Bureaus would be a boon to the nation. When the war came to an end many centers were offering training and practical demonstration in foods, clothing, gardening, use of fuel, and general household thrift. The American born and the foreigner alike took advantage of the help offered, for they found the graphic teaching gave them direct assistance and the spirit of the work made them feel free and inclined to come again. The closing of some of these activities after the war indicated that a valuable factor in teaching better American home life was passing. An effort to increase this kind of community service has followed, in which the United States Department of Agriculture will take the lead and give its aid to both the city and the rural neighborhood.

The General Federation of Clubs and the States Relation Service of the United States Agricultural Department are urging the importance of clothing and textile conservation as a part of their programs. (See Chapter IX, section “Conditions,” etc.) The

Farm and Home Bureaus can give efficient help to this movement whenever thrift in clothing is included in their service. New centers should be opened. Budget Bureaus or Home Economics Bureaus have been started at several places, as in the banks in Cleveland, New York and Pittsburgh. As these bureaus develop and furnish information on all aspects of household and personal economy they will be able, doubtless, to undertake as well a clothing information service. Clothing expenditures, indeed, offer perhaps the best opportunity for saving for the average individual or family. Such centers should be opened both as community undertakings and by business interests wherever practicable.

Information centers, sometimes called "personal service bureaus," have been opened by a dozen of the leading department stores of the country and these bureaus serve customers and others on matters of textiles and clothing as well as other subjects. When conducted under high standards they become in effect centers of community service for thrift and economy.

The following material is offered to assist those who wish to organize clothing conservation work. The chart (see page 3 "Textile and Clothing Interests"), shows the field as it was developed at the Bureau on the Boston Common.

The Aim and Work of a Clothing Bureau.—*The aim:*

1. To train the consumer to INTELLIGENCE in her relation to the textile factory, the clothing workroom, the retail trade, and in selection of textiles, ready-to-wear clothing, and garment accessories.
2. To increase THRIFT in the home by teaching clothing economy.
3. To make clothing a factor in efficiency by showing how HEALTH can be conserved through it.

The work: A Clothing Information Bureau should be:

1. A *place* where information on textiles and clothing can be kept on file, where questions on these subjects can be answered with discrimination, and helpful advice can be given.
2. A *demonstration center* and place of rallies and exhibits where thrift is taught by concrete measures.
3. A *rendezvous* for lectures, conferences, and discussions on clothing economics.

4. *A reading room* for those desiring knowledge on textiles and clothing, where books, magazines, reports, and pamphlets can be consulted and files of up-to-date material are available. School children should be encouraged to come to such a bureau for material to use in written work, and students of clothing economics should be given help and direction.

5. *A center* to display and distribute printed materials, to send out travelling exhibits on phases of the work for clubs, classes for foreign women, and study groups, and where lessons on the various phases of garment and hat construction and repair can be given.

6. *A clearing house* for various agencies which can aid directly or give advice on clothing questions, such as courses of clothing and textile instruction in various schools, or the club and demonstration work in the Home or Farm Bureaus; where addresses are kept of lecturers or demonstrators or of textile factories which can be visited or where exhibits can be obtained.

7. *An advisory bureau* for salvage and thrift work.

The Clothing Facts Bureau.—A Clothing Information Bureau was opened in Boston in the fall of 1917 as a part of the War Service Work of The Women's City Club of that city. A Food Facts Bureau had been organized a few months before, and the success called for further development, consequently "Clothing Facts" was added in November, 1917. "Garden Facts" and "Fuel Facts" followed in 1918 and "Salvage" in 1919. The city of Boston housed these various activities on Boston Common in one of a series of huts for war work. The War Service Committee of the Women's City Club appointed chairmen from among its members to supervise the work, a director was in charge of the Food Facts Bureau and a skilled worker was placed over the clothing division. An expert in the making and renovation of clothing was in attendance twice a week, and one on millinery once a week to give advice to the many who came for assistance.

The Salvage section was opened after the war was over and was closely related to Clothing Facts. The former is a part of the National Thrift Campaign, and the bureau was made the up-town information section of the New England Bureau of Salvage on lists of material to be saved, the current prices of rags, the names of state directors, and general facts about salvage.

The questions below give an idea of the clothing information desired in an urban community, and show the kind of advice constantly sought. They may be suggestive to any community wishing to organize a clothing bureau: They were the basis for the sort of information given graphically or by practical personal advice to the many visitors to the bureau on the Common, or for sending charts, exhibits or posters to other clubs or community centers. Each locality has its own problems and the Clothing Bureau must find them out, endeavor to solve them and train the public to meet them. An ideal center would gradually meet the needs of a neighborhood and not attempt to spring full fledged into being from direct copying of another bureau's work.

TYPICAL QUESTIONS ASKED AT THE CLOTHING BUREAU

- Where can I learn how to select good materials?
- What low-priced materials are worth buying if one cannot afford the best?
- How can I choose ready-to-wear clothing wisely?
- How can I make over this coat for my daughter?
- What kind and price of stockings are satisfactory?
- What department stores are reliable?
- Where can I learn to sew and to make garments or trim hats?
- How is cloth made?
- What is shoddy, will it wear well, and how can I detect it?
- How do you make a clothing budget?
- What is the best way to renovate old material, and where can I learn to do it?
- Where can I obtain patterns for refugee garments?
- Where can I buy shoes that are correct in shape?
- How can I learn to dye clothing at home?
- What kind of cloth will wear well for men's clothing?
- What underwear is the most satisfactory in winter?
- Where can one buy patterns requiring the minimum of material?
- Where can rags be sold?
- How does one make telling posters?
- How can I make over the dress I have on?
- What are non-essentials in clothing?
- What kind of clothing should a baby wear? What kind a little girl?
- How can spots be removed from clothing?
- How much should one spend on children's clothing?
- What is beauty in clothing?
- What is the reason the stores are stopping the practice of letting goods go out on approval?
- Where can I learn how to use commercial patterns?
- What sort of clothing is most healthful?
- What factories make the most reliable material?
- What are labor-saving methods of clothing conservation and where can I learn them?

The three-fold ideal for clothing conservation—Intelligence, Health, Thrift—was the result of the experience with the needs of thousands of visitors. Separate topics were grouped under these headings. A poster (see below) was hung on the wall giving the ideals and statements; this led visitors to realize the extent of the subject and their responsibility as consumers; it stimulated further



FIG. 22.—Crest of Clothing Facts Bureau.

questions, and these in turn resulted in better methods of clothing purchase, and the ideal of clothing thrift for the benefit of the home and nation.

THE THREE-FOLD IDEAL
for
CLOTHING CONSERVATION

1. *Intelligence:*

- Do you know how textiles and clothing are made?
- Do you know the uses, prices and values of various textiles?
- Do you know the properties of textiles?
- Are you standardizing your dress?
- Do you know how to test, judge, and select fabrics?
- How much have you to spend on clothing?
- Have you inventories of all your clothing to help you estimate needs?
- Are you planning for beauty as well as simplicity in dress, and modesty in outer and under garments?
- Are you helping the retail trade to eliminate abuses?

2. *Thrift:*

- Are you giving up luxurious clothing and rapid changes of fashion during these serious years?
- Are you keeping your wardrobe at the minimum?
- Are you buying enduring, simply-made garments that will last for a long time?
- Are you selecting staple materials rather than fancy fabrics?
- Are you wearing out your old clothes?
- Are you repairing and remodelling but refraining from unnecessary changes?
- Are you taking care of your clothing?
- Are you keeping a clothing budget?

3. *Health:*

- Are you wearing light, loose, porous clothing?
- Are you wearing shoes the shape of the feet?
- Are you wearing heels not too high and directly under the heel of the foot?
- Are you keeping the body warm?
- Are you keeping the body clean?
- Are you keeping the body dry?
- Are you keeping the body unhampered?
- Are you keeping the body well ventilated?

Posters and slogans, changed frequently, were found stimulating and helpful, the following being suggestive of this method of teaching the public:

CLOTHING COMMANDMENTS.

- I. Know what you can spend, think over your needs, and keep accounts.
- II. Repair, remodel, care for clothes, and wear out old clothes.
- III. Cut your wardrobe to the minimum.
- IV. Select according to the value and appropriateness of materials.
- V. Choose garments which harmonize.
- VI. Know how materials are made and buy enduring, simple garments that will need few repairs and stay in fashion.
- VII. Consider workmanship, beauty and modesty.
- VIII. Be a considerate shopper! Carry home packages; pay charge accounts promptly; return goods not wanted quickly, and in good condition.
- IX. Select clothing that will keep the body clean, dry, evenly and moderately warm, unhampered, and well ventilated.
- X. Wear shoes that are flexible at the instep, straight along the joint and big toe, with heels not too high and directly under the heel of the foot.

THE CLOTHING FACTS BUREAU

has on hand

BOOKS on:

CLOTHING AND TEXTILES

CLIPPINGS filed from daily newspapers

BULLETINS on:

TEXTILE FIBERS

TEXTILE FABRICS

DRESSMAKING

MILLINERY

HYGIENE of CLOTHING

DYEING

CARE of CLOTHING

RENOVATION of CLOTHING

CLOTHING BUDGETS

TESTS for CLOTH

PATTERNS and SAMPLES for CHILDREN'S CLOTHING
Made from Worn GarmentsINFORMATION on REMODELLING and RENOVATING
CLOTHES and HATSSUGGESTIONS on EXHIBIT MATERIAL
SAMPLES
POSTERS, CHARTS and SLOGANS

EXHIBITS Showing PROCESSES of MANUFACTURE

A WISE SHOPPER

knows

What she has to spend

and

Never spends more.

Knows

What She Wants

and insists on having it.

SENSIBLE STANDARDS IN DRESS
ESSENTIAL PRINCIPLES OF DESIGN

SKIRTS should have:—

- a. Width at bottom sufficient to allow for freedom in stepping up and forward.
- b. Width around hips sufficient to prevent drawing across the front and back.
- c. Length and fullness so planned that:—
 1. The skirt will not drop too low nor pull too high when one is seated.
 2. Holding up is unnecessary.

WAISTS and SLEEVES should allow for freedom of movement in any direction.

LIGHT COLORED COLLARS, CUFFS, FRONTS and WAIST LININGS should be detachable and cleansible.

POCKETS should be placed in dresses, suits and coats.

SHOES should have:—

- a. The inner line straight along the joint and big toe, allowing the toes to extend directly forward.
- b. Plenty of length and width for the toes.
- c. Heels broad and not too high.
- d. Arch flexible but snugly fitting.

HATS should be light in weight, evenly balanced and well ventilated.

RAPIDITY and CONVENIENCE in dressing should be considered in the planning.

MODESTY should be an absolute essential in the design of any garment, whether for evening or every-day wear.

Do you approve these standards? Will you stand for them? If so, sign the subscription list below.¹

HELP STABILIZE BUSINESS
Rapid changes
and
Extremes of Fashion
are important factors in increasing the
Cost of Production

¹Subscription lists were widely signed by persons pledging to uphold these standards.

Organization of a Clothing Bureau.—The organization and scope of a clothing bureau may be somewhat as follows:

The Committee.—A live committee, interested and, if possible, proficient in textile and clothing matters, can be of great assistance. It can supervise the work, consider the needs of the community, discuss and settle the many questions arising as to wise methods of action, arouse interest in the subject, obtain exhibits and connect the bureau with textile manufacturers, retail houses, and other allied agencies.

The Space Allotment.—The space set aside for the exhibits and research work need not be large. The work can have a room to itself or an alcove in a larger room which is used for Farm Bureau purposes. A space twelve by fifteen feet has been used successfully. There should be sufficient room for a number of people to walk about and look at the exhibits, for a demonstrator to gather a group about her and for a few people to read at a table. The light should be good that texture and color may be studied. Two windows are desirable that the sunlight may be excluded from one if necessary without darkening the room. If a section of a room is used there should be the opportunity of spreading over into a larger space when lectures or special demonstrations are given. Tall screens should be provided to which exhibits can be fastened. On at least two sides of the room there should be a series of shallow shelves with a flat top on which exhibits can be placed. The shelves can be used to file mounted exhibits, charts, and posters when they are not in use. The height from the floor of the top shelf could be about thirty or thirty-five inches and the depth of the shelves depends on the size of the exhibit cards in use—twenty-two to twenty-five inches is usually sufficient. Clothing, shoes, stockings, and other articles can be kept on the shelves to take out for illustration when necessary. On the wall back of the top shelf burlap should be fastened to which to pin exhibits, budgets, or patterns.

A three-drawer filing cabinet is needed and a four-drawer card catalogue holder. These can be bought from any house making office equipment, but boxes can be used and expense saved. A few closing tables are very useful at which students can read or for visitors to draft patterns or write directions for budgets or renovation.

Closing chairs should be provided which can be folded away when not in use. There should be enough of them to seat an audience for a lecture or a demonstration. A bookcase will be required for reference material; simple shelves can be made or a variety of cases bought in sections as the need arises. Bulletin boards and a blackboard should be hung on the wall in convenient places for the public to consult. Bust forms and figures are useful to display garments. A good-sized closet is required for storing away cases, figures or garments which are not in use.

The Director.—A trained woman with ample practical experience should be in control to plan and conduct the work, give advice, answer questions, and organize the various duties of the bureau. In a small community a special worker for clothing could not be afforded, and the general head of all of the activities of the center should understand this subject. Whoever is responsible for the clothing should have knowledge of textiles as well as garment construction and renovation in order to give advice of value.

The Activities of a Clothing Information Bureau.—*The Files.*—Complete, up-to-date information should be placed in the files gathered from the daily press, magazines, advertising circulars, trade reports, Government and educational pamphlets, and other material. In order to cover the subject adequately, there should be information under such headings as the following: Advertisements (concerning honest, reliable information); Budgets (general and clothing, plans for various ages, estimates and calculations); Business Methods; Care of Clothing (renovation, cleansing, spot removal, laundry); Charts and Exhibits; Clothing Industries; Cooperation with Various Agencies; Color and Design; Conservation; Cotton; Community Service (such as the Consumers' League, Trade Union League, Child Labor); Economics (intelligent shopping, well-selected wardrobes, the modern consumer); Education (salesmanship, vocational training, college and technical schools); Equipment and Supplies (sewing room, notions, and trimmings); Farm and Home Bureaus, Clubs, and Societies; Foreign Conditions in Clothing; Garment and Dressmaking; Government Publications and Suggestions; Hygiene of Clothing; Illustrative Material; Industries (dyeing, printing of fabrics, cleansing, various additional fibers); Knitted Goods; Labor Questions; Legislation; Linen;

Manufacture (reliable houses, guarantees, staples and standards); Millinery; Organization's Plans; Patterns; Primitive and Revived Textile Industries; Red Cross and Y. W. C. A. work; Representative Courses of Instruction; Retail Trade Conditions; School and College Work; Shoes and Stockings; Shopping and Bargains; Silk; Standard, Artistic and Simplified Dress; Textiles (growth, manufacture, finishing, tests); Thrift and Good Judgment; Wastes (over-luxury, changing fashions, materials); Salvage and Reclamation; Women's Employments; Underwear and Corsets, and such other subjects as seem necessary.

Cards with samples of staple fabrics giving information on the name, price, width, place of purchase and manufacture, and probable condition of endurance should be kept on file.

Card Catalogues.—Information on various subjects is asked for repeatedly, and can be kept available on card catalogues. Such material as the following should be collected: Addresses of people interested in the bureau and desiring the printed material issued and information on demonstrations or lectures; lecturers and teachers of textiles and clothing willing to give help when needed; schools, colleges, and classes doing good work in textiles and clothing; vocational, trade, and housekeeping schools; allied agencies; textile factories willing to have visitors or to give examples of processes; standard and sensible dress; dressmakers, fine repairers, renovation workers, and purchasers of rags; county bureaus and home bureaus.

Clippings.—Trade journals, daily newspapers, and magazines should be read and important material cut from them. The bulletin boards can thus be supplied with fresh, up-to-date material. The clippings that seem especially valuable and permanent can later be mounted on heavy paper and placed in the file under appropriate headings, or in scrap books which are sold especially for this purpose.

Posters.—There is no better way of catching the attention of the public than by a good poster. These can be made by cutting out pictures and pasting them on a large card, and printing or stenciling the slogans to explain the picture. A small hand printing outfit can be bought for a few dollars. The art school or art departments in the regular schools or in vocational schools are glad to design posters for this kind of work, as they make a problem of the

design and the class sends in its suggestions; or a series of slogans in various colors without picture can be of service, such as the following:

WHAT A WELL-DRESSED GIRL WEARS TO BUSINESS.

Neat gloves.

Shoes that are the shape of the feet, with low broad heel.

Old gloves and shoes are neat when clean and carefully mended.

Neat tailor-made shirtwaists.

Neatly made suit and coat.

Neat, well-made hat.

Clean, neat underwear.

Clean collar.

Hair neatly dressed.

Clean hands and finger nails.

From New York Child Welfare Exhibit, 1911.

Commercial posters can be purchased, but little as yet has been done on clothing excepting on the correct shape of the shoe.

Exhibits.—A constant series of exhibits should be shown in the bureau. These should be changed frequently, every two weeks being desirable, and a special rally can occur at intervals. Local merchants are willing to cooperate not only by sending material to the bureau, but by window displays in their own buildings. Collections may be borrowed from interested persons or acquired as a part of the permanent exhibit material of the bureau. The following subjects are suggestive of such collections: Sensible Garments *versus* Unreliable; Practical Gifts; The Use of Old Garments; Remodelling Hats; Remodelling Garments; Comparative Study of Available Materials; Simple Designs for Clothing with Accompanying Patterns; Material Worth Making Over and Not Worth Making Over; Renovation of Flowers and Feathers; Shoes and the Feet; Stockings; Underwear, Good and Bad; Dyeing and Printing; Laundry Methods and Results; Care of Clothes; How to Use a Commercial Pattern; Tests on Cloth and Information on the Procedure.

Travelling Exhibits.—Various phases of clothing can be concretely illustrated by the use of charts. These are needed in classes and clubs and in work with foreign women—such examples help in giving ideals of simple adequate American methods where lan-

guage would fail to carry the desired information. A Clothing Bureau should consider such exhibits an important feature of its work. As the wear and tear on such travelling material is great, a small fee and transportation charges should be paid by the borrower. Such exhibits as the following are in request: Clothing for Children in Under and Outer Garments; Renovation of Garments and Their Remodelling; Spot Removal; The Laundry for Comparative Methods; How Cloth is Made; Home Tests for the Effect of the Laundry, for Shrinking, Wear, Light, and Strength; Patterns for Easily Made Clothing; Repair of Stockings and Underwear; and Reliable Cloth.

Bulletin Boards.—A valuable service can be rendered by the bulletin boards. Clippings from daily trade or news journals, items of interest, slogans, timely quotations, and illustrations can be made a means of awakening the public to interest in clothing conservation.

Slogans.—Calling attention to important matters by dramatic sentences which are both strong and terse and remain in the memory more easily than more elaborate information is an important part of creating interest. This method can be made especially effective by printing in large type with a wise use of color.

Publicity.—It is necessary to enlist the attention of the public that the work may not fail through lack of knowledge as to its worth. Plans being carried out must be circulated. The daily press is anxious to keep informed, and if the subject is kept full of life with new developments, constant reports will be put before the public. The department stores and specialty shops can also help by loans to the bureau and by timely window displays. Textile factories will coöperate by exhibits, and trade journals are usually willing to send copies without cost to the bureau.

Home Visits.—Volunteer workers or paid assistants can help individuals in the homes. This is one way that foreign women can be interested, taught, and Americanized. Textiles and clothing are so close to the need of all that the work becomes an "open sesame" even when others fail.

Research Center.—On account of the printed or the concrete form of the information and the presence of able advisers, the bureau can render a service as a study center for students of clothing from the regular and vocational schools. Salesmanship stu-

dents and college research workers have made the Clothing Facts Bureau on the Boston Common a place of investigation on the many aspects of clothing economics.

Classes and Club Meetings.—Groups of people desiring lessons in sewing, garment making, renovation, millinery, or sewing crafts can be taught at the bureau, or classes can be organized elsewhere. The staff should be ready to give talks on Clothing Economics at meetings or club gatherings.

Volunteer Assistance.—Untrained, volunteer workers can render valuable aid. They can give regular hours to such needs as printing posters, coloring pictures, cutting patterns, explaining exhibits, taking clippings from the daily press or magazines, filing, and similar duties. Thereby interest in the work is spread as well as assistance given.

QUESTIONS

1. What methods in the "Clothing Information Bureau" seem to you likely to be especially successful?
2. Show that such work is as necessary in peace time as in war.
3. What can a "Clothing Information Bureau" do for Americanization?
4. In how far does your own dress conform to "Sensible Standards of Dress"?
5. Design a poster showing correct dress for a business woman.

TOPICS FOR FURTHER STUDY

1. Make a plan for a clothing information service to be started in a simple way by a local women's club. What other agencies might be enlisted to support a larger venture?
2. What similar service could a high school department of household arts accomplish in furnishing information to the public?
3. One or two metropolitan newspapers have started a household information service in connection with its women's page. Show what a local newspaper might do in cooperation with a women's club or teacher of home economics.

CHAPTER XIV

PLANNING FOR CLOTHING PROGRESS

Information for the Consumer.—The subject of clothing—its choice, cost, care—as presented in the foregoing chapters aims to promote conservation and the wise and economical administration of the wardrobe. These qualities are regarded as fundamental in intelligent citizenship. The book is written for the consumers who are the main purchasers of clothing—the home makers, the teachers, the workers in the Extension Service, the club women, the sales girls, and the mass of women and girls at home, at school, or at work.

These consumers have been active in clothing conservation in the various war agencies and in the after-war Thrift Movement inaugurated by the United States Treasury Department and other agencies. Work which may be done to still further advance these economic movements in connection with every-day living is indicated in "Clothing Interests," Chapter I, and "Intelligent Shopping," Chapter VIII. Consumers who wish to know something of the values and uses of the four leading textiles and also of leather and rubber goods will obtain suggestions in the chapters dealing with wool, cotton, silk, and linen clothing and in "Clothing Accessories." Mothers wishing to keep their families in good physical condition will find in the chapter on "Clothing and Health" recommendations for the wise choice of textiles and articles of clothing as they influence the efficiency of the body.

Club women throughout the country are endeavoring to formulate ideals and standards for textiles and clothing. They are studying fabrics, the methods and conditions of their manufacture, and the establishing of styles which will do away with unnecessarily rapid changes and extremes of fashion in every-day attire. The chapter on "Serviceable Dress" gives data on this club movement and also suggests possible future action; this and other chapters of the book can be used by Home Economics sections of women's clubs as the basis of club discussions or of a program of study and action. "The Clothing Budget and the Wardrobe" has

recommendations for home makers, college women, working girls, young married women, and others, on the way to make a budget, and on items of the clothing outfit which need consideration before one should attempt to shop. The way to meet the many recurring questions in the oversight and remaking of clothing is dealt with in the chapter "Care, Repair, and Renovation of Clothing." The Appendix also gives numerous illustrations of the making over of old garments, and the Frontispiece shows the appearance of several which were made over for children. "Dyeing, Laundry, and Spot Removal" gives further information on the keeping of clothing in good condition by presenting among other topics methods of home dyeing and tinting. Finally, plans for a nation-wide effort for furthering thrift in clothing through a community information service are given in the chapter "A Clothing Information Bureau." A movement of this kind would help both foreign and American born women, who are not reached by schools, classes, and clubs, to spend their clothing money more wisely and thus the Thrift Movement would receive a special impetus.

Progress Through Textile Standardization and Selection.—

The American Home Economics Association, at its annual meeting in the summer of 1919, feeling the seriousness of the textile situation in the country and the lack of adequate work in textile selection in the schools, adopted the following resolutions:

WHEREAS, We as home economics teachers realize that women form the bulk of retail purchasers of textile fabrics, and whereas we believe that in the interests of efficient homemaking and of individual and national thrift they should be trained to select such fabrics with discrimination and to study expenditures for clothing in relation to income; therefore be it

Resolved, That this Association urge all teachers of clothing in elementary and high schools, vocational schools, normal schools, and colleges, and all home economics extension staffs to feature the selection of textile fabrics and the clothing budget in their course of instruction during the coming year; and further, that it request the active coöperation of the General Federation of Women's Clubs and of women's magazines and farm journals in bringing these matters to the attention of American women and girls.

AND WHEREAS, We believe that a large percentage of American women are ready today to create and maintain a market for textile fabrics conforming to reasonable standards, and know that we can readily reach these women and others through the various types of home economics teaching in which our members are engaged; be it

Resolved, That this Association invite the coöperation of associations of manufacturers, jobbers, and retailers, in determining such standards, and

in putting on the market a limited number of standardized fabrics of various grades on which is placed some identifying symbol to signify such standardization.

The Association expressed its conviction that much more time must be devoted to the clothing side of the budget than has been given before, not only in the homes but in schools and educational institutions. Textile and clothing courses are already found in many schools, but, in general, they fail to give adequate attention to the selection and care of garments. Emphasis on how to choose wisely would tend to develop more intelligent consumers. To give attention to these topics is especially timely, for the Government is urging conservative buying and pointing out the waste due to prevalent methods of clothing purchase.

A committee was appointed by the American Home Economics Association to carry out the program of the two resolutions. This committee is in two sections, a small, very active, central committee, and a large advisory one. The former has had conferences with manufacturers, jobbers, retailers, and textile experts throughout the country in relation to the wisest methods of standardization of a few constantly used fabrics. It is also meeting the teachers of Home Economics to discuss their textile plans with them. It is conducting laboratory tests to determine the minimum condition of fabrics at which endurance is possible, and it is studying the purchasing habits of the people. It is also working to further federal legislation in aid of standardization. Questions of a like character are dealt with in this book and the suggestions may be of service to those who wish material for discussion, demonstration, class work, or exhibits on textile standardization. Laboratory work is also indicated in many chapters, as in spot removal, tests of fabrics, laundry, and home dyeing. Demonstrations with accompanying exhibits can be planned also from the text on numerous topics, such as the following: "Standard Values in Wool," or any other of the four leading textiles; on "The Hygiene of the Feet," "The Effect of Substitutes on the Endurance of a Fabric," "The Price of Clothing as Related to Wear," "Renovating and Making Over as a Thrift Problem," "Putting Garments Away for the Winter," "Making the Clothing Budget," and other like practical subjects. The table of contents can be used for further suggestions.

Opportunities for Service.—*The Home Economics teacher* is the natural leader in the Thrift Movement as it relates to the home. She can inspire the students in her classes to real economy in their every-day life. About two hundred thousand girls are registered in Home Economics courses in the high and vocational schools and in federally aided schools. The teacher must make it a point personally to be an exponent of wise economy, to live on a budget, to spend wisely, to take care of her own clothing, and to look attractive. She should know the mothers and homes of the pupils, help the former to intelligent methods of clothing selection and discover how the course in textiles can be of the greatest service to them. She should be as active as is possible in the club work of the town, be able and willing to speak on clothing conservation and help the women with whom she comes in contact to make and live on a clothing budget, and get the best values for their money. Her school room should have books of reference in connection with every-day problems of living. By the aid of these books she can set topics for the pupils to look up, report upon, and collect exhibits in illustration of the points they make. The mothers will soon become interested as they hear the children discuss these matters at home and will be apt to themselves study in order to help the children or to use the results at their own club meetings.

There are so many kinds of schools where Home Economics is taught that much should be accomplished if all will unite in the effort—the elementary, the secondary, the vocational, the technical, the home making, the trade, continuation, and part-time schools and salesmanship classes. Teachers have now a great opportunity to forward the national plan of thrift and thus do their part in decreasing the high cost of living and in making the home more economical.

Club women (about 2,000,000 in number) have also a like duty before them, and by working in direct contact with the teachers can have the benefit of the Home Economics training of the latter and also help them in their busy lives to touch the community more vitally. If the movement of the General Federation of Women's Clubs toward standard fabrics and dress is to receive adequate attention the public must desire it, and this will require a further education of the mass of the people. The club women are

especially fitted to accomplish this. Already there are factories making standard fabrics, but women must know what makes a textile a standard and thus be able to select it, for, at the present, there is no mark to indicate the standards. Through public discussions and demonstrations of the actual conditions as to clothing and textiles which will indicate the wise way to buy, much can be accomplished, and it would be but a short time before some of the problems confronting the country and dependent upon the action of the consumer would be solved. Suggestions concerning clothing selection are dealt with in many chapters of this book, and "A Clothing Information Bureau" tells how to organize an effective community service for training people to intelligent buying. The manufacturer is willing and anxious to give the consumer what she wants and the better type of department store manager will welcome the setting of standards in clothing. As the purchases of the consumer, therefore, determine largely the output of the mills and the stock in the stores, it is the patriotic duty of women to inform themselves as to the right way to use their power as purchasers of goods.

In 1917 there were 20,724 women registered in Home Economics courses in colleges, universities, and technological schools. Such students will find in this book suggestions as to research and investigation into conditions affecting the home, manufacturing interests, and the retail trade. The subjects discussed in it are a vital part of many studies, such as arithmetic, history, commercial geography, civics, economics, and sociology, and students taking courses in pedagogy should use such material for planning correlations in these subjects to bring together home and school.

The *Extension Service* of the United States Department of Agriculture is conducting clubs among girls and older women. Some workers are engaged directly on clothing problems and can obtain from the book suggestions which may be of service. In eight states during six months of 1919 the teachers and students in clothing alone exceeded 135,000. Exhibits should be collected by the Farm and Home Bureaus to illustrate important lessons in selection which can be used in clubs, classes, demonstrations, and conferences. The chapter on "A Clothing Information Bureau" tells how to organize a section of the Farm Bureau which will bring practical results in thrift and in Americanization.

It is important for the *retail trade* to consider the problems discussed in this book. The new consumer desires to be informed of the reliability of merchandise offered to her. The store manager, buyer, and sales person must, therefore, be prepared to give the wished for information. Sales may be lost through a lack of intelligence, for the consumer is studying textile selection and asking for good merchandise as never before and rightly expects honest answers to her questions. The sales persons should know how the stock is made, whether the best material is in it or a substitute fiber, and whether it is likely to wear. They should know something of the reputation of the manufacturers of textiles or ready-to-wear clothing whose product they are selling, and what purpose the fabric or garment will best serve. Classes are being opened to train sales girls in these matters and to study the consumer's problems. Some of the more progressive department stores are having textile testing stations to help the buyer to select and the consumer to purchase more wisely. This is, indeed, an excellent step ahead. In smaller stores, where a laboratory cannot be installed or the management cannot afford to connect with a large testing station, some one of the force could apply to the textile stock the tests given in the book and thus help the patrons who wish guidance and protection.

Textiles in the Schools.—Good courses in textile selection are found in some schools and technical institutions, but it may be said with truth that, in general, these courses deal too much with historical data and with processes of manufacture and fail to teach adequately the selection of textiles and clothing on the basis of the money and materials available in a neighborhood. Before the war the usual sewing courses to which the textile work was allied were largely given over to drill on stitches and to making a few garments with set principles which were supposed to be of service at some future time. The conditions of war time caused a revision of the work to meet immediate needs, and help for the unfortunate became a keynote. Working for refugees, soldiers, and hospitals was stressed. The Red Cross called for supplies in quantities and the children in the schools showed themselves equal to a huge task. Economy in clothing demanded renovation and remodelling of garments and careful selection of fabrics and the costs of clothing began to be considered more than ever before.

It is to be hoped that future courses of garment making may take the accomplishment of the children into account and introduce more rapid construction of useful articles, which have a commercial value, that overfine detail may be given up in the classes of younger pupils, and that cost and good taste in the design no matter how simple the garment, good workmanship for the purpose, and wise choice even of inexpensive materials may be found in all classes. Garment making for other people (whether for members of the family or for an order, for charity, or for sale) should take away the centralization of the student's thoughts on her own decoration and should protect the homes of those of small income from extravagant demands for fabrics to use in school classes.

The textile subject lends itself, in the fundamental processes of manufacture as they were practiced by primitive people, to work in the earliest grades and even in the kindergarten. The sheep can be studied and the wool washed, combed, spun, dyed and woven. Cotton can be grown, ginned by hand, carded, spun and woven. Silkworms can be grown and silk processes developed, and flax, also, can be grown in the school garden and rippled, retted, broken, scutched, hackled, spun, and woven. Bleaching and calico printing can be done by the children in the school, and design should accompany the work. During these lessons the connection with the clothing should be emphasized and the choice of materials and their care brought continually to the fore. The work should be a foundation for later intelligent purchase. In later grades the relation of the clothing budget to shopping for garments, and the care, renovation, making over and making new garments in relation to the family purse can receive more specific attention. The pupils should make tests of fabrics and give their conclusions, collect samples, and identify them, giving names, values, and prices. Practical tests of the knowledge gained should be frequent and should be as near to a shopping experience as possible. Pupils should be taken on shopping trips to nearby stores and, when possible, visit textile factories and workrooms which are making ready-to-wear clothing. The contents of this book can be used as a basis of development for this school work.

The "Style Show" in Education.—A "Style Show" with living models is an excellent way of impressing a year's lessons in

textile and clothing selection and construction on students of the technical high school or the vocational school. The mothers and friends of the students can be invited and derive benefit also from such a demonstration. The audience room of the school is a good place to hold the exhibition. The students taking part can appear first on the platform and later walk up and down the aisles that those present may have a closer view of the clothing.

The aim of such a display is to emphasize dramatically the points which have been made in the class work, such as the reason for choosing a certain textile for a gown, the suitability of the style selected for future use, the efficiency of the gown for its purpose, the complete cost of it, the relation of the amount spent on it to the annual budget allowance of the owner, the endurance of the cloth as shown by tests given to it, the hygienic features, and the line and color in relation to the personality of the wearer.

The garments can be the work of the dressmaking class and the one for whom the gown is intended can wear it and describe the good points, or a speaker appointed for the purpose can give the items of importance as the girls pass by her on the stage. Another way to obtain the garments is to borrow them from the students, the teachers, or from friends, or to interest department stores in the town and have a loan of ready-to-wear clothing selected by the students to represent the best ideas on satisfactory dress. Special care must be taken that borrowed garments are returned in perfect condition.

There are many sides of the question of dress which can be presented at an exhibition of this kind. Varieties of gowns can be shown—the every-day dress for home, school, work, or business; the tailored suit; the house gown; heavy or light-weight coats or wraps; rain coats; the party dress; the “Sunday” dress; the negligée; children’s clothing; hats for all seasons; caps; shoes and stockings. The contrasting of clothing ideas, also, makes a good demonstration, such as ready-to-wear *versus* home or custom made, in which the endurance, the appearance, the effect of laundry and the cost can be presented. The difference in amount of material and cost as dependent upon the choice of the pattern from which the gown has been made; or price variation occurring between the use of plain weaves and colors as against stripes, plaids, and

figures are worth considering. Garments, underwear, or shoes showing hygienic features can be contrasted with those which are less healthful, and a display of gowns that can be used for several occasions and thus aid in the economy of the wardrobe gives interesting and valuable results. In Fig. 13 such a gown is shown. Made over and remodelled clothing makes an excellent demonstration. This book contains suggestions for carrying out these various ideas.

When describing the gowns in such an exhibit it is advisable for the one wearing the dress to imitate the motions she will be called upon to make while wearing it, and thus make clear the service of the garment. For instance, a dress in which hard, dusty work is to be done must be especially enduring, as there will be great strain upon it; it must be of a color which will not show soil; it must allow freedom in the movements of the body; the waist must not be too tight and the sleeves must roll up. The skirt must not be too long, and it must be sufficiently wide not to impede in any way. If the work to be done is very dirty and the gown must be frequently laundered a washable fabric should be chosen, yet something must be selected suitable to the work involved and with the minimum cost in view. The hygienic features are always important and every one participating in the show should wear shoes of a sensible shape and with low heels. When a party dress is being shown the model could wear a low-heeled pump. The cost of the gown should include the probable price of keeping it in order. The laundry costs can make a cotton dress an extravagance, though the initial price may have been small. The trimming of a gown may make an otherwise enduring garment a care and an expense.

If awards are offered for the gown which shows the highest number of good points, a jury should be appointed beforehand and score cards, mentioning the qualities to be noted, given to each. After the exhibition is over the jury can meet and decide upon the results.

A woman's club can carry out a style show somewhat similarly that will be effective in impressing better textile standards on the community.

The Motion Picture as a Teacher.—Textile and clothing manufacture and selection can be profitably taught by motion pic-

tures. Courses of instruction for educational purposes on subjects relative to the home, are needed. The Government has some films on the growth of raw material and the manufacture into cloth, and there are commercial textile reels available. The National Board, Y.W.C.A., has recently prepared a moving picture to illustrate good points on shoes and heels.

Suggestive Outlines for Clothing Instruction.—There are many ways in which textile conservation and selection can be taught, but the only “best way” is to adapt the material chosen directly to the needs of the people or community where the subject is to be considered. The following outlines show, first, work that has been done in a high school and, second, a few plans based on material presented in this book. Such outlines can be used for many purposes by adapting them to younger or older people and to the conditions under which they live. For example, with foreign born listeners the simplest language should be used, the result should directly fit into the home life, and exhibits should accompany the demonstrations in order to make the points absolutely clear; it is helpful if visitors to the exhibit can take home some illustration of the talk that they have heard, such as a pattern for a child’s dress, samples of fabrics that are not expensive but will wear well, a piece of cloth from which a spot has been removed or which has been tested for endurance.

A. A HIGH SCHOOL COURSE IN TEXTILE SELECTION, LOS ANGELES, CALIFORNIA.
(This is a very condensed account of the content of the course.)

First Year.

I. First semester.

1. *Cotton*, analysis and discussion of materials.

Collecting, identifying and mounting samples as to range of width and price and distinguishing characteristics.

Discussion of materials as to quality, design and color, durability, suitability, width and price, amount necessary for a gown and how to estimate it, setting color, shrinkage, etc.

Fiber, growth and manufacture, economic value of cotton. Fiber under the microscope.

Underwear materials.

Hosiery. Knit Goods.

The Hygiene of Clothing.

Sanity in Dress—Hair dressing, ear-rings, face powder, French heels, white shoes with dark dresses, neatness and care in details of dress, rapidly changing styles and extreme styles.

Laces. Relative value of hand and machine laces. Effect of laundering. Design. The lace making industry in this country and abroad.

Embroidery. Design, material on which the work is done, strength of edge, effect of laundering, colored embroidery, cost, etc.

2. *Linen.*

Growth and manufacture.

Dress material and table linen.

Household fabrics in cotton and linen.

3. *Laboratory tests for cotton and linen.*

II. Second semester. Wool and silk are studied in a way similar to the plan for cotton and linen in the first semester.

Second Year.

More advanced work given on the four textiles, household furnishing for a bungalow, cleaning silk, wool and gloves. The family budget.

B. TOPICAL OUTLINES FOR SCHOOLS, CLUBS, EXTENSION AND OTHER WORKERS.

The Consumer's Responsibility.

I. The amount spent on textiles and clothing annually.

1. The relation of women and girls to this outlay.

The effect of their influence on the textile factory in the class of goods which are being made.

The effect of their influence on the ready-to-wear workrooms in the style of garment made and its endurance.

The effect of their influence on the retail trade in the abuse of the privileges which the stores have granted.

The effect of their influence on the home in the excessive use of money for clothes.

2. The present need for economy.

The condition facing the United States and the countries of Europe.

The Thrift Movement and its meaning.

3. What women should do.

Feel their responsibility as citizens of this country and do their part in the reconstruction of industry.

Feel their responsibility in international relations.

Become better judges of textiles and clothing.

Use business methods in the conduct of their homes.

Regulate their ideas of dress according to ethics and economics.

Learn how to make estimates of their income and live under a budget.

Some Factors Involved in Textile Selection.

I. The business-like manner of conducting the purchase of the wardrobe.

II. Some knowledge of textile fibers, their properties, and their uses for different fabrics.

III. Sufficient knowledge of manufacturing processes to judge if a cloth is well made.

IV. The prices of fabrics in relation to probable reliability.

- V. Selection of material above the minimum standard at which it will be enduring.
- VI. The names and recognition of standard cloths in all four textiles.
- VII. The names of reliable textile mills.
- VIII. The names of reliable retail stores.
- IX. Tests of fabrics which may indicate their condition.
- X. Good purchasing habits.

Choosing a new gown.

- I. The purpose for which the gown is intended and the textile, color and style most likely to meet requirements.
- II. The possible repairs, laundry or cleaning costs of various kinds of gowns.
- III. Contrasting all of the advantages and disadvantages of the garments from which the selection is to be made, including the health of the wearer in relation to the garment.
- IV. Comparing the various expenses incident to the garments under consideration with the amount the budget allows to be spent.
- V. Deciding which gown best fulfils all of the needs.

Making a Clothing Budget.

- I. The high cost of living requires care in textile selection. The family buyer cannot afford to be careless. The cost of clothing in 1921 is gradually being reduced, but is still far above pre-war prices.
- II. What a clothing budget is, how to make one and the effect it is likely to have in increasing economy in those who use it.
- III. Estimating the yearly expenses for clothing on the basis of what has been spent in former years.
- IV. Deciding how many partly worn garments can be renovated or dyed and still serve. The cost of getting them in order.
- V. Listing the minimum of new clothing required for the year with the probable cost.
- VI. Comparing these estimates with the amount of money to spend.
- VII. Deciding on headings for the budget.
- VIII. Trying out the budget for a month to see if it is workable. Gradually correcting headings and estimates until a serviceable result has been attained.

A Practical Lesson on Selection.

A good sized collection of samples of all four textiles from which a group of students can select and list:

1. Distinguishing between the materials and placing them in groups.
2. Giving the name of the fiber or combination of fibers after some simple tests.
3. Giving approximate values to the fabrics within one group and price.
4. Choosing fabrics for garments for different purposes considering appearance, fastness to light, ability to launder well, firmness of weave and durability.

5. Choosing inexpensive yet enduring materials.

6. Selecting the staples.

Mounting samples and listing qualifications on a card catalogue.

Care and Reclamation.—A Demonstration.

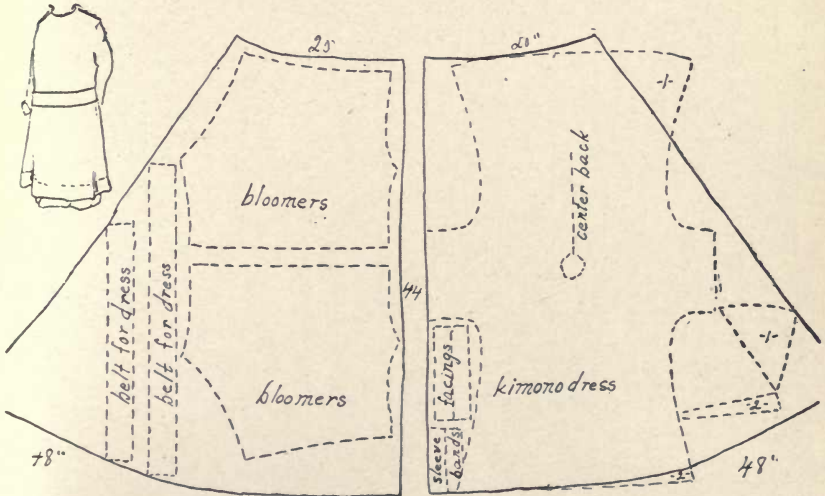
- I. Orderly household methods of keeping old clothing and odd pieces of cloth.
- II. The work of the "ragmen" and junkmen in this country and what becomes of the garments. Shoddy and Wastes and their uses.
- III. What to do with old pieces which we do not wish to sell to the ragman.
- IV. Demonstration of methods to use in many kinds of care, repairing, making-over, laundering, spot removal, steaming and pressing, folding garments away for the winter, the right and wrong way to put on stockings and gloves.
- V. The possible annual saving from such care.

APPENDIX

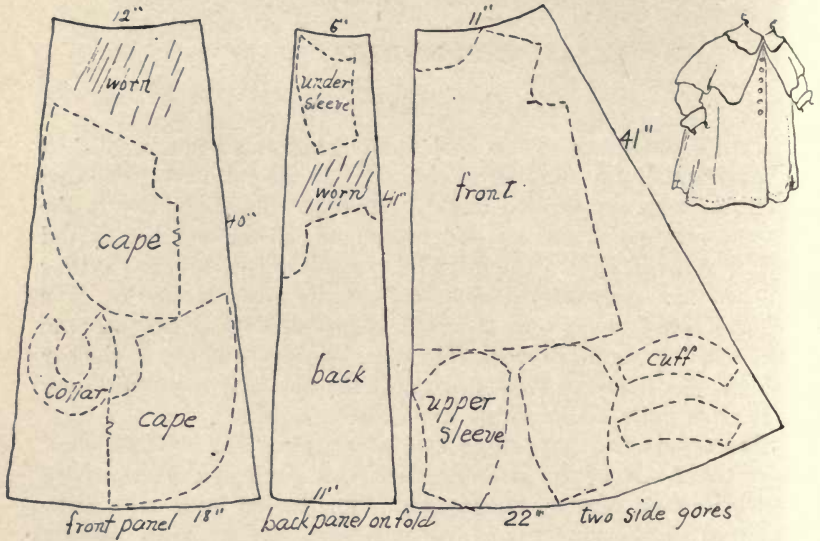
MADE-OVER GARMENTS

THE Frontispiece of this book shows what may be accomplished by making over the clothing of older people for children. The five children shown are dressed in such clothing. The little boy to the extreme left has a sweater, leggings, and cap made from an old sweater of his father's. The girl with the doll next to him has a dress made from a light-weight one-piece gown of her mother's. The corduroy coat and cap worn by the next girl with the skates has been made from her mother's coat. The coat, leggings, and cap of the boy with the sled and the Russian coat of the boy who is running are made from suits of the father and older brother.

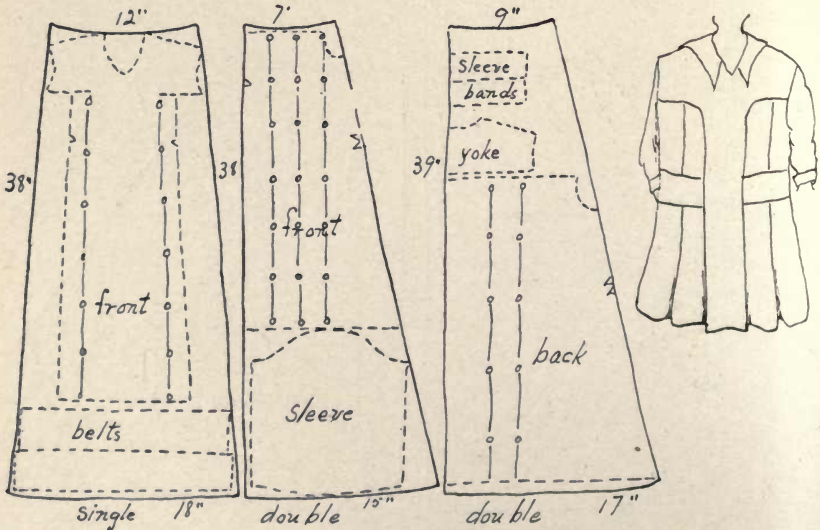
The charts for the making over of clothing which follow show the result of instruction given by Mrs. N. B. Judy at the University of Washington, Seattle, Washington. The record is of work actually done by the students of the university and by home makers of Seattle who came to Mrs. Judy to help them to the best conservation methods.



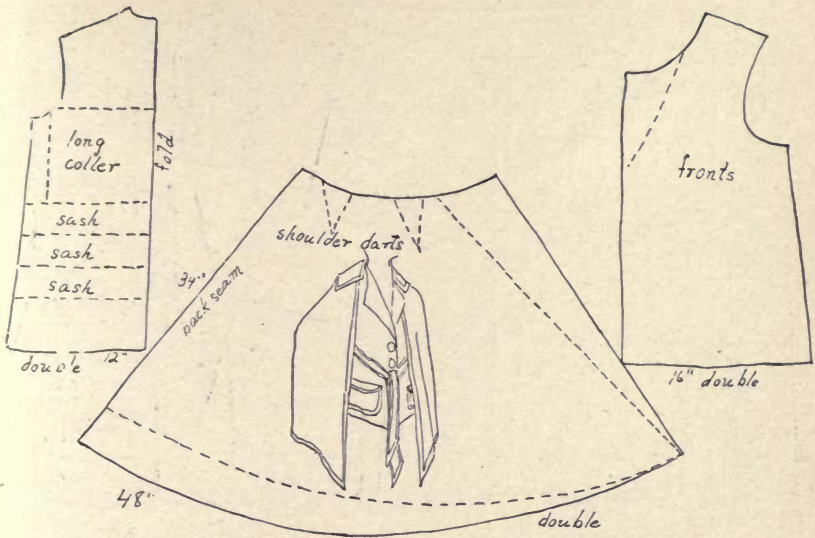
A good use for an old skirt is to make a kimono dress with bloomers for a little girl.



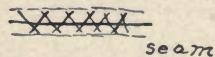
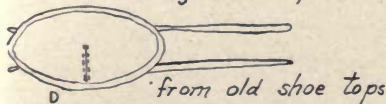
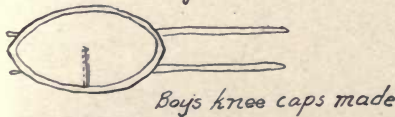
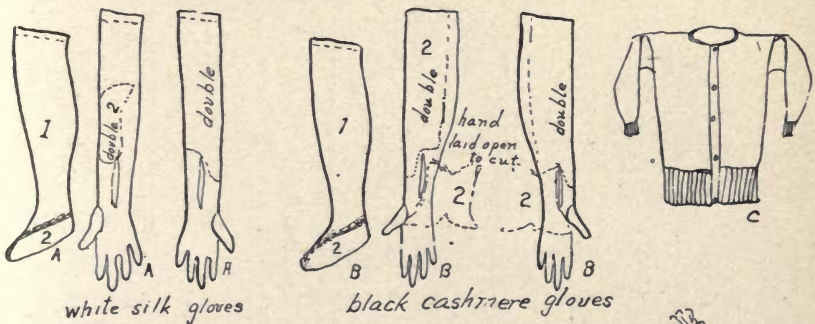
A young child's winter coat can be made from an old wool skirt.



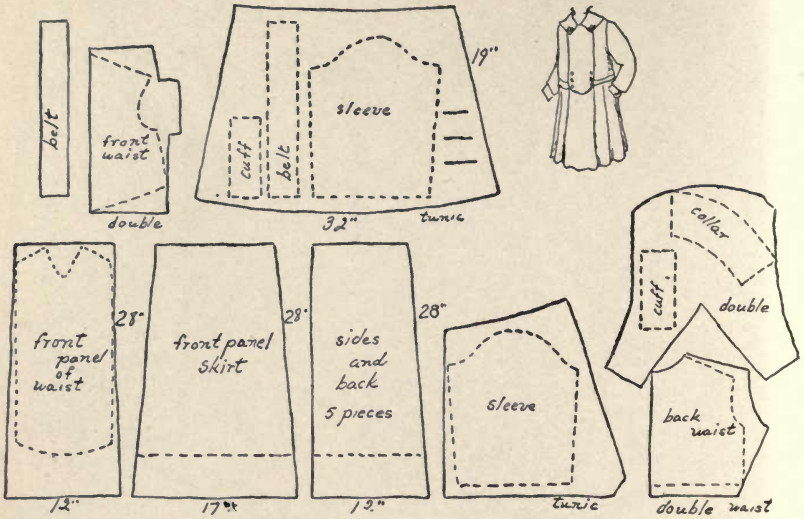
A little boy's dress was made successfully from his mother's old skirt.



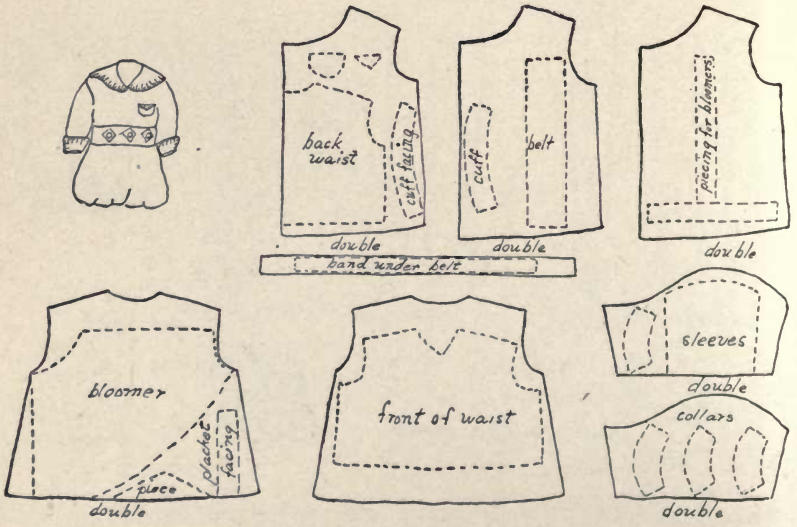
A circular skirt and a coat of blue serge were turned and cleaned with ammonia and made into an attractive cape-coat. It was finished with military braid.



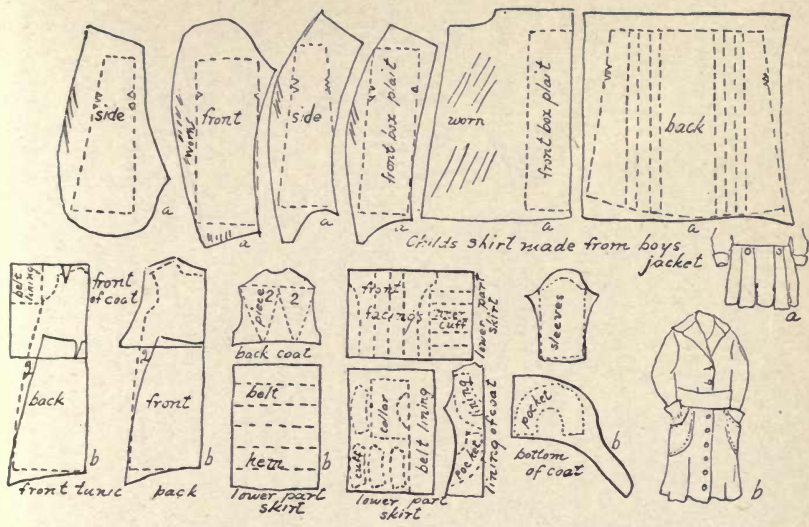
Old knitted fabrics can be used in many ways such as: A. A pair of child's stockings can be made from two pairs of long white silk gloves. B. One pair of black cashmere stockings will make a pair of stockings for a child. C. The sleeves taken from two large shirts made a baby's shirt. D. Children's stockings quickly wear out at the knee. It is an economy to make leather caps from old shoe tops to cover the knee. E. Good caps can be made from old football stockings.



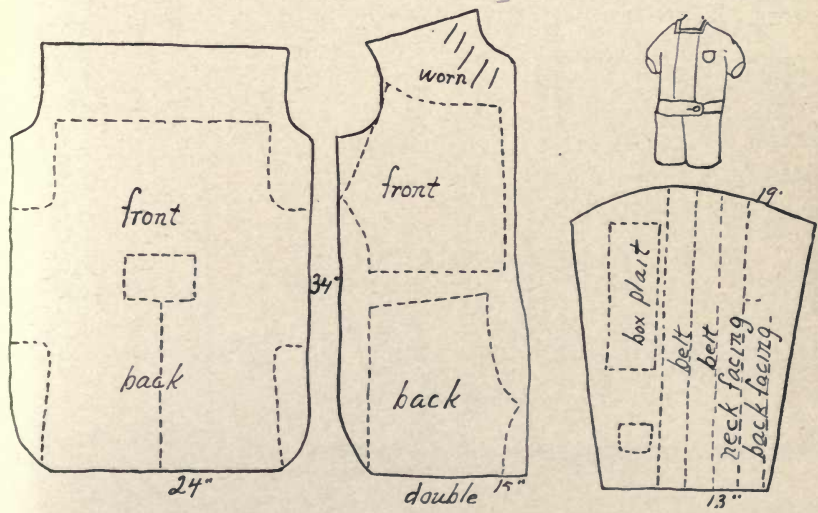
A serge gown in many pieces made a charming dress for a little girl. Hand embroidery was placed on the collar and cuffs.



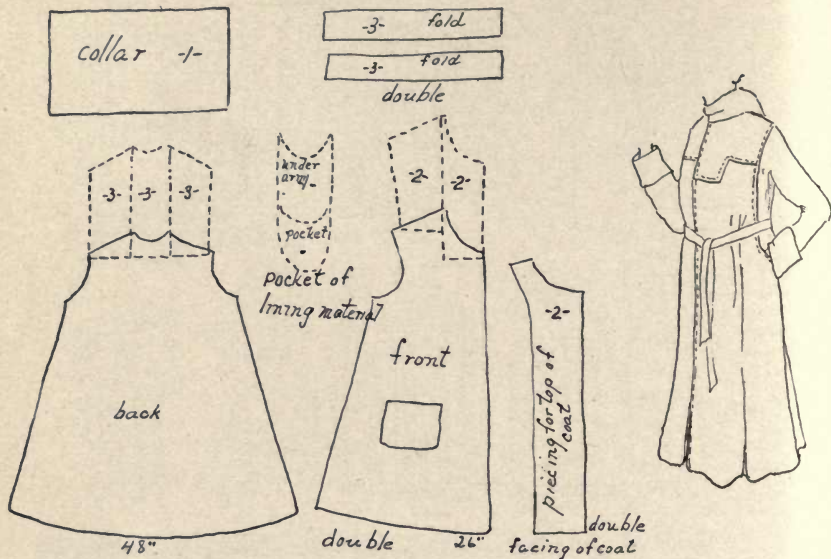
A pair of rompers were made from three short sleeved gingham waists belonging to a ten year old boy. The collar, cuffs and pocket were decorated with the flat buttonhole stitch in white cotton and the belt had a little embroidery on the buttonholes.



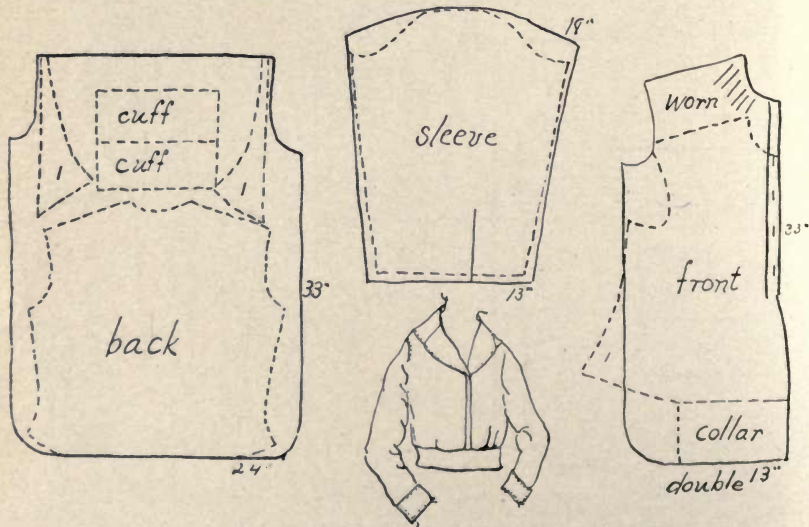
A. A badly worn boy's jacket made a box pleated skirt. Much of the cloth was too damaged to use and piecings were covered by the belt. B. An attractive dress for a twelve year old girl was made from an all-wool gown bought at a sale for \$3.98. It had been worn three years yet was worth making over.



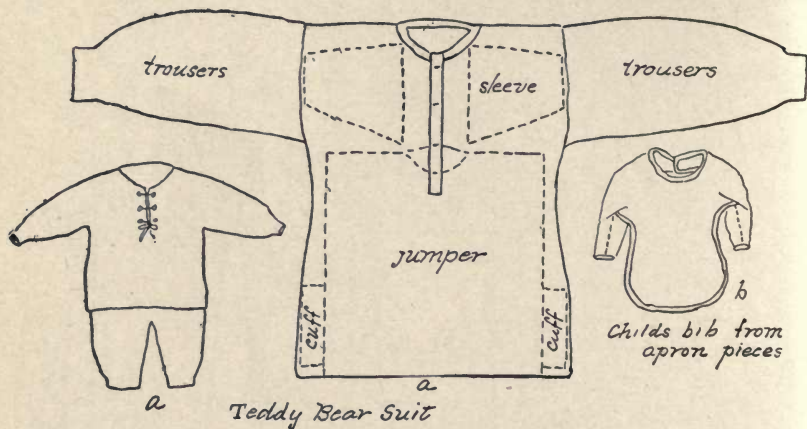
A flannel suit for a little boy was made from two of his father's shirts.



A three-quarter coat of rough finished cloth which did not show piecing was made into a long coat. The large double collar, the broad belt and the deep facings made this possible. The coat was dropped from the shoulder and a deep yoke was put on. A new lining was needed and came to the edge of the coat as the facing had been used.

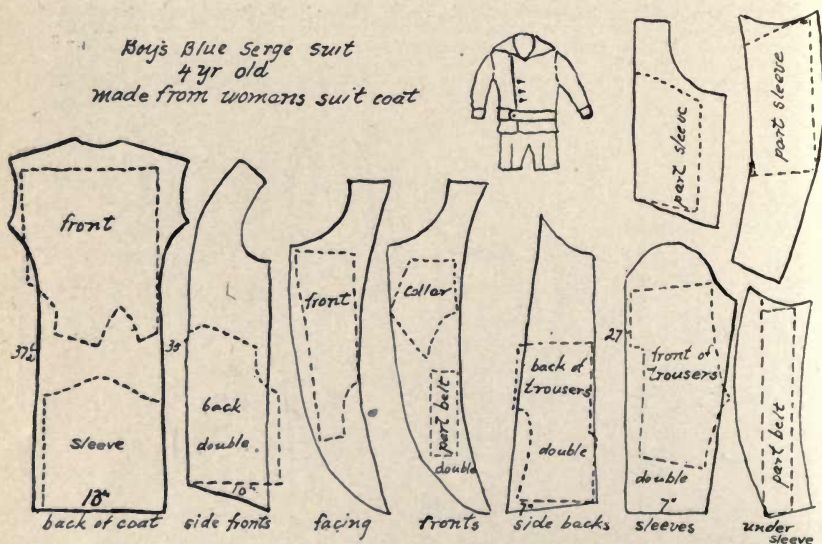


A shirt waist for a girl can be made from a man's negligee shirt.

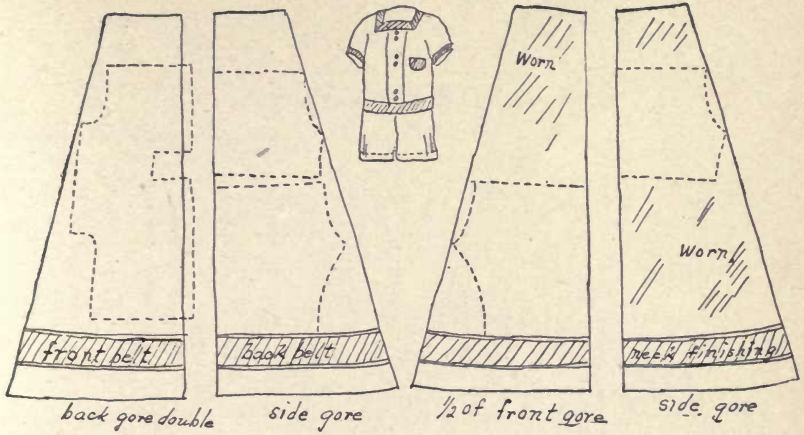


A. A man's faded fleece-lined shirt was dyed blue and made into a Teddy Bear suit for a child. It was finished around the neck and sleeves by crocheted beading and edge of heavy white crochet cotton. b. A child's bib was made from pieces left after cutting out an apron.

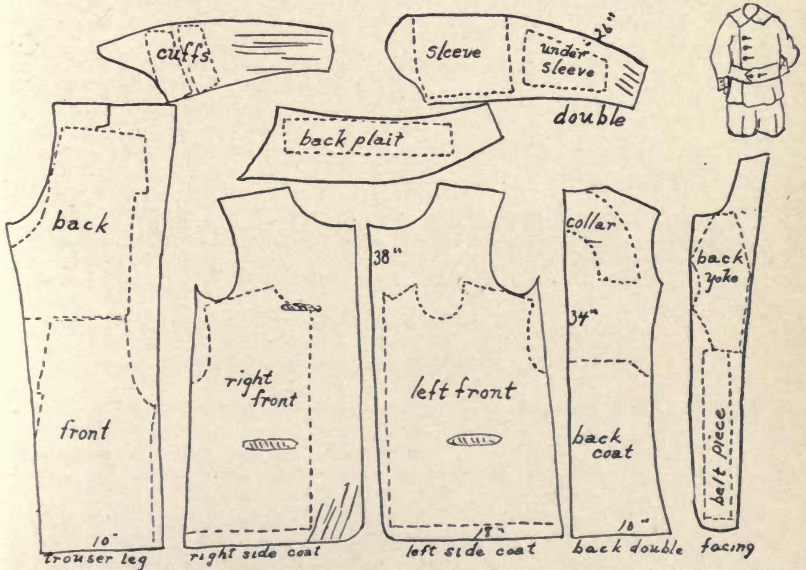
Boys Blue Serge suit
4 yr old
made from woman's suit coat



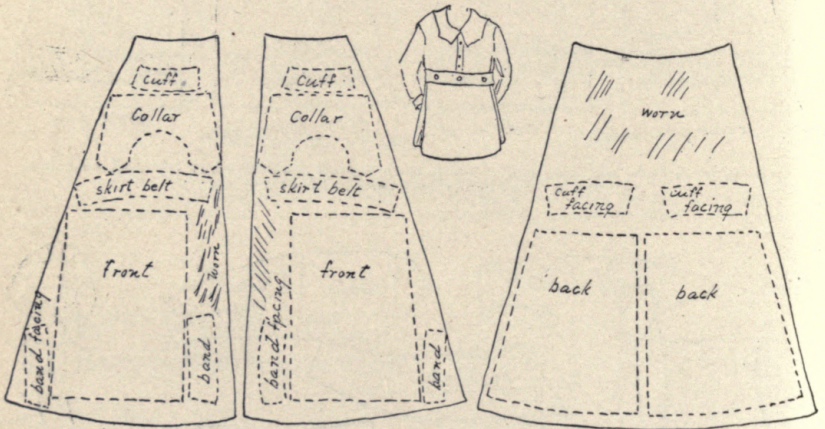
A woman's suit coat was carefully ripped and darned with ravelings of the material and made a good serge suit for a little boy.



A dress for a little boy was made from a worn striped gingham skirt trimmed with bias bands. The bands were used to trim the dress.



An excellent suit for a seven year old boy was made from a man's suit. Patches, carefully darned down were inserted where the pockets had been and a belt covered them.



A spotted, faded blue gingham dress was washed and rinsed in strong bluing water, turned on wrong side and made into a child's skirt, with collars, cuffs and belt to go with a waist of white muslin.

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GLOSSARY

See index for further information on terms. Names of fabrics are explained in the chapters on the different fibers.

Aniline. The base of many of the coal tar dyes.

Batik. A primitive method of resist dyeing by which the design is first put on the cloth with wax and when the fabric is dyed the design is not colored. It was practiced largely in Java and is being revived at the present day for decorative effects.

Battening. To drive up the filling threads in weaving.

Beetling. A finish on linen or cotton cloths given by beating down the woven fabric with small hammers on a cylinder.

Boiling-off. Removing of the gum from reeled silk by boiling.

Boll. The pod of the cotton plant which contains the cotton fibers.

Breaking. Crushing the woody portion of the flax stalk after it has been retted.

Budget. A financial estimate.

By-product. An accessory product resulting from some specific process.

Calendering. A final finish by which cloth is pressed with rollers.

Carbonizing. Removing vegetable matter from wool by acids.

Card Clothing. The fine teeth or wires which are on the carding cylinders.

Carding. A cleaning and combing of wool or cotton fiber preparatory to spinning.

Clips. The cuttings from the manufacture of new garments.

Combing. A process for laying fibers in perfect order which sometimes follows carding.

Conditioning. A process by which the normal amount of moisture is restored to textile fibers.

C. O. D. Collect on delivery of goods.

Count. The number given to yarn to indicate its fineness.

Cutters-up. Makers of ready-to-wear clothing.

Decorticating. Stripping off the bark or outer coat.

Discharge printing. A process which takes the color out of a dyed fabric, leaving a design where the chemical acted.

Distillates. The product separated by vaporization or distillation and then condensed.

Domestic System. A term used to express the handwork in households and small workrooms, which method of production preceded the factory system.

Ends. The warp threads: See Warp.

Extract wool. See Remanufactured Wool.

Felting. The thickening of wool from shrinkage. The term milling and fulling are also used for this process.

Fibroin. The fiber of silk after the gum is removed.

Filatures. Machines for silk reeling which are used in place of hand reels.

Filling threads. The cross threads in weaving. See weft.

Fleece. The wool shorn from the sheep.

Flocks. Soft, short fibers which have been shorn from the surface of cloth.

Floss silk. A name used for spun silk.

Fulling. See Felting.

Garnetting. Reducing thread waste to fiber again.

Gassing. Singeing off protruding ends of fiber by gas flames. The same result is obtained by red hot copper rollers over which the cloth is passed.

Gauze. A light fabric made by crossing the woven threads as the weaving proceeds.

Gigging. A machine for roughing up the surface of cloth preparatory to shearing it. The terms raising and napping are also used for the process.

Ginning. Separating the seeds from the cotton lint after the cotton is gathered from the field.

Gore. A slanting cut in cloth which aids in fitting garments.

Gun cotton. An explosive made of cotton linters mixed with chemicals.

Hackling. The method by which flax fiber is combed.

Hard wastes. See Wastes.

Harness. The collection of healds or heddles for the control of the loom.

Healds or heddles. Cords or wires having loops or eyes through which the warp threads pass in the loom.

Junkmen. Men who trade in waste materials.

Larva. The first stage of an insect after leaving the egg. Plural, larvæ.

Lathe. The battening attachment of the loom.

Leno weave. Plain and gauze weaving combined.

Line. The long flax fibers.

Lint. The cotton fibers as they are removed from the seeds.

Linters. The down which covers the cotton seeds and which is removed and used for low grade cloth and other purposes.

Mangling. Pressing and smoothing a fabric under rollers which may or may not be heated.

Mercerizing. Treating cotton with caustic alkali. The fiber will contract in the bath, but if kept from so doing becomes lustrous.

Middleman. One who buys in bulk from the producer. A consignor.

Milling. See Felting.

Napping. See gigging.

Noils. Short fibers remaining in the comb after the combing process.

Organzine. Strong twisted silk yarn used for warp.

Pelt. The skin of the sheep with the wool on it.

Picker. A machine which opens up and cleans cotton lint. See Shoddy Picker.

Picking. The process of putting in the filling threads.

Picks. The woof threads. See Weft.

Properties. Special qualities.

- Pulled wool.** The wool removed from the pelts of dead sheep. The skin is treated with chemicals or the wool is sweated off. Also called skin or dead wood.
- Re-agent.** Any chemical agent.
- Reclamation.** The saving or salvage of material which would otherwise go to waste.
- Reed.** The cords or wires through which the warp threads pass on the lathe.
- Reeled silk.** Silk filaments removed from the cocoons but not yet twisted.
- Remanufactured wool.** Fiber obtained by reducing cloth or waste again to a fibrous condition. The term shoddy has been used for this wool, but this term is being replaced by others such as reclaimed wool, re-generated wool and reworked wool. The wastes in the processes of manufacture previous to spinning are called "soft wastes," and the wool from yarn, cloth and rags is termed "hard waste." Extract wool is taken from union materials. The vegetable matter is removed by carbonizing it out, leaving only the pure wool.
- Resist printing.** Printing a design on cloth with chemicals which will therefore be unaffected by later dyeing of the cloth. (See Batik.)
- Retting.** Rotting the flax stalks in order to remove the flax fibers from the woody portion.
- Rippling.** Removing the seeds and leaves from the stems of the flax plant.
- Roughing.** A coarse combing of the flax fiber.
- Roving.** The last process before spinning.
- Salvage.** See Reclamation.
- Schreinerized cotton.** Cotton which has a special treatment to give it the effect of mercerization or of silk.
- Scroop.** The slight rustle of silk.
- Scutching.** Beating. Knocking off woody particles adhering to flax fibers after the breaking process. Cleaning out the dirt in cotton lint by beating and shaking.
- Seconds.** Manufactured articles or fabrics which have some defect and are sold at a reduced price.
- Seed cotton.** Cotton seed with the fiber still attached to it.
- Selvedge or selvage.** The sides of cloth (as it comes from the loom) where the filling or woof threads turn back over the warp or ends, making a firm edge.
- Sericin.** Silk gum, a waxy substance holding the filaments of silk together.
- Serrations.** The scales on the surface of wool.
- Shed.** The opening in the warp through which the filling passes in weaving.
- Shives.** The woody fragments separated from flax by breaking.
- Shoddy.** See Remanufactured Wool.
- Shoddy Picker.** The machine used to reduce cloth to fiber again.
- Singles.** Silk yarn which has no twist.
- Slashing.** A term used for the dressing of cotton and other yarns to keep them from rubbing rough in weaving. Sizing.
- Sliver.** A slender untwisted rope of cotton or wool prepared for drawing out and twisting. The primitive term in Colonial days was the "roll."
- Slub.** A process in preparation for spinning in which a slight twist is given. It follows the drawing process.
- Soft waste.** See Waste.

- Solvent. A fluid which will dissolve substances.
- Souple silk. Silk from which one-sixth of the gum has been removed.
- Spindle. The stick on which the spinning is done.
- Spun silk. Silk yarn which has not been reeled. It is made from varieties of waste silk.
- Staple. The length of a fiber. Goods which are commercially established. The principal production of a country.
- Substitutes. A term used to express the use of one fiber for another.
- Synthetic. A combination of several elements into a new form.
- Teazel. A vegetable growth which has a flower head covered with hooked bracts. It is used to rub up the surface of wool cloth preparatory to shearing the surface. Mechanical substitutes for the teazel are used in some grades of fabrics, but the vegetable growth is preferred, as it is less apt to injure the cloth.
- Thrown silk. The processes for making silk yarn and which follow the reeling. It is a method of spinning.
- Tops. The long wool fibres prepared for worsted yarn by the combing process.
- Tow. The short flax fibers separated from the line in the hackling process.
- Tenter. The drying of cloth after washing or finishing is done on a long rack or table called a tenter.
- Tram. Silk yarn used for woof or filling. It is not as closely twisted as the organzine or warp yarn.
- Vigoureux printing. A method of printing the slub before spinning.
- Virgin wool. Wool shorn from the sheep, before being manufactured.
- Warp or ends. The yarn running lengthways of the cloth.
- Waste. Ends broken off in the process of spinning yarn, of making cloth, or from cloth in the process of garment making or from old clothing and rags. The term is used in silk manufacture to designate silk from many sources other than the reeled silk. In wool manufacture soft wastes are obtained from the preparatory spinning process and hard wastes from spun yarn and woven cloth.
- Weaver's glass. A small magnifying glass used to determine the weave of a fabric.
- Weft, woof, picks or filling. See picking. The cross threads in weaving.
- Weighting. Adulteration or loading placed in silk before dyeing.
- Wool in grease. Unwashed wool as it comes from the sheep's back.
- Woolens. Materials made from wool fibers which have been carded.
- Worsted. Materials made from wool fibers which have been combed.

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