

ALL ABOUT WOOL

PREPARING THE STAPLE FOR THE MARKET.

"Sorting" the Sheared Wool in the Mills—Scouring, Drying and Dyeing—Blending and Mixing—What Wool Loses in Weight.

THE three principal natural fibers which are used in the manufacture of fabrics, says the Chicago Record, are cotton, silk and wool, and under a magnifying glass the three are seen to vary widely in structure. Cotton is a vegetable fiber, which flattens and twists when it dries, for it is tubular in its form and this flat twist gives it the holding quality needed in textile fibers.

A silk filament is almost dead smooth on its surface, but wool is barbed, its scales form little nooks which catch into each other, and easily make a "felt" without weaving or twisting.

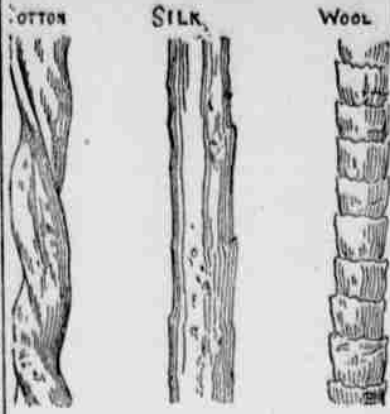
Wool is classed in two orders—long staple and short staple. The long staple wool is less barbed and the fibers are smoother and longer, and are straightened by a "comb," and hence are called "combed" wools. The short staple wools are called "carding" wools because they cannot be straightened by combing, but are treated by "cards," which are something like curry combs.

Before a sheep has its wool clipped from its back it is well washed, and as much dirt as possible is taken from the wool. This is done by dipping the sheep in water, either of a running stream or in a large box in which the men stand waist deep. The sheep is plunged under the water, and the wool is squeezed, pressed and rubbed, and then the washed sheep is kept in a clean place until the wool is dry.

Sheep shearing is done in the barn or in a shed set apart for that purpose, and the shearers are so expert that, with their springed sheep shears, they clip the wool so that it comes off in one mass, like cotton batting.

The sheep is laid on a low table or on the floor, and the shearer, beginning at the breast, clips one side up to the backbone, and then turning the sheep on its other side shears that side. The fleece is collected and baled for market. "Paled" wool is wool taken from pellets which are first treated with

work in this room do so at a great sacrifice to personal appearance, for their hands and arms are stained with the dyes and their beards and hair do not escape the coloring matter.



THREE TEXTILE FIBERS.

If the wool is to be dyed black it is first treated for two hours to a bath of vitriol, potash and red tartar. After this preliminary bath the wool is rinsed off in clear water and dried in the air and it is then ready for the black dye, which is made of logwood and fustic.

The chips of these woods are packed in bags and boiled in water for some time. The mixture is allowed to cool before the wool is plunged in and then the steam is turned on again, and the wool is kept in the boiling dye until the proper depth of black has been attained.

The dyer, by squeezing a sample and holding it to the light, tells when the color is just right. Then the dye liquor is run off and clear water is sent through the wool until it is well rinsed. The wool is next sent back to the centrifugal dryer and afterward thoroughly dried by hot air or steam heat.

Wools are mixed because, to secure a desired quality of cloth, it is necessary to combine different "staples." American wools are mixed with foreign wools, and with cotton and silk and shoddy, and this mixing requires great skill and a thorough knowledge of the business.

Wools of different colors are blended to make a mixed color, and browns, grays and other plain colors are secured by blending together wools of different dyes.

Some wools lose so much weight that less than twenty-five per cent. of the original weight remains when the wool is fed into the last storage bin. In a modern mill the washing, scouring and rinsing, which follow the opening of the bale of wool in the sorting-room, are all done in one machine, which takes in the wool on a traveling carrier and delivers it clean and nearly dry at the other end.

But the sorting, dyeing, mixing and blending must be done by hand, for in those four stages manual skill and individual judgment are necessary to secure satisfactory results.

HOT-WATER HEATING.

The Ideal System of Warming Residences in Town and Country.

Hot-water heating for dwellings has some prominent advantages that have done much to establish it firmly in favor. It is the safest, for one thing, and it provides the most equable temperature, as it can be carried a long distance horizontally. It is very easily regulated, and the matter of attendance is reduced to a minimum, which is no small consideration. There is no circulation of dust, which is the inevitable concomitant of hot-air heating. To get the very best results a hot-water plant should be installed in



PERSPECTIVE VIEW.

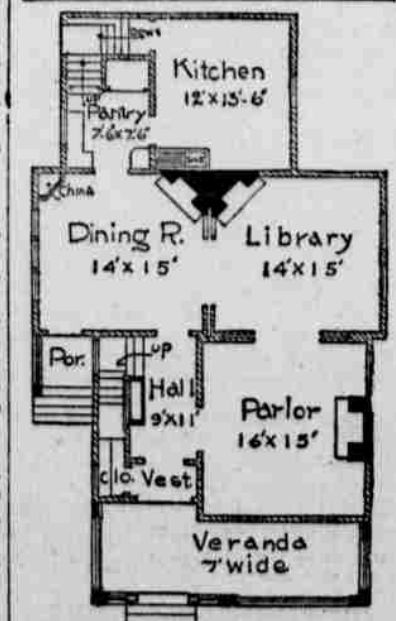
a new house, planned with this in view. Hot-water heating is estimated to require one-fourth more radiating surface than steam, and of necessity there must be more and larger radiators; these can be placed where they will not be obtrusive. They can be adjusted beneath the windows and encased, and arrangements can be made for the passage of a current of fresh air over the radiators, thus contributing admirably toward the ventilators of the house. The very latest application of hot water to heating is in combination with hot air, and in many ways this is the most perfect system of all. Both sources of heat are in the same furnace, which need be no larger than if either system was used by itself. The furnace is like the ordinary hot-air furnace, except that a hot-water drum occupies the central part of the dome.

Those rooms that can easily be reached by a direct current of hot air, are heated by registers, while those further away from the furnace are equipped with radiators. This system is particularly well adapted for large and rambling country houses, which, from the very nature of their construction, can never be thoroughly heated by hot air alone. In so far as the consumption of fuel is concerned, the combination system is as economical as any other; perhaps, indeed, a greater amount of heat can be obtained from a fire of the same size. With proper care on the part of architects in arranging inlet ducts for fresh air to accelerate the draught, any desirable degree of ventilation may be secured. Such arrangements should, however, be studied in advance, from principal elements in the design of a building instead of being wholly subordinated (as is commonly the custom) to less important architectural features. The design presented with this is arranged for the use of the combination system (hot air and hot water). A brief description we make as follows:

General Dimensions: Width, through library and dining-room, 31 ft. 10 in.; depth, including veranda, 52 ft. 10 in.

Heights of Stories: Cellar, 7 ft.; first story, 10 ft.; second story, 9 ft.

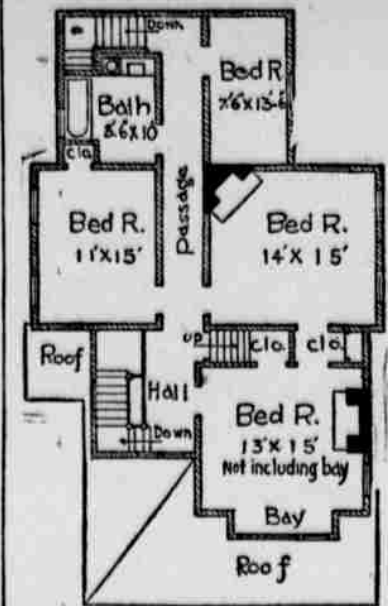
Exterior Materials: Foundation, brick; first story, clapboards; second story and gables, shingles, roof, slate.



FIRST FLOOR.

Interior Finish: Hard white plaster; cellar ceiling plastered one heavy coat. Soft wood flooring throughout. Trim in hall and bedroom, oak; in library and dining-room, cherry; elsewhere, soft wood. Main staircase, oak. Picture molding in principal rooms and hall of first story. Panel backs under windows in parlors, library and dining-room, bath-room

and kitchen wainscoted. Front entrance doors, oak. Interior wood-work finished with hard oil; soft wood stained to suit owner.



SECOND FLOOR.

Colors: All clapboards and shingles, buff. Trim, including water-table, corner boards casings, bands, rain conductors, also front and rear outside doors and outside blinds, Tuscan yellow. Veranda ceiling and floor, oiled. Brick-work, dark red. Veranda columns, all moldings and balusters, buff. Pedestals of columns and top and bottom rail of balusters, Tuscan yellow. Wall shingles dipped in and brush-coated with sienna stain.

Accommodations: The principal rooms and their sizes, closets, etc., are shown by the floor plans. Cellar under the whole house, with inside and outside entrances and concrete floor. Laundry under kitchen. Furnace cellar under library and dining-room. Vegetable cellar under parlor and hall, separated by brick partition walls. Attic floored but unfinished; space for three rooms and storage. Sliding doors connect parlor, library and dining-room. Open fireplaces in parlor, library, dining-room and two bedrooms. Hat and coat closet off vestibule.

Three thousand four hundred and fifty dollars is the actual cost to build this house, not including heating apparatus, and a fair estimate for a system of hot-water heating giving indirect radiation downstairs and direct radiation in the second story would be about \$450. Radiators should be placed as near the windows as possible in parlor, dining-room, library and hall down stairs, and in the three larger bedrooms and bathroom in the second story. The estimate is based on New York prices for materials and labor. In many sections of the country the cost should be less.

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Black Ingratitude.



Japan's Ancient Banking House.

Commercial houses which have existed for over 100 years are by no means common in Europe, and quite rare in this country. It is curious to note that commercial houses a hundred or more years old are quite frequent in China and Japan, where a great many firms have for centuries been handed down from father to son, and remained in the family. The oldest existing business is probably a Japanese banking house, at Kobe, which has for more than 350 years been in the hands of one and the same family, the style of the firm not having changed once in this long period.

Remarkable Case of Manslaughter.

Nane Mack, a sculptress in Paris, had a boy for a model. She put wet plaster on him to make a mold, and he took cold and died. She was charged with manslaughter, but, being acquitted, his father is suing her for \$4000 damages.

FASHION'S REALM.

NEW AND Dainty DEVICES FOR WOMEN'S APPAREL.

Latest Collars, Ruffs and Collarettes—Pretty Tea Gowns of Persian Silk—Felt Hats for Fair Cyclers.

THE collars, ruffs, collarettes and short capes this season are very elaborate. Even the simplest of them have some new addition. The white satin stock now has upright wings of accordion-plaited lace that rise from the inside of the collar. White satin loops finish it on the back and sides. One of the boas that is becoming to a slight neck is made of very full, loose platings of black chiffon. It stands way out beyond the ears, and is finished in front, where it ends in long, full strings, with bunches of violets. Another variation of these dainty novelties is the Elizabethan ruff in chiffon, which is very high in the back and very low in the front. It is finished

silk and covered with all-over batiste embroidery, a frill of embroidered edging being wired to stand up around the neck. The full puffs are arranged over comfortable sleeve linings that reach below the elbow, where they are completed with cuff bands and a deep frill of embroidery to match neck. The full back is shirred in evenly spaced rows under the collar in back, and hangs in graceful Watteau folds to the foot of skirt. Gowns by the mode can be developed in less expensive material, or in the costliest broades, with shimmering net over a satin front. Stripped and plain batiste, figured and plain lawn, dimity or other cotton wash fabrics will make up daintily with decoration of lace or embroidery.

The quantity of material 44 inches wide required to make the tea gown for a lady having a 38-inch bust measure is 8½ yards. The hints are by May Manton.

CANVAS TRAVELING GOWN. A traveling gown of string colored canvas, designed for a coming bride, is shown by a fashionable modiste. The skirt is trimmed at the hem with



LATEST COLLARS AND COLLARETTES.

with a bow in the back. The Marie Antoinette fichu is still much worn. It is made of embroidered muslin or chiffon, and crosses very near the throat. Black mousseline de soie, edged with yellow Valenciennes lace, makes a pretty shoulder cape. Deep sailor collars of fine lace and embroidered are worn over flowered silks.

Three rows of braid of the same color; the coat has Norfolk plaits at the back, opening in front over a vest of Persian silk, with taffeta frills edged with lace jabot down either side.

They are finished with the white satin stock collar. Short, small capes, barely reaching to the waist, are much in vogue. One of the pale shot silk, covered with arabesques of the period, the front composed of a full vest of louisine, has a collar of soft white mousseline de soie. It is lined with white satin. A chic model is of black Brussels net, accordion plaited, over a lining of delicate pink. The full ruff about the neck is studded with apple blossoms. A fringe of the same flower hangs about the shoulders.

FEEL HATS FOR CYCLERS.

The plain felt hat is pre-eminently suited to her who wheels, says the New York Commercial Advertiser.

TEA GOWN OF PERSIAN SILK.

In the second large illustration soft striped Persian silk is stylishly united with sheer linen batiste, over yellow silk, and decorated with fine batiste all-over embroidery and insertion to match. The handsome gown, although elaborate in effect, is so simple in detail that the most inexperienced will find no difficulty in realizing a gown just like the picture. The lining



CYCLING HATS.

The two hats sketched are examples of the most popular shapes for cyclers. The one is of drab with a rosette of ribbon placed at the base of a group of pheasants' quills, the other of brown, lined with black felt and



TEA GOWN OF PERSIAN SILK.

fronts are fitted with single bust darts, under-arm and side back gores completing the smooth adjustment at the sides. The full fronts are faced in centre with yellow silk and covered with the batiste, closing at the left side under the reverse or collar. The top is shirred in evenly spaced rows of gathers with a heading. Three rows of insertion trim the foot, one on each side marking the edge of the different material. The broad sailor collar is made of the

trimmed with black ribbon and speckled feathers.

JEWELRY THAT IS WORN. Jewelry was never more exquisite than now. Turquoises and garnets and blue, white, yellow, pink and green enamel are used in many silver articles with dainty effect. Sleeve buttons and studs of silver have an enameled square or circle of white enamel, with a tiny colored flower.



SheARING THE SHEEP.

lime to loosen the wool. This wool is not so good as fleeco sheared from the living sheep.

The bales of wool are sent to the woolen mills and are opened in the "sorting room." Each fleece is spread on a table before the "sorter," who quickly decides its quality and grade, and lays it in its proper basket. The dirty, dusty wool—for, no matter how thoroughly the sheep is scrubbed, its wool is not clean—is placed in a duster, which is a box in which pronged slats revolve, picking up and dusting the wool and shaking the dirt from it.

The wool is next scoured in hot water and strong soap to remove the grease in the wool, and after the "yolk" or "suint" has been dissolved the soap is washed out in clean water. The machine which does this delivers the wool between rollers which squeeze out the water. Then the wool is dried, unless it is to be taken at once to the dye room.

For drying the wool is first put into a centrifugal machine, which, revolving at a high speed, throws the excess



Sorting WOOL.

of moisture from the fleeces. The drying is completed by spreading the wool over frames of wire net in the draught of a warm-air blast, or else spreading the wool on the slats of a traveling carrier which moves slowly or steam pipes.

Wool is colored by boiling it in the stuff for several hours. The dye-room is full of great vats from which steam and queer-smelling vapors constantly rise. The men who