TEXTILES

Cotton Still Textile King

New cotton developments are extending use of this natural fiber. Today cotton can resist creasing. Trick new thread disappears in water.

See Front Cover

By MARTHA G. MORROW

➤ SCIENTISTS ARE keeping King Cotton on his throne in the textile world. New developments include:

Cotton that resists creasing.

Cotton that stays clean longer and washes clean easier.

Cotton fabric so closely woven it is water-tight.

Trick new cotton that simply disappears when you wash it.

Some of these treatments completely change the character of the cotton, giving it new, desirable qualities. Others are only temporary and must be renewed each time the cotton is washed.

Cotton is normally stronger than any other apparel fiber and particularly strong when wet, yet one of the very latest developments is a thread that looks like ordinary cotton thread, but dissolves and disappears when dropped into water. This thread, which probably won't be commercially available for several years, is expected to be useful where a thread is needed only temporarily.

Water-soluble thread seems ideal for a scaffolding or framework yarn in laces and open-work materials, for basting threads and for connecting-yarns where the thread is needed for a time, then must be removed.

Such thread, though relatively strong, can simply be washed out in water.

Lye "Mercerizes" Cotton

When a strong solution of lye is placed on cotton, it causes a change in the cotton which is called "mercerization." If the cotton is held loosely, it swells and becomes more absorbent; but if the yarn or cloth is pulled tightly, it increases in strength and takes on a sheen.

When the thread is first treated in a suitable manner with monochloroacetic acid, a vinegar derivative, and then with the lye, the cotton looks and feels the same, but has acquired new characteristics. A drop of water will make the yarn balloon out and become easy to break at the wet spot; it will disappear entirely in water. This treatment was developed at the Southern Regional Research Laboratory of the U. S. Department of Agriculture.

This water-soluble yarn chemically is closely related to a powder used to make cotton fabrics resist soil better and come clean easier. This powder, carboxymethyl cellulose or CMC for short, is used as a soil-suspending agent in many detergents.

Housewives may soon lighten their wash-day work by using this simple, inexpensive compound in their rinse water. They can just add a small amount of the CMC to the final rinse water each time the cotton garments are washed.

The material coats the fibers with a smooth film which keeps dirt from coming into close contact with the fabric. This coating is so transparent you do not see it, and when the solution is only one-half per cent or less, it is so dilute it does not perceptibly stiffen the cloth. Stronger solutions may be used as a starch.

Basic material for the powder is cellulose from either wood or cotton. Purified cellulose, similar to that from which rayon is made, is treated with caustic soda, then with a chlorinated acetic acid. The finished product is a fluffy white powder, tasteless and odorless.

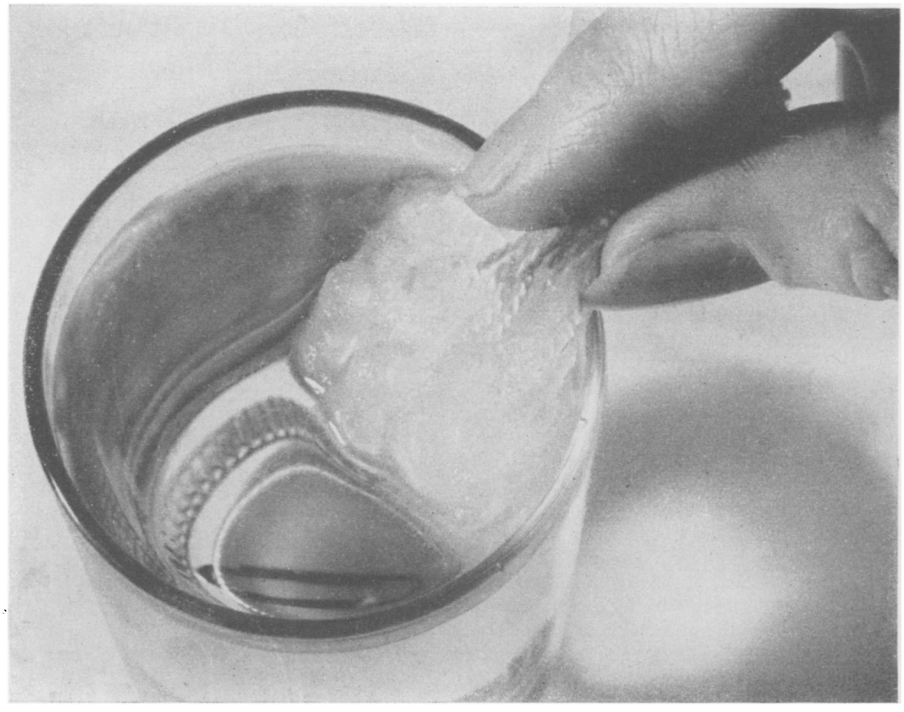
This treatment to make cotton fabrics more resistant to soiling and launder clean with less soap was developed at the Institute of Textile Technology, Charlottesville, Va., working on a project sponsored by the Research and Marketing Administration of the U. S. Department of Agriculture.

A new type of cotton fabric so tightly woven that water cannot penetrate it utilizes the natural tendency of cotton fibers to swell when wet. No resin or chemical treatment is needed to make it waterproof.

The cloth contains about 30% more filling threads than ordinary cotton fabrics. When wet, the cotton threads swell enough to make the fabric water-tight.

Raincoats and tents may some day be made of this self-sealing material, woven on a new loom attachment developed at the Southern Regional Research Laboratory. The fabric is now under-going its first large-scale test at the New Orleans baseball park, where batters' box and pitcher's mound are protected with tarpaulins of it.

The best way yet discovered for protecting cotton fabrics and yarn from mildew and other forms of rot is a chemical



DISAPPEARING COTTON—Trick new cotton yarn, which looks and feels like ordinary cotton, balloons out when wet and disappears in water. The cover on this week's Science News Letter shows the yarn before being put in water, this picture shows the yarn a few minutes later.

treatment which partially converts the fiber to cellulose acetate, similar to acetate rayon. The treated fabric, which looks like regular cotton and is fully as strong, absorbs much less moisture and swells less when wet than untreated fabric.

This partially acetylated fabric has been tested in water-softening bags and fish nets. And the same cotton fabric has been found resistant to heat and electricity. The useful life of a laundry press pad cover can be increased four to five times by partial acetylation, scientific tests show. This material can also be used for electrical tape to insulate wires.

Change Cotton's Properties

Individual textile companies have been vying with each other to produce interesting, lustrous cottons. Cotton fibers are being impregnated with resins to make them resist wrinkles, stay clean longer, dry faster and take on various surface designs. Pressure is being used to stamp permanent designs into the fabric.

Cotton has been teaming up with other materials, producing new, useful textiles. A rubber and pigment mixture keeps water out but lets through moisture vapor. Raincoats of this material would be comfortable to wear; hospital sheeting, utility clothes, children's snow suits and sleeping bags are other uses visualized.

Cotton has come to the rescue of woolwearers who suffer from itchiness. Red flannel is now being sandwiched between layers of cotton, giving added warmth and greater comfort.

Cotton is also being mixed with other fibers to produce more versatile textiles. No weaving is needed to make shoe cloths, guest towels and diapers when the cotton fibers are permanently bonded together with resin. Mixed with asbestos, cotton produces a more absorbent dishtowel. Combined with aluminum yarns, it produces a high-fashion fabric.

Although competition from synthetic fibers has increased rapidly during recent years, more cotton is still used in the United States than all other fibers put together. Cotton is being used in more ways than ever before—with still other uses constantly being found. The scientists who discovered these new uses are helping to keep King Cotton on his throne.

Cotton yarn that disappears in water, cotton that does not soil easily and comes clean quickly and cotton with a coating that keeps water out but lets moisture vapor through have been collected for you by Science Service. These and several other interesting cottons, along with details of their manufacture and suggested experiments, are included in the kit which you can secure for the nominal fee of 50 cents. Write Science Service, 1719 N St., N. W., Washington 6, D. C., and ask for the New Cotton Developments kit.

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ETHNOLOGY

In Hawaii It's Menehune

➤ CHILDREN OF Hawaii have their Menehune, just as Europeans and mainlanders have their dwarfs, pixies and elves. They are small creatures, who work at night and are invisible, except to children, in the daytime. They are credited with having built many stone temples, fish ponds and waterways.

Some people believe that the stories about the Menehune have their origin in reality, a real and very early race of people who may have been the "kama'aina" or the original native-born of the islands. All others, according to this theory, including those we know as Hawaiians today, would then be "malihini"—strangers, foreigners, newcomers.

Dr. Katharine Luomala is an anthropologist, an associate professor of the University of Hawaii. She has written a paper about the Menehune, delving scientifically into the origins of these little folk. However, she apologizes for being scientific about them. She says:

"Those who regard the Menehune as their favorite characters in Hawaiian mythology may resent any attempt to analyze these appealing little beings, and may say that anyone who would dissect a hapless Menehune caught in the scientific net would pick the wings off butterflies. With bowed head, the scientist can only point out in defense that he is not satisfied with mere contemplation of the wonders of the world but inevitably finds this admiration leading to analysis."

Dr. Luomala has done a thorough job of picking the wings off the butterflies.

Her conclusions are that the Menehune never existed in any real form. The name, she says, probably reached the Hawaiian Islands from central Polynesia.

On some islands in the central Pacific, variations of the name were associated with the people who did the work, with the slaves. This was not originally true in Hawaii where the "Makaainana" performed the labor on the stone temples and fishponds. But, as the Hawaiians, who did not write before the missionaries came, forgot who built them, they credited the little people with the job.

"There is nothing to prove they were ever real people," Dr. Luomala concludes. "They are the products of human imagination."

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