CHAPTER X

CLOTHING FOR HEALTH

Importance. One of the most serious problems that confronts every one is that of maintaining good physical and good mental condition, free from pain and disease — that is, enjoying good health.

We saw in the previous chapter that clothing covers the body to (a) prevent injury, and to (b) keep the body warm, as well as for modesty and artistic purposes. There is a direct connection between health and clothing, and proper clothing contributes in a marked degree to good health.

Source of Bodily Heat. The foods that enter the mouth are digested, partly assimilated, and the rest discharged from the body. The portion that is assimilated is changed by chemical processes which give off heat. The chemical processes take place through the union of the oxygen of the air taken into the lungs and the assimilated food in the blood. It has been estimated that the amount of oxygen, by weight, taken in daily is equal to the sum of all other food elements.

The heat of the human body must be maintained at 98° F., the temperature necessary for the best performance of the normal functions. Any continued variation from this degree of heat indicates disease. It is important that there should be no considerable lowering of this temperature, for a fall of one degree is dangerous. Hence, the importance of the study of clothing to aid in maintaining a constant temperature of 98° F.

The generation of heat depends upon the proper circulation of the blood, which in turn depends upon the action of the heart. If one has a slow circulating system, this fact must be considered in providing warm clothing.
Knowing the changes that take place in the body, it follows that the first purpose of clothing from the point of view of health is warmth; that is, the maintaining of a uniform temperature. Heat passes from the body (1) by the evaporation of perspiration, which produces coolness; (2) by conduction, that is, passing from the body to the clothing, etc.; (3) by radiation, the passing of the heat directly from the body to the air.

Ideal Clothing. The human body in its ideal condition should have a constant temperature of $98\frac{3}{4}$° F., the clothing should be (a) dry and free from moisture and perspiration, (b) well ventilated so that the body odors may escape, (c) so fitted as not to interfere with activity of any kind.

Clothing made of wool and silk feels warmer than that made of cotton and linen. The reason wool feels warmer than cotton is because wool is a poor conductor of heat, while cotton is a good conductor. Because wool holds the heat is the reason it gives us the sensation of warmth.

Air, particularly still air, that is, air not in motion, is a poor conductor of heat. Hence, loosely woven fabrics or napped fabrics with air spaces in them are warmer than closely woven or felted, board-like garments.

Two light-weight garments are warmer than one heavy-weight, due to the layer of air, which is non-conductor.

For outer garments a close weave is better than an open weave, because it prevents a too free passage of air.

Garments worn next to the body should be open in weave, light in weight, and provide ventilation.

The amount of heat conducted by a garment depends not so much upon the combination of fibers as upon the amount of air held in its meshes. Furs are warm owing to the air imprisoned among the hairs.

Absorbing Power of Fabrics. We saw in Chapter VII that the characteristics of fabrics were the characteristics of the fibers. A study of the fibers will show that they differ in power of absorbing moisture and giving it off gradually.
Perspiration. The human body is covered with openings called pores through which perspiration is given off from the glands. The amount and strength of perspiration varies with different people. On the average, over three pounds of matter in the form of perspiration — solution of salts, acids, etc. — are given off in twenty-four hours. Most of the perspiration comes in contact with the clothing and is absorbed. If it is not absorbed by the clothing, the pores or glands become clogged; hence, the need of proper clothing to absorb the perspiration as soon as it is given off and to allow its evaporation. If it remains too long on the garment, a feeling of dampness is experienced and the body is chilled.

The absorbing power of a fabric depends upon the condition of the fiber. Linen, due to its smooth surface and lack of oil, has more absorbing power than cotton with its porous, waxy surface. Since cotton takes dirt between two and three times as fast as linen, cotton should be laundered oftener than linen.

Wool and silk absorb moisture in the same amount, although wool with age decreases in its absorbing power due to the felting in laundry. Silk is better, but rather expensive. Cotton and linen have less absorbing power than wool or silk, although linen evaporates moisture quicker and therefore feels cooler. This may be counteracted by an open weave.

Wool, from its very nature, holds grease and dirt more than cotton and linen, hence should be brushed or cleaned often. Washing has a bad effect on wool and silk clothing, therefore dry cleaning is more effective. Wool is warm, absorbing, but felts in washing, and loses its warmth. A mixture of one-fourth to one-half cotton will prevent this felting and make it admirable for underwear.

Silk is warm, absorbent, elastic, but rather expensive for underwear. If carefully handled in washing, it is a question whether it is really expensive. Silk alone for underwear is uncomfortable at times, due to its smooth feeling. Cotton or linen-silk mixture is better, or wearing pure silk underwear over thin cotton.
Cotton and linen, if properly woven, will suit the normal person. They make excellent underwear, since it is easy to wash and absorbs moisture and has proper ventilation. Too open a weave will allow too great a movement of air and makes it unsuitable. Linen allows rapid evaporation, hence has an added advantage of coolness.

Experiments show that cotton is about 25 per cent warmer than linen with the same weave and thickness. This difference should prevent any one who is not strong from wearing linen underwear.

**Freedom.** In order to do our work effectively it is necessary to have free movement of the body. This means that the clothing should not be tight or its weight excessive, and it should hang as easily as possible from the strongest part of the body. This applies particularly to corsets, garters, shoes, or tight clothing.

Great care should be exercised in exposing any part of the body to extreme cold. If one is extremely strong physically and has a strong heart with proper circulation, he may be able to withstand such exposure. But care should always be taken not to overwork the physical powers.

**Types of Clothing.** We can divide clothing according to health standards into the following groups: (a) protective clothing, (b) outer clothing, (c) underclothing. Protective clothing includes overcoats, raincoats, rubbers, etc., that we wear to protect us from cold and rain or snow. Outer clothing is the clothing we wear in the office or house under formal or informal conditions. Underclothing is the clothing we wear under the outer clothing and next to our body.

Each division of clothing should vary in weight and composition for the different seasons, as lightweight underwear and outer clothing for summer, while heavy underwear and outer clothing are used for winter. Thus, clothing should be adapted to the temperature in order to give uniform warmth to the body.

**Characteristics of Underwear.** Clothing worn next to the
body and underneath the dresses is called underwear. Since underwear that is used for everyday wear must be laundered frequently, it should be of a structure and materials that will withstand frequent laundering. Underwear may be either woven or knitted. Woven underwear includes muslin, cambric, crepes, sateens, etc. The new translucent materials which are adapted to frequent washings are durable, while batiste and nainsook, much thinner and cooler than the other fabrics, are not so durable. While woven underwear is daintier and more attractive, due to thinness and softness, it does not launder as well as the knitted fabrics.

Knitted fabrics are more elastic and softer (due to loosely spun yarn) than the woven fabrics. They wear better than woven fabrics if they are well cared for. Knitted fabrics should not be pinned, as pin holes will destroy the structure of the fabric. Lisle is better than plain cotton.

Summary. Underwear is made of many sorts of material, as silk, cotton, wool, linen, stockinette, spun silk, lace, cambric, merino, flannel, nainsook, elastic, jean, muslin, etc. There has been much dispute among the advocates of the various fibers as to which is the most suitable for underwear. Wool has been recommended by eminent medical authorities for both hot and cold countries on account of its property of promoting insensible perspiration, which, being absorbed by the spongy material, is immediately distributed equally throughout the whole thickness of the fabric, and thus, being exposed over a large surface, is carried off by the atmosphere and keeps the body at the same time at an equal temperature. Wool is a non-conductor of heat and electricity, and therefore tends to preserve to the body its normal measure of these vital energies. All kinds of animal wool and hair readily absorb the excretions of the skin, do not retain them, but transmit and disperse them at their outer surfaces by a repulsive energy to which the self-cleansing properties of hair and wool are properly due. The value of this feature of woolens is very apparent.

Silk is also recommended for underwear, and possesses several advantages over other fibers. The fiber of silk is perfectly smooth,
symmetrical, and solid, not hollow like cotton and linen fibers, and without the minute scales peculiar to wool. Silk is a great absorbent because its fibers are so glassy fine—a sort of spidery catgut—and fluids, water, or perspiration creep between the fibers and are held, yet will pass out quickly, evaporating and drying, or will wash out readily. It is like glass, in that nothing clings to it. In its natural color silk accumulates no germs of disease and moths and bugs find no home in it. For these reasons, when made up into underwear it is hygienic and sanitary.

Linen is advocated as a superior material for underwear on account of its absorbent qualities. The majority of the peasants of Russia wear linen next to the skin and claim that it is as warm as wool, and in addition that it wears longer, is more easily washed, does not shrink, and sheds dust and dirt readily.

**Furs.** Protective clothing should be warm. It may be a coat, cape, overcoat, etc.

Coats may be composed of cloth or fur or both (cloth coat, trimmed with fur). A cloth coat can be worn by any type of woman. Fur used as a decoration has the softening effect so essential to the skin of the woman of today and the decorative element so necessary to the cloth coat.

The short, fine, downy coat of certain animals, distinguished from the hair, which is longer and coarser, but more or less of which is generally present with it, is known as *fur*. Fur is one of the most perfect non-conductors of heat, thus a warm covering for animals in cold climates, and admirably adapted for human clothing, either attached to the animal skin or separated from it. The finest kinds, as those of the sable, ermine, seal, beaver, otter, marten, etc., are among the costliest of clothing materials, both on account of their rarity and the amount of labor involved in their preparation. Primitive man knew the value of furs both as a protection against the cold and for purposes of adornment. This appreciation of their worth has come down to us through ages.

Furs are of two classes: (1) long-haired, such as lynx and
fox in natural and dyed colors, and (2) short-haired furs. You have your choice between the long-haired, flattering, fluffy furs, if you are slim and not too short, and the sleek short-haired pelts that can be just as flattering when they are used in the right way.

While the long-haired pelts are stylish, designers recognize that the larger woman cannot wear them well, and they have trimmed many of their smartest coats with short-haired pelts.

Lynx, lynx cat, badger, fox, king fox, kit fox, wolf, wolverine, and skunk are the most important of the long-haired furs used on winter coats. Nutria, beaver, unplucked beaver, otter, unplucked otter, kolinsky, mink, shaded rabbit, ermine, caracul, pony, krimmer, astrakhan, and mole are the names of most of the short-haired furs that are seen.

Different Kinds of Furs. Fashions in furs have called into use many new pelts in widely diversified forms. The number of these is amazing, and shows the extent to which the vogue for fur has increased. Where once a fur coat was a prized possession, or two a luxury, now many women of fashion own fur coats of each of several types. Such are the opportunities for wearing them that the pelts of the familiar kinds of animals and many never before considered are now used for the different wraps, coats, trimmings, and accessories. Some of these have names that conceal their real identity, but even the lowly ones came into fashion several seasons ago and are still considered chic.

Fox skins come in very large sizes and in many varieties. The novelty in the new scarfs consists more in the design or manner in which they are adjusted than in the treatment of the skin itself. It is still usual to see a handsome, bushy-tailed fox scarf draped about the neck or shoulders in some picturesque manner.

The rarest and costliest furs are made into small scarfs to be worn close about the throat, with such variation in treatment as is possible. Sable and ermine are among them and are offered as a youthful touch for daytime frocks. A scarf of caracul, broadtail, or any of the short furs is made in a straight piece six to ten inches wide, long or short, to be worn in any one of several new styles.

When matching skins in a piece, the best appearance is produced
by arranging them so that the fur of no two adjacent skins runs in the same direction. This produces a checkerboard effect that is pleasing.

In furs, attention is paid to the perfect matching of minute skins. Ermine, for example, in its snowy softness, depends on a perfect matching of the skins of hundreds of small animals.

Mink has its own particular grandeur, and will do equally well for evening wrap or afternoon coat. Its warm color blends into the tawny brunette shades, and contrasts becomingly with the extreme brown.

Sable has always been associated with splendor. It is used in making straight-line coats, with surprising neck-pieces of self-skins, and small, exquisite animals wound about the sleeves.

A fur that is rarely seen, but should have a large following among brunettes, is chinchilla. Its grey, tipped with black, brings out the gleaming onyx of dark hair, and contrasts its tenuous grayness with the warm ivory of the skin.

Grey, silky broadtail lends itself to soft feminine flares and folds, bordered lavishly in blue fox, or in tailored applications of self-fur. Black broadtail, manipulated into soft and flowing lines, depends on deep wide sable for its borders and softly rolling collar.

**Imitation Furs.** No other class of merchandise admits of so much deception as furs, and many are sold by names unknown to natural history. In the fur business, as in many other departments of commerce, the unscrupulous are ever endeavoring to produce imitations, and in few lines has this been carried to such a successful degree. Rabbit and "coney" skins are not the only pelts which are transformed into furs which bear the names of animals living in ice and snow. Monkey skins from Africa and South America are sent to the furrier to be made into fine raiment. Large numbers of ordinary Chinese cat skins are utilized to supply the demand for seal and beaver. The shaggy curls of our native fox-tailed squirrels are sold as imitations of rare furs. Muskrat is often blended to imitate mink, and marten to look like Russian sable. The United States buys more imitation furs than any other country, but millions of
them are sent to China each year to line the robes of the mandarins. Large numbers of rabbit and cat skins are dressed and dyed in this country, but the French have the credit of producing the best imitations.

To meet the demand, the fur dyeing industry almost revolutionized itself. Skilled dyers perfected methods of turning rabbit skins into leopard, ocelot, antelope, giraffe, twin beaver, ermine—almost anything, in fact, you might call for.

The fur industry makes no secret of its imitations. "Hudson seal," which has been marketed for years, is confessedly American muskrat dyed black. "Crown sable" is frequently the white and grey bellies of rabbits, dyed, or the pelts of other small animals. "Chinchilla" is usually squirrel and rabbit. "Blue fox" is often Italian lamb. "Silver fox" is made by "pointing" red, gray, and cross foxes, that is, by inserting long, gray hairs into the leather.

**Beaver.** Beavers are compact, heavy-bodied, strongly-framed animals, with dense coats of fine, soft, waterproof under-fur, hidden by coarse outer or guard hairs, generally of some shade of dull or rusty brown. The longest, heaviest fur is produced in cold climates, and the best beaver country is found in the Canadian and Hudsonian zones, regions usually of relatively little agricultural value. Beaver skins should be taken only in midwinter, when the fur is prime, unless there should be a special demand for unplucked beaver fur, which is at its best before the outer guard hairs are full grown.

**Hygiene.** Perhaps there is no subject on which people differ more than on the nature of the dress that should be worn at various times of the year. A generation or two ago there was a theory that the body should be protected with considerable clothing. But today, experience of medical men shows that on general principles the more one's body is exposed to light and air, the better for one's health, since the skin derives all the advantages which the rays of the sun afford and the ventilation which the free access of air supplies. Many consider that the same clothing should be worn at all times of the year, and that overcoats and cloaks are sufficient to meet the lower temperature of the weather when out of doors. In proportion as it is
cold, a thicker covering can be worn, even to using a leather coat in an open car.

In this way, the air has free access to the skin while in the house, and so helps to eliminate such moisture and effete products as are discharged from it. Again, the lighter clothing of today enables and tempts one to get about and to lead a more active life than did the thick garments that used to be worn even indoors.

The women of the present day are much wiser than the men since they wear a minimum amount of clothing. A certain amount of covering is necessary for the body, not only for purposes of modesty, but also to render its form more graceful and attractive.

Dressing must be controlled by these considerations and conventions. It is well to remember that the extent of the body which it is customary to expose to the sun and air is ruled largely by custom and the rules of the society of the period.

Much clothing both in weight and quantity was once the style. While heavy clothing, with long skirts and much under-clothing, is desirable from certain manufacturers' points of view because they increase the consumption of textiles, from a hygienic point of view it is not always desirable.

The long skirt is heavy, especially when made of winter fabrics, and tends to put an additional burden upon whatever part of the anatomy may be utilized to suspend it. This is liable to be the hips and waist. When this occurs, there will be a demand for the return of the old vicious and constricting corset.

It may be laid down as a rule that during the greater portion of the year in northern climates undergarments of heavy material should be worn by persons exposed to the weather. However, it is unnecessary and unwise for individuals following indoor occupations to wear the heavier varieties of underwear. The person who changes his gauze for the heaviest flannel on September 15, and continues these heavy garments until May 15, regardless of the various changes in the weather, may be as much in error as he who wears only gauze the year round. A clerk who is in a warm room the
greater part of the day is not expected to wear the same weight of underwear as a teamster or a truck driver, who is out of doors and much exposed. In short, one's underwear should depend upon the degree of his exposure, and should be of a weight that will insure the greatest comfort during that part of the day when he is at his particular occupation; and if more warmth is required when not at work, it should come from additional outer clothing.

**Effect of New Fabrics.** Since the last generation modern costumes have been made better for the following reasons: invention of worsteds which give a straight line — tailored effect — to the clothing of both men and women (machinery for making worsteds was invented about the middle of the nineteenth century; prior to this only light and heavy woolens were used); the tendency on part of women to wear more comfortable clothing; the invention of highly twisted yarn-forms such as crepes and voiles. There has been made available a greater wealth of color than ever before, due to the invention of new dyestuffs. There are now a greater number of weaves of fabrics from which to select hygienic clothing.

**Children's Clothing.** As a rule, a child needs less clothing for comfort than an adult. Whether child or adult should wear socks at any time is a question of individual preference and has nothing to do with health. Children in tuberculosis sanitariums where the sun-bath treatment is used often play in the snow with no clothing on except breechcloth and shoes. Fabrics that can be easily washed or cleaned, and at the same time are soft and thin, are adapted to small children.

**Shoes.** Shoes originated as a protection. Primitive man in his struggle for existence had to invent crudely, as he learned the process of living, articles which aided him in his contest with nature.

The first stone bruise, as a result of a contact with a sharp pebble, probably resulted in the first pair of shoes — fashioned rudely from the pelt of an animal and held together securely by a tough vine or thongs or uneven strands of skin.
Soon this protection seemed insufficient. Sandals fashioned of wood proved a greater protection, but were ugly and unwieldy and made locomotion difficult.

Whereupon man, returning to leather, fashioned a more perfect article, conforming more closely to the lines of the foot and held together by a pliable leather sole of several thicknesses.

The foot covering of the early tribes and nations was associated more or less with a certain mysterious power for good and evil. With this idea in mind, it is only natural for us to find all kinds of foot coverings in the history of the human race. The sandal was developed artistically by the Greeks. The Romans devised a covering for the entire foot with the exception of the toes. Later, this type was developed into a form of a boot which not only covered the foot but the lower leg as well.

Not until long after the fourteenth century did the shoe begin to lose its crude form and design and develop styles. The first style was the gradual lengthening of the toes. Then the style went to the other extreme until Queen Elizabeth’s time, when shoes were as broad as six inches. The shoes were made of velvet and were slashed to show the satin lining.

With styles of shoes came discomfort. Physicians state that Indians, who walk toes in and go for the most part bare-footed,
never suffer from fallen arches. Man, as he sought to confine and improve Nature, paid the penalty. A slight lift under the heel became necessary for comfort, and thus evolved, through centuries, the modern, sometimes cruelly towering, high heel.

With artificialities being added to what had been originally designed as a thin protective layer for the sole of the foot, more attention was paid to the appeal to the eye. The needs of woman’s vanity had to be reckoned with and met. Shoes became pointed and more beautiful. No matter how cramped the position of the foot, as long as the shoe gave a dainty, trim appearance. Better by far to hurt the foot than one’s vanity! The Chinese used to bind his girl-baby’s feet in childhood so they would not grow to normal proportions.

But now science has entered into the evolution of footwear and is providing as much of a return to Nature as is possible with a product so artificially beautified. More and more, shoe firms are realizing the importance of proper moulding of shoes. Many fitters now take X-ray plates and casts of the foot so that shoes may be exactly moulded. Hence, from the first rough moccasin fashioned by primitive man, shoes have developed into articles of exquisite beauty, as aids to health and comfort.

The Anatomy of the Foot. Few people know much of the anatomy of the foot. Yet it is evident that they ought to know something about it in order to furnish the foot with a proper covering.

The first thing that strikes a person on looking at the human foot is its large proportion of bone. On pressing its top surface and that of its inner side, the amount of flesh will be found to be very small indeed. The same is true of the inner and outer ankle. The extreme back of the ankle has scarcely any flesh covering. The most fleshy portions of the foot are its outer side, the base of the heel, and the ball of the big toe.
The reason for this disposition of flesh is to protect or cover those parts of the foot that support the body by coming in contact with the ground. They act as pads and lessen the concussion. The abundance of flesh on the outer side of the foot is to protect or act as a shield against injury. The inside of the foot is not exposed as much as the outside.

The foot is divided into three parts: the toes, the waist and instep, and the heel and ankle. The largest bone of the foot is the heel bone (called calcaneum). It is the bone that projects backward from the principal joint and forms the main portion of the heel. When a person is flat-footed, this bone is thrust farther backward than Nature intended to have it. The connection between it and the tarsal bones is lost.

The top bone of the foot is the astragalus, and it forms the main joint upon which the process of walking depends. This bone has a smooth, circular, upper surface that connects it with the main bone of the lower set. It is absolutely necessary that this bone should be in perfect harmony (relation) with the others in order to insure comfort and health. If the arches of the foot are forced out of position, up or down or sidewise, this joint is not permitted to do its work normally.

Rheumatism is a frequent evil of an injured joint. Hence the necessity of absolutely normal action, unhampered by ill-fitting shoes.

The principal arch of the instep is called the cuneiform or tarsal bone. Many persons are troubled with defective insteps. Misshapen joints at this point, due to shoes that do not fit and consequently disarrange and throw out of position the delicate, natural structure, work great havoc with the comfort of the foot. Nine joints cluster at this point.

The chief characteristics of the foot are its spring and elasticity. While the foot has wonderful powers of resistance and adaptability, it is the shoemaker's duty not to strain it, but to provide for each action.

Weaknesses of the Feet. The most sensitive part or the part that is most susceptible of injury is the big toe. This is due to the fact that the tendency of the foot in walking is to travel toward the toe of the boot, and to press into rather than shun danger. The shoe-
maker provides for this, first, by allowing sufficient length of sole to extend beyond the termination of the toe, and second, by the fit of the upper and the preparation of the sole. In this way, if the toe of the shoe strikes against a hard substance, the big toe will remain untouched.

Seventy-five per cent of people have more or less trouble with their feet. Some of these troubles are caused by the manufacturer putting on the market shoes whose lines look handsome and attractive to the eye, but are lacking in any other good features. Shoes that fit properly should have plenty of room from the large toe joint to the end of the toes, and also should have plenty of tread, especially at this point.

A mere glance at our bare foot will show conclusively that pointed-toe boots are false in design. The toes when off duty touch each other gently. When they are called on to assist us in walking or in supporting our body, they spread out — although not to any great extent. This, then, being the action, no sensible person would attempt to restrain them. Box or puff-toe shoes allow the greatest freedom.

The pointed-toe shoes, which join the vamp to the upper immediately over the big toe joint, exceedingly high heels, and thick-waist shoes are not for the best interests of the foot.

The evils of ill-fitting shoes are corns, bunions, and calluses. Corns are mainly due to pressure and friction. When the layers of skin become hardened, they form a corn, which is merely a growth of dead skin that has become hard in the center. This hardened spot acts on the inflamed parts like a foreign body.

The bunion is an inflammatory swelling generally to be found on the big toe joint. The chief cause of bunions is known to be the wearing of boots or shoes of insufficient length or to shortening of tendons. The foot, meeting with resistance in front and behind, is robbed of its natural action, the result being that the big toe is forced upward and subjected to continuous friction and pressure. The wearing of narrow-toe boots that prevent the outward expansion of the toe is another cause.

Sizes of Shoes. There are two series of shoe sizes on the market; the smallest size for infants (size No. 1) is, or was originally, four
inches long; each added full size indicates an increase in length of one-third of an inch (sizes 1 to 5). Children’s sizes run in two series, 5 to 8, and 8 to 11; then they branch out into youths’ and misses’; both running $11\frac{1}{2}$, 12, $12\frac{1}{2}$, 13, $13\frac{1}{2}$ and back again to 1, $1\frac{1}{2}$, 2, etc., in a series of sizes that run up into men’s and women’s. Boy’s shoes run from $2\frac{1}{2}$ to $5\frac{1}{2}$; men’s from 6 to 11 in regular runs. Larger sizes usually are made upon special orders. Some few manufacturers make sizes up to 12. Women’s sizes run from $2\frac{1}{2}$ to 9. Some manufacturers do not go above size 8. The rate of sizes is sometimes varied by manufacturers of special lines of shoes. A man’s No. 8 shoe is nearly eleven inches long. These measurements originated in England and are not now the only ones found. A system of French sizes is often used, which consists of a cipher system of markings to indicate the sizes as well as widths, so that the real size may not be known to the customer.

**Types of Feet.** All feet are not alike in structure and shape. In infancy the foot is broad at the toes, which press forward in the direction of their length. The heel is small in comparison to the width of the toes, and also short in length, due to the undeveloped bones. But during growth, the thickness above the heel bones disappears, and the heel itself becomes thicker and assumes the beauty of perfection at maturity. This development is due to the growth of bones which should be well exercised and properly cared for during this period.

The adult foot, when properly formed, is straight from heel to toe on the inner side, and is wider across the joints than it is one inch or so farther back. The manner of walking has a considerable bearing on the character and development of the foot.

There are many sorts of feet, which are due to a number of causes, such as habits, climate, occupation, locality, etc. As a general rule we may divide the feet into four classes: Bony feet — those with very little flesh upon them; hard feet — those that have plenty of flesh, but which are almost as hard as a stone; fat feet — plump, with plenty of flesh, but having little shape; spongy feet — those that seem to have no bones in them, usually found in the female sex.

We will suppose that these four different kinds of feet all measure 4 in size and D in width. One would naturally think that the
same size shoe would fit them all, but this is not so. This size shoe will fit only one, and that is the bony foot. The hard feet require a C\(\frac{1}{2}\) width; the fat feet require a C width, and the sponge feet require a B width.

The same last may, and often will, possess a slight variation in some manner or other. The fitter of feet should know the stock, each pair, and be on intimate terms with the peculiarities of each last and the inside lines of each pair of shoes before attempting to try them upon the feet of the customer.

**How Shoe Styles Are Made.** If you examine the shoes worn by people in a large city, you will notice the different styles. Shoe styles that were called grotesque a few seasons ago are comparatively usual today, for the new designs in women’s footwear which manufacturers are now making are the most varied that have ever been put on the market. Pink and green and blue are among the new colors in materials used.

Some of the styles are more lavish than others. Coronation purple velvet boots look like an extravagant color for footwear, but they, with others of pink, green, and blue—shoes, boots, and pumps—are being made up and offered to buyers.

After the style has been decided upon, it is necessary to work out an exact reproduction. An expert model maker, called a last maker, produces a last—a wooden model of the shoe. In order to do this, it is necessary to lay out certain plans or specifications for the details of the manufacture of the shoe.

There are certain parts of all feet that have fixed measurements. To illustrate: the length of the shank, that part of the sole of the foot between the heel and ball, in every person’s foot is always the same. The part of the foot back of the ball or large toe joint conforms to certain fixed measurements. These definite measurements form a basis by which the last maker originates new styles by shortening, lengthening, widening, or narrowing the space in front of the toes, but always retaining the true and fixed measurements of the back part of the last.

**Children’s Shoes.** As soon as the child begins to walk, care should be taken not to tire him, for the muscles and bones are still weak. Going barefooted, whenever weather conditions permit, is good for the child, and he should walk naturally, toeing straight.
The baby's first shoes should have flat, flexible soles and pliable tops. Those that resemble moccasins are good for the youngster's feet. The lines of the shoes should follow the natural outline of the foot obtained by standing the child on a sheet of paper and tracing around his foot. The shoes should have broad toe-room and should be an inch longer than the tracing.

Stockings should also be from one-half to one inch longer than the foot. Cotton socks, or no stockings at all, are preferred in warm weather, but in cold weather cotton and wool or silk and wool mixtures are good. Great care should be exercised in buying woolen stockings. After being washed, they are shorter. They should always be dried upon forms.

**Hygiene of Shoes.** To keep the feet and ankles dry and warm is of great importance. The physician tells us that at the joints in our bodies the blood vessels are very near the surface. Therefore if we expose our ankles to extreme cold and dampness, we lower the temperature of the blood at this point. There are three results that one may look for under such circumstances:

1. A loss of energy, therefore inefficiency.
2. Congestion in some of the internal organs.
3. Indigestion.

Leather has been adopted as a desirable material for shoes because it is durable and flexible. It should be borne in mind, however, that it is not ideal as far as cleanliness is concerned. It retains heat and perspiration; therefore the same pair of shoes should not be worn constantly. They do not have an opportunity to become thoroughly aired and dry overnight. It is best to have two pairs of shoes for ordinary wear, and change frequently. Some men and women put their shoes in the window when they take them off, and air them thoroughly before putting them away in the closet.

About the only unhealthy fashion of the present day is the fashionable spike heel — and the harm it may do is at least mitigated by the popularity for sports and daytime wear, of the heelless brogue.
Choice of Shoes. Shoes, like hats and gloves, are important points to consider carefully in selecting our dress. There are different types and styles. Since the shoe is worn not only for dress but for comfort, one should always select a shoe that gives it. If a broad shoe gives greatest comfort, be sure always to select that type in the prevailing styles.

The shoes and hosiery should be a unit of dress in themselves. If they are conspicuous they attract attention to the lower part of the body rather than the face. If they are darker in color than the skirt and stockings, they do not appear conspicuous.

Hosiery. A durable stocking will not wear out readily nor drop a stitch. Lisle, silk, and rayon drop stitches easily. Cotton and wool do not wear out so readily, because of close knitting, heavy yarns, and reinforcements.

The size of the stocking is very important, as it affects its appearance and durability, and the wearer’s comfort. Too short a foot will be uncomfortable, and will not wear well, yet there is a tendency to purchase hosiery too short. Too large a foot will have creases and wrinkles, and will cause discomfort. For extremely sensitive persons, there are manufactured right and left hose. Daily changes save strain of wear and protect color. Select standards that will not fade or crock.

Size means the proper length and proper width. There is no hosiery especially made for a narrow foot and a very slender arch. One can determine the size of the stocking from the size of the shoe, although this method is not always reliable, as some people always select a long, narrow shoe.

Size 1 shoe takes a size 8 stocking

<table>
<thead>
<tr>
<th>Size</th>
<th>Shoe Size</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
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<td></td>
<td></td>
<td>81/2</td>
<td>9</td>
<td>91/2</td>
<td>10</td>
<td>101/2</td>
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The question of silk versus cotton is a question of the pocketbook. Cheap silk stockings are not economical if hard wear is to
be given them. Silk hosiery is stronger, more elastic (gives better fit), and has more luster than any other kind. Stockings should be shaped and not cut to form, as in cutting the knitted fabric to the shape the stitches are cut, and this necessarily weakens the fabric.

Woolen stockings are satisfactory with sport clothes but cannot be worn with dress costumes. Flesh-colored lining stockings of fine wool are desirable for cold weather, when silk is worn. Stockings for style should be selected for color, material, and design.

Hygiene of Hats. Large, heavy hats are uncomfortable because of their weight and because of the difficulty one has in balancing them. Such hats cause nervousness and give an unnatural position to the head. Tight hat-bands affect the circulation and cause discomfort. Logically hats cannot be much trimmed while hair is short.

Corsets. In order to give support and shape to the waist, a corset is used. If a person has strong muscles and little or no superfluous flesh about the waist, there is no need of a corset for support. But since styles (shape of the figure) change, it is necessary to have a corset device to assist in obtaining the current figure — curves at the waistline, high bust, wasp-like waist, etc. The corset has been known by many names and used by many people, but always for a single purpose, the reduction of the waist to emphasize more fully the beautiful lines of the hips and bust. It has been called successively corsets, bodice, stomacher, stays, corset, and lastly girdle.

The style or design of corsets is governed by the style tendency of the time. The designer of corsets today follows the outline of the natural figure, giving support where it will aid and not impair good health.

Corsets, like all other kinds of underclothing, should be soft and pliable, so as to give complete freedom and ease to the body in all positions — standing or sitting. Stiffening agents may be used for stout, but little for slender forms.
Various materials are used for corsets or similar pieces of clothing, according to the cost, demand, durability, and season of the year. The test of a desirable corset is the correctness of the fit.

If corsets are improperly fitted (wrong size) or placed on the person incorrectly, they will soon lose their shape. Since the purpose of a corset is to hold its shape, it is necessary to have a straight woven fabric that is both strong and stiff. The weight of the fabric is governed by the season in which it is worn. The principal fabrics for summer are corset batiste, tureot, light-weight brocades, and elastic webbing; for winter wear, coutil, heavy brocade, and sateens. Sometimes it is necessary for large women to wear the heavier fabrics, such as coutil and heavy brocade, in the summer because they need the support.

The thick, padded, or close-fitting apparel worn by the women of generations ago restrained the circulation, hampered freedom of movement, and impeded normal exercise of muscles. Certain English physicians have reported the disappearance of anemia since the vogue of more sensible feminine clothing.

Everyone who can remember the styles of even twenty-five years ago must agree as to the superiority of today's fashions in their effect on physical comfort and well-being. Corsets were abominably uncomfortable, and had a debilitating effect upon the muscles and a deforming effect upon the internal organs.

Support of Clothing. Since clothing is not one piece but is made up of numerous parts, the problem of how these parts are to be supported is a serious one. There are parts of the body, like the shoulder, composed of bony structure. There are other parts, like the waistline or abdomen, that consist of soft tissue covering the bones and enclosing important organs. There are other parts, like the knee and ankle, that consist of the bony structure covered with muscles and tissue. Clothing should be supported from the part or parts of the body that can bear the weight best.

The following points of hygiene should be considered in connection with clothing:

(a) Short skirts mean not only an inviting freedom for exer-
cise but a minimum of accidents. (b) Collarless blouses and dresses help the skin of the wearer to become hardened and so improve the resistance to colds and other affections of the throat and chest. (c) From the standpoint of health and comfort, abbreviated skirts and socks are better than long stockings that have to be held up by hose supports hanging from shoulders or hips. Physicians say that the round garter is also bad. The sock should have a firm knitted cuff at the top to keep it in place above the calf of the leg.

QUESTIONS

1. State the importance of clothing for health.
2. (a) State the source of energy or strength in the body. (b) Describe different types of foods.
3. (a) State the source of heat of the body. (b) How does the heat escape from the body?
4. What is the ideal clothing from the point of view of health?
5. (a) What is meant by absorption? (b) Perspiration?
6. State the absorbing power of perspiration of the different fabrics.
7. (a) What is meant by ventilation of the body? (b) Compare the structure and composition of the fabrics as to ventilation.
8. Compare (a) wool, (b) cotton, (c) silk, and (d) linen for underwear.
9. Why is it necessary for the body to have freedom and proper warmth?
10. (a) State the types of clothing needed to protect the body. (b) Name the characteristics of each.
11. (a) What are the characteristics of poor underwear? (b) Name the different types of underwear fabrics.
12. Name the characteristics of protective clothing, including furs.
13. State the artistic and style value of fur coats.
14. Name and describe the different kinds of furs.
15. How are furs matched?
16. Describe imitation furs.
17. Describe use of (a) muskrat, (b) moleskin, (c) beaver.
18. (a) Describe cloth furs. (b) State the artistic and health values.
19. State the hygiene of clothing and the different points of view during the past generation.
20. How has the new theory of hygiene influenced view of structure of clothing?
21. State the characteristics of clothing for business.
22. What are the characteristics of home costumes or clothing?
23. Describe the characteristics of children's clothing.
24. Describe the importance of the clothing and care for the feet.
25. State the history of footwear.
26. Describe the style of shoes.
27. Explain the anatomy of the feet.
28. (a) Describe some of the weaknesses of the feet. (b) How are they produced and how may they be improved?
29. Describe the sizes of shoes.
30. Name and describe different types of feet.
31. How are shoe styles made?
32. Name the different parts of shoes.
33. Describe the importance of children’s shoes.
34. Describe the hygiene of shoes and shoe clothing.
35. State the artistic and style importance of shoes.
36. Explain the hygiene of hats.
37. (a) What is the purpose of corsets? (b) State the artistic and style value and weaknesses of corsets.
38. State the most effective methods of supporting clothing.