

CHEMISTRY

Cloth Out of Test Tubes

Chemistry is the answer to the problems of shrinking, wrinkling natural fiber fabrics. Treated textiles last longer and can be made rot-proof as well as water-proof.

By A. C. MONAHAN

► DAINTY summer dresses need no longer muss; seersucker suits may remain fresh and presentable. Pleats in skirts and creases in trousers will seldom need renewal in the steam pressing shop. And summer woollens will be cool and never shrink.

Chemistry is the answer. Textile chemists have been busy during the past decade. New treatments, which give cloth longer life without altering the general appearance, add many other desirable qualities.

They tend to make them shrink-proof, water-proof, wrinkle-proof, rot-proof, distasteful to moths and mildew, and resistant to flame and stain.

War-Hastened

The war is not responsible entirely for the new cloth treatments, but it did hasten the development of some of the new chemicals used, and their applications. American clothing on soldiers and sailors went abroad, from frigid Baffin Bay to torrid New Guinea, to meet every known climatic condition in the world.

Special treatment of cloth for clothing, tents and other uses was essential to give them lasting qualities. Special weaves helped make some cloth warmer and others cooler. Water-proofing gave added comfort in all regions. Rot-proofing and mildew-proofing were important in the tropics. Flame-proofing aided fighting men wherever they were.

During war years, military needs held priority of the new materials. Now, however, they have been improved, adapted to general uses, and are available to the civilian population.

Traditionally, cloth and looms are always associated. Textiles are woven fabrics. Also traditionally, all cloth is made from natural fiber obtained from plants or animals. Textile fiber is now being made artificially from non-fibrous material in coal, corn cobs, soybeans, peanuts, milk, woodpulp, and even from sand converted chemically into glass in the form of very fine, but not transparent, fiber.

These synthetic fibers can be woven on a loom. A new process, however, makes the loom unnecessary. The fibers are laid close together, side by side and crosswise, and bonded with a resin, heat-treatment and pressure between rollers.

There are also cloths, or sheeting, made without fibers. The well-known Cellophane is an example. They are made of plastic materials, some more or less rubber-like, spread in thin sheets and subjected to a curing process. The familiar nylon used as a fiber in women's stockings and other garments can be used also in a non-fiber form.

The present so-called "plastics age" holds no threat over fiber growers and textile manufacturers. Someone must grow much of the materials used to make plastics. But there will always be a demand for woven goods. In fact, the best uses for some of the new materials are in treating textiles. The plastic best suited for making sheeting is finding one of its principal uses as a coating over woven cloth. Another use is in the plastic film field.



LADY IN GLASS—All fabrics are not made of natural or plastic fibers, one that isn't being cloth from glass fiber.

In the film field, the usual plastic used is either vinyl chloride or some of its close relatives. In the fabric coating field, the older materials, such as nitrocellulose, rubber, oils and alkyds, are being supplemented with vinyl resins. Vinyl chloride and its so-called copolymers make up the bulk of these coating materials. Vinyl butyral forms a coating over cloth that is practically invisible.

Whether made of natural or synthetic fiber, woven or bonded, most cloths can be treated or so made that they have many desirable properties unknown in fabric of the past. Non-shrinking shirts and collars, and dresses that do not catch afire easily will add to comfort on one hand and safety on the other. Combustible clothing, accidentally touching a gas flame, has caused the death of many children.

New Fiber Treatment

Among the new fiber-treating materials is one with Resloom for a trade name, made by Monsanto Chemical Company. This synthetic chemical is relatively new but already has been well tested. Rayon goods treated with it are on the market. Cotton and woollens will follow. Exhaustive tests on both have now been made.

One of its principal abilities is to decrease shrinkage, even of woollens, to a negligible amount. When treated with Resloom, wool shrinkage is only about 3% as compared with the usual 25% to 50% of the same fabrics untreated. In addition it stabilizes the wool so that extremely thin cloth suitable for summer all-wool garments can be woven.

Resloom is a resin known chemically as melamine formaldehyde. When wool, cotton or rayon is treated with it, the chemical enters the heart of the fiber and remains there for the life of the cloth. The basic fiber is not injured. Goods treated may be washed or dry-cleaned and ironed as usual. Resloom can be used with known water-repellents, fire-retardants and anti-mildew agents. The Resloom itself prevents musing and gives the long-life crease in men's trousers.

Aerotex Cream 450 is the trade name of a product of the American Cyanamid Company. One of the chief resins used for spun rayon and rayon mixtures, it is a popular resin for crease-proofing linens as well as certain cotton fabrics,

particularly voiles. It is a water-soluble, partially condensed, urea formaldehyde resin in paste form. Because of the small size of its molecules it can penetrate the textile fiber. A curing process fixes it within the fiber cells.

When applied to certain fabrics under the minimum of tension, shrinkage control is also obtained. When used in combination with another resin made by the same company, permanent water repellence and anti-crease finish are obtained in one bath.

Rot-proof cotton cloth is something new in the textile field. It is not a quality particularly essential in the clothing field but, being mildew-proof as well, is suitable for garments to wear in hot countries. Its greatest value is in cloth that is in contact with the ground, but also in tents, awnings and bags for fruits and vegetables.

This rot-proof cotton is a development of the U. S. Department of Agriculture in its research laboratory at New Orleans. It is a modified cotton, a partially acetylated cotton somewhat related to rayon made by the acetate process. In tests it failed to rot during six months under ground in soil where ordinary cotton would rot in a week or two.

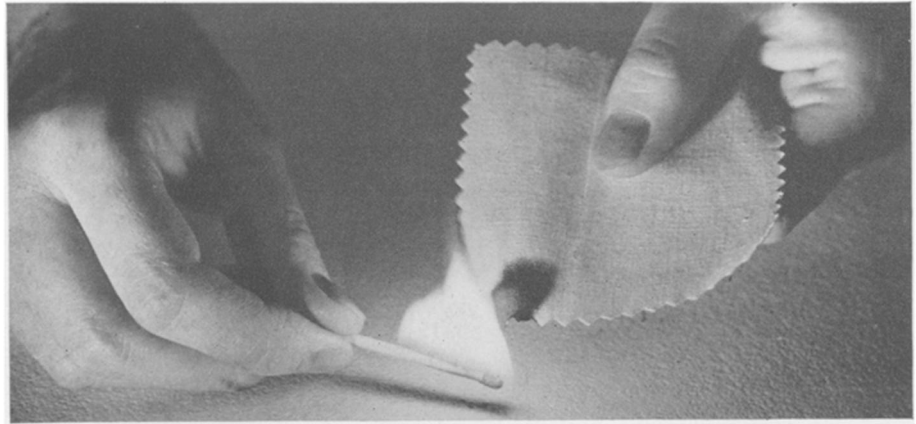
Not All for Clothes

Not all of the new chemically or otherwise treated fabrics are designed for clothing. Some are treated to assure longer life when used in upholstery or to provide beauty and safety from fire hazards when used as draperies. Flame-resistant fabrics are essential in night clubs and other public places where people assemble.

Other fabrics are treated for easy cleaning. A new table cover which resembles ordinary linen, can be kept clean on the table by wiping with a damp rag. Still others are waterproof sheeting for hospital and other uses. These can be made into raincoats and capes, and into protecting panties for baby.

Then, there is a gold- or silver-colored fabric that has many decorative uses in the home although designed for use in public places. It is a metal-coated plastic fabric that has a mirror-like finish. Its trade name is Miromesh, and it is made by the National Research Corporation.

The base material in this fabric is a mesh that resembles wire screening with the spaces filled with a cellulose acetate film. The fiber of the mesh is a well-known plastic called Saran, a com-



NON-INFLAMMABLE—Treatment makes fabrics resistant to flames and water.

pound of polyvinylidene chloride, which is highly resistant to most chemicals.

The mesh, filled with the acetate, is coated on one side with a thin film of aluminum applied by a high-vacuum process. This is covered with a protective lacquer. Over the silver finish, it is a clear lacquer; a gold-colored lacquer is used for the gold finish.

Beautiful draperies that defy fire, made by Plymouth Fire-Guard Fabrics, are woven of a combination of very fine glass fiber and flame-proofed cotton yarn. They are designed particularly for use in public places but are suitable in homes. They come in a wide range of colors and can be dry-cleaned, cut, sewed and ironed as easily as all-cotton materials.

In the future, the buyer of clothing will have to go further than the looks and the feel of the fabric. He will have to take the manufacturer's word for the invisible substances contained and, until tested, his word for the special qualities added to the cloth.

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DENTISTRY

Dental Drilling Painless With Topocaine Anesthetic

➤ A NEW anesthetic for taking the pain out of the dentist's drill was announced by Dr. Gustav William Rapp of Loyola University School of Dentistry at the meeting in Boston of the American Dental Association.

The anesthetic is put right on the spot that would hurt when the dentist drilled. It is not necessary to inject it into the gum by hypodermic needle. In limited tests it was successful in three out of four patients.

The anesthetic is a mixture of two

older ones, procaine and benzocaine, in an alcohol solution. In most cases it takes only one or two minutes to take effect.

Dr. Rapp said that additional experimentation will be necessary before the new anesthetic, which he calls topocaine, can be recommended for general use by dentists.

Science News Letter, August 16, 1947

AERONAUTICS

Scout and Rescue Plane Passes Rough Water Tests

See Front Cover

➤ THE NEW Navy Seahawk, the Curtis SC-2, has completed successful rough water landing tests at the Naval Air Test Center in Patuxent, Md., after repeated take-offs and landings simulating conditions encountered in the open sea.

The new seaplane is a version of the Curtis SC-1 which made its first flight early in 1944. The SC-1 took active parts in warfare later, its first action being in 1945 in the pre-invasion bombardment of Borneo. It is a low-wing monoplane with wings that fold back for storage on shipboard. It is a single-seat affair.

The new Seahawk is much like its brother but is a more rugged plane that can withstand rough water when afloat. This is important because this shipborne plane is not only a scout and fighter but is also a rescue craft. One feature of the new version is a separate door which allows a person rescued from the sea entry to a compartment and seat behind the pilot.

Science News Letter, August 16, 1947

Molds grow on anything from which they can get enough food.