

TEXTILES AND APPAREL NEWSLETTER

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Announcing

Introducing *Go Figure!*

CHARLOTTE COFFMAN

Cornell Cooperative Extension and the Department of Textiles & Apparel are developing a website, **Go Figure!**, to engage young people in science, technology and math. The goal is to produce online activities about youth-friendly topics in which youth collect measurements, input numbers into a database, use online calculators, compare their results with those of other populations, and obtain a printed record. Puzzles, quizzes, experiments, and games complete the website. Young people can do these activities individually or as part of a class or club.

Before we can open this new website to the public, we need data for two activities, *Jean Jargon* and *Who's Average?*, from at least 300 youth so that the project database is large enough to yield reliable comparisons.

Participation is 100 percent voluntary and no names or contact information will be recorded. Data will only be used on the website database and expressed as group numbers (i.e. most popular jean styles for 14-year-old boys who live in urban communities). Individual responses will remain anonymous and cannot be viewed on the website. In addition, we will not share this data with others. **Please reproduce the enclosed forms, collect data from youth ages 8-19, and mail the completed forms to Charlotte Coffman, Cornell University, MVR 239, Ithaca, NY 14850.**

ENGAGING YOUTH

Wearing Nanotechnology

CATHERINE JORDAN*

Nanotechnology – This word has become common, appearing in the names of products, in research, and in science fiction novels. What does it mean? Nanotechnology is defined in two ways. It can refer to items smaller than 100 nanometers – about 1/1000th the width of a human hair. It can also mean technology involving the precise placement of individual atoms. Defined in this way, it seems to be quite separate from everyday life.

However, nanotechnology has been used to improve products that most of us use everyday. These include laundry detergent, 6-pack rings, and surgical tools. One of the most widespread applications of nanotechnology is in clothing, including Nano-Tex™ Resists Spills stain-resistant fabric. Spilling grape juice on your lap is no longer a problem, thanks to a net of non-stick “nanowhiskers.” These tiny whiskers protect the cotton fibers, not allowing spills to soak in and stain. Look for future applications of nanotechnology in clothing, such as aromatherapy shirts and stink-free socks.

For this year’s American Chemical Society “Chemistry Day at the Mall,” the Textiles and Apparel department’s booth featured an activity in which visitors compared the properties of Nano-Tex™ Resists Spills fabric and regular 100% cotton fabric. The goals of the activity were not only to learn about this application of nanotechnology, but also to practice making scientific observations, predictions and comparisons.



Visitors really enjoyed watching stains bead up and roll off of fabric samples, but also rose to the challenge, trying their best to get the stain-resistant fabric to hold a stain. Did it work? You’ll have to try yourself. The activity is included in this newsletter.

Resources:

www.dictionary.com

www.nano-tex.com

**Catherine Jordan is a graduate student in the Department of Education. She became interested in textiles through her work with Dr. Frey developing educational activities about materials science through the Internships in Public Science Education program. She wrote the "Nanotechnology and Stain-Resistance" activity and has generously agreed to share it with our readers.*

Calling All Teens

CHARLOTTE COFFMAN

Plants & Textiles — A Legacy of Technology focuses on past and present technologies that convert plant materials into fibrous products. This is the second year of a three-year project so new activities can be added as more people become involved. The goal is to eventually post reviewed and tested activities on a website for all to use. The project has four components:

1. Tools – make a tool.
2. Technology – use the tool in a traditional activity.
3. Research – use the Internet to learn about comparable technologies and products in today’s market and to further explore plant fibers and textiles
4. Connections – involve others from your community

Marcia Eames-Sheavly, Horticulture, and I introduced this project at the conference of the 2004 NYS Association of Cornell Cooperative Extension 4-H Educators in October. Lori Bushway, also from Horticulture, offered a similar session at the 2004 New England/New York Agriculture in the Classroom Regional Professional Development Conference in November. At both workshops, we challenged adult educators to help us engage youth people in the development of this program. Youth can participate in these ways:

- Develop activities based fibrous product or agricultural crops from their communities
- Pilot test activities in papermaking, mat weaving, and rope making
- Partner with community agencies such as museums, historical associations, schools, camps, etc. to extend the project
- Provide feedback from use of traveling trunks
- Make items for additional traveling trunks

At this point, we are particularly interested in identifying interested teens and museums (or historical associations). If you have suggestions, please contact Charlotte Coffman via Tel: 607-255-2009 or Email: cwc4@cornell.edu.

CONCERNING CONSUMERS

Are the Days of Smelly Gym Socks Over?

ELIZABETH HERGET

Research and development in the world of textiles is becoming more and more exciting: clothes can now play music, heat you up and cool you down, or let you know when you are in danger. Some of the most useful advances for everyday application are being made in antimicrobial apparel. These fabrics are used in many areas, from medical garments to athletic apparel. Although antimicrobial apparel has been around for many years, the fine-tuning of the process has afforded new and more cost-effective alternatives to sweat socks and workout clothes that promise to resist odor and halt the spread of disease.

As R.V. Caspian for *Bobbin* writes, "Today's wash conditions are not sufficient to address the adverse effects of microbial growth on fabrics." Therefore, the dinginess and breakdown of fibers in clothes, particularly those made of stretchy materials like polyurethane, happens more rapidly when bacteria continue to exist in clothes even after laundering. To circumvent this problem, some mills added an antimicrobial shield in the finishing stages of production after the garment had been made. It was then dried at a high heat to fix the absorption. Unfortunately, these early attempts at antimicrobial treatments were far from perfect. The finishes wore off quickly and only resisted a narrow field of microbial agents. Most recently, antimicrobial additives have been incorporated into polymers through melt mixing to provide persistent antibacterial action on the surface of the polymer. One example is the addition of silver ions to molten polyester. These ions bind to the bacteria found in perspiration, altering the metabolism of the microorganisms, inhibiting their growth, and preventing the distinctive odor of smelly gym socks.

Many apparel manufacturers, including those that produce garments strictly for fashion, are adopting antimicrobial alternatives, but it is the active wear producers who are pushing this technology. For example, Marmot produces a line that features silver ceramic polymer embedded in a polyester matrix. Hot Chilly sells a Bio-Silver system bra, the Bi-Dry base layer shirt and pants, and winter sport socks.

Antimicrobial treatments may prove to be a major pro-consumer happening. Buyers enjoy improved hygiene; are spared nose-wrinkling, locker-room odors; and enjoy longer wear from garments protected from microbial degradation.

Resources:

1. Caspian, R.V. *Antimicrobial Protection for Athletic Apparel: Summing Up Your Options*, Bobbin, pp. 44-46. January, 2002.
2. Hot Chillys, <www.hotchillys.com>
3. Marmot, <www.marmot.com>
4. *Performance Apparel Markets*, Textiles Intelligence. Issue 7, pp 79. January, 2004.

Holiday Cashmere May Not be a Bargain

CHARLOTTE COFFMAN

The holidays are approaching and retailers are well into the advertisement season. You may have noticed that, this year, cashmere sweaters are widely featured. Cashmere is the fine hair from the Kashmir goat and has long been a fashion statement of the rich and famous. No longer restricted to high-end boutiques, cashmere is popping up at stores like Costco for about \$50. Fifty bucks! How can that be? As the common wisdom goes — if it sounds too good to be true, it probably is.

Consumer Reports noticed the cashmere craze and decided to take a closer look. They purchased six cashmere sweaters: Stew Leonard's (2 for \$90), Bloomingdale's (\$100), Macy's (\$120), Lands' End (\$128), Brooks Brothers (\$298), and Pringle of Scotland (\$450). What they found is that well made (and, usually expensive) cashmere sweaters are tightly knit from substantial two-ply (i.e. two strands twisted together) yarns whose short fibers have been removed to reduce pilling. Conversely, poor quality sweaters were made from either single-ply yarns or thin, loose two-ply yarns and short fibers were left attached.

Even more serious was the adulteration that Consumer Reports uncovered. Unscrupulous processors add wool to the cashmere while claiming on the fiber content label that the material is 100 percent cashmere. This dishonesty can only be confirmed by viewing the fibers under high-powered microscopes. Consumers cannot tell the difference even with careful examination of the fabric.

In general, Consumer Reports found that you get what you pay for. The two cheaper samples (Stew Leonard's and Bloomingdale's) were not worth even their reduced price. The sweater from Bloomingdale's was found to be made from single-ply yarns. The one from Stew Leonard's contained about 10 percent wool. Sweaters from Macy's and Lands' End were of very good quality. The Brooks Brothers and Pringle of Scotland were judged excellent.

Advice to holiday shoppers is to read the fiber content label (most comply with the law) as well as any hangtags. Stick with brands you trust and critically examine the number of plies, the hand of the yarn, and the tightness of the weave. And, if the price is under \$100, you probably should pass. It is no bargain!

Resources:

1. *Steer Clear of the Cashmere Bargain*, Consumer Reports, pp. 8. December, 2004.

SUPPORTING INDUSTRY

Updated Apparel Industry Outreach Website

FRAN KOZEN

Visit Apparel Industry Outreach at www.apparelindustry.cornell.edu and see its new look. Remember, the *Topstitch* newsletter is now on-line.

EMERGING TECHNOLOGIES

Self-cleaning Clothes?

FRAN KOZEN

Do self-cleaning clothes sound like the perfect thing for your life? Researchers at Hong Kong Polytechnic University thought so, too. They have developed a chemical coating for fabrics using nano-sized (miniscule) titanium dioxide molecules, which will break down organic materials in the presence of ultraviolet light. Of course, if they don't get dirty, they won't wear out as fast, so you won't have an excuse for new clothes. And remember, in *The Man in the White Suit*, Alec Guinness was taken prisoner by textile manufacturers so his amazing fabric could not be released!

—*Just-style.com/news*, June 16, 2004

Hunters' Step Out

CHARLOTTE COFFMAN

Deer hunting season is here and, just in time, so is Timberland's new boot. Its Pro Sports Series Master Rack boot has a polyurethane outer layer for waterproofing, abrasion resistance, and scent control. This special footwear also touts a high-resolution camouflage pattern protected by an ultraviolet coating.

—*www.timberland.com*

Non-cling Nylon

CHARLOTTE COFFMAN

Nylon is an amazing fiber with many uses from lingerie to carpet. One disadvantage, however, is cling. Get your nylon shirt moist and it sticks uncomfortably to the skin. Royal Robbins has found an answer to this problem. They are weaving extra nylon yarns into the fabric to create a pattern of dots. These dots touch the skin, allowing the remainder of the fabric to float on a layer of air between the garment and you.

—*www.royalrobbins.com*

BROWSING WEBSITES

EPA Website

<<http://www.epa.gov/>>

The U.S. Environment Protection Agency has an extensive website worth exploring. It includes information on research programs, interesting databases, publications and other resources, and even web pages for kids. The Research section provides updates on topics such as clean air, safe water, and air quality. A report entitled *Sensitive Subpopulations and Children's Health* explains how new chemicals undergo a cost benefit analysis and how the EPA develops protocols for data collection.

The database section includes the Mid-Atlantic Integrated Assessment, Environmental Monitoring and Assessment program, Environmental Information Management System and other useful reports. EPA Resources include both online and hardcopy publications, national hotlines, and a list of environmental definitions and acronyms.

The Environmental Kids Club is designed for students and teachers. Young people can do word searches, puzzles, and other quick activities. The Teacher pages contain curricula on environmental issues, ideas for community service projects, and information about workshops, conferences, and grants.

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