Combined Proceedings

acptc

Association of College Professors of Textiles and Clothing, Inc.

Eastern, Central, & Western Regional Meetings

1979
1979 COMBINED PROCEEDINGS

ASSOCIATION OF COLLEGE PROFESSORS
OF
TEXTILES AND CLOTHING, INC.
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Western Region

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1979 COMBINED PROCEEDINGS

Eastern, Central, and Western Regions

Association of College Professors

of

Textiles and Clothing, Inc.
Eastern Region

Association of College Professors of Textiles and Clothing
COMMITTEES

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EASTERN REGION
30TH ANNUAL MEETING
ASSOCIATION OF COLLEGE PROFESSORS OF TEXTILES AND CLOTHING
Holiday Inn Resort 1776 Hotel, Williamsburg, Virginia
October 24-27, 1979

Program

Wednesday, October 24

1:00 p.m. Executive Board Meeting
Pre-conference Tours

7:30-9:00 p.m. Registration

8:00-10:00 p.m. Wine and Cheese Party

Thursday, October 25

8:30 a.m. Opening Session
Presiding: Phyllis Tortora

9:00 a.m. Walking Tours of Restoration Area

11:30 a.m. Lunch at Historic Restaurants

2:00-4:00 p.m. Tour Costume Department, Colonial Williamsburg

5:00-6:00 p.m. General Session
Presiding: Phyllis Tortora

"Today's Care For Yesterday's Textiles"
Linda Baumgarten, Curator of Textiles
Colonial Williamsburg

7:00 p.m. Dinner
Presiding: Nora MacDonald

"Fashionable Fabrics 1700-1800"
Mildred Lanier, Research Associate
Department of Collections
Colonial Williamsburg

Friday, October 26

9:00 a.m. General Session
Presiding: Phyllis Tortora

"Design Within Limits"
M. Dolores Quinn, Drexel University
10:15 a.m.  
Business Meeting  
Presiding: Phyllis Tortora

12:00  
Luncheon  
Presiding: Barbara Starke

"The Impact of the Far East on the United States Textiles and Apparel Industries: Teaching Implications"  
Mary Barry, Auburn University

2:00-3:00 p.m.  
Research Reports  
Resolution Room  
Presiding: Dr. Virginia Carpenter

Speaker:  
"Combined Effects of Flame Retardant Finish Location and Inorganic Salt Deposit Location on Flammability of Cotton Fabrics"  
Nancy Kay Harrington and Kay Obendorf, Cornell University

Speaker:  
"Laboratory Versus Wear Testing on IFM Polyester Fabrics for Children's Sleepwear"  
B.G. Murphy, R. McLellan, M. Hurwitz(presenter) and D. Autry, University of North Carolina at Greensboro

Speaker:  
"Cost Benefit of the Proposed Flammability Standard for Upholstered Furniture"  
Rachel Dardis and Ruth Thompson, University of Maryland

Speaker:  
"Self Expression Through Garment Purchase"  
Judith J. Leonard and Helen I. Douty, Auburn University

2:00-3:00 p.m.  
Research Reports  
Yorktown Room  
Presiding: Ruth E. Weibel

Speaker:  
"Consistency of Sizing in Boys' Ready-to-Wear"  
Loree Ann Benziger, University of North Carolina at Greensboro

Speaker:  
"Depression: The Relationship to Clothing and Appearance Self Concept"  
M.L. Johnson Dubler, and Lois M. Gurel, Virginia Polytechnic Institute and State University

Speaker:  
"Family Use of Functional Clothing for Children with Physical Disabilities"  
Jane M. Lamb, University of Delaware
"Clothing Construction Modules Designed for Mainstreamed Visually Impaired Students"
Jessie Warden, Florida State University

"Dress of Older Italian-American Women: Documentation of Dress and the Influence of Socio-Cultural Factors"
Judith Zaccagnini Flynn, Ohio State University

"Twentieth Century Quilts of Appalachian Virginia"
Catherine McKinney and Joann F. Boles, Virginia Polytechnic Institute and State University

"A Computer-Assisted Content Analysis of Fashion Illustrations, 1875-1885"
Jo B. Paoletti, National Museum of History and Technology

"Fabrics for Plantation Field Slaves, United States, 1820-1863"
Ann Cordy, University of Maryland

"Traditional Textiles and Clothing of Nepal"
Barbara K. Nordquist, Howard University

"Use of Weighted Kappa in Determining Consistency of Judges' Opinions Regarding Sleepwear Fabric Characteristics"
Margaret Jane Gallagher and Mary Ann Zentner, Virginia Polytechnic Institute and State University

"Consumer Satisfaction, Preferences and Care Procedures for Selected Women's Sleepwear Fabrics"
Jane Davis and Mary Ann Zentner, Virginia Polytechnic Institute and State University

"Criteria for Recommending Fashion Merchandising Students for Employment"
Wanda Holder Hartman, University of Mississippi
Speaker:

"Clothing and Textiles Programs at Community College and Other Post-Secondary Schools in the U.S."
Kitty G. Dickerson and Darrel Clues, Virginia Polytechnic Institute and State University

3:30 p.m.
General Session
Presiding: Joann Boles
"Dress For Success"
John T. Molloy, Author and Lecturer

Saturday, October 27

9:00 a.m.
Executive Board Meeting
Post-conference Tours
For our discussion this afternoon, I would like to emphasize methods for storage and care of textiles which can be accomplished by the lay person who may not have a degree in conservation, but who nevertheless wishes to provide a safe environment for the textiles in his or her collection. I shall not dwell on detailed methods for restoring or cleaning textiles, as these activities are in the sphere of the professional conservator who has had the experience and training to recognize and deal with conservation problems which may not be immediately apparent to the untrained eye. The professional conservator works by the principle that conservation should be reversible: that is, no technique should be used if it cannot at some future date be undone, without disfiguring or endangering the textile.

Many textiles have been damaged by the well-meaning efforts of people who have tried to clean or mend them without adequate knowledge of the possible outcome. Many curators have seen valuable coverlets which have fallen apart in washing, even when - as the owner protested - it was done in the delicate cycle of the washing machine! Or perhaps a silk textile was "mended" with cellophane tape or iron-on tape, neither of which can be removed without the possibility of damage and stain to the antique fabric. Heirloom christening dresses have been carefully starched, pressed and stored - perhaps also wrapped in plastic - only to have the starch oxidize during the storage, resulting in a stained and mottled appearance when the dress is finally removed from storage. Textiles were and are made to be used. In the past, as today, they were slept on, worn, scrubbed, crumpled, walked on, and subjected to other daily stresses.

Because of their very familiarity to our daily lives, it is easy to take textiles for granted. We fall into the habit of treating heirloom fabrics as we would our modern clothing or linens. Even the most gentle methods recommended for cleaning our modern clothing or textiles might prove too harsh for an antique textile, which is vulnerable and weakened with age. This would include such things as machine washing using the delicate cycle, commercial dry cleaning with its resultant tumbling, or even hand-washing in a cold water detergent.

Let us use the hypothetical example of an 18th century printed bed curtain. Two hundred years ago, the fabric withstood sun bleaching, treatment with chemical mordant, dunking in a dye pot, and further bleaching in a solution which most likely included cow dung! Then the textile was tightly packed in a bale and shipped to America, where it probably lay in an unheated warehouse for several months. It was then purchased, made into bed furniture, and used for years, with daily exposure to sun, dirt, and insects, with periodic vigorous washing in lye soap. Finally, the bed hangings were retired, packed in a wooden trunk, and moved to the attic. But now, weakened by age and by the delayed action of some of the chemicals used in manufacture, this textile might be too fragile to withstand even the most gentle hand washing.

In a sense, we might think of textiles as being breakable, like a piece of glass, except that the damage usually occurs microscopically within the fibers. Such insidious damage is often more dangerous than outright breakage, because it may go undetected until too late. We know instinctively that we must handle a piece of antique glass very gingerly, because a slip is
painfully obvious. Because damage to textiles occurs gradually, careful storage and conservation treatment may be postponed until too late. In spite of my words of caution, I did not come here to discourage you. There is much that the individual can do to care for textiles in a private collection, even without the services or skills of a professional conservator. In fact, day-to-day conservation is often a matter of knowing what not to do; by recognizing and correcting the conditions which are harmful to textiles, one has already made great strides in the direction of conservation.

Careless handling and storage can result in severe damage to textiles. Physical damage can also occur from improper storage, such as crushing, folding repeatedly along the same lines, or hanging on a wire hanger. Sealing textiles in plastic during storage may cause moisture condensation resulting in staining and growth of microorganisms.

Antique costumes should not be worn if they are to survive for future study. Seams may be torn, not to mention the possibility of staining from makeup or perspiration. Textiles develop brown stains and become weakened from contact with acidity in wood, cardboard, tissue paper, or other untreated paper. Excess alkalinity can also promote disintegration, especially in silk and wool, and the damage is greatly compounded if agitation and hot water are also used.

Textile cleaning should be undertaken with the greatest care, because it is essentially an irreversible process. If the colors have bled, or the textile has shrunk, or the fibers have broken, the cleaning cannot be undone. The use of starch should be avoided, as it oxidizes and causes staining, and because it may attract insects. Strong bleaches are much too harsh to use with fragile textiles. Dry heat and ironing are detrimental to old fibers which are already dry and brittle. Textiles exposed to the daily environment may be damaged by particles or chemicals in the air from auto exhaust, industrial pollution, smoke and dirt. In addition to accumulation of dirt, exposed textiles fade and become weakened by ultraviolet rays in sunlight and fluorescent light. Fluctuations in temperature and humidity - especially if the changes are rapid and repeated - cause fibers to swell and shrink in response to their environment. In effect, they wear themselves out from the inside. High humidity, especially coupled with stagnant air, sets up a condition favorable to growth of mold and mildew. On the other hand, air that is overly dry causes fibers to become brittle and lose their natural flexibility. Textiles thrive best in a clean, constant environment around 70°F at a relative humidity of 50 percent.

At Colonial Williamsburg, the curators in the Department of Collections have the responsibility of protecting the extremely valuable and extensive collection of artifacts entrusted to our care. Most of the textiles which you see in the exhibition buildings are changed twice yearly. This seasonal change is done for several reasons. First, of course, is conservation - to provide the opportunity to maintain, mend and clean the textiles; and to allow them to rest in a darkened, controlled environment for part of the year. Seasonal changes also give us the opportunity to show the visitor a greater variety of the textiles in the collection, as well as to interpret some of the fascinating details of life in the 18th century, such as the widespread use of checks for slip covers or the use of mosquito curtains in the summer, at a time when insect spray and air conditioning were unknown.

The textiles which are not on exhibit are stored in one of four rooms in the Department of Collections. The rooms are designed for the orderly storage of artifacts, including temperature and humidity controls which are set at 70°F.
and around 50% relative humidity. These conditions are constantly monitored, both by computer sensors and by staff members using portable devices such as those pictured on the screen. Curtains are stored in a room fitted with racks, each of which has a pulley system. Valances are stored along a wall provided with velcro fasteners for each individual valance. Carpets are rolled and stored in another room. Large bed coverings are stored in a third room which has a bank of pull-out racks along one wall. A muslin cover is placed over the top of the textile as added protection from dust. The lights in this and other storage areas are kept off most of the time. Shelves provide space for folded items, which should be padded with tissue paper to prevent deep creases. They must also be refolded periodically to prevent weakening of the fibers or cracking along the fold line. Some small textiles are stored in acid-free boxes. Each textile in the box is inter-leaved with acid-free tissue, and the storage location is noted on an inventory. Some unlined textiles are stored on cardboard tubes covered with barrier paper. Care must be taken so that no creases are introduced in the roll. The finished roll can be covered with muslin and tied loosely with tape or muslin strips. Costumes are stored on hangers which provide ample support to prevent the weight from resting on a narrow area of the shoulder alone. Men’s coats and breeches are hung on two tiers to best utilize the space. Small accessories are stored in plexiglass boxes for visibility. We take the precaution of drilling air ventilation holes in the boxes and cleaning them with static-inhibiting substances.

We do a limited amount of conservation in our small laboratory, which has storage cabinets, a work table with shelves beneath, and a strip electrical receptacle overhead for plugging in vacuums, irons for pressing muslins, and work lights. Large photographic developing trays are useful for washing small textiles. Before a textile is cleaned, each color must be tested for fastness. A solution of water and the detergent is dropped from an eye dropper onto one color at a time, allowed to soak in, then blotted. Any fugitive colors will show up as bleeding on the white blotter.

We may follow a handkerchief through the cleaning process. The handkerchief is first sandwiched between layers of saran screening for support during washing. Before wet cleaning, vacuuming is done both front and back to rid the textile of excess dust which may settle back into the textile while in the wash tray. Washing is done with one of several detergents especially designed for textile conservation, such as Orvus WA and Igepal. Commercial laundry products may be very strong, highly alkaline, and may contain bleach, optical brighteners or other additives, and they are not recommended for cleaning fragile textiles. The handkerchief is lowered into the prepared bath, at slightly above room temperature, and carefully sponged with an up and down motion. No wringing or scrubbing is done, and the textile remains between the supportive screen throughout the washing and several rinsings. After thorough rinsing, the handkerchief is carefully blotted then smoothed out on the clean table top, with warps and wefts carefully realigned to eliminate the need for ironing or steaming. Careful washing with a neutral detergent can achieve dramatic results of improving a textile’s appearance and bringing it into a neutral state.

Needlework pictures and samplers are often found framed against acidic wooden backboards with the glass resting directly against the textile—certainly not ideal conditions for preservation. After careful consideration, this picture was removed from the wooden backboard and carefully conserved before reframing. One should not routinely remove all needlework from a frame, lest the frame be original to the needlework and that important evidence be destroyed. There are several possible methods for repairing holes in textiles, and each textile must be considered individually before a decision is made. In
some cases, when strength and appearance are judged to be of primary consideration, full restoration may be done, with a conservator laying a new foundation fabric and replacing any missing stitches. In other cases, conservation is undertaken to provide support to the fabric, but no attempt is made to restore the textile to a new appearance. In the case of this white counterpane on the screen, areas of broken warps were replaced with repair threads, the ends of which were left loose on the back, so the repair would be obvious to future scholars. Occasionally, careful mending is done through a supportive backing fabric, such as muslin, linen, or a sheer material such as silk chiffon, called "crepelene," which blends almost invisibly into the textile. This allows one to see through to the original fabric, while providing some support and protection at the same time. With the needlework picture, we decided to strengthen the weak area around the hole by inserting a patch of old linen of compatible color, but no infilling of the needlework itself was attempted. A new mounting board was made by covering heavy, four-ply conservation board with washed muslin which was carefully stretched over the board, pinned, and stitched. After the mounting board was prepared, the picture was vacuumed; washing was deemed inadvisable for this particular example. Finally, the picture was placed on the muslin-covered mount and carefully stitched to the muslin; this provides adequate support, but does not cause undue stretching or stress on the antique needlework. When the picture is returned to its frame, narrow strips of rag board act as spacers to prevent the glass from resting against the needlework.

Even the most extensive professional conservation work cannot substitute for the daily, common-sense care of your collection. Many of the principles used by museums for care of textiles can be adapted for the home. The damage from ultraviolet light can be minimized by hanging textiles away from direct sunlight or fluorescent tubes. A valuable textile might require the use of ultraviolet filtering materials on the nearest windows.

Framed textiles should not be hung on exterior walls of the house, particularly if the wall is not well insulated, as moisture condensation is a real danger. One might also consider rotating textiles, even in one's home, to allow the textile to "rest" for several months. The 18th century practice of rolling carpets for the summer months might be revived again by those of you who own valuable area rugs. Textiles may be stored in dust-free areas of the house, where temperature and humidity do not fluctuate dramatically. This, of course, precludes storage in attics and most basements. Avoid contact with cardboard boxes, wooden shelves, or untreated papers. Any muslin used in storage of textiles must be thoroughly washed and rinsed to remove sizings from the manufacturing process. Textiles may be safely rolled or folded, and covered with clean muslin which allows air circulation yet protection from dust. Avoid the use of plastic bags which will seal moisture inside, and which tend to develop static electricity. Make sure that linens are free of starch before they are put away for storage. Costumes may be stored on hand-made hangers padded with cotton or fiber filling covered with washed muslin. A dress with a heavy and/or long skirt can be given extra support by means of tapes running from the hanger to the waistline of the garment.

But perhaps the best thing we can do to preserve our textiles is to have a healthy respect for the inherent fragile nature of textile fabrics and to communicate this fact to laypersons. This means avoiding casual washing or mending of an antique textile without consultation with a professional. Most conservators and museum curators are happy to look at textiles in private collections and to suggest some options. You, as professionals in textiles and clothing, have the background and knowledge of textile fibers to help communicate to the public an understanding of the nature of textiles and the conditions which are harmful to them. Becoming well informed ourselves and communicating to the lay public are the first steps in caring for our collections.
FASHIONABLE FABRICS 1700 - 1800

Mildred Lanier, Research Associate
Department of Collections
Colonial Williamsburg

For this study I have used the eighteenth century accounts of John Norton & Sons, Merchants of London and Virginia, and compared them with the accounts of merchants in New York, Philadelphia, Annapolis and Savannah. Most fabrics used in colonial America were imported from England, having been ordered through agents or factors in London, Bristol, Liverpool, etc.

William Smith, writing in his History of the Province of New York in 1757 points out:

"In the city of New York we follow the London fashions ... but still we are not so gay a people as our neighbors in Boston and several of the Southern colonies."

In the South, the plantation owners built homes on English models, filled them with fashionable English furnishings, and in general, patterned their lives on those of English country gentlemen.

The southern colonists accepted from the American settlements the British policy of maintaining economic dependence. The southern colonists adjusted to the compulsory trade with Britain, where they had a monopolized market for their tobacco, indigo, rice, and naval stores, which could be conveniently traded for English goods.

In the 1760's it became necessary to place boycotts on various imports affected by the Stamp Act and other duties which were to follow. The duties were much more effective in the northern colonies, where in one year (1769) imports dropped by 900,000 pounds sterling. Intentions were good in the southern colonies. In Williamsburg the House of Burgesses pledged to "promote and encourage ... industry and frugality, and discourage all manner of luxury and extravagance." Nevertheless, the sentiment against the use of English goods was not as strong in Virginia, and this same year (1769) showed an increase in importations.

Fashion was an important and much used word in the eighteenth century, and the French writer, La Bruyere, in 1691 says:

"A fashion has no sooner supplanted some other fashion than its place is taken by a new one, which in turn makes way for the next; such is the fickleness of our character."

Fashions in furnishing textiles did not change as rapidly nor as drastically as in clothing.

Cloth is definitely one of fashion's most important tools; and it also is the most vulnerable of furnishing materials being constantly imperiled by the ravages of fire, insects, humidity, air pollution, and daily use. Existing records of a house provide the best possible source of information concerning furnishings, but in cases where no records have survived, it is often necessary to use contemporary records of families and estates of comparable economic and social status as a basis for hypothetical furnishings.
Some inventories have appraisements which are helpful in making comparisons; others do not. Some early Virginia inventories have values in pounds of tobacco; and in one such it was interesting to note that a "half headed bedstead with curtains" was valued at 500 lbs. of tobacco, 3 printed petticoats at 300 lbs., and penny stones (a heavy woollen cloth) was worth 25 lbs. per yard.

The precedent for textile furnishings and styles may be found in orders and invoices for supplies and bills for services. Most of these records apply to merchandise when it is new and fashionable. Many details are apt to be given - including colors, sample swatches of materials, and details concerning methods of fashioning. English upholstery and furnishing practices were followed in America. Chippendale's Director, Hepplewhite's and Sheraton's Guides and Dictionaries were important pattern books for American cabinetmakers and upholsterers.

The Marquis De Chastellux, when he visited this country shortly before the Revolution, remarked:

"In Virginia, English customs are more recognizeable than in all the rest of the continent."

To fully appreciate the subject of colonial textile furnishings, it is necessary to begin with the late seventeenth century, for it was at this time that our concept of "interior design" began. At this time the flourishing East India trade had done much to create a wealthy merchant class in England. Style-consciousness, which had previously expressed itself primarily in wearing apparel, was beginning to reflect in home furnishings by the reign of William and Mary. Earlier, the restoration of Charles II, in 1660, had marked the beginning of the Golden Age of Upholstery. Sofas and daybeds were introduced into fashionable homes. This innovation of more comfortable upholstered furniture introduced warmth and color into rooms through the use of a wide variety of colorful fabric. And, while one would expect that a time lag may have prevailed in the adoption of style trends, Hugh Jones in his Present State of Virginia (written in 1724) tells us that:

"Goods were brought to the colonies so quickly that new fashions arrived here even before they were received in the country homes from London."

Carpet use at this time was generally confined to tables, chests, and cupboards. Table carpets were made of needlework, velvet, tapestry, striped stuff and turkeywork.

It was after mid-eighteenth century that floor carpets are mentioned with any frequency in records of the colonies. These early eighteenth century inventories listed "tapestrie coverlids," plain and patterned leather chairs, and turkeywork upholstery. William Churchill's estate in Middlesex County, Virginia, in 1714, gives a typical example of the popularity of this colorful upholstery - it included "12 turkeyworked chairs, and 2 turkeywork table carpets." Later in the eighteenth century other examples of "curious workes" included "shellworkes," "waxworkes," and "petrifications," Spinning, knitting, knotting, weaving and needlework were other occupations which kept young women usefully engaged. With all
of our modern technology we have nothing to compare with all of the great wool textiles of the eighteenth century - nor do we really need hard-wearing worsteds that are almost indestructible, or heavy curtains around beds in our overheated houses. However, this great variety of colorful and durable woolens and worsteds were the primary furnishing fabrics of the eighteenth century.

For centuries, wool was "the grand staple of British commerce," and it was often said that "the future of Britain was wrapped up in Broadcloth." Prodigious quantities of colorful and decorative worsteds and woolens, in patterns and weaves imitating French silks, were in great demand for clothing and home furnishings - for bed furniture and window curtains. Upholstery, cases, and cushions ... often identified simply as "stuff Worstit" but more often by the perplexing array of colorful names assigned to the various worsted fabrics - "Chinas, Philip and Cheneys, Tabbys, Parragons, Harrateens, Camblets, and Moreens" - all "callendered to make a representation of waves upon them."

Wool fabrics in demand at this period included those with names which attest to their durability - "Endurance, Everlasting, and Perpetuanas"; with the awesome sounding names of "Fear-naught, Dread-naught, and Thunder and Lightning" given to other varieties of longwearing goods.

There were also woolens and worsteds called "Calamancoes, Cambletts, Prenellas, Shalloons, Plushes (wool velvets), Shags, and plain and flowered Russels" - all in a great variety of colors and often in strange color combinations. Many of these were described as being "hot pressed" to impart a permanent luster on the surface of the cloth. Many of the wools were elaborately brocaded in patterns imitating the more costly silk fabrics.

The term "damasks" found listed in so many household inventories of the eighteenth century might more correctly refer to worsted damask than to silk damask. We sometimes, however, discredit the extensive use of silk in the colonies because we are aware of the price and prestige of silk today. Brocaded silks and velvets were expensive. However, there were many inexpensive silks and half-silks, and the price range was quite an extensive one. Confusion for the layman is probably due to the fact that the textiles in these early records were often identified by weave and unidentified by fiber. For instance, satins, taffetas, velvets and damasks are fabric terms which we identify with silks, but which in actuality may have been constructed of any fiber.

The French, always envious of the prodigious wool trade carried on by England in all parts of the world, were quick to take advantage of this market during the Revolution. In 1775 when it became apparent that English wools would no longer be coming to Virginia in plentiful supply, the Virginia Convention of Delegates unanimously resolved "that the setting up and promoting of woollen, cotton, and linen manufactures, ought to be encouraged in as many different branches as possible, especially coating, flannel, blankets, rugs, or coverlids, etc." Much in the way of domestic textile manufactures had already become a positive factor in the community life and prosperity of the people living in the "backcountry." Because of their economic isolation, these people had been forced to engage in home manufacturing. They had no market for their produce, and it was necessary that each family be self-supporting in almost every particular.

Ingenuity and perseverance were certainly requisites for survival in the remote areas, and looms, reels and spinning wheels were important
implements of daily life. Many of the products of these looms were quality textiles, produced by skilled craftsmen who had immigrated from Scotland, Ireland, Scandinavia, and the Palatinate.

Throughout the eighteenth century, there are references to "Virginia cloth" and in North Carolina to "country cloth," names that we find synonymous with the term "homespun." These were not necessarily all-cotton fabrics; any fiber or combination of fibers domestically woven was called by these terms. Some were decorative textiles, often noted as having been "stamped, striped, pattern-woven, and flourished."

The founders of the southern colonies had great expectations concerning the cultivation of silk. It proved a great disappointment to the Board of Trade that the silk-producing venture in Virginia was to come to so little. It had been expected that enough silk would be forthcoming to supply Britain's growing silk manufactures and free her from dependence on the costly raw silk from the East. That this dream of flourishing silk plantations in Virginia was not to be was apparent as early as 1662.

Surviving patterns for silks give us an excellent insight into the wide and glorious variety of dress silks that were available, and it is interesting to note that in the 1770's milliners in Williamsburg, Norfolk, Charleston, Edenton, etc., were still advertising very elegant assortments of silks for gowns (striped, flowered, and plain lusterings; best striped and flowered mantua silks; plain and striped china taffetas; Persians, sarecents, paduasoys, and East India and China silks; clouded silks and painted satins, damasks, brocades and gauzes).

Silks were also used for home furnishings. In the last half of the eighteenth century all manner of bed and curtain fashioning styles were advertised for sale (festoon, double festoon, Venetian, French, long and short, with or without valances or cornices) and the necessary equipment for making and installing them (such as rings, pins, plummetts, tapes, laces, pulleys, cords, hooks, lines, fringes, and tassels). For us to actually know how these furnishings were fashioned, or how they appeared at bed or window, we have to rely on extant documents of one sort or another, and on the many colonial records which give sufficiently detailed information about furnishings fabrics and the manner in which they were made.

Needlework, whether domestically or professionally done, played an important role in the decoration of eighteenth century dress and furnishings. The term "crewelwork" does not appear in eighteenth century records, but we do find many objects described as "Work't, Wrot, flourished, embroidered, and flowered with silks and crewels." Designs from Cathay were absorbed into European decoration as early as the fourteenth century, and out of this fascination for Oriental art the European "chinoiserie" style evolved. "This was not Chinese style on a serious level, but rather a lighthearted exercise in exoticism in which the actual subject matter was often more European than Oriental."

Southern inventories reveal many work't items, such as "...old work't chairs, embroidered Holland counterpanes" and numerous sets of "...worked or flourished bed curtains and vallens," worked firescreens and bottoms for stools ... together with evidence that considerable needlework had been made locally.

Printed pattern books were available from as early as the sixteenth century, and in the eighteenth century printed designs for embroidery were included in ladies' magazines. The design subjects were varied and exotic.
Virginia produced more flax than any other textile fiber. Bed and table linens were listed in considerable quantities, in both modest and pretentious households.

Among the most popular eighteenth century textiles were furniture checks and stripes. These "check furnitures" were made of linen, silk, and wool, as well as cotton. Big and little checks in many color combinations were used for bed and window curtains and cases for all manner of chairs, in elegant as well as ordinary homes.

The twentieth century has relegated cotton and linen check to such lowly status - kitchen towels and restaurant tablecloths - that it has become necessary to educate the visiting public to the fact that what may be considered incongruous in the decorating scheme of today was, in fact, extremely fashionable in the eighteenth century.

Cotton furnishing textiles figure more prominently in southern records than any others. Cotton is so closely associated with the southern region it is often forgotten that cotton played no major role in the economy of this country until well into the nineteenth century. India cottons of all sorts were imported in unbelievably large quantities. These included seersuckers, muslins, painted and stitched mul-muls, humhums, cheloes, terrindams, and moreas. There were checks, cherriderries, dimities, romalls, soosies, and countless others, as well as the extremely popular calicoes and chintzes. In eighteenth century decoration no fabric is more appropriate than chintz. The word chintz - from the Hindu - means "spotted" or figured, and is a term that became synonymous with printed goods other than those from India. We find printed calicoes, printed linens, and after mid-eighteenth century, even English woodblock and copperplate print goods being called chintzes.

Nowhere is it more apparent than in the selection of printed goods what an important role merchants and factors, in London and elsewhere, played in the lives of the colonists - they procured for these clients the material things necessary for daily life, house furnishings and wearing apparel - and it would appear that countless decisions were left to the merchants' discretion. One speculates about the substitutions which often had to be made even when specific instructions were given and what might have been shipped when "the latest fashion" was the sole requisite.

The fashion of using one textile for all furnishings in a room (one which in George Washington's opinion made "the whole furniture of the room uniformly handsome and genteel") required an great many yards of fabric, often making the cost of the textile furniture considerably more than the elegant "carved and fluted post and treaster" beds on which it was to be used. This was evidenced in a number of cases where the bedsteads were made by outstanding cabinetmakers and in most cases the fabric specified was English copperplate-printed cotton.

These popular plate-printed "furnitures" (as they were called) depicted all manner of subjects: historical, Oriental, classical and pastoral themes; children's games; and theatrical subjects as well as the ever popular flowers and birds.
DESIGN WITHIN LIMITS

M. Dolores Quinn
Professor of Design
Drexel University

The thrust of my project hinges on: the unique, the similar but different, and the one of a kind. I can identify with an article in the New Yorker's "The Talk of the Town" on August 6th, 1979, and I quote:

"A FRIEND who lives in the country writes:

I was shelling peas from my garden the other afternoon, and the ancient figure (attributed to Rabelais) dropped into my mind: 'As like as two peas in a pod.' I let it drop on through. I would be disappointed if I found only two peas in a pod, and I would be surprised if they looked exactly alike. Some peas are square, some are hexagonal, some are cone-shaped, some are disc-like, some are even round, and in almost every pod there is one pea, squeezed into the middle or off at one end, that is one-tenth the size of the others. Nature --- in my experience with apples and green beans and tomatoes and squash and carrots and red roses and robins and oak trees --- is given to variety more than to duplication. One has only to observe, to open the mind as well as the eye, to pierce the generalization. Peas look alike only as Chinese look alike to Westerners and Westerners to Chinese."

The seeds of what appears to be my instant recognition in designing clothes for the handicapped has not really been so instantaneous, for the seeds were probably germinating all of my life. It is possible to accurately document the past six years. I took a sabbatical in 1973 to help my sister, Rita, run the precision instrument machine shop that we inherited when my mother died. Rita was successfully running it but needed a little help. Since cold rolled steel, a tolerance of one thousandth of an inch and magnesium plate was not an enormous challenge to me, I spent almost every waking hour away from the plant, developing ideas that could grow into new courses or could supplement courses currently in the Design Curriculum at Drexel University in Philadelphia. Eight new courses were finally born and all are part of the program today.

I feel that this original brainstorming for new courses eventually led me to the work that I am now doing in my studio at the University. I believe that we were all born for something special, and I really believe that I was born to design clothes for the physically handicapped.
In 1977, I developed a new graduate course, called "Design Within Limits." The idea was to test the ingenuity of students by having them develop fashionably designed clothing within certain limits: time, materials, cost, and physical limits. The finished products had to be completed within a prescribed time, constructed with particular materials, at low cost. And to complicate things further, the clothes were to be designed to accommodate certain physical limitations.

The class met the challenge with surprising results, and I began changing the emphasis of the course, concentrating more on designing to overcome physical limitations -- confinement to a wheelchair, leg and body braces, and other disabilities -- of the elderly as well as the handicapped.

After a small article appeared in a local newspaper, I received an invitation from Dr. Raymond Lafontant, a physiatrist at Moss Rehabilitation Hospital in Philadelphia. We toured the hospital where the severely disabled and chronically ill were treated and the Kruzen Research Center. I discussed the possibility of designing clothes for patients to assist them in the rehabilitation process. The more patients we spoke with, the more convinced I became that there was a genuine need for specially designed clothing for people with physical limitations.

Dr. Adeline M. Hoffman had her book "Clothing for the Handicapped, the Aged, and Other People With Special Needs" published in 1977. In it she wrote: "The feeling of self-confidence, the sense of well-being and of social acceptance that comes from the wearing of clothing that is functional, appropriate, and attractive, is important to all people, but to those with physical limitations, it is much more important."

With encouragement from Moss Rehabilitation hospital, I began talking with our many contacts in the fashion industry (the Nesbitt College consistently produces competent designers on Seventh Avenue). They encouraged me to proceed and several firms offered technical assistance, if needed, and provided special materials for my experimentation. I began to realize that I needed funds to develop my ideas and a reduced teaching schedule so that I could spend more time at the drawing board.

My project achieved recognition in April 1978 when I was one of about fifty persons in the nation invited to meet with Geraldine Stutz, President of Henri Bendel's in New York, and representatives from the National Endowment for the Arts, to discuss fashion projects suitable for support by the N.E.A. Fashion journalists, designers, manufacturers, retailers and educators met and as a result of impetus gained at that meeting, I later submitted a proposal to the National Endowment for the Arts and was awarded a federal grant. This necessitated the securing of matching funds which were ultimately acquired from: William Penn Foundation and the Samuel S. Fels Fund, both philanthropic organizations located in Philadelphia; The Sun Company; The Philadelphia chapter of I.L.G.W.U.; and William J. Netsky, the father of a former student, Stuart J. who is presently owner of and designer for his hat firm, "Stuart J."
To secure the matching funds, eighty-six foundations were contacted, first by letter, then by phone, and in many cases a personal appointment was arranged. The law of averages was on our side for 5 percent of those contacted responded favorably.

Presently I have a studio and a Research Assistant at Drexel University and have established a Clinical Affiliation in Fashion Design at Moss Rehabilitation Hospital where we are testing ideas, recording information and defining clothing problems which require new solutions. Persons with physical limitations want to feel secure about the visual image they project. My aim is to design clothes that make them feel comfortable, look terrific, and be productive members of society.

This past summer the Design Within Limits course was given for the second time. The culmination of the six-week class was a fashion show at Moss Rehabilitation Hospital, with physically handicapped persons modeling fashions created especially for them by the students. The garments are developed by the student designers during discussions with the models, who come to class regularly for fittings and consultations. We give the garments to the clients and there is no charge for the finished product, but we ask that the client give us feedback. The garments are developed with particular attention to comfort, care, cost, durability, and -- of special importance to my students and our clientele -- fashion quality. It is, therefore, no surprise that the able-bodied are also attracted to the clothes developed in the Design Within Limits studio.

"Mainstreaming the handicapped" seems to be the 1979 "buzz phrase," and the media has gotten the message. Newspaper articles and appearances on several television programs have spread the word. After each article or appearance, we receive telephone calls and letters from the physically handicapped, all of them encouraging me to continue my work. All of these contacts are filed, and frequently one of them becomes the subject of a consultation or a model for another garment.

As we develop prototypes in the studio, concentrating on those which meet the needs of several disabilities, we will produce a number of garments. We will then need to establish a retail outlet or convince an already established retailer to experiment with handling the garments for sale. Now in the discussion stages is the possibility of establishing a small clothing boutique at the Moss Rehabilitation Hospital, similar to the already established gift shop. We may investigate the possibility of having the government issue clothing stamps to the handicapped, similar to food stamps now available.

Ultimately we will want to develop contacts with professional designers and manufacturers, convincing them to include in their regularly scheduled collections, clothing especially designed for the handicapped.

I feel that it is accurate to say that I am standing on the shoulders of giants for my idea has been tried before. To tell that story, I bow to the former curator of costumes at the Brooklyn Museum, Robert Riley, who is now at Fashion Institute of Technology in New York and also the editor of "The Costume Society of America's Newsletter." He wrote in the June 1979 issue, and I quote:

"...as one remembers the days after World War II when famed Seventh Avenue designer Helen Cookman launched her Functional
Fashion for the Handicapped after taking the sensible steps of consulting with Dr. Howard Rusk and his rehabilitation center at Bellevue Hospital in New York, with Muriel Zimmerman who was even then one of the country's leading authorities on the handicapped and, of course, with the handicapped themselves. Functional Fashions were launched at a well publicized show at Bellevue, and financial support came from friends. Those institutions' friends managed to stimulate interest in the project. The National Endowment for the Arts had not been born yet, but Mrs. Cookman prospered and finally faced the last step -- marketing.

"It was a surprise. Although an estimated 8½ million handicapped customers wanted the clothes, no one wanted to make them, no one wanted to sell them. Manufacturers said firmly 'they were not in that kind of business,' and stores did not want 'that kind of customer.'"

"Helen Cookman and her famed fashion editor friend, Virginia Pope, visited showrooms and executive suites and manufacturing lofts. They smiled, they explained, they persisted, and they were refused. Then one day the sun shone. Sears Roebuck was going to experiment with a few Functional Fashions in their new catalog. Of course, mail order was the answer! The mail was anonymous; no one need be outraged by seeing a handicapped person in their store; the Millenium was about to begin.

"At last the new Sears catalogue arrived. But there were no Functional Fashions on the fashion pages. None were in notions or home furnishings or farm machinery. Finally they were discovered down on the medical supplies page next to bedpans, incontinence bags and crutches. Two months later Sears announced that the experiment was not a success."

My ambition is to one day make fashionable clothes that function for persons with physical limitations available everywhere in America, through commercial outlets. So far, it has been an uphill battle; searching for funds to continue research, testing the creativity of students, and myself, to devise functional and attractive resolutions to new design problems, and trying to convince friends on Seventh Avenue that the estimated eight million physically limited people in the United States are a market in search of a product -- the handicapped mean business.

I agree with Dr. Mildred F. Jefferson, when she said, "...the United States must never become an 'exclusive reservation for the perfect, the privileged, and the planned.'"

For we are all as different as two peas in a pod.

Viva la difference!
THE IMPACT OF THE FAR EAST ON THE UNITED STATES TEXTILES AND APPAREL INDUSTRIES: TEACHING IMPLICATIONS

Mary Barry
Auburn University

We, members of the Association of College Professors of Textiles and Clothing, are concerned with both the clothing demands of individuals and with a healthy U.S. clothing and textile industry. It is in these industries that our students find jobs when they graduate. Many of our schools now seem to be more professionally oriented than individual and family oriented. If our students cannot find jobs, there is little need for the education we provide. Eventually, we ourselves could find curtailed student enrollments, restricting our own job options and our creative, professional potentials.

Any of you who have traveled outside the United States in the past few years know the uncomfortable feeling one experiences as the U.S. dollar drops. Those of us who have traveled over several years find that the "bargains" we once brought home are no longer available. Yes, the position of the United States in the world is changing.

Nowhere is this change reflected more vividly than in the textiles and apparel sold in the U.S. stores. Today our own textiles and clothing come from all over the world. One's closet tells where our garments are made.

Let us examine characteristics of the various parts of the apparel industry. In the U.S. the clothing and textile industry leads all manufacturing in the number of persons whose educations stopped at grammar school as well as in the number of women and the number of blacks employed. In developing countries economic mobility begins because of employment in these industries. Large numbers of workers moving from an agrarian society to an industrial one are able to enter the clothing and textile industry.

Generally, the apparel construction process has a simple beginning and evolves into varying stages of complexity. At first the fabric, later the yarn, and finally the fiber are produced in the newly emerging country. Examination of U.S. imports shows that the apparel industry is heavily impacted by imports. Often our own fabric, more recently our yarn and now only our fibers are used in this apparel. Thus it might be said that at one time we imported only simple garments, while more complex ones were manufactured in the U.S. or purchased from Europe. Apparel now frequently uses imported raw materials.

Overall, recent productivity figures for U.S. industry show severe drops. Once a world leader, today we lag behind many other countries. Observing how other industrial nations have handled similar impacts on the textiles and apparel industries shows us some policies that we might consider.

Japan, Hong Kong, Taiwan, and Korea supply over 60 percent of U.S. textile and clothing imports. The U.S. imports 35 percent of its apparel. Our fifth largest source of clothing imports is the Federal Republic of Germany. Thus we have two countries, Japan and Germany, representing developed economies that are able to supply us with products considered necessary by our importers, manufacturers and store buying offices. Why is this true? Could it be that the support and cooperation of govern-
ment, industry and education have enabled the industry to grow, experiment and flourish? Could it be that we've had our heads in the sand living in a world that no longer exists? Have we been too theoretical, too apathetic, too uninvolved?

Last year in an industry-funded seven week trip to the Orient, I was amazed at the cooperation that existed between the industry, government and educational institutions. A certain percentage of the monies obtained from exports were always earmarked for research and education. We have yet to achieve this partnership. Students were encouraged, pushed and even forced to get "hands-on experience" while they were still students.

Foreign travel, publications, films and cultures were studied. The average European and Oriental student knows far more about the American culture, the European culture and the Oriental culture than the American student knows about their cultures. Global orientation is seldom stressed in the education of American cultures.

In Hong Kong, I was able to attend evening classes for industry people where world body types were discussed. Different patterns were shown for exporting to the Federal Republic of Germany, Great Britain, France, Italy, Sweden, Japan, Taiwan, Korea and Russia. They expressed concern about fit and altering. The topic of altering body curves for various figure types was even studied. No country has as large a consumer market as the U.S. Each person in the U.S. consumes 60 pounds of textiles per year on the average as compared with Japanese consumption of 30 lbs. per year, India 14 lbs. per year and the consumption in the People's Republic of China is 4 lbs. per year.

As consumption patterns expand in the rest of the world, the opportunity for U.S. worldwide market penetration could certainly be realized. Does our 8 billion dollar textile and clothing import figure need to continue while the majority of our 3.2 billion dollar export figure reflects merchandise that is cut in the U.S. and sewn outside the country, as well as sales to U.S. commissaries worldwide?

Can we foster creativeness in our students entering the fiber, yarn, fabric, finishing and apparel industries? Are we teaching our merchandising students that they truly are buying in a global market? Do they know the basic construction and fit problems necessary for buying by specifications?

Never have so many opportunities existed for us. Reports and publications available in the government depository libraries at our universities and neighboring universities reflect this global movement. The textiles offices in the departments of Commerce, State, Labor and Treasury have studied various aspects of the industry. Congressional hearings, subcommittee reports and studies illustrate that our government has finally decided exports are vital to the industry. The Global Market Surveys that Kurt Salmon completed for the Department of Commerce will be published within the next year. Each country's needs are different. In finding ways to meet these needs our industry will grow. Can we share this?

Can we become active in our state industry associations; with members of Congress on government committees at the local, state and national levels; involved in worker retraining under the Trade Adjustment Act; active in state or area export development? And, can we involve our business schools in this thrust? If so, we have an opportunity to show the strengths and the capabilities of our industry and our country! Based on previous work at the local, state, and area levels, ACPTC is able to contribute to policy formation in textiles and clothing at the national level as other academic organizations have contributed to economics, government and agriculture.
The Orient, with 60 percent of the world's population, anticipates the industrial growth that Europe and the U.S. have already experienced. Today our greatest trade imbalance comes from the Orient as does over 25 percent of all our clothing. As workers in Japan, Hong Kong, Taiwan and Korea move into more highly skilled construction of clothing and the Philippines, Thailand and Sri Lanka move into volume clothing, can we not find a niche? The one billion people in the People's Republic of China (PRC) are also ready and eager to enter into textile and clothing production. These monies will allow the PRC to pay for technology necessary for development. Where do we, as professionals, fit into the international textiles and clothing industry?

These are exciting times. We have great potential. This is our challenge - to apply our combined knowledge and experience to serve our society in new and different ways. We must brainstorm, explore, discover, and analyze methods to fit into this world orientation to textiles and clothing.
Mr. Molloy began his address by reiterating the safeguards which must be employed before the findings of any research can be accepted as valid. These safeguards include the scrutiny of: the researcher's qualifications; the techniques employed in conducting the investigation; the personal biases of the researcher; and finally, the way in which the study was funded. Mr. Molloy pointed out that these reservations are necessary because "it is possible to prove anything with research."

In a brief explanation of his own background, the speaker indicated that his introduction into the field of clothing research was due to the request of a colleague. He was asked to participate in a project designed to study nonverbal communication; one aspect of this project was to explore the impact of clothing in the classroom setting. According to Mr. Molloy, it was his intention at the outset of the project to refute the impact of personal appearance upon effectiveness in the classroom. The speaker related this intention to his own personal image at the time, which he described as being a combination of denim shirt, jeans, and a beard. However, the findings did not gratify his initial purpose; much to the contrary, they convinced him that "clothing does count." It counts because it significantly influences interpersonal relationships through affecting other people's attitudes and reactions toward the individual.

From this initial discovery Mr. Molloy began a series of research endeavors in the area of professional dress. In the development of Mr. Molloy's "dress for success" concept an unidentified corporation requested that he ascertain why company salesmen were losing sales. It was, he decided, due largely to their unprofessional appearance. As a result, clothing typifying the corporate image of success was suggested for all sales personnel. For a brief period sales increased for all personnel, but later leveled off and even dropped for some of the sales force. At the close of a meeting with the sales department and an irate company president, Mr. Molloy observed that successful salesmen began to file out of the office in beige raincoats while those who were unsuccessful wore black ones.

To test his theory that the beige raincoats were the key, a study involving several stages was undertaken. The first stage involved establishing that beige raincoats were perceived as a status symbol by other people. The next stage involved a "simple count" of the number of men wearing each color of raincoat in two residential sections of New York City. Both sections were similar in that the predominant number of residents were caucasian. They were different in that one was an upper class neighborhood while the other was a lower class neighborhood. The count revealed that a majority of men in the upper class residential section wore beige raincoats and the majority in the lower class section wore black. In the final stage of the research men wearing either beige or black coats were sent to various corporate offices. It was found that men in beige coats received more deference from executive secretaries and spent less time waiting in outer offices to see management officials. On the basis of these data, it was concluded that a socioeconomic level is ascribed to a person based on the viewer's perception of clothing.

As a result of this study Mr. Molloy recommended that all salesmen in the corporation wear beige raincoats. Again sales climbed and remained at a high level.
Mr. Molloy also indicated that there are differences in the effects of beige which may be attributed to sex and geographical location. Women, he said, are viewed as successful when wearing either beige or dark colored coats, particularly if the coats have fur collars or linings. They are perceived as unsuccessful when wearing pastels. This tends to convey a weaker, more feminine image.

In regard to geographical location, there is apparently a difference in the perception of successful men which is attributable to the tone of beige which is worn. In the south, beige should have a tinge of green while in New York City, a beige with an orange base is more effective.

Mr. Molloy suggested that a power message is clearly associated with color. "The men who run America wear blue, gray, and beige....When men put on clothing they put on authority." And, according to Mr. Molloy, it is dark suits (with subtle patterns) which convey this authority. Plaids or pin stripes are as "wild" as patterns ever get for America's top corporate figures. In addition, ties are a communicator of the authority image. Dark ones, preferably blue or maroon, with clean, neat, and small figures are best. Perhaps one of the few articles of apparel which escapes the "dark equals power" message is a gentleman's shirt. White is highly effective, and pastels are a not-too-close second. Whether white or pastel, the shirts should always be cotton or look as if they are.

As for women, Mr. Molloy believes that in the future, career women will have two sets of clothing. One set will encompass fashions for work. These styles will become standardized, much as men's have, and will not change drastically from year to year. The second set of fashions for women will continue to evidence variability in style and will be used for life outside the professional sphere.

A final point emphasized by Mr. Molloy was that the power message conveyed by dress is culturally specific. Thus, to wear European designs would be a mistake in strategy for the success-oriented American, particularly where women are concerned. Europe's color sense and power symbolism are different, and women are less readily accepted into the top echelons of the European business world.
The effectiveness of flame retardant (FR) finishes on fabric is influenced by deposits of inorganic salts and by the location or penetration of flame retardant finish in the fibers. This study is concerned with the interaction between flame retardant finish location and antagonism of the finish by inorganic salts.

Three cotton fabrics were used, one with uniform penetration of the flame retardant finish into the fiber, another with preferential distribution of the finish near the surface, and an untreated control. Finish locations were confirmed using scanning electron microscopy and energy dispersive X-ray analysis. Magnesium and calcium phosphates were applied to these fabrics at an add-on of 2 to 3%. Vertical flame test and thermogravimetric analysis were performed.

Vertical flame test results were not significantly different for the two FR fabrics. However, the thermal analysis did discriminate between the FR fabrics. The FR fabric with uniform penetration of the finish had a wider thermal decomposition range than the FR fabric with surface penetration.

The addition of inorganic salts to the FR fabrics raised their endpoint decomposition temperatures above 342°C, and they failed DOC-FF-3-71. The addition of salts to the untreated cotton fabric altered the decomposition behavior, indicating a reaction between the salt and the cellulose. Throughout the study, Mg₃(PO₄)₂ appeared to be more reactive than Ca(PO₄)₂.

Flammability measurements showed no significant interaction between the FR finish location on the cotton fiber and the inorganic salt deposits. This supports the theory of total mixing during burning of fabrics.

Three inherently flame retardant fabrics of 100% polyester, one knit and two wovens, were selected from those commercially available for the manufacture of children's sleepwear. A commercially treated FR fabric of 87½% cotton and 12½% polyester was selected as the control fabric. Samples of the fabrics were subjected to flammability control tests, tear strength, tensile strength and stoll flex abrasion tests before and after 50 labora-

*Printed with permission of the American Association of Textile Chemists and Colorists.
Children's pajamas were constructed from the fabrics and three pairs were distributed to each of the fifteen nursery school participants. These garments were worn and home-laundered with laboratory tests being conducted after 50 launderings. Consumer acceptance of the sleepwear garments was assessed by a questionnaire submitted to the parents of each participant.

Results have shown that the control fabric failed to meet the flammability standard DOC FF 3-71 while the three IFR fabrics passed the tests required by the government regulation. The three IFR fabrics resulted in stronger tear, tensile and stoll flex abrasion tests than did the control fabric. This may be attributed to the 100% polyester fiber content as opposed to the 87½% cotton/12½% polyester fiber content of the control fabric. There was no statistically significant difference between the flammability test results of laboratory versus wear testing of garments after 50 launderings. Also few statistically significant differences were found in the test fabrics as a result of wear.

Cost Benefit Of The Proposed Flammability Standard For Upholstered Furniture
Rachel Dardis and Ruth Thompson
Research Conducted at The University of Maryland

The objectives of this paper were to apply cost-benefit analysis to an evaluation of the proposed flammability standard for upholstered furniture. The fact that upholstered furniture is a durable good means that the benefits from a flammability standard will accrue over the product life. Thus, current costs should be compared to current and future benefits. Current costs were based on the sales of upholstered furniture, the percentage increase in price due to the standard and the price elasticity of demand. Current and future benefits were based on direct and indirect costs of upholstered furniture fires due to cigarette ignition and the market share of the conforming product over time. Future benefits were discounted in order to compare costs and benefits from consumer purchases at the same point in time. Cost-benefit ratios ranged from 3.16 to 6.51 and varied according to the percentage increase in price, the price elasticity of demand and the discount rate. The high ratio of costs to benefits and distributional considerations lead to the question of whether there are more efficient procedures for reducing residential fire losses. A strategy such as consumer education may be more cost-effective since it focuses on a major part of the upholstered furniture/cigarette ignition problem - careless smoking.
Self Expression Through Garment Purchase  
Judith J. Leonard and Helen I. Douty  
Research Conducted at Auburn University

This research was the development of a method for study of relationships between a person's perception of herself and her selection of a dress for ultimate purchase in relation to Yin-Yang characteristics.

The sample was selected on the basis of classification of dominance of Yin or Yang qualities as identified by Douty's Personal Assessment Form. Each subject was photographed in five dresses that she had selected to "try on." Subjects then viewed their projected pictures through the Hess Pupil-Response Apparatus while connected to a lie detector. Each subject selected a favorite dress verbally and then completed the Assessment Form describing the "type of person who would purchase and wear this dress." Both the favorite dresses and subjects wearing the favorite dresses were judged on a Yin-Yang continuum.

The Binomial Test of Proportions revealed no significant agreement between the verbal statement of the favorite dress and pupil response. Spearman's Rank Correlations identified significant relationships (P < 0.05) among various perceptions of the ideal and real self and the "dress purchaser," and judges' ratings of dresses and subjects wearing dresses.

It was concluded that garments when purchased and worn become closely identified with the self-image of the wearer. Similar studies involving researchers trained to use lie detectors and pupil measurement apparatus need to be conducted.

Consistency of Sizing in Boys' Ready-to-Wear  
Loree Ann Benziger  
Research Conducted at The University of North Carolina at Greensboro

This study, aimed specifically at boys' ready-to-wear, was designed to pinpoint some of the discrepancies in body measurements used by the three large mail order houses (Sears', Ward's, and Penney's) in their clothing specifications.

The most recent mail order catalogs were used as the source of information. Dimensions reviewed were height, weight and girth of chest, waist and hip. Triangular graphs were developed to represent body contour. Height, chest girth and waist girth were used to define upper body contour. Height, waist and hip were used for the lower body contour. Measurements were added together in each case to arrive at a total. Each measurement was then calculated as a percentage of that total and plotted on the graph accordingly.
It was found that slim and regular sizes were consistent among the three stores. Dimensions used for husky sizes, however, differed in the upper size ranges. The use of triangular graphs provided clear representation of body classification — slim, regular or husky — and demonstrated the changes in body contour as a function of maturity.

Although consistency of sizing among the mail order houses is valuable, it was discovered that such consistency is not universal.

Depression: The Relationship to Clothing and Appearance Self-Concept
M.L. Johnson Dubler and Lois M. Gurel
Research Conducted at Virginia Polytechnic Institute and State University

The idea that a relationship exists between one's mental state and appearance is found throughout the literature. The nature of this relationship and its effect on people's daily lives has yet to be demonstrated. With the underlying theoretical framework of self-concept, the major purpose of this study was to determine whether a relationship existed between the intensity of mental depression, one of the most frequently occurring mental disorders, and clothing self-concept. The experimental group was composed of women who had sought psychiatric counseling through a Woman's Resource and Services Center located in Roanoke, Virginia. The second, or control group, included faculty and staff members at Virginia Polytechnic Institute and State University.

Two instruments were initially administered. The Zung Self-Rating Depression Scale measured subjective intensity of depression. The second instrument, developed by the researchers, measured ideal and perceived clothing and appearance self-concept.

Ideal clothing and appearance self-image was assessed at the outset of the experimental period. Then for 30 days each participant rated her clothing and appearance as she perceived it just after dressing each day. At that time she also rated her level of happiness or unhappiness by means of a mood scale developed by Wessman and Ricks. Discrepancies between ideal and perceived self-concept were compared to the daily mood ratings.

Preliminary analysis of the data indicated that a more depressed mood was related to a greater discrepancy between one's ideal and perceived clothing and appearance self-concept.

A secondary objective of this project was to determine the feasibility of measuring depression longitudinally over a 30-day period. Mental health personnel, in general, question whether depressed individuals are able to maintain the necessary interest level for such a method. At the same time they question the accuracy of measuring depression at only one point in time. Responses from both the experimental and control groups indicated that data can be collected in this manner. Continued participation was acceptable and surprisingly more so with the experimental or more depressed group.
Family Use of Functional Clothing for Children With Physical Disabilities

Jane M. Lamb
Research Conducted at The University of Tennessee

The purpose of the study was to explore the relation of selected variables (length of time, family integration, family adaptability) to family use of functional clothing for children with physical disabilities. A "families under stress" theoretical model suggested that families would have clothing with greater functional use if they: had cared for a disabled child longer, exhibited high family integration, and evidenced high family adaptability.

A descriptive survey design involved semi-structured interviews with 25 families of children affected by one or more disabling conditions. Responses to interview questions were transformed into a Family Integration Score, Family Adaptability Score, and Functional Clothing Score for each family. A limited amount of demographic data also was obtained.

Scores on family integration, family adaptability, and functional clothing use generally were in the upper half of possible ranges. Simple correlation coefficients indicated no significant relationships between the variables. Additional statistical analysis did not reveal significant relationships between family use of functional clothing and selected demographic variables.

Descriptive analysis of responses to the clothing section of the interview yielded information about disability-related clothing problems and solutions. Finding clothes that fit and obtaining clothes that are appropriate for a child's disability were problems cited most frequently. Garment fasteners created difficulty in dressing many of the children and were avoided if possible in clothing purchases. Mothers used basic functional features in their children's clothes but lacked information or instruction on specialized adaptations. Most mothers desired additional information about functional clothing.

Clothing Construction Modules Designed For Mainstreamed Visually Impaired Students

Jessie Warden
Research Conducted at Florida State University

The purpose of this research was to aid vocational home economists who have visually impaired students mainstreamed into their classrooms. A laboratory experience was chosen in an area of study in which blind students have had occupational success. It has been a four-year study, and the earlier work was reported on in Dallas at the ACPTC Meeting.

Teaching modules on hand and machine sewing were prepared for instructors to adapt to their own teaching plans or to use alone in regular classes for all
Individualized learning packets were prepared for those visually impaired students who could read large type.

The modules and learning packets contain behavioral objectives, procedures, learning experiences and evaluations. The modules were tested by selected teachers throughout the state of Florida.

A workshop revealed that teachers with little or no experience in working with the blind did not realize the potential of the students. The teachers were insecure and feared lack of success in working with handicapped students. It is recommended that in-service training include contact with visually impaired youth and adults and that each teacher be given mobility training so that she can better understand the importance of correct instructions and equipment arrangement.

Individual attention may be necessary, and pairing sighted with blind partners during a portion of the program may aid in mainstreaming. Time requirements for some construction processes may have to be adjusted. Time and work schedule for the visually impaired may have to be made quite flexible until each teacher has had more experience in working with the student.

These are wonderful students with whom to work. They are vitally interested in learning. They have learned how to listen, take notes, and recall information. They are not distracted by outside disturbances. However, they don't want choices of methods or procedures, and they are sensitive if too much assistance is given.

Dress of Older Italian-American Women
Documentation of Dress and The Influence of Socio-Cultural Factors
Judith Zaccagnini Flynn
Research Conducted at Ohio State University

The purpose of the study was to investigate everyday dress of older Italian-American women in relation to socio-cultural factors. The theoretical basis for the socio-cultural analysis was based on Tonnies' (1890) ideal types of Gemeinschaft and Gesellschaft. Dress was viewed in relation to a Gemeinschaft/Gesellschaft continuum: change from family life to individuality, from neighborhood to city, and from religion to rational ties. Methodology was based on field research from an ethnomethodological perspective. Dress was documented by 603 photographs of Italian subjects, 55 years of age or older, taken in a natural setting on the streets of North End, Boston, over a three-year period. Appearance and dress detail were tabulated and frequency distributions were computed. Supporting data were obtained by interviews with Italian-American women, community personnel and retailers of Boston and the North End.

The typical dress of the older Italian-American woman was a tubular dress, with a variety of types of design details. The stereotype of a woman
totally in black mourning dress was found only one time. The dress was found to be based on Gemeinschaft undergoing rapid change to Gesellschaft.

Findings supported the research objectives, that it was possible to document everyday dress of an ethnic group by photography and that the dress worn did reflect the socio-cultural contexts of a changing community.

Twentieth Century Quilts of Appalachian Virginia
Catherine McKinney and Joann F. Boles
Research Conducted at Virginia Polytechnic Institute and State University

The purpose of the study was to document the history and culture of the Appalachian people through the examination of twentieth century quilts and by interviewing quilters in Appalachian Virginia. The objectives were to determine: 1) the quilt designs, the source of inspiration, and the relationship between the two; 2) the materials used to make quilts; 3) the skills and techniques of quiltmaking; and 4) the social aspects of quilting.

Documents such as oral histories, court records, and family Bibles were used. Relics, in the form of quilts, were examined. Interviewees were obtained through Senior Citizens Centers, a Craftshop, and the Virginia Cooperative Extension Service. Qualitative data were analyzed by using Unisort Analysis Cards.

Findings included five to six prevalent quilt designs with sources of inspiration ranging from the environment to quilt books. Fabrics included cottons, silks, wools, and polyester double-knits; many were scraps left over from sewing clothing. Cotton, wool, and polyester batting, worn blankets, and old quilts were used for filling. Skills and techniques were individualized and were related to self-imposed standards. Quiltmaking held much social significance in the Appalachian culture.

Quilts were excellent communicators of the culture and of the lives of the creators. Pride in the Appalachian culture can be developed and strengthened through the continuation, improvement, and knowledge of the traditional art form.

A Computer-Assisted Content Analysis of Fashion Illustrations, 1875-1885
Jo B. Paoletti
Research Conducted at Smithsonian Institute
National Museum of History and Technology

The purpose of this project was to develop a systematic method for compiling information from nonverbal sources. This is intended to be less impression-
istic than traditional methods of utilizing fashion illustrations as historical documents. By using a standardized notation it was possible to study large numbers of plates (1100) in a short time.

The designs offered by two rival pattern companies, Butterick and Demorest, were compared from 1875 to 1885. Many variables were considered, including amount of trim, skirt fullness and closure location. New techniques included using a planimeter to measure trim on an illustration, and the use of a ten-point scale of line complexity.

Both companies, with their large markets, offered a wide range of designs at any given time. This suggests that it was possible for women to wear stylish fashions without necessarily wearing the exaggerated versions associated with the period. The leadership shown by Butterick in introducing such fashions as the walking skirt may indicate that middle-class women did not only use patterns to imitate Paris styles, but also to create their own unique "look" which was readily adopted and mass-marketed by firms such as Butterick.

Fabrics For Plantation Field Slaves, United States, 1820-1863
Ann E. Cordy
Research Conducted at The University of Maryland

The purpose of this research was to identify fabrics available for slave use and examine their suitability to field labor on plantations in the United States from 1820 to 1863. Arguments about the quality of life of slaves in the United States have renewed interest in specific aspects of care such as clothing.

Data about fabrics were obtained from journals, correspondence with the Office of the Quartermaster of the United States Army, and commercial newspaper advertisements. Nineteenth century textile definitions served to verify such items as fiber content and weave structure of the fabrics mentioned. An assessment of durability and strength related to heavy, manual field labor followed to determine suitability of fabrics to lifestyle.

Indications from this study are that fabrics advertised and available for slave clothing were strong and of simple construction and would have been adequate in comfort and durability for field work if issued in large enough quantities yearly. Future research will be aimed at a careful determination of these seasonal issues of fabric and clothing in order to answer the question of adequacy of slave life as related to clothing.
## Slave Clothing Fabrics

<table>
<thead>
<tr>
<th>Name of Fabric</th>
<th>Fiber Content</th>
<th>Weave Structure</th>
<th>Color</th>
<th>Slave Use</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Warp Fill</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Flannel</td>
<td>Wool Wool</td>
<td>Plain</td>
<td>Variety</td>
<td>Possibly underclothes</td>
</tr>
<tr>
<td>2. Gingham</td>
<td>Cotton Cotton</td>
<td>Plain</td>
<td>Two or more checks</td>
<td>Summer frock coat</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Stripes</td>
<td></td>
</tr>
<tr>
<td>3. Jean</td>
<td>Cotton Wool</td>
<td>Twill (2/2)</td>
<td>Dark solids</td>
<td>Pants and jackets</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Light side and a dark side</td>
<td></td>
</tr>
<tr>
<td>4. Kersey</td>
<td>Wool Wool</td>
<td>Twill (2/2)</td>
<td>Solid: blue, black, brown</td>
<td>Overcoats</td>
</tr>
<tr>
<td>5. Linsey</td>
<td>Linen Wool</td>
<td>Plain</td>
<td>Checks, plaids, Bright colors</td>
<td>Suits</td>
</tr>
<tr>
<td>6. Negro Kersey</td>
<td>Cotton Shoddy</td>
<td>Twill (2/2)</td>
<td>Probably dark</td>
<td>Jackets and pants</td>
</tr>
<tr>
<td></td>
<td>Wool</td>
<td></td>
<td>Light side and a dark side</td>
<td></td>
</tr>
<tr>
<td>7. Osnaburg</td>
<td>Cotton Cotton</td>
<td>Plain</td>
<td>Plain, plaids, and stripes</td>
<td>Work apron</td>
</tr>
<tr>
<td>8. Plains/Negro Cloth</td>
<td>Wool Wool</td>
<td>Plain</td>
<td>Dark gray or blue</td>
<td>Uncertain</td>
</tr>
<tr>
<td>9. Striped Shirting /Hickory</td>
<td>Cotton Cotton Twill</td>
<td>Striped or checked Blue and white</td>
<td>Shirting</td>
<td></td>
</tr>
<tr>
<td>10. Toweling</td>
<td>Cotton Cotton</td>
<td>Variety</td>
<td>Variety</td>
<td>Shirting</td>
</tr>
</tbody>
</table>

*Slave Clothing Fabrics: Research Report, October 26, 1979, by Ann Cordy*
The purpose of the research was to describe the textiles and dress used/worn by the various ethnic groups of Nepal and to discover methods and techniques used in creating and decorating these textiles.

The procedures used were those of the historical method. Library resources, museum collections, photographs, and anthropological and current works were consulted. Field work was done in Nepal during March of 1979.

The people of Nepal are of many distinctive ethnic groups. For purposes of classification the divisions of Nepalese anthropologists were used: Middle Hill and Valley People, Northern Border People, and the Terai People. Each ethnic group within these classifications has distinctive articles of dress which can be identified. Religion, the economy, the geography and the caste system all affect the dress of men and women.

Men in Nepal have a "national dress" derived from the Newars (Middle Hill and Valley People). The costume includes a distinctive shirt (labeda or daura), a tight-legged pant (suruwal or pyjama) and a hat (topi). Around the waist the man wraps a cummerbund-type belt (patuka) into which is stuck a knife (khukuri).

Women's dress varies more than men's although some common garments are found. The blouse (cholu) worn with a full skirt (sari or parsi) tied at the waist with the cummerbund-type belt (patuka) are, if not universal, very common. Each ethnic group varies the color and type of fabric and other details of the costume. A shawl is also commonly worn.

Tibetan men and women of Nepal dress very differently from the other ethnic groups. Women wear a dark-colored dress (chuba) with a blouse and striped woolen apron (shyama). A belt (tos) is tied at the waist. Bhotia women wear trousers (rkan-snam) as do men of this region.

Weaving is practiced in the Kathmandu Valley by several ethnic groups, and in the mountains by the Tibetans. Mechanized as well as hand four-harness looms are used. Carpets are woven on vertical carpet looms.

Prior to 1952, Nepal was "shut off" to all outsiders. The country provides, therefore, an excellent place to study traditional dress and textiles as they have evolved in a relatively short period of time through adaptation and acculturation techniques. With increased contact with the outside world, changes come more rapidly and the chances for study of traditional dress decrease. This time was seen as opportune for the descriptive research outlined.
Use of Weighted Kappa in Determining Consistency of Judges' Opinions Regarding Sleepwear Fabric Characteristics
Margaret Jane Gallagher and Mary Ann Zentner
Research Conducted at Virginia Polytechnic Institute and State University

The purpose was to determine the consistency of ratings among four professional judges and wearers regarding seven characteristics of nightgowns made of four different fabrics (polyester brushed knit, nylon knit, acetate/polyester brushed knit, and acetate/nylon brushed knit). Soil removal, colorfastness, shape retention, appearance, hand, durability and static electricity were the major variables. Weighted kappa was utilized to determine agreement among the raters, taken two at a time. Null hypotheses were tested at the .005 level of significance. Agreement was determined for all judge-pairs for all factors except shape retention. For that variable, significant agreement was found for all judge pairs except Judges I and III and the wearers for the overall rating but was not found significant for the other judge-wearer pairs. The wearers were more lenient than the professionals in evaluations of all fabric characteristics except static electricity. The findings indicate that professionals in the field of clothing and textiles do not evaluate fabrics in the same way as consumers; they are more critical. It is not appropriate to predict wearer satisfaction based on the experience of highly trained personnel.

Consumer Satisfaction, Preferences and Care Procedures for Selected Women's Sleepwear Fabrics
Jane Davis and Mary Ann Zentner
Research Conducted at Virginia Polytechnic Institute and State University

The purposes of this study were to investigate consumer satisfaction, preferences and care procedures of selected nightgown fabrics. The data were provided from 54 females residing in six northeastern states and Virginia. Nightgowns were made from: (1) 100% polyester, pink, brushed knit; (2) 100% nylon; (3) 80/20% acetate/polyester, blue-green, brushed knit; and (4) 80/20% acetate/nylon, yellow-green, brushed knit. Preliminary and terminal interviews were used to collect data along with satisfaction rating cards. Participants tended to be fairly young, well educated and dwellers in single-family houses. Automatic washers and dryers were used predominantly. A variety of textile goods were laundered in the same loads as the sleepwear. Wearing indicated preferences for one or the other of the two gowns on each of the following factors: ease of soil removal, colorfastness, shape retention, appearance, hand, and durability. The 100% polyester, brushed knit fabric was preferred overall, but other fabrics received higher ratings on individual factors. On satisfaction factors, hand and ease of care were the most pleasing characteristics. Static electricity continues to be a problem. Satisfaction scores were somewhat parallel to preferences.
Criteria For Recommending Fashion Merchandising Students For Employment
Wanda Holder Hartman
Research Conducted at The University of Mississippi

The purpose of this study was to identify criteria necessary to insure successful employment of fashion merchandising students in management or mid-management positions within the apparel and accessories retailing industry. The ultimate goal of the study was to develop a competency based evaluation instrument for use by fashion merchandising instructors in evaluating a student's readiness for employment in a management or mid-management position in fashion retailing.

Fashion retail employers and members of the Association of College Professors of Textiles and Clothing who were either teaching fashion merchandising courses or working with students in field experiences were asked to rate each of thirty competency statements as to its importance for use in the final evaluation instrument. Each competency statement was weighted according to a pre-determined scale as follows: essential - 4, important - 3, limited value - 2, or no value - 1. Competency statements which achieved a mean rating of 2.50 or above were placed on the final instrument.

The mean for all the items exceeded the minimum of 2.50 and all items were accepted for use on the final instrument. A review of the means computed for each questionnaire item for the two sample groups revealed the employers ranked two of the items below the minimum criterion of 2.50.

In order to determine overall agreement in the responses of the fashion merchandising instructor group and the employer group, a Spearman rank order correlation was used to determine agreement at the 95 percent confidence level. Essentially, the two groups attached the same overall importance to the competency statements as evidenced by the obtained Spearman correlation of .924.

A chi-square analysis was used to compare response distribution for the two groups on an item-by-item basis. Significant differences at the .05 level were obtained in cases of six items.

Of the twenty-four items which showed general agreement between the two respondent groups, the instructor group assigned more importance to nineteen of the competency statements. The employers placed more importance on six competency statements.

Employers want to hire graduates who require only small investments of on-the-job-training or money to incorporate them into the producing work force. It is the responsibility of the educator to provide the learning experiences which develop the social, technological, marketing and management skills that employers desire in management personnel. In order to insure employment of graduates, it is recommended that instructors and others responsible for the development of fashion merchandising curriculum plan learning experiences which place emphasis on the competencies which employers consider the most important.
Clothing and Textiles Programs at Community Colleges and Other Post-Secondary Schools in the U.S.
Kitty G. Dickerson and Darrel Clues
Research Conducted at Virginia Polytechnic Institute and State University

This research is a survey of all community colleges and other post-secondary institutions in the United States which offer programs in clothing and textiles areas. Objectives of the research were:

1. To determine on a national basis the extent to which clothing and textiles programs exist in post-secondary, non-collegiate institutions;
2. To identify training needs of post-secondary graduates and general patterns of articulation into 4-year institutions;
3. To identify training needs of these facilities;
4. To evaluate post-secondary programs in relation to 4-year programs, especially in view of the fact that these graduates often compete for jobs against graduates from 4-year clothing and textiles programs.

Mailed questionnaires were sent to all possible institutions (265), as identified by government sources. Institutions which did not respond were contacted by phone. To date, 175 (66 percent) have responded.

This paper is a numerical summary of data from responding institutions. Findings from the survey are summarized with appropriate tables* for each of the following:

1. Types of schools
2. Program goals
3. Department identification
4. Length of program
5. General education required
6. Employment of graduates
7. Number of courses taught, FTE's
8. Faculty qualifications
9. Programs and enrollment

The results of this research will be of value to ACPTC educators to view 4-year programs in relation to those offered in community colleges and other post-secondary schools.

*For further information contact Dr. Dickerson at Virginia Polytechnic Institute and State University, College of Home Economics, Wallace Hall, Blacksburg, VA 24061
The meeting was called to order by President Phyllis Tortora at 10:45 a.m.

President Tortora introduced the current board members. They are: Jessie Warden and Carol Avery, who will be going off the board; Joann Boles and Phyllis Tortora, who will serve one more year; and, Barbara Starke and Nora MacDonald who will serve two more years. Introductions of the ACPTC-ER representatives to the national executive board were made. Barbara Densmore, Joann Boles and Carol Avery are the current board members; Lois Gurel has just completed her term as a board member. One representative to the national board is selected each year; members serve a three year term. President Tortora then introduced all of the committee members who had served the organization during the past year.

Amelia Adams discussed plans for the post-conference tours which had been arranged.

It was moved and seconded to postpone the acceptance of the secretary’s report until the membership has the opportunity to read the minutes from last year’s business meeting in the proceedings. The motion carried.

Carol Avery distributed the treasurer’s report, which follows. The membership will now send their ACPTC dues to the Executive Secretary, Loy Walton, or can submit their dues to the treasurer during the annual meeting. Carol reported that Jo Ellen Uptegraft, the national ACPTC treasurer, is working to obtain tax-free status with the IRS for the organization. To obtain this status, it is necessary to show that 85% of the budget is spent, including operating expenses. The treasurer’s report was accepted as given.

Barbara Densmore reported on the National ACPTC Executive Board meeting held in St. Louis, June, 1979, in conjunction with the AHEA Annual Meeting. The national board accepted the newly revised bylaws which drop the AHEA requirement for membership in ACPTC. This also changes the status with AHEA; ACPTC will now be an "Association" member. Dues will be paid directly to the ACPTC Executive Secretary. New forms will be prepared by national for dues payment. If a member paid dues between May 1 - October 1, 1979, their dues will cover the entire year. The new fiscal year will be November 1 to October 31.

Densmore reported that the national treasurer is working on obtaining tax-free status for the association. This will help keep mailing costs down. It additionally means that the association cannot build up excess money; money will need to be earmarked for scholarships and/or publications. Budgets will need to be developed to show how the association plans to spend money.

An invitation has been extended by Hawaii for the 1983 national ACPTC meeting to be held in Hawaii in July, according to Densmore.
Densmore also reported on membership figures as of June 26, 1979. The total membership is 789; central has 398 members, eastern has 195 members and western region has 196 members.

The current national ACPTC President is Ruth Gates, Marjorie Joseph is President-Elect and will assume the national ACPTC presidency as of November 1, 1979. Jo Ellen Uptegraft is the Treasurer, Barbara Densmore is Secretary and the new President-Elect is Lois Dickey, as reported by Densmore.

Lois Gurel, co-chairman for local arrangements for the National ACPTC meeting to be held in Washington, D.C. in October 1980, reported on plans for the meeting. She has already received much support from the membership to serve on committees. She called for suggestions for meeting content and structure.

President Tortora reported that Mary Ann Zentner, the ASTM liaison for several years, asked to be relieved from this position. Tortora offered her congratulations to Zentner for her fine service over the years. Carol Warfield has agreed to be the new liaison. Warfield reported on how ACPTC can work with ASTM, especially in the area of standardization of sizing and care labeling. She called for people interested in assisting with data gathering to contact her.

Fran Duffield reported on the "Perspectives on Dress Project." Project information was available in limited quantity during the meeting. If unable to get a copy of the information at the meeting, send $.50 to:

Saul Schur  
Nutriguides  
210 East 39th Street  
New York, NY 10805

The second stage of the study, to establish a taxonomy of dress, will be developed by December 15, 1979. A hard bound publication will result and will be free to those involved, including 300 deans from around the country.

Duffield reported that the first stage of the study included a curriculum study. It is based on an interdisciplinary approach to the history of costume. One hundred sets of history of costume slides, with 150 slides each, will be available to the study participants. These are available as a result of a $65,000 grant from the National Endowment for the Humanities. She urged participants to use the slides in an interdisciplinary manner and to give feedback to Schur as to how the material is used.

President Tortora distributed ballots for members to select the meeting site for the annual ACPTC-ER regional meeting in 1981. The choice is between New York and Philadelphia. The 1980 national meeting will be in Washington, D.C.; members were to give suggestions for possible sites in the south for the 1982 regional meeting.

Ruth Weibel, chairperson of the nominating committee, introduced the candidates for the two regional council positions. Ballots were distributed and collected.
President Tortora discussed the major differences between the old and new ACPTC bylaws. The changes are as follows:

**Article I.** The association is moving toward a nonprofit status.

**Article II.** The purpose of the association is expanded.

**Article III.** Identifies the status in each region and clarifies the relationship to national.

**Article IV.**

**Section 1.** Expands the size of the regional council to include: 6 elected members with 2 members elected each year for a three year term, plus the senior elected national representative of the region, plus a past president of the region.

**Section 2.** The ballot procedure will change from a spring ballot for national and the regional ballot at the October meeting to having both the regional and national ballots in the spring. Regional officers will take office November 1.

**Section 3.** No change.

**Section 4.** No change.

**Section 5.** Specifies the term of office: the term for secretary was changed from a two-year position to a one-year position.

**Section 6.** - 9. No change.

**Article V.** AHEA is no longer a requirement for membership.

**Section 1.** (a) 3.

The state extension textiles and clothing specialist membership position is not clarified in the new bylaws. Amelia Adams moved that the language used to specify membership be further clarified by the National ACPTC Executive Board with specific regard to the state level Textiles and Clothing Extension Specialist. The motion was seconded and carried. Amelia Adams further moved that the president of ACPTC-ER, or a designee, write a letter to the president of the National ACPTC Executive Board to express support by members of ACPTC-ER for inclusion of state level Textiles and Clothing Extension Specialist as active members of ACPTC, with all rights and responsibilities thereto pertaining. The motion was seconded and carried.

**Article VI - XI.** No change.
Article XIII. It was moved and seconded that Article XIII, p.6, should be changed to read Article XII. The motion passed.

It was moved and seconded to accept the bylaws as amended; unanimously accepted.

Judy Flynn, ACPTC Newsletter Editor, reported that the deadline for submission of items for the newsletter is February 15, 1980. Three copies of the article must be submitted. There will be a $3 to $5 charge for advertising or course announcements. Release forms will need to be signed due to the number of articles that are copyrighted.

President-Elect Joann Boles reported on the ACPTC-ER Plan of Work for the coming year. One goal is the development of an officer handbook which will include officer duties and association policies. A second goal is to develop guidelines for submission of research abstracts for the research reporting session at annual meetings, along with a method of evaluating the abstracts submitted. A third goal is to discuss, in the ACPTC-ER Council, how to appropriate 85% of the budget to meet IRS criteria for tax-exempt status. Part of this goal will be met through a national committee appointed to develop ideas for an ACPTC publication. Joann Boles is chairman of this committee; Lois Dickey, Judy Flynn and Loy Walton are the other committee members. Barbara Nordquist moved that since the membership of ACPTC-ER enthusiastically supports the formation of a refereed textiles and clothing research journal, it urges the National ACPTC Council to implement the establishment of such a journal with all due speed. The motion was seconded and passed.

A motion was made and seconded to send a letter of commendation to Enid Tozier and her bylaws committee for their fine work. The motion passed.

Ruth Weibel reported the results of the election. Fran Duffeld and Jane Lamb are the two new ACPTC-ER Council members; Celia Roten is the alternate. The 1981 ACPTC-ER meeting will be held in Philadelphia.

The meeting was adjourned at 12:15 p.m.

Respectfully submitted,

Nora MacDonald,
ACPTC-ER Secretary
Treasurer's Report

Association of College Professors of Textiles and Clothing-Eastern Region

October 26, 1979

RECEIPTS

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Balance on hand, September 28, 1979, Checking Account | $6001.29

Respectfully submitted

Carol E. Avery, Treasurer
A.C.P.T.C.

Eastern Regional Meeting

October 24 to 27, 1979

WILLIAMSBURG, VIRGINIA

Adams, Amelia E.
330 West Brambleton Ave. #315
Norfolk, Virginia 23510
Norfolk State University

Amidon, Jill
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Bowker, Jeanette
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University of New York

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Slocum, Sandy
252 Ridgewood Village
Auburn, Alabama 36830
Auburn University - student

Snyder, Linda A.
2615 Crockett Drive
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East Carolina University
<table>
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<td>Harrisonburg, Virginia 22807</td>
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Central Region

Association of College Professors of Textiles and Clothing
Committees for 1979 October Conference

Program
Marilyn DeLong, Chairperson

Proceedings
Charlene Callison, Chairperson
Ernestine Reeder

Registration
Barbara Scruggs, Co-Chairperson
Nancy Rudd, Co-Chairperson
Joan Laughlin
Jo Lefler

Exhibits
Esther Meachem, Chairperson
Virginia Atkins
Fern Rennebaum

Local Arrangements & Publicity
Lois Dickey

Hospitality
Mary Lapitsky, Chairperson
Patsy Alexander
Marcia Metcalf

Research Reporting
Pat Horridge, Co-Chairperson
Karen Evans, Co-Chairperson
Marilyn DeLong
Mary Evelyn Cotton

Evaluation
Betty Wass, Chairperson
Yoon-Hee Kwon
Jane Wills
CENTRAL REGION
ANNUAL CONFERENCE
ASSOCIATION OF COLLEGE PROFESSORS OF TEXTILES AND CLOTHING
Fawcett Center for Tomorrow
Columbus, Ohio
October 24-26, 1979

PERSPECTIVES ON COMMUNICATION

Wednesday, October 24

5:00-7:00 p.m. ACPTC-CR Council Meeting
7:00-8:30 p.m. Registration
8:00-10:00 p.m. Hospitality (Cash Bar)

Thursday, October 25

8:00-9:00 a.m. REGISTRATION
8:30-10:15 a.m. OPENING SESSION
Presiding: Dr. Shirley E. Friend, President, ACPTC
WELCOME: Dr. Francille Firebaugh, Director, School of Home Economics, Ohio State University
KEYNOTE: "Changing American Lifestyles," Dr. Roger Blackwell, Professor, Marketing, Ohio State University

10:15-10:30 a.m. Beverage Break

10:30-12:00 Noon SYMPOSIUM: "Audiences and Issues"
Presiding: Dr. Joan Laughlin
Dr. Joanne B. Eicher, Head, Textiles and Clothing, University of Minnesota (Chair)
Dr. Barbara Stowe, Chairperson, Human Environment and Design, Michigan State University
Dr. Norma Compton, Dean, School of Consumer and Family Sciences, Purdue University
Ms. Jo McLean, Merchandising Councilor, O'Neil's, Mansfield, Ohio
Ms. Susan Ruffing, OHEA Representative to Ohio Legislature

12:15-2:00 p.m. LUNCH
Presiding: Mrs. JoAnn Lefler
"New Perspectives on the History of Dress," Saul Schur, Director, National Endowment for the Humanities Research Grant

2:00-3:00 p.m. BUSINESS MEETING
Presiding: Dr. Shirley E. Friend
3:00-3:15 p.m. Beverage Break

3:15-4:45 p.m. RESEARCH REPORTING SESSION I

MERCHANDISING AND CLOTHING
Presiding: Ms. Laura Dunn

A. "The Management Interests and Potential of Fashion Merchandising Majors," Sandra S. Hutton, University of Nebraska - Lincoln

B. "Perceived Fashion Risk Related to the Fashion Cycle," Bettie Minshall, Presenter, Iowa State University; Geitel Winakor, Co-Author, Iowa State University

C. "The Effect of Positive Reinforcement on Sales in a Retailing Situation," Nancy Morrison, Hilda M. Buckley, Co-Author, University of Illinois

D. "Canadian Consumer Attitudes Toward Children's Flame Retardant Sleepwear," Marjorie Wall, University of Guelph; Jane Gallagher, Co-Author, University of New Brunswick

RESEARCH REPORTING SESSION II

CONSUMER - USE OF CLOTHING
Presiding: Dr. Karen Kaigler-Evans

A. "Operationalization of Dress for Experimental Research: Categorization," Hilda M. Buckley, University of Illinois

B. "Comparison of a Multivariate and Univariate Approach to Studying Clothing Styles as a Summary of Personal Identity," J. Ann P. Reed, University of Texas - Austin

C. "Clothing Construction: Use of Quick Techniques Related to Homemakers' Allocation of Time," Geitel Winakor, Iowa State University; Co-Author, Barbara Jean Knapp, Iowa State University

4:45-5:30 p.m. Walking Tour of OSU Campus
Tour of Communications Center, Fawcett Center for Tomorrow

7:00-9:00 p.m. BANQUET
Presiding: Dr. Joan Laughlin
"Celebrating a Birthday: ACPTC-CR, 35 Years."
Ms. Lynda Heyl, Cooperative Extension Agent Home Economics, Clark County, Ohio
"Inter-Act Through Verbal Communication," Dr. Rudolph Verderber, Professor and Head, Communication, Speech and Theatre, University of Cincinnati

9:30 p.m. ACPTC-CR Council Meeting
Friday, October 26

7:15-7:30 a.m.  REGISTRATION

7:30-9:30 a.m.  BREAKFAST
Presiding: Dr. Hilda Buckley
"Non-Verbal Communication."
Dr. Charles M. Galloway, Professor,
Education, Ohio State University

9:30-9:45 a.m.  Beverage Break

9:45-11:15 a.m.  RESEARCH REPORTING SESSION III
CULTURAL DRESS - HISTORIC
Presiding: Dr. Mary Evelyn Cotton

A. "Dress of the Chippewa (Ojibwa)
   Indians Analysis of Change from 1640-1940,"
   Kathy S. Cyr, Michigan State University

B. "Clothing Practices and Preferences
   of Korean Female Immigrants in Chicago,"
   Yoon-Hee Kwon, Northern Illinois University

C. "The Relationship of Clothing to
   Perceived Teaching Styles," Suzanne Rosenblatt,
   Kansas State University

D. "Clothing Attitudes and Evaluative
   Criteria Used by Employed Women Differing
   in Feminine Role Orientation and Work
   Orientation: Emphasis on the Single-Again
   Adult," Ann Eicher Stemm, Illinois State
   University

RESEARCH REPORTING SESSION IV
HISTORIC PRESERVATION
Presiding: Dr. Marilyn DeLong

A. "Dress and Accessories Worn by People
   in Professional and Business Classes
   Residing in Selected Small Iowa Towns
   Between 1870 and 1879," Ellen J. Haack,
   Iowa State University

B. "Investigation of Selected Vertical
   Supports to Reduce Strain on Women's
   Outerwear While in Storage," Vicky J.
   Kruckeberg, Kansas State University

C. "Registration, Identification and
   Conservation of Historic Lace Specimens."
   Susan Crabtree, Lavonne Matern, Co-Author,
   Oklahoma State University

D. "Pattern Drafts of Men's Costume in
   American, 1850-1900," Judith Rice-Jones,
   Shirley E. Friend, Co-Author, Southern
   Illinois University; Presented by Sue Ridley,
   SIU Assistant Professor

55
11:30-12:30 p.m.  
Lunch  
Presiding: Dr. Mary Littrell

1:00-3:00 p.m.  
Special Interest Groups

A. Clothing for Special Needs  
Leader - Dr. Karen Kaigler-Evans

"The Therapeutic Value of an Appearance Program for Long-Term Male and Female Psychiatric Hospital Patients"
Carolyn Callis  
The University of Texas at Austin

"Special Clothing for Children"
Soae L. Paek  
Northern Illinois University

"Development of a Taxonomy for Evaluating Research on Clothing for the Elderly and Handicapped"
Audrey Newton  
University of Nebraska at Lincoln

"Clothing Problems and the Elderly: Coping with Change"
Karen Kaigler-Evans  
The University of Texas at Austin

B. Development of Theory in Textiles and Clothing  
Leader - Dr. Gloria Williams
Dr. Ruth Hawthorne, Co-Chair  
Dr. Aratha Huepenbecker  
Dr. Yoo Ne Kwan  
Dr. Jane Wills, Moderator

"The Role of Theory in Textiles and Clothing"
Geitel Winakor  
Iowa State University

"Development of Theory for Clothing"  
Ruth E. Hawthorne  
Indiana University

"Towards a Theory of Clothing Deprivation"
Gloria M. Williams  
University of Minnesota

C. Energy and Clothing  
Leader - Mrs. JoAnn P. Lefler

"Adapting to Changed Home Temperatures Through Clothing Choices"
Becky Culp  
Texas Agricultural Extension Service
1:00-3:00 p.m. Special Interest Groups (Continued)

C. "Laboratory Measurement and Evaluation of Thermal and Selected Comfort and Durability Properties of Twelve Textile Fabrics Intended for Indoor Winter Wear With Lowered Temperatures"
   Barbara J. Scruggs
   Ohio State University

"Petroleum and Petrochemical Issues Affecting the Textiles Industry"
   Dr. Fred Brothers
   Administrative Vice-President
   Ashland Oil Company
   Columbus, Ohio

"Gas Supply for Petrochemical Industry"
   Dr. William Gibeaut
   Industrial Gas Utilization Director of Columbia Gas Distribution Companies
   Columbus, Ohio

D. Retail Merchandising Update
   Leader - Dr. Barbara Schlinkert

"Establishing a Retail Lectureship"
   Phyllis Ashinger
   Wayne State University

"Involving Professionals in Teaching"
   Marian H. Jernigan
   North Texas State University

"Retail Case Course Development and Implementation"
   Jerrie L. McGhee
   Purdue University

3:00 p.m. Adjournment
CENTRAL REGION ACPTC OFFICERS
1978-79

**Current Officers**

President: Shirley E. Friend
President-elect: Patricia Horridge
Secretary: Hilda Mayer Buckley
Treasurer: Joan Laughlin

**Incoming Officers**

Joan Laughlin
Patricia Horridge
Hilda Mayer Buckley
Mary A. Littrell

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Karen Kuigler-Evans
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Barbara Schlinkert

**Incoming**
Carolyn Callis
Betty Wass
Marketing may be one of the more misunderstood words in the American vocabulary. For many, and perhaps most people, marketing probably carries the connotation of advertising or selling. While these are important activities of most marketing oriented organizations, it is a serious error to think of advertising or selling as the primary concern of marketing.

Still other people, if queried on their way to the store about their destination, might reply that they were going marketing. In an agriculture school, courses on marketing might be primarily concerned with the economic functions involved in the exchange process for agricultural commodities. While all of these connotations or activities are correctly encompassed in marketing, they fail to describe the nature of marketing in contemporary society.

Marketing, simply stated, is the process by which an organization adapts to its environment. By anticipating and influencing the demand structure for goods and services in a society, an organization obtains adequate economic resources to prosper and continue as a provider of goods and services. Whether the organization is organized for profit such as an apparel manufacturer or retailer or exists as a nonprofit organization such as a university, an extension agency, or a church, the function of marketing is fundamentally the same. In recent years, marketing development by nonprofit organizations is growing more rapidly than in business organizations.

If marketing is the process by which organizations adapt to their environment, a major marketing activity is monitoring changes occurring in the environment and interpreting the changing environment for development of the organization's activities and policies. One of the key concepts to emerge in recent years as a construct for understanding the environment is lifestyle.

The meaning of lifestyle is straightforward. Lifestyles refer to patterns of living. It is correct to refer to the distinctive pattern of living or lifestyle of an individual. It is sometimes possible to speak of a lifestyle that characterizes an entire nation or culture such as was true, perhaps, during the depression lifestyles of the 1930's or the war lifestyles of the 1940's. More often, for marketing purposes, it is useful to consider the lifestyles of specific groups of the population or market segments.

A fundamental fallacy in fashion analysis often occurs when there is a failure to consider lifestyles from a market segmentation perspective. At one time, perhaps, it was possible to talk of fashion on a mass basis. If such a thing as an "American lifestyle" existed, it would be logical to expect an "American fashion" concept in apparel, or for that matter, any product. The hypothesis presented here is that an expectation for mass fashions in apparel is unrealistic and that clothing and the materials from which they are produced can only be understood by reference to the
preferences of specific market segments. The unit for analysis of preferences might be the individual but we would then be limited to understanding only specific styles. For the purpose of understanding fashion, as well as for correspondence to the economic necessity of marketing to groups of people rather than individuals, and other reasons, lifestyles are best analyzed by reference to market segmentation.

The basic thesis in this paper is that apparel fashions—now and increasingly in the future—can best be understood and forecast by analysis of the lifestyles of the groups of people for whom an organization hopes to design and sell apparel. No longer is it adequate to think of a designer establishing a fashion trend. No longer can New York or Paris establish the "look" for the year. If they do so, it will be because they have analyzed, either intuitively or through formal research, the lifestyles of the groups to which they hope to sell and have designed styles and fabrics compatible with those lifestyles. Those designers who fail to understand and properly market apparel compatible with the lifestyles of their market segments will disappear. In this conceptual framework, it is lifestyles that lead designers, not designers who lead lifestyles.

It is easy to misunderstand the process of fashion acceptance without an understanding of market segmentation. Some styles will be decreasing in acceptance with some segments who are dropping certain lifestyles at the same time those styles are increasing in acceptance with other segments who are later in adopting those lifestyles. "Everybody" dropped golf a few years ago in favor of tennis. Now "everybody" is switching from tennis to racquet ball. Yet there are still millions playing both tennis and golf, many who are just starting the sports and who are purchasing the apparel associated with those lifestyles. Disco provides another example. While the popularity of disco supposedly now is waning, there are many segments just now adopting the disco lifestyles.

Disco illustrates the impact of lifestyles on apparel. Many people questioned why women would accept the pain and risk of returning to high heeled shoes. Yet if one understands disco as primarily a display sport, it is quite logical to forecast the acceptance of display fashions among some, but not all, market segments. By a careful analysis of the total lifestyles of those in the disco segments—their demographics, interests, and other activities—one could also draw some conclusions about the relative impact the fashion preferences of the disco segment might have on other segments of the population.

The purpose of this paper is to describe the formation of lifestyles. Every effect must have a cause. If we understand the causes of today's lifestyles, we are in a better position to forecast the lifestyles of tomorrow, a task of fundamental importance in the design of textiles and clothing. In this paper, primary attention is given to the demographic and lifetime experiences that create lifestyles and an examination of a few of the emerging lifestyles of particular interest in understanding textiles and clothing.

Psychographics: The Measurement of Lifestyles

Measuring lifestyles can be accomplished with various techniques of marketing research but the term used most often as a method of measuring lifestyles is psychographics. The term psychographics apparently was introduced by Demby and grew out of the literature on motivation research.
To the attempt to understand the motivation or psychological meaning of products was added the demographic realities of income, age, population, family size, and so forth and thus was born the word psychographics.

Psychographics is sometimes called AIO measures or Likert type statements administered to a broad range of consumers. "A" stands for activities, "I" stands for interests, and "O" stands for opinions. Typically, a large number of AIO statements are administered (sometimes 250 or more) and then factor analyzed to delineate the most discriminating statements. AIO statements sometimes refer to general topics or may refer to very specific topics about the purchase and use of apparel. A number of doctoral dissertations recently have included sections of AIO statements that can be analyzed with various types of statistical methodology.

Psychographics are used typically to understand what types of products are likely to be accepted by a group of people, estimate the size of a market segment, understand the use situations and purchase patterns with which a product must be compatible, and interpret the interests and opinions of the segment that may give clues concerning creative and media strategies likely to be effective in communicating with that segment.

Demographic Influences on Lifestyles

The starting point for understanding lifestyles normally should be the demographic structure of a society. In the marketing literature, a market is ordinarily defined as people with the ability to buy and the willingness to do so. Thus, the structure of income and population provides a proper place to begin in the understanding of lifestyles.

Proliferation of Affluence. The most fundamental influence of lifestyles may well be the level and distribution of income or wealth. In a subsistence economy, no great difficulty exists in forecasting apparel fashions. The demand structure is simple—more of the same. When the United States was primarily an agrarian nation, even though its population may have been well-fed, there was little discretionary income to provide substantial variation in apparel, even if there were variations in preferences. There have been some changes in contemporary U.S. society.

The United States has experienced significant increases in aggregate wealth in recent decades and even more rapid increases among some segments. In one generation the standard of living (per capita real GNP) has doubled. Even more startling is the increase in the proportion of families earning over $25,000 in real income. While some of the growth in families with "supernumerary income" is achieved by real growth in the economy, much of the growth in affluent families is achieved by the expansion of families with two or more incomes.

The net effect of the proliferation of affluence is the ability to buy different types of apparel than that owned by the masses, to own more special-purpose garments (such as tennis outfits, disco dresses, "country" suits, ski suits, and so forth), to change styles more rapidly, and to experiment with styles or fabrics having special appeal to one's lifestyle but which previously were not affordable. Stated alternatively, rising discretionary income permits persons to experiment with the clothes that they might not have considered economically possible at lower income levels or that were not necessary before today's lifestyles were affordable.

Redistribution of Income to Young Adults. In the past, affluent people were mostly middle-aged or older. The best designer talent and marketing
efforts were necessarily oriented to people who were generally 50 or older.

The past decade has observed an enormous increase of income among young persons. Today, however, the 25-44 age group is the largest and fastest growing segment of the population. The active, innovative, often iconoclastic and now, affluent lifestyles have created enormous opportunities for diversity and change in apparel preferences. Both the customer of "grungy" jeans and the customer for display disco fashions (sometimes the same person) have created a new kind of market, at least for the discerning designer. While this situation may seem most relevant to commercial organizations, the implication for education in textiles and clothing also should be substantial. A new type of innovative, research capable, lifestyle oriented student should be the product of the school hoping to place graduates with the most successful manufacturers or retailers.

Changing the Population Structure. The U.S. population, as well as that of many similar societies, is undergoing a continuous change, analogous to a snake swallowing a mouse. In such a situation, one can observe a tremendous bulge moving through the snake, stretching the snake out of proportion wherever the mouse is at a particular time.

The past decade saw enormous growth in the youth market—the teens and the twenties. Their influence on fashion was extended by the "trickling up" influence to much of the rest of the population hoping to feel and look young. That same group will now be the growth market in the 25-44 age group. It appears they will retain portions of the lifestyles they learned in their liberated youth but to these existing lifestyles will be layered one of changing affluence, changing physical size, changing resilience, changing responsibility, and other conditions of "middle age."

Precise definition of the chronologically young group will be difficult because of the rise in abortions and declining birth rate, even though the number of women of childbearing age will increase at a predictable and rapid rate. With the number of children declining to half what it was in the fifties, we can expect much more discretionary increase available for those children that are born. First order children generate many more retail sales than do higher order children.

Increasing Education. Increasing numbers of Americans are going to school. The proportion of 18-21 year olds in college has jumped from less than 15 percent in the 1950's to nearly 35 percent today. More and more, universities (at least the marketing oriented ones) are enrolling students well beyond the traditional college age.

The effects of increased education on lifestyles are substantial. Leisure interests vary directly with aggregate levels of education and much of the influence on clothing fashions today can be traced to the active leisure preferences of a better educated population. Media preferences, for example, are changing rapidly and will become more and more segmented. More, but thinner (and much more segmented) magazines are on the horizon. The Wall Street Journal has become the dominant print media, a substantial change from an era when Life dominated what America read.

Inflation. Inflation is now acknowledged by political leaders as the number one influence on economic policy. Inflation also is important in understanding consumer decisions.
Two effects of inflation on consumer behavior may be observed. First, consumers appear to be evaluating their product choices more carefully and becoming more open to new products or new types of stores. Buying the same brand or shopping at the same store is increasingly open to challenge from a new alternative that may offer better value.

A second effect of inflation appears to be the desire of consumers to buy better quality products. "Better" products might include longer lasting or more durable products but also may include those products that are simply more satisfying in today's lifestyles. If "things" increase in price 10-12 percent a year, consumers may conclude that the best investment they can make is in good quality "things"--excellently styled apparel made of the best quality or most valued fabrics.

The combination of these and other demographic variables provide understanding of today's lifestyles and those of tomorrow. But demographics provide only part of the answer to the question of how lifestyles are formed. Values provide the other half (or more) of the explanation.

The Cultural Transfusive Triad

A culture is composed of two elements: Technology (physical artifacts) and values. Values are shared beliefs about behavior that ought or ought not to occur. As humans, we must "learn" our values. The process of doing so, socialization, is accomplished largely through the institutions of society and through lifetime experiences, which increasingly are transmitted through the media.

Changing Institutions. Fundamental changes are occurring in the value inculcating institutions of the culture of most industrialized nations. These are particularly observable in commuting and working parent families with diminished time available for children, nuclear families increasingly isolated by physical and social mobility, families with preschool children spending less time in the home, families increasingly fractured by divorce and dissolution, and other changes.

Among religious institutions, substantial change is also occurring. Most of the mainline denominations, which traditionally provided concepts of morality and values, are declining. They are being replaced by evangelical groups, eastern religions, a rise in nontraditional and more personal religious movements, and a rise of interests in the occult and psychic phenomena. All of these trends create an environment with substantially reduced opportunity for inculcating the values of the previous generation.

Schools also are changing and in many instances are the new institutions of influence on value systems. While most parents do not deliberately withdraw in their own teaching of values or consciously reduce the influence of religious institutions on the values of their children, the practical effect is to turn over institutional value inculcation to the schools. Many parents may be somewhat surprised at values taught by a new breed of teachers emphasizing analytical pedagogies that emphasize challenge to traditional answers. The result may be a consumer environment welcoming additional care information and other forms of consumer information, but an environment challenging old retailing institutions or channels, archaic produce concepts, and unsophisticated communication activities.

Changing Lifetime Experiences. The consumers of tomorrow will be influenced by different lifetime experiences than those of yesteryear and today. Many consumers grew up in the depression and tended to emphasize
economy and conservatism in style and a willingness to withhold spending today in order to "save it for the end." After World War II, a new generation grew up during the fifties and sixties. This was a generation with relatively few economic insecurities but with a perception of "love" deprivation—a lessening of time spent with parents, a period of stress and confrontation between the races, and an emphasis of comparing oneself with others. This was the interpersonal generation in which fashions moved with the influence of dominant political groups popular among the young. It was an era in which young people wanted to be alone—but they wanted to be alone in groups. Peer group influence, albeit it very different peer groups for one individual than for another, dominated fashion. This was also the "Nader Generation" in which the question was asked, "Am I my brother's keeper?" and the answer was yes for many people.

What direction can be expected for the eighties? If the current trends can be projected reliably, it appears that the word for the eighties is "self." Few journals exist today without articles on self-help, self-assertiveness, self-realization, self-fulfillment, and so forth. One of the newest fashion magazines is simply called Self.

The effects of the "me generation" as it has been labeled by Tom Wolfe can already be observed in the "boutiquing" of major department stores, in the development of very personal products that appeal to today's lifestyles, and in designer styles that appeal to very specific lifestyle segments. A new tolerance for personal differences should provide opportunities for designers who are closely attuned to the opinions, activities, and interests of these consumers of the eighties. The challenge for collegiate education in textiles and clothing will be to produce graduates with research skills and market segment knowledge that can be applied to the technical and design skills needed by human resources organizations in their efforts to survive in the new environment.

Many challenges will be created by this discontinuity with the past. Some of these are delineated by Francis Schaeffer, who has documented the causes for change in our culture and its evolution to existentialism or value deprivation as a normal condition (2). Facing these challenges will be one of the needs for which we must prepare our graduates, as well as providing them with job related skills.

Conclusions and Implications

This paper examines some of the causes of lifestyles. Space does not permit us to chronicle all of these forces for change nor the details of such changes, some of which are available elsewhere (3); nor of the specific lifestyles that are likely to emerge. Some emerging lifestyles, such as the increased value of time (and therefore the need to analyze consumer time and money budgets) (4), the desire for instant gratification (with its enormous influence on in-store merchandising activities), the desire for personal creativity (with its influence on sewing and other self-expressive activities), the desire for life simplification, the return to the edited past, the desire for a more natural lifestyle, and the graying of America, will have profound effect upon future fashions. We are aware that many retailers and some manufacturers are investing major resources to respond to these changes. As educators, are we providing the curriculum, the value systems, and the skills for our students to assist organizations in their task of adapting to changing lifestyles?
References


This year we celebrate the 35th birthday of the Association of College Professors of Textiles and Clothing, Inc. The organization has functioned at various levels of sophistication and by different names since 1944. I would like to share how the association originally was conceived, how it has progressed to get where it is today, and how you can help it grow for tomorrow.

The idea for an Association of College Professors of Textiles and Clothing was conceived in February 1944. The Committee on Instruction of the Home Economics Section of the Association of Land-Grant Colleges asked Miss Beulah Coon, a consultant in the U. S. Office of Education, to arrange for textiles and clothing teachers to meet together to study how to make adjustments for meeting post-war needs. She planned and lead the first central region meeting, May 18 - 21, 1944, in Chicago, Illinois.

Miss Coon and Dr. Johnie Christian, a program specialist for the Central Region of the U. S. Office of Education, served alternately and together as advisers of the College Teachers of Textiles and Clothing conferences (as they were then called) until 1958. Dr. Christian then served alone until 1965, when advisement from the United States Office of Education stopped.

The roots of ACPTC come from outside the discipline, and the early involvement of persons other than textiles and clothing teachers provided a good foundation for the group. During the first six years of conferences, Miss Coon reviewed the reason for the first meeting and the events that brought the organization to its present state. In 1949, she made three suggestions or reminders to conference members that bear repeating to present-day members. They were:

1. That new members of the group have as much to contribute as returning members.
2. That all participate in discussions and offer their opinions.
3. That it is necessary to think in terms of helping the whole group.

Certainly Miss Coon's wisdom to encourage participation by all during the formative years of ACPTC-CR was partially responsible for the organization's longevity and strength.

Since these formative years, there have been many changes. Conferences have changed in format, attendance, themes, and location, and the association has changed in organization, membership, and name.

The first conferences were in the form of group discussions. Questions were requested from the group, and then major problems to be discussed were selected. Invitations were sent to textiles and clothing staff in the central section of the United States with enrollments of 125 or more home economic majors. Twenty-six persons attended the first conference; there were less than 100 in attendance until 1960. The second highest attendance
on record was 199 in 1978. Today, we have 204 conference participants—an all time record.

Themes for annual conferences have varied; however, many have emphasized looking ahead for changing needs. Some of these were: Trends in Clothing and Textile Education, 1951; A Forward Look for Textiles and Clothing in College Teaching and Research, 1957; Near Vision With a Far View, 1961; A Look to the Future, 1962; Textiles Today and Tomorrow, 1966; The Changing Scene, 1968; and Futuristic View of Fashion Merchandising, 1972.

We have moved the location of our conferences throughout the 19-state region; however, Chicago has been the hub (there have been 15 central region conferences held in Chicago). The association has taken advantage of local resources where conferences have been held, securing local speakers as well as importing them, and taking field trips of local facilities. Field trips have included clothing and shoe factories, home economics facilities, retail establishments, testing laboratories, mills, 4-H centers...and in the 1970 proceedings (there were 178 members present in Chicago), there were 37 reservations to the Playboy Club. The 1970 proceedings also reveal that in the 35 years of conferences, this was the only year that there were no Ohio State University faculty or students represented. I am attempting to find a correlation between the "Playboy" trip and lack of Ohio State representation.

We have changed our name along with the other changes. We began with "College Teachers of Textiles and Clothing," then changed to the "National Association of College Teachers of Textiles and Clothing," "National Association of University Professors of Textiles and Clothing," "Association of College Professors of Textiles and Clothing," and finally (maybe) to the "Association of College Professors of Textiles and Clothing, Inc."

The Association of College Professors of Textiles and Clothing, Inc., has built and strengthened since its meager start through the U. S. Office of Education. It is important that we remember that meager beginning and the help we received from those outside the discipline, and maintain an openness to future contributions. The early foundation was sturdy, and our own leaders have grasped the reigns to build and organize. As we celebrate the 35th birthday of ACPTC-CR, let us look back from where we came, and forward to where we want to go.
I want to say some preliminary things about nonverbal communication. As advertised, it is true body language. Some few years ago, nonverbal communication was nothing but an esoteric item used by known scholars and researchers whose field was not taken seriously. So, I did my own research some 19 years ago. The field belongs to ethology, which comes from Darwin and deals with the expression of emotion in man and animals and the relationships between animals and human beings; it belongs to anthropology; it belongs to sociology and psychology. Then we in education took these pieces of research, writings, information, and tried to make something of them. Obviously, in your own field, you find something about the aspects of nonverbal communication that might be helpful to you. We forget that Darwin actually tried his hand at it and wrote a book called Expression of Emotion in Man and Animals.

Now, what is this nonverbal business? Well, it is everything you leave out. Quickly put, it is what you think it is—it is gesture and movement, expression in face and eyes, rhythm and music, space and time, and on and on. All of these things are marks, signs, signals, and symbols. And above other things, it has to do with value and attitude, emotionality, intent, and so forth. Many persons who look at nonverbal hope to have a royal road to the unconscious, so that they can look at the signs and symbols, cues and gestures, and thus read another with accuracy. No such privilege is available, unfortunately.

I teach a course on nonverbal communication every quarter, which is highly subscribed; and I begin the course by saying, "The purpose of this course is to suggest to you that you must know that you don't know." Indeed, the information about nonverbal communication is a constant system that reemphasizes that there is more information and more communication going on than we can handle, and so what we say is that human beings are multisensory organisms that occasionally talk.

When we come in the presence of others, we provide multiple messages; we provide multiple information. Here we must stop and make a distinction between the two. We have always had information potential—this room, these chairs, the waitresses, this food, each other, our dress, our hair, and on and on. Much of what is available is in the form of information to be perceived and obtained, to be processed. Much of what is information is not communication. For communication to occur, you must understand how you are understood. There must be a response to the response. There has to be an exchange of some kind. This is how we get around the problem of intent, because many persons refer to communication as intent. What that neatly does, though, is throw everything out that is not intended. Unfortunately, culture, role, and personality are too complex to be communicated just by intent, so we have to include that which is not necessarily intended to which you may make a response.
We send multiple messages, and we provide multiple pieces of information. The receiver always chooses the message or information he or she wishes to choose, and there isn't anything we can do about it. We are, in this spirit, out of control. We cannot, that is to say, be sure that we are understood the way we would like, nor are we sure that we understand how we were understood, especially when persons choose to withhold information, when communication is not fluid, and when it is not forthcoming.

In this culture we work hard to not communicate well. What we do is provide potential information that we hope will be received properly, and therefore, escape the responsibility of making an effort to communicate—in other words, we want to be viewed well.

Nonverbal represents a promissory note, that is to say, our faces and the way we hold them, the smiles we flash that suggest "I mean you no harm," the clothes we wear, are all promissory notes of the person we are dealing with—how we wish to be included, how we wish to be received. We continue to send a set of instructions to the outside world about who and what we are and how we are to be treated. We do this through displays; we go by status signals and signs, and on and on. The list is unbelievable, and so it is very, very complicated. We do this without word, because it requires less courage and is more tactful. And so it is, we want to be treated better than we think we are. We do not want to be treated worse than we think we are. This relates to all the displays and arrays, signals, signs, flashes, and looks and yet, requires courage, and we withdraw from it. So we have this little paradox and contradiction going on all the time in which we reach out to the world, and we hope the world will reach out to us, but we back up a few steps because we don't want to be taken too seriously.

On occasion, we flash our vulnerabilities and see how the other person will take them, read them, and deal with them. If they do well, we come a little closer. If they do not do well, we not only put on further masks, but we withdraw—we create a little distance.

Now what happens whenever you see this interaction, badgering, monitoring—a better word is negotiating—constantly going on between ourselves and others, peers and the rest. We are seeking information; we want things better than they are; we want to be viewed as special; we want to be treated according to our dreams and not our nightmares. The nightmare, of course, is that we are as bad as we think we are; our dream is that someone will see that we are better than we hope we are. It just goes back and forth.

Now, in a context where information is not widely shared and where messages are sent out with hope they will be received well—and they may not be—you look for recognition. When you buy something new to wear, you hope someone will notice. With an absence of information, human beings hear the worst. When we do not communicate well, when we do not pick up information, when we do not respond to the messages, when we are not informed well, and when we do not create and make more of possibilities, we lose hope and fear the worst.

The big thing about nonverbal analysis and nonverbal meaning is to look at the context. In one sense, we do not communicate via messages. What the messages do is create context, and we communicate through context. For instance, you invite someone to have dinner with you and you have a wonderful time; there is a good flow of exchange, good energy, good rhythms,
good feelings, and the substantive value of your contact was magnificent. Let's even say that you intellectualize at the highest levels. The next day, however, you will not remember the contact; you will live the process. You will remember the process. This is where we say, it is all process. When you see the person the next day at the faculty club or at coffee or whatever, you respond with a lighted face that concludes from the earlier evening contacts not in the substantive sense, but in the processional process, ceremonial-ritual-sense. This is the important idea that eludes all of us; but, in the spirit of this nonverbal process it is everything.

I don't remember the outlines and details of what my favorite teachers taught me; I remember their faces. I remember their attitudes and evaluations of me, their views and treatments of me, and their outlooks toward me. This I recall, and it means everything. I remember the sounds of their voices, not the content of their words. This is the sense in which process is everything, and this is where we so superficially refer to process as merely attitude; we say a person has a good attitude or a poor attitude.

It is really a mystery how human beings get together at all to exchange anything—which is a way of trying to remind you that communication is a process. The glossy, superficial surface things we do well, but in the deeper structures of exchange of withinness, we don't do so well or we do well with only a few people. Nonverbal doesn't lead us to the surface, superficial stuff, which is all stereotype; we can't afford it. We are all struggling these days. In one way, the simplest matters may amount to the most illusive matters, such as femininity or feminine or masculinity or masculine. We have a difficult time getting to the substantive nature of what we call the person and human being. We are stuck with a lot of garbage. Our histories prevent us from seeing clearly. It is true that we know so little about dominance and power.

I want to talk a little about dress and displays. Obviously, dress and attire represent something of how we feel about ourselves and our own cultural values. These displays are representative of our identities, moods, and intents. But dress is not what we wear, dress is what we think we wear, and what we think others will see. Regardless of our own experience in dress and what we have on, dress really serves to further an undisturbed ongoingness, meaning it facilitates fashion and continues to sustain an order of relationship between people.

Through dress we learn about ourselves in a removed way; but while dress is revealment, it is also concealment. This is not just in a physical sense but in the sense that we put something on; we make a statement, but we also may choose not to own that statement. It all depends on how it is received. If I wear a new suit or tie, or whatever, and it generates the response I wish to get, I'll wear it again. If it does not, I will find myself moving it further and further away from my sight; so in this sense, garments, dress, costumes, or whatever you call them are never direct, they are always indirect. They are owned, and they are disowned. In this sense, dress is never a picture of the person, it is always a tentative guide. It is an evermoving set of instructions that may change.

What I am getting to, which is so illusive, is that we will own something as long as it works, but when it doesn't, we not only disown it, we back up a mile. Then we are not going to share the deeper structures, just the surface. Much of what we do is surface.

There is nothing wrong with criticism, judgment, cross-examination, and evaluation except for two conditions: (1) It must not be premature;
(2) You must understand with whom you are dealing; if your relationship is solid, they won't let you get away with it—they will interrupt you.

Communicative context and contacts create, sustain, and assure relationships, but reciprocative relationships sustain future communication. In a word, we get away with murder communicatively from, through, and within relationships. It is not hard to explain that when you make demands of students; they really must want to be there and agree to cooperate with you if you are to get something out of them. But more importantly, if you make demands and you do not have a reciprocative relationship, the person will not respond.

Displays of clothing, materials, textiles, whatever, show a symmetry. In symmetry they merge together; they become similar. A symmetry goes on all the time in conversation—a symmetrical reading. What you have are readings that are signs of the quality of the relationship and the definition of it. Clothing serves as an early warning function. For our own personal identities, clothing is our own social definition.

Clothing also functions to commercialize images. Advertisers, for example, don't just go out and make up their campaign messages, they select and pull from culture those things they want culture to see back—things that may be highly selective, unfair, and artificial. It is not a piece of life; it is a commercialized image of what we would choose in the ideal sense. Clothing is like this, especially at a function such as this.

There are problems in nonverbal communications—what is the expression and what is the essence that we are constantly trying to struggle with? Basically, what I am trying to say is assuming that the expression is the essence, but it is not, it is nothing but a tried-out state of affairs, a tentative throwing out that we are constantly working with to see how it will go. Human beings parade in front of themselves with fronts and covers. Clothes are nothing but covers for the express purpose of making people look better than they are and better than they think they are.

We are all trying to grow a little. We are trying to become more of ourselves. When someone attacks us, when we get criticism or evaluation that is negative, when we are not treated well, we use our energy for defense. Then we don't communicate well; in a sense we become invisible not only to others but to ourselves. If you respond or communicate to persons with the hoped for results, you have an edge.

It is unfortunate that we are a negative culture. We work on an efficiency model. We think that errors are the most interesting. I suggest that what is most interesting is the possibility that someone is presenting a package to you that he or she hopes you will buy. It is like the kid who comes to school the first day and says by way of face, not word, "Here I am. I know you have heard about me, and I have heard about you." We are all story tellers. Sometimes, however, our stories are not heard, or if heard, not responded to. The first few contacts and interactions that the child has with this adult will set the stage to make the difference. If it does not go well, the kid is back into the same nightmare, and once again will run around looking for someone who might respond well. Dreams spring anew each time there is a new possibility.

I know I make it sound tragic and dramatic, but it is. When we are rejected and things do not go well for us, we play invisible. We exclude others and thereby, exclude ourselves, and this is all carried on without
Do you know what that means? We are able to treat the other person as if they are not there, whether this is in the classroom, our own homes, or offices, or wherever. We are concerned not only with the presence of information but with its absence. Rejection also magnetizes the problem. If I expect you to look at me and you don't, that is information. If I expect you to greet me with a smile and you withhold it, that is information. If you see me with lighted face and at once you change your mood, that is information. It is not only the presence but the absence of something that is important. In our culture, we do this with invisibility. Did you ever see someone in a department store and not want to talk so you appear to be busy, playing by a rule that goes, "If I don't see you, you can't see me," and thereby, in this symbolic sense, make yourself invisible.

If you need further evidence, we often do this when we travel in our metal bubbles (cars). We no longer need psychiatric couches to find out who or what we are, all we have to do is get into our cars, especially if we are alone. In fact, I recommend that you study carefully your own reactions to and evaluations of the rest of the world through the safety and security of your own metal bubble as you find the pot holes, the lights don't change right for you, or you are going 55 and someone speeds by at 60 and you hope they get caught. It isn't that you are right or wrong about these matters, it is that you have an avenue to take a look at your own participation and what it suggests. It is acknowledging the presence of another that is so important—giving that person recognition—because what we are doing is verifying life. We are verifying that we know the other person is there and that we are here. When you acknowledge and recognize through signs, you deliver without words.

In the verbal world, greetings and leave takings are everything. Greetings and leave takings are the symbolic carriers of the qualities and definitions of relationships that tell us what goes on in between. What goes on in between is not nearly so significant in the relationship as the greetings and leave takings either with intimates or with strangers, friends or near friends; it makes no difference. Persons who feel acknowledged and recognized, feel included. Persons behave differently if they feel included; they participate more freely. They move to act; they move to work; they take risks. It is interesting when we become involved, and we lose this preoccupation with ourselves. We merge with another, with a community, or whatever; and then what happens—we identify with things larger than ourselves. It is this escape that is so important, out of which we celebrate notations of life that have transcended us—that are greater than beyond.

But we also celebrate life through the spirit of, "I am glad to be here, because you are here," and I see that "You are glad to be here, because I am here." Without these foundations laid, you can never celebrate until you work through the acknowledgment, the recognition, the inclusion, the participation, the involvement that moves along to the culmination. Any sort of contact, whether going to a cocktail party, a dinner, a friend's house, a faculty meeting, a conference, or whatever, contains the fundamental proposition, "I am glad to be here, because you are here; and I trust that you are glad to be here, because I am here."
I am interested in communications, and it seems to me we have some common identification here. As I thought about this group, I tried to think of the kinds of identification we have. Number one, I am a member of the profession of public speaking communication, which is called the second oldest of the liberal arts—music is the oldest. But, I couldn't help but think that clothing, textiles, and such must have come very early in history. There has to be some relationship there. Secondly, we are all related to education. That also ties us together. Third, I think we are all interested in communications. I am interested in communications as a profession, but you give lectures in large classes, talk to people in seminar situations and small personal settings, try to cajole your deans and others for you and your department, and get outside the university to try and influence people in one way or another to help you. Much of what you do is related to communications. Tonight, I would like to talk about some of the things that I believe might help you be even more effective as a communicator. The theme of my talk is "Communication Effectiveness."

What do I mean by that? I mean being able to get the job done in a given situation using communication skills to achieve a goal. I think that is what all of us are trying to do. I know that some of us are pretty good communicators in one type of setting and maybe not quite as good in another. For instance, some people love large audiences; they get turned on to big groups, but they are not as good in small seminar situations. Others, who are just terrific in one-on-one, or one-two-three situations, get a little scared when it comes to large groups. And incidentally, if you do get a little scared when it comes to large groups, don't feel badly about it; it is very common.

One of the courses I teach is British Public Speaking, and one of the persons I identify with is John Bright, a member of Parliament in the 1860's. He was the man who pushed the idea of the Northern victory over the South because he didn't think much of the whole business of slavery. During the 1860's, he was a very popular speaker at banquets, and there was one year he was speaking constantly. When the year was over, he confided in people that he almost starved that year because of his banquet speeches. At the banquet, he would just sit and pick at his food, so when it came time for him to give his speech, he hadn't eaten anything. I am much the same way, and I have been teaching public speaking for 25 years.

When you are speaking in front of a new group, in a new situation, you are going to be a little nervous. In one study people were asked to name things that they feared. They listed such things as snakes, insects, heights, sickness, death—and speaking in public. More people indicated a fear of speaking in public than anything else on the list. So, this is a very real problem. But, what good speakers learn is to control anxieties and help these anxieties work for them rather than against them.
Public speaking is much like athletics. Perhaps you have heard some of the football players in your classes say, "I am scared stiff at the start of the game, but as soon as the kickoff starts the game, I run into somebody, and physical contact is made, I feel better." The same is true of public speaking; once you start it, once you get into your communication, you start thinking about what is happening and feel a lot better about it.

Let's take a look at this broad spectrum we call "communication effectiveness" in terms of both large and small audiences. We want to start with the first element—the element most evident when we think of any kind of communication, that is the delivery or presentation of a public speaker, or of one of an interpersonal setting. Research shows that there is a very high correlation between communication effectiveness and the dynamism of the speaker, and it doesn't really matter whether it is a public speaking situation or a one-on-one relationship.

Just stop to think a minute. When you are introduced to someone for the first time in an interpersonal setting, don't you think a little more highly of that person if that person is bright, cheery, relaxed, and can talk with you? Don't you think more highly of public speakers who, in front of an audience, make it sound as if they are enjoying the situation. A speaker needs a certain dynamic quality to be successful—a quality that is not necessarily inborn.

I teach public speaking, and a favorite example of those who teach public speaking is Demosthenes, the old Greek. Why is he such a good example? Demosthenes was a terrible speaker when he was younger, and had to work like crazy to improve his speaking ability. It seems to me that this shows you don't have to be born a good communicator; you learn how. Good delivery and good presentational techniques are things that can be learned. The starting point is enthusiasm, getting excited about what you have to say. Regardless of what you are teaching, sound as if you are excited about that subject. If you meet a person informally and start talking, and the person sees you are excited about what you do, that person is going to appreciate you more—you are going to be a better communicator. Numerous studies show that enthusiasm is the most important factor of a speaker's perceived success.

Whether it is impersonal or interpersonal communication, or public speaking, you have to look at the people you are talking to. It is easy to look at those in the front rows, but you also have to establish eye contact with the people in the back. If, while I am talking, I don't make any attempt to look at people in all parts of the room, the people I am not looking at are going to be a little less interested in what I have to say. The same is true with interpersonal contacts. Can you imagine talking to a person one-on-one and looking down at your shoe laces the entire time? No, you have to have eye contact with people you are talking to. Simple things like enthusiasm and eye contact improve delivery. I mention delivery as being a very important element because it is the starting point. If your delivery isn't good, your one-person audience or an entire group is not going to pay any attention to you, and other things aren't going to matter.

The presentation, the delivery, is the starting point, but what is next? Organization of ideas comes second. But when you are just chatting with somebody, should you have your ideas planned? Should you have a speech
prepared? The answer is NO. When you are giving a public speech, you prepare your talk, you plan your ideas fully; but, even in one-on-one settings, there has to be a logical flow. I know a dean who, when it comes to organizing, fails. Even with an outline of exactly what he is going to cover in front of him, you would swear he doesn't know the organization of what he is saying. We get concerned when we are talking with people, and they say, "I forgot something, let me drop back three steps, or wait a minute, no, or where was I." They lose your confidence. You want them to start somewhere and get somewhere, whether it is in an interpersonal setting or in a public speaking situation.

Since many of you give class lectures, think of each class period as a separate speech. Do not think of your entire semester as one long speech, which happens to be broken by a bell. Learn to say things that bring a focus to that class at the start, and make things happen. At the end of class, let your students know you are at the end. No education takes place after the bell rings, so you must wrap things up prior to this time. This is also true in an interpersonal setting. We need to have our thoughts organized, to start someplace and move toward some ending—in other words, organization.

The third important element is language. People who have a certain facility with language are more effective whether it is a personal or a public speaking setting. If you can speak in concrete, vivid terms, you're going to hold the attention of the people you are talking with. If you are constantly talking about "things," "whatchamabobs," and "do-dads," you are in trouble. When you are demonstrating that new sewing machine or talking about other things you are using in another setting, you have to know the language and the terms. You have to be specific; you have to be concrete, or else those you are teaching won't understand.

I am not as concerned with the positive as I am with the negative. Do you know what the negative is? Those nonfluencies, such as well, you know, and uh, that many of us use through our communications. If I could do one thing today, it would be to try to eliminate all the "you knows," "well, uh," and "uh's" from my colleagues' speaking. The really sad thing to me is that these nonfluencies are a much greater part of interpersonal communications and one-on-one communications than public speaking. The reason is, when we give a lecture in class, we have planned ahead and, therefore, our ideas are pretty well set; we are not quite as likely to be nonfluent. But, when we are just talking to someone on a one-on-one relationship, our mind is, perhaps, a little ahead of us, and to catch up, we use "uh, you know, well," and others. Also, there is something within us that says it is not good form to tell a friend that every time they say "you know" it drives us up a wall. But you are helping persons be better communicators if you tell them.

Also, you can test yourself. The easiest way to do this is to make a tape recording of yourself. Just talk for a short time, about three minutes, about something you did yesterday or whatever. Then take something you have prepared, talk for two to three minutes, and then listen to yourself. If you say, "uh, you know, well," a couple of times in three minutes, you don't have a major problem. On the other hand, if every couple of sentences, or when you get a little bit tense or nervous, you find yourself letting these nonfluencies creep in, then that is a problem.
You can correct this problem by listening to yourself. Most of the time we talk we don’t really hear everything we are saying. We mainly hear what we are thinking, and it takes a bit of training to hear what we are saying. But once our ears become accustomed to hearing these nonessential words, we find ourselves not speaking them quite so frequently. I am not advocating that when you are in ordinary situations, such as teaching a class, talking to the dean, or talking to your neighbor, that you should be thinking half the time about whether you are saying "well, you know, and uh." That will make things worse, or drive you crazy. What I am saying is that in practice sessions when you are getting ready for something, also getting your ear in tune is helpful.

What is good communication? I have mentioned good delivery, good presentation, good organization, good use of language, and most important, good content. To be an effective communicator, you need to consider how to make your material more relevant to the people to whom you are speaking. First, let's talk about information exchange, and again, it doesn't seem to matter whether we are talking about public speaking or about interpersonal communications. If I want you to know something, if I am trying to get ideas across to you, I have to do something with that information. One of the first things I have to do is to put it into a context that you can understand and that relates to your field of experience. When I write about public speaking, I say that the speaker's first concern is to be knowledgeable and interesting, and then be able to adapt to a particular audience. It can be done if I am thinking about you; it can't be done if I am ignoring you. Also, I have to think of ways to make some of these ideas vivid, of building on the emotional impact that something has. You can take some of the things I am doing in this speech and work out personal examples, personal experiences, or illustrations that will relate to what your class is doing to make things relevant and vivid. You can make your education relevant; you can make your education have an emotional impact by using a bit of creativity.

Let's change the setting a little. Let's change from information exchange to persuasion. Let me give you a few ideas to keep in mind when it comes to being influential in an interpersonal or public speaking setting. Why does anybody do anything? First, when people are asked to do something, they are likely to ask, "why?" When they ask "why," they are looking for good reasons. If you can give two, three, or four good reasons for believing or doing something, they are more likely to believe or do it than if you can't give any good reasons. In public speaking we teach that a speaker selects a lot of reasons, picks out those that are logically sound, and then tries to decide which will have the greatest impact on the audience. So, when I am thinking of reasons, I have to think of those that have meaning for the particular audience.

Next, what kind of context can I put these reasons in? There have been numerous research studies on persuasion, and there are a lot of theories of persuasion. There are three theories I like particularly, and I can summarize them very briefly. One theory of persuasion says that you can get people to do and believe things when you can create within them a kind of discomfort; this is Festinger's Cognitive Dissonance Theory. If I can create dissonance within you, if I can talk to you and make you feel funny about what you think and do, perhaps you will want to change
what you are thinking and doing. Any time we look at the reasons we are using, we are saying, "will these reasons create any kind of dissonance?"

If so, maybe there is good reason to use them. Second is the "satisfaction of needs theory." We know that some people will need some things at some time. So, when you are looking at your reasons, you say with each of them, is this reason going beyond or over a need that is created in this particular audience or is it right on target? A third theory, and this is my favorite, is something a lot of people have worked on called, "exchange theory." An exchange theory is simply cost-reward; the theory of persuasion that follows this is that when we do something we are going to incur certain costs. The cost might be monetary, time, or energy. There are a variety of costs, but for anything we do, there is a potential reward.

So, when you look at the reasons you are presenting, whether to a large audience or in an interpersonal setting, think of reasons that relate to benefits to be gained where the costs won't be so high.

There are some things you can do when you are trying to transmit information, and there are some things you can do when you are trying to persuade. We have looked at delivery, at organization, at style, and at content. Let's look at one last thing. Good communication is hard work!

If you have difficulty in interpersonal communication or in public speaking, why not take that extra time to work at communicating better. You don't have to be a circus act to be a good communicator, but you do have to be good enough so that your audience, whether it is one person or a large (175-500 people) audience, will say when you have finished, "I like that person; I enjoyed what happened within that time period; there was value."

I hope that now that I am done you are able to say, "I enjoyed this past however many minutes, that something happened that I appreciated,"
SPECIAL INTEREST GROUP: CLOTHING FOR SPECIAL NEEDS

The purpose of this session was to discuss special clothing needs of several segments of society: the mentally ill, children, the handicapped, and the elderly.

The Therapeutic Value of an Appearance Program for Long-Term Male and Female Psychiatric Hospital Patients

Carolyn Callis
The University of Texas at Austin

The purpose of the study was to ascertain the therapeutic value of a six-week appearance program for long-term male and female psychiatric hospital patients. A pretest posttest non-equivalent control group design was used. Nineteen male and female psychiatric hospital patients completed the Tennessee Self Concept Scale and the Body Cathexis Measure before and after the experimental periods. Two subjective measures were used to assess appearance. Photographs of subjects were rated by professional hospital staff. Pre-experimental equivalence of the two groups on the dependent variables was supported by the results of a multivariate analysis of variance (MANOVA). Thus, post-treatment scores were used in the data analysis.

A MANOVA was used in analyzing the effects of treatment group and sex on the dependent variables. The multivariate test of significance was not significant for the group x sex interaction or the main effects of sex. The MANOVA result for the main effect of group was significant ($F = 11.86; df = 4/12; p = .001$). Irrespective of sex, membership in the experimental group was associated with more positive outcomes than membership in the control group. The significant group main effect of the MANOVA supported the contention that male and female psychiatric hospital patients who participated in the appearance program would experience more positive outcomes on the variables under investigation than subjects in the control group.

Follow-up observation of participants in the appearance program suggested that (1) the patients had an increased awareness of acceptable hygiene and appearance standards, and (2) while the overall appearance of the patients did not greatly change, they were making continuing efforts to improve their personal hygiene and overall appearance, independent of a structured situation.
Special Clothing for Children

Soae L. Paek
Northern Illinois University, DeKalb

Four body coverings were designed to aid preschool children's body awareness and to promote their motor activity by a graduate textiles and clothing student as her design projects.

An important part of a child's education is knowledge of his own body--how it feels, how it moves, and where it ends. The concept of body sensitivity should be taught at an age when the child is still discovering his body but has enough control over it to perform basic gross motor skills. Fisher points out the alarm we experience in connection with body experiences and promotes body awareness training in an early stage of the life cycle for greater self-knowledge and more able body use.

A relationship between body image and muscular fitness of preschool children has been reported by early childhood educators. A firmer body image was shown to have resulted directly from increased motor activity. Evidence also indicates that children with learning disabilities have poor motor skills and that movement education is gaining importance as an essential part of the curriculum of those children.

In order to develop motor skills, the child must gain an understanding of the spatial world around him and familiarize himself in space. Equipped with self-knowledge and skill, a child is better able to adjust psychologically to a new factor in his environment.

Although clothing that constricts, encases, or expands the body is generally undesirable, the designs in this project used those attributes in positive ways to promote useful functions and to enrich the wearer's learning experiences. The rational for restricting the body rather than freeing it rests on the fact that physical stimulation enhances physical awareness.

The body coverings were designed to be stimuli to which a wearer could react and in so doing see and feel his body part, and as a result come to a better understanding of and increasing familiarity with the physical self. The designs included a reflective body stocking, a stress suit, an elastomeric web, and a spherical module.

Development of a Taxonomy for Evaluating Research on Clothing for the Elderly and Handicapped

Audrey Newton
University of Nebraska at Lincoln

Supported by a grant from the Department of Health, Education, and Welfare, a categorization of research in the area of clothing for the handicapped and elderly is being conducted. Primary information is being obtained from the listing by the American Home Economics Association of
theses and dissertations completed between 1966 and 1976. In addition, administrators of universities and colleges have been requested to submit information concerning research projects on clothing for the handicapped and elderly conducted at their institutions since 1976. The project should be completed early in 1980. It is hoped that the Department of Health, Education and Welfare will publish the report.

Clothing Problems and the Elderly: Coping With Change
Karen Kaigler-Evans
The University of Texas at Austin

A research report was presented on an exploratory study designed to determine the major clothing problems that elderly women have with their clothing and how they solve the problems. Three problem areas were identified: the style of clothing currently available on the market, the high cost of clothing, and the fit of clothing. There were no overall satisfactory means of solving the problems as reported by the 100 subjects. The subjects reported various means of coping with the three problems.

SPECIAL INTEREST GROUP: DEVELOPMENT OF THEORY IN TEXTILES AND CLOTHING

Originally, the purposes of the Special Interest Group (SIG) on the development of theory in the textile and clothing area were (1) to explore the products and processes of theory formation from alternative meta scientific perspectives, (2) to critically examine specific problems/issues pertaining to the development of theory (and the accompanying methodology), (3) to provide perspective on the implications theory and methodological development have for (a) scientific advancement, (b) teaching and (c) practice/application, (4) to provide a climate for informative discussion/participation of SIG attendees and (5) to provide leadership (a) for further participation and formalization of this SIG beyond the 1979 meeting and (6) in the development of modes of communication among attendees.

As a result of the session, interest was created in the role of theory and theory building in the area. The next steps include the development of (1) a bibliography--annotated, if possible, (2) a "newsletter" as a means of exchanging ideas among attendees, and (3) a proposal to ACPTC of a workshop or training session on theory development.
The Role of Theory in Textiles and Clothing

Geitel Winakor
Iowa State University

According to Ernest Nagel, a "...theory is a set of statements, organized in a characteristic way, and designed to serve as partial premises for explaining as well as predicting an indeterminately large (and usually varied) class of... phenomena" (American Economic Review, 1963, 53 (2), 212). He goes on to say that statements of theory usually are made in a specific form and do not state restrictions of time or space. A theory that has been demonstrated repeatedly is sometimes called a law. Engel's Law states: The higher the total expenditures of a family, the lower the proportion spent for food. Note that his law does not state time nor place, although without restriction to a given time and place, the law does not necessarily hold. Certain restrictions are generally assumed.

According to a great theorist, Albert Einstein, theory results only from "groping constructive attempts controlled by careful consideration of factual knowledge" (quoted by R. S. Shankland in Scientific American, 1964, 211 (5), 114).

How is theory applied in research? It has been said that tests of hypotheses are nonsense if they are not based on theory. Furthermore, whether analysis is statistical or non-statistical, only null hypotheses can be tested: "Science advances only by disproof" (J. R. Platt, Science, 1964, 146, 347-352).

Theory development usually begins with definitions. We cannot deal with complex constructs (such as socioeconomic status) until we analyze and define its component parts and study existing theory relating to each of the parts. For example, socioeconomic status may include occupation, place of residence, source of income, and education, each of which may have a theoretical relationship to a person's use of clothing.

Why is theory needed? Aside from its essential role in research, theory is needed for teaching and policy applications. Theory helps us to understand what is going on, to share common understandings with others, and to explain many different phenomena on the basis of a smaller number of common generalizations. Most theory in textiles and clothing is based on theory in root disciplines which our curricula require, yet the why of things is seldom stressed in our teaching. Without an understanding of theory we are condemned to view each new problem we meet as totally new and independent, to be solved from scratch, or worse, by applying old solutions on a trial-and-error basis.
Development of Theory for Clothing

Ruth E. Hawthorne
Indiana University

My purpose in speaking to you on the development of theory for clothing is to share with you my reading and thinking on this subject. Theory will be considered first in general terms; next as a criterion for a discipline, both generally and more specifically for clothing; and lastly, the implications for clothing from this review will provide the conclusion.

Theory defined in simple terms, "puts things known into a system (Kaplan, p. 302)." In an interrelated progression, theory is followed by concepts, then terms. Examples of interrelationships between theory and concepts are (1) classification and (2) definition but even facts are "theory laden (Goldstein and Goldstein, p. 17)." Homans also defines theory (p. 812). Only one among the uses of theory, theory in epistemology (the theory of knowledge) will be considered here.

The theory of knowledge criteria for defining a discipline presented by Heckhausen (pp. 83-86) consists of seven aspects of which the third is the most important to the discipline. In order, they are: (1) material field, that is, objects studied; (2) subject matter or the point of view taken toward the objects studied; (3) level of theoretical integration, for example, theory, concepts and terms, which in reality may be no theory, a single theory, or many theories that are related, unrelated, or contradictory; (4) methods or how to (a) get at the observable subject matter and (b) transform observations into data; (5) analytical tools, which are (a) logic, (b) mathematical reasoning, and (c) model construction; (6) applications or practice of, which for an applied field tends to be eclectic with a noticeable "scientific lag" in subject matter; and lastly, (7) historical contingencies.

The application of these criteria to clothing is summarized in the table that follows. One new term, experiential, was introduced to accommodate the subject matter of clothing. The last four aspects were de-emphasized in order to pursue the investigation of the level of theoretical integration.
Theory of Knowledge Criteria for Defining a Discipline Applied to Clothing

1. Material field--
   Clothing/adornment (Roach and Eicher)--Artifact
   Representations--Verbal
   Product, i.e., artifact

2. Subject matter--
   Process, i.e., social

3. Level of theoretical integration

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4. Methods--borrowed or adopted

5. Analytic tools--statistics

6. Application/practice--eclectic

7. Historical contingencies--to be investigated

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Reviewing the levels of theoretical integration for the body of knowledge for clothing, as a product and a process, theory seems most open and underdeveloped. At the concept level, the process division is more developed due to borrowing from other disciplines. Research emphasizes these concepts, defined in terms of clothing or appearance. A question posed by this situation is: Can borrowed concepts yield a theory for clothing or does it limit clothing to the descriptive level of a theory of human behavior? Turning to concepts for the product, it appears that they have, yet, to be generated. Terms, the lowest level in the hierarchy, are well represented both for the product and the process. The table reveals that much of the subject matter in clothing has not been adequately verbalized. For this nonverbal phenomena, the term experiential seemed appropriate. The problems of nonverbal phenomena have been discussed by Glassie (p. 323). In order to move from the nonverbal to the verbal level, it will be necessary to transform (1) the visual into the verbal, (2) personal experience into public knowledge, and (3) the implicit into an explicit verbal format. Procedures might be borrowed from other disciplines, such as, structural anthropology/ethnology, semiotics/semiology, and cognitive psychology. Throughout this procedure the analytic tool of logic is essential. Our task, as I see it, is to follow the directive of Kaplan, quoting Freud, "The true beginning of scientific activity consists ... in describing phenomena and then proceeding to group, classify, and correlate them (p. 78)."

In conclusion, three implications for the development of theory for clothing seem evident. The level of theoretical integration for clothing needs to be explicated for both curriculum and research. The analytic tools available make it possible to approach the subject matter of clothing autonomously rather than depending on another discipline for leadership. Finally, to pursue these objectives would contribute to the subject matter of home economics in an interdisciplinary approach.

References

Towards A Theory of Clothing Deprivation

Gloria M. Williams
University of Minnesota

A critical review of the status of knowledge about clothing and the black American revealed that clothing deprivation is a construct that has interested scientists for more than twenty-two years in the substantive area of textiles and clothing. My purpose today is to demonstrate the process of theory building through an examination of this conceptual category and its interrelations.

Four objectives guided the preparation of this paper. First, a meta-theoretical framework was developed within which theory, its meaning, types, forms, and processes of theory building could be understood. Criteria for the evaluation of theoretical structures were presented. Second, a critical examination of clothing deprivation as a theoretical construct occurred. As a result of this assessment, problems/issues with respect to theory building and the accompanying methodology were delineated. Finally, implications of this examination for research advancement, teaching, and practical applications were stated.

Time does not permit the presentation of the entire paper. I would, however, like to share with you the results of the examination of clothing deprivation as a significant theoretical construct in the field.

Conceptual clarity is a prerequisite in theory building. Ambiguity and lack of precision accompany the application of the term, its nominal and operational definitions. Since sets of relations among concepts and statements are the basic elements of theory, research reports were examined to identify the variables with which clothing deprivation was interrelated, the nature of the relationship(s) and the theoretical form taking shape. A wide variety of concepts and variables were used by clothing scientists in seeking associational rather than causal relations with clothing deprivation. More often, the investigators examined relations of the construct to socio-economic status, self-esteem (or self-concept), sex, race and/or peer/social acceptance. Given the particular research design and units of analysis, conflicting associations occurred among these variables. Because of lack of replication, no law-like generalizations may be stated with respect to clothing deprivation (or its antonym) and any of the above variables.
Since theories must contain law-like propositions that interrelate two or more concepts or variables at a time and interrelations of the propositions themselves, an examination of the research for more complex forms of relationships was made. The tendency was to seek relations between single concepts. Without systematizing the concepts and propositions, statements cannot be made that connect the propositions in a causal process form (or any other form). Consequently, research does not provide us with a sense of understanding clothing deprivation—a goal of science and of theory building. In other words, no explanatory power exists for comprehending clothing deprivation as a theoretical construct in the field.

SPECIAL INTEREST GROUP: ENERGY AND CLOTHING

Adapting to Changed Home Temperatures Through Clothing Choices

Becky Culp, Extension Clothing Specialist
Texas Agricultural Extension Service

From January through March 1978, 23 families in 17 Texas counties participated in clothing and energy result demonstrations. With the assistance of their county Extension agents, these families lowered home temperatures and adjusted clothing habits to stay comfortable. Each family chose either to reduce their home temperatures gradually—one to two degrees each week—or to reduce the temperature a set amount and maintain that temperature.

These result demonstrations helped families decide the most effective ways to maintain personal comfort through clothing choices while conserving energy and changing attitudes about clothing.

Model plans for reducing temperatures and leaflets suggesting clothing selection for thermal comfort were developed by Extension clothing specialists for use by county Extension agents (home economics). The county Extension agents provided information, guidance, and encouragement by making from three to six visits and telephone calls to the families during the course of the result demonstrations. Each Extension agent prepared a county report on participating families at the conclusion of the demonstration and sent it to the clothing specialists.

Home temperatures were reduced an average of 6.6°F during the seven-week winter period. Beginning home temperatures varying from 68°F to 78°F were cut to 62°F to 70°F by the end of the demonstration period.

At the beginning of the demonstration period, many families were in the habit of wearing shorts, sleeveless or short sleeved shirts and blouses, going barefoot or wearing sandals or no socks. To maintain their personal
comfort at lower temperatures, these families adapted their clothing habits by adding socks (86%); sweaters, jackets, long sleeved shirts and blouses (81%); thermal underwear (52%); and layering garments (57%). Several families reported their hands, feet, and heads still felt cold. A large number reported the addition of accessories such as shoes, scarves, and pantyhose helped them to keep warm.

In support of the concept that personal comfort is very interdisciplinary in nature, several families adapted to cooler indoor temperatures by using heat from the oven, bath water, or fireplace; drinking hot beverages before bedtime; adding extra bedding; adjusting drapes; adding carpet; caulking windows; and using afghans or blankets when sitting still. Five families reported not having problems with colds and sinus while two families said they slept better. Three families, however, were concerned that members would get sick if they lowered home temperatures further.

Savings on utility bills were difficult for most families to determine. Rates were often higher than they had been the previous year, records were not available for comparison in some cases, and last winter was one of the coldest on record.

Bill Stewart, Extension agricultural engineer, provided average heating savings for a 7° inside temperature reduction from 72° to 65°, based on a 30-year outdoor temperature average. These figures closely compare with the results of the demonstration families, who averaged 6.5°F temperature reduction. Home heating savings varied, but families who reported higher outdoor temperatures saved the most on indoor temperature reductions (3.4 - 12% per degree).

To determine further use of this information, questionnaires were mailed April 1979. Eighteen families responded. Ten families adapted the information during summer 1978 to increase indoor home temperatures an average of 4.6°F. Fifteen families continued clothing comfort practices during winter 1979 for an average decreased indoor home temperature of 4.3°F. More families reported utility savings, averaging $4 to $35 per month while three reported saving on consumption only. Several commented that increased clothing expenses to maintain comfort offset any savings on heating or cooling costs.

Based on feedback from participating county Extension agents and families, the "Guidelines for Conducting Energy Conservation Result Demonstrations Through Clothing Choices" were recently revised and mailed statewide. Results of future participating families will continue to be closely monitored.

Laboratory Measurement and Evaluation of Thermal and Selected Comfort and Durability Properties of Twelve Textile Fabrics Intended for Indoor Winter Wear with Lowered Temperatures

B. J. Scruggs
The Ohio State University

The purpose of the research was to gain information about the insulating ability of modern textile fabrics used for clothing worn in indoor winter environments when temperatures are lowered below normal room temperature.
Twelve fabrics selected to be representative of those worn indoors in winter were tested. These included woven, double knit, and sweater knit structures in wool, polyester, polyester/wool blend, and acrylic fiber contents. The Cenco-Fitch Thermal Conductivity Apparatus was used to measure the thermal insulating ability of the fabrics. Results of analysis of variance indicated the thermal conductivity of the fabrics differed significantly \((p = .002)\) by fabric structure with the knit fabrics (double knits and sweater knits) having lower conductivity (better insulating ability) than woven fabrics. Knits are constructed with loops incorporating immobilized air space, which is a good insulator, into the structure. The thermal conductivity of the fabrics did not vary significantly by fiber content. There were significant differences between the fabrics on the comfort properties (moisture regain and air permeability) and on the durability properties (strength and abrasion resistance). Both fiber content and fabric structure were factors related to these differences. The comfort and durability properties did not vary according to the fabric's thermal conducting ability.

SPECIAL INTEREST GROUP: RETAIL MERCHANDISING UPDATE

Establishing a Retail Lectureship

Phyllis Ashinger
Wayne State University

Historically, retail education was in the form of vocational education with the establishment of the John Wanamaker Commercial Institute. At the college level, The Training School for Teachers of Retail Selling was founded in 1919, known today as the Institute of Retail Management at New York University. Since that time there has been a diverse mix of retail education programs. These programs include distributive education and applied sciences; merchandising, fashion, and textile and clothing programs in liberal arts colleges; and traditional marketing programs with retailing subtitles generally in schools of business administration. These programs have overlap in program objectives, but frequently there is little interaction and joint planning by educators and the retail community. Programs may compete rather than complement one another. Students become confused by the different curricula and varying orientations.

To foster cooperation between the varying retail related programs, it is necessary to establish a network vehicle with a common interest. The Retail Merchants Association is a natural organization to link these programs and help students understand the real world of retailing.
Involving Professionals in Teaching

Marian H. Jernigan
North Texas State University

One of the most difficult tasks facing a teacher of fashion merchandising is keeping up-to-date in the field. One way to help the instructor keep in touch and to bring reality to students is by bringing professionals who are currently working in the field into the classroom. Beginning in fall 1977 at North Texas State University the Industrial Training Laboratory (ITL) was established with the primary goal to make education more relevant to industry and to involve industry to a greater extent in the education of students. Under ITL, both noncredit seminars and summer workshops for credit have been offered. These programs have been coordinated by ITL and faculty from various fashion related programs on campus. Guest lecturers and instructors have included many professionals from retail stores and the fashion industry in the Dallas area.
Professionals can be involved in teaching students in many ways. Recommendations include one-day seminars and workshops presented by people currently working in the field and coordinated by faculty. Guest lecturers may be invited for a single class or lecture series may be planned. Phone lectures, video tapes, and interview tapes provide other means of bringing the professional to students. Field trips, supervised internships and field experience are other means of providing student contact with the reality of the business world.

Many professionals are available who can be approached to speak to students. Examples include local retailers, especially buyers; store managers; and fashion coordinators. Executive recruiters can be invited to address student groups when they are on campus interviewing. Graduates of fashion merchandising programs have excellent potential as speakers. They often welcome the opportunity to return to campus and can readily identify with student needs and interests.

The benefits of involving professionals in teaching are many. Both the educational institution and business benefit. Participation of professionals in teaching helps business gain a better understanding of education and vice versa. Home economics fashion merchandising programs gain greater visibility and recognition through such contact. Instructors from the field help faculty and students keep up-to-date, provide role models for students, and lend credibility to the professor. Professionals bring freshness and variety into the classroom, providing stimulation to both faculty and students.

Retail Case Course Development and Implementation

Jerrie L. McGhee
Purdue University

The Consumer Sciences and Retailing Department offers a senior level case course entitled "Retail Strategy." During the past year, I have experimented with various approaches to the course. This paper summarizes my observations about the course and describes its present form.

The primary objectives of the course are to help the student develop skills in the areas of problem solving, communication, and interpersonal relationships essential for effective functioning in the retail environment. Students have the opportunity to apply the concepts accumulated to date from their formal education and experience. Because the success of the course depends to a considerable degree on the development of active discussion, I have found a class of about twenty-five to be optimal for the accomplishment of course objectives.

The selection of cases is perhaps the most difficult aspect of course development. Moreover, there is a constant need to revise the original selection as cases become dated and good solutions are passed from one generation of students to another. Good retail cases are very rare. Typically, the few retail case books available contain simple cases of one to three pages—
hardly sufficient space to introduce the multiple issues that characterize a real-life retail situation. Though appropriately used at lower levels, these cases do not provide seniors with the necessary challenge and realism essential to worthwhile discussion.

Because of the inadequacy of retail case books, the decision was made to order individual cases through the Intercollegiate Case Clearing House. A few of the retail cases selected for the fall term were Famous-Barr Company, Paul Harris Stores, and Neiman Marcus. Also cases were selected that concern retail products and channels in contact with the retailer. It is valuable for students to approach retailing from different perspectives. Ideally cases should represent a variety of decision levels and different size businesses. There is a real need for realistic and comprehensive cases that focus on buyer-level decisions. Frequently cases in which the buyer is the decision maker are very simplistic. Because it is the mental exercise of creatively analyzing a situation that is the real value of the case approach, I have willingly traded off variety for the more challenging analysis.

All cases selected lend themselves to analysis using the following framework:
1. Statements of problems - strategic and tactical
2. Identification and discussion of relevant issues (Multiple sides of issues are explored and conclusions drawn that advance the analysis)
3. Identification and evaluation of alternatives
4. Recommendations and plan of action for implementation.

As you can see, the framework affords a basic problem-solving process. The format is followed for both oral and written analyses. Students are informed that there is usually no one right solution to a case. However, it may not be possible to build a sound argument for all alternatives considered.

Cases are organized in a progressive manner according to the level of difficulty. The student's ability to assimilate and selectively use the considerable amount of information found in each case typically improves over the course of the semester. Moreover, concepts have an optimal developmental sequencing. Beginning with cases having retail organization and job progression as their primary focus generates interest in the case method and complements students' own experiences and future goals. One class is devoted to a discussion of the life cycle concept as it applies to retail organizations, products, and consumer behavior. A review of concepts of financial and economic analysis is used prior to the introduction of advanced cases in which students must calculate the profitability of departments, assess the financial strength of organizations, and make pricing decisions.

Later in the course, teams of four to five students present a case analysis to the class. In a variation of role playing, students assume they are a consulting team hired by the organization. After the analysis, class members are encouraged to extend the analysis and/or challenge the position of the group and propose an alternate analysis. Though this experience is a strength of the course, it is the most difficult to implement. Even when an analysis has obvious loopholes, students are reluctant, especially in the beginning, to challenge the positions of their classmates. It is a slow process convincing them that the team's ability to successfully field questions and defend their position has a positive effect on the team evaluation as well as yielding additional learning for the entire class.
Ordinarily with notes to refresh their memory of the case, students come to class sufficiently prepared to make a contribution to the development of the case. A formal written analysis for the daily discussions simply does not produce results commensurate with the effort expended.

As recognition of the importance of class discussion, grading oral performance is necessary. It is useful to sit down immediately after the class and make note of those students who made outstanding contributions, those who volunteered something worthwhile, those who managed to say something but only after questioning, and those who, when called on were unprepared. Students need to be encouraged to come in and talk over how they might improve their performance.

Because written work requires a more comprehensive analysis than class participation, I include a couple of written cases and two exams consisting of written analyses of cases. The written work gives the less talkative student a chance to display skills of analysis.

The instructor must be thoroughly familiar with all aspects of each case discussed. I feel it is preferable to adopt a passive stance, participating only to insure that all points of view and salient issues are discussed. It is a good idea to summarize frequently, suggesting inferences in order to move the analysis forward. A word of caution—if students perceive that the instructor is predisposed toward a particular solution, it inhibits their participation and diminishes the quality of the experience.

I believe that the case analysis approach can be used successfully in every retailing program. Students can be introduced to the approach in the beginning courses through the short cases incorporated into several retail management texts. The difficulties are well worth the effort in view of the progress that we have observed in the students' ability to creatively analyze difficult situations and the development of self confidence that this competence encourages.
The Management Interests and Potential of Fashion Merchandising Majors
Sandra S. Hutton
Research conducted at University of Nebraska-Lincoln

Two groups of fashion merchandising senior women (n = 34 and 43), one group of home economics senior women (n = 123), one group of non-major senior women (n = 70), completed the Ripley World of Work Inventory, supplied demographic data, and answered questions about their future career and personal plans. There were significant differences among the groups. The fashion merchandising groups were above average in their interest in pursuing careers in management and business relations. The mean scores indicated that the two fashion merchandising groups possessed characteristics felt important in managerial careers to the same or greater extent than the other two groups.

Approximately 25 percent of all respondents indicated they did not expect to be in their ideal occupations 10 years from now. Over 71 percent of these students expected no difficulty combining marriage with a career, but married seniors were more likely to say they wouldn't be in their ideal occupation in 10 years. Fashion merchandising seniors were twice as likely as respondents in the other two groups to express aspirations for higher management positions.

Over 56 percent of the respondents chose a career after the age of 19 and 15 percent had majored in at least 3 different academic areas. Suggestions for teachers in fashion merchandising programs were made.

Perceived Fashion Risk Related to the Fashion Cycle
Bettie Minshall and Geitel Winakor
Research conducted at Iowa State University

In the marketplace few buying decisions are free of risk. Fashion risk has been defined as the additional uncertainty a consumer perceives in a choice situation concerning a fashion good, over and above the uncertainty perceived when choosing a good that is not subject to fashion. Objectives of this research were to determine whether risk is perceived in styles that are in different stages of the fashion cycle, to describe the risk perceived in the styles of using polar adjectives, and to determine if perceived risk is related to preferences for the styles.

A two-part fashion preference instrument was developed. The first part consisted of photographs as stimuli, coupled with polar adjectives chosen to describe risks associated with fashion goods. Eight photographs of women's day dresses were selected to represent four style categories: newly-introduced, current, outdated, and classic. Polar adjectives were chosen
to describe over-all perceived risk and these subcomponents of fashion risk: changing or enduring quality of the style, functional aspects, economic aspects, and aesthetic appeal (an element of social/psychological risk). Fashion preference was determined by using the full forced-choice paired comparison. The 99-point certainty scale was used for all responses. Responses were transformed to normal deviates.

The instrument was administered to 80 students enrolled in three sections of a beginning textiles and clothing course at Iowa State University. Data were analyzed by analysis of variance, correlation, and graphing. Respondents were able to perceive risk in the styles of clothing shown, and to recognize that different kinds and amounts of risk are associated with styles that are in different stages of the fashion cycle. Newly-introduced styles were ranked highest in over-all risk followed by outdated, current, and classic styles. The longer the amount of time respondents perceived that a style would remain an accepted fashion, the less risk they associated with the style.

Order of preference for the garments was directly related to aesthetic appeal (social/psychological risk), but was not related to the temporal, functional, economic, and over-all risks associated with the styles. Over-all perceived risk appeared to be more closely related to the temporal and functional components or risk associated with the garments than to preference for the garments.

The Effect of Positive Reinforcement on Sales Volume in a Retailing Situation
Nancy Morrison and Hilda Mayer Buckley
Research conducted at University of Illinois, Urbana

The purpose of this research was to test the effect of positive reinforcement on salespersons’ sales volume. Three hypotheses were tested:

HYPOTHESIS I: Subjects who receive positive reinforcement will exhibit an increase in weekly average net sales across a five-week period.

HYPOTHESIS II: Subjects who do not receive positive reinforcement will exhibit similar weekly average net sales across a five-week period.

HYPOTHESIS III: Subjects who receive positive reinforcement will have higher weekly average net sales than subjects who did not receive positive reinforcement.

Forty-three subjects were randomly assigned to either an experimental condition or a control condition. The experimental condition consisted of those subjects who received positive reinforcement in the form of verbal praise
from their managers. The control condition consisted of those subjects who did not receive praise. For both conditions, subjects were naive to the purpose of the experiment, as well as their participation in it. Sales were recorded daily by the managers over a five-week period.

Analysis of variance was used to analyze the data at a probability level of p<.05. In addition, trend analysis was used to test whether the sales trend for the experimental group was higher than the sales trend for the control group. Although the experimental group's sales were higher than the control group's sales, it did not reach statistical significance.

The importance of this study, however, was significant because retailers annually spend thousands of dollars on the development of positive reinforcement programs for their stores. If positive reinforcement in retailing settings is an ineffective instrument for increasing sales, retailers could be saved much time and money. This was the first such scientific study done in this area.

The major purpose of the study was to investigate Canadian consumers' awareness of the possible danger of children's sleepwear in burn accidents, to determine their knowledge of current flammability legislation and terminology, and to obtain consumers' attitudes about the importance of legislation for children's flame retardant sleepwear. The Canadian Government has not enacted laws comparable to American sleepwear flammability regulations. The results of this consumer attitude survey are currently being used to help determine the policy directions for sleepwear flammability.

Data were analyzed from a two-part questionnaire returned by 473 English-speaking and 134 French-speaking females who were members of a nationwide consumer mail panel and who were parents of children 14 years of age or less. The samples were fairly representative of the demographic characteristics of the total samples surveyed. Preferences and practices for purchasing and laundering children's sleepwear were obtained for 974 children of English-speaking and 280 children of French-speaking families.

The majority of French and English respondents were not aware that sleepwear could pose a fire hazard for children; about one-fourth of the English and 13 percent of the French were somewhat aware and few English and no French respondents were fully aware.

The majority of consumers were not knowledgeable in the area of flame retardancy. Neither English-nor French-speaking respondents knew of the existing Canadian flammability legislation for children's sleepwear nor of
legislation for other textile products and many could not define the associated terminology.

Consumers generally were in favor of textile items being made flame retardant although French-speaking respondents were less favorable than English. The majority of the respondents stated that all children's sleepwear should be made to resist burning, less than one-fourth revealed some reservations about this, and a small portion preferred a choice between regular and flame retardant children's sleepwear items.

The three major variables—awareness, knowledge and attitudes—were cross-tabulated with the biographical characteristics. The majority of consumers were unaware of the burn injury hazard and did not know that a children's sleepwear law existed. However, French-speaking consumers 35 years and older were slightly more aware of the burn hazard than were younger consumers. Of the English-speaking persons who could define the term inflammable, most respondents were between 35 and 44 years. However, most respondents could not define inflammable but were knowledgeable of the term flammable. The majority of consumers had not previously been involved with a textile fire experience. However, for those who had been involved, more knew the term flammable and fewer knew the term inflammable in comparison to consumers with no fire experience.

In the French Language survey, consumers 35 years and older were even less knowledgeable about current sleepwear flammability laws than were younger consumers, although in general, knowledge was low among all consumers. Family size was related to knowing the French term "noninflammable" with large families of seven persons or more being the least knowledgeable. Socioeconomic status was related to knowing the French terms for flame retardancy, "agent ignifuge" and "rétard à l'inflammation" with middle socioeconomic level consumers being the most knowledgeable. However, generally consumers were lacking adequate knowledge of both terms across all socioeconomic levels.

A high importance was placed on both the government and clothing manufacturers being responsible for product safety in general. However, when the Wilcoxon matched pairs signed-ranks test was used to compare attitudes toward product safety regulation in general to regulation of textile flammability, both English and French respondents indicated it was more important to provide consumer protection from dangerous products in general than from flammable textile items. Public education was considered more important to eliminate accidents with fire, whereas laws were favored to eliminate accidents with generally dangerous products.

Consumers stated a willingness to accept specified changes in sleepwear criteria in exchange for flame retardancy. However, several discrepancies occurred when these items were statistically compared using the Wilcoxon matched pairs signed-ranks test with the evaluative criteria and care practices currently in use for sleepwear. Both English and French consumers were not so accepting of special care instructions, the loss of fabric softness, or price increases of $2 or more per sleepwear item. French consumers did not want to sacrifice any durability although English consumers
would in return for flame retardance. However, consumers were more accepting of styling and trim changes in return for greater protection from sleepwear flammability.

In conclusion, there were several apparent contradictions in consumers' stated acceptance of children's flame retardant sleepwear and flammability regulations and their actual practices and preferences. Consumers were not aware that fabric flammability was a danger to children. Consumer interest in children's flame retardant sleepwear was much greater than their knowledge. A greater importance was placed on the regulation of general product safety than on the flammability of textile products. For those items consumers found most important when selecting children's sleepwear, such as low price, fabric type and ease of care, they were less willing to accept changes in return for flame retardant properties than for properties considered less important, such as style and trim.

Based on the results of the study, policy directions were suggested: (1) Education and informational programs should be undertaken regardless of any other action by government. Consumers were sadly lacking in awareness that textiles, particularly children's sleepwear can pose a serious fire hazard. (2) Increased flammability standards for children's sleepwear should be considered carefully. The most acceptable step would be to develop styling regulations. Any regulations requiring standards similar to those in the United States could be negated by commonly followed sleepwear care practices found to be currently in use in Canada.

Operationalization of Dress
for Experimental Research: Categorization
Hilda Mayer Buckley
Research conducted at the University of Illinois
(Funding for the study was provided by the University of Illinois Agricultural Experiment Station, Hatch Project No. 60-381)

A series of studies has been initiated in an attempt to develop a method for clear operationalization of dress for use in experimental research. Clear operationalization of dress and isolation of variables concerning dress from other variables of appearance is necessary for precise measurement of the effect of dress on human behavior. However, given the present state of our research findings that relate dress to human behavior, dress is often the most difficult variable to operationalize. One reason dress is so difficult to define may be because it is a multidimensional variable. An empirical determination of some of the possible categories and dimensions of dress would allow objective decisions regarding the stimuli to be chosen in studies of dress. The purpose of this first study is to categorize and organize forms of dress into easily observable and mutually exclusive sets that are agreed upon by most people in a given population of subjects.
A simple procedure involving the sorting of 106 sketches of dress as stimuli was performed by 100 volunteer college students serving as subjects. The sorting was done on the basis of perceptions of the similarity of any one given form of dress to the entire stimulus set. A similarity measure was computed that consisted of the incidence whereby all possible pairs of clusters of the stimulus sketches were placed together by the subjects. The similarity measures were converted into a 106 x 106 incidence matrix where cell $i,j$ represented the particular pair of sketches $i$ and $j$ and the corresponding similarity measure for that pair of sketches. The incidence matrix of similarity measures was thought of as proximities or distances where $N_{ij}$ was a measure of the conceptual distance of sketch $i$ to sketch $j$. The incidence matrix of distances was then converted into a tree graph of the hierarchical clustering scheme. A detailed explanation of the actual procedure for the creation of the tree graph and its interpretation was presented.

Comparison of a Multivariate and Univariate Approach to Studying Clothing Style as a Summary of Personal Identity

J. Ann P. Reed

Research conducted at The University of Texas at Austin

This investigation compared a multivariate and univariate statistical approach in examining clothing as a symbol of an individual. While research has indicated through univariate procedures that clothing is a symbol of separate aspects of an individual, no study has used a multivariate approach to examine clothing as a symbol of a complex set of social and psychological characteristics.

Symbolic Interaction Theory was used as the framework to investigate self-perceived clothing style as a summary of personal identity. Stone (1962) recognized the importance of clothing as an indicator of a person's identity, attitudes, values, and moods. Thus, many different pieces of information about a person may be of value in explaining or predicting behavior, such as choice of clothing style. When individuals are recognized to be highly complex with interrelated characteristics, multivariate statistical methods are important for the organization, analysis, and interpretation of the large amounts of data.

A specific multivariate technique, multiple discriminant analysis, provided a basis for examining the configuration of similarities and differences among four predefined clothing style groups in terms of multiple measurement profiles, that is, a summary of a person's identity. The method of multiple discriminant analysis results in reduction of the multiple measurements to one or more weighted combinations having maximum potential for distinguishing among members of the different groups. The multiphasic character of this statistical technique allows the data to be examined from three aspects: (a) separation of group centroids, (b) discrimination along dimensions, and (c) classification check. The findings from the multiple discriminant analysis
were contrasted with univariate analysis of variance of the data to show the advantage of multivariate analysis in this type of research problem.

A sample of 227 randomly selected female college students were classified according to their perceived clothing style. Each subject had a choice of four clothing styles that were presented visually through ink drawings and verbally by a written description. The clothing styles were labeled as (a) high, n = 41; (b) mass, n = 131; (c) low, n = 27; and (d) counter fashion, n = 28. Twenty-four social and psychological variables were selected as independent variables. Variables were selected that would add up to a summary of personal identity including information about the individual's personality, attitudes, position in society, and self-concepts. The specific variables were selected by reviewing previous hypotheses and findings that suggested differences among wearers of various clothing styles. Data were collected via questionnaires that consisted of two parts: (a) items classifying the subjects according to clothing style, and (b) items measuring selected social and psychological traits of the subjects.

In the multivariate analysis, three separate dimensions significantly separated the four clothing groups: (a) formality-status dimension, (b) a political dimension, and (c) a fashion dimension. The first dimension or discriminant function was the single weighted composite, which of all possible weighted composites provided maximum average separation between the groups relative to variability within the groups. The second discriminant function was that weighted combination of variables that accounted for a maximum of the remaining group differences. The third function was computed on differences left after the first two functions were computed. All functions were statistically independent. The clothing group centroids were plotted graphically to show group separation along the dimensions. In the classification check, 77.1 percent of the subjects' clothing style could be predicted when a summary of their identity was known. In the univariate analyses of variance, 14 variables significantly separated the 4 groups. The F scores of the analyses of variance were the same as the F scores of the multiple discriminant analysis.

The multiple discriminant analysis provided information about the separation of the clothing style groups that could not be obtained by univariate analysis. The multiple discriminant analysis provided a technique to study clothing style as a summary of personal identity, while univariate analysis allowed consideration of only one variable at a time. The multivariate approach was valuable in this research problem, since several variables interacted to predict an individual's clothing style.

This study implies that clothing style should be considered as a symbol of a person's complex identity from a multivariate approach rather than a symbol of a single trait or attitude.

Reference

Clothing Construction: Use of Quick Techniques Related to Homemakers' Allocation of Time
Barbara Jean Knapp and Geitel Winakor
Research conducted at Iowa State University, Ames

The purpose of this research was to apply human capital theory to the analysis of home construction of clothing and to the demand for Extension instruction in use of quick techniques, using a small sample to test that theory. Human capital theory, a branch of economic theory, deals with the value of a person's time as related to education and the choice between working for pay to buy goods or producing goods and services directly in the home.

Forty homemakers who had taken Extension short courses in quick sewing techniques were interviewed in summer, 1978. In addition to the usual demographic and consumption information, interview schedules also included attitude scales and questions relating to the perception of the value of the homemaker's time and the types and amounts of sewing instruction she had had. Data were analyzed by linear multiple regression and correlation.

Human capital theory was useful in explaining the clothing construction practices of the homemakers. The woman's age, working status, level of education, participation in unpaid activities, and ages of her children were related to the type and amount of sewing instruction she had received, her use of quick techniques, and the number of garments she constructed during the preceding year. Her perceptions of the quality of clothing produced and time saved using quick techniques were related to her use of quick techniques. The homemakers who used a greater variety of quick techniques or who used quick techniques more often constructed more garments than did other homemakers, but in this limited sample use of quick techniques was not related to the amount of Extension instruction in these techniques.

Dress of the Chippewa (Ojibwa) Indians: An Analysis of Change from 1640-1940
Kathy Schimke Cyr
Research conducted at Michigan State University, East Lansing

The investigation of the Chippewa Indians was undertaken to identify the dress worn during five succeeding periods of time and to determine when and how changes occurred in their dress. An attempt also was made to relate the changes to outside cultural contacts.

Information obtained from primary literature and museum artifacts was analyzed for changes in styles, materials, or motifs and for possible cultural influences that might have caused those changes to occur. In order to determine when and how changes occurred and extra-cultural influences, two classification systems were developed. The first organized the
clothing data by time periods, sex, and areas of the body on which the garments were worn. This system enabled the writer to identify which items of dress were worn and to determine when changes occurred, and whether those changes were in type and style of the dress, or materials and motifs used in the dress. The second system dealt with the conditions surrounding the acquisition of articles of dress by the Chippewa Indians. All references in the literature that discussed a transaction were recorded by time periods and were analyzed for the cultural subsystem that appeared to motivate the transaction, the cultural group, the initiator of the transaction and his role, type of transaction, and articles of dress exchanged.

Based on the analysis of the information, results are as follows. More changes occurred for both male and female dress during two time periods (1815-1860 and 1900-1940), and these changes occurred in type and style of Indian dress rather than in materials or motifs used. Apparently there was a collective influence from all Western European groups on the Chippewa's dress, in that similar articles of dress were acquired by the Indians, regardless of the specific Western European culture from which the items were obtained.

The study not only contributes a great deal to the knowledge about the material culture of the Chippewa Indians, and specifically their dress, but organizes the information in a unique manner. Although the information dealt with a cultural group and the data were historical in nature, the procedures and methodology used were adapted from social science research methodology, thus illustrating a somewhat different approach to historical research. In addition, the classification systems developed for the study could be used to analyze dress and how it changed through time for other cultural groups.

The Relationship of Clothing to Perceived Teaching Styles
Suzanne Rosenblatt
Research conducted at Kansas State University

In the past decade, emphasis in the area of teaching strategies has shifted toward matching teaching styles to individual learning styles as a means of achieving optimal learning given the available resources and personnel. The implications that learning can be enhanced by matching teaching and learning styles suggests that specific verbal and nonverbal characteristics such as dress of the instructor should be investigated for their possible influences upon the instructional process. The purpose of the present research was to match teaching styles with particular clothing habits to investigate the possibility of manipulating clothing as one variable in establishing a particular teaching style.

Procedure: The sample consisted of 139 undergraduate students enrolled in a required course within the teacher education program at a large midwestern university. All had exposure to a variety of models of teaching styles.
during their collegiate careers. The subjects were asked to complete the Semantic Differential Clothing Scale (SDCS), developed to measure clothing dimensions as perceived by the wearer, and Heikkinen and Armstrong's (1978) Teaching Style Q-Sort (TSQS), used to identify the perceived teaching styles of the subjects.

The subjects were first placed in one of the five families of teaching styles: social interaction, information processing, personal source, behavior modification, or eclectic. This was done by preferential ranking of characteristic statements concerning teaching and learning. The groups were analyzed for differences in their attitudes toward the seven dimensions of clothing. Analysis of variance as well as tests for the homogeneity of variances were performed on the data. Wherever significant differences were identified, Fisher's Least Significant Difference was used to identify the specific teaching style of differences.

Results and Discussion: "In fashion-out of fashion" and "concealing-exposing" were found to be statistically significant at the .05 level of significance. Consideration of the "in fashion-out of fashion" dimension of clothing shows that the group perceiving their teaching style to be social interaction in type rated themselves significantly more "out of fashion" than three other groups, information processing, personal source, and eclectic. This suggests that those teachers emphasizing group interaction and communication demand fewer external symbols of personal characteristics such as fashionable clothing than teachers concerned with handling stimuli from the environment or with individually-oriented constructs.

The eclectic group rated their clothing habits as more "out of fashion" than the information processing group and more "in fashion" than the social interaction and behavior modification groups. These differences imply that eclectic teachers are less extreme in their acceptance of and adherence to fashion trends in clothing.

The social interaction group ranked themselves as more "exposing" than the information processing teachers. This suggests that social interaction teachers might be more interested in their facilitative role in learning while information processing teachers require a place at the center of the action to maximize their learning environment.

Though tentative, the results do seem to pinpoint "in fashion-out of fashion" and "concealing-exposing" as the clothing dimensions most salient to differentiating teaching style groups and, therefore, most promising for future research.

Reference

Clothing Attitudes and Evaluative Criteria Used by Employed Women Differing in Feminine Role Orientation and Work Orientation: Emphasis on the Single-Again Adult
Ann Eicher Stemm
Research conducted at The Ohio State University

The purpose in the study was to investigate clothing attitudes and use of evaluative criteria in the choice of apparel by employed women to determine relationships with feminine role orientation, work orientation, and marital status. Research hypotheses were developed based on the underlying theory from the consumer behavior model of Engel-Kollat-Blackwell. Emphasis was placed on evaluative criteria as used in alternative evaluation, and the influence of lifestyle (feminine role orientation, work orientation and marital status) as a determinant of evaluative criteria.

Procedure: A random sample of 450 panelists was drawn from Market Facts' Consumer Mail Panel that consisted of women who were: (1) between the ages of 20 and 45, and (2) married or single-again, and (3) employed outside the home. A questionnaire consisting of a clothing attitudes measure, feminine role scale, evaluative criteria measure, lifestyle questions and a demographic information section was developed by the author using or revising measures developed by Jenkins (1973), Scruggs (1976), and Steinmann (1974). Analysis of data was accomplished through use of SPSS and STATPACK programs. Procedures included frequency counts, factor analysis, Kuder-Richardson Reliability (Formula 8), factorial analysis of variance, oneway analysis of variance, and stepwise multiple regression.

Findings: Of the total of 450 questionnaires mailed out, 340 (76%) were returned. Findings were based on analyses of 285 questionnaires that met the criteria set for the study. Reliability for the five clothing attitude subscales ranged from .77 to .88; whereas, for the feminine role scale reliability was .68 for self-orientation and .78 for other-orientation.

Using the criteria established by Steinmann, 41 (14.4%) of the respondents were classified as traditional, 63 (22.1%) as balanced, and 181 (63.5%) as modern. While 180 (63.2%) of the women reported they considered their present employment a job, 104 (36.5%) considered what they did a career. In the sample 240 (84.2%) of the women were married and 45 (15.8%) were classified as single-again.

The Appearance clothing attitude had the highest mean score followed by Management, Dependence, Fashion and Experimental. Factor analyses were performed on the evaluative criteria and yielded three factors each for the work outfit and the social occasion outfit. The factors could be described as Pragmatic, Esthetic, and Quality concerns.

Although feminine role orientation, work orientation, and marital status taken alone were not related to differences in clothing attitudes, when taken together as an indication of lifestyle, they were related to differences for Appearance, Experimental, and Fashion clothing attitudes. Marital
status and feminine role orientation interaction was significant for differences in the Management clothing attitude. Work orientation was significant for scores on the Quality factors for both work and social occasion outfits. The feminine role orientation, work orientation, and marital status interaction was significant for the Pragmatic factor for a work outfit. The interaction approached significance on the Pragmatic factor for a social occasion outfit as well as the Esthetic factor for both outfits.

The lifestyle factors were related to the use of evaluative criteria as suggested in the Engel-Kollat-Blackwell model of consumer behavior. However, the amount of variance explained by the combination of variables in the present study was small; it ranged from four to eight percent.

An Investigation of Selected Vertical Supports to Reduce Strain on Women's Outerwear While in Storage

Vicky L. Kruckeberg
Research conducted at Kansas State University

Historic garments usually are fragile and pose special problems if they are to be given adequate support while in storage. The objective of this research was to investigate strain on the bodices of garments with heavy skirts while they are hung in a vertical position. No standard test procedure could be found for measuring the deformation that occurs in the bodice fabric due to a downward pull; therefore, one had to be developed. The assumption was made that strain on the shoulder line of the garment is affected by the neckline shape and placement of the armscye; thus, the amount of fabric in a garment that is in contact with the surface of a particular support is determined by the neckline and the armscye design.

The study was begun with women's gowns. It was impossible to establish a standard garment for this study since women's styles have changed throughout history. Three necklines that could be considered basic styles from 1810-1970 were chosen: a standard neckline, a front V-neck with armscye moved inward, and a wide scoop neck on both the front and back of the bodice. A normal positioned waistline was designed for the bodices with the different neckline shapes.

Six vertical supports were selected for the study: a bare wire hanger, a bare wood hanger, a wire hanger with one-half inch polyester fiberfill padding, a wooden hanger with enough polyester fiberfill padding to be the same size as the padded wire hanger, a cardboard garment support used by drycleaners, and a standard industrial dress form chosen to fit the pattern used.

Procedure: Two bodices were made, one with the crosswise grainlines running parallel to the floor and the other with the true bias running perpendicular to the floor. After 30 hours it was determined there was
not enough grainline distortion to accurately measure any changes on the bodice with the crosswise grainlines running parallel to the floor. The rest of the samples were then made with the true bias of the fabric running perpendicular to the floor. A size 10 pattern and a one-inch gingham 50/50 cotton/polyester fabric were used. A chain weight was evenly distributed in the hem of each bodice and the bodice was allowed to hang on the support for 30 hours. At the end of this time the angles of warp and filling yarns were measured at designated points on the bodice to determine the amount of strain.

The statistical analysis included a one-way analysis of variance and a Duncan's Multiple Range Test. The supports in order of increasing strain for the standard bodice and the V-neck bodice were: industrial dress form, dry cleaners form, padded wire, padded wood, wire, and wood. The industrial dress form ranked the highest for support when tested on all three bodice types. It ranked significantly different (alpha level - .05) from all the other vertical supports. For the scoop neck bodice the supports in order of increasing strain were: industrial dress form, padded wood, wire, dry cleaners form, padded wire, and wood. The high ranking of the plain wire hanger and the padded wood hanger cannot be explained, but would require further study.

On the basis of increased strain on the lower levels, if the industrial dress form, the dry cleaners form, or padded hangers cannot be used because of space, cost, or time, something is needed from the waistline to the hanger to relieve the strain created by the weight of the skirt.

Registration, Identification, and Conservation of Historic Lace Specimens
Susan Crabtree and Lavonne Matern
Research conducted at Oklahoma State University

Handmade lace specimens that were found in the historic costume collection were registered according to the system currently in use and identified as to class of construction and specific name. Cleaning, storage, and display techniques suitable for historic lace specimens were determined. Recommendations were made for immediate and long-term care of the historic handmade lace specimens.

A registration number that consisted of three parts representing the year in which the specimen was first registered, the order in which the specimen was registered, and the specific group to which the specimen belonged was assigned to each of the 78 lace specimens. This number was printed on a small merchandise tag using permanent black ink and was attached to the lace with a cotton cord passed through the open spaces of the lace in a manner that would not cause damage to fibers or threads.
Through a literature review, nine references were found for lace identification. The class of construction and the specific name of the lace specimen were determined by the appearance of the lace specimen in comparison to visual and written examples of design and construction found in the references. All of the 78 handmade lace specimens were identified as to class of construction and specific names were identified for all but one of the lace specimens. Cluny, Milanese, and Torchon lace specimens were identified within the bobbin class of construction. The needle class of construction included examples of Drawnwork, Point Venise, Punto in Aria, Rosepoint, and Venetian. Antique, Plain, and Tuscan Filet were identified in the miscellaneous class of construction as well as Battenburg, Princess Guipure, Princess Applique, Embroidered Net, Limerick-Tambour, Crochet, Irish Crochet, Knit, Tatted, and Sol Lace. As a part of the identification process, information regarding the registration number, class of construction, specific name, size of the lace specimen, and identifying references were included on a work sheet that was placed in the files of the costume collection.

Information regarding proper methods of cleaning, storage, and display for historic lace specimens was sought from museums or persons generally recognized as prominent in the field of historic costume and textile care. Although methodology varied among the sources regarding the cleaning of lace specimens, a conservative approach was recommended by a majority of the sources. Cleaning was recommended to make an item more attractive, to reduce the danger of attack by insects and microorganisms, and to return the fabric to a neutral state. The use of unbleached muslin and/or acid-free boxes and paper was indicated as necessary for protecting the lace specimens from damage by light, dust, and movement during storage. Lace specimens also need to be protected from sudden changes in temperature and humidity.

Information regarding the cleaning, storage, and display of historic lace specimens received from the museums and persons contacted was placed in the costume files for future reference. Specific recommendations and priorities were made for short- and long-term care, storage, and display within the collection.

Pattern Drafts of Men's Costume in America, 1850-1900
Judith Rice-Jones and Shirley E. Friend
Research conducted at Southern Illinois University

A need for information on American men's clothing for the period of 1850-1900 led to this study to provide accurate pattern drafts of men's clothing worn in America between 1850-1900. Accuracy, as well as construction information suitable for use by costume designers, cutters, and others interested in historic dress was a primary concern. The study was limited to 15 men's coats or suits located in the Smithsonian Institution, the Metropolitan Museum of Art, and the Brooklyn Museum.
The garments chosen for study were selected on the basis of their uniqueness in cutting and construction details. The garments were documented by the museums in which they were housed as having been worn in America between 1850-1900. Each museum provided work space.

Full-scale pattern drafts were taken from the garments using a system that was the reverse of the method Carl Kohler described in A History of Costume. All measurements were taken in centimeters. The process began with drawing a straight line parallel to the edge of the paper that was several centimeters longer than the longest section of the garment being patterned. A set of pins following the lengthwise grain was then placed on the garment extending its full length. This line was used as the main reference for drawing perpendicularly, the first being the lowest point of the armseye. Both the vertical and horizontal measurements were noted using a right angle triangle to determine the perpendicular. It was often helpful to use two tape measures simultaneously, one for each direction of grain. This process was repeated at the lowest point of the neckline curve, the highest and lowest points of the shoulderline, and the highest and lowest points of the waistline. Other places for dropping perpendicularly would be pocket locations, darts, and button and buttonhole placement.

Once the critical points were plotted, straight or curved lines were drawn to connect these points. Curves were checked for accuracy by comparing to the garment lines and adjusting as necessary to achieve the correct length.

To check the success and accuracy of the pattern drafts, patterns were made in muslin. The patterns were found to be accurate within one centimeter with the greatest frequency of error found in the ease of the sleeve cap.

The full-scale pattern drafts were reduced to one-fourth scale using a Xerox 1860 photocopying machine. Each set of pattern drafts was then arranged in a fabric layout suitable for cutting in 60-inch wide fabric. These cutting diagrams were drawn by a scientific illustrator to produce clear, accurate one-fourth scale pattern drafts.

This research was not intended to be representative of all men's clothing but was intended to start filling the void in cutting and construction information on clothing of the American male.
I. The meeting was called to order by President, Shirley Friend, at 2 p.m. at the Fawcett Center for Tomorrow on the Ohio State University campus.

II. The Minutes of the 1978 business meeting were distributed by Secretary, Hilda Buckley. An editorial correction of the minutes was announced. On Page 2 of the Minutes at the end of the report given by Lillian Matthews, National Executive Board Representative, the Minutes should read: "Joan Laughlin encouraged the membership to vote when the Spring ballots are received." Jo Lefler moved to accept the Minutes as corrected; Gloria Williams seconded the motion. The membership's vote to accept the Minutes was unanimous.

III. Treasurer, Joan Laughlin, announced that in its progress toward becoming a tax exempt organization, all regions of ACPTC must designate all monies up to at least 85% of the total for operating expenses. By action of the ACPTC-CR Council on 27 June 1979, the monies in Passbook Savings and Certificates of Deposit were designated Scholarship and Publication Fund. Interest on these monies remains with those accounts. As of 10 October 1979, the values of these accounts, including interest earned during final year 1979, were:

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<th>Account Type</th>
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<td>5,310.74</td>
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<td><strong>$10,886.03</strong></td>
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After expenses were paid, the balance on hand in the checking account on 26 October 1979 was $203.24. The Treasurer's Report was approved by the membership.

IV. Shirley Friend announced that after 31 July 1979 ACPTC members no longer need to be members of AHEA. Due to AHEA cyclical billing, members who had paid 1979-80 dues after 1 April 1979 are considered members through 31 October 1980; members who paid their dues prior to 1 April 1979 will need to pay for 1979-80 dues by 1 November 1979.

V. Shirley Friend stated that a step in the procedure toward incorporation of ACPTC is to establish a Board of Directors. The following have been named as the Board members: Ruth Gates, Jo Ellen Uptegraft, and Marjorie Joseph.

VI. Reports of the 1979 ACPTC-CR committees were presented:

A. Standing Committees:

1. Nominating. Karen Kaigler-Evans reported the results of the election:
President: Joan Laughlin
President-Elect: Pat Horridge
Secretary: Hilda Buckley
Treasurer: Mary Littrell
Member-at-Large: Betty Wass
Alternate to the Council: Carolyn Callis
National Executive Board: Charlotte Bennett
Alternate to National Executive Board: Ardis Rewerts

It was recommended by the committee that a change in the By-Laws be made concerning the election of officers. The committee felt that a wider representation of membership on the Council would be facilitated by allowing nominations for the offices of Secretary and Treasurer to come from the membership. Thus, those offices could be held by persons with no Planning Council experiences. The Nominating Committee members for 1978-79 were: Karen Kaigler-Evans (Chairperson), Margaret Conte, and Beatrice Moore Smith.

2. Membership. Joan Laughlin reported that as of 20 October 1979 ACPTC-CR had 414 members:

- Active Members: 353
- Reserve Members: 8
- Graduate Student Members: 49
- Associate Members: 4

Total: 414

Dues had not been renewed by 53 inactive members. Dr. Laughlin announced that the Membership Committee would contact the inactive members with invitations to continue their membership.

3. By-Laws and Handbook. Hilda Buckley reported that the following items in the Handbook were studied and revisions were made by the committee:

a. The content of the Handbook was brought up to date to be consistent with the By-Laws.

b. The duties of standing and conference committees were clarified and expanded.

c. Duties of appointed positions of the ACPTC-CR Historian and ASTM Liaison were included.

d. Inconsistencies within the Handbook and between the Handbook and By-Laws, clarity in wording, and grammar and spelling errors were corrected.

e. Past conference dates and places and lists of past Council members were created.

f. A revised policy for budgeting the cost of publishing the Proceedings was studied, but no revisions were made because the committee felt that National ACPTC should initiate this change.
g. The Nominating Committee's recommendation concerning enabling more new members to serve as officers was studied and brought forth to the Council for discussion.

The members of the ACPTC-CR By-Laws and Handbook Committee for 1978-79 were: Hilda Buckley (Chairperson), Shirley Friend, Mary Littrell, and Ardis Rewerts.

B. Ad Hoc Committees:

1. Honorary Membership. Pat Sailor reported the procedures for honorary membership from the ACPTC National By-Laws. She stated that the Central Region was considering the establishment of honorary membership procedures of the following form:

Usually in the Spring at least two active members submit nominations to the Membership Committee for review and forwarding to the Central Region Executive Council. The Chairperson of the Membership Committee acknowledges receipt of nomination and transmits the nomination forms to the President of Central Region. The President circulates each nomination to Executive Committee for review. A nominee must receive at least two-thirds of the possible votes. If approved, the nominee receives a letter of invitation to honorary membership by the President of Central Region who then makes the arrangements for recognition at the Fall regional meeting.

Dr. Sailor stated that eligibility for honorary membership was being clarified. The nomination of Dr. Dorothy Siegert Lyle, as made by Drs. Audrey Newton and Lois Dickey, was also being acted upon.

2. Workshops. Miriam Cross (Chairperson) gave the following report for the committee, also consisting of Kathryn Greenwood, Mary Littrell, and Mary Don Peterson:

The Committee was evenly divided in opinion concerning whether a pre-conference or post-conference workshop would be most feasible in terms of attracting attendance. A pre-conference workshop would attract many who had already planned to attend a regional or national meeting and who could come a day prior to the start of the meeting although for most faculty members it would involve planning for an additional day of class coverage at our home institutions. A post-conference workshop utilizing Friday evening or Saturday would involve difficulties for those of us who return via plane to areas of limited weekend air service. The committee does not recommend a workshop divorced from an ACPTC meeting in terms of attracting attendance. Many who would attend an ACPTC meeting would not be able to attend a second meeting in terms of travel funding and/or permission from our home institutions.
The committee recommends that the ACPTC sponsor workshops rather than lend sponsorship to individual workshops offered by various educational institutions. It would be difficult to decide which institutional workshops to support without possible favoritism, and ACPTC should not be in a position where it might have to assume any financial responsibility should receipts for a given workshop not meet expenses.

VII. Marcia D. Metcalf, Central Region ASTM Liaison, reported on the following items as discussed at the October 14-18, 1979, ASTM meeting in Philadelphia:

A. The Information Disclosure Committee was disbanded and will be re-established with a slightly different scope. Sixteen hundred responses to the questionnaire for Information Disclosure were received and are being analyzed by W. St. John. This data will be shared with ACPTC-CR as soon as available. ACPTC-CR was thanked by ASTM for their cooperation.

B. The Sizing Committee announced that although the anthropometric study has been given low priority by the Federal government, it will still continue encouragement of lobbying in this direction. It was recommended and accepted to use I.S.O. guidelines for sizing which uses pictographs and measurements to indicate sizes until higher priority can be given to this issue. ASTM was invited to participate with the Mail Order Association to set up an interim sizing system until standards are revised by the National Bureau of Standards.

C. Progress has been made by the Data Gathering Committee to assist in writing questionnaires for survey use.

Dr. Metcalf recommended that more ACPTC members join and participate in ASTM. The next meeting of ASTM will be held in March of 1980 in Charlotte, North Carolina.

Since Dr. Metcalf’s three-year term will expire, Shirley Friend appointed Coila Janececk as ACPTC-CR Liaison to ASTM for the 1980-83 term. Dr. Friend asked for suggestions from the membership for an alternate.

VIII. Shirley Friend announced that the 1978 Proceedings has been delayed due to (a) revisions of procedures for writing the Proceedings; (b) publication of the Spring Newsletter; and (c) cooperation with a new publisher.

Geitel Winakor suggested that the Council consider the possibility of (a) publishing, in the Proceedings, research papers presented at ACPTC conferences; and (b) publishing abstracts of theses and dissertations in areas of textiles and clothing.

IX. Joan Laughlin reported that $10,000.00 of the Scholarship Fund will be invested in a high yield money market certificate. ACPTC-CR will also award a $1,000 fellowship for the 1980-81 academic year to a Ph.D. student.
X. Shirley Friend asked ACPTC-CR members to complete an information card for use by national ACPTC. The information will serve as a data base of members' interests.

XI. Dates and sites of future ACPTC-CR and national ACPTC conferences were announced by Shirley Friend:

1980 Washington, D. C. (National Conference, October 29-November 1, Capitol Hilton Hotel)
1981 Saint Louis, Missouri (October 28-31, Chase Park Plaza)
1982 Minneapolis, Minnesota (October 27-19, North Star Inn)
1983 Hawaii (National Conference, July)

Dr. Friend asked for suggestions for sites for the 1984 conference from the Southern portion of the Central region. Suggestions from the membership were: San Antonio, Houston, Dallas, and Memphis. The Council will study the feasibility of these suggested sites at their January Executive Council meeting.

XII. Gloria Williams suggested to the Council that the special interest groups be continued at the ACPTC-CR conferences.

XIII. Pat Sailor moved that ACPTC-CR thank the Ohio State University and Lois Dickey for their invitation to Columbus and gracious hospitality during the 1979 ACPTC-CR conference. Margaret Ordonez seconded the motion, and the membership unanimously approved.

XIV. Shirley Friend stated that funding is available from AATCC. Information regarding this funding may be obtained from Mary Lapitsky.

XV. Joanne Eicher announced that a symposium on African dress and textiles is being planned by the University of Minnesota on May 8-10, 1980. She distributed a preliminary draft of the Agenda and announced a request for papers and visual presentations for the symposium.

XVI. Joan Laughlin moved that the meeting be adjourned; Gloria Williams seconded the motion. The motion carried, and the 1979 ACPTC-CR Business Meeting adjourned at 3 p.m.

Respectfully submitted,

Hilda Mayer Buckley
Secretary, ACPTC-CR

HMB: cde
1/9/80
ASSOCIATION OF COLLEGE PROFESSORS OF TEXTILES AND CLOTHING

CENTRAL REGION

FINANCIAL STATEMENT: NOV. 1, 1978 - OCT. 25, 1979


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(Conference '78 = 183.14  
'79 = 936.74 = 1,119.88)

Transfer to Passbook Saving  
(Mar. 1, 1979) 2,500.00

Balance on Hand (Oct. 26, 1979)  
Checking Account 203.24

*By Action of the Planning Council, June 27, 1979, the monies in Passbook Savings and Certificates of Deposit were designated Scholarship and Publications Fund. Interest on these monies remains with those accounts.

As of October 10, 1979, the values of those accounts, including interest earned during Final Year 1979, were:

Certificate of Deposit/Commercial Federal (1/28/1980) $5,575.29
Passbook Savings/Commercial Federal 5,310.74

$10,886.03
Pre-registered

Adams, Shirley
Ball State University
Muncie, Indiana 47302

Alexander-Elmore, Patsy
University of Mississippi
University, Mississippi 38677

Anderson, Joice M.
Lincoln University
Jefferson City, Missouri 65101

Ashinger, Phyllis
Wayne State University
Detroit, Michigan 48025

Barra, Marguerite C.
Northern Illinois University
DeKalb, Illinois 60115

Baker, Lisa
Oklahoma State University
Stillwater, Oklahoma 74074

Beardsley, Eloise
Andrews University
Berrien Springs, Michigan 49104

Benedict, Rhonda
Ohio State University
Columbus, Ohio 43210

Bennett, Charlotte
Morehead State University
Morehead, Kentucky 40351

Bennett, Debra
S.W. Missouri State University
Springfield, Missouri 65802

Branam, Jamie S.
Miami University
Oxford, Ohio 45056

Braun, Audrey A.
Kent State University
Kent, Ohio 44240

Briggs, Janice
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Stillwater, Oklahoma 74074

Brown, Marion F.
University Wisconsin-Madison
Madison, Wisconsin 53706

Buckley, Hilda
University of Illinois
Urbana, Illinois 61801

Butler, Marian R.
Ohio State University
Columbus, Ohio 43210

Butler, Sara
Miami University
Oxford, Ohio 45056

Bystrom, Adoree
Miami University
Oxford, Ohio 45056

Cagna, Betty
Central Missouri State
Warrensburg, Missouri 64093

Callis, Carolyn
University of Texas
Austin, Texas 78712

Callison, Charlene G.
Western Illinois University
Macomb, Illinois 61455

Canton, Bernetta
State University College
Buffalo, New York 14222

Clark, Sallye R.
Western Kentucky University
Bowling Green, Kentucky 42010

Conte, Margaret M.
Purdue University
West Lafayette, Indiana 47906

Cotton, Mary
University of Arkansas
Fayetteville, Arkansas 72701

Crabtree, Susan
429 West Woodridge
Springfield, Missouri 65803
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ASSOCIATION OF COLLEGE PROFESSORS OF TEXTILES AND CLOTHING
Holiday Inn - Downtown, Denver, Colorado
October 10-13, 1979

MINDS, MARKETS, AND MINES

Wednesday, October 10, 1979

8:30 a.m. Registration
9:00-11:30 a.m. Executive Board Meeting
9:00-11:30 a.m. Tours - Denver Merchandise Mart, Miller Western Wear
11:30-1:30 p.m. Lunch - On you own
1:30-5:00 p.m. Tours - Gerry Manufacturing, Outdoor Sports Division and Frostline Kits
7:00 p.m. Dinner - "Eat Your Heart Out, John Malloy"
Book Review Fashion Show With Satirical Commentary by Jean Yancey, Business Consultant, Denver, CO., Pat Morren, Fashion Director, Joslins, Denver, CO.

Thursday, October 11, 1979

8:00-8:30 a.m. Registration
8:30-8:45 a.m. Welcome and Announcements
8:45-9:45 a.m. Winona Brooks, presiding Janet Else, Chair
"Objectifying Apparel Design" Dr. Jacquelyn Yep Orlando, Associate Professor, Department of Human Environment and Design, College of Human Ecology, Michigan State University, East Lansing, Michigan
9:45-10:15 a.m. "Keeping Warm and Saving Energy." Dr. Robert Steadman, Associate Professor, Department of Textiles and Clothing, College of Home Economics, Colorado State University, Fort Collins, Colorado.
10:15-10:30 a.m. Break
10:30-11:00 a.m. Research Reporting Session, Amy Sinclair, presiding Jean Margerum, Chair
"Analysis of Factors Associated with Success of Graduates of Clothing, Textiles and Related Arts in Obtaining First Positions," Anne Foster, Portland Community College, Portland, Oregon.

11:00-11:45 a.m.


Noon

Luncheon Session
Doris Hime, presiding
Merry Jo Dalls, Chair


2:00-3:00 p.m.

Christine Milodragovich, presiding
Mildred Crawford, Chair

"Potential Toxicity of Textile Finishes," H. Rex Richards, Head, Department of Textiles and Clothing, Colorado State University.


3:00 p.m.

Break

3:15-3:45 p.m.

Research Reporting Session
Winona Brooks, presiding
Naomi Reich, Chair

"Consumer Satisfaction/Dissatisfaction with Information Sources at Fabric Specialty Stores," Richard T. Cary, Arizona State University, Tempe, Arizona

"Characterization of the Direct Market in Used Textile Products," Lynn O'Reilly and Margaret Rucker, University of California, Davis, California

3:45-4:30 p.m.

Business Meeting

5:30-11:30 p.m.

Dinner and play at the Heritage Square Opera House, Golden, Colorado.

Friday, October 12, 1979

8:00 a.m.

Registration

8:30-10:15

Breakfast session
Barbara King, presiding
Vivian Hogge, Chair

10:15-10:30 a.m. Break

10:30-11:00 a.m. Research Reporting Session
Margaret Baer, presiding
Bev Krosky, Chair


11:00-11:45 a.m. Panel Discussion
"Working With the Apparel Industry - The Educator's Viewpoint."

11:45-12:30 p.m. Interest Group Discussion Session
"Future Directions - Methods and Techniques in Teaching."
"Design," Naomi Reich, Discussion leader
"Textiles," Robert Steadman, Discussion leader
"Construction," Marcella Martin, Discussion leader
"Merchandising," Cheryl Jordan, Discussion leader
"Historic Costume," Barbara Harger, Discussion leader
"Socio-psychological-Economics," Margaret Rucker, Discussion leader
"Extension," Dorothy Ettl, Discussion leader

12:30-2:00 p.m. Lunch - On your own

2:00-3:00 p.m. Final Session
Ruth Gates, presiding
Fran Johnson, Chair

"Indians of the Southwest," Bev Krosky, Department of Home Economics, University of Northern Colorado, Greeley, Colorado.
3:00-5:00 p.m.  Walk and browse through the Denver Art Museum. Guided tour of Native Arts Gallery, and special showing of "Shawls and Blankets Worn by Native Americans."

4:00-6:00 p.m.  Executive Board Meeting
OBJECTIFYING APPAREL DESIGN

Jacquelyn Yep Orlando, Associate Professor, Human Environment and Design
Michigan State University

Functional clothing design is a term that is beginning to sweep the country. What images does it bring to your mind? Space suits, skin diving gear, clothing for active sports, clothing as an environment, the unusual far-out design, clothing fulfilling a specific purpose beyond covering the body? These examples are functionally designed and a certain degree of skill and engineering had to be incorporated into their design, but just what is it that distinguishes functional design from fashion designing? I would suggest it is objectifying the design process to make the resulting design meet specific needs. Up to now those specific needs have meant specialized clothing; however, in the future this process will accommodate the environment most efficiently in our everyday lives. The challenge for professionals in our field of apparel and textiles may be to incorporate our knowledge of fashion and human needs into functional designing.

I would like to explore this functional design process with you, show you some examples of process implementation, and finally examine what implications lie ahead for designing and research.

To begin with, definitions of designing abound. It has been called everything from "a creative activity" (Reswick, 1965) to "the optimum solution to the sum of the true needs of a particular set of circumstances" (Matchett, 1913)—an academic mouthful.

However, the differences in definition point out that the process can be as diverse as the end product, and we have all seen some academic designs that function well only on paper.

Many of us have viewed designers as magicians. The most valuable part of the process goes on inside the designer’s head. We cannot really explain how the outcomes are obtained. J. Christopher Jones (1970) designates this category of designers as black boxes. Perhaps the only thing we can do to help the process is to stimulate the brain network by free nonthreatening ideas such as "brainstorming." Then magically through a process we cannot visualize, a design is created.

Quite the opposite extreme of "black box" designing is the concept of designers as "glass boxes." Here everything is visible. The human computer operates in a systematic manner, dividing the problem into separate pieces and analyzing and solving each component. The critical question is whether the problem, when split into separate pieces, can effectively be integrated into a holistic effective solution.

Weaknesses of both approaches are that the designer generates a multitude of unfamiliar alternatives with no efficient way to make choices. Instead of evaluating each alternative individually or making an arbitrary "black box" choice, the designer can become a self-organizing system. This involves a two-part design effort; that of carrying out the search for a suitable design and a strategy control that controls and evaluates the pattern of the search. Think of control as specifications of design.
Fashion designing most closely resembles "black box" designing. The epitomy of functional design could be seen as "glass box" designing. Here the computer-like designer solves well each part without much integration or aesthetic concern. The self-organizing system approach comes closest to combining the creative process with strategy control.

It is this background of observing the design process from other disciplines that led me to developing a process model that I have been using in my research and teaching.

Execution of the complete design process begins with a general request for design (Step 1.2 on chart). The problem is identified in general terms, such as: protection of the agricultural worker from dermal exposure during pesticide application. This general objective becomes the input for the first stage of the process. It is at this stage that the design situation will be thoroughly explored. A nonstructured outcome is desired. The purpose is to identify as many different directions for further consideration as possible. This stage can be termed one of divergence. It is a common fault in designing to skip this stage and try immediately to define the specific problem. This limits the choices before the total problem is clearly understood. It is in this stage one begins to look beyond the obvious request to the interaction systems involved. The scope of solutions to the problem is broadened to include all aspects of the constructed, the behavioral, and the natural environments.

In the design of clothing for pesticide applicators, a thorough observation of the constructed environment brings consideration of the method of pesticide application and the equipment variations and creates the man-machine interface. The natural environment focuses attention on the weather conditions during the time of the year when pesticides must be applied and creates the critical factor of thermal considerations. The behavioral environment introduces the human variables of values, patterns of wear, and preferences, all of which must be important considerations in establishing design criteria. This total system then is examined in the proceeding stages. The functional design researcher may choose any or all of the strategies in the 1.2 category of the model in completing the exploration of the design situation.

Once this is accomplished, the next desired output is perception of the problem structure. This stage (2.3) involves isolating the critical factors that comprise the problem. This may be called a "transformation" from the entire spectrum opened through "divergence" to focal areas of design concern. The techniques used draw from basic survey research for observation and market analyses. The literature search becomes targeted as the critical factors are isolated and ultimately as the results of these strategies converge the problem is defined.

With the problem structure perceived the critical factors previously identified are assessed for the specific problem in order to arrive at specifications for designing. Five areas of assessment are identified in stage 3.4 as major critical factors. The number and depth of inquiry of each factor will vary with the problem being studied. All problems require some type of activity assessment. This involves a more in-depth observation than was done to identify the critical factors. Observing the activity as it is actually being performed in its natural setting is preferred. Observations should be verified by multiple observers. Block or path diagrams are constructed from the tasks involved in the activity. Notations are then
made on the number of occurrences and interaction with objects or other persons. An alternative to direct field observation is filming the activity. Accuracy increases with the opportunity of repeated and reduced speed viewings. This technique is especially desirable when motion is a critical factor. The same film may then be used for motion analysis.

If conditions do not permit direct observation, a simulation of the activity may be enacted and observed. Participant observation, that is, recall or notation of the task by the participant, is not desirable at this stage. The more general type of information usually derived from participant observation is more appropriate when exploring the design situation in stage 1.2. Analysis of the information gathered through the activity assessment will result in specifications concerning how the garment can be designed to eliminate interference with the task involved and where possible to assist in the task. In the case of the design of a child's winter jacket by a student team, a film of children playing in the snow was observed. Resulting specifications included: pockets should be of sufficient size to hold gloves, hats, and hands and a hood should not hinder vision.

Specific movement assessment is then conducted if body movement in areas that may be concealed by clothing would interfere with the task involved. Body flexion and extension are measured in degrees to attain measurements on the extent of joint movement during the activity. This process can be done by projecting a move frame on a graph screen and using a protractor or gonimeter to measure the angle. Or, a person can be asked to freeze in one motion for still photography. This was done by one team designing clothing for backpackers. Various positions of climbing and bending were photographed and enlarged photographs were measured. Or, a live model may be positioned in the angle to be measured. This was done by a team working on rainwear clothing for bicyclers. Measurements were taken with a model on a stationary bicycle. The specifications resulting from the movement assessment are usually of a more specific nature. For the back packing example, the movement specifications included allowing for flexion of 120° - 130° in the elbow joint, and for flexion of 110° in the knee joint.

Impact assessment may be divided into impact by force and impact by intrusion. Impact by force may be physically measured by use of sensors on simulated body parts to measure blows as in the case of contact sports. Observation methods also may be used to determine the area of the body where blows are most frequently received and a subjective measure of their severity.

Force defined as intrusion of substances on the body also may be analyzed for the areas of contact and the degree of penetration. The use of an absorbant fabric that will change color upon water contact allows for identification of high impact areas on clothing worn while performing specific tasks in the rain, such as bicycling. The overall deposition of pesticides during pesticide application processes is being measured by the use of colorimetrics (1). Actual pesticide penetration through garments is being measured by the use of gas chromatograph analysis of absorbant pads worn underneath the clothing (2).

Thermal factors may be assessed through the use of body sensors worn underneath clothing during the simulation of an activity. Comparative analysis between fabric and garment design variable may be made without elaborate equipment and calculations. Of equal importance with the physical measures discussed to this point are the social-psychological assessments.
Research conducted on clothing values and preferences and clothing and social acceptance provides the methodological approach for this area of investigation. The potential users of the functional item are surveyed to provide insight on their preferences and values that will affect the ultimate acceptance of the garment to be designed. It was at this stage in the development of winter play wear for children that peer acceptance was highlighted in interviews with children of the specific age group considered. Tolerances of specific design features were made very clear and the designers recognized the boundaries necessary to maintain peer acceptance.

With the information gathered in terms of describing specification, it is now time to establish the specific specifications that will be used in designing—or the "design criteria" (4.5). This stage involves charting, ranking, and weighting the specifications derived in the previous stage to set priorities. Constructing a matrix of specifications that are compatible and in conflict and using interaction nets are techniques employed to accomplish the finalized set of design criteria.

With a set of criteria established, this information becomes the guide for the designers in the next stage, which is developing the prototype (5.6). This stage also involves the testing of materials that may include textile testing to insure the materials selected will meet the criteria established. Evaluation of construction techniques also may be necessary to see if the seams selected will hold up to the stress specifications. It is the creative integration of the criteria that leads to possible solutions. These solutions are then evaluated against the prioritized list of criteria to determine what will be incorporated into the final design.

One important final stage remains—evaluation of the prototype. Evaluation becomes easy with specifications at hand. Does the garment meet the criteria established? With measurable specifications you can, for example, see if the person can flex the elbow to the designated angle without garment strain. This is objective evaluation of the design, but it is not the only suggested form of evaluation to be conducted. We still must know how the user feels about the solution. So we make use of a subjective evaluation to complement our objective evaluation.

For each project, the progress will vary some and the final chart of strategies will be different. The steps of the process give continuity to the process and help us to think beyond to find answers.

Finding solutions that really work is exciting and challenging, and there is so much more that needs to be done. The area of functional clothing design may have had its beginning with the development of medieval armor, but today it is just beginning to impact the field of clothing design for special needs. There is an unending multitude of special needs to be met. We not only need solutions to problems, but improved techniques to help us examine problems and set specifications for designing. Research possibilities abound.

Our current research project on protective apparel for pesticide users in not concerned alone with the development of an acceptable prototype. One portion of the project concerns developing a strategy for incorporating a measurement of the users perception of innovations into the design process model to aid in establishing the final criteria. In an effort to come up with a design that will be used by the agricultural worker (in this case),
we are realizing that the use of change theory may be a helpful tool in functional designing. Another aspect of the pesticide project involves a problem I have been struggling with since the inception of the model. That is the weighting and ranking of specifications in stage 5.6 into design criteria. I believe the techniques we are currently using are adaptable to mathematical modeling, and we are working on incorporating the use of mathematical modeling into the process.

As I look ahead to future research possibilities, the model I have shared with you is best a tool giving some form to a new area. Its continued refinement and expansion will be necessary, as will the refinement and development of measurement techniques for assessing the critical areas.

If user observation interests you—improved techniques of observation need to be discovered and evaluated for their efficiency and accuracy. The area of measurement as it applies to clothing design is in dire need of usable and accurate techniques whether you are interested in motion, impact, or thermal. In the area of user evaluation, we must apply statistical measures to preferences in order to objectify our evaluations.

This design process I have called functional design is really an analytical systems approach to designing. This approach also presents some exciting possibilities in environmental designing where apparel is one component of the total system. Last year a colleague in housing and interior design and I co-taught a graduate seminar on designing for the near environment. We centered on energy efficient designing and had the students discover the interrelationships of clothing, interiors, and housing in solving design problems. As we look to the future, I can see expanded possibilities for us to work as team members in integrated environmental research. This functional design process enables us to investigate alternatives in the clothing environment that may be applied to a larger system.

One of the exciting things about functional designing is the opportunity it provides for us to coordinate all aspects of apparel and textiles. Whether your interest or expertise lies in the social-psychological area, textiles, or design, there are research and teaching opportunities.

Objectifying apparel design provides us with a visible focus for research and teaching and enables us to make a contribution with visible results in solving some of today's problems with an eye to the future.

References

FUNCTIONAL CLOTHING DESIGN PROCESS & STRATEGY SELECTION

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<th>1 REQUEST MADE</th>
<th>2 DESIGN SITUATION EXPLORED</th>
<th>3 PROBLEM STRUCTURE PERCEIVED</th>
<th>4 SPECIFICATIONS DESCRIBED</th>
<th>5 DESIGN CRITERIA ESTABLISHED</th>
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<th>4 SPECIFICATIONS DESCRIBED</th>
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<th>6 PROTOTYPE DEVELOPED</th>
<th>7 DESIGN EVALUATION</th>
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<th>6 PROTOTYPE DEVELOPED</th>
<th>7 DESIGN EVALUATION</th>
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<table>
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<th>6 PROTOTYPE DEVELOPED</th>
<th>7 DESIGN EVALUATION</th>
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</thead>
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<tr>
<td>state objectives</td>
<td></td>
<td></td>
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<tr>
<td>check criteria against objective</td>
<td></td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>6 PROTOTYPE DEVELOPED</th>
<th>7 DESIGN EVALUATION</th>
</tr>
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<tbody>
<tr>
<td>visual inconsistency</td>
<td></td>
</tr>
<tr>
<td>identify objective</td>
<td></td>
</tr>
<tr>
<td>user interview</td>
<td></td>
</tr>
</tbody>
</table>

Juacelyn Yap Orlando, Associate Professor, Department of Human Environment & Design, Michigan State University, September 1979
The continuing rise in energy costs has stimulated a search for various methods of conservation. Some of these methods, given the high price of energy, are cost-effective, but many gadgets are the subject of exaggerated claims and, as investments, yield a lower return than savings-bank interest. Examples are: attic fans, extra insulating jackets for water heaters, quilted window shades, most plastic window covers, and excessive insulation. Whether insulation is "excessive" will depend on its price, the cost of energy, the temperatures to which the building is heated and cooled, and the local climate.

Since the purpose of heating a building is primarily for the sake of the occupants, this paper is addressed to the problem of minimizing the cost of keeping the occupants warm and examines all options:

1. to heat the building
2. to insulate the building in the most efficient way
3. to insulate personnel using apparel

All of these options are normally practiced simultaneously. The purpose of this discussion is to determine the lowest total expenditures on the three and to try to answer such questions as: Does it make sense to heat the whole building just to keep the occupants warm? Since apparel prices are rising more slowly than energy costs, should we be lowering thermostats and adding sweaters and blankets? What evidence is there that this is being done?

To answer the last question first, Fig. 1 shows U.S. purchases, by weight, of blankets and sweaters (left scale) relative to total U.S. mill consumption (right scale). Clearly, the petroleum embargo of late 1973 did not stimulate purchases of insulative textiles, but helped induce a recession that reduced sales of almost all textiles. Only in recent years are there signs of growing interest in a shift from Option 1 to Option 3. Expansion of blanket consumption may be greater than Fig. 1 would indicate, because of increasing use of non-textile foams.

To analyze costs of the three options, the following model is used:

A typical new one-family, four-occupant house (a similar analysis applies to a high-rise apartment with one occupant), with 9-foot walls, a perimeter of 200 feet, a vertical surface area of 2000 ft.² (180 m²), and a ceiling area of 180 m². Such a house can have a variety of shapes, with one or two, or trilevel, floors.

The outside wall area consists of:

- Space that can be insulated: 138 or 144 m²
- Studs and plates: 24 or 18 m²
- Window glass: 18 m²

The ceiling area has:

- Space that can be insulated: 160 m²
- Joists, 2"x8": 20 m²

Beginning with an uninsulated house having single-pane windows and 2"x4" (in fact, 3 5/8" = 9.2 cm thick) construction, improvements can be
FIG. 1: TRENDS IN INSULATIVE TEXTILES

ANNUAL U.S. CONSUMPTION (million lb)

SWEATERS
(includes imports)

BLANKETS

TOTAL

OIL EMBARGO

1970 71 72 73 74 75 76 77 78
made at the following initial costs for supply and insulation:

- Wall insulation: fiberglass batts at 40¢/ft$^3$ or 23¢/cm per m$^2$
- Ceiling insulation: loose cellulose at 26¢/ft$^3$ or 15¢/cm per m$^2$
- Extra window pane: $48/m^2$
- Thicker walls, 2"x6": $1000 for extra space (at $30/ft^2$), less $120 for savings in materials and labor resulting from wider stud spacing
- 2"x8": $1000 more than 2"x6"

 Resistances offered by unit area of the uninsulated house and corresponding conductances of the house's components are shown in Table 1, where $\chi$ is the insulation thickness in mm.

These values are typical of new houses of wood, hardboard, aluminum or vinyl with plaster lining. Insulation values represent insulation as typically installed in the house, rather than as tested in the laboratory.

The assessment of apparel costs contains less-exact variables, since psychological and sociological factors are added to physical and economic ones, but the following analysis approaches the practice of the average American.

**TABLE 1: BASIC HEAT-TRANSFER DATA OF HOUSE**

<table>
<thead>
<tr>
<th>Resistance (m$^2$ C/W)</th>
<th>Conductance (W/C)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wall only</strong></td>
<td></td>
</tr>
<tr>
<td>0.3</td>
<td>460</td>
</tr>
<tr>
<td>Wall insulation</td>
<td>0.020 per mm</td>
</tr>
<tr>
<td>0.3 + $\chi/50$</td>
<td>0.3</td>
</tr>
<tr>
<td>Wall wood 2&quot;x4&quot;</td>
<td>1.0</td>
</tr>
<tr>
<td>24</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td></td>
</tr>
<tr>
<td>2&quot;x6&quot;</td>
<td>1.4</td>
</tr>
<tr>
<td>13</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td></td>
</tr>
<tr>
<td>2&quot;x8&quot;</td>
<td>1.8</td>
</tr>
<tr>
<td>10</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Window - single pane</td>
<td>0.15**</td>
</tr>
<tr>
<td>120</td>
<td></td>
</tr>
<tr>
<td>120</td>
<td></td>
</tr>
<tr>
<td>- double pane</td>
<td>0.36</td>
</tr>
<tr>
<td>50</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td></td>
</tr>
<tr>
<td>- triple pane</td>
<td>0.54</td>
</tr>
<tr>
<td>33</td>
<td></td>
</tr>
<tr>
<td>33</td>
<td></td>
</tr>
<tr>
<td>Ceiling only</td>
<td>0.25</td>
</tr>
<tr>
<td>640</td>
<td></td>
</tr>
<tr>
<td>100/$\chi/60$</td>
<td></td>
</tr>
<tr>
<td>Attic insulation</td>
<td>0.017 per mm</td>
</tr>
<tr>
<td>11</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Ceiling wood</td>
<td>1.8</td>
</tr>
<tr>
<td>11</td>
<td></td>
</tr>
</tbody>
</table>

*With 2"x4" construction, studs are 16" apart, giving 24 m$^2$ of wood. If 2"x6" or 2"x8" framing is used, studs are 24" apart, giving 144 m$^2$ of insulated space and 18 m$^2$ of wood.

**Simple heat-transfer theory would indicate 0.18; the lower value takes account of latent heat and loss of visibility due to winter condensation or freezing.

***When insulation is deep enough (>194 mm) to cover the ceiling joists, these two are combined to give $180/\chi/60 - 0.06$. 

135
The typical person indoors has 90 percent of his skin covered with clothing and generates heat at 75 watts per square metre during the day. With a surface area of 1.78 m² and a weight of 67 kg, the body can be treated as a clothed cylinder, 304 cm long and 16 cm in diameter. The insulation thickness needed to maintain thermal equilibrium is zero if the room temperature is above 28°C but increases steeply at lower temperatures.

In this way the effects of adding any garment of known thickness and area can be determined. Thus for instance a good (4 mm) sweater, covering 60 percent of the body, allows the thermostat to be set only 2°C (3.5 Fahrenheit degrees) lower. This approach has been applied to a variety of garments by the U.S. Army Natick Laboratories and the results, despite a few inconsistencies, are being widely distributed by extension agents, to show homemakers the amounts by which thermostats can be lowered when a garment is put on.

But such information begs the questions of whether the extra cost of the garment offsets the savings in fuel and whether the money would be better spent on house insulation. The remainder of this analysis examines the relative costs of the three options.

To convert apparel thickness to cost:

Cost of apparel = \( \frac{\text{total U.S. retail sales of apparel less shoes}}{\text{total weight of fiber used in U.S.-consumed apparel}} \)

= \( \frac{\$65 \text{ billion}}{5.5 \text{ billion lb.}} \)

= \$12.0/lb.

Insulating apparel contains fiber having an average density of 1.3 g/cm³ and occupying 8 percent of the total volume of garment plus stagnant air layers.

Thus the price per unit volume is

\[ \frac{1200 \times 1.3 \times 0.08}{454} = 0.275 \text{ cents per cubic centimetre.} \]

With a clothed surface area of 1.53 m², the first millimetre of insulation thus costs about $4.21 to purchase. As insulation is added, each layer becomes both more costly and less effective because the area to be covered gradually increases. Since the time used in putting extra apparel on and taking it off is not considered, and no corresponding costs exist in house insulation or heating, the analysis is slightly biased in favor of apparel.

These initial costs are next translated into annual costs that allow for depreciation and maintenance. Implicit in the above calculations is the idea that the apparel will be consumed in one year. More likely is the use of, say, three ensembles of insulating clothes which, at a mortgage rate of 10 percent, lead to an interest cost of 30 percent. Total national expenditure on laundry and drycleaning, and domestic washers and dryers and the repairs, chemicals, and hot water needed to operate them amounts to about $35 billion annually, thus implying that the maintenance of apparel represents 60 percent of its initial cost.

This cost is shown as a function of room temperature as the "apparel" graph of Fig. 2. For a family of four, it is represented by the quadratic curve of best fit
FIG. 2: ANNUAL EXPENDITURE ON APPAREL AND BLANKETS AS A FUNCTION OF TEMPERATURE (UPPER TWO CURVES) AND MINIMUM ROOM TEMPERATURE (OTHER CURVES)
Apparel annual cost = 3964 - 288.7 T + 5.37 T^2

For the eight night hours, the persons generate 45 W/m^2 and are insulated by flat blankets that contain 6 percent fiber by volume, last 10 years, and are washed less often. A similar analysis gives

Blanket annual cost = 320 - 16.1 T + 0.17 T^2

Thus the total annual cost of personal insulation at a temperature T, as illustrated in Fig. 2= 4284 - 304.8 T + 5.54 T^2.

The analysis performed here can be easily refined to determine the amount by which the thermostat can be set back at night to take advantage of the lower cost of blankets, but only average daily temperatures are considered in the present discussion.

In practice, the temperature is often above the thermostat setting, thus reducing the amount of apparel and blankets needed. Even if the thermostat is set to 0°C in Denver, the outside temperature averages 9.8°C and the average indoor temperature would be between 12°C and 20°C depending largely on the building's insulation. The relationship between this and the Δ shown in the lower graphs of Figure 2 will be explained under the heading of house insulation.

If the house is kept heated and cooled to a constant 78°F, family cost for personal insulation is only $113 annually. The typical American is exposed to an average temperature, indoors and outdoors, of about 15°C, which would require an annual cost of about $900. Since annual expenditure is, in fact, about

\[ 4 \times \frac{(65 + 35) \text{ billion dollars}}{223 \text{ million people}} = \$1800 \text{ per American family} \]

comparison suggests that insulation alone accounts for just half of the money spent on apparel. The rest is explained by socio-psychological causes--modesty, decoration, display, and fashion--to which we as teachers devote much more attention, even whole courses.

To make a fair comparison with alternative expenditures on the house, the same 10 percent interest rate applies, but a 50-year life is assumed. Houses appear to appreciate faster than the general rate of inflation. Expenditure on insulation reduces the size and capital cost of the HVAC system, less the cost of better construction and caulking that should accompany insulation. The annual costs are summarized in Table 2.
TABLE 2: COMPARISON OF ANNUAL INCREMENTAL COSTS IN HOUSING AND APPAREL (%)

<table>
<thead>
<tr>
<th></th>
<th>Wider Framework</th>
<th>Added Insulation</th>
<th>Extra Windows</th>
<th>Apparel (Three Sets)</th>
<th>Blanket</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depreciation</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>100</td>
<td>10</td>
</tr>
<tr>
<td>Maintenance</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>60</td>
<td>60</td>
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<tr>
<td>Interest</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Capital Gain</td>
<td>-1</td>
<td>0</td>
<td>-1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Net HVAC Capital Savings</td>
<td>-1</td>
<td>-1</td>
<td>-1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>10</strong></td>
<td><strong>11</strong></td>
<td><strong>12</strong></td>
<td><strong>190</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

The third cost, heating and cooling, is more easily measured. The only constraints on the model are that the indoor temperature must be at least 0° C to prevent freezing of water and that the upper limit is 78° F (25.6° C), as mandated for office buildings. Heating costs depend on:

a) cost of energy
b) climate
c) desired thermostat setting
d) house insulation

The cost of heating energy is taken as 8 mils per megajoule* (0.8¢/MJ), the current cost of electricity in this area. More than half the American homes being built now are heated electrically because it is usually the cheapest way. Natural gas, while still subject to price regulation, has a lower caloric cost, but the extra equipment needed to distribute the heat increases the capital cost of a house from about $700 to $2500, equivalent to about an extra $240 in annual interest, depreciation, and maintenance costs. The present analysis is based on electric baseboard heating. If a forced-air system is used, the extra air movement must be offset with a higher temperature.

For cooling, a net coefficient of performance of 2.0 is assumed, giving an energy cost of 0.4¢/MJ. Capital costs of the cooling system, which are constant, are not considered, but may be appreciable.

Denver's climate is representative of much of North America. Fig. 3 shows those places where the average temperature is within 5 Celsius degrees of Denver's annually and within 10 degrees in every month. Calculations based on Denver's climate, with an average temperature of 9.8° C and a standard deviation of 11.0°, lead to Fig. 4, Graph A, which shows the number of degree days of heating as a function of temperature.

*3.6 MJ = 1 kilowatt-hour
FIG. 4: ANNUAL HEATING NEEDS, DENVER

Metric Heating Degree Days

Thermostat Setting (°C)

5000
4000
3000
2000
1000

0 10 20 30 40 50

Δ = 0 1.7 4 6 8 10 12 20
This conventional analysis fails to take account of heating due to internal activity and the consequent differential, $\Delta$, between internal and external temperatures. Internal heating for the average house is taken from Table 3, which describes typical activities producing 125 watts per person by day and 75 by night. Solar heating is taken as half of the amount that insulation data show to be incident on the 18 m$^2$ of vertical windows. The remaining half is lost to reflection and absorption by the glass; shading by window frames and plants; and obstruction by curtains. In a passive solar house, the design is modified to increase the solar component to about 10 KW.

**TABLE 3: INTERNAL HEAT GAINS (Kilowatt)**

<table>
<thead>
<tr>
<th></th>
<th>Day (16 hours)</th>
<th>Night (8 hours)</th>
<th>Total (24 hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appliances</td>
<td>1.3</td>
<td>0.6</td>
<td>1.1</td>
</tr>
<tr>
<td>Personnel</td>
<td>0.5</td>
<td>0.3</td>
<td>0.4</td>
</tr>
<tr>
<td>Solar*</td>
<td>1.2</td>
<td>0.0</td>
<td>0.8</td>
</tr>
<tr>
<td>TOTAL</td>
<td>3.0</td>
<td>0.9</td>
<td>2.3</td>
</tr>
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</table>

b) Office Building
(See Appendix)

<table>
<thead>
<tr>
<th></th>
<th>Day (10 hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lights</td>
<td>4.8</td>
</tr>
<tr>
<td>Office Equipment</td>
<td>1.0</td>
</tr>
<tr>
<td>Personnel</td>
<td>2.5</td>
</tr>
<tr>
<td>Solar*</td>
<td>4.0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>12.3</td>
</tr>
</tbody>
</table>

To determine the conductance of the uninsulated house, the data of Table 1 are added to give 1255 W/C. An allowance of 10 percent is made for miscellaneous heat losses through infiltration, floor losses, plumbing, doors, and window frames. Of this, half is considered unavoidable, in order to avoid interior pollution, and the remainder is taken as 5 percent of the building's conductance. Thus, the uninsulated house loses 1380 watts for each degree that its interior temperature exceeds the outside. When this is divided into the 2300 watts above, the house has a temperature differential

$$\Delta = \frac{2300 \text{ W}}{1380 \text{ W/C}} = 1.67 \, \text{C}$$

As insulation is added, the conductance falls while the temperature differential rises, enabling much less heat to be used. Fig. 4 shows the heating requirements for a variety of insulation levels during a normal

*Single-pane windows; for each extra pane, this value is reduced by 12 percent.
year in Denver, while Table 4 shows the corresponding degree days to bring the interior temperature down to 78°F. Clearly, too much insulation is undesirable in Denver's summer, especially in office buildings and factories where internal heat production is relatively intense. In the house, cooling needs in the absence of air conditioning can be expressed as discomfort of equivalent cost, but is decidedly less than heating costs in the shaded areas of Fig. 3.

<table>
<thead>
<tr>
<th>Insulation In Building</th>
<th>度日 When Windows Opened Whenever Advantageous (Typical of House)</th>
<th>Windows Kept Shut (Typical of Office Buildings)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Conventional)</td>
<td>245</td>
<td>140</td>
</tr>
<tr>
<td>None, Δ = 1.67°</td>
<td>278</td>
<td>169</td>
</tr>
<tr>
<td>Poor, Δ = 4°</td>
<td>378</td>
<td>298</td>
</tr>
<tr>
<td>Fair, Δ = 6°</td>
<td>444</td>
<td>417</td>
</tr>
<tr>
<td>Good, Δ = 8°</td>
<td>511</td>
<td>574</td>
</tr>
<tr>
<td>Excellent, Δ = 10°</td>
<td>577</td>
<td>773</td>
</tr>
<tr>
<td>Offices, Δ = 13°</td>
<td>676</td>
<td>1174</td>
</tr>
</tbody>
</table>

The most efficient distribution of expenditure on insulation has been determined and illustrated in Fig. 5, which shows the rate of return for each extra cent invested. To be general, this is expressed in units of conductance but can be applied to any particular building by multiplying by the local fuel cost, the building's conductance and the number of heating degree days obtained, for the desired conditions, from Fig. 4, to give a percentage return on investment. The typical builder, at present, will stop adding insulation when this rate of return falls to the local mortgage rate of 10 percent or 11 percent. It will later become apparent that extra insulation should not be added to allow for future increases in energy costs; better results will usually be obtained by lowering thermostats and increasing apparel use. The initial rate of return for an uninsulated house is noticeably well above that obtained by adding to already thick insulation. For a conventional new house in the shaded areas of Fig. 3, with the thermostat set at 20°C (68°F), the most efficient insulation is about 25 cm (10") in the attic, with 2"x6" walls, fully insulated, and double-pane windows, giving Δ = 10°. Table 5 shows the relationship between insulation variables.
FIG. 5: INSULATION AS INVESTMENT
To determine the sum that must be spent on insulative apparel, the distribution of temperatures inside the building must form the input to Fig. 2. For an average outside temperature of 9.8° and standard deviation 11.0°, the interior temperature has a doubly truncated normal distribution with mean 9.8 + Δ. From a table of normal distribution, we find the percentage of time in which the interior is at the thermostat setting and the percentage in which it is cooled to 78°F, hence the amount of apparel expenditure at these times. The varying amounts of apparel needed during the times when room temperature fluctuates at intermediate temperatures are then calculated and added to the above to give the values shown in the lower graphs. These refer to the temperature at which the thermostat is set. Even when the thermostat is set at freezing point, this temperature occurs indoors only about 4 percent of the time, and the average house temperature is 16°C. The formulas and calculations are too lengthy to include here but can be obtained from the author.

### TABLE 5: OPTIMAL EXPENDITURE ON HOUSING INSULATION
(Denver, House Heated to 20°C, Cooled to 78°F)

<table>
<thead>
<tr>
<th>Annual Expenditure for Insulation ($)</th>
<th>0</th>
<th>21</th>
<th>59</th>
<th>204</th>
<th>312</th>
<th>487</th>
</tr>
</thead>
<tbody>
<tr>
<td>Framework:</td>
<td>2x4</td>
<td>2x4</td>
<td>2x4</td>
<td>2x4</td>
<td>2x6</td>
<td>2x6</td>
</tr>
<tr>
<td>Window Panes:</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Insulation Thickness (mm)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Walls:</td>
<td>0</td>
<td>27</td>
<td>81</td>
<td>92</td>
<td>143</td>
<td>143</td>
</tr>
<tr>
<td>Attic:</td>
<td>0</td>
<td>40</td>
<td>109</td>
<td>217</td>
<td>305</td>
<td>512</td>
</tr>
<tr>
<td>House Conductance (W/C):</td>
<td>1380</td>
<td>575</td>
<td>383</td>
<td>263</td>
<td>215</td>
<td>182</td>
</tr>
<tr>
<td>Temp. Differential (°C):</td>
<td>1.67</td>
<td>4</td>
<td>6</td>
<td>8.37</td>
<td>10.21</td>
<td>11.59</td>
</tr>
<tr>
<td>Celsius Heating Degree Days:</td>
<td>3640</td>
<td>3002</td>
<td>2506</td>
<td>1982</td>
<td>1612</td>
<td>1382</td>
</tr>
<tr>
<td>Expenditure on Apparel, 4 persons ($)</td>
<td>356</td>
<td>340</td>
<td>324</td>
<td>301</td>
<td>282</td>
<td>267</td>
</tr>
<tr>
<td>Expenditure on Heating ($)</td>
<td>3472</td>
<td>1193</td>
<td>663</td>
<td>360</td>
<td>240</td>
<td>174</td>
</tr>
<tr>
<td>Expenditure on Cooling ($)</td>
<td>265</td>
<td>110</td>
<td>100</td>
<td>95</td>
<td>87</td>
<td>79</td>
</tr>
<tr>
<td>Total Expenditure ($)</td>
<td>4093</td>
<td>1664</td>
<td>1146</td>
<td>960</td>
<td>921</td>
<td>1007</td>
</tr>
</tbody>
</table>

Now that the costs of the three options can be determined and compared, it is easy to calculate all three for a variety of conditions and to determine the cheapest way of keeping a family in thermal comfort. For each
scenario of Table 6, various insulation levels and thermostat settings are tested, the corresponding apparel needs determined, and the costs added until the lowest total cost is determined. The first six scenarios impose artificial constraints in order to determine the separate effects of variables, while Scenario 7 lifts these constraints to determine the best combination of all three options. Interestingly, the most economical combination is a fairly high temperature that requires little insulative apparel but a well insulated house. In this, as in most of the scenarios, the effect on the total cost of changing the thermostat a few degrees is slight and within the limits of error that derive from the basic assumptions.

Scenarios 8-11 show the effect of family size on costs. Clearly, the total cost varies only slightly with the total number of people but since the apparel cost is directly proportional to family size, maximal heating is most efficient whenever five or more people are at home, while heating is hard to justify for a house with one or two occupants. One must question the wisdom and social justice of encouraging, by means of fuel subsidies, the use of single-occupant or even two-person detached houses in cold parts of the country and consider the alternative of assisting the habitation of apartment buildings in which heat loss is confined to one or two of the six sides of a dwelling.

Often the homeowner has an existing house in which improvement of the insulation is limited to adding loose fill above the ceiling. Considering only the desired temperature and apparel corresponds to Scenario 12, which shows that high temperature can be justified only when the house is already well insulated. In this scenario, the cost of existing insulation is not considered.

Many of these conclusions indicate maximal heating and minimal apparel as the most economical combination, provided that the building is well insulated. Where there are high concentrations of people, as in classrooms, it is false economy to lower the thermostat while the area is in use. The special case of office buildings is discussed quantitatively in the Appendix.

However, the cost of energy is one of the fastest-rising components of the consumer-price index--currently around 270 compared with an overall index of about 210, relative to 100 in 1967. At the same time, apparel at 160, is at the opposite extreme. As time goes by, we can expect the emphasis to shift from more heating to more insulative apparel. The present analysis can be applied to show that the optimum thermostat setting will gradually be reduced, if present price trends continue, and to show that if this is done, total costs of keeping warm will increase more slowly than the consumer price index.

At present, Congress is spending several billion dollars annually on food stamps. Likewise, $2.4 billion have been earmarked to pay fuel bills for the poor, through there is no guarantee that the money will not be spent in other ways. The question needs to be asked, whether some of this $2.4 billion may be spent to greater social benefit on thermal underwear, insulated jump suits, blankets, warm headwear, socks, and gloves; and to providing alternative accommodations that are more energy-efficient.

This raises the question of public acceptance of such energy efficiency. Other questions to be asked are:

- What acceptance will there be for the accessories of a cold house - fewer metallic surfaces, modified refrigerator lubricants, warmer floor
<table>
<thead>
<tr>
<th>SCENARIO</th>
<th>House Temperature</th>
<th>Annual Expenditure ($)</th>
<th>Insulation</th>
<th>Apparel</th>
<th>Heating</th>
<th>Cooling</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Using heat only</td>
<td>78°F</td>
<td></td>
<td>0</td>
<td>113</td>
<td>5106</td>
<td>133</td>
<td>5352</td>
</tr>
<tr>
<td>2. Using insulation only</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Using apparel only</td>
<td>0°C = 32°F</td>
<td></td>
<td>0</td>
<td>1877</td>
<td>304</td>
<td>133</td>
<td>2314</td>
</tr>
<tr>
<td>4. Insulation + apparel - No heat</td>
<td>0°C</td>
<td></td>
<td>360</td>
<td>875</td>
<td>7</td>
<td>42</td>
<td>1284</td>
</tr>
<tr>
<td>5. Insulation + heat - No apparel</td>
<td>78°F</td>
<td></td>
<td>360</td>
<td>113</td>
<td>370</td>
<td>43</td>
<td>885</td>
</tr>
<tr>
<td>6. Apparel + heat - No insulation</td>
<td>0°C = 32°F</td>
<td>S A M E A S (3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. No restrictions</td>
<td>23°C = 73°F</td>
<td></td>
<td>330</td>
<td>174</td>
<td>310</td>
<td>43</td>
<td>857</td>
</tr>
<tr>
<td>8. Three occupants</td>
<td>21°C = 69°F</td>
<td></td>
<td>313</td>
<td>183</td>
<td>269</td>
<td>44</td>
<td>809</td>
</tr>
<tr>
<td>9. Two occupants</td>
<td>16°C = 61°F</td>
<td></td>
<td>228</td>
<td>246</td>
<td>204</td>
<td>46</td>
<td>724</td>
</tr>
<tr>
<td>10. One occupant</td>
<td>0°C = 32°F</td>
<td></td>
<td>93</td>
<td>311</td>
<td>28</td>
<td>55</td>
<td>487</td>
</tr>
<tr>
<td>11. n occupants, n ≥ 5</td>
<td>78°F</td>
<td></td>
<td>360</td>
<td>28n</td>
<td>370</td>
<td>42</td>
<td>772 + 28n</td>
</tr>
<tr>
<td>12. Existing house with</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Poor insulation, C = 1000 W/C</td>
<td>0°C</td>
<td>--</td>
<td>1796</td>
<td>244</td>
<td>117</td>
<td>2157</td>
<td></td>
</tr>
<tr>
<td>( \Delta = 2.3^\circ )</td>
<td>0°C</td>
<td></td>
<td>1700</td>
<td>131</td>
<td>90</td>
<td>1961</td>
<td></td>
</tr>
<tr>
<td>With added attic insulation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Fair insulation, C = 400, ( \Delta = 5.8^\circ )</td>
<td>18°C = 65°F</td>
<td>--</td>
<td>445</td>
<td>590</td>
<td>61</td>
<td>1096</td>
<td></td>
</tr>
<tr>
<td>With added attic insulation</td>
<td>20°C = 68°F</td>
<td></td>
<td>80</td>
<td>306</td>
<td>479</td>
<td>52</td>
<td>917</td>
</tr>
<tr>
<td>c. Excellent insulation, C = 200, ( \Delta = 11.0^\circ )</td>
<td>78°F</td>
<td>--</td>
<td>113</td>
<td>366</td>
<td>42</td>
<td>521</td>
<td></td>
</tr>
<tr>
<td>Added insulation not cost effective</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Office building, 20 persons</td>
<td>26°C = 78°F</td>
<td></td>
<td>820</td>
<td>340</td>
<td>320</td>
<td>630</td>
<td>2110</td>
</tr>
<tr>
<td>one-third time (See Appendix)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alternatively</td>
<td>14°C = 57°F</td>
<td>50</td>
<td>1140</td>
<td>620</td>
<td>480</td>
<td>2290</td>
<td></td>
</tr>
</tbody>
</table>
coverings (themselves incompatible with passive solar heating), padded toilet seats?

- Will some of the energy savings be cancelled by the use of electric blankets, overhead radiators, and fireplaces?
- Will this higher demand for apparel and lower demand for energy be enough to stimulate price changes that would postpone these trends?
- Will these price changes cause more widespread use of other energy forms, such as passive solar, which may produce building temperatures often no lower than those currently used?

Whatever the answers, it seems that apparel, and particularly fiber-fill, has a greater role to play in civilized society as our resources of fossil fuels are used up.

Appendix: Minimizing Costs in Office Buildings

The basic data of an office building, or a factory, are quite different from those of a home. Typically, it is used (and need be heated or cooled) only one-third of the time, 56 hours per week; the ambient temperature during office hours is 3°C warmer than the 24-hour average; the windows are fixed, thus avoiding wasteful opening but adding to the air conditioning load. The building is taken as having 10 floors, each 20 m x 20 m; the surface area per story is 280 m² (plus 40 for the share of the roof), containing 160 m² of glass and 120 m² of mullions and spandrel; each floor is occupied by an average of 20 people.

The internal heating, summarized in Table 3, is much higher, requiring an approximate balance of heating and cooling. Warm temperatures are, at present, the most efficient (Table 6). Because the building is in use only part of the time, little expenditure on insulation—in practice, 3 1/2" batts whenever possible—is warranted. Again, if the cost of employees' apparel is properly considered, the most efficient procedure at present is to hold the temperature at about 75°F at all times, notwithstanding federal regulations.

If we assume that the second pane of fixed glass costs $36/ m² to purchase, insulation approaching that of the house, with double-pane windows, is called for. This insulation, however, traps heat, requiring air conditioning at times when it would otherwise not be needed. An interesting alternative (Table 6) is not to install the second pane, thus reducing both capital and cooling costs. To lower heating, the thermostat is set at about 70°C. Because of the high density of occupants, apparel costs are considerable but, in the near future, this can be expected to become the most economical option.
In its general meaning, toxicity can apply to the effect of any poison. However, in this paper toxicity will refer only to what is doubtless the most serious aspect of toxicity—that is the ability to change the biological structure of growing bodies. For many years the disastrous effects of cancer, and its associated tumors, have been well known. In addition, there are two other classes of substances that can cause changes in the biological structure. These are mutagens and teratogens. As the name implies, mutagens can cause biological mutation in germ (single cells) or body cells. This can probably best be explained by reference to cell structure. The genes contain the codes by which different species develop biologically. They do this by "manufacturing" the helical molecules of D.N.A. (desoxyribonucleic acid), which is the hereditary material of the cell. Some chemicals, including carcinogens and mutagens, can change the way in which the DNA molecules grow and the results can be cancer or mutation.

Tests for Carcinogenicity and Mutagenicity. The testing for potential carcinogens is relatively complex and time-consuming, not to mention costly. Normally, a lifetime bioassay in rodents is used. Therefore, a lot of attention has been focussed on the use of alternative, less costly and time-consuming, tests to indicate the potential toxicity of substances.

Substances that damage or change DNA can initiate a complex building process that, in the case of mammals, may lead to cancer. DNA is also the hereditary material in bacteria (single cells), and its breakdown and rebuilding is similar to that which takes place in human cells. There are some relatively rapid, inexpensive tests to indicate DNA damage in bacteria, including the well-known "Ames Test," the "induct test," and the "lambda mutatetest" (1). There are indications that bacterial tests can distinguish between carcinogens and non-carcinogens with a reliability of 90 percent.

Teratology, in the general definition, is the biological study of the production, development, anatomy, and classification of monsters. In this paper teratogenesis will deal with anatomical malformations or organs, limbs, or skeleton during in utero development. Examples of teratological effects include phthalidamide babies and Siamese twins.

It is obvious that not all species will react in the same way to a toxic substance. Therefore, before a meaningful predication can be made about the potential toxic effect of a chemical on humans, its effect on several species must be determined. Normally, the Ames test will be used for screening purposes if a number of compounds are to be tested. Those compounds that show mutagenic properties are then tested by the more rigorous procedures. A good example of the need to use several species is phthalidamide babies. Although these drugs showed no teratological effect on rodents, the same drugs are teratogens for rabbits (mammals.)
Legislation for Toxic Substances

The need for protecting the public is quite logical. Chemical and physical (for example radiation) agents in the environment appear to be on the increase, with about 1,000 new chemicals appearing each year. Some of these agents damage DNA, and this can lead to biological mutation and cancer.

The recognition, and some legislation, of toxic substances has been long recognized in some areas, such as dyestuffs and foods. General legislation for toxic substances, including some used for textiles, is only about ten years old, while the "real effect" has been felt only for about three years, since the Toxic Substances Control Act became law. Table I shows some of the "highlights" during the past decade.

Table I - Legislation for Toxic Substances

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1971</td>
<td>EPA submitted a bill to Congress to restrict or prohibit hazardous chemicals.</td>
</tr>
<tr>
<td>1975-76</td>
<td>Each house had different versions.</td>
</tr>
<tr>
<td>1976</td>
<td>October. President Ford signed into law &quot;The Toxic Substances Control Act.&quot;</td>
</tr>
<tr>
<td>1978</td>
<td>November. National Toxicology Program.</td>
</tr>
</tbody>
</table>

Although the Toxic Substances Control Act (TSCA), as it relates to textiles, has been well covered in various journals, particularly Textile Chemist and Colorist (2, 3, 4), a few words may be in order here. The objectives of the TSCA are to protect the public health and environment, to prevent undue incidents involving toxic substances, to compel manufacturers and processors to test chemicals, and to provide the necessary authority to carry out the plan. The TSCA covers virtually all substances that are not covered by other regulations. Several federal agencies are involved in legislation, notably the Environmental Protection Agency (EPA) and the Consumer Product Safety Commission (CPSC). As an example, "A first phase of EPA's labelling requirements under TSCA will include carcinogenesis warnings for chemicals on the carcinogen list of the International Agency for Research on Cancer (4)." Also, the EPA's Office of Toxic Substances has formed a new work group to start drafting generic regulations to follow up on Premanufacture Notification (5). Regarding the CPSC, it has "both statutory jurisdiction and a public responsibility to regulate products containing carcinogens where the carcinogen is available for human uptake" and its basic policy is "that carcinogens should not be permitted in consumer products (3)."
The latest development, at the time of writing, is the establishment of the National Toxicology Program (NTP). This was started in November 1978 by the Department of Health, Education, and Welfare and involves the following agencies: National Institutes of Health (NIH), National Cancer Institute (NCI), National Institute of Environmental Health Sciences (NIEHS), Food and Drug Administration (FDA), Center for Disease Control (CDC), and the National Institute for Occupational Safety and Health (NIOSH).

The major objectives of the NTP are to broaden toxicological characterization of those chemicals tested, to increase the rate of chemical testing, and to develop a series of protocols for regulatory needs (6).

It is obviously an impossible task to test all available compounds and the NTP selection criteria include the extent and intensity of human exposure, the estimated or known toxic severity, comparative test methods available, and the structure-activity relationships.

Potential Toxicity of Chemicals Used with Textiles

It has been recognized for many years that certain individuals are allergic to some textile fibers. In fact, there is no fiber that can be classified as nonallergenic. However, general allergies do not fall into our definition of toxicity. Also, although the toxicity of dyestuffs has long been recognized, there has been virtually no evidence to indicate that the dyed fabrics on the market can be toxic. Nor was there evidence, at least until recently, that any of the wide range of textile finishes used could be toxic. Therefore, the information that TRIS (tris 2:3 dibromopropyl phosphate) could be toxic, and its subsequent banning in April 1977 by the Consumer Product Safety Commission, came as a bombshell to the textile industry. Many people feel that this action, and other potential actions under the TSCA, is the most disturbing and alarming step ever taken against the textile industry.

Because some of the following compounds (of interest to textiles) may be classified as carcinogens, mutagens, and/or teratogens, a brief update on them may be desirable:

- **TRIS** (tris 2:3 dibromopropyl phosphate) dyestuffs, hair dyes, asbestos, formaldehyde, and amines. It was widely used as a flame-retardant for polyester and acetate. The sale of TRIS-treated fabrics and garments was banned in April 1977 by the CPSC. Although earlier results were "somewhat hazy," there is now little doubt that TRIS can act as a carcinogen and a mutagen. TRIS is not now banned from all uses and specific uses can be dealt with on an individual basis. However, it appears that no one is now using TRIS, it is not being produced, and supplies have been destroyed.

  The chloro-analog of TRIS, tris 2:3 dichloropropyl phosphate, has been used as the flame-retardant Fyrol FR-2. It is apparently not as effective a flame-retardant as TRIS, but there is no strong evidence that it is toxic. Nevertheless, it appears to have been taken off the market.

- **Dyestuffs.** Many dyestuffs have been recognized as carcinogens for a long time. Some have been used for inducing cancer (for example, cancer of the liver in rats) while also used in smaller quantities for coloring foodstuffs! NIOSH "recommends that three widely used benzidine-derived dyes, Direct Black 38, Direct Blue 6, and Direct Brown 95, be handled in the workplace as if they were human
carcinogens (7)." It is noteworthy that most dyestuffs go under a wide
variety of tradenames, with Direct Black 38 having at least 154 names
from Ahco Direct Black GX to Vondacel Black N (7). Regarding benzidine-
based dyes, a worker in England has just been awarded disability benefits
for the bladder cancer he developed five years ago due to contact with
these dyes (8).

Hair Dyes. This form of textile finishing has been used since time
immemorial and highlighted by Cleopatra. The potential toxicity of
some of the ingredients of these "tonsorial tints" has recently been
recognized. Last year, NIOSH recommended "that 2, 4-diaminoanisole
(4-methoxy m-phenylenediamine) and its salts be handled in the workplace
as if they were human carcinogens (9)." Following this, the Food and
Drug Administration proposed that products containing this substance,
commonly known as 4-MMPD, require a warning label. It may be noted
that the National Cancer Institute tested 13 widely used hair dyes
during 1977-78. Seven were found to be carcinogenic, with 4-MMPD the
strongest carcinogen.

In addition to the use of synthetic dyes, many natural dyes have
been used for dyeing hair. Of these, it appears that henna, one of
the oldest and best-known also may be one of the safest.

Several studies have been carried out to determine whether hair
dyers are more prone to cancer than those who do not dye their hair.
The results were not very conclusive. A recent summary of various
aspects of the use of hair dyes suggests that "the controversy over
hair dyes and cancer is by no means settled (10)."

Asbestos. This substance has been used for many centuries and involved
in numerous textile applications, nearly all using its resistance to
heat. The ancient Chinese were reputed to have sleeves and collars of
asbestos that could be cleaned by fire. Also, Charlemagne had a table-
cloth that was cleaned, after the great feasts, by throwing it in the
fire. More recently, this fiber has been used for firemen's clothing
and other similar purposes. Asbestos is now known to be very toxic
and a flurry of legislation has recently taken place. All must be
familiar with the national recall of hair dryers containing asbestos
insulation. Asbestos-containing products in schools are being removed,
and it is claimed that "the asbestos-in-schools program of EPA's office
of Toxic Substances is the tip of a regulatory iceberg (11)."

Formaldehyde. With a U.S. production capacity of over 10 billion
pounds per annum, formaldehyde is one of the most widely used chemicals.
About one half of the production is used in urea-formaldehyde resins and
phenol-formaldehyde resins, the former being widely used for textile
finishing. Its performance as an eye irritant, respiratory irritant,
contact allergen, and generally unpleasant substance is well documented.
Many studies have been carried out on its potential toxicity and subse-
quent reports have been published. Also, during the past five years
several committees and groups have been formed to study formaldehyde.
Until recently, the only report of formaldehyde acting as a carcinogen
appeared in the Japanese Journal of Cancer Research 25 years ago and
which "has been almost totally discounted by leading toxicologists in
the United States (12)." However, a recent report by the Chemical
Industry Institute of Technology has indicated cases of squamous cell
carcinoma in rats and mice exposed to formaldehyde (13).
Amines. The range of amines used in commerce is virtually unlimited. There are primary, secondary, tertiary, quaternary, alicyclic, aromatic, and a series of derivatives of pyridine, pyrrole, piperidine, and pyrrolidine. Many of these, and their compounds, are widely used in consumer products. The industries in which amines play major roles include food, paint, building, pharmaceuticals, dyestuffs, and textiles.

In the textile industry, the main uses for amines include starting materials for nylon, dyestuffs, and resin finishes. Amine formaldehyde products are widely used for crease-resistance, permanent press, and flame-retardance. Some of the original permanent press urea-formaldehyde resins tended to yellow on laundering due to chlorine atoms attaching to the available = NH groups. The use of ethylene urea helped to ameliorate this problem. In the field of flame-retardance, thiourea formed the basis of the "flare-free" finish for nylon, apparently by lowering the melting point of nylon. Warnings are now given to handle ethylene urea as a carcinogen and ethylene thiourea as a carcinogen and teratogen (14). Also, there are "nine states considering action that could ban the use of urea-formaldehyde foam insulation in homes because of health hazards that may be associated with the product after it is installed (15)."

During the first half of 1980, I will be on sabbatical leave, and part of my time will be spent at Elars Bioresearch Laboratories in Fort Collins. My research project will involve an investigation of the mutagenic potential of several series of amines to determine how systematic structural changes affect the toxicity of amines. For example, I plan to study the "degree of mutagenicity" of members in the series shown in Fig. 1.

Fig. 1 Ethylene Urea Series

![Diagram of Ethylene Urea Series](image-url)
Testing of mutagenicity will be carried out using the Ames test, which involves counting the colonies of the revertant strains. By this technique, a semi-quantitative measure of the degree of mutagenicity should be obtained.

Other amine series that will be studied include: a) primary, secondary, tertiary amines; b) aniline and substituted anilines; c) pyridine and substituted pyridines; and d) ethylene urea formaldehyde polymers and ethylene thiaurea formaldehyde polymers, which have been polymerized to different degrees of polymerization.

The purpose of the research is not to show how toxic some textile finishes are, but just the contrary. I believe that, with very few exceptions, present textile finishes are not toxic. If certain compounds indicate a degree of mutagenicity, I hope that the results for the series under test will provide clues to ways in which the compounds can be "altered" to be non-toxic. I have heard comments that this type of research may "scare" the public. I do not support these views, but feel that the textile fraternity must carry out such research or government bodies will do it for us.

If there are some toxic agents in our products, it is much better that this be recognized. "The devil we know is much better than the one we don't."

The Importance of Biotesting and the Price to be Paid

There has been a tremendous growth in just about every aspect of toxicology during the last decade. Government agencies have sprung up like mushrooms and, about a year ago, "the heads of the four agencies participating in the Interagency Regulatory Liaison Group (IRLG) have asked the Civil Service Commission (CSC) to establish a separate register for toxicologists at the earliest possible time so they can be more easily identified (16)." At the same time, a report of the American Chemical Society contained a recommendation calling for more training programs in toxicology (16). Federal officials "estimate that the U.S. government will need some 2,000 toxicologists by 1985 (16)."

To keep pace with federal activity, committees on toxicology also are popping up like mushrooms. Last year, the AATCC established committee RA94—the Toxic Substances Related to Textiles and the Formaldehyde Institute was formed to sponsor health research and to provide technical information to its members. More recently, the Council on Environmental Quality initiated a Toxic Substances Strategy Committee, and the CPSC created their Toxicological Advisory Board. In addition, there is a National Center for Toxicological Research and an American College of Toxicology.

The above are only some examples of recent activity in toxicology. It goes without saying that such a battery of agencies devoted to our safety can not operate without a price tag to the consumer. This is particularly true when it is considered that every new compound placed on the market should be tested. For example, it has been estimated (2) that the total loss to the textile industry, due to the banning of TRIS, was $161,072,150.

I asked a leading toxicologist, in the field of biotesting, what it would cost to satisfactorily test a new compound to be marketed. The expert replied that he would be hard-pressed to provide such figures, but on hard-pressing, he suggested the figures in Table II.
Table II - Price of Testing

"Short-term battery" for mutagenicity  $ 30,000
Acute eye and skin irritation if all mutagenicity tests are negative  $ 60,000
If any are positive:
6-month dog study (48 dogs)  $ 100,000
"Life-time tumor study" on rodents  $ 250,000

Initial tests include several for mutagenicity and eye and skin irritation. If all mutagenicity tests are negative, the cost is about $60,000. However, if any of the mutagenicity tests are positive, the cost can soar.

Note: The author thanks Dr. Douglas Hepler, Director of Microbiology and Environmental Toxicology at Elars Bioresearch Laboratories for his help, advice, and encouragement.

References

5. Ibid. 7, No. 44: 32; 1979.
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DEVELOPMENT OF THE TEXTILES AND CLOTHING INDUSTRY IN THE WESTERN U.S.--CHALLENGE TO HIGHER EDUCATION

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When I first saw the title of my speech and began to think about it, one word sprang out at me. That word was "challenge." The more I thought about it, the more it became apparent that if I interested you, as educators, in the background, the plight, and the future potential of this industry, and then challenged you to assist in its development, I, too, would be responding to the challenge.

This is an everyday challenge for me. As management consultants and industrial engineers, we are constantly involved with our clients' problems. Helping them to solve their problems makes them stronger, more productive, and more profitable. So we have a vested interest in this industry. It's our livelihood. With you, however, it's just another industry. My challenge is to try to make you as interested in the well-being of this industry as I am. No small task!

I know I don't have to remind you that apparel and needletrades products are part of the basic necessities--food, clothing, and shelter. Nor do I have to emphasize how important it is for a country to possess the ability to produce the bulk of these commodities. At this moment, the energy crisis seems to be the only one facing our nation. Five years from now, we also could be facing a clothing crisis if present trends continue. I'm referring to the decline in manufacturing establishments in the apparel and needletrades industry, the continuing increase in imported products in these categories, and to some degree the dominance of large, even giant firms in this industry.

In order to put our topic in perspective, let's define the industry and establish our boundaries--the western U.S.

First, the U.S. Department of Commerce, like all other government agencies, puts everybody (business or otherwise) into neat little cubbyholes. The standard industry code (SIC for short) for this industry is major group 23, defined as "Apparel and Other Products Made From Fabric and Similar Materials." Let's not forget the non-apparel products, such as house furnishings, canvas products, soft-sided luggage, and sleeping bags. All kinds of fabricated products made of leather (such as saddles), rubberized fabrics (such as tarps and covers), and furs should be included.

In all fairness, I'm including slightly more than the 2300 group. Did you know this industry employs over 1.3 million people, representing 6.4 percent of all manufacturing employment" Twenty percent of all women employed in manufacturing work in this industry. Women make up 82 percent of the total apparel labor force, and we're talking about an annual payroll over $10 billion.

Now, let's define the western United States. Geographers may not agree with me, but for the purposes of this speech, I'm going to include the following 17 states, from east to west: North Dakota, South Dakota, Kansas, Nebraska, Oklahoma, Texas, Montana, Wyoming, Colorado, New Mexico, Idaho, Utah, Arizona, Nevada, Washington, Oregon, and California.
What is their contribution to this industry in terms of employment, rank among the 50 states, and number of manufacturing establishments:

- California is number 3 in apparel manufacturing with over 104,000 employed in 3,200 establishments.
- Texas is number 5 with over 78,000 employed in over 750 establishments.
- Oklahoma is number 23 with 12,000 and 126 establishments.
- Utah is 27 with 7,000 and 87 establishments.
- Washington is 28 with 6,200 and 148 establishments.
- Arizona is 29 with 6,100 and 98 establishments.
- Kansas is 32 with 5,000 and 75 establishments.
- Oregon is 35 with 3,200 and 89 establishments.
- Colorado is 36 with 3,100 and 100 establishments.
- New Mexico is 40 with 2,300 and 28 establishments.
- Nebraska is 41 with 2,000 and 38 establishments.

Unfortunately, the following states have less than 1,200 apparel employees each: Idaho, North Dakota, South Dakota, Wyoming, Montana, and Nevada. The apparel and needletrades industry in these states is barely developed. While it's true these six states are still sparsely populated, I'm sure you know that most of them are enjoying rapid growth in population, with corresponding increases in their respective work forces.

Why is it important that the western states get their share of this industry? Or, why is it even important that this industry continue to exist as a viable one in our country?

Apparel and needletrades is a "basic" industry; the demand for products is going to continue as our population grows and as the trend toward fashion-oriented merchandise continues. I personally think we shouldn't rely on foreign manufacturers for these products any more than I think we should be under foreign dominance for oil. The shoe industry is a good example of what can happen if we don't innovate and concentrate our efforts on making this industry productive. Taking the approach of the domestic steel industry, by failing to modernize, the shoe industry let its manufacturing capability become so antiquated that it virtually gave up in the face of foreign competition. Even domestic shoe manufacturers became major importers themselves, using the rationale of "joining them instead of fighting them."

This continues to happen for many apparel products. The knitted sweater industry is another example. The down-filled outerwear industry was headed that way until industry groups joined hands to force the government to look into false labeling of fill contents.

Would you like being able to purchase only foreign-made apparel products, knowing that it hurts our balance of payments, contributes to unemployment in our country, and eventually leads to higher prices with lower quality if foreign-made products dominate? Don't be misled by our administration using the "emerging nation" ploy. I'm not preaching isolationism, but neither do I want 900 million Chinese communists making my clothes—any more than I want OPEC filling my gas tank!

I'm also concerned about the trend of large American companies to dominate. Giant conglomerates like Interco, Gulf and Western, and General Foods are gobbling up the smaller companies at a frightening pace. This year Levi Strauss will probably hit $2 billion in sales volume, a figure that would have been unbelievable five years ago. With today's decrease to 18,000 manufacturing establishments from 22,000 not too many years ago,
the trend looks exactly like what happened to the small grocer of 15 years ago, and the independant gas station of yesterday. We are still a nation of entrepreneurs, and I hope that never changes. This industry has always been one for the individual with the "better mousetrap," because it is a style business and labor intensive rather than capital intensive. Anyone with an idea and a machine or two could go into the industry with a respectable chance of success. That was primarily true 20 years ago, but as labor costs, equipment costs, and financing costs increase, it becomes more difficult for Horatio Alger success stories to emerge.

The belief that sewing and fabricating an apparel or needletrade product does not require great technical skill on the part of the entrepreneur is part of the problem. It is similar to the rationale used by the individual going into the restaurant business on a small scale. "Well, I can cook, can't I?" the individual says, not realizing how much more is required than the basic skills of cooking. That's part of the problem and it's also part of the allure. I certainly don't want to discourage the up-and-coming entrepreneur from going into this industry. This is what helps make it vibrant, fast-paced, and exciting. It's one of the last few frontiers of entrepreneurship.

This is where you, as educators, enter the picture. Possibly many of you know about the educational opportunities available for this industry. Fashion Institute of Technology, Philadelphia Textile Institute, and Southern Tech now have four-year courses in various subjects for the apparel industry; not too many years ago they only offered associate degrees. From these schools now come managers, designers, and engineers who are better equipped to cope with the technical problems of this industry. Many universities and colleges offer courses and degrees in clothing and textiles, such as Colorado State University. There are many fine courses offered by vocational schools and industry schools, such as those developed by Union Special Machine Company and Singer.

But more needs to be done. I am convinced that education is the key and the answer. There should be more short courses for management and supervisory-level personnel conducted at convenient times for these people. Our organization has conducted seminars for 10 years now, and we feel fortunate that we are able to share our knowledge with the industry. It is my personal goal to do more of this.

We need qualified people in this industry from the entrepreneur to the sewing machine operator. We need sewing machine mechanics, pattern and marker makers, cutters, supervisors, engineers, and managers. Many of these technicians are taught on the job and have learned the so-called "hard way." But if there's a better way for them to learn, let's do it! If you've visited the plants of Frostline and Gerry, you know the "sweat shop" image of our industry is not a fair one. Sure, there still are some, but fortunately they're getting to be a small minority. Part of our problem in attracting talented young people is this unfair image. Possibly some of you here today think of the industry in this way. Our industry definitely needs better PR and educators can help. I urge you to visit apparel and needletrades plants to become more familiar with the industry. Invite industry leaders to talk to your students. Then get these leaders to employ your students. Such exposure will help cut down the barriers.
Other things you can do are to encourage your schools to offer "entrepreneurship" courses, as well as courses on the basics of small business operations. If your school has lab testing facilities, make this known to the industry. It's likely most companies do not know they are available. Be more understanding about business. A recent survey of 292 chief executive officers conducted by the committee for corporate support of private universities showed that 82 percent felt the academic community "is generally too critical of business." If you feel business is too critical of the academic community, then it's obvious we have some fences to mend.

As the west continues to grow in population, the region will become more popular with the apparel and needletrades industry. As I see it, our region needs to get its share of the industry's growth for its own well-being. This nonpolluting industry is vital for this country's welfare. We all have a share in the future of this industry. It is my sincere belief that all of us can help make that future a better one.
The ancestors of the Pueblo Indians are known today as the Anasazi, a Navajo name. They lived in cliff dwellings that can be seen today in the anthropological sites of Mesa Verde, Chaco Canyon, Puye Cliffs, Bandelier, Keet Seel, and others in the southwestern United States. These people were farmers, good potters, and stone masons. They cultivated cotton and used the fiber in weavings for cloth for clothing and ceremonial purposes. It is not known why the Anasazi migrated from comfortable dwellings in the cliffs to areas along the Rio Grande River and to the pueblos west of Albuquerque, some of which were called Acoma, Tigues, Zuni, and Hopi. The theories of drought, invasions of war-like tribes, and the need for more room have been both proposed and rejected by anthropologists. Other cultural groups in the southwest, the Salado, Sinagua, Hohokam, and Mogollon, also were in a period of unrest and came to amalgamate with the Anasazi to form the beginnings of the Pueblo cultures we know today.

The Spanish were responsible for giving the name Pueblo to the tribes because they were found inhabiting villages. The earliest historical records of Indians in the southwestern United States were written by members of Coronado's party of conquistadores who marched through the area in 1540 searching for the legendary Seven Cities of Cibola. One of the first encounters the Spanish had with Indians in the area was at the Pueblo of Zuni. The Zunis, eager to rid their village of the conquistadores, encouraged the belief of the golden cities. Marching on to Tiguex on the Rio Grande, Coronado massacred the entire village. Pecos Pueblo also experienced the cruelty of the Spanish. Discouraged, Coronado returned to Mexico City, and the Indians were left unmolested for 40 years. Then a wave of colonization by the Spanish began, but was interrupted for 12 years by the Pueblo Indian Revolt of 1680 at which time all Spanish were killed or driven back to Mexico by the Indians, who were tired of oppression. The organization required for this feat was most remarkable.

But the Pueblo Indians were not destined to live a life unaffected by other cultures. Even before their expulsion of the Spanish during the Pueblo Revolt, the Utes, Apaches, and Navajos in the southwest created many problems by raiding the pueblos. This problem was exacerbated when raiding groups acquired horses from the Spanish settlers.

After a 12 year absence, the Spanish reconquered the southwest with the exception of Hopi. Many of the Pueblo Indians fled west and took refuge with the Navajos. Never again were the Pueblo Indians able to muster the organization required to relieve themselves from bondage or to expel the Spanish.

The Spanish in the southwest were to be joined in time by the Americans whose appreciation for the Indian way of life was much lower than that of the Spanish. Removal and extermination became the policy of the government, a policy that lasted almost until the 20th century. Of the more than 100 pueblos that existed at the time of Spanish colonization, only about 17 remain active today.
About 1,000 years ago, the Pueblo Indians encountered the Navajo Indians who came from the north to settle in the northern and eastern parts of the present Navajo Reservation. They raised corn, beans, squash, and melon. A report dated 1744 estimated their number between 2,000 and 4,000 persons. Today they are the largest of all Indian tribes in the United States.

The Navajo people have been unique in their ability to learn and adopt cultural attributes from numerous other groups with which they have come in contact. In many instances, Navajos far surpassed their teachers in their accomplishments. A few examples of this adaptability relating to textiles and clothing follow:

- Learned weaving on an upright, frame loom from Pueblo Indians or from Plains Indians during the migration to the southwest; became the most renowned weavers in the history of the world.
- Acquired sheep and shepherding skills from the Spanish; became so successful that the government found it necessary to reduce their herds in the 1940's.
- Learned from the Spanish to become silversmiths working with silver and turquoise using Spanish design influences and Spanish or American coins as a source of silver; are widely known today as master silversmiths.

The interface between the Navajo and the Americans who came to the southwest from 1860 until 1868 was a most unfortunate one for the Navajo. At the time when the Navajos were developing their great skill in weaving, a series of incidents between them and the "American bluecoats" stationed at forts in the Navajo territory led to the imprisonment of the Navajos on a reservation in East Central New Mexico. The ordeal of the Navajo known as the "Long Walk" was a 300 mile journey from Ft. Defiance to Ft. Sumner in 1864. Beginning the trip were 3,830 Navajos, but 333 died or were killed in route. The Navajos who did not surrender were continually hunted, and were unable to farm, tend their stock, or hunt for game. Survival became impossible for them. Weak from hunger, most surrendered by 1867. Eight thousand Navajos and Apaches eventually were imprisoned at Bosque Redondo. Conditions there were intolerable. The water was brackish, no housing was provided, there was no fuel, and when the crops failed, the Indians were given spoiled provisions rejected by the army. One-fourth of them died of disease. Accurate reports of the conditions were withheld from Washington.

When the Civil War was over, a new superintendent appointed at the Bosque was sympathetic to the plight of the Indians. For two years, investigations of the situation concluded that the Bosque was not a healthy place, and had cost the government millions of dollars. In 1868, the Navajo leaders signed a treaty agreeing not to make war on Americans, and they were all released to return to their home land to begin a new life.

Today the multicultural contacts experienced by the Southwest Indians are reflected in their dress.

The traditional dress of the Pueblo Indian is worn for feast days and the ceremonial Corn Dances in most pueblos. The basic element of the woman's dress is the manta, a garment made from two black rectangular pieces of tightly woven wool fabric. This dress was copied by the Navajos soon after they arrived in the southwest. The manta is joined at the right shoulder, and the left shoulder is left uncovered. For some occasions, an "underneath
dress" of colorful print is worn. It has elbow-length sleeves with ruffles, and a ruffled, lace and ribbon-trimmed hem that shows about two or three inches below the manta. The "underneath dress" is often worn without the manta covering it for daily wear.

In San Ildefonso, the everyday manta worn over the printed "underneath dress" is made of a colorful cotton print rather than the solid black wool fabric. Decorative gathered half aprons of a white, sheer fabric embroidered with colorful designs are worn with the manta by some Pueblo women. Checked gingham aprons with embroidered cross stitch designs are commonly seen today worn by older women with the "underneath dress." A square silk scarf is tied about the neck by two adjacent corners and hangs down the back of the dress in a large square. The manta, when worn, is sashed at the waist with a fringed Hopi belt, a narrow, warp-faced belt created of wool on a Hopi belt loom.

Weaving of ceremonial clothing and blankets in Hopi is done by the men. Red, green, white, and black are common colors used for the belt, which contains stripes and a diamond pattern created by the pick-up technique. The manta frequently has a narrow red and green embroidered design about six inches above the hemline, which is below the knee.

Manta pins made by the Zuni or Navajo are placed down the side seams of the manta's skirt section. The pins are usually round in design with clusters of small turquoise stones mounted in bezels of silver. The Zuni has become famous for their channel work jewelry and for their skill in using many small turquoise stones as exemplified in needlepoint pieces. Much jewelry is worn with the manta—bracelets, pins, hishi (rolled beads of turquoise or other stones), and necklaces of coral, jet, shell, pipe stone, and abalone. Turquoise brings good luck, so one cannot wear too much. Squash blossom necklaces, an idea borrowed from the Navajo/Spanish influence, are a frequent adornment. A silver overlay technique is characteristic of Hopi jewelry, and stones are not used with the silver. Shell, coral, jet, and pipe stone were acquired through trade with Indians in Mexico or other sections of the United States. Jewelry worn at Taos, the most northern of the pueblos, reflects the influence of the Plains tribes, including chokers of bone and beads, beaded headbands, and medallions.

Moccasins are worn by women of most pueblos. However, for some ceremonies, women of some clans are required to dance barefooted. At Acoma, Hopi, and Zuni, the women wear white moccasins that cover the ankle. Then white deer skin is wrapped carefully about the ankle and calf giving a bulky appearance to the leg. In the Pueblo of Taos, the women wear tall boot-like moccasins of white deer skin. The top of the moccasin is wide and full, forming soft folds and giving a similar bulky look to the leg as that in the Pueblos of Acoma, Zuni, and Hopi.

Shawls of embroidered or printed fabrics adorned with long, acetate fringes are worn by Pueblo women with their mantas, or with their colorful print dresses. The Plains Indian women (Apaches, Utes, Kiowas) also wear beautiful shawls for Pow Wows. This influence on dress came from the early Spanish settlers. Hopi women use the shawls of white wool with red border stripes. Hopi weavings are still made today by the men of the tribe.

Ceremonial headdresses vary from one pueblo to another. At Santo Domingo and several other pueblos, tablitas of light weight wood painted turquoise are worn as a tiara and tied with string under the chin.
Traditionally, unmarried Hopi girls wore their long hair in two elaborate whorls extending several inches from the head just above each ear. Today, long, loose hair is worn by many Pueblo women and men. Bangs for women are traditional with some groups, as in San Ildefonso where Maria, the famous potter, lives. Cheeks may be rouged with red circles for the Corn Dance. Boughs of the spruce tree symbolizing everlasting life are carried by the women dancers. Each pueblo has a variation of this basic woman's costume that is used for the Corn Dance.

During the ceremonial Corn Dances, at which time Kachina costumes are not used, the Pueblo men wear a tassled white wool ceremonial sash called a rain sash and a thigh-length kilt of Hopi weaving decorated along the border with the embroidered weave in a red, black, and green rain and cloud design. Ankle-high moccasins may be decorated with a collar of black and white skunk fur. Turtle shell rattles or sleigh bells are attached to the calf of the leg. A fox or coyote skin with tail hanging down in back is fastened to the waist with a Hopi belt. It is said to symbolize man's common ancestry with animals. Body paint, sleigh bells, and jewelry adorn the top part of the body.

At Santa Domingo, a sea shell inlaid with turquoise is worn around the neck. Santa Domingo Indians have become skilled jewelers making fine hishi and silver turquoise jewelry. Fetish necklaces having small carved birds, reptiles and animals of shell, jet, serpentine, mother of pearl, or coral are produced by the Zuni and Santa Domingo Indians. The Ketoh, or bow guard, is almost always worn by Pueblo men during ceremonial dances, even though the bow and arrow have long been discarded. In the hair, which was traditionally worn long, is fastened a bundle of colorful parrot feathers from the south. A gourd rattle is carried in one hand and used to accentuate the rhythm of the dance. The man's costume, as that of the woman's, must be correct in every detail for the dance or evil may befall the tribe.

The men's chorus of chanters and drummers that accompanies the Corn Dance is colorfully attired in bright shirts, white pants, and beautiful concha belts or woven Hopi belts. A folded scarf in a bright color is tied about the forehead. Much jewelry is worn. Other dances performed at the pueblos require very different costumes. The Pueblo Indians whose villages have survived in spite of their interface with other cultures are those in which the preciseness of their ceremonies and the traditions of their religion have been maintained.

Daily apparel for most Pueblo Indians is the same as that of the dominant culture. One exception to this rule is seen in the Taos Pueblo, the northernmost pueblo. This area shows many influences of the Plains Indians. In the past, the older men of the tribe wore pants purchased in the town of Taos, but cut the seat out of them. Then a blanket was tied about the waist and hung down just above the knees. A blanket sheet, available from J. C. Penney's was wrapped about the body and head, leaving only the face exposed. Manufactured boots were worn, but the heels were knocked off to make them more like moccasins. In earlier years, the Taos Tribe imposed sanctions on young men who did not observe such clothing customs, but even today, many men of the Taos Pueblo still wear heelless boots. Few of them today remove the seat from their pants, but the Penney's sheet blanket is still commonly worn by the older men. Traditional Taos men wear their hair long in two braids, meticulously bound with colorful ribbons.
While the traditional dress of the Pueblo Indians has changed very little in the past 350 years, that of the Navajo has undergone two major changes. After the migration from the north, the Navajo women changed from the clothing style of the hunter to that of the Pueblo Indian women and the Navajo men adapted the style of the Spanish Conquistadores. The women's dress became that of a blanket dress—a manta made of two woven rectangles sewed together at both shoulders and tied at the waist with a Hopi belt. The Navajos learned to weave from the Pueblo Indians when the Pueblos moved west to flee from their oppressors after the reconquest of the southwest by the Spanish. The Navajo blanket dress was woven with a pattern in it—usually a diamond design.

Sheep and goats were brought to the southwest by the Spanish settlers when they arrived in the late 16th century and were acquired by the Pueblo and Navajo Indians. Spinning and dyeing of the wool were learned by the Navajo from the Pueblo Indians or from the Plains Indians during the migration of the Navajos. Indigo blue and cochineal red from the Spanish and vegetal black dyed over blackish wool were the colors used in the Navajo blanket dresses. When cochineal was not available for use, the Navajo women bartered for English manufactured baize, called bayeta, imported from Spain and brought to the southwest first in 1804. Bayeta was a wool flannel fabric that was unraveled and respun for use in their weavings. American flannel was used in a similar fashion when available. Although bayeta was used for the cape linings of the American army uniforms, never was a uniform removed by a Navajo from a dead body. The Navajo have retained their fear of the dead—and of any item of apparel that is on the dead. The word "chindi" is used to express the fear of the evil spirits of the dead. The misconception about the Navajos robbing the dead for bayeta is completely unfounded, considering their religious beliefs.

After the arrival of the Spanish in the southwest, the Navajo men adopted from the Conquistadores the style of dark pants trimmed with silver buttons down the out seam. Knee-high moccasins were worn over the pants. Later, loose-legged pants and medium-weight fabric, slit up the out seam to the knee were worn with loose-fitting shirts of heavy fabric. The shirt was belted at the waist. This style was taken from the Spanish settlers who were of peasant stock.

Concha belts and silver jewelry were made by Navajos after the Navajo's ordeal at Bosque Redondo in 1868. There is a story that a Mexican taught the first Navajo smith how to work with silver. There is some evidence that Navajos could have learned silversmithing as early as 1850. American silver coins were used for silver up until 1885. A sand casting technique also was used and is still popular today. Silver conchas for belts may have been crafted as early as 1858. Najas, crescent-shaped pendants, were made in the 1870's. The design influence for them came from ornaments on the Spanish horse bridle. The squash blossom necklace seems to have developed in the 1880's and was actually a pomegranate blossom from the Spanish, and not inspired by the squash. Little bells hammered from quarters were made in the 1890's for Navajo women who had a son-in-law. As it was not proper for the two to meet face to face, the bell warned him of her approach.

The classic period of Navajo silversmithing was from 1880 to 1900. During this period, the Navajos began using Mexican coins for silver as they were softer than American coins, and work with turquoise stones began.
Commercialization of the craft began when the Fred Harvey Company sent a representative with turquoise and silver to the Navajo country with special orders for jewelry. Special designs were ordered. Thus began the white man's influence on the craft.

The Navajos also believe that turquoise is good luck. Jewelry has always served as a valuable item for barter at the trading post. Jewelry not reclaimed in the allotted time becomes "dead pawn" and may be sold by the trader. Jewelry belonging to Navajos who die is frequently buried with them because it is "chindi." Pueblo Indians do not have this fear of the dead, and jewelry is passed on from one generation to the next.

Handwoven blankets were used as wearing apparel by men and women until 1890 when C. N. Cotton introduced Pendleton blankets. The Navajos quickly adopted them, and handwoven blankets became trade items for the Navajos. Blankets were frequently given as gifts to American officers or to Indians of other tribes. These came to be known as "chief's blankets."

A second major change in Navajo women's costume came in 1890. The Navajo women admired the dress of the army wives at Bosque Redondo, and that of the women settlers from 1870 to 1880. They discarded their blanket dresses for the new style, which consisted of a fitted bodice and long gathered skirt of calico or velvet. Traders on the reservation made the fabrics available for the Navajo women. After a period of time, the blouse became less fitted and was worn over the skirt, a style more suitable for the sheep herding tasks of the Navajo woman. The long skirt was shortened slightly to just above the ankles. Handmade silver buttons were used to adorn the blouses. Sometimes dimes and quarters with a shank soldered to them served as buttons. Rows of buttons were placed on the sleeves, across the yoke line in front and back, and along the edge of the collar. Decorative pieces of silver were worn on the points of the collar by some Navajo women. The placement of buttons, the placement of stitching and pin tucks on the blouse front and sleeves, and the shape and size of the collar differ according to the area of the reservation where it is worn.

Long hair was pulled back in a chongo or figure eight style and tied with a colorful piece of cotton fabric. The Hopi belt and concha belt were worn with this costume. Skirts were pleated on a "broomstick" to create numerous, irregular pleats and a panne effect on the velvet. Today, cotton print skirts are more often seen for everyday wear, the velvet skirts being reserved for special dances and sings. Velvet blouses, however, are still worn for every day wear by traditional Navajo women. In a hogan, the Navajo woman does not have access to an iron, a needleboard, an electric sewing machine, or even a pattern. An occasional Singer treadle machine is seen on the reservation, but space is very limited in a hogan. Moccasins eventually were replaced with tennis shoes, another practical adaptation of American costume.

Today, young Navajo women wear jeans and pantsuits. The traditional women cling to the long skirts, heavy velvet blouses, and Pendleton blankets of the earlier years. The beautiful traditional costume is still worn for special occasions by Navajo women. Navajo men today wear a variation of the cowboy costume—jeans, boots, neck scarves, and large felt hats. The chongo hair style is still worn by older Navajo men.

The story of how the Navajo chief's blanket evolved into the present day Navajo rug is a most interesting one. By 1860, the Navajos had arrived at a great technical excellence in spinning and weaving. The use of bayeta
and three-ply Saxony yarns imported from Europe, along with handspun vegetal dyed yarns created beautifully woven blankets that found a market in the settlers and army officers of the southwest. During the height of this period, known as the Classic Period, the Navajos were rounded up and sent to Bosque Redondo. Having no native wools available, the Navajo women used machine-made yarns supplied by their captors and continued to make blankets for sale.

The Navajos were released in June, 1868. By the mid 1870's, government licensed traders were spreading across the reservation. It is to the credit of the Indian trader, a new breed of man who appeared on the Navajo reservation and established trading posts, that the Navajo rug was developed and came to be produced on a larger scale than was the chief blanket. The trader provided a market for the woven blankets when they were completed. From 1880 to 1890, bright aniline-dyed three- and four-ply yarns were available at the trading posts. Bayeta and Saxony were forgotten as Navajo women went on a wild color spree and created "eye dazzlers" in colorful zigzag designs.

The traders were responsible for changing the weavings in several ways. Unable to sell more "eye dazzlers," traders insisted on handspun yarns in natural or vegetal dyes, or aniline dyes used in only a few colors. The blanket became a rug, made from heavier yarn with a denser weave. This was a more marketable item to sell to the eastern clientele reached by the trader through mail-order catalogs. Such catalogs pictured the product in color, and described sizes and prices. Several traders hired designers to draw patterns that were more to the liking of customers. Some traders demanded that rugs have borders.

In 1910, Navajo weaving declined in quality due to the interference of the government. In an effort to improve meat capacities of the tribe, large flocks of French Rambouillet were brought to the reservation. The Navajo sheep was a "churro" from the Spanish, a sheep well adapted to the hardships of the southwest climate but not a large meat producer. The new sheep had wool unsuitable for handspinning and dyeing, and the Navajo women became discouraged with weaving. By 1920, few weavings were produced, and those were of poor quality.

During the Revival Period from 1920 to 1940, several events took place. Sheep were bred to improve the wool quality for handspinning. Interested persons worked on reviving some of the old vegetal dyes that produced fine, soft colors on wool. In recent years, over 240 color tones have been produced from native plant dyes. Aniline dyes were developed that would give bright, clear colors on the new type of wool. These dyes, called Old Navajo, were produced by the Diamond Dye Company. The Navajo Arts and Crafts Guild was established in 1941 and provided both quality control and protection for the weaver. Through this guild, a wool processing plant was established on the reservation so Navajo women could send their wool to have it carded, cleaned, and formed into roving. Thus the handspinning process could be facilitated.

Today, Navajo rugs of high quality are being produced that exhibit the influences of the Pueblo Indian, the Spanish, and Anglo cultures through a period of 300 years. The interface of these four cultures during this same period of history has resulted in the enrichment of each culture as exemplified in the artistic expression of dress.

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Bibliography


In an effort to keep us on time, I am only going to cover the topic of the apparel industry and institutions of higher education working together.

We, at CSU, started attempting to work with apparel industries probably seven or eight years ago. I'm not talking about merchandising firms, but with manufacturers. From there, little by little, we have made more and more contacts. We started more with the production end and then found ourselves getting into the design part. We needed to do more locally in Colorado. Previous contacts had taken us out-of-state for the most part, so we needed to concentrate locally on what was going on in Colorado, and on getting apparel manufacturers and higher education together in this state.

I need to give all credit to Dr. Richards, because he's the one that instigated the whole idea of conducting a seminar for the apparel industry and education. We started working last September. The plan was to have a one-day Colorado Apparel and Sewn Products Manufacturers' Seminar. We started with top caliber speakers, because we felt that a high quality program was essential. We had to get name people in to be in the program, or nobody was going to sit up and take notice of what the Department of Textiles and Clothing, Colorado State University was doing. We had two out-of-state speakers: the president of the Education Committee of AAMA, and the person in charge of the Technical Training Center for Union Special at Huntley, Illinois. From there, we searched out a state consultant for the apparel industry, someone that was not a prejudiced, biased company-owned individual, but someone that knew, totally, what was going on in Colorado. The fourth person was a speaker from the Colorado Consumer Product Safety Commission, and the fifth person was from Vocational Education at Colorado State University. We wanted this to tie together with the public and vocational school systems within the state too.

The program was set up and we found we had to work the choice of time around the speakers' busy schedules. That's why you have to start early. We had to coordinate getting the meeting rooms in our student center with the time the speaker could come. From there, we went on with a mailing list, got addresses from the Department of Commerce and Industry here in Denver, as well as talked with people out in the industry. It's a PR kind of thing. Just sending out a mailing doesn't necessarily help. We had the Union Special representative for this state, going around on his usual weekly stops throughout all the industries, pushing our seminar. He really was behind us and kept nagging the people to get their registrations in. We charged $5 for the lunch, and if we were to do it again, we could charge more. Now the image is there; the reputation has been made.

We had about 65 or 70 people from industry there representing probably 35 companies in Colorado. They were very well pleased. We scheduled a tour through our department as part of the program. The participants' main comment was that they had no idea we existed.
A seminar like this leads you to all kinds of possibilities—internships, career opportunities, and making contacts with those firms. It was good for members of the apparel industry to get together and have the opportunity to converse among themselves. Apparel manufacturers seem to be in a rut. They're making money for themselves, they hope, and they don't care what anybody else is doing. The apparel industry is very young and small, but exploding rapidly, and so the need for an organized body is there. We found it to be quite an interesting, beneficial program, both from the industrial standpoint, as well as from our own department's standpoint.
The Effect of Liquid Ammonia Treatment
On the Dyeing of Cotton Fabric
Lenore Basche
Research conducted at Purdue University, Lafayette, Indiana

The treatment of cotton fabric with anhydrous liquid ammonia to improve fabric qualities has received considerable attention within the past few years. The beneficial effects of liquid ammonia on cotton have been known for many years, but commercial development of the process is recent. Liquid ammonia imparts qualities similar to those achieved through sodium hydroxide mercerization. Sodium hydroxide mercerization is the traditional method for improving strength and dye affinity of cotton fabric.

Aqueous sodium hydroxide and anhydrous liquid ammonia are powerful swelling agents for cellulose. As a result of such swelling, the crystallite length of cellulose is reduced and the proportion of amorphous to crystalline area is increased. Treatment with sodium hydroxide or with liquid ammonia also results in structural changes such as swelling, deconvolution, and shrinkage.

Mercerization is known to affect the dyeability of cotton in three ways: the rate of dye take-up, or exhaustion of the dyebath, is increased; the amount of dye taken up at equilibrium is increased; and color yield is greatly improved. The same quality of dye will give a brighter and stronger shade on treated fabric. This increased color yield is believed to be more of an optical effect than a consequence of the increased amount of dye on the fabric.

In this experiment, liquid ammonia treated, sodium hydroxide mercerized and untreated cotton print cloth were dyed with 12 selected fiber-reactive dyes.

Since the quantity of dye on a fiber-reactive dyed fabric cannot be determined by extraction of the dye from the fiber, the procedure employed in this study was to quantify the amount of dye in the exhausted dyebath, rinse and scour liquors. Spectrophotometric procedures were used.

Exhaustion and fixation curves were constructed for each dye procedure by taking samples of the dyebath at specified time intervals. All dyed fabrics were tested for colorfastness to washing, using standard A.A.T.C.C. test procedures. All dyed fabrics were found to be colorfast.

Both ammonia and sodium hydroxide treatments resulted in an increase in the quantity of dye exhausted onto and fixed onto the fiber. The amount of increase under both treatments was approximately equal. The mean increase in both exhaustion and fixation (when compared to the control) was 28 percent. The color yield of the dyed samples was greatly improved as a result of both treatments. Fabrics from both treatment groups exhibited greater depth of shade than could be accounted for by the amount of dye actually on the fiber. The mercerized fabrics were deeper in shade than the ammonia-treated fabrics, even though the quantity of dye on the fiber was identical.
Conclusions: Liquid ammonia treatment results in a fiber with increased affinity for dyestuffs. The increase in the quantity of dye absorbed is approximately the same as that achieved through sodium hydroxide mercerization. Liquid ammonia treatment improves color yield, but to a lesser extent than does sodium hydroxide mercerization. The apparent change in color of the treated fabrics was attributed to changes in the amount and quality of light reflected from the fiber surface. Sodium hydroxide is a more powerful swelling agent than is liquid ammonia. Sodium hydroxide swells the cotton fiber to a greater degree than does ammonia. Its effect on the surface of the fiber is also greater.

Analysis of Factors Associated with Success of Graduates of Clothing, Textiles, and Related Arts in Obtaining First Positions
Shirley Ann Girod Foster
Research conducted at Oregon State University, Corvallis

Each year universities award degrees to students who have completed stated requirements. The degrees do not guarantee a job—only signify the graduate has learned certain skills. Even if academic training is strong, lack of adequate job-acquisition skills could be a handicap in obtaining a desirable position. From 1950 to mid-1977 the female labor force participation rate advanced 218 percent, or 40,067,000. Therefore, competition for jobs may be exceedingly keen.

In 1974 I developed classes at Portland Community College in learning job-acquisition skills. In 1977 the School of Home Economics at Oregon State University wanted an evaluation of the effectiveness of their current training in job-seeking skills to determine its influence on the successful placement of graduates. The branching-type questionnaire and cover letter were sent to 103, 1976 and 1977 CTRA graduates of the School of Home Economics at OSU. Eighty percent participation was recorded.

In analyzing the data, the successful job seekers are those graduates who, upon completion of Oregon State University CTRA requirements, are employed within four months after graduation. The job must be directly related to the field of training and/or in the first choice of field.

The results indicated the number of skills used was not significantly related to success scores, nor was any single skill cited as most helpful. The number of sources of information used was not significantly related to success. The respondents most successful in seeking jobs did not attend the highest number of training meetings. Grades earned as an undergraduate were significantly related to successful job acquisition. Sense of direction scores were highly related to success for the respondents studied. The length of time spent by the job seeker in obtaining the first job was not significantly influenced by the number of skills used, where the job seeker applied for work, or the job location. The one who used more job-acquisition skills also participated in a greater number of interviews.
before accepting a job offer. Neither the number of job-acquisition skills used nor the number of types of training sessions attended appeared to significantly influence the number of job offers.

The study of job seeking skills of the graduates indicates: (1) most CTRA graduates from OSU apparently intended to find jobs; (2) the graduate appears to need a wide repertoire of skills and needs to use them selectively; (3) simply attending a large number of training sessions did not guarantee successful employment; (4) limitations of location did not keep graduates from finding employment related to field of training; (5) grades earned by respondents while undergraduates were significantly related to obtaining first choice job in field of training; and (6) graduates who had a definite sense of direction were more likely to acquire first choice jobs in field of training.

Although this study sought to determine the effectiveness of job-acquisition skills, it does seem to strongly indicate that "sense of direction" and academic achievement as measured by grades are significantly related to success. Can both of these be linked to motivation? It would appear that further investigation could confirm this. It is in this area--motivation--that we, as professionals, can continue to encourage the early confirmation of career choices by undergraduates and support them with counseling and guidance.

Consumer Satisfaction/Dissatisfaction with Information Sources at Fabric Specialty Stores
Richard T. Cary
Research conducted at Arizona State University, Tempe

Previous investigations on consumer satisfaction/dissatisfaction with clothing and textile products have focused on ready-to-wear apparel and the retail stores that sell this merchandise. Few studies have concentrated on the over-the-counter fabrics and related merchandise sold by fabric stores. The purpose of this study was to explore consumer satisfaction/dissatisfaction with the fabrics, information sources, and other attributes of the fabric specialty store. Because of the scope of this project, only the phase concerned with information sources is described in this abstract.

The procedure was to randomly select 15 fabric specialty stores (merchandise was 50 percent or more fabric) in the Phoenix area and distribute 30 questionnaires to customers at each store. The questionnaire contained items (for example, adequate product information is usually available on the end of the bolt or a tag attached to the fabric), which the 264 (58.6%) respondents rated on Likert scales. The typical respondent was a woman of 40 to 64 years of age, her family had an above average income, and she purchased six or more fabrics in 1978.
The results indicated that the respondents were dissatisfied with the following information sources at the average fabric specialty store: adequacy of information provided by the bolt or tag; time spent by salespeople helping the customer; ease of obtaining help from salespeople; salespeople's knowledge of fabrics; and amount of information provided by printed literature, displays or promotion. Salespeople were a critical source of dissatisfaction, as the largest percent of complaints (35%) made to fabric stores in 1978 concerned poor service and salespeople's lack of fabric knowledge.

In conclusion, fabric specialty store information sources such as the bolt or tag; salespeople; and printed literature, displays, and promotions are sources of consumer dissatisfaction. Additional research needs to be done on these sources of information, especially salespeople, to increase consumer satisfaction with fabric specialty stores. (Grateful acknowledgments are given to the following students who assisted in this project: Julie Zylla, Sarah Bernhardt, and Susan Boyd.)

Characterization of the Direct Market in Used Textile Products
Lynn O'Reilly and Margaret Rucker
Research conducted at The University of California, Davis

This study was designed to characterize the personal sales market for used clothing and other textile products. Of particular concern was the distribution of such goods via garage sales. The first phase of the investigation involved a random-digit-dialing telephone survey of local residents to determine the extent of usage of this market. From the 315 interviews conducted, it was found that 162 (51%) of the respondents reported having attended garage sales during the previous twelve-month period. Clothing and other textile products appear to be important components of such sales as indicated by the fact that 26 percent of the garage sale shoppers reported purchasing clothing and 23 percent had obtained other textile products at the sales they attended.

The second phase of the research, designed to provide additional information concerning the needs, preferences, and background characteristics of consumers in this market, involved the distribution of a written questionnaire to individuals attending local garage sales. This phase also included the examination of garage sale clothing items with regard to those factors deemed relevant to salability.

Sixty-five percent of the sample responding to the questionnaire reported the purchase of one or more clothing items during the previous year. For 76 percent of the clothing purchasers, items were always or almost always obtained to be worn by the purchaser or a member of the purchaser's family. There was little evidence of acquiring garments for other purposes such as making over into other garments, reselling, etc.
Low prices and good condition of items were the reasons most often rated as very important for buying clothing at garage sales. Conversely, high prices and poor condition were most often rated as very important reasons for not acquiring clothing at garage sales. Only 30 percent of the sample of both purchasers and nonpurchasers rated "prefer not to purchase used clothing" as a very important reason for not buying garments at garage sales. However, bias against used clothing was the major variable found to characterize nonpurchasers and distinguish them from purchasers.

Concern about wearing another person's clothing apparently varies by clothing type. When asked about clothing they would not be willing to purchase at a garage sale, the largest percentage of respondents checked underwear, followed by footwear, sleepwear, streetwear, and finally outerwear. Apparently there exists a bias against used clothing that increases with proximity to the body. The possibility that physical closeness to the body may be a factor affecting salability was further evidenced in the actual number of clothing items purchased at garage sales during the previous year and at the specific garage sale where respondents were asked to participate in the study. In general, those items furthest from the body--streetwear and outerwear--were purchased more often than those items in closer contact with the body.

A multiple regression analysis indicated that price and number of garage sales held by sponsor during the previous year were significantly related to salability of specific items.

Fashion Showing: An Interdisciplinary Approach
Judith A. Rasband
Brigham Young University, Provo, Utah

When is a fashion show not just a fashion show? The answer: when the commentary does not focus on the fashions, fads, and trends, but on the people wearing them; when the emphasis is not on "what" is being worn, but "why" it is being worn; when the models are not mannequins, but real people; and when the show is intended to serve as a teaching/learning tool for students and to dispense the interdisciplinary aspects of clothing and appearance to the lay public in a familiar and entertaining format.

Selection of Models: In this type of show, models are drawn from members of the situational group. The group might be made up of students, consumers, business personnel, social club members, or religious auxiliary members. Generally 15 to 20 models may be featured in the space of a one-hour show. Ask the leader of the group, with whom arrangements for the show are being made, for an overview of the persons who belong to the group. Select models according to their ability to provide a maximum variety of needs and for their potential interest value to the audience.
Selection of Fashions: Conduct a personal interview with each model. Find out about their lifestyle, values, attitudes, and interests. Determine their clothing needs and related problems. Probe for their motives behind surface comments such as, "I like this; I don't like this." Evaluate personal clothing in terms of ability to meet the needs. Select a wardrobe item for each model that will allow you to make a specific conceptual point. Clothing to be shown may belong to the model, be obtained from a local store, or a combination of both, depending on the purpose.

Development of the Commentary: Begin the fashion show with an introductory narration. It may deal with clothing and appearance as an art form, an individualistic and creative outlet that is all too often overlooked by many. It may deal with clothing and appearance as it contributes to the success level of the individual. The commentary for each model should move from the surface "what" present in the design of an outfit, to the deeper and more individually based "why" as related to the selection and use. The relationship between theory and actual clothing behavior may be explored. The identification of the physical, social, cultural, psychological, aesthetic and/or economic factors influencing the appropriateness or unappropriateness of a design is essential to the commentary.

Slides may accompany the commentary and outline or emphasize a theoretical concept. Slides also may present a "before" version or close-up of a participating model. Limit the use of professional jargon when in a public situation. Professional terminology is appropriate and even desirable when the show is to be a learning experience planned by and for students in the collegiate setting. Conclude the show with a summary statement and the identification of follow-up resources available to those in the audience.

The interdisciplinary approach to a fashion show has been enthusiastically received in areas where it has been presented. The departure from the traditional commentary has been seen as a positive alternative. Audiences report an appreciation for the new learnings received in such an entertaining way.

A booklet is currently being prepared that contains detailed examples of previous shows and commentary. For further information, contact J. A. Rasband.

Korean Costumes: Reflections of Korean Customs
Mary Ellen Des Jarlais
University of Hawaii

Korea, arising from Han tribes and developing into three separate states (one of which overcame the others), only knew two additional dynasties before arriving in the world of the 20th century.

Korea has leaned heavily on the Chinese political and philosophical traditions. In her early history, it is evident that her styles of court
and scholarly costumes were derived from those of the Chinese. Yet, during a very stable period in her government from the 15th to the 19th centuries, she developed her own costume quite unlike the country she most admired. The women's short jacket, chogori; their full skirt, chima; men's status showing baggy trousers, baji; vest, jokki; triple head covering, manggon, gamtu, and kat; and rainbow colored fabric are some of her contributions to individuality of dress. While the Chinese sat on chairs and stools, and the Japanese knelt and knee rested on their cushions, Koreans floor-sat with one knee up, a position that must be accommodated by a very full skirt. This example and many others illustrate the close relation of costume to custom.

Clothing and its associated customs are linked to the technological, social, economic, and governmental conditions of their time.
The business meeting of ACPTC-WR was called to order by Winona Brooks, WR president.

Approval of Minutes of October 27, 1978 was postponed until the next meeting since the proceedings had not yet been distributed to the members.

Treasurer's Report

Prior to Clara Fink's report, Naomi Reich paid a tribute to Clara for her many years of able service as WR treasurer.

Clara Fink went over the financial report for the period of October 15, 1978 through October 9, 1979. The complete report is attached.

Reports of Committees

WR Nominating Committee

Nancy Owens announced the results of the membership vote:

President-Elect ............Marilyn Horn
ACPTC-WR Board ............Susan Kaiser
Dorothy Ettl
Christine Milodragovich
Alternate ............Ardis Koester
National Executive Board .Janet Else
Alternate ............Marcella Martin

Liason Representatives for WR/ACPTC to:

National ACPTC
Ruth Gates, National ACPTC President 1977-78 reported on the following national activities:

ACPTC by-laws changes:
...A change in status of ACPTC from an AHEA constituent group to an association member.
...A change in collection of dues from a rotating basis to a fixed basis.
...ACPTC has been incorporated as a non-profit organization, therefore it has tax-exempt status, which means any extra funds must be specified for scholarship or publication use. Fifteen percent of the funds can be retained on a contingency basis.
Other Activities:
...Increased emphasis is being placed on communications through the proceedings and newsletter.
...ACPTC will be investigating the possibility of a journal.
...An attempt is being made to involve more people in the organization.
...Loy Walton was praised for the excellent job she was doing.
...A membership survey is being conducted.

WR representative to National Board were:

Winona Brooks
Orpha Herrick
Janet Buhl
Linda Thiel Lansing

Western Region Coordinating Committee 23 Project

Jean Margerum reported that the task of the committee was to identify textiles and clothing research needs and was to communicate research findings.

The past 3 years work is available in a packet of "news notes" which are the findings in abstract form. These are available for the cost of xeroxing. The deadline for submitting this year's information is December 1. Barbara Hargar is collecting abstracts.

ASTM

Marjory Joseph reported that the liaison arrangement with ASTM had been in existence 4 years. The two organizations were jointly developing the following areas:
Data collection (at the university level)
Resources
Potential samplings

Announcements

Appreciation to Janet Else and the 1979 Program Planning Committee was expressed.

The National Meeting place and dates were announced. It is October 29-November 1 in Washington, D. C.

Members were invited to turn in their membership survey cards.
Members were also reminded that future dues were payable to ACPTC and that newly-revised membership application forms would be available soon from Loy Walton, National Executive Secretary.

Nancy Owens was appointed as the ACPTC/WR treasurer for 1979/80.

OLD BUSINESS

Status Report on the 1978 Conference Proceedings

Leila Old informed the membership that Charlene Lind was having the proceedings printed at the BYU Press.

She also noted that to avoid future delays in the distribution of the proceedings that program participants should turn their abstracts in to Doris Wright or Naomi Reich prior to the end of the conference.

Status Report on History Costume Slide Project

Saul Schur, Education Director of Good Housekeeping magazine has put together a 3 part slide presentation in conjunction with Mary Ellen Roach Higgens, Fran Duffield, Kathleen Mucher and Ann Hollander. This new perspective on the history of western dress should be available free of charge by December 15th. Those interested in receiving a copy put their name on a list.

NEW BUSINESS

Naomi Reich was introduced as the new president for 1979-80. Naomi expressed appreciation on behalf of the members to Winona for her service to the organization.

Adjournment

The meeting was adjourned by Winona Brooks.

Respectfully submitted,

Amy Sinclair, Secretary
ASSOCIATION OF COLLEGE PROFESSORS OF TEXTILES AND CLOTHING
Western Region

Financial Report for the period - October 15, 1978 thru October 9, 1979

Cash on Hand and in Bank, October 9, 1979 $2,573.85

Receipts
Dues received 2/20/79 277.00
Dues received 3/28/79 72.50
Dues received 8/21/79 30.00
Interest received on
Savings Certificates 116.96
Refund from L.A. meeting 1,800.00
TOTAL Receipts 2,296.46
$4,870.31

Disbursements
Advance to Janet Else to make
arrangements for Denver Meeting 200.00
Paper, postage and duplicating 35.65
TOTAL Disbursements 235.65

Cash on hand and in the Bank, Oct. 9, 1979 634.66

NOTE: The above balance consists of a checking account at the First Security
Bank of Utah, Provo Branch, in the amount of $634.66. There are also
eight savings certificates purchased from the same bank, as follows:

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Submitted by:

Clara S. Fink
Treasurer

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<thead>
<tr>
<th>Name</th>
<th>Affiliation</th>
<th>Address</th>
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<tbody>
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