ANNOUNCING
by CHARLOTTE COFFMAN

Welcome a Returning Friend, Fran Kozen
We are pleased to announce that Fran Kozen will be working with the FSAD Extension program for the spring of 2011. During her time at Cornell, Fran has taught several classes, worked with the youth program, organized the department trip to New York City, helped coordinate the apparel industry outreach, accompanied students to India, and much more. With her trademark enthusiasm, she is already planning the FSAD Focus for Teens program (Career Explorations), a workshop for STARR, and trips to county associations and schools. It is truly wonderful to have Fran on board again.

Cornell Fashion Collective (Cornell Design League)
The 27th Annual Runway Show of the Cornell Fashion Collective has been set for April 16, 7PM in Barton Hall on the Cornell Campus. This student-run organization provides an outlet for people to express their creativity through the medium of fashion, and offers a first-rate show for those lucky enough to score a ticket. For a look at last year’s show, check out these photos <http://www.flickr.com/photos/cornellhumanecology/sets/72157623644632072/> and this video <http://www.cornell.edu/video/?videoID=661>. For a preview of some of this year’s designs and interviews with some of the designers, read these articles from the Cornell Sun <http://cornellsun.com/section/arts/content/2011/02/09/minist%C3%A8re-de-la-mode> <http://www.cornelldailysun.com/section/arts/content/2011/02/01/goddess-small-things>. If your 4-H club would like to attend, contact Charlotte Coffman at cwc4@cornell.edu for information on ticket prices and availability.
**ENGAGING YOUTH**

**Spring Fiber Science and Apparel Design Youth Calendar**

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**Fiber Science & Apparel Design Goes to India**

In January, four faculty and 13 students from Fiber Science & Apparel Design spent two weeks in India learning about contemporary and traditional textile and apparel production. We visited textile and apparel related facilities in and around four cities, and getting considerably off the tourist track. We learned about each step in cotton garment production from the plant in the field through store ready packaged and tagged garments. We saw dyeing, silk screen printing, tie dyeing, ikat weaving, embroidery and beading. We experienced amazing Indian hospitality everywhere we went, and we ate fabulous food. We all came home with an extra suitcase, mostly filled with fabulous silk and cotton textiles.

As you may know, little textile and garment production is done in the United States today. It is no longer possible to take one field trip to North Carolina to see all aspects of the industry, so this trip provided an opportunity for our students to see how the garments are actually produced. Many of our students will go on to work in the apparel industry where they may well be arranging production (“sourcing”) overseas, so it is valuable for them to experience the cultural differences, the difficulties of transportation, language, etc., that make it challenging. The traditional textiles and garment embellishments here provided much design inspiration for our students, as well.

India is one of the top countries of origin for clothing sold in the USA. You will particularly notice “Made in India” labels on embellished fabrics, such as embroidered or beaded blouses, scarves, and cotton prints. Ethnic looks seem to be of interest this spring, so Indian style gauzy cotton tunic shirts with embellishments are appearing in stores and catalogs under many brand names.

You will find articles by some of the students who traveled to India below.
CONCERNING CONSUMERS

**Columbia Jackets**
by Whitney McMullin

The chill of the Ithaca winter has had many Cornell students and faculty wondering how to keep warm when a down jacket isn’t enough. Columbia Sportswear’s answer—Omni-Heat® Thermal Comfort. Columbia’s mission throughout the years has been to provide exceptional comfort in the outdoors. Recently, they have embraced fabric and fiber technological innovation. There are two components to the new Omni-Heat® technology: Omni-Heat® Electric and Omni Heat® Thermal Reflective. Some products were introduced this winter, and more are coming.

An analysis of Columbia’s Omni-Heat® jacket illustrates the complexity of the product. Omni-Heat® Electric is integrated into the jacket as four lightweight, ultra thin, flexible carbon-based heaters. Two of the heaters are located on the lower sleeves to provide warmth to the hand area, even when the user removes their gloves. The other two are located along the sides of the back to provide heat to the body core. The heating elements can be activated by the touch of a button. And, the new technology is perfect for modern day consumers who constantly walk around with electronic devices. The electricity in the jacket charges USB-compatible appliances from cell phones to iPods. Plus, the jacket, including the batteries, is still machine-washable.

The inside layer of Columbia’s Omni-Heat® jackets combine Omni Heat® Thermal Reflective technology with their Omni-Wick® technology to provide heat to the areas of the body that loose warmth and to wick moisture away from the body in areas where sweat glands are located. The Omni Heat® Thermal Reflective technology is a silver dot matrix that is said to increase warmth by 20% by reflecting the body’s own infrared waves back onto itself. Use of a dot matrix instead of a solid reflective coating allows breathability around the dots. The reflective dots are strategically placed on the jackets where tends to lose heat. Areas with high numbers of sweat glands, such as under the arms, have the moisture wicking linings instead. Because men have more sweat glands than women, jacket configurations vary by wearer gender.

Besides the jacket, the Omni-Heat® Thermal Comfort line includes boots with a flex heater powered by small, rechargeable lithium batteries embedded in the removable liner sock. Gloves contain a rechargeable heater that is located across the back of the hand and runs into the fingertips to provide warmth to the whole hand.

Having experienced one of the coldest winters in recent history, it is a relief to witness outdoor gear companies such as Columbia using technological innovation to keep us warm. I look forward to greater winter warmth when hiking to class next winter.
Report from India
The Good, the Bad, and the Dusty
by Jen Keane

India is a country where extremes abound. Our factory visits proved to be no exception. Having read stories of apparel sweatshop conditions in developing countries, we braced ourselves for the worst. In most cases, however, we were pleasantly surprised. For example, one embroidery and trim manufacturer in South India welcomed us with flowers and fresh coconuts to their spotless facility. Large, well-lit rooms housed their massive embroidery machinery separated by wide, marked walkways. Cheerful women in brightly colored saris walked back and forth, monitoring the machinery from a safe distance while others sat at tables in small clusters refilling bobbins. We were equally impressed with a knitting facility the following day. In the location we visited they carried out all stages of production from yarn to finished T-shirts and sweatshirts. Imported knitting machines were ventilated to prevent dust accumulation. The entire facility was incredibly clean with wide aisles and doorways free of obstructions. Many of the facilities we saw had motivational signs posted around the plants, provided for daily breaks, and seemed relaxed and friendly. Some of them provided transportation and even dormitory housing for workers.

We also toured some factories that would not have passed safety inspections by our standards. In one dye plant, we found ourselves dodging bins and piles of fabric strewn randomly around the factory floor, particularly unnerving as we walked through puddles of water surrounding giant metal vats filled with caustic soda. A later knitting facility was an asthmatic’s nightmare with cotton lint flying in the air and piles of lint clinging to machines and windows. Workers at that facility were not wearing masks.

We noted that the safer and cleaner factories of those we saw were those producing for the export market. Many export firms have contracts with large American and European companies and know that their continued business relies on meeting rigorous international standards. Those producing for the domestic Indian market lack the financial stability and perhaps the regulatory and consumer incentives to make health and safety their top priority. Long-term contracts with international apparel companies are clearly not only beneficial for the Indian Economy but positively affect the working conditions for Indian workers.
EXPLORING FIBERS and FABRICS

India- Tie and Dye
by Whitney McMullin

When thinking of Indian textiles, I often think of the traditional tie and dye processes that are common to the indigenous textiles of the area. However, I hadn’t really thought about how tie and dye garments might be mass produced. During our trip to India, our group was fortunate enough to visit a tie and dye factory to see the process in action, outside of Coimbitore. Upon arrival, we were welcomed by a group of workers who had chalked elaborate designs called rangoli into the sand welcoming us to their workplace. Once inside the plant, we found a group of male workers sitting on the floor folding and wrapping skirts with yarn preparatory to dyeing in one room. In another room, there was a group of female workers precisely dyeing each folded and tied segment of the skirt with a sponge. I never realized the amount of handwork that went into the tie and dye apparel that we see in U.S. retail stores. I always assumed, because of its uniformity, that the process happened by a machine and never

Concerning Consumers: Fast Fashion vs. Social Responsibility

You will notice when you read the tags that most of your clothing has been produced outside of the United States, perhaps in India, or perhaps in China, Vietnam, Indonesia, Egypt, or any number of other countries. There has been great pressure on the American retailer to offer constantly changing fashion at low prices, which has caused brands to move around the world seeking the cheapest places to manufacture. At first, price was everything, but news of sub-par working and environmental conditions in overseas factories sub-contracting to American brands outraged many consumers. Today the largest brands are careful to do their best to see that contract manufacturers meet social and environmental standards. See standards and practices for Gap, Inc.: www.gapinc.com/content/gapinc/html/csr/supply_chain.html.

Does this mean that everything you see in the store has been produced in ideal conditions? No. It is difficult to inspect from a distance, garment contractors often subcontract to an ever-changing array of small facilities, local regulations regarding such things as child labor may differ from ours, among other things. Small retailers and importers may not have staff or funds to make site visits overseas and must rely on what they are told, something which might not be accurate when an overseas contractor wants the business badly. In fact, a 2009 study1 by the Labor and Work Life program at Harvard Law School worldwide found that only 6% of 2000 large firms (in any industry) surveyed say they monitor suppliers for policy or code compliance. Take a look at websites for social responsibility policies by your favorite brands -- you’ll have to go down to the bottom and search out corporate policies. If you are in the mood for interesting reading, try The Travels of a T-shirt in the Global Economy by Pietra Rivoli, a fascinating look at the international economics and politics involved in producing a cotton T-shirt for the U.S. market.

1www.law.harvard.edu/programs/lwp/pensions/publications/occpapers/occasionalpapers5.pdf
imagined the number of workers who precisely hand tied and dyed every section of the garment. We learned that the skirts we saw in production were to be exported to stores in the United States. The skirts were to be sold to a retailer for about $7, and would retail for $24. It seemed like very little money for the effort involved!

After being fed a delectable lunch of authentic cuisine, we were provided the opportunity to dye skirts of our own. We received instructions from the workers on how to fold and tie our skirts and were corrected numerous times for trying to create unique designs. The workers clearly did not realize that we were not making the skirts to be exported and were concerned for the quality of the pieces being produced. It was hard not to feel like we were invading their workspace. We laid our folded and tied white skirts out on newspapers and applied dye one side of the skirt at a time with a sponge. Although encouraged to use the blue, orange, yellow, and maroon colors just as they were, many of us wanted to experiment with some other interesting colors or order of colors. In the end, each of our skirts was unique, with individual patterns and colors. Once the dye had permeated the skirts for about a half hour, the workers helped us to rinse them out so we could bring them back to the hotel with us. We look forward to wearing our creations next summer. More than the skirts, though, all of us were able to take away the experience of tying and dyeing textiles in a dye plant. It was amazing to see the process and it was very fun to be able to take part.

**Tie dye** is a traditional resist dye technique in which sections of fabric or yarn are tied up in some way so that dye cannot penetrate. Fabric may be folded, twisted, gathered, or otherwise configured before being tied or clamped in place. The entire fabric may then be immersed in dye and blocked areas will remain uncolored, or dye may be applied selectively to sections of fabric. Dye will blend slightly where different colors meet in this latter method, which is what we tried.
Indian Ikat
by Caroline Delson, Jen Keane

Ikat is a very old form of textile design in which yarns are tie dyed prior to fabric weaving. The dyed yarns are used to create complex patterns as the fabric is woven. It is traditionally practiced in many parts of the world, including India, where we were able to see the fascinating ikat dyeing and weaving process at Pochampally, near Hyderabad. The term “Ikat” comes from a Malayan word meaning “to tie”. There are three ways of weaving ikat: warp (warp yarns are dyed), weft (weft yarns are dyed), and double ikat (both warp and weft yarns are dyed). You can identify an ikat pattern by the slightly blurry pattern outlines, rather like water marks. An ikat weave will be the same on both sides of the fabric, unlike a printed imitation.

Though ikat can be done in a variety of ways, the basic principles remain the same. First, a pattern is carefully planned. Bundles of yarns are then arranged onto a frame in the order they will be dyed and marked with the desired pattern. Rubber strips or impermeable yarn are wrapped around the bundles to resist the dye in the marked areas. Multiple colors may be applied by repeating this process with different sections of the yarns blocked. Preparing the yarns is very time-consuming, and the more colors the more complex. Originally, only natural dyes were used, achieving rich colors with indigo, ochre, or even insects, but most ikats today are dyed using synthetic dyes. The patterns vary according to religious differences in the region they are produced. The Jains and Hindus traditionally enjoyed patterns of flowers and animals while the Muslim community, because of their religious rules, could only use abstracted, geometric designs.

Dyed warp threads are threaded onto the loom in a specified order according to the planned pattern. Weft yarns are wound onto shuttles to be used during weaving. Both of these steps are done in double-ikat techniques. The patoula is a particularly complex type of double ikat famous to Western India, specifically the principality of Gujarat. It is usually of sari length and always woven in silk. Due to its complexity and expense, the patoula has been maintained as a status symbol, and its weavers are of high caste. Despite its status, however, only two families carry on the tradition and double ikats are almost extinct in Gujarat.

Other regions of India such as Orissa in the east and Andhra Pradesh in the south also produce ikats but are different in scale, methods and intended market. In Orissa, the dye work is self-sustaining because residents wear the locally produced ikats. Chirala and Pochampally are directed more towards trade and tourists.

With the growth of mass produced textiles, hand production is becoming increasingly obsolete. However, there is renewed interest in artisanal goods in reaction to industrialization and loss of individuality. Pochampally runs a training center to teach traditional dyeing and weaving techniques. The cooperative is successfully marketing fabrics in Europe as well as in India. If this continues to grow, the time and skill intensive work of Indian ikat production may play a greater role in the global market.
RECALLING TRADITIONS
by Fran Kozen

This is the 100th Anniversary Year of Cornell Cooperative Extension. The Cornell University archives are a treasure trove of information on CCE programs of the past. In 1915, you would have been able to participate in a women’s group conducting a Cornell Reading Course. The suggested program for a meeting on clothing includes:

Roll call with attendees to mention a favorite dress or hat from childhood
Reading of papers on:
  • Clothing hygiene, which may have referred to the rather new product, underwear.
  • Ways to test for adulterated textiles and methods used for making cotton represent wool, silk, linen (A concern when purchasing factory woven and knitted goods instead of making your own.)
  • The necessity of rag markets in large cities (There was a large rag market in Harlem and thousands of rag men on the streets of New York at one time.)
  • The Consumer’s League (The National Consumer League was founded in 1899 for the purpose of promoting fair working conditions for workers and safe and sanitary products for consumers.)

The reading aloud of chapter 22, on the great barn and the sheep shearers, in Far from the Madding Crowd, by Thomas Hardy.
Discussion of:
  • The desirability of a pure textile law (Chemical adulterants such as starch or metallic salts and substitution of fiber types such as cotton for more expensive wool and silk were an issue. Regulation did not appear until 1932, although it was discussed prior to this.)
  • The advantages and disadvantages of ready-made clothing (This industry was launched late in the 19th century, but was still not widespread in 1915.)
  • The contribution of the home to the textile industry (It was not clear whether this is a reference to women working as seamstresses, to weaving of home textiles at home, or to piecework clothing production for the growing number of factories.)

Exhibits of photographs or actual clothing from the past, spinning wheels, and old and modern fabrics to compare were suggested.


BROWSING WEBSITES

www.sarisafari.com/, a textile tour through weaving, dyeing, embellishing and wrapping Indian safaris. Lots of pictures of traditional textile arts.
www.pochampally.com, the ikat weavers we visited