

## TECHNOLOGY

# Throw-Away Clothes

Paper clothes, made to be thrown away after wearing, are being tested with success. The new fabric can be draped, printed, cut or sewed.

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► AT THE SOUND of the five o'clock bell, the white-clad laboratory technicians took off their spattered lab jackets, balled them up and threw them, not into the industrial laundry hamper, but into the waste basket.

On the home-grounds of an American paper mill, they are trying out a new development—clothes that can be thrown away as easily as paper handkerchiefs, and are as comparatively inexpensive.

The Kimberly-Clark Corporation of Neenah, Wis., in the heart of the Midwest's busy paper-producing area, is looking to the broader field of textiles to find new uses for paper. The plant that gave the world the paper hanky in 1924 has come up with what looks like a good new candidate, known for the moment as K-2000, a "textile" that grows on trees.

## Resort Wear Expected Soon

A new era for hard-to-wash utility garments like industrial coveralls, policemen's ponchos, hospital gowns, restaurant aprons and other apparel is at hand. Resort wear, bathing suits, and high fashion creations, also made of paper, may not be far behind.

Most important, paper garments may meet a new need for disposable clothing in the atomic era, when contamination with radioactive particles is a problem to be considered.

K-2000 is not a man-made fabric, and it is not a test-tube textile using an agricultural product, such as corn, soybeans or milkweed, as are other newcomers to the fabric world. It is a textile squeezed from balsam, spruce and jackpine trees. Instead of coming off a loom, this new fabric is made on high speed papermaking machines.

Utility garments are getting first priority in K-2000's experimental stages. Wrap-around laboratory coats in easy-fit sizes, ponchos for outdoor workers, hospital gowns, safety hoods and industrial coveralls are currently being tested. So far, K-2000 is living up to expectations, and shows almost unlimited possibilities.

Inexpensive as a paper bag for most uses and just as easy to throw away, it can be draped, printed, silk screened, cut and sewed like any other fabric. In some cases, this new paper textile may even be more practical than traditional fabrics.

It can be made to any specifications, varying in strength, appearance and tex-

ture. Tests have shown it can be made both water-resistant and flame-resistant.

Color and texture can be controlled, too, with K-2000 duplicating the "look and feel" of woven fabrics. The greatest success so far are samples that duplicate textured cotton. Papery stiffness is eliminated, and the soft fabric takes bright or pastel prints equally well.

Eventually, through the use of synthetic fibers, K-2000 may even be the forerunner of paper fabrics that are washable as well as durable, according to research experts working on the problems.

Thirty years of experimentation are the paper industry's greatest ally in the promotion of an idea as radical as paper clothes. Paper handkerchiefs are already familiar around the world, and from barber towels to table cloths, paper has already taken over many jobs traditionally done by woven cloths.

A further advantage to paper garments, in addition to the ready availability of raw materials, is the speed of production, which promises to keep costs reasonable, since papermaking is a relatively simple operation.

None of the regular weaving steps is involved in making the new paper textiles. Instead, in one form of the fabric, a cross web of thread forms the base. It can be rayon, nylon or glass, held together by adhesive.

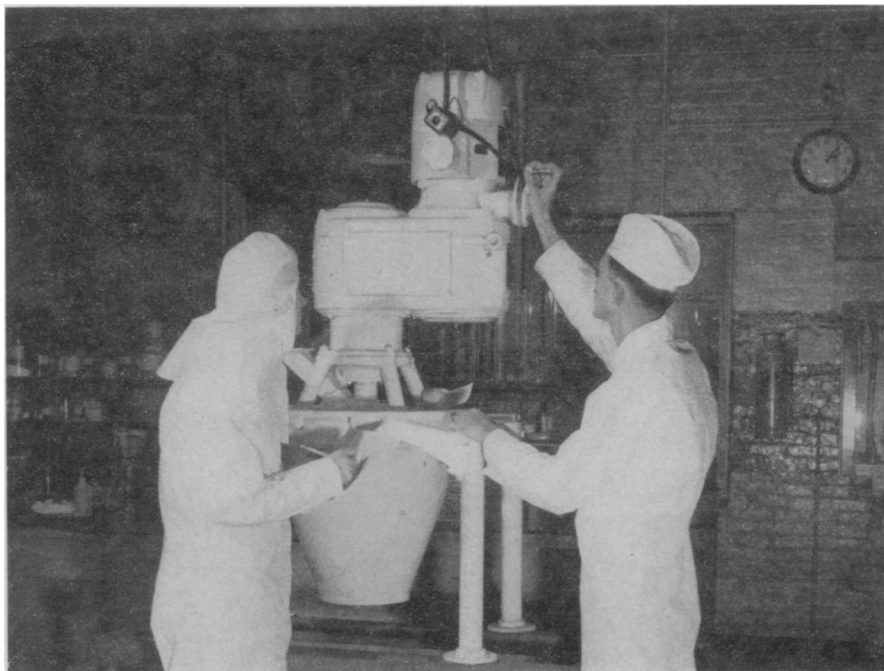
This basic cross-hatching thread can vary in thickness or in the number of threads to the square inch, allowing countless variations.

Onto each side of the base, several piles of high "wet strength" cellulose wadding are laminated to form the "skin" for the paper cloth's surface. The secrets of the whole process are in the wadding, for it is these minute paper shreds that make the new fabric resist wrinkling, scuffing and linting.

## Paper "Cloth" Easy to Sew

The home dressmaker and the wholesale garment producer both had to be "shown" through tests that some of the worst fears about paper cloth are baseless. Far from being hard to work with, it cuts like paper and sews like cloth, resisting tear behind the needle and pulling out of shape during production.

Such necessities as fasteners and zippers do not have to be sewed on with laborious care. They are merely glued on, or fastened with heat sealing.



**PAPER WORK CLOTHES**—These workers are wearing paper work clothes designed to be thrown away at the end of the day. Developed by the Kimberly-Clark Corporation of Neenah, Wis., the fabric can be cut, sewed and rolled off papermaking presses. Sport shirts, smocks and any number of garments can be made from it.

Paper fabrics by the yard or bolt will eventually be available for home use as well as mass production of ready-made garments, according to scientists who are working on the development.

Perhaps the most immediate use for paper clothes is in the field of atomic energy. Even in today's "safest" atomic research centers, garments of conventional fabrics often become quickly contaminated in certain work areas. Laundry at research centers is an expensive, as well as potentially risky, business.

Even after repeated launderings, dangerous radioactive particles linger in cloth garments—and worse yet, cling to equipment like washers and dryers, contaminating them and other laundry equipment. K-2000 may solve that problem, scientists hope, by providing multilayer construction in garment fabrics to "filter" radioactive dust.

Low cost and ease of disposal mean that paper clothes in danger areas may one day save lives, as well as dollars. Scientists are inviting military experts to look into the possibilities.

Debutantes may not bow in paper ball gowns that grow on trees for some time yet, and stores may not feature paper suits with two pairs of paper trousers for quite a while, but paper has definitely established a beachhead in the garment world, and its future looks bright.

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## PSYCHIATRY

## Drug Addicts' Reasons

➤ THE THEORY that drug addicts and alcoholics take drugs and alcohol just to escape from their problems and to gain pleasure was questioned in a report to the American Psychiatric Association meeting in Chicago.

Some addicts, at least, take drugs in part because unconsciously the drug or alcohol represents something which they fear and which has power over them. They deliberately seek this feared and powerful object, as represented by the drug, hoping to achieve mastery over it.

Then they could gain the pleasure of achievement and victory. They do not succeed in this and soon the addiction itself becomes a major problem.

This theory was presented by Comdr. Thomas S. Szasz, now at the U. S. Naval Hospital, Bethesda, Md., on leave from the Institute for Psychoanalysis, Chicago.

He based it on psychoanalytic study of a man addicted to alcohol and barbiturate sleeping pills, and on similar studies of two patients who used tobacco in a socially approved manner.

The two smokers came for treatment of other problems, but their smoking, which seldom reached the two-pack-a-day level, also turned out to be a problem. They

worried about whether they were smoking too much and about the possible effects on their health. They could not stop, however, because of the unconscious need to master a fear. If they gave up smoking, they felt inadequate and weak.

The alcohol-barbiturate addict showed his use of the drugs as a counter-phobic, or fear-fighting mechanism, by the way he used the drugs. He took them, he said, to get a good night's sleep. Then he stayed up, fully dressed, walked around, did everything he could to keep from falling asleep. To overcome the drug effects by staying awake meant, to his unconscious mind, that he had conquered the thing he feared.

The unconscious fears revolve around two main themes, Comdr. Szasz found:

1. Fears of instincts, or drives, that give rise to inner excitations the person might not be able to control.

2. Fantasies and fears of pregnancy, even in men. This unconscious fear arises from uncertainties about what goes on inside the body such as children are likely to have. Grown-up knowledge of such matters, however, does not influence the deeply unconscious fear.

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