Combined Proceedings

acptc Association of College Professors of Textiles and Clothing

Eastern, Central, & Western Regional Meetings
1978
PROCEEDINGS

EASTERN, CENTRAL, AND WESTERN REGIONS
ASSOCIATION OF COLLEGE PROFESSORS
OF
TEXTILES AND CLOTHING

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Eastern Region
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EASTERN REGION
29TH ANNUAL MEETING
ASSOCIATION OF COLLEGE PROFESSORS OF TEXTILES AND CLOTHING
Capital Hilton Hotel, Washington, D.C.
October 25-28, 1978

Program

**Wednesday, October 25**

10:30 a.m. Planning Committee
12:30-4:30 p.m. Preconference Tour
Marjorie Merriweather Post Home
1:00-5:00 p.m. Registration
2:00-4:00 p.m. Preconference Grants Seminar
Presiding: Joann Boles, Kitty Dickerson
Speaker:
Richard Schoen, Section Head
Applied Physical Sciences
Division of Applied Research
National Science Foundation
Speaker:
Max Hueller, Chief
Research Projects Branch
Bureau of Education for the Handicapped
Speaker:
Joyce Lazar, Chief
Social Sciences
National Institute of Mental Health
Speaker:
Jim Thomas, Grants Office
National Endowment for the Humanities
Speaker:
James Blessing, Director
Division of Fellowships
National Endowment for the Humanities
5:30-8:00 p.m. Reception—On the Hill

**Thursday, October 26**

9:00 a.m. Welcome to A.C.P.T.C.—Eastern Region
Jessie Warden, President, Eastern Region
9:00 a.m. Welcome to Washington
Barbara Nordquist, Local Arrangements Chairman
9:00-11:00 a.m.

Panel Members:

Issues Facing the Textile and Apparel Industry
Moderator: Mary Barry, Auburn University

Stanley Nehmer, President
Economic Consulting Services, Inc.

Evelyn Dubrow, Assistant to the President, ILGWU
and Legislative Director, AFL-CIO Consumer
Legislation Subcommittee

Nikki McNamee, for James R. Mann, Representative
to the Congress of the United States, 4th District,
South Carolina

Betty F. Smith, Professor and Chairman
Department of Textiles and Consumer Economics
University of Maryland

11:15 a.m.

Business Meeting
Presiding: Jessie Warden

12:30 p.m.

Lunch

1:45-3:00 p.m.

Research Reports
Pan American Room
Presiding: Ann Nesser

Speaker:
Jo B. Paoletti, Florida State University

Speaker:
Theodore H. Kuehne, Florida State University

Speaker:
Patricia Cunningham, Florida State University

1:45-3:00 p.m.

Research Reports
California Room
Presiding: Jeannette Bowker

Speaker:
Carol E. Avery, University of Rhode Island

Speaker:
Geneva Helms Yadav, East Carolina University

Speaker:
Doris Drake, Virginia Polytechnic Institute and
State University

1:45-3:00 p.m.

Research Reports
New York Room
Presiding: Barbara Starke

Speaker:
Marilyn C. Borsari, Virginia Polytechnic
Institute and State University

Speaker:
Jean McLean, Cornell University

Speaker:
Frances Parker McLean, University of Alabama

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3:30-5:00 p.m. Harry L. Vande Vort, Vice President—Personnel Garfinckel's

Friday, October 27

8:00-11:45 a.m. Tours
Noon-2:00 p.m.
Speaker:
Rita Adrosko, Smithsonian Institution
2:30-4:00 p.m.
Speaker:
Gene J. Pontrelli, Textile Fibers Department E.I. DuPont de Nemours and Company
4:30-5:30 p.m.
Planning Committee
Local Arrangements
Barbara Nordquist
Kaye Oman
Betty Smith
Mary Barry
Lois M. Gurel

Nominating
Lois M. Gurel
Helen Douty
Virginia Carpenter

Proceedings
Norma E. Walker

Registration
Carol Avery
Karen Schaeffer
Jo Paletti

Membership
Nora MacDonald
Geneva H. Yadav

Hospitality
Jan Yeager
Barbara Starke
Susan Bosz

Evaluation
Eileen Francis
Glor Edgeworth

Auditing
Payton Hudson
Mary Ann Gaydos

Planning Committee
Jessis Warden, President
Phyllis Tortora, President-elect
Joann Boles, Vice-president
Carol Avery, Treasurer
Nancy Saltford, Secretary
Ann Nesser
ISSUES FACING THE TEXTILE AND APPAREL INDUSTRY

Stanley Nehmer
President, Economic Consulting Services, Inc.

(Summary) The textile and apparel industry faces three fundamental issues today. I call them the three "I's". They are imports, image, investment. All three are linked together, inseparably.

Imports have been and continue to be devastating to many parts of the industry. The industry has been fighting valiantly and vigorously to bring about solutions. Unfortunately, the more the industry fights, the more blemished its image is in the general press.

Yet success on the imports front is essential to the generation of returns that will provide or attract investment capital to permit the industry to innovate, to experiment, and to update its equipment.

I want to talk in some detail about the import problem faced by the industry and, to a lesser extent, about the other two issues.

**Imports**

There have been certain significant developments with regard to imports of textiles and apparel.

- The 1977 textile/apparel trade deficit was a record $3.4 billion. Based on the first eight months of 1978, it looks like this year's trade deficit will be in excess of $5 billion.
- In the first eight months of this year, imports on a yardage basis were more than 19 percent above the same period of last year. A new record high of textile and apparel imports could be reached in 1978.
- Apparel imports were 20 percent higher and fabric imports were 33 percent higher in the first eight months of this year compared to the same period last year.
- Imports now supply 50 percent or more of the market for some textile/apparel products.

Against this background there are two important facts. First, the Administration is not doing an effective job of implementing the Multifiber Arrangement (MFA) that became effective in 1974. Second, the Administration, in its Geneva multilateral trade negotiations, has embarked on a course that can only hurt the domestic textile/apparel industry.

**Multifiber Arrangement**

The Multifiber Arrangement is a helpful but inadequate import relief mechanism.

Insofar as the textile and apparel industry is concerned, its vulnerability as a labor-intensive industry to low-wage foreign supply has long been acknowledged by the U.S. Government. In fact, action to safeguard firms and workers in this industry against disruptive import surges goes back 40 years to the Roosevelt Administration. The import problems faced by this industry led to the Short Term Cotton Textile Arrangement (STA), the Long Term Cotton Textile Arrangement (LTA), and more recently to the Multifiber Arrangement, now in its fifth year.
Under the umbrella of the MFA, the United States has negotiated 18 bilateral agreements designed to control the shipments of textiles and apparel in order to eliminate market disruption from such trade.

Notwithstanding its intent, it is clear that the MFA and the bilateral agreements negotiated under it have not been successful in containing the relentless upsurge in imports. The Multifiber Arrangement allows for an annual growth rate of 6 percent but, in fact, much higher levels have been apparent, particularly for apparel. Between 1967 and 1977, according to the Federal Reserve Index of industrial production, U.S. apparel output grew by only 2 percent per year and textile production grew by only 3.2 percent per year. On the other hand, the growth rate for textile and apparel imports in this period has been much higher, 7.2 percent. We think it is unfair to the industry and its workers that imports be allowed to grow faster than the growth of the U.S. market. This becomes particularly critical in the years ahead in view of anticipated lower growth rates for the domestic market.

The MFA is therefore a helpful but, to date, largely inadequate import relief mechanism, and its maintenance cannot be used to lull the firms and workers in our industry into a false sense of security in the face of the severe and unnecessary cuts in U.S. textile and apparel import duties that have been offered up for grabs in Geneva by our negotiators.

We note that the MFA has proven to be a highly inelastic arrangement in that whether or not the domestic market is contracting, and irrespective of the U.S. business cycle, imports are permitted to grow by at least 6 percent per year. Its weakness as an import relief mechanism, however, also is due to the liberal interpretation by the United States of the MFA's technical features in terms of administration and enforcement.

In this regard, controlled suppliers are allowed flexibility through shifts among categories, borrowing from the following year's restraint levels, and carrying over a portion of unused levels from one year to the next. This can increase ceilings for a category in one year by as much as 17 percent.

When ceilings are reached and goods are embargoed upon reaching the United States because many exporting countries do not effectively control their exports, the United States often relaxes the embargo, allows the goods to enter, and deducts the amount from the following year's ceiling.

More important is the fact that the MFA does not control all imports, and uncontrolled suppliers are not put under control fast enough to prevent them from gaining a significant portion of the trade before they are put under control. A major supplier of textiles and apparel to the United States, the People's Republic of China, remains uncontrolled. The most we can glean from the Administration on this issue is that "it is on the front burner." It has been simmering in that position for a long time, while imports from the PRC continue to increase. It should be noted there are no overall ceilings under the MFA.

The United States can take forceful action to control shipments from countries not covered by bilateral agreements. New agreements can be negotiated and unilateral action to restrain imports from uncontrolled sources can be taken. However, the record of Executive Branch foot-dragging on enforcement actions to date is hardly reassuring to our industry of any change in the future. Thus tariff cuts in textiles and apparel hold a real threat that uncontrolled shipments can lead to a disruption of the market despite the MFA.

An equally serious problem for the U.S. textile and apparel industry is the intense pressure from various quarters, both foreign and domestic, to increase restraint levels on controlled countries, which has led to acquiescence on the part of the Executive Branch in the past. If existing tariffs are cut, we can expect even stronger pressures to relax these controls.
It is well documented that the restraint levels on textile and apparel products represent a substantial overhang above actual import levels, probably at least 50 percent in 1977, allowing many countries room for major increases in imports without violating any provisions of the bilaterals that are in effect. This is occurring even before tariffs are cut. If tariffs are cut the situation will obviously be exacerbated. The tremendous flood of imports thus far in 1978 could well reflect the impact of some of this overhang.

**Multilateral Trade Negotiations**

There are two major negotiations of concern to the textile/apparel industry in the Multilateral Trade Negotiations in Geneva. They involve the negotiations of the international codes of conduct and negotiations to cut existing tariffs.

After a slow start, there has been tremendous activity in Geneva and in the world's capitals. Deadlines for completion of the negotiations have been set in the past but have not been met. The last deadline was set for this past July. It was not met. The target for completion is now mid-December with presentation of the results to Congress for its approval in January 1979 when it reconvenes. It is too early to tell whether the latest deadline will be met, but our trade negotiators appear quite optimistic that they will be "out of the trenches by Christmas."

An important factor bearing on the completion of the negotiations is the duration of the U.S. statutory authority to negotiate in Geneva. That runs out at the beginning of January 1980, unless extended. Since Congress has to approve the trade package negotiated, that means Congress must receive the negotiated agreements by mid-1979 at the latest.

It is also important to note that Congress has already delegated to the President the right to cut tariffs up to 60 percent. Other agreements being negotiated in Geneva, however, must be approved by Congress. The present intention of the Administration is to present the entire package to Congress, including the tariff-cutting actions.

A year ago, Ambassador Strauss said at a press conference, referring to the trade negotiations:

> If we don't get a good agreement, we are not going to enter into an agreement. We don't have to have an agreement, much as we need one. We are better not getting into it than to bring [home] a bad one. We are not going to be rushed.

The issue may very well turn on what is a good agreement.

**International Codes of Conduct**

Substantial progress has been made, according to Administration sources, in the negotiation of several international codes of conduct, including three that are of significant importance to the textile and apparel industry.

The most important code is probably the one on subsidies and countervailing duties. The United States apparently has agreed to have an injury test before countervailing duties are imposed to offset foreign government subsidies. At present this is not required under U.S. law, except for items that are duty-free. The effect of the United States subscribing to the code with an injury test is that before a countervailing duty could be imposed, a finding of injury would have to be made, presumably by the International Trade Commission. Another feature of this code that is unfortunate would allow developing countries to phase in over an extended period of time, perhaps three
to five years, their obligations to conform to the "no subsidy" rules of the code. Unfortunately for labor-intensive industries such as the work gloves industry, the bulk of the adverse import impact that the industry is receiving comes from developing countries, many having extensive government subsidies.

Progress also has been made on an international government procurement code. This would eliminate the national preferential treatment that governments all over the world accord to their industries. In the United States this is referred to as "Buy American." The elimination of "Buy American" provisions in U.S. Government procurement regulations would permit foreign producers to bid on equal terms with American producers in supplying U.S. Government requirements. At the same time, U.S. manufacturers would ostensibly be free to compete with foreign manufacturers in selling to foreign governments. I have pointed out to U.S. Government officials that for labor-intensive industries, where labor costs in the United States are so much higher than they are abroad, the effect of this provision would be to open U.S. Government procurement to foreign suppliers, while at the same time U.S. manufacturers would not be able to compete with foreign producers in supplying foreign governments. Thus, whatever U.S. Government business our manufacturers might have could very well be lost as a result of this code.

Progress also has been made on what is referred to as the international safeguards code. The effect of this would be to have foreign governments subscribe to procedures similar to those followed by the United States under the "escape clause" of the Trade Act. The only incentive that certain foreign governments would have to open their import restriction procedures to public hearings and investigation such as those conducted by the International Trade Commission would be the right to restrict imports from certain countries and not from all countries. At the present time, members of the General Agreement on Tariffs and Trade are required to act on a nondiscriminatory basis. The international safeguards code would eliminate that requirement under certain circumstances.

The problem for U.S. producers of textiles and apparel would be that unless the Multifiber Arrangement is excluded from the international safeguards code, there would no longer be an incentive for the European Community to participate in the Multifiber Arrangement. Instead, the European Community would avail itself of the discriminatory safeguard procedures permitted under the new code.

**Tariff Cuts**

With regard to the negotiations to tariff cuts, our trade negotiators have said that the tariff cuts they have offered in Geneva on textiles and apparel will average only 25.5 percent, not the 60 percent authorized in the legislation. This means that some products will be exempt from any cuts, some products will be subject to partial cuts, and some to full cuts of 60 percent. The industry—management and labor—is dead set against any tariff reductions, and correctly so.

The inability to secure acceptance of its position by the Executive Branch of no tariff cuts led the textile and apparel industry to recommend to its legislators in Congress that legislation be introduced to exempt the textile and apparel sector. Indeed, the last act of the House of Representatives before it adjourned was the passage of this legislation.

What the Holland-Brodyhill-Hollings Bill does is to exempt all textiles and apparel from tariff cuts on the same basis as the exemption accorded automatically to those industries that have received import relief under the escape clause of the Trade Act of 1974. At the present time only four industries
(out of 33 cases decided to date) have secured such import relief and thus automatic exemption from Geneva tariff cuts. These industries are nonrubber footwear, specialty steel, color TV's, and CB radios. The rationale of the legislation is that the textile and apparel industry received import relief, not under the escape clause of the Trade Act, but rather under different legislation, Section 204 of the Agricultural Act of 1956, as amended. The import relief that the textile and apparel industry has received through the Multifiber Arrangement is the same as the import relief that these other industries have received. Yet, textiles and apparel have not been automatically exempted from tariff cuts while these other industries have been. Therefore, we argued, on grounds of equity, if nothing else, the textile and apparel industry should be exempt from tariff cuts just as these other industries have been.

Apparently our reasoning prevailed and this legislation passed both houses by overwhelming votes.

As of the writing of this report, it is expected that the Carter Administration's opposition to this legislation will lead the President to veto the legislation. Since Congress has already adjourned, there will be no chance for a Congressional override. Nevertheless, by virtue of the postponement of the completion of the negotiations, referred to above, it is likely that the Holland-Broyhill-Hollings Bill will be reintroduced in the 96th Congress when it reconvenes on January 15, 1979.

Image

In its fight to survive, the textile/apparel industry has received a bad press over the years. It is accused of being protectionist, of allowing narrow self-interest to overshadow the national interest, of being old and antiquated, and of being a sectional industry based largely in the South.

We know that these charges are unfair and largely untrue, but that is the price this industry is paying for fighting for what it believes is right. Nevertheless, there is a very urgent need for the industry as a whole to reorient public thinking. If it takes a comprehensive public relations program, then, by all means, one should be launched. After all, the facts about the textile and apparel industry should be brought home to the American public. It is a national industry that makes a major contribution to the American economy. The success of this industry determines the economic health and well-being of hundreds of communities, large and small, throughout the country.

Of the 29,000 textile and apparel plants in the United States, at least one is situated in every state of the Union, although there are concentrations in several of the metropolitan areas of the Northeast and in some of the more rural areas of the Southeast. The industry is the largest employer of labor in manufacturing in the United States, and its 2.4 million workers account for one out of every eight jobs in manufacturing. We provide jobs to people with a wide range of skills and to many who are considered disadvantaged in today's world. Twenty-three percent of our workers are minorities; 65 percent are women. The industry is the major customer of American cotton and wool growers spread throughout a large part of our country. The industry is an important customer of the chemical, transportation, and machinery industries. We also should not overlook the stakes in the industry's future for hundreds of thousands of investors; there are some 177,000 shareholders in 21 of the largest publicly held textile companies.

These are the facts that should be emphasized to all. As professors of textiles and apparel, I hope you will do your share, as I am sure you are doing, to spread this word.
To survive, the textile and apparel industry cannot stand still. It must constantly update its equipment. It must be innovative in production and styles. It must try to cut down the competitive edge of foreign, low-wage, often subsidised, competition. This requires constant investment.

But last year, before taxes, the textile industry earned only 4.5 percent. In 1974, 40 percent of textile firms and nearly 40 percent of apparel firms were operating at a loss.

Given the impact of increased costs, many of which are mandated by government regulations, and further price cuts that will result if tariffs are reduced, many firms will be forced to fold. Even the stronger ones will have limits on the availability of investment capital.

Thus, the three I's are critical to the textile and apparel industry today. They are inextricably bound together.

Evelyn Dubrow
Assistant to the President, ILGWU and Legislative Director, AFL-CIO Consumer Legislation Subcommittee

(Summary) I am delighted to be here and to have a chance to bring to your attention some of my union's concerns in the textile and apparel industry, especially the human element involved.

I start off by confessing that I am a special pleader. I represent a union that two years ago had 457,000 members and today has less than 357,000; this means we have lost 100,000 jobs in this country in the past two years. I am not going to blame all of that on imports; we have a number of problems in the union.

First, since many of you are women, you must know that when this country goes into an economic downspin, the first people to suffer are the women and men who make garments. Women in particular know that as their incomes buy less, some of the first things they stop buying are the things that my members make. They make a coat do for five years instead of three years. They make a dress do for three years instead of buying a new one each Easter or Christmas. They make do with underwear that is not as expensive and pretty as they would like. So we are caught in the middle.

I think you ought to know a little about the history of my union. It started in 1900 to eliminate the sweatshops that prevailed at the time. Men and women in the industry were forced to carry their machines on their backs. They did not want home work. Their children, aged 7, 8, 9, 10, and 11, worked at home on garments, and they were paid miserable wages. Tuberculosis was rampant because of poor nutrition. Terrible working conditions, including very poor light, caused many accidents. There were no toilet privileges in sweatshops. Stories of tragedy and horror, such as the triangle fire, should be enough to change everybody's viewpoint about these people who have survived untold difficulties to form a very strong, socially minded union.

I am the legislative director of my union. You may be surprised to learn that only 5 percent of my time is spent on matters directly related to enhancing the image of the union and the industry. Much of my work relates to social
legislation; for example, I spend much of my time on import legislation because it has had such tragic consequences for our membership.

We consider our members our product, and we are concerned for them more than just the seven hours a day they usually work. We are concerned with them as human beings—where they live, what kind of food they eat, are their kids getting a good education, do they have some recreation, are they getting good health care, are they doing well as consumers? My union has a very broad program of concerns.

There is a very simple reason for this; my union is made up of many new immigrants. It started with Jews from Eastern Europe and Italians; then Irish and English came. Then people from other parts of this country, such as blacks from the South, decided that they could do better in textile and apparel mills in the North. Hispanics, Puerto Ricans first, followed. Then came Orientals, including Chinese, Japanese, and now Vietnamese and some Cambodians. Eighty-five percent of my members are women, women who are very skilled in their trade and excellent workers, but women who cannot be retrained to jobs outside the garment industry. It is not because they are not bright and willing, but because they do not have the education. Most of my members do not have even public school education. This includes Chicanos from Mexico and Hispanics from Brazil, Argentina, Ecuador, and Central America.

Men come into our industry because they can use their hands as pressers, cutters, or on special tailoring jobs, and again most are untrainable; as a result, we find ourselves in a very strange situation with an administration that talks about full employment.

Tomorrow I am going to the White House to see the President sign the Humphrey-Hawkins Full Employment Bill because he is concerned with full employment. Everybody in this country says, "People on welfare are terrible, they don't want to work." That is not true. Surveys have indicated that at most, 7 percent of the people on welfare are people who do not want to work. The rest of them either have to supplement their incomes by welfare, or they have to take welfare because they have no jobs. It is odd that our administration, which is concerned with full employment, which says it wants to do something for the low and middle income worker, suddenly finds itself wanting to knock people out of the most labor-intensive industry. When textile and apparel industry workers lose their jobs, they will go on welfare, or they will be forced to take jobs that do not utilize their skills.

One of the problems in my union is non-union employers. That is why it is so strange to see a coalition of J.P. Stevens, Burlington, Dan River—all of the anti-union employers—working together on the matter of imports. We share a common goal of keeping the textiles and apparel industry in this country intact, with decent wages for hundreds of thousands of people. Our union has the problem of trying to organize. There are a million unorganized garment workers in this country; if we could organize them, we would be a much stronger union.

In the meantime, we find we are fighting something that always surprises me about American men and women who think they believe in humane conditions, consumer unions particularly. I am a founder and member of the Consumer Federation of America. I have been a member of the National Consumers League for 35 years. I have supported every piece of consumer legislation that has come up on the Hill because my people are consumers as well as workers. We are asking for fair trade; we know there is no such thing as free trade. When I tell you that in our industry we may not export one single garment to Japan, Malaysia, South Korea, and other places of competition, you may be surprised. Free trade means a two-way street, and it is not a two-way street as far as we are con-
cerned. We understand the need for other countries to develop a textile indus-
try; we are not suggesting that we close the door to import. We are
saying there has to be a new way to handle the problem. And why? Even in
the non-union plants we have a minimum wage of $2.65. That employer cannot
possibly compete with 75¢ an hour in Japan. (It used to be 39¢ an hour a
couple of years ago.) In South Korea there are 9-, 10-, and 11-year-old
kids working in textile and apparel plants seven days a week, ten hours a
day, with one hour off for television. They sleep in dormitories, and were
sold by their parents to the employer.

Look at the stories that have appeared in the Congressional Record.
Congressional teams have started out as free traders and come back saying,
"Evie, you are absolutely right; we are aghast. In South Korea those workers
get at the most 20¢ an hour." In Malaysia they earn 15¢ an hour. You have
seen those beautiful dresses from Hong Kong with embroidery and beading in
high-priced department stores. The men and women who work on them get the
great sum of perhaps 25¢ an hour, and then Americans say to me that this is
the kind of competition we ought to be able to meet. This is incredible.

Think of your own situation. You are professors, you are educated, you
have put your whole life into doing something in your particular field of
talent. Would you like it if you were told that because the standards in
Japan, or South Korea, or Britain, or Italy are 20 percent under what we pay
professors here, you should earn less? The point I am making is you have to
put it in perspective. Consumers say the reason they like imports is that
they can get them for less. This also is sheer nonsense.

First, these low wages are not reflected in prices except in the most
shoddy materials that you buy. If you buy a $2 blouse that comes from Korea
or Malaysia, or even Japan or Hong Kong, and you wash it once, it falls apart
at the seams. Maybe all of our workers are not top quality, but we do have
quality control in our union. We examine the things that our people make,
and if they are faulted because they do not do a good job, we are concerned
because that employer suffers. Our union probably has a closer association
with its employers than any other. One of the reasons is that many of those
employers came out of the garment shops. Abe Schrader likes to tell the story
about how he became a poor multimillionaire. Abe Schrader Sports is known all
over the country for putting out a very good product. He was a member of Local
10, which is our cutter's union, the aristocrat of the industry because if
they don't cut properly, you can forget about the garment. According to Abe
Schrader, "I went out and started a little shop, and now I'm a poor multi-
millionaire." And he has never forgotten where he came from, pays the best
wages, and is concerned with workers because he came out of the garment shops.

But let me go back to the consumer. You buy a good dress that is imported
keeping in mind that the person who made it may be a 9-, 10-, or 11-year-old
child, who may be ruining his or her eyesight making these beautiful garments
for 20¢, 25¢, 39¢, or 75¢ an hour. You go to Saks Fifth Avenue, and you find
those dresses are now selling for $600, $800, or $1,000. Who is getting the
profits? Not those workers. Those workers can't afford to buy a single thing
they make. It's all for export. And you say to yourself, "Well, who's getting
the money?" Obviously, it has to be the retailer, and if consumers want to
protest, they ought to protest against the retailer who automatically increases
the price of any garment, even those made in our country, up 100 percent, or
in the case of imports, it can be 400 to 500 percent.

Now let me talk about something else, the Third World. I want you to know
that my union is helping the Kenyan government to establish garment plants.
We have done it in West Africa, in East Africa, and in Asia. We have done it
because we believe that these people have to have an opportunity. But let me
tell you something that even the Rockefeller Foundation missed. I think it
would be much better if those Third World people were spending their time
raising the food that they need, because when they buy it on the agricultural
market they are being robbed. Instead of trying to compete in a low-wage
industry, it might be better for them to develop other kinds of industry where
they could pay their people better. So you see, this is not just an economic
thing with us; it has sociological and political ramifications as well. We
had 129 sponsors on the Hill for the Hollings-Boyle Bill. At least 40 percent
of them are free traders, but they have said as far as the textile industry is
concerned, we need to protect it from the unfair competition that it is getting
from around the world.

Three times Senator Hollings attached our amendment to a Senate bill, and
three times it was passed overwhelmingly with the help of men and women who
would never vote for protectionism because they do not believe in it; they
think it ought to be a two-way street. We finally have gotten our message
over to Congress. Unfortunately, I do not think we have been able to do it
with the President of the United States; he may veto this bill. I am asking
you to recognize what this means to 2,500,000 men and women in an industry
that provides barely enough to meet the high cost of living today. My members
are paid pretty well, but it is not easy for them. Our average wage now runs
to about $4.20 an hour. It is a piece-rate industry, where women and men have
to produce at a machine, and frankly I don't know how they do it. I would go
out of my head if I had to do the same little operation all the time. It is
knowing they have a union and an industry that is concerned about them that
keeps them going and makes them recognized by others.

My union is one of those unions that even has a peculiar position on il­
genals. It says that if illegals come into this country and get a
job, they are not public charges and ought not to be deported. The fault lies
with our government because it has not set up the appropriate customs or bar­
riers to enforce the law.

I believe a sensible solution to handling the import situation can be
found. The European Community—Britain, France, Italy—all admit privately,
if we took textile and apparel off the MTN, out of the MTN negotiation, it
would not hurt all that much. The countries that are worried are Japan and
other countries that subsidize their industry. When a worker gets a textile
industry job in Japan, that worker stays there for the rest of his life—
never moves out—government protects him that way. That to me is protective
slavery, because you cannot move; there is no upward mobility. We do not be­
lieve in that, but we do know that our industry is shrinking. We know there
may be a time when we will have fewer people than we have now. Why? I do
not know any of my members who really want their children to come into the
garment industry. They want them to be lawyers, doctors, engineers, or mech­
anics, something better.

So, it may be that just by our workers getting older and retiring that
we will shrink. If the industry declines by attrition, nobody is going to
argue about it, but if it is done by false claims that we have to protect the
rest of the world's textile and apparel industries, it is a false premise.
The labor movement has always believed in international trade, but on a fair
and equitable basis.

We are about to negotiate our biggest contract this spring and what
happens with multilateral trade negotiations is going to have a great deal to
do with whether we are going to get anything. I had an employer, who makes
beautiful suits, say the other day, "If I can't get some relief on imports,
I am going to have to go abroad and manufacture there." Here is a man who does not want to do it, gets on well with his workers, but he has a perfect right to say, "If I can't do it here, I've got to go elsewhere."

And so I am asking you to look at it from our perspective, from the human perspective, from the sociological perspective, from the future of this country, so that people will understand that when Japan's textile and apparel industry talks about imports, it is the Japanese government talking, because they subsidize those employers. When the European Community talks about it, they will take things off the table without consultation. They do not have to go to Congress or a president.

Look out for those people who say the multitrade negotiations will go down the drain if textile and apparel tariffs are taken off. This is sheer nonsense. Despite what some consider to be high tariffs, imports have continued to increase in this country—20 percent, 33 percent, and higher by the end of the year. So obviously those tariff cuts are not going to keep them back.

Everything hinges on getting a solid foundation of understanding internationally. Maybe we ought to have a global plan. A global X-quota plan that says we will allow a certain number of apparel pieces in X-quota per year. But you divide up the pie. You can bring that much in, but you decide which countries are going to set that quota. Maybe we need to be global in our thinking. Maybe we need to look at global trade programs. But until that is done, I can only say for my union, and for me, that I will continue to try to protect the jobs of the people I represent. We will try to keep their working conditions good; we will try to give them decent wages; we will not shut the door to imports from countries where they want to send imports—exports to this country; we will certainly sit down any time to discuss with this administration or any foreign government what we can do to get a meeting of the minds and something that is equitable. But so long as there is an attempt to block us out, so long as there is an attempt to cut back millions of jobs of men and women whose only motive is to provide for their families and to earn a living, so long as that happens I am going to be up on that Hill spending a lot of time on this problem. I would much rather be spending time on how we develop our educational programs, what we do about our national health program, what we do in our foreign policy generally.

The choice is my union. My first job is to make sure that I have a union to represent. The job I lose may be my own!

James R. Mann
Representative to Congress, 4th District, South Carolina
(Delivered by Nikki McNamee)

As representative of South Carolina's Greenville and Spartanburg Counties, an area known as the Textile Capital of the World, it is natural that I would be deeply interested in congressional initiatives affecting the industry. Certainly during my service as chairman of the Informal House Textile Committee from 1975 until a few months ago, I spent much of my time—perhaps most of my time—on the subject, with a heavy focus on international trade and the effect of imports.
If any of us were not convinced before this morning, I am sure we are by now: the textile industry has clout. It is the largest employer of labor in manufacturing, providing one in every eight jobs. It is larger than automobiles, larger even than steel. No other industry makes such a fundamental contribution to the well-being of so many people and so many communities in our country, and no industry is more vital to our economic health.

Few industries have as many problems, either. The textile-apparel-fiber industry has a full plate of problems, problems of a magnitude that may threaten its very viability in this country. Chief among them is rising imports—during the first seven months of this year, imports increased on a dollar basis by 40 percent and on a pound basis by 27 percent. At the same time, the industry's export capabilities are stymied by official and unofficial foreign barriers to entry of U.S. mill products and apparel—it seems that we are playing by two different sets of rules with our major trading partners. The Japanese and Europeans are exporting their unemployment problems to us by subsidizing many of the goods they sell in the United States. Meanwhile, those who have tried to export to, for instance, Japan, will tell you that there are rules and regulations that no one in the Western world ever heard of. These somehow have the end result—by the specifications required or by some other nontariff mechanism—that what ought to be a competitive American product somehow cannot be competitive in the Japanese market. Taken together, the growth in imports and the difficulty of exporting has put the textile/apparel/fiber industry in the unenviable position of contributing more to our balance of trade deficit than any other sector save oil—in 1977, the textile trade deficit was $3.56 billion!

But it is not only foreign imports that plague the industry. Our own government, with the best of intentions but with a lack of attention to cost-benefit ratios, imposes unique reverse subsidies. I am speaking of the proliferating and very costly noise control regulations; the water and air pollution standards; health regulations such as OSHA's cotton dust standards, with an estimated cost, according to the Cotton Council of $1.8 to $2.6 billion (now temporarily stayed by the courts pending full judicial review in February); our whole complex of antitrust laws; and government paperwork demands, estimated to cost the textile industry $8.5 million per year and nearly a half million manhours annually. Evie Dubrow will tell you the industry suffers from sporadic unsettled labor relations and certainly has the kinds of tax problems common to most businesses.

Now none of those problems are easily solvable. No one is going to walk in and tell us here is how we save the 2.3 million textile/apparel jobs from import inroads, without damaging or destroying U.S. export markets for mill products, and computers, and agricultural commodities. No one is going to say here is how we eliminate dust-related respiratory problems for all your employees without cost or effort. Here is how you protect children from burns and the environment from pollution and cause labor and management to agree on all things.

So we take small steps that we believe will lead to desirable ends. In the last few days of the 95th Congress, we took a couple of those steps. We passed legislation excluding the textile/apparel industry from the tariff-cutting talks now going on in Geneva that seek to reduce tariffs world-wide by an average of 45 percent over the next 10 years. We agreed to a bill providing some help for apparel manufacturers caught in a Catch 22 situation when the government banned the use of TRIS in children’s sleepwear, even though the government had in effect mandated the use of the chemical to comply with flammability regulations. We passed the tax bill, reducing the rate
of corporate taxes. We probably passed a dozen other measures that will im-
pact, in a great or small way, on the industry.

None of those proposals was without significant controversy, significant
differences of opinion on what their real effect would be. In the case of the
exclusion of the textile industry from the trade talks, for example, there are
those who argue convincingly that such a move will destroy the talks altogether
and thus destroy the chance we have to eliminate the non-tariff barriers that
create such problems for American business.

My experience as chairman of the Informal House Textile Committee taught
me a couple of things. First, the industry, with its nationwide facilities,
has a natural majority in the House, probably in the Senate too. Members want
to help the industry. Second, there is a real lack of knowledge among most
Members of what they can best do to provide that help. Truly, it is most dif-
ficult to make judgments on the actual economic and social impacts of govern-
mental actions. We need all the help we can get.

And it is not only Congress. Based on conversations with Executive Branch
officials working in the textile area and with industry officials, I know that
they, too, feel a need for documented, intellectual, academic studies in a
variety of areas—for their education, for background and backup material, and
for the public, too—a public that tends to view with some distrust industry-
or government-produced evidence supporting industry or government conclusions.

Let me illustrate that point by going back to H.R. 9937—the bill that
would statutorily exempt textiles from further tariff cuts. Last spring, when
the tariff issue began really heating up, Burlington Industries commissioned a
study of the potential effect on the industry of large, one-shot tariff cuts.
They assumed cuts of 50 percent in a one-year period, and estimated that the
job loss would reach almost 600,000 jobs in the textile/apparel industries by
1985. Burlington further estimated that 2.5 secondary jobs would be lost for
every job in textiles/apparel, for another 1.6 million jobs, or a grand total
effect of 2.2 million jobs lost. The Commerce Department responding to the
Trade Subcommittee of the House Ways and Means Committee questioned nearly
every assumption Burlington made. Speaking for the Administration, Commerce
pointed out that the overall average tariff reductions were expected to be 45
percent spread over eight years, but that reductions in textile categories
would average 25 percent; that the secondary jobs affected would be one for
one, not 2.5 for one; that Burlington had inflated the annual growth rate of
imports from controlled countries; etc., etc., etc.

Now conflicting studies of that kind hardly give us a basis for rational
decision-making, do they? What we needed was a non-biased, carefully re-
searched study by someone without an ax to grind.

Are there other areas that could use the same kind of treatment? A myriad
of them, more than I could mention.

Competition. Many economists believe that U.S. and foreign economies
will grow more slowly in the future than in past decades; some expect a
period of near stagnation. Even in times of growth, price is only one factor
in determining competitiveness. In the future we may increasingly rely on
non-price factors—such as salesmanship, market knowledge, delivery times,
product quality, credit terms, etc.—as competitors struggle to increase their
sales in slowly growing markets. Industry has to know how to adjust: how can
marketing techniques be applied in a more effective fashion, domestically and
internationally; is industry using to its full advantage all technological ad-
ances—in production, distribution, marketing; are inventories under control;
is the best advantage being taken of consumer sampling and demand projections;
are effective market surveys being undertaken?
As you may know, the Carter Administration is committed to encouraging exports. Certainly in the yarn and fabric area, export is feasible since these areas are relatively capital intensive. But where should export efforts be concentrated? Should affluent countries be targeted, or could consumers in less affluent countries be educated and convinced to the prestige of a U.S. label? How can the industry make inroads into the Far Eastern market, which has been largely the purview of the Japanese? How can they tap the markets of developing areas, such as Africa, are trading companies or joint ventures feasible, desirable? The area is virtually unknown.

Is there any future anywhere in attempting to export apparel, even with its labor-intensive nature and America's higher wages?

Do consumers really benefit from lower cost foreign imports or do distributors and retailers simply pad their own margins on imports? On the one hand, some economists feel that consumers are saving money when they buy an imported garment rather than one made domestically. In many cases, they probably are on a purely price tag to price tag comparison basis. But others argue that Americans who buy imported apparel may end up paying far more than the price tag alone shows—losses in production, earnings, tax revenues, and purchasing power are a few areas that are affected, not to mention the cost of supporting a textile/apparel worker and his or her family if the wage earner is unemployed. What are the figures?

The "theory of comparative advantage," developed more than a century ago by John Stuart Mill and David Ricardo, holds that if each country concentrates on producing what it can most efficiently make, all will have more goods to consume. Does that theory still make sense? Did it ever?

How many textile and apparel facilities have closed or are running at reduced levels because of imports? Even the American Textile Manufacturers Institute said in an April 1978 publication that it did not have a totally reliable answer.

Item 807 on the U.S. Tariff Schedule allows a partial duty exemption for articles assembled abroad of American components. Does it drain jobs as some assert, or does it create jobs? Will rising labor costs force industry to eventually go that route? Why do importers import what they do? Do tariff levels inhibit and/or encourage those decisions?

What caused the shift from cotton to man-made fibers? The two have virtually reversed roles over the past several decades from cotton taking 60 percent of the market to man-made fibers taking 70 percent. Is there likely to be any kind of comparable shift in the future?

According to every estimate I have seen, one of every eight manufacturing jobs is a textile-related job; according to Secretary of State Cyrus Vance, one of every eight manufacturing jobs is a job that depends on exports. Government estimates that an additional job in a supporting industry is created by textile-related jobs and by export-related jobs. International activities produce one out of every three dollars of U.S. corporate profits, and every third acre of U.S. farmland produces for exports. What do those figures really mean? Does there have to be a tradeoff in textiles? Why should we and how can we avoid such a tradeoff?

So, you can see, the possibilities and the needs are virtually endless. I could easily expand the list where innovative and accurate research could benefit the textile/apparel/fiber industry and the economy of our country—cost/benefit ratios of government regulations, the effect of government controls and regulations over raw materials such as wool and cotton.

I viewed my role in Congress largely as that of an educator—educating myself, my colleagues, my constituents. Consequently, I envy the responsibility
and opportunity you have chosen for your life work. While you are performing the admirable job of educating future industry leaders, you are simultaneously performing a beneficial and welcome service by encouraging your students—and undertaking yourselves—the difficult job of research necessary to help industry and government make today's decisions to ensure the healthy viability of a U.S. textile/apparel/fiber industry tomorrow. In the 30-plus years since World War II, we have grown from a $200 billion economy to a $1.9 trillion economy, in no small measure because we have seized the opportunities offered by our superior technological and industrial capabilities. With your help, we can maintain our position in the world economy. But we will truly need your help.

B. F. Smith
Department of Textiles and Consumer Economics
University of Maryland

The major issues facing the consumer of textile and apparel products are shown in Table 1. These issues are divided into four categories: consumer protection, worker/environmental protection, industry protection (trade regulation), and finally the unknown hazards facing the consumer that have created concern and resulted in the passage of the Toxic Substances Control Act. Most of these issues will involve costs to consumers and will provide benefits to consumers, workers, the environment, or the industry. Each issue will be discussed, in turn, in the following sections.

<table>
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<tr>
<th>TABLE 1: MAJOR ISSUES</th>
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<tr>
<td>Industry Protection: Trade Regulations</td>
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<td>Unknown Hazards: TSCA</td>
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Consumer Protection

The four major consumer rights in the marketplace were first recognized by President Kennedy in the early 1960's. They consist of the right to be informed, the right of safety, the right to choose, and the right to be heard. These rights reflect consumer concern for the efficient operation of the marketplace, and they are interdependent. For example, the right to be informed is of limited value if the right to choose is constrained. Similarly, the right to choose and the right of safety may conflict. Products may be banned due to "unreasonable risk" resulting in a reduction in consumer choice. The right to be informed and the right to choose are important in determining the issue of consumer sovereignty, which means that consumer preferences determine production. The final
right—the right to be heard—first pertained to the right to be heard in the marketplace. However, the increase in the number of government regulations has, in turn, led to recognition of the consumer's right to be heard by the regulator. Many government regulations impact on consumer welfare and the consumer viewpoint should be considered in developing and implementing regulations.

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<th>TABLE 2: CONSUMER PROTECTION</th>
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<td>Right to Safety</td>
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<td>Right to Choose</td>
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<td>Right to Be Heard</td>
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Although the consumer has the right to be informed, there are information failures in the marketplace, which are shown in Table 3. These failures indicate why the consumer's right to be informed is important. Major reasons for information failures include: 1) technological change, 2) changes in production and distribution and 3) life-style changes.

According to Thorelli, several changes have occurred in the past decades that have increased the complexity of the consumer decision process and reduced the information disseminating capability of the marketplace (4). Technological change has resulted in changing product characteristics and the replacement of existing products by new products. The consumer can no longer rely on past experience to evaluate products; there has been a proliferation of models, brands, and products, thus increasing the number of items for which the consumer must seek information. In addition, the operation and maintenance of new products has become more complex.

The increase in scope and complexity of the consumer's choice set has been accompanied by an increase in mass production and mass distribution and the ensuing impersonalization in the marketplace. Personal selling, once an important source of product information, has diminished in importance in an era of self-service. Finally, the consumer faces a time constraint that results from life-style changes in obtaining the necessary information. According to Linder, the time constraint may be the ultimate constraint in the post-industrial society (2). As a result, the consumer may be less willing today to search for information even though the need for obtaining information has increased.

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<th>TABLE 3: REASONS FOR INFORMATION FAILURES</th>
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<td>b. Proliferation of Models, Brands, Products</td>
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<tr>
<td>c. Complex Operation and Maintenance Requirements</td>
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<tr>
<td>2. CHANGES IN PRODUCTION AND DISTRIBUTION</td>
</tr>
<tr>
<td>a. Mass Production</td>
</tr>
<tr>
<td>b. Mass Distribution</td>
</tr>
<tr>
<td>c. Self-Service</td>
</tr>
<tr>
<td>3. LIFE-STYLE CHANGES</td>
</tr>
<tr>
<td>a. More Working Women</td>
</tr>
<tr>
<td>b. More Time Constraints in Acquiring Information</td>
</tr>
</tbody>
</table>
The development of appropriate consumer information programs should reflect variations in the consumer information process that are shown in Table 4. Consumer goods may be divided into two categories. The first category is comprised of search goods. These are durable, expensive products or high-risk products. Their cost and infrequent purchase mean that it is important for consumers to obtain product information prior to purchase. Consumer information programs such as labeling, standards, and warranties are important for this category. The second category is comprised of frequently purchased goods that are relatively inexpensive. The consumer may rely on experience with such goods to estimate their value in consumption; hence, the name experience goods.

<table>
<thead>
<tr>
<th>SEARCH GOODS</th>
<th>EXPERIENCE GOODS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Durable, Expensive Products</td>
<td>Frequently Purchased Goods</td>
</tr>
<tr>
<td>High-Risk Products</td>
<td>Inexpensive, Low-Risk Products</td>
</tr>
</tbody>
</table>

Two responses to the consumer information problem in the area of textiles were the Textile Fiber Identification Act and Care Labeling. Care Labeling is more than an information program since it also contains an implied guarantee of product performance if the correct care procedures are used. There has been increased interest in textile care labeling for durable products such as carpets. This is not surprising since these products are high-risk products that have been subject to technological change, thus increasing the importance of information to the consumer. Consumer information concerning performance and maintenance requirements for durable textile products is likely to be a major issue for consumers and home economists in the next decade.

The second consumer right is the right to safety. Major problems in this area are due to product design; externalities, which means that the purchaser or user of an unsafe product does not necessarily bear the consequences of his actions; consumer ignorance of product hazard; and improper use and maintenance. The response has been the establishment of the Consumer Product Safety Commission (CPSC), which has developed safety standards and consumer information/education programs. Flammable fabrics were a major area of concern, initially, to the CPSC, and consideration is still being given to a general wearing apparel standard and to a standard for upholstered furniture. Thus, consumer safety with respect to textile products is likely to remain a major issue. However, the response may change. Consumer education programs that address the fact that the hazard may frequently reflect conditions of use as opposed to product design may replace product standards.

The third right—the right to choose—is of lesser importance in the case of textiles and apparel in view of the number of firms and the diversity of products offered for sale. However, this right may be constrained by trade regulations, which will be discussed in a later section. The remaining right—the right to be heard—is provided by a competitive marketplace, a responsive industry, and a responsive government.
Worker-Environmental Protection

The second issue is worker/environmental protection. Worker protection regulations include: water pollution, a cotton dust standard, and a noise level standard. All these regulations affect the textile industry. While the consumer may consider these kinds of regulations as peripheral to the issue of consumer welfare, I would like to stress that in the long run, the full costs of regulation are born by the consumer in the form of higher prices and higher taxes. Thus a regulation which imposes a production cost on industry in the short run will eventually result in a cost increase to the consumer. To believe otherwise is to believe that firms will operate at a loss in the long run, which is an absurdity. Higher taxes are required to pay for the costs of standard enforcement by regulatory agencies.

The impact of government regulations in the long run is shown in Figure 1. The price and quantity of the regulated product are given on the vertical and horizontal axes. In the pre-regulation situation, a quantity of $Q_1$ is sold for a price of $P_1$. Imposition of the regulation increases costs by an amount equal to $P_2 - P_1$ with the resulting loss in consumer welfare shown by the lined area in this graph. The consumer suffers in two ways: less of the product is purchased because of the higher price, and the consumer pays a higher price for the quantity that is purchased. This added cost is born by the consumer irrespective of whether the beneficiary is the consumer, the worker, or the environment.

![Figure 1: COST OF REGULATION IN THE LONG RUN](image)

The different distribution of costs and benefits from various government regulations is shown in Table 5. In each instance, the consumer pays for the regulations. However, the beneficiary varies. Since the consumer is affected by all regulations, it would seem logical that the consumer should be involved in decisions to issue and implement these regulations. In general, consumer representation has been confined to those instances where the consumer is a beneficiary, e.g., care labeling and flammability standards. Lack of consumer
response in other instances is serious since it means that the right to be heard is not being exercised.

<table>
<thead>
<tr>
<th>Areas</th>
<th>Who Pays</th>
<th>Who Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Care Labeling</td>
<td>Consumer</td>
<td>Consumer</td>
</tr>
<tr>
<td>Flammability</td>
<td>Consumer</td>
<td>Consumer</td>
</tr>
<tr>
<td>Cotton Dust</td>
<td>Consumer</td>
<td>Worker</td>
</tr>
<tr>
<td>Noise Control</td>
<td>Consumer</td>
<td>Worker</td>
</tr>
<tr>
<td>Water Pollution</td>
<td>Consumer</td>
<td>Environment</td>
</tr>
</tbody>
</table>

It should be emphasized that recognition that regulations of various kinds will impose costs on the consumer does not necessarily mean that the consumer should object to such regulations. The regulations may have been necessary to readdress existing deficiencies in the marketplace. However, it is then important to compare the costs and benefits of a particular regulation. Much of the current debate concerning regulation concerns the degree of protection rather than the necessity for protection. It is reasonable to assume that costs will increase as the level of protection provided by the program increases and that there may be a limit to the degree of protection that can be obtained. Thus, the concept of 100% protection for all textile products may be unnecessary and undesirable. Risk is a fact of life and the question is not complete safety but degree of safety. Similarly, worker and environmental protection should focus on increasing the level of safety rather than achieving 100% protection. The costs of achieving the latter may be prohibitive, and, as we have noted, these costs will be borne by the consumer.

One indirect effect of regulation, which is rarely noted, is the impact of regulation on competition. Regulation may discourage production. For example, flammability standards may reduce competition from foreign suppliers due to quality control requirements or competition from national suppliers due to the costs of establishing separate production processes for a specific region. Consumer protection in this instance results in protection of the national or regional supplier. Regulation may also encourage substitution of one product by another. The cotton dust standard may result in a reduction in inter-fiber competition and the consumer is the eventual loser. The gainer in this instance is the manmade fiber industry. Thus, it is always important to consider the indirect beneficiaries of various government regulations. Consumer protection should not become producer protection.

Industry Protection - Trade Regulations

This issue is of great concern to the apparel and textile industries and to the consumer. Again, the interests of the consumer may not coincide with the interests of the industry (management and labor). Consumer gains from trade are shown in Table 6. They include direct benefits such as lower prices and increased product choice.
The popularity of imports with consumers and retailers alike is due not only to their price but also to the increased product variety they provide. Thus, it is not surprising that a survey of retailers concerning reasons for buying imports found that 34% of imports were purchased on the basis of price, 31% were purchased on the basis of better make and styling, while 35% were purchased for store image. A recent article in Women's Wear Daily noted the importance of imported apparel in meeting competition.

With stores becoming more aware than ever that "me too merchandising" can be disastrous, added impetus has been given to the importance of imported ready-to-wear. The competitive advantage provided by foreign-made apparel is a two-edged blade. It can give retailers trendy fashions that are not available from domestic manufacturers, or it can offer a look and quality comparable to American clothes but at a lower price. (1, p. 1)

The indirect benefits include increased competition from the operation of an open as opposed to a closed economy, greater incentive for product innovation on the part of both domestic producers and foreign suppliers, and the reduction in trade regulation costs.

<table>
<thead>
<tr>
<th>TABLE 6: CONSUMER GAINS FROM TRADE</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIRECT BENEFITS</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>INDIRECT BENEFITS</td>
</tr>
<tr>
<td></td>
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<tr>
<td></td>
</tr>
</tbody>
</table>

In contrast to the consumer, the industry gains from trade regulations. That is why trade regulations were classified under the heading of industry protection. Proponents for industry protection cite the labor-intensive nature of the textile and apparel industries and the existence of lower wages and hence lower labor costs in exporting countries. A second argument notes the existence of barriers to trade for products exported by the United States. However, increased trade regulations are not a long-term solution to either problem. The first problem should be addressed in trade negotiations between the United States and other countries.

It should also be mentioned that the domestic industry is not in favor of complete protection from imports but rather a certain level of protection. Thus, Winger of Enka, speaking at the AAWA 1978 Outlook Conference stated that most of the industry could live with the current situation "if we must and it doesn't get any worse." (2, p. 3) Reith of Oxford Industries summarized the situation as follows:

While we don't like the inroads that imports have made, our industry is the only manufacturing industry in America today which has anything approaching worldwide import controls. I recognize that they are not everything we could hope for. We've become so accustomed to sniping at multi-fiber arrangements, and the bilateral agreements with 50 countries, providing for "orderly marketing agreements" as to importation of their products into the United States. That arrangement, with virtually bipartisan support for over 15 years, has become institutionalized, and is the envy of many other domestic industries staggering under the import load. (2, p. 3)
Reith also noted the importance of improvements in productivity in combating apparel imports.

A major issue with respect to trade regulation pertains to their joint impact on employment and inflation. Increased imports are likely to result in increased unemployment in the domestic textile industry and lower prices for textile products. However, such changes in employment may be compensated by increased employment in other U.S. industries that export products. Thus the overall impact in employment may be less severe when the U.S. economy is considered as a whole.

In view of the interest in promoting employment in the United States, and the labor-intensive nature of the textile and apparel industries, trade regulation for textile products is likely to continue. However, it is in the consumer interest to liberalize these regulations as much as possible and the consumer has two powerful allies on his/her side in this continuing debate—the retailer and exporter.

Unknown Hazards

The final issue is the unknown hazards posed by chemical substances to the textile products consumer. This issue is addressed by the Toxic Substances Control Act (TSCA) (5). The major features of the Act are given in Table 7. It is too soon to assess the impact of the Act. However, it is likely to have a significant impact on textile production and hence on the textile products consumer in the coming decade.

| PURPOSE: | "Create and maintain a knowledge base which will enable preventive, rather than reactive, positions on any chemical substances determined to be hazardous."
| COVERAGE: | Chemical substances, including textile finishes and finishing agents, durable press resin, flame-retardants, soil release finishes, dyes and dye intermediates, water repellants, softener, antistats, antibacterial finishes.
| TESTING REQUIRED: | If chemical "presents an unreasonable risk to health or the environment."

**TABLE 7: TOXIC SUBSTANCES CONTROL ACT (5)**

**Conclusion**

The above discussion indicates that there are likely to be a variety of issues facing the textile and apparel industry in the coming decade. This poses both a challenge and a responsibility to the textile educator. It will be important to keep informed of such developments and in turn inform the textile products consumer of such developments. While we are likely to have enough issues to offer a new current issues course for the next 10 years, such courses will only be meaningful if they focus on why these issues are important and their implications for consumer welfare.
References

TECHNOLOGY FORECASTING

Gene J. Pontrelli
E.I. DuPont de Nemours and Company

DEFINITIONS

Technology
- Physical Things:
  - Materials (e.g., fibers, dyes).
  - Machines (e.g., cards, looms).
- Software.
  - Computer programs (e.g., control of dye delivery to dye bath).
  - ASTM procedures (e.g., measurement of moisture regain).
  - Heat treating sequences (e.g., heat setting of fabric before or after sanding).

Technology Forecasting
- A logical, quantitative prediction of the character and timing of a future technology achievement based on explicit subjective judgments regarding the future.
- Caveats - A TF is a prediction of what could happen - not what will happen.
  - The output of TF is data about technology - not a decision about management alternatives, but only input for decisions.
  - Regardless of the mathematical complexity of the TF technique/model - the explicit quantified data to predict the future is, nonetheless, subjective.

BACKGROUND

Who Is Doing TF?
- Now established in many domestic and foreign business organizations (e.g., IBM, GM, ITT, Whirlpool, P&G, Shell).
Established in the Multifiber Group of the Textile Research Laboratory in late 1976. Prior to this time, TF not carried out in a broad systematic manner.

Why Do TF?

To maximize the output of planning activities.

- At tactical planning level - to assess the rate of technology adoption.
- At strategic planning level - to prepare a technological decision-agenda.
- At policy planning level - to determine the future boundary conditions for institutional developments.

Who Should Participate In Preparing A TF?

A group of people with expertise in the areas of: politics, ecology, economics, sociology (the "Environment"), and technology. Technical knowledge alone cannot possibly provide a correct basis for predicting the timing of the emergence and impact of new technology.

SELECTED TECHNIQUES

Trend Analysis - Mathematically projecting historical trends into the future. Can be a single or replacement* parameter versus time.

- Resources Required
  - Reliable historical data.
  - Simple to moderately complex computer curve fitting programs, e.g., \( y = kt, y = e^{kt}, \log (y/L(1)/L - y/L) = \log k + A(2) \).

- Comments On Trend Extrapolation
  - Pros.
    * Generally, technological trends have been orderly - therefore, method is valid.
    * Technique is simple - especially when "eyeball" curve fitting is used.

* Replacement Parameter = New Technology
  Old Technology

(1) L = Upper limit for the S-shaped curve.

(2) A = Constant.
- Cons.
  * No proof that past forces will continue to support trend.
  * Present may represent a point of discontinuity.

NOTE: Trend Impact Analysis was developed to overcome these two concerns.

Trend Impact Analysis (TIA) - Systematically explores the effects of postulated future events on the projection of historical trend.

- Resources Required
  - Same as trend analysis, and
  - Specific TIA computer program (available through G.E.).
  
  PLUS
  - Experts from different fields to specify relevant future events as well as their:
    * Impact magnitude.
    * Probabilities of occurrence.

- Comments On TIA
  - Pros.
    * Provides format to document explicit judgments regarding events and their impacts/probabilities.
    * Process permits useful understanding of the forces driving the trend as well as flagging out serious discrepancies.
    * Computer program allows rapid determination of what would happen if event magnitude and/or probability changed.
  - Cons.
    * Takes a great deal of time.
    * Sometimes difficult to define past forces. Thus, impacting the mathematical projection may not be valid.

Cross-Impact Analysis (XIA) - Explores the effect of one forecasted event on other forecasted events.

- Resources Required
  - Group of experts representing technical as well as the "Environment" to:
    * Define relevant future events and estimate their probabilities of occurrence.
    * Specify the impact of one event at a time on other forecasted events.
  - Cross-Impact Computer Program (available through G.E.).
**Comments On XIA**

- **Pros.**
  * Does not require historical data.
  * It not only provides a format to document explicit judgments on events and their probabilities of occurrence, but goes beyond and requires a specification of binary interactions.
  * Process permits useful understanding of complex problems.
  * Computer program allows rapid determination of what would happen to all other events if events occurred - or did not occur.

- **Cons.**
  * Takes a great deal of time.
  * Like other event specifying procedures, a key event (oil embargo?) could be omitted.

---

**Cross-Impact Simulation (KSIM*)** - Combines XIA with a linear mathematical model to explore the relationships of a set of variables over time.

**Resources Required**

- Group of experts representing technical and the "Environment" to:
  * Define the relevant variables as well as present magnitude of each variable.
  * Specify the cross-impacts between variables.
- KSIM computer program (available through G.E.).

**Comments On KSIM**

- **Pros.**
  * Same as XIA, plus
  * Program allows one not only to play "what if" with the specified variables, but also with variables external to the XIA.

- **Cons.**
  * Takes great deal of time.
  * Interactions may not be linear. In this case, one must construct a more complex mathematical model - which, in many cases, has been done.

---

* The "K" comes from founder Julius Kane.
Monitoring - Strict Definition - Searching and evaluating embryonic signals that may be forerunners of change.

Common Definition - Data gathering.

- Resources Required
  - Experts with an eye, ear, "nose" for something significant.
  - Communications system to gather information.
  - Group of experts to evaluate the signals.
    * Technical in the early stages.
    * Technical and "Environment" experts in scale-up stages.

- Comments On Monitoring
  - Pros.
    * Permits early entry into marketplace.
  - Cons.
    * Too much noise in the system to detect any signal. Generally, signals become apparent only in hindsight.
    * Requires substantial manpower to follow appropriate phenomena to determine rate of progress and the true character of the impact.

Delphi - Systematic use of expert forecasting opinions based on anonymity, statistical display, and feedback of reasoning.

- Resources Required
  - Group of experts.
  - Some historical or base point data.
  - A "consensor"* if anonymity is to be guaranteed during meeting format. Not required if questionnaire is used.

- Comments On Delphi
  - Pros.
    * Brings together a broad range of skills and experience.
    * Does not suffer from problems arising from interpersonal relationships and/or authority figures.
  - Cons.
    * Attempts to reach consensus may stifle creativity.
    * Getting back questionnaires or keeping experts involved is difficult over a 3-6 month period.

* Available through Applied Futures.
Goal-Oriented Forecasting - Detailed systematic examination of future needs to define the technology required to satisfy these needs.

- **Resources Required**
  - Experts to establish a "scenario" surrounding a defined future need or objective.
  - Additional or different experts to define costs, capabilities, limitations, etc.

- **Comments On Goal-Oriented Forecasting**
  - **Pros.**
    - Orders and systematizes one’s thinking (e.g., objective, missions, systems, tasks, hardware).
    - Attempts to quantify reasoning.
    - Complements the previously discussed exploratory techniques.
    - Combines forecasting with planning.
  - **Cons.**
    - Takes great deal of time.
    - High level of quantification often gives false sense of validity.

**NEAR-TERM TRENDS**
(Apparel And Home Furnishings)

- **Fibers**
  - **Filament**
    - Spin-Like
    - Rich Luster
    - Color Styling
    - Aesthetics Versatility
    - Air-jet texturing.
    - Modified cross-sections.
    - Intermingled fibers which dye differently.
    - Broad range of new deniers and dpf.
  - **Staple**
    - Reduced Costs
    - Modified staple for open end spinning as well as for higher blend levels with cotton.
    - Modified cross-sections.

- **Fabrics**
  - Use of above and existing fibers - including blends - to satisfy specific end-use requirements.
  - Development of a broad range of stretch wovens for outerwear.
  - Installation of high productivity looms and knitting machines.
Dyeing/Finishing

- Easy-Care/Comfort - Surface treatments.
- Spun-Like Hand - Sanding, napping.

Garments

- Vapor phase permanent press.
- Molding.

SELECTED REFERENCES

Literature


Consultants

- SRI - Menlo Park, California 94025.
- Futures Group - 124 Hebron Avenue, Glastonbury, Connecticut 06033.

Tools

- Computer Programs - G.E. Information Services Business Division, 401 N. Washington Street, Rockville, Maryland 20850.
NOTE: Within each environment are individuals and organizations, whose value systems may be changing at the time and perhaps in a vastly different manner than in other parts of the system.

THE SEVEN STAGES IN THE PROCESS OF TECHNOLOGICAL INNOVATION: RELATED TO THE ENVIRONMENT

(SOURCE: J. R. Bright)

THE NONTECHNICAL ENVIRONMENTS

Political
Social
Economic
Ecologic

THE TECHNICAL ENVIRONMENT

Goals Defined on National, Institutional, and Organizational Levels

Operational Use of Technology

The Knowledge Base of Applications (Engineering) of Nature (Science)

COMMERCIAL INVENTION

EXECUTION
### Explicit TIA Impact Table

<table>
<thead>
<tr>
<th>Impacting Events</th>
<th>Probability of Occurrence</th>
<th>Years to First Impact</th>
<th>Years to Maximum Impact</th>
<th>Years to Steady State Impact</th>
<th>Maximum Impact (Percent)</th>
<th>Steady State Impact (Percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1980</td>
<td>1983</td>
<td>1988</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Future of Chemical Industry - Example XIA
(Source: Futures Group)

#### Selected Events Generated by Experts

2. Increased governmental intervention in the process of innovation results from demands for consumer protection and pollution control.
3. Chemical theory progresses to the point where much of chemical research can be done through computer calculations rather than actual experimentation.
4. The chemical industry expands into textiles through the development of non-woven synthetic fabrics.
5. Chemical companies realize a rising investment in conventional research.

#### Initial Probability That Events Occurs by 1985

<table>
<thead>
<tr>
<th>Event</th>
<th>Initial Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.15</td>
</tr>
<tr>
<td>2</td>
<td>0.25</td>
</tr>
<tr>
<td>3</td>
<td>0.30</td>
</tr>
<tr>
<td>4</td>
<td>0.10</td>
</tr>
<tr>
<td>5</td>
<td>0.40</td>
</tr>
</tbody>
</table>

### XIA for Chemical Industry
(Source: Futures Group)

<table>
<thead>
<tr>
<th>If This Event Occurs</th>
<th>Initial Probability</th>
<th>The Probability of This Event Becomes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Event 1</td>
<td>0.15</td>
<td>1.00 0.40 0.10 0.15 0.45</td>
</tr>
<tr>
<td>Event 2</td>
<td>0.25</td>
<td>0.15 1.00 0.15 0.30 0.40</td>
</tr>
<tr>
<td>Event 3</td>
<td>0.30</td>
<td>0.15 0.25 1.00 0.15 0.40</td>
</tr>
<tr>
<td>Event 4</td>
<td>0.10</td>
<td>0.15 0.65 0.55 1.00 0.40</td>
</tr>
<tr>
<td>Event 5</td>
<td>0.40</td>
<td>0.25 0.25 0.30 0.75 1.00</td>
</tr>
</tbody>
</table>
### XIA Computer Output

<table>
<thead>
<tr>
<th>Event</th>
<th>Initial</th>
<th>After Monte Carlo</th>
<th>% Δ</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1</td>
<td>0.15</td>
<td>0.17</td>
<td>13</td>
</tr>
<tr>
<td>E2</td>
<td>0.25</td>
<td>0.29</td>
<td>16</td>
</tr>
<tr>
<td>E3</td>
<td>0.30</td>
<td>0.29</td>
<td>-3</td>
</tr>
<tr>
<td>E4</td>
<td>0.10</td>
<td>0.26</td>
<td>160</td>
</tr>
<tr>
<td>E5</td>
<td>0.40</td>
<td>0.40</td>
<td>0</td>
</tr>
</tbody>
</table>

### XIA Computer Output if E1 Occurs

<table>
<thead>
<tr>
<th>Event</th>
<th>Initial</th>
<th>After Monte Carlo</th>
<th>% Δ</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1</td>
<td>0.99</td>
<td>0.99</td>
<td>0</td>
</tr>
<tr>
<td>E2</td>
<td>0.25</td>
<td>0.30</td>
<td>20</td>
</tr>
<tr>
<td>E3</td>
<td>0.30</td>
<td>0.33</td>
<td>10</td>
</tr>
<tr>
<td>E4</td>
<td>0.10</td>
<td>0.10</td>
<td>0</td>
</tr>
<tr>
<td>E5</td>
<td>0.40</td>
<td>0.50</td>
<td>25</td>
</tr>
</tbody>
</table>

\[ \Delta \% = \frac{P_i - P_{\text{MC}}}{P_i} \times 100 \]

When \( \Delta \% \geq 20\% \), initial probabilities should be re-examined and first, second, and third order probabilities re-examined for third or fourth order interactions.

### KSIM Procedure

1. Discuss problem and identify key variables \( V_i \).
2. Establish present level of \( V_i \) and lower and upper limits for \( V_i \) over the forecast period.
3. Normalize \( V_i \) between 0 & 1.
4. Do cross-impact analysis between variables.
5. Run KSIM program.
6. Review output and decide whether trends are logical or whether you should impact output with external events and/or trends.
7. Rerun program until forecast meets group approval.

### KSIM Mathematical Model

Variables \( V_i (t) \) (\( i = 1, 2, \ldots \)) are scaled from 0 to 1, where time \( t \geq 0 \).

\[
V_i (t + \Delta t) = V_i (t)^{P_i} \quad \text{where} \quad P_i = f (V_j | j = 1, 2, \ldots)
\]

Impact on \( V_i \) in summary,

\[
P_i = 1 + \Delta t \left[ \frac{\text{sum of negative impacts on } X_j}{1 + \Delta t \left[ \text{sum of positive impact or } X_i \right]} \right]
\]

- If \( P > 1 \), \( V_i \) decreases
- If \( P = 1 \), remains constant
- If \( P < V_i \) increases

\( \Delta (t), B(t) \ldots = \text{set of external variables} \)
KSIM OUTPUT

Variable $V_1$

$V_2$

$V_3$

$V_4$

Year

EXAMPLES OF DELPHI QUESTIONS
(Source: KSA)

Total knit fabric production in the United States has been as follows:

<table>
<thead>
<tr>
<th></th>
<th>1973</th>
<th>1974</th>
<th>1975 (Estimated)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1976</td>
<td>2,071</td>
<td>2,011</td>
<td>1,960</td>
</tr>
</tbody>
</table>

1. When do you expect U.S. knit fabric production to be _____ million pounds?
   - Million lbs.
   - (a) 1,500 1980 1985 1990 1995 2000 Never
   - (b) 2,500 1980 1985 1990 1995 2000 Never
   - (c) 3,000 1980 1985 1990 1995 2000 Never
   - (d) 4,000 1980 1985 1990 1995 2000 Never

8. When will the number of two-bar tricot machines in the U.S. equipped with the compound needle reach _____ %?
   - (b) 30% 1980 1985 1990 1995 2000 Never
   - (c) 50% 1980 1985 1990 1995 2000 Never
   - (d) 75% 1980 1985 1990 1995 2000 Never
   - (e) 100% 1980 1985 1990 1995 2000 Never

RELEVANCE TREE APPROACH TO GOAL-ORIENTED FORECASTING

<table>
<thead>
<tr>
<th>Objective</th>
<th>Tasks</th>
<th>Approaches</th>
<th>Relative Importance of Each Approach</th>
</tr>
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<td>A_32 (.4)</td>
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Children's Role in Wool Production
Jo E. Paoletti
Research conducted at the University of Rhode Island

The purpose of this research was to determine the role of child labor in wool production in a small Rhode Island town, from colonial times until the middle of the nineteenth century. Workers' names were found in the pay records of the Peace Dale Manufacturing Company, and in the account books of two local merchants, father and son, who paid weavers and spinners to work in their own homes before the factory opened. More than 600 names were found, spanning over a century. An attempt was then made to calculate the age of each worker, using local birth and death records.

Children were found to have performed an auxiliary role in wool manufacture in Peace Dale, both before and after the mechanization of most of the processes. The importance of this auxiliary work force declined gradually, due to technological changes and changes in public opinion about child labor and education. It was especially interesting to find that, while Peace Dale did experience an influx of immigrant labor around 1850, there was no evidence to indicate that these immigrants replaced child workers, as is commonly believed.

The small scale of local studies makes it possible to gather detailed information about a single community. Many more studies like this would be necessary in order to form a generalized picture of child labor in early New England woolen manufacture. However, this study reduced broad national trends to the level of gradually changing life styles in a single village.

History of Costume in Historic Perspective—17th-Century England
Theodore H. Kuehne
Research conducted at Oxford University, England

Purpose: To relate the social, political, and economic atmosphere of 17th-century England to the development of clothing and textiles.

Results: The 17th century is crucial in English history. In 1600, England was still, in many respects, recognizably medieval; by 1700 it is recognizably modern. During this century that witnessed civil war and revolution, many immensely important changes occurred: commerce came to play an increasingly important role in national economy; the American colonies became firmly established; the quaintness of Elizabethan life gave way to the elegance of the William and Mary period; the scientific revolution of the century gave us the internationally known names of Bacon and Harvey, Boyle and Newton; finally, all aspects of the nature of life
were to be affected by the debates in politics and law of Hooker, Locke, Hobbes, Harrington, and Halifax.

But what has this to do with clothing and textiles? The development of clothing and textiles during this century is, of course, reflected in the changing costume of the populace. As England shifted from the Elizabethan Era into the Stuarts, and then into chaos—civil war and finally restoration—so the development of fashion shifted from Renaissance into elegance, into Puritan simplicity, and finally into grand, dazzling Baroque. These dramatic changes had equally as dramatic effects upon the making of clothing and the utilization of new ideas from other parts of the world in style and fashion.

Implications: As 17th-century England is a diverse and exciting century in history, so, in particular, is the development of clothing and textiles in this period. In a more practical sense and using this diversity and excitement, an in-depth study, such as this, could easily form the basis for graduate programs, seminars, and individual studies.

The Contributions of Women to the Colonial American Textile Industry
Patricia A. Cunningham
Research conducted at Florida State University, Tallahassee

Although women traditionally were responsible for the household manufacture of cloth in the American colonies, and later were employed as spinners and weavers for the first American textile "manufactories," their contributions to the growing colonial American economy have been largely ignored. This study explores the role women had in the development of textile factories in 18th-century America.

Research in documents, diaries, letters, and account books of individuals concerned with the production of cloth prior to, and especially during, the American revolutionary conflict has revealed the central position that women had in spinning and weaving cloth, as well as in constructing uniforms for the Continental Army. Records such as those of the Philadelphia American Manufactory reveal that hundreds of women were employed as spinners in 1775. Research in progress suggests that when spinning finally became water powered, women continued to contribute their skills as contract weavers for the textile factories.

Implications of this research are that the tradition of women's employment in the textile arts, their technical skills, and the shortage of labor in colonial America all contributed to their acceptance as employees in the early factories. Although interpreters of American industrial and economic history have long ignored these facts, colonial American women in their roles as textile workers, made a large contribution to the emerging American industrial economy long before the 19th-century textile mills encouraged women immigrants to work in their factories along the Merrimack.
A Survey of Burn Accidents Among Elderly Patients Treated in Rhode Island Hospitals
Carol E. Avery
Research conducted at the University of Rhode Island

Purpose: To investigate burn accidents among the elderly in relation to:
(1) the number of accidents, (2) the circumstances surrounding the accidents,
(3) the role of clothing and other selected variables and (4) the outcome
of the accidents.

Procedure: Data were obtained from medical records in 11 of the 12 acute
care facilities in Rhode Island. The records were selected on the basis of
three criteria: (1) patients had suffered a burn injury, (2) were 60 years
of age or older and (3) were hospitalized between January 1, 1972 and Decem­
ber 31, 1976. Statistical analyses included frequency distributions, percen­
tages, means, standard deviations, chi square and t-tests.

Results: Definite or suspected clothing involvement was reported
in approximately two-fifths of the 136 burn accidents that occurred during the five-year
period. The accidents with clothing involvement differed significantly from
those with no clothing involvement in respect to the age and mental status of
the victim, the number and type of admission, the location and severity of
the burn, the location of the incident, the source of the burn, the contribut­
ing circumstances and the discharge status of the patient. The accidents did
not differ in terms of sex, socioeconomic status, or length of hospitalization.

Implications: Fire injuries represent a serious hazard for the elderly. Edu­
cational safety programs should be developed for senior citizens and for those
who care for them. Such programs should emphasize the greater incidence of
fire accidents among the elderly, the higher mortality rates, the dangers of
clothing ignition, the additional problem created by physical and mental dis­
abilities, and the importance of immediate treatment procedures.

Clothing and Day-to-Day Interpersonal Conflicts
as Related to Anxiety and Defensive Behavior
Geneva Helms Yadav
Research conducted at The Pennsylvania State University

The purpose of this research was to investigate how one defends psycholog­
ically from day-to-day conflicts and from interpersonal clothing conflicts
and how the level of trait anxiety relates to the mode of defense.

Three separate instruments were used to collect data. Spielberger's trait
anxiety inventory was used for measuring anxiety level. Gleser and Ihile­
vich's Defensive Mechanisms Inventory was the measure chosen for defensive
behavior. The DMI groups all defensive mechanisms into the following five
clusters: turning against the object, turning against the self, projection,
principalization, and reversal. A Clothing Defensive Mechanisms Inventory
was developed by the researcher to parallel the Defensive Mechanisms Inventory.
There were 51 male subjects and 54 female subjects, making a total of 105. The mean age for the sample was 20.2 years. Multivariate analysis and Pearson's correlations were the statistical tests used.

The more anxious individual is more likely to blame others for clothing conflicts than for day-to-day conflicts while this person would be less likely to principalize for clothing conflicts. This highly anxious person also is more likely to use reversal as a defense, but this use is the same for clothing and day-to-day conflicts. Anxiety, then, showed a trend toward more relationship with clothing behavior than day-to-day behavior.

Males did not perform differently from females in level of anxiety. However, males did use turning against the object and projection more often as a defense from day-to-day conflicts. These two traditionally male defenses were not clearly male attributes when it came to defending from clothing conflicts.

Clothing Interest of Young Adult, Middle-Aged, and Elderly Men
Doris E. Drake and Lois M. Curel
Virginia Polytechnic Institute and State University

This study was undertaken to investigate the importance of clothing to adult men and to ascertain whether differences existed in clothing interests of young adult (age 25-44), middle-aged (age 45-64) and elderly (age 65-80) men. A secondary purpose was to investigate the relationship between the five factors of clothing interest and certain demographic variables.

A questionnaire was administered to 244 Lions and Kiwanis Club members in southwestern Virginia. Analysis of the data revealed that the older men had higher average scores on four of the five aspects of clothing interest (personal appearance, conformity, psychological awareness, and modesty). Concern with modesty in clothing increased significantly with age for all three groups with the younger men exhibiting the least degree of concern. Concern with personal appearance was significantly the highest component of clothing interest and concern with the use of clothing to enhance the self-concept was significantly the lowest of the five dimensions for the sample.

The most influential demographic variables were occupation and income. Protective and service workers indicated the least degree of concern on four factors, personal appearance, conformity, psychological awareness, and self-concept, for the sample. Their interest in personal appearance was significantly lower than the interest displayed by business men, clerks, and kindred workers. Individuals earning incomes of less than $20,000 were more interested in the psychological awareness of clothing than men with higher incomes. Overall, the men in this sample exhibited a low to medium degree of interest in clothing.
The purpose of this research was to revise a clothing interest questionnaire and test the revised instrument for reliability and construct validity. Although there are several instruments for measuring interest in or importance of clothing, Creekmore's 1968 "Importance of Clothing" questionnaire was selected for this study. This measure has been used frequently in its original form and has been the basis for statements developed by researchers for use in their own instruments.

Preliminary revision of the instrument included rational analysis of each item by the researchers, by a panel of graduate students, and by 10 previous users of the original questionnaire. Additionally, comments taken from protocols used in other studies were considered. Major considerations in the rewording of items were to eliminate sex and age biases and modernize the terminology. Although a shortened instrument would provide ease of administration, an attempt to eliminate items during this phase of research was not considered. The preliminary revision of the questionnaire and a demographic data sheet were distributed to 750 students enrolled in classes at Virginia Polytechnic Institute and State University.

To test for validity, factor analysis was used and the resulting factors were compared to the subscales of the 1968 form of the instrument as well as to the factorial study performed by Gurel in 1974. Even with the extensive rewordings used in the revised instrument the factor structure remained essentially similar to both the original subscales and to the previous factor analysis. Thus further construct validity may be claimed for the instrument. Reliability was determined by means of the KR-20 formula. Results indicated a high degree of internal consistency for the items within the factors. Nondiscriminating items were identified by means of an item analysis and these, as well as items loading low on the factor analysis, were eliminated from the instrument.

The final revised questionnaire contains 57 items divided between five factors or subscales. This instrument should be suitable for use with a wide age range and with both sexes.
The objective of this study was to determine the differences between two methods of collecting clothing consumption data: diary and recall. The study was limited to selected families in Ithaca, N.Y., with elementary school children. One group of families recorded clothing purchases in a diary for a period of one month. Another group of families recalled purchases for the same month during an in-home interview.

There were no significant differences between the demographic characteristics of families participating in each. Differences in data were negligible. The per capita expenditures within all apparel categories were similar, with the exception of men's accessories. There were no differences between the quantities of clothing items purchased. Differences in the proportion of families within each group that reported expenditures differed for: women's coats, girls' footwear, and women's, boys', and girls' nightwear and underwear.

The only other apparent difference was in the proportion of families reporting purchases made during the fourth week of the study.

Estimated costs per family participating in the diary method was $6.39. For those in the recall group, it was $2.08.

Since comparable data were obtained, the author recommends using the less expensive recall methods in future clothing consumption studies.

The Process of Aging Related to Body Cathexis and Clothing Satisfaction
Frances Parker McLean and Anne Kernaleguen
Research conducted at Utah State University

The purpose of this study was to determine whether measurable relationships exist among levels of satisfaction with the body and with clothing for women at different age levels.

Interaction of physiological changes with social and environmental factors might effect changes in self-concept as aging progresses. Body cathexis and clothing satisfaction have been shown to relate closely to self-concept; consequently these two factors were selected for measurement at different age levels.

The body cathexis scale developed by Secord and Jourard and the clothing satisfaction scale designed by the investigator were administered to 242
women who were active members of church-affiliated groups in Tuscaloosa, Alabama. Seven age groups of 10-year increments between the ages of 20 and 89 comprised the sample.

ANOVA indicated no significant differences in body cathexis among age groups; however, lowest satisfaction was expressed by the youngest groups, while highest was found in the oldest groups. Discriminant analysis identified a significant difference in satisfaction with fabric among age groups.

Pearson product moment correlation coefficients revealed a significant relationship between body cathexis and clothing satisfaction. Beta coefficients provided by multiple regression analysis identified appearance, social and psychological factors, and fit, in that order, as strongest contributors to this relationship. Fit and appearance were rated by respondents as the most important components of clothing satisfaction.

Based on this information, it was concluded that differences in satisfaction with body and clothing cannot be attributed to age per se. Individual differences within each age group seemed stronger than differences between groups.
Minutes
Eastern Region Business Meeting
October 26, 1978

1. **Call to order** by Jessie Warden.

2. **Minutes** from October 1977 business meeting approved.

3. **Treasurer's report** (see report)

4. **Ballots for council**—selected by nominating committee—**were** distributed to members present and counted. Newly elected council members were: Nora MacDonald, University of West Virginia, and Barbara Stark, Howard University.

5. **Evaluations** of current meeting were distributed and filled out.

6. Loy Walton, national executive secretary, was introduced and spoke briefly about her new position with ACPTC.

7. **AHEA** affiliation was discussed. Special emphasis was placed on the fact that the constituent affiliation with AHEA has only one member, ACPTC. A less restricting affiliation such as that enjoyed by ADA was recommended. Views of Eastern Region will be carried to National Board for further consideration.

8. **1979** plans for Eastern Region meeting were briefly discussed. The meeting will be held in Williamsburg, Va., October 24-27.

9. **Bylaw revisions** were presented and distributed by Enid Tozier, chairman of the committee on revisions. She asked that members take copies home and submit comments to her by mail.

10. **ASTM** liaison Mary Ann Zentner reported on a recent meeting. She emphasized the importance of liaison with such an organization and passed a sign-up sheet for indication of interest in ASTM project participation.

11. **Adjournment** at 12:20 p.m.

Joann F. Boles
Secretary
RECEIPTS

Balance on hand January 1, 1977, Checking Account - $ 500.00
Balance on hand January 1, 1977, Savings Account - 4,273.08

National Dues Rebate 8/1/76-6/30/77 - - $ 727.50
National Dues Rebate 7/1/77-9/30/77 - - 272.50
National Dues Rebate 10/1/77-1/31/78 - - 92.50
National Dues Rebate 2/1/78-8/30/78 - - 505.00
Interest on Savings Account 2/22/77 - - 3.98
Interest on Savings Account 5/27/77 - - 41.60
Interest on Savings Account 8/30/77 - - 42.24
Interest on Savings Account 11/29/77 - - 40.91
Interest on Savings Account 2/27/78 - - 39.73
Interest on Savings Account 5/30/78 - - 36.13
Interest on Savings Account 8/30/78 - - 32.97
Sale of Proceedings (3 @$10.00) - - - - 30.00
Refund from newsletter (Joann Boles) - - - - 53.44
Refund from planning meeting - - - - 27.10

$1,945.60

DISBURSEMENTS

Expenses of Council at 1977 national meeting in Dallas $1,000.00
Expenses of Council at 1978 planning meeting in Washington 561.41
Cost to Eastern Region of 1976 combined proceedings 500.00
Cost of Eastern Region 1977 newsletter 500.00
Ballots for 3 Eastern Region Council Members (11/8/77) 71.15
Ballots for Eastern Region representative to National Executive Board (5/24/78) 54.09
Slate of nominees for Eastern Regional Council (9/10/78) 17.22
Deposit for 1978 tour of Marjorie Merriweather Home 25.00
Deposit to Best Western 1776 Resort for 1979 meeting 150.00
Checkbook and checks 9.87
Telephone (Diane Walker) 10.10
Postage 11.30
A.H.E.A.-Membership lists and labels 14.02

$2,924.16

Balance on hand October 1, 1978, Checking Account - 683.88
Balance on hand October 1, 1978, Savings Account - 3,110.64

$3,794.52
Report

ASTM Committee D-13
Liaison with Association of
College Professors of Textiles and Clothing
October, 1973

Mary Ann Zentner, Eastern Region
Marcia Metcalf, Central Region
Mary Jean Wylie, Western Region

The committee D-13 on Textiles met October 16-19, 1978, at the Doral Inn, in New York. The schedule included seminars, committee and subcommittee meetings, and task force groups. Meetings run concurrently, thus participants select the meeting(s) that are in their field of interest.

The seminar was on:

"Sensory Testing and Textiles"

Speakers: Braham Norwick
Dr. Moskowitz
MPI Sensory Testing
Dr. Jeff Piech
E. I. DuPont de Nemours

Dr. Moskowitz's paper is available upon request. Write to James A. Thomas, ASTM Staff Manager for address.

A new task force was formed under Committee D-13.54.03 -- Consumer Practices to investigate the possibility for development of a technique for standardization of size information. It was suggested that before standardization could be accomplished there was a need for an Anthropometric Survey, as the existing data is over 40 years old. A proposal has been written for a 3 1/2 million dollar research project, which includes 142 measurements, all ethnic groups, all ages and all sections of the country. Mr. Aubrey Jay of J. C. Penney Company urged all who see the need for this to support it by writing a letter to:

Dr. Jordan Baruch
Assistant Secretary of Commerce
for Science & Technology
Commerce Department
Washington, D. C. 20230
The data would be stored in a computer in the Department of Commerce and available to all who need that information from apparel manufacturers, to industrial planners, to educators. There was a great deal of interest in this idea to standardize sizes and it would appear that this committee would become active.

Another task force, Information Disclosure, was formed under Committee D-13.54.03 -- Consumer Practices to review existing methods of communicating product information to consumers. The goal would be to establish standard guidelines for product labels for communication information.

It was decided to conduct a survey using one apparel item to determine what information the consumer wanted in order to make an informed buying decision. It seemed that ACPTC could make a definite contribution in this project by distribution, collection and tabulation of the survey through their three regional liaison representatives.

Briefly the steps include:

1. Initial survey developed requesting information considered important by the consumer on men's dress shirts.
2. Survey critiqued by seven ACPTC members who volunteered.
3. Survey sent to participating Universities in each region to administer.
4. Tabulated results returned to committee. As many Universities as possible are requested to participate in this survey, with a return of at least 25 from each for a total of 1000 (hopefully).
5. Several labels will be designed to determine a format which is acceptable to the consumer. It is hoped that they will be ready by the March meeting of ASTFI.

It was suggested that it might be appropriate to recommend that a third book related to textile test methods for component parts of garments (thread, zippers, buttons, etc.) be compiled. The reason for this being the increased number of tests and a more logical organization of tests.

It was decided to form another sub-group to work on standards for Household Textile Products under D-13.54.04 on Ultimate Textile Products. The sub-groups would include upholstery, bedding, towels, draperies/curtains, blankets, bedspreads. This is in the formative stages.

Other committees met to review standards and to gather information in specific areas. For example; committees included Flammability Fiber, Yarn and Fabric Test Methods, Statistics, and International Standards.
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Next meeting will be held on March 12, 1979 - Atlantic City, NJ
Contact ASTM Staff Manager for further information.

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Association of College Professors of
Textiles and Clothing
Wednesday, October 25

1:00-5:00 p.m.  Workshop on Fashion Merchandising Internship Programs

4:30-6:30 p.m.  Planning and Advisory Council

7:00-8:30 p.m.  Registration

8:30-10:00 p.m. Small Interest Group Sessions

Thursday, October 26

8:00-10:00 a.m.  Registration

9:00-9:15 a.m.  Opening Session
Presiding: Mary Don Peterson

9:15-10:00 a.m.  Keynote: "Education Work Linkages"
Earvin Feldman, President
Fashion Institute of Technology, New York City

10:30-11:15 a.m.  General Session
Presiding: Joan Laughlin
"New Directions in Textile Education"
Manfred Wentz, University of Wisconsin-Madison

11:15-12:00 noon  "Is There a Case for T. & C.?"
Audrey Gieseking-Williams
California State University, Los Angeles

12:15 p.m.  Luncheon
Presiding: Martha Jenkins

1:30-2:45 p.m.  General Session
Presiding: Hilda Mayer Buckley
"Space Age Influences on Earth Bound Functional Clothing Design"
Matthew Radnofsky
University of Houston
3:00-5:00 p.m.

Business Meeting
Presiding: Mary Don Peterson

7:30-9:00 p.m.

Banquet
Presiding: Shirley Friend

"Economic Influences on Consumer Goods Expenditure Patterns"
Jay Levine, Chief Economist
Sears, Roebuck and Company, Chicago

Friday, October 27

8:00-9:30 a.m.

Research Session I—Socio-Psychological Aspects of Clothing
Presiding: Hilda Mayer Buckley

"An Appearance Program with a Group of Female Psychiatric Patients: Effect on Appearance, Self-Concept and Body Cathexis"
Carolyn Callis, University of Texas

"Perceived Fashion Risk as Related to Self-Esteem of Males and Females"
Bernetta Canton and Geitel Winakor, Iowa State University

"Values, Attitudes Toward Dress and Decision Making"
Sue Dodson, Texas Tech University, and Mary Ellen Roach Higgins, University of Wisconsin-Madison

"The Fashionability of Clothing: Its Effect on Perceptions of an Educator"
Peggy Engelbach and Mary Lapitsky, Ohio State University

Research Session II—Textiles: Contemporary and Historic Concerns
Presiding: Barbara Stowe

"Flammability Characteristics of Layered Fabric Assemblies"
Elizabeth McCullough, Kansas State University

"Effect on Drying Time and Temperature on Durability of Fabrics and Energy Consumption"
Mary J.R. Otis and Rose Glee, Southern University and Austin Bullock, USDA, Agriculture Research Service, Knoxville, Tenn.
"Silk Pseudomorphs on Shang Dynasty Bronze Artifacts: A Preliminary Investigation"
Lucy R. Sibley, St. Mary College; Lois Korslund, University of Missouri; and Ralph M. Rowlett, University of Missouri

"Investigation of Detergents Used in Wet-cleaning Old Cotton Fabrics with Emphasis on Removal of Detergent and Effects on the Fabric"
Vicky Kruckenberg and Margaret T. Ordonez, Kansas State University

Research Session III—Cultural, Aesthetic, and Historic Aspects of Clothing
Presiding: Martha Jenkins

"The Influence of Russian Artists on Fashion: 1909-1925"
Dorothy U. Behling, Free-Lancer, Columbus, Ohio

"Color Value Preferences for Clothing and Personality Factors"
Ioegene H. Ford and Mary F. Drake, University of Tennessee

"Sensory Evaluation of Clothing"
Karilyn Delong, University of Minnesota

"The Establishment of a Chronology of Local Photographers as a Resource of the Study of Nineteenth Century Costumes in Ohio"
Virginia Gunn, University of Akron

Research Session IV—Education and Consumer Behavior
Presiding: Karen Evans

"Assessment of Master's Degree Programs in Textiles and Clothing"
Evelyn J. Senecal, Kansas State University

"Characteristics of Older Consumers and the Comparative Effectiveness of Two Forms of Clothing and Textiles Consumer Information"
Barbara Ames, Michigan State University

"Clothing as an Indicator of Life Quality"
Sara Butler, Miami University and Joanne Dicher, University of Minnesota

"Deceptive Advertising: An Attitude Change Approach"
Brenda S. Witter, Michigan State University and Charles J. Fuol, University of Tennessee
11:45-1:00 p.m.  
Luncheon  
Presiding: Jo Ann Lefler

1:15-3:00 p.m.  
Departures for Chicago Art Institute,  
Tour of Apparel and Merchandise Marts,  
and Chicago Historical Society—  
"Eight Chicago Women and Their Clothing"  
A commentary on the exhibition, Virgil Johnson

5:00 p.m.  
Planning and Advisory Council

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1977-78

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Two years ago when Operation Sail arrived in Newport, a Boston family waited in a line they thought was for boarding the tall ship Eagle. When they were told the line was going nowhere, that it had somehow just formed for no purpose, they refused to abandon hope. "It took us 35 minutes to get this far," the father explained, "we're not giving up now."

I think that incident underlines the importance of the theme selected for this annual meeting: "Changing Times—Changing Issues." The times are changing, and if we continue to do what we have been doing just because we have been doing it for awhile, we are certain to be out of step with the future.

There is a tendency for the world to change faster than our perceptions of it. Today's policies often deal with yesterday's realities. If we are going to change that, if we are going to learn to hit tomorrow's targets with today's policies, we are going to have to learn—as any good skeet shooter will tell you—to lead a little. It is important to know how the present differs from the past. It is probably even more important to know how the future is likely to differ from the present.

So ever since Al Toffler published Future Shock and Herman Kahn set up the Hudson Institute and the Club of Rome met to tell us—somewhat prematurely—that we had reached the limits of growth, trying to see the future has become a popular parlor game all over the world.

Of course, professional psychics have been at it for centuries—and they still attract wide attention for their predictions. For example, one psychic predicts that ancient manuscripts explaining the secrets of levitation will soon be found in the Yucatan. Another predicts that law enforcement will—in a few years—be conducted by psychic means. Another says China will take over the world early in the 21st century. Jeanne Dixon expects formal education as we know it to disappear by the turn of the century. One psychic says that Paris will lose its place as a fashion trend setter, and the Orient will set the stage for revolutionary new concepts in fashion design. Another says, with equal confidence, that by 1990 fashion trends will have returned to the graceful, flowing lines of ancient Greece. Take your choice.

There are all kinds of more systematically documented trends that will affect our industry most profoundly. I might talk about a U.S. trade policy in textiles and apparel that is disemploying a thousand American workers a month. In 1951, 4 percent of women's garments were made overseas. By last year that figure exceeded 34 percent. We are exporting jobs in our industry and importing unemployment at an accelerating rate.

Or I could discuss the implications of the entry of millions of American women into the labor force. Just two months ago, for the first time in history, the figure crossed the 50 percent line. More than half the nation's women had jobs or were looking for them. It is hard to remember when a more basic social statistic moved farther faster. And that is only the most visible aspect of a more complex pattern of change in the composition of the labor force. For example, more and more workers—already a fifth of the total—are electing to work less than full time.

But out of the whole blinding range of issues that will affect what we do in the years to come, I want to talk for a few minutes this morning about the probable impact of new production technology on our industry. It is an issue
with a long, exotic history.

In the 1920's a Czech dramatist named Karel Capek wrote a popular science fiction play in which a firm called Rossum's Universal Robots produces so many synthetic "men" and "women" that all the world's industrial workers are displaced. (Capek, in fact, coined the word "robot." It comes from "robota," the Czech word for work.) In the play, the robots revolt and, having methodically exterminated the human race, take over the world.

Now, 50 years later, more than 100 firms around the world are making 200 different kinds of robots. Six thousand robots are employed on assembly lines around the world doing men and women used to do.

These robots have computers for brains; they can handle a process with as many as 1,000 steps. They do not get tired, and they do not talk back. They can work in the dark, in freezing, torrid, or polluted atmospheres. They do not take coffee breaks. The most advanced models can "see" with TV-camera eyes linked to memory systems and "feel" with sophisticated sensors. Future robots will be able to hear and obey spoken orders. They can be instantly "re-educated" to complex new tasks, simply by plugging them into new software.

I think if we understand clearly the meaning of the industrial robot, we will have an important fix on the future of the field in which we all work. One popular scenario, of course, is grim. Increasingly sophisticated machinery will displace workers. The job supply will dwindle and eventually disappear. Woody Allen says he isn't afraid of death; he just doesn't want to be there when it happens. I feel the same way about this vision of the future. But this possibility has been a part of our consciousness since the 1760's, when English workers called Luddites wrecked the new spinning machines and burned the houses of men who owned them. But in a generation, forty times as many workers were working in England's cotton textile industry, working shorter hours and earning more money.

Today's technology will undoubtedly have a similar effect. Take the robot. So far, Fiat is the biggest user of industrial robots. In the Mirafiori plant body shop, for example, Fiat has installed 16 "robots," displacing 20 men, and production has doubled. Savings are counted in the millions. The robot-released workers are all still working at Fiat but in jobs they like better.

Technology, almost by definition, increases demand for and productivity of people. But it dramatically changes the mix. Robots—and the kind of technology robots represent—arithmetically reduce the need for the lowest skilled workers. But they geometrically increase the need for technicians.

Our industry is a near-perfect example. Labor force composition is changing. The demand for low-paid, low-skilled machine operators will decline as the demand for technicians to tend increasingly complex technology—computer directed lasers for cutting, sound wave sewing machines and programmed stitching machines—will increase. Fashion is still a growth industry, but as it grows, it will change.

The near term has a lean and hungry look. Some of the educational statistics are getting soggy and scary. Application rates are declining in most institutions; enrollments are down.

But Jeanne Dixon's death of education prediction is undoubtedly exaggerated. The current sag is surely ephemeral. Enrollments from younger groups are, inevitably, settling. There simply are not as many of them.

But there will be more than compensating increases from the adult population. Lifetime continuing education was once just something talked about to pass the heavy time at educational conventions. Now it has become a reality for millions of Americans. In what Daniel Bell calls a post-industrial society, employment—both for present and future employees—is requiring more and more education.
The things uneducated people can do are being done by increasingly sophisticated machines. That means uneducated people must get educated to get and stay employable.

It is happening already. I would guess that in any large community college system—to take just one example—half the present enrollments are, properly classified, adults. Enrollments will continue to grow, and adults will be the source of much of that growth. Technological change is not our enemy; it is, unmistakably, our ally. It will not eliminate the need for education, but it is already profoundly changing the kind of education we must provide.

The statistics are telling us that something has gone tragically wrong at the intersection between education and work. The last time the teen-age unemployment rate was less than 10 percent was more than 20 years ago. Increasingly, young people's first serious exposure to the real weather of free society is a failure to find a job they feel is suitable. This is serious in itself. But the secondary consequences are hair-raising. In a recent survey, only 14 percent of American young people said they felt they were part of the free enterprise system. A society with that degree of alienation is a dangerously unstable society.

Elsewhere in the world, other nations are experiencing the terrible results of this kind of alienation when it reaches a certain critical mass and intensity. Consider terror-torn Italy. It seems to me that much of Italy's torment may be the inevitable result of a massive failure to relate the world of education to the world of work. Italian schools, if we are to believe the press reports, have become almost totally ineffective.

In the high schools, the dominant issue is something called the "Political 6." Students demand that teachers give all students the same minimum passing grade—6 on a scale of 10. The universities have dropped the pretense of education. Since the revolt of 1968, universities have been forced to abandon all standards of admission or performance. In practice, this means anyone can enroll in any institution, select any specialty, and then claim to be qualified for any profession. They are educated simply by self-designation.

But, of course, there are no jobs. There are a million unemployed young people. I understand that some 23,000 self-designated architects are looking for nonexistent jobs—for which, incidentally, they are not qualified. The Mad Hatter's tea party is suddenly a terrifying reality.

And you may be sure that some fraction of those young people are members of the Red Brigades who have sometimes singled out personnel officers as victims of their maiming attacks. You can take it as a given that when large numbers of people believe the forces that vitally affect their lives have moved outside their control, a deranged minority will twist that circumstance into an excuse for terrorism.

Or take India. Early this spring, the New York Times carried a heartrending feature about India's educated unemployed. There are 700,000 jobless college graduates in India, and the number is increasing by 150,000 a year.

There are efforts to slow down college enrollments, but no one has any hope they will be successful. An Indian official says, "What's the point of educating these people so much and then turning them out on the street. It's worse than useless; it's dangerous."

These multitudes have carefully prepared themselves for work that is not there and never was and never will be. The educated unemployed consider manual work beneath them. They have fought their way expectantly into a kind of limbo.

The two examples of Italy and India tell the same story—outrageously escalated expectations of what education can provide and a total breakdown of their realization. There are other examples:

"In the United States, projections of supply and demand for university graduates suggest there will be a surplus of 950,000 over the 1974-1985 period. ... In France, a surplus of 16,000 engineers, architects, and scientists is expected by 1981. In 1976, 43,000 professional and managerial personnel in France were unable to find work. ... In Japan, only 70.7 percent of the 1976 university graduates were able to find jobs by the end of that year. ... In the Netherlands more than 1,300 students who graduated in 1977 were out of work at the end of that year."

The problem, the Chronicle goes on to say, is not limited to the developed world.

"In some developing countries, the high number of university graduates unable or unwilling to take available jobs is a major headache." And of course the even higher number of unemployed high school graduates in the developed world has already reached alarming proportions.

We can all see signs of these identical tendencies in this country. What is the answer? I am inclined to side with Gertrude Stein and ask instead, "What is the question?"

We in vocational education have been saying for the last few years that what we desperately need is national policy for vocational education. I am moving away from that view. Perhaps we are less in need of an education policy than a work policy. I used to think that one of the reasons we vocational educators were able to say self-righteously that the nonvocational system was miseducating half America's young people was that a bureaucratic educational system was preparing people for nonbureaucratic workplaces. Now I am not so sure.

It is clearer and clearer that business—and particularly big business—is offering jobs when it should be offering work opportunities. Scholars are finding it harder to find any connection between pay and performance and even promotion and performance. "Pay and perquisites," says the New York Times, "are often linked to seniority rather than to ability." A bank official admits to dealing with incompetents by "finding them a plush office and a fancy title and keeping them out of the way."

This raises a question. Should our aim as educators be to prepare young people for jobs in such private or public bureaucracies—or should we prepare them for work—even with a capacity to create their own work?

John Dewey, that unread and misunderstood genius of educational theory, wrote that a proper conception of industrial education would "prize freedom more than docility, initiative more than automatic skill, insight and understanding more than the capacity to recite lessons or to execute tasks under the direction of others." Dewey was suggesting that we prepare young people to be self-employable either on their own or inside organizations—that we prepare them for work rather than for jobs.

Almost accidentally, my institution has found that it is preparing people to create their own work. A lot of my graduates—I believe an increasing number—start their own businesses when they leave F.I.T. We find—retrospectively—that we have not prepared them for jobs. We have prepared them to create their own jobs. We have prepared them for work. It may be one of those small distinctions with immense consequences. These graduates may, in turn, be providing work—or jobs—for others.

The economy has a need for new businesses, which almost always start small. Big businesses are not so much a cause of economic growth as one of the growth's results. Small businesses are a principal source of new ideas, economic growth, and new work.
Not long ago, the M.I.T. Development Foundation compared job formation in 16 companies. Six of the companies were seasoned giants with sales in the billions; five were larger companies with a history of innovation; five were smaller new companies built on new technologies. The period under study was 1969–1974.

Sales of the six largest companies, including Bethlehem Steel and General Electric, grew 11.4 percent a year, but their employment rolls increased at the rate of only 6/10 of one percent a year. They created only 25,000 new jobs.

Sales of the five large innovative companies, including 3M and Xerox, increased 13.2 percent a year, and their employment rolls increased at the rate of 4.3 percent a year. These five companies created 106,000 new jobs.

Sales of the five small high-technology companies, including Data General and Computer Graphics, increased 42 1/2 percent a year, and their employment rolls increased at the rate of 41 percent a year. Even though their total sales were less than a thirtieth of those in the largest group, these five small companies created 35,000 new jobs in five years—10,000 more than the six giants.

The alarming fact is that the formation rate for smaller companies, which often create more work, has plummeted in the last few years. In 1968, 300 high-technology small companies were created; in 1977 no new companies were formed.

This is one of the reasons I have paused in my concern about national policies of manpower, vocational education, and full employment. I wonder if the issue is not really one of a national capital incentive program for entrepreneurial development. It is becoming clearer to me that the university's role in the years ahead is to examine preparation of entrepreneurs.

At the same time, we must discover how to create entrepreneurial work opportunities inside organizations. A year or so ago, as a form of protest, the employees of Eastern Airlines, in lieu of a strike, ran the airline by the book, following to the letter all the approved procedures for getting things done. They did their jobs instead of their work, and the airline was practically paralyzed.

I believe there is a fatal flaw in the management approach that only yesterday was accepted almost universally. For years it was assumed that management's task was to tell people what to do and to punish them in some way if they failed or refused to do it.

Now we are beginning to realize that this view of the administrative task has been largely discredited. It is a suitable way to manage only a fraction of a human being's capacities. You can command a man to turn a nut on an assembly line, but you cannot command him to be inventive, or caring, or resourceful. Conventional management, based on control, cannot embrace the qualities most modern institutions need most.

More and more, the problem of administration is not perceived as getting people to do what they are told to do, but to inspire them to do what they cannot be told to do—to do work instead of holding a job. This, I believe, is the flavor of the future. It is what must define a new approach to linking education and work.

We must work toward a new deeper level of compatibility between work and learning. We must above all keep both systems flexible. Rigidities shut people out, disconnect workers from the work that must be done.

We must think of the transition from learning to work less in terms of a linkage, which implies connecting two disparate entities, and more in terms of continuum.
Every time the economy slows down for awhile—and ours has at best been sputtering for the last couple of years—the so-called secular stagnationists come out of the woodwork, wringing their hands and saying we are approaching the outer limits of economic growth. In the 19th century, there was a serious movement to close the patent office because everything had already been invented. In the thirties, the famous TNEC Study said flatly that America's growth was over. America's growth not only continued but at a greatly accelerated pace.

I believe our growth has just begun. We may grow in some new and unfamiliar directions, but we will surely continue to grow. God knows there is plenty of work to do. There are plenty of people, mature and discriminating consumers, who want better houses, better clothes, better products of better quality. There are plenty of people who want to get on with the rebuilding of our decaying urban centers.

There is plenty of work to do in putting our society on a recycling basis. This, all by itself, is a most exciting possibility. By converting industrial processes to waste materials, we will realize half a dozen important ambitions at once. We can preserve the environment, produce better quality products that take less energy to produce and run and—as a bonus—improve our balance of payments by reducing raw material imports.

There is plenty of room for our society to grow; and our industry, in the long run, will participate disproportionately in that growth if we learn to reduce the inefficiencies involved in translating the work that must be done into opportunities for our young people. We need to solve the central conundrum of our time: How can there be so much work to do—and not enough jobs?

NEW DIRECTIONS IN TEXTILE EDUCATION

Manfred Wentz
University of Wisconsin-Madison

Introduction

You may wonder why someone with limited experience in home economics has agreed to talk to you about new directions in textile education. I accepted this invitation for two reasons:

1. Having received a textile education at textile schools rather than at a home economics school, I am in a position to analyze textile education in home economics from a different point of view.

2. While working in the industry, I had contact with people who received their textile education in home economics schools and in traditional textile schools.

My research and teaching responsibilities are in textile science. Although we offer undergraduate and graduate studies in textile science, the majority of our students major in other fields. Not unlike other academic institutions, our program area, Environment, Textiles, and Design, offers a variety of textile and clothing courses. They range from courses on properties and performance of textiles and textile products to courses specializing in psycho-socio-cultural aspects of clothing, economics of textiles and clothing,
clothing construction, and textile and apparel design. It is apparent that
the study of textiles and clothing is truly interdisciplinary. As such, a
student must be able to use ideas, concepts, materials, or instruments from
other disciplines and apply these principles to the study of textiles and
clothing. It is well understood that courses in the natural sciences, the
social sciences, and in the humanities are required before a student can suc-
cessfully tackle a textile or clothing research project. I am emphasizing
here education and research as a tandem, because I believe that graduates
seeking a job must understand that the education they receive at a university
provides them merely with a tool to solve industrial or societal problems.

Textiles and Clothing Education in Home Economics Schools

In general, textiles and clothing is not a very glamorous field of study.
Neither is it, in the opinion of many academicians, a field that commands
instant respect. In other words, we have an image problem. If one attempts
to analyze this somewhat "negative" image, one recognizes that there are es-
sentially three factors to look at:

1. the study of textiles and clothing itself
2. the students
3. the faculty

The first question we must ask ourselves is: Does the study of textiles
and clothing deserve to be integrated into an academic program at a university?
In my opinion, this question can be answered with an emphatic yes! However,
if we accept this answer, we must discontinue phenomenological teaching prac-
tices of textiles and clothing. Instead, we must utilize basic knowledge and
scientific principles and attempt to apply them to textiles and clothing. For
example, rather than telling students that nylon is a strong fiber, we must
emphasize that the tenacity of the polyamide fiber nylon is not only dependent
upon the degree of polymerization, but also on the morphology of the fiber,
which in turn is a function of the exact chemical structure and conformation
of the linear polymer chain. Thus, the application of basic polymer science
and engineering concepts to textiles can add an academic dimension to the study
of textiles, so that it transcends vocational textile education. The response
I received from chemistry and chemical engineering faculty about this teaching
approach was very favorable, and it opened the way for mutual interaction.
While this example illustrates only the natural science aspects of textile ed-
ucation, support from other basic disciplines can and should be secured so that
a positive image is conveyed.

Let us now turn to the students who study textiles and clothing. I think
it is fair to say that there are still students who take courses without commit-
ting themselves fully to academic studies. Because of this lack of commitment,
the image of home economics students is often not a positive one.

Is it because we attract inferior students? To get an answer to this
question, I asked several students why they study in home economics schools.
And indeed, in the opinion of many students, it is an easier curriculum: "You
don't need as much mathematics and chemistry to get your degree." Thus, it is
not the student; it is the content of the courses offered.

We also must develop the courage to eliminate students from our schools
who do not meet acceptable academic standards. Often, home economics professors
appear to "help" poor students in a motherly fashion, by showing extraordinary
compassion for a student in academic trouble. While students without profes-
sional career objectives may benefit from such a display of compassion, it is
definitely not in the interest of career-oriented students.

Some may not agree with me when I say that there are still many universi-
ties in this country that offer vocational-level textiles and clothing courses.
If we want to upgrade our image, we should objectively analyze our programs and cut out offerings that do not add to our students' academic education.

This brings us to the third point, namely, the faculty in our schools. I think you will agree with me that for many years the majority of textile and clothing educators considered themselves only educators. In other words, they were content to transmit knowledge gathered by researchers outside the home economics field. If we recall the fact that textiles and clothing is an applied field, and that a dynamic industry is continuously updating the scientific knowledge about its products, it is understandable that textile educators in home economics schools have indeed a difficult time in keeping up with these developments. And if we consider that the majority of the faculties has only a limited exposure to industry and research people, it becomes clear that at least some of their teachings must be obsolete. One possible route to prevent obsolescence is to establish a textile curriculum based on scientific principles. This direction requires considerable change in existing programs, and a new breed of educators who also are active researchers. These changes are forthcoming in several institutions, and I am optimistic that such a transition is feasible and, ultimately, will be accomplished.

How Successful are Textile Programs in Home Economics Schools?

Judging from the number of job announcements we receive, the textile programs at academic institutions must be alive and well. However, a closer analysis reveals that many schools are looking for faculty to teach clothing construction and introductory textile courses for retailing or interior design majors. I do not want to give you the impression that these areas of study are not important for our schools, students, or even our society. They are, but students in these fields usually terminate with an undergraduate degree. Consequently, a faculty member teaching several of these courses often will find it extremely difficult to produce textile research of sufficient academic quality to meet the rigorous requirements for tenure appointments. Furthermore, a faculty member without working experience in these fields is practically forced to teach material from textbooks and journals. This again is unfortunate for a young faculty member. I am sure you are aware of these issues, so I do not want to elaborate on them further.

Now, what constitutes a successful textile program in a home economics school? I think we can look at it from several points of view:

1. Do we attract enough good students?
2. Do our students find employment in their chosen field?
3. Are employers satisfied with the performance of our graduates?
4. Do we have an active and respected textile research program?

From all information I have, the number of students majoring in textiles and clothing (retailing and merchandising excluded) is not growing. This in itself is not a reflection on the quality of our programs. However, it must be recognized that at institutions where budgetary decisions are made solely on the basis of student enrollments, an enrollment decline may affect the future of textile education. According to the National Council for Textile Education, total enrollment in industrially oriented textile schools has steadily decreased since 1966. This trend developed despite increased industrial job opportunities for their graduates and significant curriculum improvements in these schools. These schools responded by embarking on an active high school recruitment program to inform prospective students about programs and career opportunities for their graduates. Apparently, the downward trend has been stopped.
In order to attract good students to our programs, we must spread the message that the courses we offer are not vocational, but academic in nature. I mentioned earlier that I was able to establish a fruitful dialogue with professors in chemistry and chemical engineering. Because of it, I received an invitation to present a seminar on textile science to their faculty and graduate students. An outgrowth of it is that every semester there are now between six and eight chemical engineering students in my textile science class. Next fall, I hope to have my first graduate student in textile science with an undergraduate chemical engineering degree. Also, an undergraduate student in chemistry is seriously considering graduate work in textiles. This is encouraging, especially since other faculty members of our school are establishing similar relations with people in other areas. So, it appears possible to attract good students to our programs. However, the number of students is unlikely to increase drastically in the near future.

More and more, students are conscious about their employment opportunities after graduation. Are there jobs for textile and clothing majors? Students with B.S. degrees in general textiles and clothing may encounter some difficulties on the job market. Traditionally, the textile industry has not actively recruited in home economics. The job market for B.S. degree students in textile science, with a strong background in chemistry and physics, appears to be more favorable. All our graduates received excellent job offers, not only from the textile industry, but also from large chemical companies. It is interesting to note that two of our graduates received starting salary offers in excess of $16,000 per year!

Graduate students with M.S. degrees in textiles and clothing may have more difficulty finding jobs they want. Nevertheless, we were able to place those students who did not go on for Ph.D. studies.

Are our graduates performing well on the job? First, I would like to speak from my own experience in the industry. I hired and worked with B.S. degree graduates in textiles and clothing from home economics schools. Some of them were hired as assistants to textile research chemists; others were hired to perform standard textile tests at very low pay. While these persons were eager to do a good job, they really did not have the strong natural science background required to take on more challenging assignments. Just before I left my industry position, I interviewed a student from a progressive home economics school. This student was able to solve a textile damage problem presented to her in an impressive way. Unfortunately, the position was cut, so I could not hire her; but because of her excellent background in textiles, I would have preferred her over a chemistry major.

We have contacted our recent graduates' employers and asked them how they rate the graduates' performance on the job. Here are some typical responses. The supervisor in research and development of a large chemical specialties company was very pleased with the background of the graduate he hired. But he suggested that a course in sensory evaluation, along with a stronger background in experimental design, should be included in our undergraduate textile science curriculum. The supervisor of an organic polymer synthesis lab in a large paper company commented that our graduate has just the right background for the job. In fact, he said he would hire another of our graduates if we had one. When I called the student there to ask what we should do at the university to make it easier for future students to take on a job like hers, she said, "I think that calculus should be required for textile science majors. I have found also that the most important thing to get out of school is practical, common sense knowledge, such as knowing how to make up solutions, how to plan experiments, and how to use time well."
In general, product knowledge is considered to be an advantage. However, this specialized background must be supplemented with strong, basic, discipline-oriented knowledge so that students can identify and work on projects independently.

The last point that may be used to measure the success of home economics textile programs is the output of research reports and publications. Many schools claim to have a strong research orientation; however, if you look through the recognized textile research publications, you find very few papers from home economics schools. Is it because these juried journals reject many of the papers submitted from our schools? Or is it because our research productivity is indeed very low? I am inclined to believe that both the quality and the quantity of research is not quite where it should be. One reason for this lack of productivity is that only a relatively small group within textile and clothing faculties has adequate research training. Another reason is that many faculty members have a very heavy teaching load, which makes it impossible for them to do any research. Just look around your campus, and you will find that many faculty members in other disciplines teach only one course per semester or even per year! No wonder they have time to write research proposals, embark on research, and crank out publications at a breathtaking rate. We may say that we cannot do that, and this may be true under the given circumstances. But this does not change the fact that our university administrators and the textile and fiber industry come to the conclusion that we are not a research-oriented group.

While it may be desirable to report research to your own peers, textile research generated in our schools should not be presented only at home economics conventions or at meetings like this one. We are often not in a position to utilize or criticize the findings of our colleagues because we lack the expertise and experience. But you can rest assured that there is somebody in industrial research who can appreciate or reject our research findings. Let's communicate with these people so that we can focus and streamline our research efforts to solve societal problems associated with textiles and clothing.

There is, of course, an initial risk involved. I recall a home economist's presentation at a national textile research conference some years ago. The person reported about a study on detergency involving carboxymethyl cellulose (CMC). She recommended this substance as an ideal substitute for phosphates in heavy duty household detergents. Having a detergent background myself, I reminded the speaker that CMC was extensively studied some 20 years ago, that the literature fully documents the advantages and disadvantages of CMC in detergent formulations, and that at the concentrations suggested, the washing machine would overflow with foam. The speaker's answer was, "Thank you for bringing this to my attention. I was not aware of it." You can form your own opinion on how this remark shaped the image of home economics research at this meeting.

What Lies Ahead?

Undergraduate teaching in textiles and clothing in home economics schools will continue to occupy most of our time in the years ahead. With a few exceptions this teaching largely will support other programs within our schools. For example, we must provide interior design, retailing, consumer science, textile arts, and home economics majors with updated product information to enhance their professional education. Courses emphasizing textiles and clothing will have to be restructured to include conceptual and quantitative aspects of textiles. This requires introducing both natural and social science principles into our textile courses. Prerequisites in chemistry, physics, and mathematics must be identified clearly to students as early as possible. Otherwise we are,
as a prominent industry representative put it, "on a collision course with vocational education." Our educational objectives differ from industrially oriented textile schools in that we concentrate our efforts on performance and acceptance criteria of textile products. I believe that our major advantage is that we have faculty expertise that spans the social sciences, the humanities, and the natural sciences. And since we approach textile education from all these different disciplinary angles, we are not in direct competition with these schools.

Graduate level education is, of course, directly linked with research productivity. If we reflect for a moment, we arrive at the conclusion that our representatives played only minor roles in such big societal issues as textile flammability, care labeling, or phosphate ban in detergents. Upgrading the quality of our research is an absolute necessity if we intend to play a more active role in consumer or regulatory issues concerning textiles and clothing. A first step in this direction would be to present our research findings at major textile conferences rather than to ourselves. As mentioned earlier, this would allow us to be heard where the action is. If our job is well done, our image will be improved and students with strong academic backgrounds will be more attracted to our programs. There are a few schools that have taken this approach in the past years. Let me quote again an industry person: "Some of the home economics schools have turned the corner in textile education."

Our graduate curricula must take advantage of the uniqueness of our schools. At Wisconsin, we are now trying to launch a new Textiles and Design Ph.D. program. Whether it will fly or not cannot be judged yet, but I believe our concept is sound and innovative. Ph.D. students will be required to take several core courses that integrate concepts from various disciplines and apply them to the study of textiles and clothing. In his article on campus interdisciplinary science, published August 1977 in the Chemical Engineering News, Rustom Roy stated, "Real problems of society do not come in discipline-shaped blocks."

If we want to address ourselves to societal problems, we should be guided by this philosophy.

SPACE AGE INFLUENCES ON EARTHBOUND FUNCTIONAL CLOTHING DESIGN

Matthew Radnofsky
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With an increasing emphasis on product safety and function, many companies are becoming more concerned about maximizing product designs to achieve these goals: (1) to teach systems analysis techniques using functional clothing design problems as a vehicle and (2) to teach substantive spinoff technology from the space program.

With aesthetic considerations always in mind as a prerequisite to good design analysis, there exists a major opportunity for home economists to contribute to improvements in functional clothing. One way to do this is to turn out graduates knowledgeable of techniques used by designers to create the most technically complex clothing and gear ever conceived.
By taking advantage of the University of Houston's close proximity to the laboratories, facilities, and expertise of scientists in many diverse disciplines at the Johnson Space Center in Houston, we are able to initiate project-oriented courses in functional clothing design, making excellent use of these unique resources. It was at the LBJ Space Center that the design, development, and prototype fabrication of the extravehicular mobility unit, more commonly known as the space suit, was developed.

In our courses we define clothing as anything that can be attached to the body. Clothing design at its best involves a blend of apparel's aesthetic, technical, psychological, historical, and functional aspects. Although exams and papers focus on the functional aspects, students are instructed to incorporate aesthetic aspects of clothing into their projects. Although there may seem to be less "fashion" in a functional item, there are limits to what an individual will wear, even for protection. Though not a separate course, flat pattern, draping, and tailoring instructions and help are available in the classroom.

The prime objective of this course is not to develop any specific piece of gear (although this could be a result). Rather it is to have the student think about a design problem within a relatively formal framework, provide a rationale to convince others of the applicability of the procedure, and provide sufficient information to solve the problem.

It also is a course objective to stimulate innovative thought processes and cause the student to look for information sources both close to and far removed from the projects worked on.

The course consists of one two-hour lecture and one lab weekly. It is project-oriented and a list of typical projects is given to the student. Since clothing conventionally offers protection of some kind, or performs a specific function, projects are classified in protective and functional terms, i.e., thermal protection, flammability protection, impact protection, pressure protection, waste management systems, etc. Speakers lecture on at least these aspects, providing examples, references, and sources for the information presented.

The students choose projects suggested or related, even remotely, to the lecturers' topics. At suitable intervals during the semester and at specified times, progress reports and/or hardware as applicable are presented to the class. Projects are graded for approach and methodology rather than success or failure of the resulting product.

The student is expected to complete one class team project and one three-to-four person team project during the semester. It is not possible to cover adequately more projects than that thoroughly. This, however, is not an inflexible rule and permission may be granted to some students to vary their requirements.

Students not only learn techniques involved in systems engineering analysis, and how to use these techniques in the solution of real-life design problems, but they are exposed, through contacts with persons in the field, to the most up-to-date materials, tools, and information available to functional clothing designers. Progress in the soft goods field has not been as rapid as it might have been and past developments remain as applicable, and in most cases as pertinent, today as they were shortly after their initial presentation to the public.

Basically, the NASA technique follows the nine steps outlined below:
1. Define objectives
2. Establish requirements (in terms of measurable parameters)
3. Postulate concepts (to achieve 1 and 2)
4. Analyze concepts (in terms of math models and pertinent data)     
   Examine limitations or ideas using pertinent measurements within a          
   framework in terms of 1, 2, and 3.
5. Fabricate prototype
6. Test (in accordance with 92) + FMEA (lifetime)
7. Release (market)
8. Monitor response
9. Improve

Functional clothing projects include such diverse categories as specialized    
medical and police garments and gear; other occupation and career apparel;  
energy-efficient clothing; and clothing for the elderly, the handicapped, chil-    
dren, sporting enthusiasts, nursing mothers, and scuba divers.          

Lectures by experts in goniometry and anthropometry gave the students ex-    
cellent insight into problems and approaches to solutions associated with the   
limitations and capabilities of people's natural body movements and measure-   
ments. This information, so very important in establishing adequate provision  
for pressure-suited mobility under varying opposing forces on the moon, became  
a wealth of source information for our students working on projects involving  
sizing garments for scuba divers and providing easy mobility for ballistic ar-  
mor to protect law enforcement officers. They also obtained an invaluable  
reference listing of available body measurement reports on specialized popula-    
tions of men and women in various rest and movement positions, information  
about which they had been completely unaware.                         

A lecture by a leading NASA expert on thermal loads gave our students com-    
prehensive knowledge about how NASA solves the vexing problem of heat removal  
under conditions of external stress and energy expenditure associated with day- 
light luna traverse. NASA's approach was to provide a liquid cooling garment    
that conductively removed most of the body heat by circulating cool water in   
tubes over the skin. This allowed the astronaut to perform heavy work for ex- 
tended time periods and to keep heat storage well below the danger limit of    
300 BTU's. It provided sufficient heat removal capabilities to allow the astro-    
naut to work at a rate of more than 1600 calories per hour without breaking    
into a sweat for six hours or more. This cannot be done with conventional gas  
evaporative cooling systems in a space suit.                        

In conjunction with special insulating materials that allowed a minimum    
passage of radiant heat from the outside (where the daylight temperature was    
+250°F and where conductive heating from the hot lunar sands was prevented by  
another special, but different, insulation), the entire assembly provided an    
excellent example of the principles involved in solving heat balance problems.  
As a result, several of our teams have undertaken to devise approaches to solv-    
ing problems of heat encountered by racing car drivers and the air conditioning  
of people's bodies (instead of spaces) in automobiles to save fuel in general  

automotive applications.

Flame-resistant material has been intensively incorporated into the space program's developmental effort at the Johnson Space Center, largely because of the fire of the first Apollo spacecraft on the pad in 1967. Spinoff programs from NASA's original work effort have been varied, as exemplified by the Aircraft Interior Improvement Program and fire fighters' protective gear development. The wealth of data collected by NASA and NASA projects is an inspiration for future student projects.

In support of medical warnings that returning astronauts might bring back noxious, viable organisms, NASA developed a garment assembly known as the BIG (biological isolation garment). It was designed and fabricated to be donned prior to exiting the spacecraft on earth and worn until the astronauts were safely enclosed in the Mobile Quarantine Van where the garment could be attached to a more permanent isolation facility. The crew lived there for about two weeks to minimize growth and spreading of exotic organisms they might have picked up on the moon. The garment was made of a cotton material (a high count fabric) with unusual properties. When wet, it maintained a high hydrostatic head of water, and when wet or dry provided a free exchange of gases. At the same time it afforded a three-to-five micron filter against outgoing organisms to preclude effectively back-contamination of the earth.

One of our teams picked as its project the development of a light-weight weather shelter for the wheelchair bound. It was to be easily and quickly raised from a small storage area and not impose a heat-load on the subject. When it rained, it was supposed to protect the user but provide for free gaseous exchange from inside to outside. The BIG fabric appeared to fill the bill, and the team proceeded with its project more or less successfully.

Testing of another NASA long suit was described through lectures by testing engineers and by visits to the center's various test facilities. The psychological and physiological test facilities and the fabric and general materials testing laboratories impressed students to such a degree that one student team undertook to establish the adequacy of their product by setting up a counterpart effort at the university.

Their project was to design, develop, fabricate, and establish a market for a children's clothing line having the following characteristics: (a) it could be used by either sex, and (b) it could "grow" with the wearer, a child from two to five, and (c) it could teach the child some fundamental facts and simple motor skills. The students learned how to establish child and parent design acceptance by devising and implementing questionnaires and by designing and using other psychological testing devices; tests for motor skills were developed through observation of the children at play using one-way mirrors. Photographing and videotaping subjects established times to "put on" and "take off" as well as determining problem areas. Despite the nuisance of written permissions and other paper work, some product lines were developed that appear to have some interest for local buyers invited to see the final results.

Toward the end of the semester one day is set aside for judging. The objective is to let the public know what we are doing and to provide the students with an opportunity to present and sell their ideas. To sell, a "good line" must be based on factual information and articulately presented in easily understood, graphic, and concise form. The students are told that if their project is to be successfully manufactured or successfully incorporated, over another, into a larger project, they must present facts and figures in a well-organized manner. They must generate an overall formal framework, within which problems are defined, requirements ascertained, and individual definitions and requirements interlaced into an overall program plan. By this total approach they are expected to represent graphically their progress in terms of time and money and
to determine timing and decision point locations for all involved problem areas.

Judges, usually consisting of two high-ranking NASA scientists or engineers, the manager of a manufacturing company, a member of a fiber house, a fabric house representative, and instructors for the course, plus the head of the department are invited to listen to a 40-minute project presentation by students. Demonstrations are encouraged, and formal papers are required. Presentation is by a single speaker or by all participating team members. The judges fill out carefully worded evaluation sheets, numerical values are applied to the scores, and an overall winner is announced. Invariably, local press coverage is good, and interest is generated to the degree that we now offer these courses on a beginning and advanced level.

Guest speakers are not limited to NASA personnel. We have been fortunate in obtaining such excellent speakers as Kay Caddel of Texas Tech, who lectured on clothing for the handicapped, and Edward Barron of the Quartermaster Research and Engineering Command of Natick, Mass., who lectured on specialized protective gear for the soldier. He also spoke about an Army device known as the Load Profile Analysis—an assembly that measures the magnitude and distribution of forces imposed on the body by heavy clothing or equipment. With some modifications to both sensors and display apparatus by our engineering department, the equipment is being used in the laboratory as a means to illustrate the effects of various strap arrangements on the body when compared to associated subjective comfort or stress. This will be the subject of another paper.

One result of our teaching systems analysis approach using functional clothing as the illustrative vehicle was the participation of one of our teams in an interschool engineering competition. In a field of eight, our all-girl team came in a strong third. Their theme, a liquid cooling garment for passenger car drivers as an energy-saving device was a well-thought-out concept based on the liquid cooling garment used by NASA in its moon suit.

In relating the developmental history of space suiter, one guest speaker noted a mechanism, partly pneumatic, partly mechanical, called a capstan. It was used in an early Air Force partial pressure suit and with modification in an anti-gravity suit employed by pilots of fighter type aircraft. The project of one team, a pressurized jacket to preclude the formation of crippling and disfiguring scar tissue for burn victims, appeared to lend itself well to this type of device. The team modified the apparatus greatly, with material and configuration changes, and after incorporating it into an inflatable jacket, won the final competition with their set-up. But perhaps most importantly, upon graduation the team leader was offered, and accepted, a position with the International Latex Company, manufacturers of the NASA space suits, as a project engineer to develop a new suit for Houston's "bubble baby," David. He is about to outgrow his old suit manufactured and designed by NASA personnel some years ago. David must live in a sterile environment for he is unable to generate antibodies in his blood. The suit system allows him to move about with a greater degree of normalcy than would otherwise be possible.

Perhaps for the first time, manufacturing costs, material costs, overhead, profit, and sales pricing became important considerations to students in developing successful products. Using pricing analysis gleaned from cost analysts at NASA and other industrial sources, our students are learning why it is necessary to charge $60.00 for an item that has only $4.50 worth of material in it (or over $250,000 for a space suit). The space suit (extravehicular mobility unit) is such a complex assembly that only by breaking it up into digestible (and understandable) portions can an approach to solving the many problems become apparent.
There is a film available from the Johnson Space Center Film Library that illustrates very well this complexity. Dubbed "Andy Astronaut," it won several Film Festival awards in years past and still is an excellent resource.

Grades are obtained by marking midterms, finals, and presentations. Midterms and finals both have essay formats and differ only in subject matter. Students are given as much data about a problem requiring a solution as can be presented on one side of a single sheet of paper. They are real problem situations encountered by the writer, where solutions are known, but are unlikely to have been encountered by the student.

Since substance is of lesser importance than approach, students are asked to describe, in three hours, their approach to a solution. They may invent materials with unique properties where required, but must follow through logically whenever such assumptions or inventions are described. There are no right or wrong answers; only approach, logic, conceptual ability, and innovative thought, adequately presented within a structured framework, are evaluated.

As the midterm is identical in form, but not substance, to the final, it becomes an excellent practice for those apprehensive about the final. And because it is identically the same system used in seeking solutions to their own project problems, they can relate the steps taken in their own efforts to those taken in the hypothetical (or real) situation noted in the exam paper.

Failure Modes and Effects Analysis, when applicable, is an important aspect of developmental effort that is often overworked. Our students are given a broad philosophical approach to the problem, and examples from space research are used to illustrate points made.

The main goals of systems safety are to establish the reliability of a system in concrete terms and establish the consequences of failure situations at inception. Thus an analytical effort is emphasized during the system definition phase. After being broken down into systems and examined by experts of various appropriate disciplines, each hazardous or adverse element is counteracted in the most effective manner, considering constraints established for the entire system.

Approaches that include the prerequisite of total system overview are promoted to provide assurance that safety and reliability goals will be achieved. Basically the system is broken down into phases, including analysis, integration, and monitoring of effort to ensure incorporation of safety requirements as they are identified. Specifically, elements to be determined through this analysis are as follows:
1. Functional subsystem
2. Mode of operation
3. Hazardous element
4. Initial triggering events
5. Hazardous condition
6. Triggering events leading to accident
7. Accident(s)
8. Effect

In addition, the following has to be ascertained:
1. Hardware solutions
2. Operational solutions
3. Training solutions

In each instance noted above, examples from the extravehicular mobility unit are given to illustrate the case in point. For example, reliability was exemplified by showing how to cycle test suit components and establish statistical reliability of larger components, the suit itself, and the subsystem. In the development of
the "burn treatment jacket," analysis included reliability determination of pressure cells, consequences of failure, steps to be taken in the event of failure, and the ultimate effect on the subject.

Of course, most of the projects selected are not life or death affecting items. But, the fact that the students consider this requirement adds significantly to a set of experiences that should find real application outside the somewhat sheltered life styles encountered in the University.

Finally, regarding texts and source material, I must note something that is of particular interest to us. A document resulting from a contract between Johnson Space Center and the B. Wilson Co. of Hartford, Conn., is located at the Johnson Space Center and is certainly worth mentioning.

To design most efficiently the coveralls used in the interior of the space center, the B. Wilson Company initiated a program to evaluate the basic textile prerequisites to ensure comfort over a prescribed period of time, with a tightly defined milieu. Additionally, proscribed requirements in terms of storage space, weight, launderability, fading, etc. were imposed to limit the use of the garment. Both NASA and the contractor took advantage of these well-established parametric considerations to publish consequently a detailed technical volume. It gave physical and environmental limitations in measurable terms and formulae that could be followed in a logical, step-by-step procedure to establish realistic specifications and requirements for fabrics and clothing configurations to meet best the environments to which they would be subjected. Thus, relative humidity, wind velocities, fabric porosities, weights, absorbtivity, capillarity, thicknesses, colors, abrasion resistance, color fastness, launderability, seam types, strengths, and many more variables can be included in making fabric and design choices for coverall application.

The book is generally unavailable and long out of print, but it is a valuable teaching aid to those interested in functional clothing design. I recommend it and suggest if any of you are interested in obtaining a copy to contact the Johnson Space Center, Houston, Texas, 77058, Attention: Mr. J. Barnett (483-4291). I have one that I would be pleased to have copied for any interested organization. The material is in the public domain and would require only an acknowledgment of source.

Some day it might be a worthwhile project for someone to examine the mountains of documents that resulted from our space program. Someone will be sure to find nuggets of pure gold lying around for the gathering.
I am very honored and delighted to be here for this ACPTC Central Region meeting. I must admit that it was with mixed emotions that I accepted the invitation to join you here in Chicago since Western Region is meeting concurrently in Los Angeles. And having had a quick preview of both programs, I found exactly what I expected—two extremely inviting programs.

Needless to say, I am proud to be a member of ACPTC, and it is my sincere hope that in the very near future, we will invite even more persons with textiles and clothing interests from outside the college and university circle to join in our activities. What a broadening experience it is to learn from their world of expertise and experiences through dialogue, interaction, and personal contact; we not only can gain but make a contribution to the experience.

"Changing times"—indeed they are! And "changing issues"—there are many, not necessarily new issues, but many that need to be reviewed with a new perspective.

It was difficult to select a title for this presentation. Due to the "changing times" in which we live, work, and interact with others, both personally and professionally, there are many "changing issues" related to textiles and clothing confronting us; many topics that need our serious consideration; many questions that require our urgent attention; many challenges that should be met head on individually and/or collectively in ACPTC. Perhaps you will think of some of them as I talk; jot them down for later dialogue with your colleagues.

As I considered alternative topics or titles for today's program, some of the following thoughts ran through my mind: "Coping with change"... How do we cope with change, e.g., change within our curriculum, change within the restrictions of limited resources, change due to loss of programs or courses resulting from "steady-state" or declining enrollment, change due to decreases in state support staffs, and other similar types of change? Perhaps some of you do not realize that these changes are occurring in colleges and universities across the country—in textiles and clothing areas and in home economics units—large and small. If your changes have been minimal, consider yourself fortunate; if you have been affected by the change, do not hesitate to ask your T & C colleagues for guidance and support. Consideration of these factors leads me to the next basic thought: Are we an "endangered species" or an endangered profession?

What are some of the changes, the issues, the challenges, the mandates before us in these "changing times"? Earlier this fall, I listened to Walter Cronkite on the CBS special "A Report Card on Public Education in the U.S." I hope that many of you also heard it for that report provided all of us in education with considerable food for thought, regardless of our specialization within the educational profession. I tried to translate his report into terms appropriate to home economics related areas, especially textiles and clothing. What will be the impact on textiles and clothing at the college and university level, and on home economics (textiles and clothing curriculum) at the elementary and secondary levels if the trend does shift toward strictly the basics
or liberal arts and humanities?

Let me be specific. Some states are considering an increase in college general education requirements for graduation by as many as 12 units. These units would be taken from the student's major, thus decreasing the number of units that would be available in the professional field of preparation. Shifts in units, it is argued, require appropriate shifts in funding, faculty, and support staffs. I ask you, have you done enough long-range master planning, including need surveys and the like that provide strong supporting justification, to keep you and your programs on solid footing? If you have, great; if you have not, I encourage you to start getting your long-range master plans for textiles and clothing in order—now.

If that CBS program was not enough for an educator to fully realize that we are in the midst of "changing times," permit me to mention California's "Proposition 13," the Jarvis-Gann tax reform initiative that has rocked the boat from coast to coast and left all levels of education shaken in its wake. The impact already has been felt in higher education as well as secondary and elementary educational programs and state extension staffs, in home economics programs, and consequently in textiles and clothing programs as well.

I am sure you also have heard of high cost, low enrollment programs. What will the impact be on T & C? Canceled classes? Disrupted student programs? Loss of programs? Are we prepared to shift gears if necessary and change teaching methodologies to accommodate larger class sections, etc.? It takes time to modify courses and teaching strategies. Are we in T & C prepared to share more than course bibliographies with each other and with sister institutions in the interest of saving time, energy, and, most important, our T & C programs? Are we prepared to do regional planning, already an actuality in some state university systems (i.e., one campus specializes in food and nutrition, another in textiles and clothing, a third in housing and interiors, etc.). If this is an alternative, or legislative mandate, how well do we know our colleagues and their programs at sister institutions in our own state, or neighboring states, in order to maximize our resources and to facilitate cooperative efforts in building and/or saving textiles and clothing programs? To those of you in the larger land grand universities, these concerns may seem very remote, but from a professional point of view, you need to be aware of the kind of support that smaller college and university programs may need. And it is my sincere hope that both you and ACPTC will be able to rise to the occasion. I believe that ACPTC may have far more important purposes for its existence in the coming years than it has right now. In short, are you using ACPTC as a forum for dialogue and interchange of ideas to keep abreast of current trends in our professional field?

"Changing times—changing issues?" That is both an understatement and a most appropriate theme for your conference. I commend you for selecting it and hope that you will face the issues head on, setting priorities as you proceed. Do not be surprised if you leave this meeting in Chicago with more questions than answers. In fact, I believe it would be good if this were the case because 1) awareness of the changes, and 2) identification of at least some of the issues not only stimulates critical thinking in our search for academic excellence but are also two important steps forward in "coping with change."

The fact that you are here at this meeting is an indication of your commitment to, and your involvement in, the changing issues facing textiles and clothing. Involvement with the issues and a commitment to academic excellence, whether in teaching, writing, research, administration, and/or professional leadership, are essential to coping with the changes before us.
I commend you for this commitment and involvement, for you cannot help but continue to grow both personally and professionally following dialogue and interaction with colleagues from diverse segments of the textiles and clothing community. For me, a conference of this nature is always a shot in the arm. I return home stimulated and mentally refreshed; rejuvenated, if you will, ready to take on all comers, from the legislature to the Chancellor's Office, if necessary.

"Changing times—changing issues." Can we build a case for T & C? You bet we can, but not without facing up to the issues, the questions, the challenges, perhaps even the mandates that the changing times have placed before us. As Walter Cronkite asked on that CBS special: "Is anyone out there learning?" I ask (from a T & C perspective), who is learning? Learning what? How? Where? In the classrooms? In the market place? From newspapers or TV? From textbooks? From whom? In connection with what? Are we reaching the general public as we should in addition to our "formal students" in the classroom? For example, is the general public finding articles of interest and value to them in newspapers, written by us, on current research that we or our colleagues have conducted?

Is learning an issue? What kind of experiences, feedback, evaluation, and revision do we have in our programs on a regular basis?

Is teaching an issue? What about the "learning environment"? TTT (Teaching Teachers to Teach) programs? New teaching strategies and methodologies? Basic content? Standards? Long- and short-range goals? Grading practices? Teaching whom? For what? At what levels? Consider education/industry linkages; education/extension linkages. Our extension staffs are in constant contact with the public. They should be vital links in our professional chain, but are they in all cases?

Is research an issue? All we need mention here is time, money, and again, research for what and for whose benefit? Again I ask, what about education/industry linkages, education/government linkages? What about regional planning to include those colleges and universities that are not land grant universities with experimental research stations available to them? There is also the whole question of theoretical vs. applied research, and the cooperative team approach vs. individual efforts. And certainly not to be forgotten, interdisciplinary research. With whom are we talking and studying these days? What kind of visibility and communication are we promoting?

There are still many more such questions. Permit me to note just a few. Is visibility an issue? Is communication an issue? Is leadership an issue? Is membership an issue? Is time an issue? Are priorities an issue?

Regarding communication and visibility, I picked up an Omicron Nu newsletter recently and read about the following newsmakers in the textiles and clothing area:

- Dr. Robert Hillestad, national vice-president of Omicron Nu, was the recipient of a distinguished teaching award on the campus of the University of Nebraska, Lincoln. He teaches in the Department of Textiles, Clothing and Design.
- Dr. Joan Laughlin, associate professor of textiles, clothing, and design at the University of Nebraska, Lincoln, is coordinating a research project involving TRIS and men's work pants; she reported on the research at an Omicron Nu chapter meeting.
- Gertrude Lienkamper, graduate of Oregon State University and now a professor of clothing and design at Oregon State, presented a unique fashion show of Oriental costumes at the university chapter's Annual Alumni Breakfast.
I was pleased to see my T & C colleagues being recognized personally and professionally in a "non-T & C" publication, while also giving visibility to a wide range of textiles and clothing related activities. Too often we are afraid, or forget, to "toot our own horns." Let's become more assertive, more visible.

Just as Walter Cronkite asked, "Is anyone out there learning?" we too need to ask ourselves this same question, and others like it. It is time for some professional introspection. "Changing times—changing issues." Can we build a case for T & C in the public eye? You bet we can. Let each and every one of us get busy and put it together, individually and collectively. We have a golden opportunity during these changing times; if we miss it, we may well have had it.

I am proud to be a home economist. I am even prouder to be a specialist in textiles and clothing and a member of ACPTC. I wish you the very best for a most successful ACPTC conference and a most successful year.

ECONOMIC INFLUENCES ON CONSUMER GOODS EXPENDITURE PATTERNS

Jay Levine, Chief Economist
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You may be wondering at this moment whether an economist could possibly make any observations that are sufficiently relevant to textile education or provocative enough for you to put up with him in the final minutes of a long day filled with presentations, and after a big sleep-inducing dinner. The correct answer to these questions is unequivocally, yes, an economist can! As to whether I am that economist, there could be some lurking uncertainty that can only be resolved in due course.

But why is economics relevant? Take no mistake, an economic system comprises, first of all, people—a revelation that should modestly heighten your interest, but surprise no one. People run the governments, operate business enterprises, grow the fibers and grains; people earn their living, and people make purchase decisions. But this means that to understand and forecast Gross National Product, Flow of Funds, or marginal propensity to consume, one also must study and track human behavior, personal life styles and attitudes, political preferences, and government legislation that imposes pressures on and interacts with the ways people would really rather live their lives and allocate their incomes. All of these elements and more are addressed in the work of good economists, and I hope to demonstrate how they are ultimately relevant to what people wear, and how they spend same fraction of household budgets on body adornment.

To begin with, no matter what subject I am asked to address, a review of the dimensions of the role government plays in our lives is an absolutely essential starting point. Government outlays have been growing continuously faster than the overall expansion of the total economy as measured by Gross National Product; direct government spending now accounts for over 33 percent of all national eco-
nomic activity. And even that amount is not the whole story; government-created off-budget agencies are borrowing capital and distributing another 7 percent of the dollar flow of this country. Thus government really accounts for over 40 percent of the economic activities of the nation in normal times, more in recessions as in 1974 and 1975.

Now in all fairness, 30 percent or 40 percent is not in itself magically too high or too low, good or bad. Ten percent is too much if it is misused, and 50 percent may not be enough if it can be effectively employed. The problem is that government programs have too often been poorly administered and frequently counterproductive to their own aims. But my purpose here is not to make a political speech. I prefer on this occasion to restrict myself to those economic facts that bear on consumer expenditure preference.

There has been a persistent upward trend of income and social security taxes as a share of personal income; this excludes sales and now infamous property taxes. Clearly this supports the growing government expenditure share of our economic lives. But woe unto us all. Government spenders, not content with the 520 percent rise in tax income over the past 25 years that would have been received from a constant share of the normal growth in taxable personal income, and still not content with the actual 740 percent rise in tax income from raising taxes as a share of income, have augmented this spending by an additional $275 billion of budget deficits just in the last eight years alone!

Thus government is not only spending a greater share of our growing current income and leaving less for us to decide how to spend, but also is spending much of our future income as well. This is true in two ways: First, the government borrows today to make up for part of its excess spending, which must be repaid with interest later. That interest payment is paid by none other than you and me out of our future incomes. Second, the remainder of what the government uses to pay for its excess spending is taken from the sheer creation of money by the Federal Reserve Board. The resulting excessive growth of money supply is fully inflationary a year or so later, and that means we pay more for the real goods and services we purchase than we would have without this government-caused inflation. This extra cost is really a hidden tax we pay to cover the deficit spending of government in a prior year.

One final point relative to government and taxation. Inflation has pushed us all into higher tax brackets without giving us commensurate higher buying power from our rising income. Thus the tax income of government rises without legislation, and the so-called 'tax cuts' are really nothing more than partial reductions in these unlegislated tax increases. And still the taxes we pay today are a greater share of our income than before all these tax cuts since 1964 were legislated. But as I said, the absolute level of taxes is not necessarily healthy or unhealthy in itself.

Let's look now at one or two other economic facts affecting our spending decisions. Chart I shows three measures of personal income. The top line is after-tax income in dollars. Since the first quarter of 1973, just five and a half years ago, aggregate income from jobs and interest, dividends, and transfer payments from government (such as unemployment compensation and social security payments to elderly) has risen some 65 percent. However, after adjusting this increase for inflation's impact on buying power, the rise has only been 13.5 percent over five and one-half years, or some 2.5 percent per year. Now this small growth is not bad for the nation as a whole, but, frankly, it has taken nearly 10 million more working persons to get even that growth. Thus, calculating the real income per working person as shown in the lower line of the chart, we see that there has been virtually no increase in buying power after government taxes and after government-caused inflation on average per employed person over these last five or so years! Now you can begin to sense the huge scope of government's impact on incomes and the impact of slow growth of real buying power on spending.
With hopes and expectations always greater than wherewithal, priorities in spending must be established. Chart II shows how consumers have changed their allocations of spendable income by category of purchase since 1960. The top line represents expenditures for services as a percent of income. Services include education, medical care, housing costs, travel, and recreation. It is not only the largest expenditure category, it is the one that over the long run has consistently grown the most. The majority of these expenditures are considered largely nondiscretionary, and since there is little productivity growth in these areas, prices have risen more for services than for goods. Clearly, as a greater share of income has gone to these services, less is left over to spend on discretionary goods.

Purchases of general merchandise goods have given ground as a share of income, as seen in the second line from the top. From 22.9 percent of income in 1969, the ratio has fallen to 20.4 percent this year. This drop of 2.5 percentage points represents some $35 billion less being spent on consumer goods than might have been the case if inflation in services and elsewhere and changes in personal priorities had not occurred. I will return to this, specifically in regard to the dramatic changes in clothing expenditures.

The drop has been even more dramatic in the proportion of income spent for food at home and in restaurants. While more was spend for food than merchandise in 1960, now substantially less is spent annually for food than for goods (third line from the top). This is partly the result of a relatively lower price increase in agriculture, but really more because one's nutritional needs simply are not closely related to one's income. One may eat out more often and in better restaurants as income grows, but fortunately, body weight need not expand as rapidly as one's marketable intellect or skill.

Expenditures for autos and parts fluctuate cyclically in a rather narrow range from about 5 to 6.5 percent of income (fourth line down). Recently, auto demand has been rather robust; as more are employed, more personal vehicles are required to get to work.

Finally, energy expenditures (bottom line) have jumped as a share of income since the oil embargo by about 1.5 percentage points, or $20 billion, due to price increases alone. Increased BTU consumption has been the result of increases in the number of people who are working, using more autos, and forming more households, rather than any cynical disinterest in conservation.

You may be surprised to see the rapid decline in spending for clothing and shoes portrayed in Chart III. There are two major reasons for this: First, like food, individuals do not need to expand their wardrobes in proportion to their increase in earning power. Thus one can expect this ratio to continue to decline over the long-term future. Second, changing relative prices of nondiscretionary energy and services and changing attitudes toward clothing purposes and needs have restrained outlays for apparel. I will explore this point further in the balance of my talk. In contrast to apparel, the steadiness of home furnishings expenditures, shown at the bottom of this chart, reflects both the rapid rise in number of single-person as well as married-couple households, and mirrors changing lifestyle preferences.

I mentioned it took nearly 10 million more jobs to produce even the modest 13.5 percent growth in purchasing power we saw earlier. Who has obtained these jobs, and why? It is apparent that growth in the number of women working has far exceeded the increase in male employment (Chart IV). It is widely recognized that the demographic profile of the nation has contributed significantly to the total number of young persons reaching working age. Consequently, both male and female employment was expected to rise significantly. But why so many more women entering the work force than men?
From what we have already seen, it is clear that there are ample economic reasons for working. But it goes well beyond that into the realm of changing social values. Old values stem from the earliest American settler and pioneer days, the Depression, and two world wars. How many of these five "old values" can you remember?

1. Self-denial—putting family, church, and country above yourself
2. Familism—wife and children terribly important to a proper and full life
3. The Puritan Ethic—hard work is fulfilling, an honest day's work for a day's pay
4. Conformism—don't be different, including different dress, because it shows lack of breeding or taste
5. Materialism—upward mobility, possessions are proof of hard work and success, expectations of affluence

Then in the 1960's and early 70's a whole new rash of social values was spawned by the young—mostly college students. They felt their parents, their schools, their government, and even the economic system had failed them.

1. Parents were too busy accumulating wealth to pay sufficient attention to their needs
2. Schools were indifferent to their individuality and were teaching how great our country was even though blacks were treated as second-rate citizens; Indians were scorned as if they were the foreign intruders
3. The North Koreans could not be beaten by our military. In the south, Vietnamese were being forced to accept the corrupt government we were keeping in power, our own government was drafting us to die in an immoral war, and the President was lying to us about Cambodian invasions, Watergate, and so on.

This skepticism and wholesale rejection of values gave rise to new priorities—like self-expression, individuality of dress, do-your-own thingism, self-fulfillment, reaching one's own potential, antimaterialism, entitlement to affluence, security and income—preferably without hard work, and being someone.

This was fine until something happened on the way to this good life:

Many found that "being someone" was not so easy. Many of the nonconformists found they were just like all the other nonconformists.

Others, in just "being themselves," did not like what they found. They were not artistic geniuses or great athletes and being inventors or leaders took talent and energy.

Many "doing their own thing" found interference from others doing their own thing.

Nonconformism of others was a pain; rising crime in the streets had its victims.

With the oil embargo and the Club of Rome report, there were growing questions about the abundance of resources. Economic growth was no longer simply assumed as inflation soared no matter what government tried to do, and deep recession developed no matter how much government spent. Jobs of any kind were scarce.

Everyone found money not only hard to come by but necessary to do the many things that were psychically fulfilling. Money gives one a real measure of independence. Women took jobs either to augment their husband's stagnant, spendable income, or not to have to depend on a man by showing their own worth.
An amazing 40 percent of working women became the principal wage earners in their households. A wage gave them income to live on and buy, among other things, apparel they wanted for themselves. But work became a means to an end in this new value system, rather than a prevailing social ethic.

Rather than trying to "be someone," the emphasis is now turning to feeling good. Exercise, proper diet, and jogging are in. Looking good is coming back. Women have made significant progress in establishing equality of opportunity and proving their ability and can now reassert their femininity in dress. Unisex apparel is out. Dressing up is making a comeback. Men are wearing vested suits. Natural fibers like wool and cotton feel good and are in great demand in spite of higher cost.

In summary, there has been a rather practical blending of the old values with the new and an accommodation to the new realities of slower growth in after-tax real buying power.

1. Family life is again acceptable, but it may be a small or even childless family. Having one when one family in one's lifetime is also acceptable.
2. Work is acceptable, but as a means to more important ends, not because it is expected of one.
3. Dress can be attractive but must be comfortable and feel good. Conformity is out; no single new fashion can dominate.
4. Government is important but must be watched and should not be expected to solve all problems or guarantee everyday needs. It must not spend more than it takes in, and it should not take in as much as it does unless it learns to spend it better than we can!
An Appearance Program with a Group of Female Psychiatric Patients: Effect on Appearance, Self-Concept, and Body Cathexis
Carolyn Callis
Research conducted at the University of Texas, Austin

The purpose of the study was to ascertain the therapeutic value of an appearance program for female psychiatric patients. The therapeutic value of the appearance program was assessed in regard to positive changes in self-concept, body cathexis, and appearance.

Subjects were 10 chronic female patients in one unit of the Austin State Hospital. The 10 individuals were believed to compose a representative sampling of the chronic female patients.

The research design was a one-group pretest-posttest design. Subjects completed the Tennessee Self Concept Scale and the Body Cathexis Measure. Front and side view photographs of the patients were made. Three mental health workers completed a subjective appearance questionnaire for each patient. Treatment consisted of implementation of 12 seventy-five-minute appearance programs over a six-week period. Color photographs of the patients were made every session. Patients used a photograph rating sheet to evaluate their progress throughout the program. A multivariate test of significance and univariate t-tests were used to analyze the data. An a priori decision was made to use and to report the .05 level of significance.

Significant positive changes occurred in appearance and body satisfaction. The difference between pretest and posttest mean scores on self-concept was only of borderline significance (p < .052).

If improvements in appearance of the psychiatric patients proved to be permanent, it is possible that over a period of time this improved appearance could result in positive responses from others and indirectly contribute to more positive self-feelings. Longitudinal studies are needed to ascertain long-range effects of such programs with both women and men.

Perceived Fashion Risk as Related to Self-Esteem of Males and Females
Bernetta Canton and Geitel Winakor
Research conducted at Iowa State University, Ames

When consumers make decisions, they may perceive risk because they cannot be certain of the outcomes of that decision. Types of perceived risk identified by researchers include economic, temporal, physical, social, psychological, and performance risks. Researchers have examined the relationship of personality
variables to perceived risk but seem not to have studied males and females simultaneously. Also, they have ignored the specific risk that consumers face when selecting fashion goods. This risk may be related to other types of perceived risk and to personality variables such as self-esteem.

The purpose of this research was to develop a verbal instrument to examine the perception of fashion risk relative to self-esteem among males and females. Nearly 400 university students responded to an instrument consisting of 118 statements. Self-esteem items were selected or adapted from the Janis and Field personality questionnaire. Items designed to measure types of risk perceived were developed by the researchers from previous research in the areas of fashion and perceived risk in the purchasing situation. The 99-point certainty scale was used for responses, which were then transformed to normal deviates.

Means and standard deviations for males and females were similar for all but a few items. Results were factor analyzed separately for each sex; 11 meaningful factors emerged for females and 8 for males. Factor content was similar for males and females, but factor structure was different. Perceived fashion risk was represented in factors that included other types of risk, specifically economic, performance, and sociopsychological risks. Female factors formed two discrete clusters; one represented self-esteem and need for social approval, the other, concern with fashion, shopping practices, store and brand image, and emphasis on appearance versus function of clothing. These two clusters were uncorrelated. For males, a general self-esteem factor correlated with a factor involving social and fashion risk, suggesting that self-esteem was positively correlated with innovativeness in fashion and inversely with need for social approval. Emphasis on economic and performance risks appeared to differ for males and females.

The instrument functioned well. Further research is needed to test hypotheses, extend generalizations to larger populations, and examine effects of such variables as age, educational level, and income, as well as to determine whether factors derived from different samples and populations differ more between sexes than among different groups of the same sex.

Human Values, Attitudes Toward Dress, and Decision Making
Sue Dodson and Mary Ellen Higgins
Research conducted at the University of Wisconsin, Madison

The objectives of the study were to explore the relationship of human values and attitudes toward dress and to investigate the relationship of human values and types of power expressed in decision making. Theoretical works on human value systems indicate that sequences of acts including decision making and attitudes, such as those involved with dress, are steered by values held by an individual.

Two hundred and nine wives were selected by a cluster sampling technique as subjects. Home interviews were conducted. Data collection involved four tasks. The first task involved an instrument adapted from Rokeach in which subjects rank-ordered a set of 11 terminal values (goals in life) and a set of 10 instru-
mental values (modes of behavior). The second task involved sorting cards containing verbal expressions of values and verbal expressions of attitudes toward dress into groups. The content of these groups was cluster analyzed, and values appearing with attitudes in a tight low-order cluster were interpreted as relating to attitudes toward dress. The third task was a questionnaire concerning decision making. Eighteen situations requiring decisions were stated. Six possible responses were listed from which the subject selected an answer for each of the eighteen situations. Based on the subject's responses, they were classified as having either an autonomic, a syncratic, a husband dominant, or a wife dominant type of power structure regarding decision making. Subjects were placed into groups according to these four types of power. The fourth task involved a questionnaire concerning demographic data.

The results of the study indicated the values a prosperous life, good health, salvation, clean, and sexy were related to attitudes toward dress. There were 93 subjects classified as having an autonomic power structure regarding decisions concerning dress; 20 subjects, syncratic; 95 subjects, wife dominant; and 1 subject, husband dominant. The subjects classified as autonomic related the values salvation, clean, and sexy to attitudes toward dress. The subjects classified as syncratic related the values good health, salvation, adaptable to change, clean, and sexy to attitudes toward dress. The wife dominant subjects related the values a prosperous life, good health, salvation, adaptable to change, clean, and sexy to attitudes toward dress.

The results of this study have implications for explaining acts and attitudes expressed by individuals in situations in which dress is a variable, such as situations of interaction within the family concerning decisions related to purchasing clothing.

The Fashionability of Clothing: Its Effect on Perceptions of an Educator
Peggy Engelbach and Mary Lapitsky
Research conducted at the Ohio State University, Columbus

Statement of the Problem. The study was designed to test (1) the effect of the fashionability of an educator's clothing on ratings assigned dimensions of person perception and (2) the relationship between the perception of the educator when viewed in fashionable or unfashionable clothing and the subject's interest/importance placed on clothing.

Research Design. A 2x2x2 experimental design was used: fashionable/unfashionable clothing, interesting/uninteresting newspaper article, and excellent/good credentials. The 160 college students were randomly assigned to the eight treatment groups. Each subject received an article attributed to the college educator with the college educator's photograph and credentials. Data were collected on the educator's personal characteristics, expertise, and quality of work, as well as the subject's clothing interest/importance and demographic characteristics. Analysis of variance was used to test whether the fashionability of the
Results. The quality of the educator's work was rated significantly higher \((F = 4.13; p = .04)\) when the educator was fashionably clothed than when she was unfashionably clothed as hypothesized. The differences in ratings assigned the educator's personal characteristics and expertise were not great enough to reach significance. Home economics majors rated the educator higher than did other majors on all person perception measures. Females also rated the educator higher than males.

A low \((r = .28)\) but significant correlation \((p = .01)\) resulted between the subject's clothing interest/importance score and personal characteristics ratings of the educator when the educator was unfashionably clothed. The correlation was not significant when the educator was fashionably clothed.

RESEARCH REPORTS
Session II
Flammability Characteristics of Layered Fabric Assemblies
Elizabeth A. McCullough
Research conducted at Kansas State University, Manhattan

The purpose of this study was to investigate the flammability characteristics of layered fabric assemblies in different spatial separations and to compare these results to the burning behavior exhibited by the single-layer components. A 4x2x3 factorial design was employed to study the effects of (a) the fiber content of outer wear fabrics, (b) the fiber content of underwear fabrics, and (c) the amount of space between layered fabrics on the following: ignition time, maximum heat transfer rate, time to reach maximum heat transfer rate, and total heat transfer of fabric assemblies. Men's woven dress shirt fabrics and knit underwear fabrics of cotton, polyester, and cotton/polyester blends were tested as layered assemblies at different spatial separations using a modification of the Mushroom Apparel Flammability Tester. In addition, the single fabric layers were tested for comparison with the layered combinations. All single- and double-layer fabric assemblies were assigned to a fabric class according to the specifications in the "Proposed Standard for the Flammability of General Wearing Apparel."

The findings indicated that fabric assemblies with high percentages of cotton fiber in their outer wear and/or underwear layers and no air space between the layers yielded the highest maximum heat transfer. These assemblies apparently have more burn injury potential than assemblies containing higher amounts of polyester and more space between the fabric layers.

When two fabric layers were touching, the ignition time for some assemblies increased over the time exhibited by their single-layer outer wear components or by the same assemblies with more space between their layers. In addition, the
The double-layer fabric assemblies differed from the individual single-layer components on maximum heat transfer rate, time to reach maximum heat transfer rate, and total heat transfer. The assemblies also differed from the sum of the single-layer components tested individually on all three heat transfer variables. In addition, the shirt/undershirt fabric assemblies exhibited a synergistic effect; the flammability hazard associated with assemblies was greater than that expected from the sum of the single layers. Apparently more knowledge concerning the flammability characteristics of multiple fabric assemblies is needed prior to the promulgation of a standard for general wearing apparel.

Effect of Drying Time and Temperature on the Durability of Fabrics and Energy Consumption

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Austin L. Bullock
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Purpose. The purposes of this study were (1) to determine the effect of selected drying conditions used in home laundering on certain physical properties of polyester/cotton fabrics suitable for casual wear and (2) to determine the energy consumed for each drying condition.

Research Design and Methodology. Two fabrics, 65/35 polyester blend with a durable press finish, were used for testing. All fabrics were laundered at the recommended condition of warmwash (110°F), cool, rinse, permanent press cycle. A group of fabrics was dried at (1) a temperature lower than that recommended by the manufacturer (120°F), (2) the recommended temperature (145°F) and (3) a temperature higher than recommended (170°F). The drying cycles were (1) shorter than recommended (20 minutes), (2) within the recommended period (35 minutes) and (3) longer than the recommended period (50 minutes). After each fifth drying cycle, the test fabric was evaluated for appearance, dimensional change, pilling, tearing, and breaking strength. The kilowatt hour (kwh) of energy consumed at the various drying settings was recorded by an electric meter. Results of these tests were analyzed using analysis of variance.

Results. Fabrics dried at a shorter time and lower temperature recommended were slightly damp and extremely wrinkled, thus resulting in a lower appearance rating. Pills developed on the surface of the fabric at the longer drying time and higher temperature. As the drying time and temperature increased, the tearing strength decreased significantly. The drying cycles—short, medium, and long—used an average of 5.0, 13.0, and 18.0 kwh, respectively. The overall breaking strength also decreased with increased drying time, temperature, and number of cycles. The largest percentage of dimensional change (shrinkage) developed during the longest time and hottest drying temperature.
Implications. Shorter drying times and lower temperatures will conserve energy and prolong the wear life of fabrics. However, lowered appearance can be expected. Higher temperatures and longer drying times will change the appearance and reduce the wear life or useful life of fabrics. The number of times clothing is dried adversely affects the breaking strength. To retain the permanent press appearance, and extend the useful life of fabrics, clothing must be dried according to the recommended time and temperature.

Silk Pseudomorphs on Shang Dynasty Bronze Artifacts:
A Preliminary Investigation
Lucy Sibley
Saint Mary College, Leavenworth, Kansas
Lois Korslund and Ralph N. Rowlett
University of Missouri-Columbia

This research tests the feasibility of using textile fabric pseudomorphs in archaeological fabric analysis. Textile pseudomorphism is defined herein as the replacement of an organic structure by crystals of a mineral compound that assume the physical form of the former. In this case we infer that a mineral has replaced an organic structure. The hypothesis for this study maintains that a textile fabric pseudomorph contains information about its former organic state and can be partially analyzed as if it were the fabric itself. Two limitations are evident. One is that the pseudomorph's fragile state precludes removal from the bronze artifact to which it adheres. The second limitation stems from the mineralizing process. If that process is complete, then there will be no evidence of organic structure remaining.

Two ko halberds and one spearpoint (c. 1300 B.C.) from the Museum of Anthropology at the University of Missouri-Columbia were subjected to a series of tests designed to replicate and amplify two earlier studies of the phenomenon. Tests included visual inspection with and without the aid of a magnifying glass and microscopic examination at three levels of magnification. Metric graph paper was used to note measurements and incidences of pseudomorphism. Neutron radiographs of all three artifacts were made at the University Research Reactor.

Preliminary findings indicate that silk was present as filament and, in all likelihood, as a staple. There is no evidence of organic structure microscopically. While the neutron radiographs indicate some light areas where hydrogen remains, none of them shows a fabric structure. Fabric pseudomorphs are present on one side only of each artifact and around the cross-pieces. Three different fabric structures are visible without any magnification: a float weave, twill variation; a plain weave, basket variation; and an unbalanced plain weave that appears as a ribbed fabric.

1We thank the Museum of Anthropology for permission to study the artifacts and Dr. Don Alger, University of Missouri Nuclear Reactor, for making neutron radiographs.
In the absence of archaeological fabrics from certain periods, pseudomorphs can be used within certain specified limitations. They can never yield positive, definitive evidence, but they can be used along with other evidence to establish information about the fabrication behavior of the archaeological culture that produced them. The number and type of fabric structures raise interesting questions about the Shang people and their textiles.

Investigation of Detergents Used in Wetcleaning Old Cotton Fabrics with Emphasis on Removal of Detergents and Effects on the Fabric
Vicky L. Krucksberg and Margaret T. Ordonez
Research conducted at Kansas State University, Manhattan

A problem in textile conservation work carried on in the Clothing, Textiles and Interior Design Department at Kansas State University has been stiffness of cotton fabrics after wetcleaning with detergents. Professors also have been unsure about which detergents to recommend to conservation students because available literature provides few research reports on the surfactants that are best suited for old textiles. This was a preliminary study to evaluate effects of various detergents on old cotton fabrics.

In lieu of using an old fabric of limited yardage, the researchers selected a standard broadcloth test fabric to be wetcleaned with water, a soap, and six detergents of the following types: sulfated anionic, phosphated anionic, phosphated nonionic, nonphosphated nonionic, nonionic with anionic properties, and anionic with nonionic properties. The study was designed to determine (1) stiffness of fabric samples after wetcleaning, (2) correlation between two methods of evaluating stiffness, (3) changes in fabric strength and elongation, (4) changes in color, and (5) changes in color after six months and one year.

Eighteen samples of the test fabric were coded for treatment and replication. Each sample to be wetcleaned was treated in water or one percent soap or detergent solution using standard wetcleaning procedures except that the number of rinses was limited to three. The samples were dried flat on glass. Tensile strength and elongation were measured using ASTM D 1682-64 (1975). Stiffness was evaluated using ASTM 1388-64 (1975) and by a panel of 14 CTID faculty and graduate students. Color changes were measured with a Hunterlab Colorimeter D2511-4.

No significant difference in color, whiteness, or yellowness was found between the treatments using one-way analysis of variance. None of the detergents produced significant changes in strength or elongation. Analysis of variance showed a significant difference in the stiffness of the fabrics measured by the stiffness tester (p < .007). Ranking the stiffness means resulted in the following order of most to least stiff: phosphated anionic, sulfated anionic, phosphated nonionic, anionic with nonionic properties, water, soap, nonionic with anionic properties, nonphosphated nonionic, and the control. Using the Least Significant Difference Test to determine where differences occurred revealed that all of the treated samples varied significantly from the control (p < .05) and that the three anionics and the phosphated nonionic were significantly different from the nonphosphated
nonionic. The phosphated anionic was also different from the nonionic with anionic properties. The panel members were unable successfully to determine differences in stiffness of the fabrics by rating them from 1 to 3. The research indicated that the detergents did affect stiffness, so further research on the effects of detergents on old fabrics is merited.

RESEARCH REPORTS
Session III
The Influence of Russian Artists on Fashion, 1909-1925
Dorothy Unseth Behling
Free-Lancer, Columbus, Ohio

Pictorial material collected and analyzed by this writer suggested that there was a strong influence on fashion by Russian artists from approximately 1909 to 1925. The purpose of this historical study was to examine the nature of the influences that Russian artists had on haute couture during this period. The specific objectives of the study were: 1) to identify Russian artists who influenced haute couture between 1909 and 1925, 2) to discover in what way each one influenced fashion and to find a commonality if one existed, and 3) to pictorially document Russian artistic influence on haute couture.

The procedure involved extensive reading of secondary source material. Early 20th century fashion, art, and theater periodicals were searched for information on Russian artists who were involved with the decorative arts. Slides of women's fashions, which were made from rare early 20th century fashion periodicals, were systematically examined. Finally, paintings and graphics by Russian artists were examined in museums and galleries.

The original indication of a strong Russian influence on fashion between 1909 and 1925 was substantiated. Artists who were found to be influential were Leon Bakst, Erte', and Sonia Delaunay-Terk. Both Bakst and Delaunay-Terk were accomplished painters. They also designed costumes for the theater and/or fashion trade and designed textiles. Bakst influenced fashion from 1909 until the mid-teens. Delaunay-Terk's influence was most noticeable during the decade of the twenties. Erte', whose fine arts training was far less rigorous than that of Bakst and Delaunay-Terk, is best known for his exotic and erotic designs for the theater. However, from 1914 until the early twenties his fashion designs had a marked influence on the French couturier.

Analysis of the costume designs created by Bakst, Delaunay-Terk, and Erte' indicated that they were all remarkable colorists. The strong, pure colors seen in women's fashions created by these three artists was also an important aspect of the paintings by Russians who were involved in the fine arts during that period of time. Kandinsky, Chagal, and Malevich all influenced the use of color in the arts.
Examination of Russian folk art and Russian peasant costume suggests that the strong color orientation of Russian artists of this period came from their Slavic background in combination with the experimental mood of the art movement of the early decades of the 20th century. Although each period is unique, it is suggested that the costume/fashions of other eras may have been strongly influenced by particular artists and/or ethnic groups.

Color Value Preferences for Clothing and Personality Factors

Imogene N. Ford and Macy Frances Drake
Research conducted at The University of Tennessee, Knoxville

Relationships existing between color value preferences for clothing and personality factors were studied to discover if these variables change with season and/or time. The sample included 372 female undergraduate students enrolled in textile and clothing classes. Color value preferences for clothing and the subjects' scores on the Sixteen Personality Factor Questionnaire were compared by year and season. Color value preference for clothing was measured by six sets of colors. A set contained 18x20 inch paper sheets of three values: light, medium, and dark. The hue and intensity were constant within each set. Data were collected in spring 1972, spring 1975, and fall 1975.

Chi-square analysis was used to compare respective frequencies between color value preferences for clothing and time. The effects of color value preference and time on personality factors were estimated by a least-squares analysis of variance.

The subjects differed significantly across time or season on only three personality factors (E, concrete-abstract thinking; C, expedient-conscientious; and T, tolerant of tradition-experimenting). Significant relationships existed between color value preferences for clothing and certain personality factors (E, conforming-aggressive; L, conventional-bohemian; N, natural-shrewd; and T, tolerant of tradition-experimenting). These relationships were consistent for the three time periods. Regardless of year and season, subjects choosing darker values tended to be more aggressive, more bohemian, more natural, and more experimenting than those choosing the lighter values.

Although the color dimension, value, may be more subtle than hue, it is important especially in reflecting mood. Color value communicates information about an individual. Textile and apparel manufacturers need to produce items in a range of color values that will permit consumers to select goods that express their personality.

1975 data, M.S. thesis, Sharron G. Doss
Sensory Evaluation of Clothing
Marilyn Revell DeLong
Research conducted at The University of Minnesota, St. Paul

This study was undertaken to explore the measurement of subjective responses to the clothed body. The major objective was to determine if two groups of female observers differing in age respond consistently to selected properties of clothing.

Two groups of females were selected who resided in the same metropolitan area and differed in age: Group A was composed of 54 university students aged 19 to 25; Group B included 50 women from extension homemakers groups, ranging in age from 30 to 55. Ten color photographs were selected of female daytime dresses from magazines and catalogs published within six months of the time of the test. Photographs were randomized prior to presenting to each subject. Each subject was asked to rank the ten photographs using four sets of polar words: 1) fashionable—unfashionable; 2) like—dislike; 3) simple—complex; 4) would like to own—would not like to own. Each subject was then asked to respond to 56 semantic scales considered representative of responses encountered in the visual perception of the clothed body.

Consistency in responses of the two groups was found when multivariate analysis methods were used to test for differences from individuals, costumes, and word scales within the instrument. Between the groups, ranking of "complexity" was the most similar, followed by "fashionability." Correlations were low for "like" and "would like to own." Commonalities in response to the visual form of clothing were found to exist when the groups of observers responded to photographs of the clothed body. Generalizations from subjective responses are entirely possible when observers of differing ages have common experiences within a time-frame and culture.

The methodology developed for this study can be used to work with other observers and other types of clothed body forms. The approach to the study of the whole complex visual form of the clothed body was made possible through the use of ranking, the semantic scales, and multivariate analysis. The remarkable agreement in discriminate coordinate plots and similar response for the two groups leads to the possibility of extending beyond the selected observer groups.

The Establishment of a Chronology of Local Photographers as a Resource for the Study of 19th Century Costume in Ohio
Virginia Gunn
Research conducted at The University of Akron, Ohio

Nineteenth-century photographs illustrate fashions of the day as they were actually worn, making them valuable primary resources for the costume historian. Problems of accurate dating have limited their use, however.

By the 1860's most paper photographs, though undated, bear both the photographer's name and business location. It was hypothesized that this information

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could be used to form a chronology for photographs from a specific area. The purpose of this study was to identify and document dates for 19th-century photographers who worked in Wooster, Ohio. These dates would provide the chronological framework for subsequent dating and analyzing of the costume worn in this locale as revealed in the photos taken by these Wooster photographers.

The research methodology involved comparing information gleaned from existing historical photographs with advertising and editorial information found by searching weekly newspapers from Wooster for the 1850-1900 period. Census materials, business directories, county records, and court dockets added additional information that facilitated an arrangement of the photographers and their works in a chronological sequence. Historians Robert Weinstein and Larry Booth have noted that "identifying and dating pictures is like putting together a giant jigsaw puzzle."

As a result of the study, 52 professional photographers or partnerships were identified in Wooster for the period 1850-1900. A high rate of turnover allowed the discovery that photographs taken by 90 percent of the town's photographers could be dated to within a five-year period. Photos taken by 84 percent of the photographers can be further narrowed to within a three-year period, and 65 percent to a one-year period. Changes in business location, photographic styles and formats help place photos taken by photographers who stayed in Wooster for more than five years in much narrower time periods.

In this project involving Wooster, Ohio, it was felt that evidence provided a good chronological framework for accurately dating photographs from that area and thus dating for further analysis the costumes pictured in those photographs. It is generalized that historical work of this type could provide similarly useful chronologies of photographic activity in other well-established towns in the last half of the 19th century. These dated primary documents would be useful to archivists, local historians and historical societies, genealogists, and family researchers needing specific dates for photographs with which they are working—as well as being of special value to the historian of costume.

RESEARCH REPORTS
Session IV

Assessment of Master's Degree Programs in Textiles and Clothing
Evelyn J. Senecal
Research conducted at Kansas State University, Manhattan

This research was undertaken to determine criteria useful in assessment of master's degree programs, to establish empirically a set of dimensions related to quality, to explore predictiveness of correlates, and to investigate the power of discrimination between quality groups.

Attributes of quality (66 independent variables) were measured from data collected from institutional catalogues, professional journals, and a questionnaire sent to 32 chairpersons of master's degree programs in textiles and clothing. The depen-
dent criterion, quality of programs, was determined by ranking mean ratings of programs by chairpersons. Product moment correlation coefficients were calculated for each of the independent variables with the dependent criterion. Variables were subjected also to a principal components factor analysis. Factors were selected for rotation by the varimax procedure. Variables representing extracted factors were employed as independent variables in multiple regression analyses to establish predictiveness of the quality criterion. A scale was devised to measure the quality rating of each program. Each of the 66 program characteristics was quantified for each program, and mean scores were derived for programs placed into each of three quality groups and inspected for discriminating tendencies.

Twenty-three correlates with $|r| \geq 0.30$ were identified. The top-ranked correlates are acquisition of research grants, availability of graduate student scholarships and assistantships, educational level of graduate program chairperson, age of graduate program in operation, and graduate faculty holding an advanced degree in a root discipline only. The data establish construct validity for the conceptual dimensions of faculty, students, curricula, and administration/facilities employed by accrediting agencies. Five factors were extracted: training and performance of faculty; size of student body; size of curricular program; research emphasis in program; and external facilities, resources, cooperation, and support. One variable was selected from each of the factors and employed in a multiple regression analysis to predict overall quality: faculty engaged in research; graduate degrees conferred; size of graduate curricula; acquisition of research grants; and interinstitutional and community resources. The multiple correlation coefficient between all five variables and the quality criterion is .76. Scores for measures of the 27 strongest correlates of quality differ between the Adequate and Inadequate groups. Differences are directionally satisfying and consistent among the three groups.

Characteristics of programs lend themselves to empirical analyses, sanctioning further exploratory research. Master's degree programs may be assessed by a limited set of variables whose measures differentiate at lower levels. Economy of time and expense could be realized in the accreditation process and by prospective students in the selection of a program.

Characteristics of Older Consumers and the Comparative Effectiveness of Two Forms of Clothing and Textiles Consumer Information
Barbara D. Ames
Research conducted at Kansas State University, Manhattan

The purposes of this study were to develop a profile of the older consumer and to evaluate the effectiveness and acceptability of two approaches to clothing and textiles consumer information.

Physiological, psychological, and sociological aging combine to create individuals with special characteristics as learners and consumers. These special characteristics, both strengths and weaknesses, imply a need for a special approach to format, content, and dissemination of consumer information. The researcher con-
sidered these special characteristics in developing a special format clothing and textiles consumer information booklet. A general format booklet, containing the same factual information but giving no consideration to reader characteristics, was developed for comparison.

Working in cooperation with the Kansas Northern Hills Area Agency on Aging, participants were obtained from 12 Title VII nutrition sites. The sites were divided into clusters of four sites each for the control, the special format, and the general format groups. Self-paced individual study of the booklets preceded the completion of 65 usable interviews with men and women over age 60.

Three types of questioning were utilized in determining the effectiveness and acceptability of the consumer information booklets. Type I questions were designed to measure consumer attitudes, clothing attitudes, and future shopping behavior. Null Hypothesis I predicted no significant difference between treatment groups on Type I mean scores. No significant difference between groups was found, and Hypothesis I was retained.

Type II questions were designed to measure factual information gained from the consumer information. Null Hypothesis II predicted no significant difference between treatment groups on Type II mean scores. Special format readers scored significantly higher (p<.01) than did those in the control group, and null Hypothesis II was rejected.

Type III questions were designed to evaluate the two booklets. Hypothesis III predicted no significant difference between groups on booklet evaluation scores. Special format readers evaluated the booklet significantly higher (p<.05) than did general format readers, and null Hypothesis III was rejected.

Generally, participants using the special format materials found them more readable and more helpful than did those in the general format group. Special clothing and textile consumer needs centered around concepts derived from recent scientific and legislative developments. Although further investigation is needed, there appears to be a need for updating older consumers in a form designed for their specific needs and interests.

Clothing as an Indicator of Life Quality
Sara Butler
Miami University, Oxford, OH
Joanne Hicher
University of Minnesota, St. Paul

Purpose: In expressing a concern for the well-being of individuals and families, home economists have undertaken the study of the individual in his closest environments. Little research has been conducted exploring this link, however. The purpose of this investigation was to examine the viability of the human ecological, near environment approach in exploring quality of life.
Procedure. A simplified environmental model was developed relating to quality of life and the human ecological approach. The environed unit was defined as the individual. Four environments were selected to be investigated both objectively and subjectively. These included clothing, shelter, family, and community environments. Interactions between the environed unit and the environments were defined as perceptions of the importance of and satisfaction with the environments.

Importance and satisfaction scales, indicating respondents' rankings of life concerns, provided subjective information. Subjective, open-ended questions related to the clothing environment were designed. Objective clothing data were gathered through inventory forms. Data were collected by means of personal interviews. Data were analyzed in a detailed, descriptive fashion.

A purposive case-study sample of 13 subjects was selected from respondents participating in a larger study. Individuals were asked to respond to a perceived overall quality of life (POQL) scale on which they expressed their feelings about their lives as a whole. The results represented an imperfect bell-shaped curve. This research focused on the extremes of the curve. The high POQL group (n=7) consisted of those who were delighted or pleased with their lives. The low POQL group (n=6) was composed of individuals who had mixed feelings about their lives and represented the "least happy" group.

Results Although members of both the high and low POQL groups owned similar clothing, they perceived their clothing in different ways. Objective clothing data showed no differences between groups in the source, age, or number of garments owned. The groups differed little in terms of the importance placed on life concerns. Clothing was least important of the concerns to respondents in both groups. Members of the groups differed markedly, however, on satisfactions with life concerns. Dissatisfactions were expressed by members of the low POQL group on several aspects of clothing use.

Implications. The value of this research lies in the inclusion of clothing in an ecological model of quality of life indicators. Implications in terms of the viability of the model in exploring quality of life are varied. Objective measures of the near environments, including clothing, are not capable of serving as sole indicators of quality of life. Rather, subjective feelings about those environments seem to be more critical.

Deceptive Advertising: An Attitude Change Approach
Brenda Sternquist Witter and Charles Noel
Research conducted at the University of Tennessee, Knoxville

The purpose of this study was to investigate deceptive advertising and advertising substantiation using an attitude change approach. The Fishbein Extended Model was used as the tool for analyzing attitudes and attitude change, and an evaluation of the model terms also was included in the study. The research objectives identified for this study were: (1) to use focus group interviews to establish salient evaluative criteria for the products used in the study; (2)
to develop a questionnaire that would provide information about how individuals evaluate products; this being an operationalization of the Fishbein model components; and (3) to empirically evaluate the model in an exploratory study.

Shoes and pantyhose were two of the products used in the study. Focus group interviews were conducted to identify brands to be used in the study, and to determine what evaluative criteria would be used for the products. The questionnaire for each product group was developed from the evaluative criteria. The questionnaire was pretested and revised before being administered to 375 high school students from four Knoxville city high schools. Students were randomly assigned by classes to a control or experimental group for one of the four products.

Pretest-posttest gain scores for the control and experimental groups were analyzed for differences. Significant differences in gain scores were found for Famolare, Fanfares, and Hanes-Ultra Sheer brands when the Fishbein Extended Model was used to compute attitude.

The components of the Fishbein Extended Model were analyzed using multiple regression to identify the contribution of the independent variables in predicting behavioral intentions. The model was highly significant in explaining behavioral intentions to purchase the products.

The method currently used by the FTC for determining deception is a prescriptive method. Because of this post hoc approach to deception, only a few companies can be investigated each year, but the penalties for abuse are extreme. A prescriptive approach to monitoring could reduce the ultimate litigation costs for prosecuting a company and could also provide the company with an evaluatory tool for screening advertising claims.
Minutes
Central Region Business Meeting
October 26, 1978

1. President Mary Don Peterson called the meeting to order at 3 p.m.

2. The minutes of the 1977 business meeting held in Dallas Texas, were distributed. No additions or corrections were made.

3. Joan Laughlin, treasurer, reported that the balance on hand was $10,191.04. This balance includes $2,376.78 in the checking account, $2,589.86 in the passbook savings account, and $5,224.40 in a certificate of deposit.

4. Committee Reports:

   a. Nominating Committee. JoAnn Lefler, chairperson, reported that 365 ballots for the election of new board members were mailed out on April 1, 1978, and 186 were returned and tabulated. The following were elected:

      Planning Council: Karen Evans (University of Texas-Austin)
                        Patricia Horridge (Texas Tech University)

      Advisory Council: Mary Littrell (North Dakota State University)
                         Miriam Cross (University of Oklahoma)
                         Barbara Schlinkert (Purdue University)

      National Executive Board: Mary Don Peterson (Kansas State University)

      JoAnn Lefler, on behalf of the remaining members of the nominating committee (Karen Evans and Audrey Newton), recognized the retiring members of the executive council:

      Planning Council: Martha Jenkins (Western Kentucky University)
                         Mary Don Peterson (Kansas State University)

      Advisory Council: Robert Hillestad (University of Nebraska)
                         Karen Evans (University of Texas at Austin)
                         Dee Wellan (Louisiana State University)

      National Executive Board: Lillian Matthews (Indiana University)

   b. Membership Committee. Lucille Golightly, chairperson, reported that brochures describing ACPTC have been sent to: all ACPTC members, heads of home economics units in colleges and universities, editors of state home economics newsletters, and a list of potential members as compiled by Charlene Lind (Brigham Young University).

      Joan Laughlin announced that as of October 26, 1978, ACPTC-CR recognizes 426 members.
c. Bylaws and Handbook Committee. Lillian Matthews, chairperson, stated that all major changes in the bylaws were approved by the members. The handbook has been revised to be consistent with bylaws changes and each council member has received a copy.

5. Lillian Matthews, National Executive Board representative, reported that the main new item of business presented and discussed at the National Executive Board meeting centered around the relationship of ACPTC with AHEA. Ruth Gates, president-elect of national ACPTC, and Mary Ellen Higgins, president, have identified three steps that are necessary following the approval of a recommendation for change voted by the National Board of ACPTC in June 1978. These are:

a. Discussion of proposed changes at October 1978 meetings in all three regions

b. Submission for vote by the total membership of proposed changes in spring 1979

c. Implementation of changes, if approved, beginning August 1979

Discussion of implications of a change in the status of ACPTC within AHEA from that of a "constituent group" to an "affiliate group" was led by Mary Don Peterson, Joan Laughlin, and Lillian Matthews. Major differences between the statuses were identified. If ACPTC becomes an affiliate group, the association would lose the following privileges and services:

a. Help from Bob Moorman with IRS status

b. Clerical and computer services now performed

c. Storage space for files

d. Ensured position on calendar for annual AHEA meeting, although it might be arranged

The privileges ACPTC would retain are:

a. Mutual interest and support

b. Services supplied any individual member of AHEA

As an affiliate group, ACPTC would have the following responsibilities to AHEA:

a. Keep AHEA informed of activities

b. Send literature and publications produced

c. If ACPTC takes a position regarding pending legislation, inform AHEA of the stance taken

The fees to AHEA of an affiliate group are reciprocal dues; therefore no exchange of money between ACPTC and AHEA would be made.
Joan Laughlin, treasurer, encouraged the membership to vote for the change when the spring ballots are received.

6. Martha Jenkins, historian, encouraged that members send any information of historical interest to her.

7. ACPTC-CR's ASTM representative, Marcia Metcalf, gave a report on the ASTM committee D-13 meeting that she attended in New York on October 16-19, 1978. Meeting topics included:

a. A seminar entitled "Sensory Testing and Textiles." Speakers at the seminar were: Braham Norwick, Dr. Moskowitz (MPI Sensory Testing), and Dr. Jeff Piech (E. I. duPont de Nemours).

b. A new task force was formed to participate in a 3.5 million dollar research project, being coordinated by Dr. Jordan Barruch of the U.S. Commerce Department to develop and implement an Anthropometric Survey.

c. Another task force was formed to establish guidelines for product labels. As part of the project, the task force will conduct a survey to determine what information consumers want in order to make buying decisions. The cooperation of ACPTC was requested. No decision as to whether ACPTC-CR would cooperate was reached. The report is on file.

8. New Business:

a. Mary Don Peterson announced future ACPTC-CR and national meeting sites as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Date</th>
<th>Location</th>
<th>Chairperson</th>
</tr>
</thead>
<tbody>
<tr>
<td>1979</td>
<td>October 24-26</td>
<td>Columbus, Ohio</td>
<td>Marilyn DeLong, chairperson</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Shirley Friend, co-chairperson</td>
</tr>
<tr>
<td>1980</td>
<td>October 29-November 1</td>
<td>Washington, D.C. (National)</td>
<td>Lois Gurel, chairperson</td>
</tr>
<tr>
<td>1981</td>
<td>October 28-30</td>
<td>St. Louis, Missouri</td>
<td></td>
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<tr>
<td>1982</td>
<td>October 27-29</td>
<td>Minneapolis, Minnesota</td>
<td></td>
</tr>
<tr>
<td>1983</td>
<td></td>
<td>National Conference site not yet identified</td>
<td></td>
</tr>
</tbody>
</table>

Peterson asked that invitations and suggestions for the 1984 conference site be made at the 1979 conference in Columbus, Ohio.

b. Maureen Brooks, coordinator of the Fashion Merchandising Workshop held immediately preceding the 1978 conference, reported that 51 participants from 17 states attended. The main thrust of the workshop was to share information on fashion merchandising programs with a special emphasis placed on internships. As a result of evaluations and a small interest group discussion on the workshop, Brooks proposed that the ACPTC board appoint a committee to look into possibilities for a two-day workshop to be held in conjunction with the 1979 conference in Columbus, Ohio.
c. Mary Littrell gave a report on the History of Costume Workshop held at Michigan State University in June 1978. She stated that university professors who were connected with costume collections and individuals from museums attended the workshop. The Proceedings from the workshop are forthcoming. Littrell asked that anyone who wishes to receive a copy submit a request to Anna Creekmore, Michigan State University.

d. Mary Littrell announced that if anyone wishes to participate in the formation of a regional chapter of the Costume Society of America, see Anna Creekmore after the business meeting.

e. Barbara Stowe announced a workshop on Clothing and Energy Resources, sponsored by and held at Michigan State University on November 29 through December 1, 1978. This workshop will involve university professors, industry and utility personnel, and government officials.

f. Margery McBurney encouraged evaluation of the 1978 conference and summarized procedures for the evaluation.

9. The meeting adjourned at 4:20 p.m.

Respectfully submitted,

Hilda Mayer Buckley
Secretary, ACPTC–CR
ASSOCIATION OF COLLEGE PROFESSORS OF TEXTILES & CLOTHING-CENTRAL REGION

FINANCIAL STATEMENT JAN. 1, 1978-OCT. 26, 1978

(Effective Nov. 1, 1978, Fiscal Year is Nov. 1 through Oct. 31)
Joan Laughlin, Treasurer

Joan Laughlin, Treasurer

Balance on Hand (Jan. 1, 1978) $10,902.71
Checking $5,368.62
Savings $5,534.09

Receipts
Membership Dues, 1977 & 1978 $1,300.00
Interest on Savings 384.44
$1,684.44

Disbursements (by Budget Categories) - $2,396.11
Budget Voucher Reason Amount
$1,000.00 National ACPTC Proceeding $1,060.00
750.00 January Planning Meeting 944.17
100.00 Nominating Committee 35.60
50.00 Membership Committee 115.25
-- -- By Laws & Handbook 76.62
100.00 President's Expenses 83.19
75.00 Secretary's Expenses 42.39
25.00 Treasurer's Expenses 38.89

Checking Account $2,376.78
Certificate of Deposit 5,224.40
Passbook Savings Account 2,589.86
$10,191.04

$10,191.04
Preregistered

Adams, Shirley
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YESTERDAY, TODAY AND TOMORROW

**Wednesday, October 25**

8:00-9:00 a.m. Registration

8:30 a.m.-12:15 p.m. Tour 1, Linda Tucker, Leader

Mode O'Day and Ditto of California

12 noon-1:00 p.m. Registration

12:30-5:00 p.m. Tour 2, Linda Tucker, Sue Carleo, Leaders

Knitmasters, Geltman Industries, Matchmaster, California Apparel News

6:00-7:00 p.m. Registration

7:00-10:00 p.m. Executive Board or Free time to dine out and attend concert

**Thursday, October 26**

8:00-9:00 a.m. Registration

9:00-9:15 a.m. Welcome

9:15-10:15 a.m. Anne Kernaleguen, presiding

Phyllis Specht, chair

"Suggestions for Methodological Approaches to the Study of Costume Change in Middle American Indigenous Dress"

Patricia Anawalt, Consulting Curator of Costumes and Textiles, Museum of Cultural History

University of California at Los Angeles

10:30-11:30 a.m. Doris Hime, presiding

Betty Tracy, chair

"Ethnic Textiles: Collecting and Using"

Mary Kefgen, Professor of Textiles and Clothing

California State University, Long Beach

12 noon-1:30 p.m. Luncheon

Holly Schrank, presiding

Round Table Discussions
2:00-4:30 p.m.  Research Session I  
Naomi Reich, presiding  

"The Decorative Artwork of the Coeur d'Alene Indians"  
Jackie Schneider Malinauskas, University of Idaho  
Presented by Leila Old  

"A History of Swimwear Reflecting Some Sociological and Technological Changes"  
Terrie Ellen Rust, San Jose State University  

"Costumes of Korean Women with Emphasis on the Yi Dynasty"  
Jung-Sook Kim, San Jose State University  
Presented by Barbara Christensen  

"Factors Affecting the Impact of Flammability Legislation on the Consumer"  
Margaret H. Rucker, University of California, Davis  

"College Preparation for Fashion Merchandising Students in Los Angeles"  
M. Camille Garrett and Nancy J. Owens, California State University, Northridge  

"Towards an Everlasting Fashion"  
Roshida K. Mostafa, California State University, Long Beach  

6:00-7:00 p.m.  Registration  
6:30-7:30 p.m.  No-host Happy Hour  
7:30-10:00 p.m.  Dinner  
Winona Brooks, presiding  
Judy Bishop, chair  

"Hang It on a Star!" A modeling of retrospective movie costumes from the early 1930s to the present time, narrated by designer Bill Jobe  

Friday, October 27  
7:45-8:00 a.m.  Registration  
8:00-9:00 a.m.  Business Meeting  
Anne Kernaleguen, presiding  
9:00-9:15 a.m.  Announcements
9:15-10:15 a.m.  
Nancy Owens, presiding  
Susan Kaiser, chair  
"Fashions of the 1960's and 1970's"  
Alice McCloskey, Assistant Professor of Art  
University of California at Los Angeles

10:30-11:30 a.m.  
Christine Milodragovich, presiding  
Grace Underwood, chair  
"Creating Designer Originals with Original Fabrics and Better"  
Barbara Diamond, Owner  
Left Bank Fabric Company

12 noon-1:45 p.m.  
Luncheon  
Janet Else, presiding  
Karen Robinette, chair  
"Textile Printing: Yesterday, Today, and Tomorrow"  
Bob Loewenthal, Textile Printing Consultant and Instructor  
Fashion Institute of Design and Merchandising

2:00-3:45 p.m.  
Research Session II  
Amy Sinclair, presiding  
"Clothing Designs to Meet the Needs of Elderly Women"  
Doreen Elizabeth Heyer, California State University, Northridge  
"Consumers' Expectations and Concerns about the Flammable Characteristics of Fabrics"  
Kathryn L. Hatch, Washington State University  
"Clothing Selection of the Visually Impaired: A Decision Process Analysis"  
J. Polly Macias and Margaret H. Rucker, University of California, Davis  
"Information Systems for the Clothing and Daily Living Needs of the Handicapped"  
Naomi Reich, University of Arizona, and Elizabeth Shannon, University of Manitoba  
"Systems Approach to Functional Clothing Design"  
Kaye Crippen and Matthew Radnofsky, University of Houston  
"Self-Monitoring as a Predictor of Reaction to the Non-Verbal Messages of Selected Articles of Clothing"  
Tom Petersen, Utah State University
4:00-5:45 p.m.
Research Session III
Charlene Lind, presiding

"An Experimental Approach to the Construction of Winterwear for Home Sewers"
Mary Cados, San Jose State University

"Establishing Priorities in a Clothing Program"
Jeane G. Johnson, San Jose State University

"Alternative Methods of Pattern Alteration"
Judith A. Rasband, Brigham Young University

"Consumers' Understanding of Alternative and Affirmative Care Information"
Sue Lane and Kathryn L. Hatch, Washington State University

"English Women's Clothing 1660-1836: A Visual Study"
Dorothy Thom, San Francisco State University

Saturday, October 28

8:00-10:00 a.m.
Executive Board

Morning

ON YOUR OWN TOURS (Bus routes available)
L.A. County Museum of Art, Craft and Folk Art Museum, Rodeo Drive, Beverly Hills: Farmer's Market, Home Silk Shop, Left Bank Fabric Company; Walking tour of wholesale district in downtown L.A.; OR the all-day Orange Coast College Fabric Fair (hitch a ride with a friend)
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Research Reports
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Proceedings
For the historically minded scholar, no aspect of the ethnographic textile corpus of the Western Hemisphere is more fascinating than the processes through which the European elements of dress entered the costume repertory of the Indians of Middle America. This is a subject with which I have been involved for several years, concentrating initially on documenting the indigenous Mesoamerican costume repertory at the time of Spanish Contact (Anawalt 1975).

Having established this Contact-Period baseline, I have turned my attention to the processes through which the two diverse traditions of dress, Indian and European, have merged to create the present-day costumes of Middle America, with particular emphasis on Highland Guatemala.

Anyone who has attempted research in the archives of Mexico or Guatemala dealing with the 17th, 18th, or even the 19th century is aware of the lack of information that exists on the daily life of the Indians. This is particularly true for so detailed and "mundane" a topic as indigenous dress. Such data as exist are only occasionally found in notarial records in cedularios attempting to regulate dress over a very wide region, or perhaps in occasional observations by early travelers. On the whole, however, there simply is not—and never will be—sufficient information to document the processes through which the European elements of dress entered the Mesoamerican Indian costume repertory. Yet this Middle American situation—which involves two such dramatically different dress traditions meeting, melding, and producing a new costume repertory—is not only a fascinating subject in itself but also is an ideal laboratory in which to study the processes of costume change. Once an understanding of these processes (here defined as the developments and changes of societies through time) have been gained, a body of theory will exist that can aid in understanding costume change wherever it occurs.

The purpose of this paper is to present two methods of extrapolation that can provide insight into the processes of costume change. Both of these approaches involve dealing with costume in the abstract: viewing the garments not at a specific, descriptive level but rather in a collective, theoretical manner. Further, both methods are based on the premise that the folk costumes themselves contain clues that bespeak the history and type of change process they have undergone. (A similar position apropos historical clues existing within costume is taken by Tilke (1924:2-3) on the construction of folk costume, and by Burnham (1973:3) in regard to the cut of a costume's cloth reflecting the garment's original loom type).

The first method of extrapolation to be discussed in this paper involves identifying the European traits in modern Indian costumes, determining when these traits came into being in the Old World, and then investigating how and when they could have been introduced into Middle America. This approach to cultural reconstruction through the use of historical prototypes deals with the type of change that comes about through diffusion: new traits enter a society from outside. Diffusion, however, is not the only stimulus for cultural variation. The nature of culture is such that mechanisms for change are built into

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all sociocultural systems; hence it is possible for invention to take place internally. It is with this internal change process that the second extrapolative method deals.

Not all contemporary Indian costumes have apparent European trait antecedents; some are obviously innovative, and it is for this group that the second approach has been devised. It involves applying a model of how the phenomenon of invention comes about to the subject of costume change. This model was developed by an anthropologist named Homer G. Barnett (1942) during the 1940s. At this time American anthropology was particularly interested in the mechanics of acculturation, which naturally includes innovation, the process through which new forms come into being. Barnett devised a theory to describe innovation as it applies to any item of material culture. He chose the invention of industrial devices to demonstrate his theory, but his hypothesis can as easily be applied to Middle American costume because the necessary, fundamental elements also exist here: two diverse traditions come together, there is a transfer of form and function, and innovative entities come into being.

However, before it is possible to explain either of the above methodological approaches, it is first necessary to describe the two diverse costume traditions involved—Indian and Spanish—and demonstrate that out of their confluence new forms emerged. The costume repertory of the Mesoamerican Indians at the time of 16th-century Spanish contact will be considered first.

Figures 1 and 2 are summary charts that illustrate the distribution of Indian costume types existing at the time the Spanish arrived in Middle America. (This apparel, as well as the Spanish and modern Indian costumes, are discussed only in terms of basic cut or form; design motifs are not considered.) These Indian costumes were photographed directly from facsimile reproductions of the Mesoamerican codices. Space does not permit a description of each garment, but from a detailed analysis of these and similar costumes (ibid.), it is possible to discern recurring patterns of dress existing throughout the six Indian groups as well as shared concepts of clothing construction. The findings of the costume analysis reveal that:

1. Mesoamerican garments were constructed of square or rectangular fabrics, several of which could be combined by sewing.
2. These squares or rectangles of fabric were all made on backstrap looms, but no uniform module of width resulted. Instead, fabric width was determined by intended use, as analogous contemporary ethnographic data proves (Irmgard W. Johnson: personal communication).
3. The majority of the clothing in the pan-Mesoamerican costume repertory was draped.
4. The predominant Mesoamerican basic apparel was the maxtlatl (loincloth), hip-cloth, cape, wrap-around skirt, huipil, and/or quechquemitl.
5. Mesoamerican garments were nonfitted. Aside from the warrior/ceremonial costumes (special purpose garments worn only in highly specialized contexts by a very small percentage of the population), the clothing was not tailored; there was neither cutting of cloth nor fitting of garments to follow the lines of the body.

In order to compare more easily the indigenous costume repertory with that of present-day Highland Guatemala, it is useful to employ Bruhn and Tilke's (1965) reconstructions of the indigenous garments. (However, please note the authors' misunderstanding of the wrap-around skirt; there is no evidence that a loosely pleated full skirt was worn in pre-Columbian times). In Figure 3a the first female figure wears a wrap-around skirt and a huipil which hangs in a straight line from the shoulder down to well below the waist. In comparing this pre-Columbian apparel with that of modern Todos Santos Cuchumatan (Figure 6a), it is obvious that the wrap-around skirt has remained the same, and the
simple, draped cape also is unchanged from pre-Columbian times. The huipil, however, is worn in a different manner, tucked into the skirt, and the waist is emphasized by a brightly colored belt. The skirt and blouse are still nonfitted garments, but the huipil is being worn in a fitted manner.

Turning again to the indigenous costume repertory, Bruhn and Tilke (ibid.) have reconstructed the male Mesoamerican attire (Figure 3b). When these pre-Columbian garments are compared to a modern costume from Solola (Figure 6b), it is obvious that almost no trace is left of the indigenous styles. The only draped garment this man wears is the wrap-around kilt; the rest of his apparel reflects an entirely different concept of clothing construction: the tailoring of garments to follow the limbs of the body. This is a reflection of the costume tradition the Spaniards brought to the New World in the first quarter of the 16th century, an approach to clothing construction where the outline of the torso and limbs was accentuated, and the apparel was intricately tailored to achieve this end (Figure 4a).

In addition to the concept of fitted clothing, the Spaniards also introduced the principle of women covering their heads as a way of expressing religious reverence (Figure 4b), a concept that did not exist in Mesoamerica at the time of Spanish contact.

Although the principles of fitted clothing and reverential female headgear were introduced in the 16th century, that is not the era from which the historical prototypes in the modern Indian costumes derive. The argument that the man's costume of Santo Tomas Chichicastenango (Figure 6c) was introduced by the 16th-century priests is hard to accept when its prototype is quite apparent in early 19th-century Andalusia, Spain (Figure 5a). The pleated skirt, tucked-in huipil and sashed waist of Quezaltenango (Figure 6d) are an echo of the 19th-century woman's silhouette (Figure 5b) from southern Spain. The man's costume from the town of San Juan Sacatepéquez (Figure 6e) with its notched lapels trimmed in braid, semifitted trousers and brightly sashed waist also recall Spain of the 19th century (Figure 5b).

These three examples illustrate the method of cultural reconstruction through the use of historical prototype: the indigenous costume traits are subtracted out, thus isolating the diagnostic European elements. It is then possible to search through the well-documented costume literature of Europe, beginning with the early 16th century and moving forward in time, and find the original prototypes. This is a simple but effective way of bracketing the time period in which a particular costume change came about. Obviously, there is no way a European style could be introduced into Middle America if it had not yet come into being in the Old World.

After establishing the earliest date that a European prototype could have come into existence, the next step is to determine the probable introductory agent. Since there is, of course, no specific information for this type of occurrence, it is necessary to employ the approach of the social historians (i.e., Lockhart 1972; Spaulding 1967): i.e., historical phenomenon is considered to transcend the individual and manifest itself in human groups. Scholars like Lockhart (ibid. 30) have made use of collective biographies to follow the careers of several apparently similar individuals (usually "ordinary" rather than famous, but it makes no difference) to reveal and make intelligible a repeating pattern. By grouping these patterns it has been possible to define a number of specific social types: individuals who shared life histories with characteristic contours. For each period in colonial Latin America the cast of social types is finite; hence it is possible to ascertain whether, for example, a priest, wealthy landowner, overseer, black slave, or itinerant merchant would have worn the garment in question, and also if that social type would have had occasion to come in contact with the Indians.
This, then, is the first extrapolative approach to the study of costume change, and it centers on researching recognizable European prototypes. There is, however, another category of Indian costumes into which are incorporated innovative traits that have no obvious, traceable European antecedents because they came into being through the process of internal change. An example is a huipil worn as a ceremonial, reverential headgear in Quezaltenango (Figure 6f); or the simple, rectangular cloak, now called a tzute in Guatemala, which is folded and balanced atop the head (Figure 6g); or the man's shirt from Solola with its strange, atavistic cuffs and sleeves that have no under-arm seam except at the wrist (Figure 6h); or the man's draped over-trousers, the pantalon rejado of Todos Santos Cuchumatán (Figure 6i). These costumes all came about not through direct diffusion from the outside but rather as the result of innovative forms being created within the sociocultural system, a phenomenon explained by Barnett's theory of innovation—the second extrapolative approach to the study of costume change discussed in this paper.

Homer G. Barnett (1942) contends that innovations occur through the rearrangement of a society's cultural inventory; by inventory he means the total number of concepts, religious ideas, beliefs, etc., and the total number of artifacts or objects that exist in a given society. For the purposes of this paper, cultural inventory will be restricted to the costume repertory. Barnett states that all material objects—be they candles, corks, cradles, or costumes—have three properties: principle, form, and function. He defines principle as the scheme or theme around which an object is organized. For example, the loincloth worn by the Aztec men was a single piece of material, wrapped around the lower torso; the principle of this item of apparel was the draping of a garment. Form refers to that aspect of an object that can be observed and hence transferred directly from one society to another; the observable shape of the loincloth is its form. Finally, function is the contribution an item makes toward satisfying the needs of a particular society; the function of the loincloth was to cover the lower torso.

Barnett contends that the whole genius of invention lies in disencumbering form of its traditional associations, of seeing it objectively in respect to its active principles and its possibilities for other meaning and function. In order to illustrate how Barnett's theory of innovation can be applied to Indian costume change, a diagram (Figure 7) has been drawn that utilizes some of the costumes already discussed.

As has been demonstrated, the prevailing concept of the indigenous costume repertory was nonfittedness. Several clothing construction principles were present (Anawalt 1975), including the principle of the draped garment, as exemplified by the loincloth, and the principle of the closed-sewn garment, represented by the huipil. In the diagram (Figure 7) the principles are stated on the lower level, the forms in which the principles are expressed appear on the middle level, and the functions the forms serve are on the upper level. Each of the nine lines represents a trait. The convergence of two lines at the upper level represents the recognition of a common function for them; convergence of two of them at the lower level represents a common principle acting in them.

The first line represents an indigenous form, the huipil, which serves the function of covering the upper body. The third line represents a Spanish form, European female headgear, and may be visualized as the borrowing line that swings over to the left on the pivot of the principle of reverential headgear to create a new invention, the use of a huipil or blouse as headcover.

To continue across the diagram, the fifth line represents the indigenous form, the tzute, whose original function was warmth. This may be visualized as the borrowing line, pivoting on the principle of the draped garment to create
the new form of the fourth line, the *tzute* as headgear that now functions to cover the head.

The seventh line represents the borrowed form of European-style fitted clothes that pivots on the sheath garment principle (fitted and limb-encasing clothing) to produce the native-style shirt of the sixth line, whose function is warmth. The ninth line represents an indigenous form, the loincloth, whose function was to cover the lower torso; this line pivots on the draped garment principle to produce the innovation of the eighth line, man's split over-trousers.

It is Barnett's contention that innovations fall into three classes. The first of these he calls Class A, an old way of doing something different; the principle is already known and is applied to another function. The principle of the draped garment in its old form as the *tzute* now serves a new function as reverential headgear.

The second type of innovation is Class B, a new way of doing the same thing. This involves a new principle to carry out an old function. The new principle is the sheath garment, the form is the native-style sleeved shirt, and the old function is to provide warmth. The new shirt replaced the old *tzute* to perform the same function.

The third type of invention, Class C, is an innovation in which nothing is replaced, or at least nothing obvious. This occurs when no real need is felt for the innovation. Barnett mentions such bizarre inventions as an apparatus that wakes a drowsing motorist by blowing ammonia vapor in his face when he relaxes his grip on the wheel and an electrically heated toilet seat. From the examples utilized in the diagram, the man's split over-trousers would qualify in this category. Since they are worn on top of conventional ankle-length pants, they are not really needed for warmth. Until more knowledge is available on the possibility of these garments having status and prestige associations with a superior group, split over-trousers appear to be a superfluous innovation.

There is still one further combination of the three variables that has not yet been mentioned; this would result from the development of a new form using the same principle and serving the same function (Barnett 1942:20). Such an example did not appear on the diagram but can be demonstrated from the modern Highland Guatemala costume repertory. The simple wrap-around skirt worn by Mesopotamian women at the time of Spanish Contact was based on the principle of the draped garment and served the function of covering the lower torso. This same function is fulfilled, drawing on the same principle, by the pleated post-Conquest skirts worn in some areas of present-day Highland Guatemala (e.g., Quezaltenango, Figure 6d). Such a combination of old principle, old function, but new form does not qualify as an innovation, but rather as a style change. The product is certainly something new, but new only in its formal aspects; the rest is familiar. No matter how much material is used, or how it is arranged around the hips, it is still a draped garment functioning as a skirt to cover the lower torso. The recognition of this fourth possibility, in addition to the three types of true innovation already discussed, is important because it provides a test that can be applied to an innovative costume to determine whether a genuine innovation has taken place or simply a stylistic change.

This, then, is Barnett's model of innovation as applied to the Middle American costume repertory. Due to the lack of precise data, no suggestion can be made regarding the chronological sequence in which these changes occurred. In fact, for the purpose of this idealized model the details of the temporal factor have to be set aside. Of necessity, this hypothesis is tentative, but it is one plausible way of representing how the innovative types of costume change may have come about.
This approach— together with the first method, that of utilizing knowledge of a historical prototype—provides useful insight into costume changes. Dealing with costume in the abstract is an intrinsic part of both techniques. Faced with our lack of Middle American historical information, we are going to have to supplement our very limited documented data with research strategies such as these if we are ever to understand how contemporary Middle American costumes developed. For a historically minded scholar, few more fascinating research problems exist.
## PAN-MESOAMERICAN COSTUME REPERTORY
### MALE GARMENTS

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*Figure 1
(After Anawalt 1975:328)*
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Figure 2
(After Anawalt 1975:330)
Figure 3a
Reconstruction of Mesoamerican Indigenous Dress
(After Bruhn and Tilke 1965:193)

Figure 3b
Reconstruction of Mesoamerican Indigenous Male Garments
(After Bruhn and Tilke 1965:194)
Figure 4a
Reconstruction of 16th Century Spanish Costumes
(After Bruhn and Tilke 1965:80)

Figure 4b
Reconstruction of a 16th Century Spanish Costume
(After Bruhn and Tilke 1965:75)
Figure 5a
Reconstruction of 19th Century Spanish Costumes
(After Bruhn and Tilke 1965:129)

Figure 5b
Reconstruction of 19th Century Spanish Costumes
(After Bruhn and Tilke 1965:129)
HIGHLAND GUATEMALA INDIAN COSTUMES
DISPLAYING EUROPEAN TRAITS

a. Todos Santos Cuchumatan
b. Solola
c. Santo Tomas Chichicastenango
d. Quezaltenango
e. San Juan Sacatepequez

HIGHLAND GUATEMALA INDIAN COSTUMES
DISPLAYING INNOVATIVE TRAITS

f. Quezaltenango
g. Santa Cruz del Quiche
h. Solola
i. Todos Santos Cuchumatan

Figure 6

Highland Guatemalan Indian Costumes Displaying European Traits
a. (after Wood and Osborne 1966, plate 55)
b. Ibid., plate 20.
c. Ibid., plate 32.d. Ibid., plate 42.
e. Ibid., plate 1.

Highland Guatemalan Indian Costumes Displaying Innovative Traits
f. (after Osborne 1965, plate 43)
g. (after Wood and Osborne 1966, plate 30)
h. Ibid., plate 22.
i. Ibid., plate 54.
Figure 7
Figs. 1, 2, and 6 are derived from:

Wood and Osborne, Indian Costumes of Guatemala. Complete facsimile editions of Codices Borbonicus, Magliabechiano, Laud, Fejervary-Mayer, Cospi, Madrid, in the series Codices Selecti, as well as the reprint of Seler, Gesammelte Abhandlungen zur amerikanistischen Sprach- und Altertumskunde, 1960, were published by Akademische Druck- u. Verlagsanstalt, Graz, Austria.

REFERENCES


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  a (After Wood and Osborne 1966: plate 55)
  b ibid: plate 20
  c ibid: plate 32
  d ibid: plate 42
  e ibid: plate 1
Highland Guatemalan Indian Costumes Displaying Innovative Traits
  f (After Osborne 1965: plate 43)
  g (After Wood and Osborne 1966: plate 30)
  h ibid: plate 22
  i ibid: plate 54
ETHNIC TEXTILES: COLLECTING AND USING

Mary Keigen
California State University, Long Beach

It is a privilege and an honor to talk to you on a subject dear to my heart—collecting and studying ethnic textiles and clothing. I have found this dimension of textiles and clothing to be one very worthy of exploration. It has brought much enjoyment and enrichment to my personal life and my teaching. For those who have not become familiar with this subject, I wish to share with you the pleasures and satisfactions of studying, collecting, and using ethnic textiles and clothing.

Discovering the ways in which textiles and clothing reflect the social conditions of those who make and use them is an ongoing adventure into the history and cultures of other people. For example, here are a few "did you knows."

Did you know that the European East India spice trade depended upon textiles that were used as barter? Did you know that textiles were used as barter in exchange for slaves sold in the West Indies to obtain sugar and tobacco for England? Did you know that the magic qualities assigned to certain textiles bring good health, fertility, ability to overcome the enemy for the believing wearer? . . . that textiles have been used as a means of tracing migrations? (people of the Middle East to Africa) . . . that textile designs are read like tea leaves to predict the future of the wearer in northern Sumatra? . . . that acceptance of a textile binds a marriage agreement in Sumba? . . . and finally, that some textiles hold no time boundaries for their production, some taking as long as seven years to make? These are a few fascinating facts that are found in a study of textiles.

My interest in this subject began 17 years ago while I was living in what was then known as East Pakistan. I was overwhelmed by the seemingly endless variety in color, pattern, and textile technique worn by the people of this subcontinent. In Dacca, now Bangla Desh, I visited a small private museum that contained some fragments of a once famous and much sought after textile called Dacca Muslin. I learned that this delicate fabric was made under the most exacting conditions. During the monsoon season, a low fire was placed under the loom to maintain certain humidity control. During the dry season, pans of hot water were placed under the loom for the same purpose.

This fabric was a favorite of the royal courts in both the eastern and western world. What made the cloth so unusual was its sheerness and transparency. Names were attributed to it such as "morning dew" and "running water." A typewritten card attesting to its sheerness was placed under seven layers of this museum specimen, and it could be easily read. It was said that one pound of thread stretched a distance of 25 miles. On the loom the fabric had 50 warps per inch. Because this cloth was a threat to the English textile production during the Industrial Revolution, the English forbade the Indian production and, unfortunately, the art of making Dacca Muslin was lost forever. Investiga-
tion of other textiles leads to equally fascinating histories and gives us a greater understanding of the social, economic, political, technological and artistic achievements of the people who create and wear these textiles.

Collecting Textiles

Foreign travel to the place of origin is often the best but not necessarily the simplest way of collecting. To see the textile in the geographic area in which it is produced and used brings its cultural context into focus. It also is possible to have a greater choice in selection, and, more importantly, comparisons of quality can be made. Visits to the production site also enable the collector to see the village, enter the homes where the cloth is made, and observe conditions under which it is produced. Chances of obtaining accurate information concerning the textile and its production are increased by site visit. Obtaining photos of textile production, including preparation of the raw materials; spinning, dyeing, and weaving techniques; and end use of the textile enhance understanding and become a valuable teaching tool.

This chintz wall or tent hanging, dated 1840-50, was purchased in Isfahan, Iran, 10 years ago. With research, I discovered that it was made in India for the Persian market after the collapse of the chintz trade with the West. The Detroit Museum has its twin, and the Irwin and Brett book on chintzes shows one like it. It was made by dyeing with mordants, madder, and indigo in a process involving batik, block printing, and hand painting. Note its likeness to certain Persian rugs and its Persian, Indian, Chinese and European design influence.

Opportunities for collecting fabrics in our own country are many. Gift shops, antique shows, thrift shops, and yard sales are some sources. A weekend phenomena, perhaps peculiar to the Los Angeles area, is the garage sale, whereby one man's trash becomes another man's treasure. One of the most valuable batiks in my collection was obtained for $8 at a local garage sale. Thrift shops are also valuable sources. Contact the people who run them so that they will alert you when some rare treasure comes in. At the Salvation Army Thrift Shop in Bethesda, Maryland, I purchased this fragile old batik for $2. Antique shops located in geographic areas where affluent, well-traveled retired people have settled are good sources. Moving from large homes into retirement centers means reducing personal possessions. In Sarasota, Florida, I found these exquisite Chinese embroidered slippers for the bound foot. Antique shows are a good Sunday afternoon pastime and often yield marvelous treasures. At the Santa Monica Antique Show I found this magnificent and rare tritek, a stitched tie dyed silk from South Sumatra. Its likeness can be seen in Jack Lenor Larsen's book, The Dyers Art. I was told by the seller that this fabric came from an old chest of a retired ship captain from Santa Barbara, who had cleaned out his attic. Some people find auctions a good source. Sotheby, Parke, and Bernet have inspection days previous to auctions. They also publish a catalogue that provides absentee bidding for out-of-towners.

Museum gift shops sell unwanted articles and specially purchased items for fund-raising purposes. This fine old silk batik from the north coast of Java came from the gift stand on the lower floor of the children's section at the Metropolitan Museum in New York. Locally, the Los Angeles County Art Museum and particularly the Museum of Science and Industry have gift shops selling textiles, costumes, and jewelry. Ten years ago I purchased a fabric similar to this double ikat from Tenganan, Bali, at the Tropen Museum in Amsterdam. It is now a rare and valued fabric as current production is almost nil. It requires six years for dyeing alone. It is made by the ikat method.
That is, the yarns are tied off and dyed into prescribed patterns before weaving takes place. In this example, we see a double ikat—that is, both the warp and the weft threads were ikatted. It is a sacred cloth and is used for all passage of life ceremonies by the people in the village.

Mail order is another collecting method. My sister visited Australia a few years ago and upon her return told me about this cloth. I wrote to the shop owner where she had seen it and asked for some photos. In turn, I mailed the photos to a friend at the Textile Museum in Washington, D.C., for an opinion. Six weeks later I owned the cloth. Large ship cloths are relatively rare as production ceased around the turn of the century. There are only 200 in American collections. Another mail order was this silk sari from Patan, India. It is a double ikat called a patola, a wedding sari, and it too was made by the ikat method. I negotiated with the owner who lived in Ahmedabad, India. The sari was in this country as it had been used in a museum exhibit. About 10 years ago, there were only five families that continued to make patola. Today the Indian government considers these national treasures and is subsidizing several weaver families to continue production and train apprentices that the art of patola does not die.

Another type of textile collection, and this is within most everyone's means, is collecting contemporary American manufactured fabrics whose designs are inspired from ethnic and historic sources. Hundreds of examples are obtainable in the yardage shops found in every area. Fabric designers have learned to utilize historic or ethnic textiles as rich sources for contemporary textile design. Molas, Guatemala tapestry, ikats, and batiks have all appeared this past year. Two or three years ago, these sheets and pillow slips came on the market. Their design inspiration came from this Cambodian temple hanging of silk weft ikat. The problem, of course, is recognizing the design sources and influences, and this requires personal study. Museum bulletins and collections, books, and courses are a help. Taking photos of the original inspiration textile will enhance this type of collection for study purposes.

The formation of textile study groups that incorporate learning and sociability is another study resource. In the Los Angeles area, we have such a group that meets about once a month to study a particular textile item. We have delved into laces, ikats, Indian shawls, Guatemalan costumes, and many other subjects. We call ourselves the "Textile Freaks," but our more formal tongue-in-cheek title is "Textile, Social, Athletic, and Culinary Society." The meetings are held on Sundays, and we either begin with brunch or end with dinner at an ethnic restaurant related to the country studied that day. Anyone interested is welcome to come.

Using a Collection

The possibilities for personal and decorative use are endless. Textiles used as a focal point in rooms have long been favored by interior designers to add warmth, variety, and an exotic atmosphere to the home environment. Fabric used in this manner should be given a rest periodically. The Winterthur Museum in Wilmington, Delaware, changes the textiles in its room four times a year. Heat and sunlight are enemies of cloth. Also, it helps to hand stitch sleeves on the backs of textiles to hold hanging rods. The possibility of using magnets for hanging fabrics deserves to be explored further. Framed textiles should be recessed from the glass with an air space provided.

Textiles that have become collectors' items for use in interior design have grown in value considerably. As an example, a double ikat fabric that I purchased five years ago has increased in value 900%. I cannot do as well in a savings and loan.
Another aspect of collecting is the fact that supply sources are diminishing. As technological development takes place in societies where hand-crafted home-industry textiles are produced, textile arts will die out unless governments foster production. As people around the world begin to prefer western styled and manufactured clothing, their cultural dress traditions will become customs of the past.

In teaching, textile collections are used to enrich subject matter in the study of dyes, yarns, fabric structure, and fabric design. Textile and costume history, interior design, applied arts, cultural studies, fabric and fashion design, and fashion merchandising are courses that are enhanced by the use of actual textile examples for study study. Increasingly, we find ads and promotion in our newspapers and daily mail featuring authentic examples or copies of textiles for interiors and apparel design that originate from historic and ethnic sources. The Christmas 1978 copy of Kaleidoscope features a reproduction of a section of the famous A.D. 1066 Bayeux Tapestry for $375. The Broadway depart­ment store is now featuring a copy of the oldest knotted carpet in existence, the Pazyryk, made by the Scythians 2,500 years ago. Bloomingdales in New York had a five-week promotion of India last April at a cost of $8 million. It is important for students going into the fields of business, merchandising, interiors, and fashion to know about foreign influences on contemporary fashion in today's varied American lifestyles. As the world's geographic boundaries grow smaller and our society's vast intercultural links with all people increase, textile terms such as shibori, plangi, tulis, ikat, kasuri, patola, mola, and adire become familiar to our students.

Let me briefly discuss ways in which I use ethnic textiles and costumes in two of my courses. One course called Cultural Basis of Textiles and Clothing comprises a study of selected areas throughout the world that have made profound contributions to the creation of unique clothing and textiles. We study the factors that influence design, techniques of textile and apparel production, and the symbolism of indigenous and adapted designs as a communicative means for expressing social and cultural values. The relationship of the item to the political, social, economic, and religious structure is explored. Aesthetic standards and values are analyzed.

A second course, Creating Fashion from Ethnic Sources, brings a new dimension to clothing design inspiration. It provides a creative experience along with a cross-cultural learning situation. I have collected both authentic ethnic costumes and ethnic costume adaptations from many sources. This top shows how an ethnic textile copy can be used as effectively as incorporating the expensive and hard to find original piece. Using a copy cuts down the cost, increases availability, yet produces similar effects. A mola of this size costs about $9, and the Guatemalan pile woven fragment costs about $2 if purchased at Guatemalan markets.

Students are challenged to create their own ethnic inspired costumes. They may use commercial ethnic patterns or create their own patterns of rectangles from directions found in several current and inexpensive ethnic design booklets. Students use contemporary fabrics having designs inspired from ethnic sources such as molas, Guatemalan huipiles, ikats, or batiks. They also search local shops that carry pieces of old embroidered dress bodices from Afghanistan, mirror work from the Sind, molas from San Blas, and lace doilies from Grandma's attic. These can be used as focal and starting points in creating garment design. Ribbons and personal treasures such as single earrings that have lost their mates, foreign coins, buttons, beads, and charms can individualize garments, making them the wearer's personal statement. Besides, they are fun to make and wear. The creative possibilities are endless, limited only by the bonds of the
imagination. Some of the students from this class are here today, and they will show you their creations.

Here are a few examples of the student's work. I call these clothes "collectors' clothes." I believe they will outlast contemporary fashions. They can be adapted to any degree of ethnicity, and they can be worn by people of any age and any body conformation. They are a personal statement of the wearer. They are unique and individual. They are fun to wear.

For those interested in pursuing this study, I have some suggestions. It takes a lifetime to become knowledgeable on this subject as there is so much to learn about individual societies and their culture. There is no instant way to learn, no one book or set of books with all the desirable information. Read anything you can get your hands on, as there are excellent research papers, theses, books, museum catalogs, museum and historical society collections. (I have prepared a bibliography which you may obtain for a nominal sum to cover cost.) Learn how to use a good 35mm camera and photograph collections. Apply for an internship or work as a volunteer in museums and historical societies. In our home economics department at CSULB, some students have had valuable field experience through internships at the county art museum and in historical houses. Once you become involved with learning about and collecting textiles, a new and thrilling dimension is added to your life. You can never look at a piece of fabric the same way again.

HANG IT ON A STAR!

Narrated by Designer Bill Jobe

(This was a retrospective fashion display of motion picture and television costumes from the early 1930's to the present time, as well as from some yet to be released productions. College students who modeled the garments were tutored briefly in the appropriate walk and body posture of the period, and they experienced the thrill of wearing costumes also worn by famous personalities. Ed.)

CAST OF PLAYERS

Carole Lombard "NO MAN OF HER OWN" Travis Banton
  Cindy Mroch, Santa Monica City College

Greta Garbo "QUEEN CHRISTINA" Adrian
  Denise Keseley, Valley College

Claudette Colbert "MIDNIGHT" Irene
  Sharon Carney, Saddleback College

Bette Davis "PRIVATE LIVES OF ELIZABETH AND ESSEX" Orzy-Kelly
  Paula Drayer, California State, Long Beach

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Rita Hayworth "MY GAL SAL"  
Julie Hansen, Fullerton Junior College  
Gwen Wakeling

Ginger Rogers "THE MAJOR AND THE MINOR"  
Laura Collins, Santa Monica City College  
Edith Head

Joan Crawford "SUDDEN FEAR"  
Michaela Pava, Mt. San Antonio College  
Sheila O'Brien

Lana Turner "DIANE"  
Robin Dudley, Mt. San Antonio College  
Walter Plunkett

Roger Moore "DIANE"  
Chuck Tennes, Valley College  
Walter Plunkett

Marilyn Monroe "RIVER OF NO RETURN"  
Laura Purington, Orange Coast  
Bill Travilla

Ann Blythe "THE HELEN MORGAN STORY"  
Vivian Chade, Saddleback College  
Howard Shoup

Paul Newman "THE HELEN MORGAN STORY"  
James Layton, California State, Long Beach  
Howard Shoup

Richard Harris "CAVALIER"  
Randy Ritchie, Pepperdine  
John Truscott

Jane Alexander "FRANKLIN AND ELEANOR"  
Laura McReynolds, Mt. San Antonio College  
Joe Tompkins

Jill Clayburgh "GABLE AND LOMBARD"  
Alison Voet, California State, Long Beach  
Edith Head

David Birney "THE TESTIMONY OF TWO MEN"  
Steve Hawksley, Saddleback College  
Bill Jobe

Kathleen Nolan "THE TESTIMONY OF TWO MEN"  
Bonnie Brousseau, Valley College  
Bill Jobe

Chita Rivera "ONCE UPON A BROTHERS GRIMM"  
Dorothy Arreola, Mt. San Antonio College  
Bill Hargate

Barbara Parkins "ZIEGFELD, THE MAN AND HIS WOMEN"  
Richanne Nign, Mt. San Antonio College  
Grady Hunt

Valerie Perrine "ZIEGFELD, THE MAN AND HIS WOMEN"  
Dale Allen, Santa Monica City College  
Bill Jobe

Brooke Adams "THE DAYS OF HEAVEN"  
Dawn Allred, Mt. San Antonio College  
Patricia Morris

Kier Dulles "BRAVE NEW WORLD"  
Richard Dambert, Mt. San Antonio College  
Kent Warner
Julie Cobb, "BRAVE NEW WORLD"
Kelly Costello, Saddleback College

Lindsay Wagner, "THE OUTLANDERS"
Laura Chelsey, Mt. San Antonio College

Colleen Dewhurst, "STUDS LONIGAN"
Susan Wilson, Mt. San Antonio College

Natalie Wood, "FROM HERE TO ETERNITY"
Brigitte Cusimano, Mt. San Antonio College

Jane Austin, "BUTCH AND SUNDANCE, THE EARLY DAYS"
Helen Voet, California State, Long Beach

GUEST SPEAKERS

MAXINE ACORD, Cutter-fitter
ARMAND, Milliner
ARDEN CLEELAND, Costume Supervisor
BILL HARGATE, Designer
GRADY HUNT, Designer
PATRICIA NORRIS, Designer
SHEILA O'BRIEN, Designer

CATINA PASSALACQUA, Cutter-Fitter
HOWARD SHOUP, Designer
WILLIAM WARE THEISS, Designer
JOE TOMPKINS, Designer
BILL TRAVILLA, Designer
TOMAS VELASCO, Tailor
KENT WARNER, Designer

ASSISTING BACKSTAGE

John Lebold
Bill Thomas

HAIRSTYLES
Lake Salon, Pasadena

Chet Specht, Carol Abelman, Laura Roth

MAKEUP
Joe Blascoe School of Makeup

FASHION SHOW COMMITTEE
Judy Bishop, Coordinator

Lois Gallagher
Phyllis Specht
Susan Kaiser, Janet Stammerjohn
Karen Robinette, Grace Underwood

PHOTOGRAPHER
Richard O. Ward

Sherry Murga, Student Assistant
Mt. San Antonio College

PROGRAM
JoAnn Crist
Exploring fashions of the present and immediate past is an exciting challenge. (To the younger people in the audience the 1960's may seem to be the distant past, but for many of us they really seem like yesterday.) It enables us to investigate first hand what is or has been going on. One has access to source material in quantity—from actual people wearing the fashions studied or stores showing them to catalogs and periodicals that in past periods may have been unavailable.

Of course, there are pitfalls. One does suffer, as Alvin Toffler would say, from "future shock." Instead of a dearth of material, there is a bewildering array of tempting possibilities to explore and information to be accumulated. One must learn to weed out and sift. Also, when one is so close to an event or a fashion, its real significance may not be yet apparent. But fashions are not created in a vacuum. What designers create is either accepted or not by the buying public, and there are always forces afoot in society that foster the climate for specific fashion trends.

Fashion mirrors society, often in subtle, sometimes in obvious, ways. No period in history is isolated from the one immediately preceding or following it. Many events and conditions of the 1950's had a strong effect on the 1960's, as those of the 1960's have had on the '70's and will have for the remaining years of this century.

For all of you here today certain events of the past 18 or 20 years will stand out vividly in your minds as having had a great impact on American life. Probably after some reflection, most Americans remembering the 1950's would consider the Supreme Court decision on school integration as one of the most far-reaching historical events in its effect on social change. Regardless of discord, riots, protests, or busing, this decision brought about a new black pride and helped to accelerate the acceptance of blacks and other minorities into the mainstream of American life.

The recognition of a large number of former colonies throughout the world as independent nations, especially in Africa and Asia, also brought about an increased interest in other cultures. American black and Third World awareness has had an impact on free societies in the West and ultimately even on fashion. The post-World War II "baby boom," which led to an unusually large population of young people during the 1960's and 1970's is just now beginning to level off. But youth, with its numbers, its affluence through rising family incomes, and its new assertiveness, which came along with relaxed parental control, had unprecedented power, not only in spending but in voicing feelings and desires. The accent on youth, in an already youth-oriented culture, has been all pervasive during these last two decades.

In the 1960's the assassination of national leaders, along with the Vietnam war set off shock waves still felt today; political activism, protests, riots, hippie dropouts, and young idealists disenchanted with the so-called establishment all had their impact. Watergate, corruption by elected officials, and distrust of government, business, and traditions have led to a turning inward of individuals, a preoccupation with self, consciousness raising, mental therapy, cosmetic surgery, health improvement, and home decoration as if to say we are powerless to effect rightful change on any level beyond the personal.
Shortages of natural resources—or the imminent danger of shortages—brought about an endangered species act and for a time almost an apology for the use of any furs. This was countered in the ’70s by extravagant use of furs and even a movement to remove the leopard from the prohibited skins list. The great popularity of man-made fibers in the ’60s was followed by an increased price in petroleum product derivatives and a counter movement toward natural fibers.

Inflation and increased spending, resulting in a continuous round of escalating costs and higher prices since the 1940s; mass communication, especially television, which gives us instant coverage of global or national events and gives our children a picture of our world unknown to most of us when we were their age; the technological developments in modern weaponry; and an ever-growing crime rate in our cities and even smaller communities have increased our sense of urgency to get the most out of life now. The space program of the 1950s and ’60s captured our imagination for a time, but the pressing problems to be solved on earth have brought about a postponement of further ambitious space developments for the foreseeable future. However, certain parts of the program, such as satellites, are now an integral part of modern life. All of these events and many others too numerous to mention have shaped our lives these past 20 years.

But one innovation, it seems to me, perhaps has had a more far-reaching effect on American society, and for that matter, on all the technologically developed nations of the world, than any other: the introduction of the birth control pill in 1960 or thereabouts.

Other developments, it is true, have contributed much to the change in today’s family, in our more relaxed attitudes toward sex, marriage, divorce, and the all important social issue of the ’70s, equal rights for women. But undeniable, the pill liberated countless women from unwanted pregnancies and the fear of them and opened the way to moving out of the home and into careers, to sexual freedom, and a new emphasis on sex that is increasingly apparent.

The effects of careers outside the home for married women also have been evident in double incomes, whether to meet inflationary costs of living or to enjoy more security or luxuries. Many young couples of childbearing age are maintaining a style and standard of living far beyond that of previous generations.

This is some of the background of the ’60s and ’70s affecting fashion. There have been some obvious fashion changes between 1960 and 1978 that in some ways may reveal changes in attitudes and how we have lived our lives these past 18 or 19 years. (A slide presentation followed this introduction. Ed.)

TEXTILE PRINTING: YESTERDAY, TODAY, AND TOMORROW

Bob Loewenthal
Fashion Institute of Design and Merchandising

I am sure many of you are somewhat familiar with the most common method of textile printing, screen printing. Silk screen printing is relatively new, starting only about 3,000 years ago with the Chinese and then the Japanese, so
I will go back another 2,000 years and try to cover a time span of 5,000 years in about 45 minutes.

The oldest known decorated textiles were printed in Peru where printing blocks were discovered that date back to about 3,000 B.C. In its earliest forms, block printing used a carved stone and later a carved piece of wood. It appears that once man had discovered the use of dyes or coloring materials taken from metallic oxides and vegetable substances, he was not long in discovering the process of imprinting.

Block printing was refined and brought to Europe in the 17th century from India. At that time, weaving was a major industry, and the French and English were concerned by the importation of fine block-printed Indian calicos. They had political influence and considered the threat to their industry so dangerous that the wearing of printed cotton became illegal, and many of the printing blocks in that country were seized and destroyed. Women in England were fined for wearing prints in public.

Later in that century, in 1785, Thomas Bell invented a method of engraving copper rollers; that developed the first continuous means of high-speed mechanical printing. Bell could print about 4,000 yards of fabric per day, which was the equivalent of the output of 42 hand-block printers.

The Chinese originally used open stencils for decorating fabric and the Japanese soon after improved on the method using silk fabric to support the stencil, thus the term silk screen printing. The term remains although the screen fabrics now used are the more durable and chemical resistant synthetics.

The evolution of modern screen printing started with hand-printing. There are still many hand-printers in the United States and many more in Europe. Como, Italy, was the first and is now the largest printing center in the world. With a total population of 80,000 people, they have 120 textile-printing plants, including one that is considered to turn out the finest quality, and one that is considered to be the most modern and highly mechanized. By comparison, there are several hand-printers on the U.S. West Coast and three automatic-machine screen-printers. There are many printers in the East, and the largest are located in the South, the center of volume textile production.

Roller printing followed the hand-screen-printing method. This operation can be described briefly as a series of copper-engraved rollers surrounding a large central drum roller over which the printing blanket passes that carries the fabric. The engraved rollers, one for each color, pick up the color from a pan. The excess is scraped off the surface by a metal doctor blade of squeegee and the color remaining in the etched pattern areas is pressed into the fabric.

The flat-bed printing machine was developed about 18 or 20 years ago and is a mechanized version of the hand-printing system. Next came rotary screen-printing, the most modern and fastest of all printing methods.

The next development was transfer printing, a system whereby the pattern is printed by the gravure method or rotary screen using textile dyes on paper. The printed paper and fabric come together in the transfer-printing machine, and by means of a hot pressure-roller the dye is transferred from the paper to the fabric. This system is limited to synthetics, mostly polyester; however, research is being done in an effort to transfer print on cotton by treating the fabric with a chemical so that the cotton has an affinity for the specific dyes used in this method. Geltman Industries is the leading transfer printer in this area.
Finally, there are new techniques under development and in practice that eliminate the roller or the screens altogether and control the application of color by computer.

We have talked about various systems of textile printing as well as screen engraving but have not yet discussed the colorants. Colorants fall into two distinct categories, pigments and dyes. Dyestuff printing or "wet printing" is much more complicated and troublesome than pigment printing and requires a different family of dyes for each fiber. It is referred to in the trade as "wet printing" because the fabric, after printing, has to be wet processed. That is, it is first steamed to fix or develop the dye, then scoured carefully to remove the excess dye-stuff that has not been fixed. After extracting the water, the fabric is dried in a machine called a "tenter frame," which grips the edges of the continuous yardage and carries it through a drying oven.

Fiber-reactive, direct, or vat dyes are used on cotton; dispersed dyes are used on polyester; acid dyes are used on nylon, silk, and wool; and basic dyes are used on acrylic. Blends of fibers present additional problems or complications since each fiber in the blend has an affinity to a certain dye. In this case, union dyes or combinations of different dyes are used.

Pigment colors will never compete with dyestuff for quality. However, pigments are used on about 60 percent or more of all printed fabrics, mainly because of the simplicity of application and the fact that they do not have to be wet processed after printing. They can be printed on almost any fiber with no change in formulation. They are, of course, cheaper to print.

The primary difference between pigment and dyes is that dyestuff performs the function of coloring by a molecular-sized particle of the dye that penetrates into the microscopic dye-sites of the fiber during the steaming or fixation process. Pigment color can be described as a coating requiring the binding or adhesion of the pigment particle to the fiber's surface. A pigment will crock or tend to rub off, it will stiffen slightly the fabric's hand, although there are improvements in this area, and it will dull the natural luster of certain fabrics. For example: a silk scarf cannot be printed with pigments because the color will destroy the luster and silky hand. Vat dyes are best used on cotton upholstery fabrics and pigment colors for bedspreads and drapes where there are no abrasion or crocking problems. In other words, the end use of the finished product determines the type of colorant to be used.

There are rapid and radical changes taking place in the industry, notably in using space age electronics and computers in film making and engraving and in actual printing as well. Millikin Fabric's revolutionary Millitron process does away with conventional engraving and screen printing, and substitutes computerized ink jets. The art work is scanned electronically and data are fed into the computer, which starts and stops the flow of color onto the fabric. A pattern or color combination can be changed within seconds by the push of a button. The process has been used most on pile fabrics and carpets since it cannot yet reproduce fine detail. But even if Millitron does not invade the apparel market in the 1980's, it will be an ever present threat to the textile-printing industry in general.
The purpose of this study was to help preserve some part of the Coeur d'Alene Indian heritage by recording what was still known of their early decorative arts, the techniques used, the possible meanings represented, and the culturally related art work of the present day.

Jackie Schneider Malinauskas, though not an Indian, was born and raised on the Coeur d'Alene reservation and received her education there almost through high school. Through her many Coeur d'Alene Indian friends she became aware of their concern about a lack of historical records and resources preserving their traditional handicrafts, and she decided to help. She located and visited places where decorative art works from the past were housed, attended festivals where ceremonial dress displayed modern day interpretations of their decorative arts, and interviewed active Coeur d'Alene Indian artists and other knowledgeable tribal members.

From these contacts she has been able to assemble and record considerable information. She was encouraged by Idaho Senator James McClure and assisted by a $3,700 Youth Grant through the National Endowment for the Humanities.

The group of Indians that Ms. Malinauskas studied originally lived in the panhandle of Northern Idaho, where they drove shrewd bargains with the fur traders, who consequently named them Coeur d'Alene, heart of an awl. The nickname became their identification.

Early on, the tribe was composed of three bands living in 27 different villages. They were expert hunters and fishermen and lived well on their land, which also provided nuts, berries, camas, and bitternut roots. They were known as non-hostile. They traded with trappers but did not permit commercial trading posts within their boundaries. Many of these fur traders were devout Catholics; they spread their faith but also smallpox among the Indians. The Indians saw Christianity as another form of protection against the things they feared (especially smallpox), and in 1843 Father de Smet sent Father Nicholas Point to establish a mission site, located at the present town of Coeur d'Alene.

Floodings of the St. Joe River forced the mission to move twice. The mission on the third site, Cataldo, still stands as the oldest building in Idaho. Unfortunately, by the time the Coeur d'Alenes finally had legal title to a reservation in the 1870's, it excluded the Cataldo Mission. A final mission site was established about 50 miles south and a new settlement made at de Smet. This was primarily a grassland area until the Post Falls Dam, which created Lake Chatcolet in the northern part of the reservation, was built in the early 1900's. A bit later the state purchased an area from the tribe and developed Heyburn State Park for lakeside recreation.
There are now approximately 1,000 members in the Coeur d'Alene tribe and over half live on the reservation. Through time the Coeur d'Alenes have enhanced themselves, their clothing and their furnishings, first by painting and quillwork, and later by beadwork as well.

Their ceremonial costumes consist of one or more items: a vest or a shawl, headbands, shirts, dresses, belts, cuffs, leggings, and moccasins. All who possess any ceremonial items are encouraged to participate in various yearly celebrations, regardless of age, and many ceremonial outfits gradually have been acquired over the years through gifts from devoted relatives.

The Coeur d'Alenes have used a variety of designs in their decorative artwork. Many were borrowed from other tribes and even non-Indian sources. Early designs were geometric, made up of straight lines creating triangles, squares, and rectangles, usually in a symmetric fashion. The same design often was placed on various articles or repeated on the same article in different colors. The introduction of tiny seed beads in the 1800's allowed the development of more intricate and curved designs that the Coeur d'Alenes called "floral" because they contained curved lines; but florals included birds and animals as well as flowers. The eagle was at one time a religious symbol of special powers of bravery and continues today to symbolize bravery and respect for the "king" of North American birds. The wild rose has been a popular motif; it reminded the tribe of nature's rejuvenation seen in the abundant growth of wild roses blooming summer after summer on the reservation. They also adopted some Christian symbols, though the reason for the square rather than the oblong cross has been lost from history.

In the past the Coeur d'Alenes acquired their colors from natural sources. Pigments were obtained from trees, flowers, grasses, soot, and mud mixed with grease to become paint. Sources were numerous in the Coeur d'Alene territory and other tribes often came to their area for colors they did not have, just as the Coeur d'Alenes went to Montana and Washington for certain reds. Paints were used primarily for body painting but also to decorate the endflaps of carrying cases, called parfleches. These were made from rawhide soaked in water and folded to plan. Today parfleche replicas are made of paper and decorated with felt pens as stationery holders for the tourist trade.

Before the arrival of the fur traders and their colorful trade beads, decorative artwork was primarily porcupine quillwork embroidery. The Coeur d'Alenes were not as expert as some tribes, especially the Sioux, but they did use quills to decorate their clothing. Practically no quillwork is done at the present time.

Porcupine quills were hard and dangerous to gather. The animal could be stunned with a blow and a few quills removed, or a blanket could be thrown over it, and the quills retrieved that caught in the blanket. Also quills could be removed from a dead animal with pliers. Quills are longest from September to May and contain no damaging fluid at that time. There are about 5,000 quills per animal. The best come from the shoulder and shank and are about 1/16" in diameter and 1 to 2½" long. Longer quills from along the back were used for heavy buckskin embroidery.

Patterns were marked with bone markers, holes were punched with awls, and the thread used was a strand of dried tendon that was flexible when damp and
stiff when dry, making its own needle in a sense. Quills were used singly in fine embroidery work. Frequently they were spliced by pushing the point of one into the hollow of the next for larger scale work.

Color was imparted by natural pigments in a water carrier. Now Rit dye is popular, or coloring is done with oil-based felt pens after the work is completed.

Today there is a wide variety of bead sizes and shapes. Before the white man came, beads were made of stones, bones, and shells. As the availability of trade beads increased, beadwork flourished at the expense of other techniques. Beading was originally done on buckskin. The stitches did not go all the way through, keeping the inside quite smooth. Hand-tanned skins are easiest to work on. Rawhide is just buckskin smoked for several days over a fire. Today rubberized cloth or canvas is used, sewing the units onto the buckskin and concealing the edge with a final row of beads.

Old beaded items can be told from newer ones because old beads were less uniform than today's commercial beads, and old work has a sparkle not seen in modern beading. The simplest sort of beadwork was stringing. It could be done on a single thread with or without knots between the beads or with a second thread forming the knots for greater strength.

Beaded strips were made on a simple loom. The major limitation was that the item could be no longer than the length of the loom. Bead designs today can be readily planned on graph paper or, even better, on special beading paper that charts the design more in proportion to the beads than square graph paper.

Woven beading was done single weft, double weft without the twisted selvage, or even split in the middle in one section to permit the head to go through. The lazy stitch was the easiest stitch by which beads were attached to a surface in strands laid parallel. This was a convenient technique to use around curved surfaces as on the toe of a moccasin. The spot stitch fastened the beads down more frequently and had several variations skipping only one or two beads and sometimes coming back up through the same bead, holding the bead in a different position than when stitched through the bead from side to side.

The spot stitch also was used to make rosettes. Often units were made separately and joined into each other. It also was used to trim thongs.

Perhaps the most complicated beading stitch was the peyote stitch, a sort of beaded netting done around a roller leather thong or contemporarily around plastic tubing used for necklaces. Coeur d'Alene Indian ceremonial costumes show geometric and floral designs, mostly in beadwork; some costumes are a 20th-century reflection of quillwork and painting from the Coeur d'Alene's past.
Bathing costumes hold a unique place in the history of American costume. The evolution of the bathing suit to the swimming suit was not only dependent upon the changes in the American way of life, but also reflected certain technological and sociological factors.

The purpose of the study was to research bathing and swimming suit styles and discover the effects of sociological and technological changes on those styles. The historical method was utilized. Origins of swimming and bathing and the varied costumes worn were traced from antiquity to 1977.

One of the first bathing suits was depicted on a 4th-century Sicilian mosaic. This mosaic, discovered in a family gymnasium, depicted women clothed in two-piece suits.

As many cultural traits were transmitted to the New World via England, so was the introduction of water activities. Benjamin Franklin's treatise on swimming influenced many people's attitudes toward swimming. His useful hints for learning to swim were accepted as practical and adequate. Even as late as 1839, no other method was considered as safe and effective as his method.

Throughout the colonies, baths were established where people could bathe or swim. Mineral springs were frequented by such notables as George and Martha Washington. Men and women wore chemise-type garments in the mineral "spas" to camouflage the body. Many sea or river bathers preferred nudity, a practice that began to diminish in the early 1800's with the introduction of the bathing machine. The machines were box-like structures on wheels, drawn out into the water by a man on horseback. The bather undressed in the machine, and after the horse and rider retreated, the bather would open the door and descend into the water. The introduction of bathing machines in America popularized sea bathing. The majority of these bathers wore no clothing while in the sea.

The first costume designed exclusively for public bathing appeared in the 1850's. The dress was unquestioningly modest, containing almost 12 yards of wool material. The extreme quantity of clothing worn at the beach was necessitated by the introduction of the bathing chalet. The "bathing house suit," named after the chalet (or bath house) utilized a mere seven to eight yards of fabric. Wool serge or flannel was the type of fabric most frequently used for suits. The suit styles were modeled after the dress fashions of the day.

Swimming was beginning to be distinguished from bathing as early as the 1860's, but for a long period to come, the costumes would be two different ones for two different activities. The period between 1870 and 1890 saw women overcoming their prejudices against men and women going into the surf together completely disappear.

One of the first costumes actually recommended for swimming appeared in 1901. The skirts to the suits were detachable, but women faced arrest if they removed the skirts...
them. One woman, an Australian swimming champion named Annette Kellerman, devised her own costume for swimming, a one-piece jersey suit. People were horrified, but this suit gradually led to the acceptance of more practical swimming suits for women.

A new American institution caught the public eye during the summer of 1921—the bathing beauty. The female form, exploited by the first Miss America Pageant, led advertisers to use photographs of bathing beauties in advertisements. The female form was further exploited by Mack Sennett, a Hollywood producer who conceived the idea of photographing professional beauties and musical comedy actresses in form-fitting swimming suits for publicity.

Even with publicity, one-piece suits did not gain respectability overnight. Committees were formed and laws were passed to regulate suits. Policewomen patrolled beaches measuring armpits and necklines of women bathers. Bathing dresses had almost disappeared by 1923, with the acceptance of the functional counterpart. Swimming had become an acceptable activity for women.

In 1925, Fred Cole designed a suit that defined the bust and waist, and lowered the back of the suit eight inches. The suit also made news in the fashion world by replacing the subdued blacks, browns, and tans with bright colors and bold stripes.

The movies, the spread of participant sports, the cult of sunbathing, and bathing beauty contests all played a part in stripping down the swimming suits of the 1930's to a bare minimum. Two-piece suits consisting of shorts and halter dresses were introduced. The introduction of Latus, a rubberized yarn, created a new dimension to swimming suits made of woven fabrics. It was also during the 1930's that the zipper, which had not as yet been successfully introduced into men's clothing, found its way into a man's suit by Jantzen. The zipper in this suit was truly a trendsetter in the men's-wear industry.

Due to the needs created by World War II, rubber and metal were banned from swimming suits. Buttons and string ties were utilized more fully, and no one minded if the amount of fabric used in suits decreased because it was all for the war effort.

In the summer of 1946, the first announced atomic bomb was set off. When a second announcement was delivered, people began holding end-of-the-world parties because they feared the bomb would set off chain reactions and destroy the world. A new bathing suit—the Bikini—was created in France as sort of an "anything goes, there's no tomorrow" suit. It received its name from the site of the announced atomic bomb test, Bikini Atoll, in the Pacific. Bikini-style suits were not fully accepted by American women until the late 1950's.

The look for the '50's was strapless suits, with sturdy inner construction, often called "iron maidens." The return of zipper production after the war provided a closure to get in and out of these tight suits. Designers such as Christian Dior and Givenchy joined forces with sportswear manufacturers to dress up the bathing suit business.

Swimming costumes got briefer and more abundant in number in the 1960's. Swimming was one of the most popular sports, facilitated by the tremendous growth in
swimming pools. In 1948 Swimming Pool Weekly recorded a total of 10,800 swimming pools of all types in the United States. By 1960 the figure had climbed to 254,000, an increase of 2,253 percent.

Increases in leisure time, income, and swimming pools encouraged the consumer to purchase several swimsuits. Women were demanding more of a fashion look in their swimwear. The question of permissible nudity in public became a much publicized issue in 1964 with the introduction of the topless bathing suit for women designed by Rudi Gernreich. The topless suit was quickly banned all over the world.

In 1974, women in Brazil, who also were prohibited from going topless, retaliated with the creation of the "string." The string suit was derived from an ancient Indian loin cloth and consisted of miniscule triangles of cloth joined by cords, which bared a large portion of the derriere. American designers re-designed the string for American women by adding a few more inches of cloth.

Swim fashions of the mid-1970's welcomed the return of the one-piece, or maillot, suit.

Because of increased leisure time and the popularity of sportswear, swimwear styling has gone beyond merely getting wet. The launching of swimsuit lines by such top fashion designers as Halston, Ralph Lauren, and Gucci has thrust suits into high fashion in the 1970's.

Costumes of Korean Women with Emphasis on the Yi Dynasty
Jung-Sook Kim and Barbara Christensen
Research conducted at San Jose State University, California

Since little has been written in English on Korean costume, the writer Jung Sook Kim, did research in Korea during the summer of 1975. She reviewed all theses about the history of Korean costume in addition to visiting the major museums to study the relics. Some slides of the wall paintings of the Three Kingdoms (57 B.C. to A.D. 668) and genre paintings of the Yi Dynasty were obtained at that time.

The historical research method was utilized, and information was obtained from various written materials and interviews. Primary resources, including History of Korean Traditional Costumes (written in Korean), and selected pictures of portraits and paintings were reviewed thoroughly. Eight native-born Koreans over 65 years old who had emigrated from Korea to the United States were interviewed in relation to their childhood clothing and recollections of the costumes of their people.

The earliest Korean dress was discovered in the tomb paintings of the Koguryo of the 6th century. Men and women wore jackets that fell a little below the hip in length. The jacket was enclosed with a decorated border, and a band was used to tie the waist. The men had baggy trousers, while the women wore pleated skirts reaching to the ground. Occasionally, the skirt was worn over
the trousers, the trousers visible under the skirt. Silk was already in use at this time.

At different times Korea was conquered by different countries. The costumes were strongly influenced by the conquerors. During the Tang Dynasty, the official uniform of the court of Silla, a section of Korea, was received from the Chinese emperor, and this custom was continued to the end of the Yi Dynasty. Whenever a new dynasty was established in Korea, the Chinese emperor sent official clothing to the Korean emperor and his court.

Cotton was brought from China to Korea in 1369 and became very popular since there was no fabric existing as an alternative to silk and hemp until that time.

The Yi Dynasty (1392-1910) was a time during which Korean culture basically was not influenced by Westerners. Japan invaded Korea in the 16th century, but the Koreans drove the Japanese back to their shores with the aid of Ming China. During the following centuries of the Yi Dynasty, the Koreans isolated themselves completely from the rest of the world, until 1866. Korea was opened to the outside world by Japan in 1876, and a treaty with the United States was made in 1882. Korea became the object of a power struggle between Russia, Japan, and China. Japan was victorious, defeating China in 1895 and then Russia in 1904, and annexing Korea on August 22, 1910, thus ending the 500-year-old Yi Dynasty.

During the Yi Dynasty, Confucianism was the predominant philosophy in Korea, and Confucian values ruled all aspects of society—politics, economy, and family life. There were five relationships that determined the social order: those between ruler and minister, father and son, older and younger, husband and wife, and one friend and another. Confucianism placed special emphasis on loyal subjects, filial sons, and faithful wives.

There were four social classes. The yangban was the ruling class. The women of this class were carefully secluded, visible only to the people of their household and to their immediate relatives. When they visited, they would be carried by four bearers in a screened sedan chair. When they had to walk, their faces were veiled with a changot, a thin green silk cloak.

The intermediary class stood between the yangban and the commoner. Few restrictions were imposed on the middle-class women in regard to their appearance on the street, nor were they secluded at home.

Commoners, or the working class, labored on farms, wove yardage, sold fruit and vegetables, and served as wet nurses. The girls of poor families became domestic slaves. They washed clothes, carried water from wells, and ran errands. The skirts of women of the lowest class were usually shorter and narrower than those of the upper classes.

The lowest class included bondsmen, gisang, and the shamans. Gisang corresponded to the Geisha of Japan. They participated in all kinds of entertainment; they wrote poems, sang, and played musical instruments. They usually wore very colorful dresses with various kinds of ornamentation, but they had many restrictions on their clothing to distinguish them from ordinary wives. The gisang, slaves, and all included in the lowest class were forbidden from wearing the changot.
The costume distinctions of the different classes also were denoted by ma-
terial used. The dress of nobles was of the finest silk having a very deli-
cate texture. The dress of the lower class people was of cotton or hemp.

The ordinary women's costumes developed without great influence from any
foreign country, while the official male costumes were greatly influenced
by China. The basic silhouette was retained in all clothing regardless of
social status; social status was identifiable by the material, color, and or-
namentation of the costume.

Ordinary Costume. Korean women's clothes were few in variety and simple in
form. It was not necessary to distinguish more than four kinds. There were
a short jacket, loose baggy undertrousers, underskirts, and a finely pleated
long skirt.

The short jacket was called a chogori. It has a white collar sewn to the
jacket, but it could be removed and replaced when it became dirty. The
sleeves were narrow, and the front was fastened with a single bow. There
were several types of chogories, according to use. The nubichogori was made
of two layers of silk or cotton fabric, with a layer of cotton between and
quilted at narrow intervals.

The somchogori also was padded with cotton but was not quilted. It was taken
apart when laundering was necessary. Both the nubichogori and the somchogori
were worn during the winter. The kekichogori was a top made of transparent
material stitched three times on one line so as not show the seam allowance,
and the juksam was a single-layered top. Both the kekichogori and the juksam
were worn in the summer time. Chogories for the spring and the fall were made
of double thicknesses of cotton or silk.

Most of the Korean garments were taken apart when they needed laundering, ex-
cept the quilted ones and the kekichogori.

The parts of the chogori were cut straight along grain lines. All seams were
left without trimming or clipping, leaving ample seam allowances to allow ad-
justing the size and shape after the garment was taken apart and laundered.

There were two kinds of hoejang-chogori, identified by the design. The sam-
hoejang-chogori had crimson fabric for the collar, the end of the sleeves,
ribbons, and decorative gussets, and was worn by high-class young women. The
banhoejang-chogori had indigo fabric for the end of the sleeves, crimson fa-
b ric for the collar and ribbons, and was similar to the samhoejang-chogori
except it did not have decorative gussets. It was worn only by women who had
both a husband and a son.

The chima was a finely pleated, floor-length skirt that had a long cotton band
on top to tie it around the bosom, similar to a surplice skirt. Usually the
chima was made with 12 pieces of 13-inch-width fabric sewn together, but the
upper class women's chimas were made with 13 pieces of 13-inch-width fabric.
The manner in which the chima was worn indicated the social status of the per-
son; for example, a gisang or concubine would wear the chima with the left
side over the right side, while ordinary wives wore it right side over left,
and lower class women such as gisang could not wear a lined chima, but only
those made of a single layer.
The sulan-chima was a chima that had an attachable sulan trim at the bottom of the chima. The sulan trim was about 15 to 20 centimeters in width; thus the sulan-chima would drag on the floor about 30 centimeters. The sulan trim had golden foil patterns, and it could be unstitched when the garment needed to be laundered. The golden foil patterns varied for social status, such as a dragon pattern for the queen, a phoenix for a princess, and Chinese characters and flowers for a high officer's wife. If there were two attachable sulan trims, the garment was called a tealan-chima.

At all times, the middle and higher class women wore the changot or sugea-chima to veil their faces in passing through the public streets. The sugea-chima was made of light blue cotton and was worn by the middle class for ordinary day wear; the changot was worn for formal occasions. The shape of the sugea-chima was similar to the chima, and it was padded with cotton for winter use. Lower class people were prohibited from covering their faces.

As undergarments, Korean women usually wore three baggy trousers that had bands to hold the pleats on the top. The inner layer was called sokot, over which the pagi was worn, and finally the dan-sokot was worn on top. The sokot was made from cotton or hemp for the middle class and silk or ramie for the nobility. The women's pagi differed from the men's, which was used as an outer garment. The function of the dan-sokot was similar to a slip.

Commoners wore a chima on top of these underpants for daily use, while on special occasions upper class women wore three underskirts over the trousers. The first one was the mujiki, which was a three-, five- or seven-layered pleated underskirt reaching the ankle. Each layer used different colors, so it was called mujiki, which means rainbow. The mujiki was made of hemp. The next underskirt worn was longer and fuller than the first one. It was made of 12 pieces of ramie; a four-to-five-centimeter piece of Chinese paper was attached at the hem to make it stiff. However, this underskirt was worn only at the palace. On top, they wore sog-juksam, which was similar in shape but a little smaller in size than the chogori. In winter, they wore an additional top called sog-chogori; thus there were three layers.

During the latter portion of the Yi Dynasty, because the chogori was made shorter, the huridi was worn to prevent exposing the bosom. It was made of cotton or silk. For winter it was quilted or padded, and tied around the bust.

Korean women spent a lot of energy and time in the care of clothing. Whenever washing needed to be done, most of the garments were taken apart, piece by piece, washed, and soaked in a rice starch to restore the fabric's crispness. They were then stretched and pounded with heavy sticks upon stone to dry smoothly. After being dried, they were beaten again upon a smooth tree trunk until the cloth had a brilliant luster.

The interviewers remembered that through many hours of the day and night, the regular and rhythmic beating of these laundry sticks was heard. They also recalled that in the streets one could tell a person's social status by observing her clothes to see whether they were well taken care of or not. Unless the person had servants or plenty of leisure time, her clothes could not be taken care of properly.

Foot Wear. Koreans wore busun, Korean socks, and shin, Korean shoes. Busun were worn in all seasons and were padded with cotton for winter. They were
usually made of cotton, and fitted the foot tightly.

Upper class women used t`angju, yunju, and suju on dry days, and jin-shin and namak-shin on rainy days. These shoes were shaped like canoes, and were very stiff. The left and right shoes were shaped alike, and therefore interchangeable. T`angju, yunju, and suju were made of leather on the bottom and silk on the top, and were worn by the nobility. Yunju had a cloud design on the front and back. Jin-shin, which had hobnails on the bottom, were made of oiled leather. Namak-shin, wooden shoes, were used on rainy days.

Common and lower class women wore shoes called mituri and jipsin for everyday wear. Mituri and jipsin were similar in style and shaped like canoes. The mituri was made of hemp and finer than the jipsin, which were made of straw.

There were various color combinations that were consistently used in Korean women's costumes during the Yi Dynasty.

Yellow chogori, red chima. The yellow samhoejang-chogori used a crimson fabric for the collar, the end of sleeves, ribbons, and decorative gussets. Palace women or women of high social status wore this color combination. The red chima was worn only by the young women of high class, while the lower class women were allowed to wear pink chassis. The red and yellow color combination was used for wedding gowns. By using the color red, Korean people felt that their descendants would flourish like fire. Yellow was the sign of generating, and crimson stood for wealth and fame.

Yellow chogori, blue chima. After women were married for several years, they wore a blue skirt. This stood for everlasting youth, and it was the typical color of the Yi Dynasty.

Light green chogori, blue chima. The old people wore this color combination.

Light blue chogori, blue chima. Light blue samhoejang-chogori and the blue chima were worn by the middle class for ceremonial occasions; this was the typical palace women's costume.

White chogori, blue chima. The daily costume of the 40- to 50-year-old woman was a blue or gray chima and banhoejang white chogori. The banhoejang-chogori had indigo fabric at the end of the sleeves and crimson ribbon at the front of the chogori. The indigo fabric signified that a woman had sons, the crimson ribbon indicated that she had a husband. The person who wore both of these additions was proud of herself.

Chumdambog. The light blue chogori and chima was called a chumdambog. The Koreans wore the chumdambog while visiting neighbors or relatives to console those in mourning. After the mourning period, the women mourners also could wear chumdambogs instead of colorful clothes.

White chogori, light blue chima. This color combination was used for the same purpose as the chumdambog. The old widow wore this color combination daily.

White chogori, black chima. The lower class women wore this color combination. They also wore this with a white apron. The material for both the chogori and chima was cotton.
In the later period, there was less emphasis on class distinction in terms of the color that should be worn, except for special occasions. Many of the interviewed Koreans remembered they wore a black chima with a pink chogori or a white chogori in the winter.

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Factors Affecting the Impact of Flammability Legislation on the Consumer
Margaret H. Rucker
Research conducted at the University of California, Davis

This study was designed to determine the responses of consumers to flammability legislation and information. A questionnaire covering general safety information, items on children's sleepwear, and background information was distributed to parents of preschool children attending local child care programs. Respondents also were asked if they would be willing to participate in a wear study and, if so, the type(s) of garments they would be willing to have their children wear. Analysis of the data suggests that consumers can be differentiated into groups based on whether they would accept chemically finished sleepwear for their children, and that this differentiation is related primarily to their reported knowledge of hazards associated with children's sleepwear. Two-thirds of the respondents reported specific concerns associated with sleepwear. Almost 75 percent of these concerns involved health problems that could be caused by chemical finishes, whereas 12 percent involved the flammability of sleepwear. Apparently some consumers assumed that when TRIS was eliminated from the market, they were no longer protected from flammable sleepwear. Another variable that differentiated between those who were willing to accept flame-retardant finishes on sleepwear and those who were not, was disapproval of the proposed ban on saccharin. Those who were willing to accept chemical finishes tended to express more disapproval of the ban on saccharin. This latter finding has implications for public policy; some consumers appear to resent outright bans on possible carcinogens.
In general, consumer confusion over flame-retardancy of sleepwear suggests the need for consumer education in the area.

College Preparation for Fashion Merchandising Students in Los Angeles
M. Camille Garrett and Nancy J. Owens
Research conducted at California State University, Northridge

One might think that Los Angeles would be the ideal place for a fashion merchandising option to exist as part of a home economics program. Although California State University and College home economics graduates have had successful careers in fashion merchandising for many years, there are no programs as such listed in the catalogs. We currently operate under a Master Plan for Home Economics that was adopted in the mid-1960's allowing us to educate teachers and dietitians—and that's all. In recent years, we have figured out a way to "bootleg" programs, so that now, among other possibilities, CSUN offers a fashion merchandising program that is limited by the fact that no mention of it exists in the catalog. The course offerings, of course, are listed.

When we started our program we wanted it to be the best possible. Established programs in other parts of the country might be outdated or not appropriate for Los Angeles area needs. Camille Garrett decided to tackle this problem as her master's thesis. She had worked in an executive position for the May Company here and had developed a number of contacts in the field. She presently is directing a fashion program for a junior college in Ft. Worth, which is why she could not be here today.

The goal of the study was to identify college courses that might be helpful in planning a progressive fashion merchandising program that would meet the needs of the industry and provide high caliber graduates with executive potential.

The study had three objectives. The first was to find out what courses were currently being offered in four-year programs. The second step was to get recommendations from people in the field as to appropriate curriculum. The third was then to identify courses that were the most widely accepted to serve as a guide for our department and for anyone else who would like to use the information.

As part of the review of literature, a survey was made of the functions of the buyer so that required competencies could be identified. (Originally we had wanted to identify competencies as well, but a 20-page questionnaire presents all sorts of problems.) A wide variety of personal qualities also was given by writers in the field, with a consensus that personal traits were most important and that the skill of buying and management could be taught on the job. From these personal characteristics listed in the literature, one might conclude that Superman or Superwoman might just make it.

Most retailers do seem to want college graduates but do not agree on whether a liberal arts degree or a specialized degree in retailing or business is best. Interestingly, one study found that merchants with liberal arts degrees preferred liberal arts graduates but hired those who had had retail or business courses.
Merchandisers do agree that retail-related courses and work experience are valuable for a person beginning a career. There does not appear to be an agreement on the value of MBA degrees.

For this particular study, three questionnaires were developed: one for buyers and assistant buyers, one for educators, and one for merchandise executives. The first part of each dealt with personal experience, income, education, and company operations—omitted from the educators' questionnaire. The second part asked the respondents to evaluate 46 college courses that merchandising students might need to begin a career in merchandising. The courses were taken from fashion merchandising programs listed in college catalogs as well as suggestions appearing in the literature. Although one course might have a variety of names in the catalogs, it was listed in the questionnaire by the one that seemed to be most descriptive of the content.

There were 12 courses from Business Administration—including accounting, advertising, business law, computer concepts, economics, management, marketing, and retailing.

The 14 courses from the liberal arts included humanities, social and behavioral science, physical sciences, journalism, speech, and art.

Twenty courses came from home economics programs—courses in clothing construction, clothing, fashion merchandising, home furnishing, internship, and textiles.

Each course was to be rated as "essential," "desirable," or "not necessary."

People in each category pretested the instrument and minor changes were made.

A letter explaining the nature of the study and a sample of the questionnaire were sent to the department chairmen of nine local four-year colleges and universities that had either home economics or fashion merchandising programs and to the personnel directors of the eight department stores selected for the study. A self-addressed, stamped envelope was included, along with a form indicating their willingness to participate and an indication of the number of educators, buyers and assistant buyers, and divisional merchandise managers who were potential participants.

After the first replies were received, a cover letter and packet of questionnaires was sent to the department chairmen of the six colleges and universities and to the personnel of the three department stores that indicated that they would participate. A stamped, self-addressed envelope was attached to each questionnaire. A follow-up telephone call was necessary.

Questionnaires were returned from 7 buyers and 5 assistant buyers, 8 divisional merchandise managers from 3 stores, and 12 educators. We would have preferred a larger group.

Most of the buyers and assistant buyers were college graduates, earning from $11,000 to $20,000 or more annually. Most were happy with their career choice. They had worked from 1½ to 12 years before reaching their present positions. The one that took 12 years did not have a college degree. The majority thought that a college education had aided their career advancement.
The merchandising executives indicated that a majority of junior executives hired by their companies were recruited from four-year colleges and universities. Most of these junior executives were assigned to a position as an assistant buyer or department manager when they finished the executive training program. The merchandising executives considered that retail-related work experience prior to graduation made a person more employable. An advisory board working with the university was perceived as beneficial, and the executives were willing to serve on such a board. Computer systems had been used in the merchandising divisions for each store for as long as 12 years.

All but one of the educators had master's degrees in home economics or apparel design. There was only one with a Ph.D. Half the educators had either fashion merchandising or design experience. These people evaluated courses very similarly to the merchandising executives, buyers, and assistant buyers. The educators with no merchandising or design experience evaluated a broader array of courses as useful to a merchandising career. This difference could lead to some interesting implications in the development of curriculum.

In general the courses considered "essential" by the majority of respondents were those thought to develop knowledge of the mechanics of retailing, business concepts, communications, and textiles. Courses rated as "desirable" by the majority of respondents included those that develop an understanding of human behavior as applied to clothing and interpersonal relationships, development of communications skills, computer uses and concepts, basic clothing construction, and history of textiles.

The lists below show rankings of all the courses when the data were weighted and combined. The courses ranked from 1-13 were evaluated as "essential" in this study—all three groups of respondents indicated a strong need for these courses.

**Courses Rated as Essential**

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<td>1</td>
<td>Retailing</td>
<td>8</td>
<td>Marketing: Sales Promotion</td>
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<td>2</td>
<td>Retail Buying</td>
<td>9</td>
<td>Fashion Production</td>
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<td>3</td>
<td>Merchandising Math</td>
<td>10</td>
<td>English Composition</td>
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<td>4</td>
<td>Marketing</td>
<td>11</td>
<td>Basic Clothing Construction</td>
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<td>5</td>
<td>Salesmanship: Retail Stores</td>
<td>12</td>
<td>Accounting</td>
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<td>6</td>
<td>Fashion Merchandising</td>
<td>13</td>
<td>Textiles: Basic</td>
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<td>7</td>
<td>Fashion Promotion</td>
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The courses ranked between 14 and 35 were considered as desirable—the respondents did not agree on the value and importance of these courses to a merchandising career.
We would like to offer two items of caution in interpreting these results. There was enough disparity among the groups and within the groups to indicate that the respondents did not have a clear concept of course content. If you had not had a course in Clothing and Human Behavior, how would you know what is typically included? In addition, the evaluations may have been biased toward those course areas with which they were most familiar.

Towards an Everlasting Fashion
Roshida K. Mostafa and Joan H. Lare
Research conducted at California State University, Long Beach

The purpose of the project was to create six experimental designs using the same fabric. These designs were conceived to achieve an everlasting quality by virtue of building upon design principles. Seventeen yards of 100 percent polyester double knit border print fabric were selected. One border was solid black, the other was solid white. The area between the two borders included rocks, flower motifs, birds, and clouds in shades of green and white spaces, blue-grey lines, and touches of rust. Selecting different units from this
large-scale repeat provided the basis for the garments. Variations of the fundamental garment structure included asymmetrical and symmetrical necklines and armholes, straps and strapless bodices, long-sleeved and sleeveless bodices, and above-the-knee and trailing hem lengths. Some garments had a waist seam, a circular-tiered drape, or a cape. Each of these changes was achieved through an interpretation of the design motifs and fabric texture. Additional textures and colors were added to each garment; the textures included imitation suede, lace, chiffon, bird feathers, mirrors, sequins, rhinestones, and beads; colors included beige, yellow, gold, peach, orange, red, maroon, magenta, light and dark green. This project demonstrated that achievement of beauty in clothing design need not follow established modes of fashion.

RESEARCH REPORTS
Session II

Clothing Designs to Meet the Needs of Elderly Women
Doreen E. Heyer and Nancy J. Owens
Research conducted at California State University, Northridge

Consider the difficulty elderly women have manipulating a 22" zipper down the center back of a dress or shopping for clothes in a market flooded with youth-oriented looks—garments that their granddaughters would wear. These problems are encountered every day by our ever increasing elderly population, and it would appear that manufacturers of women's ready-to-wear are doing nothing about it.

With their increasing numbers, the needs and interests of elderly women should not be ignored when designing and manufacturing women's ready-to-wear. Whether or not an elderly woman is confined to a retirement home or active in community and social affairs, she still interacts with others, and her desire to be dressed attractively still is apparent. As a woman ages and her figure changes, she may become even more concerned about her appearance; therefore, the clothes she wears may be more important than they were in past years.

Since clothing is one of the essential needs of people, there is a psychological value in being well dressed. For elderly women, clothing has special significance. As a woman grows older and advancing age alters her body shape, a feeling of self-confidence about her appearance can improve her social interaction with others. Attractive clothing can act as a rational defense against aging; an older woman can make better use of her physical attractiveness by dressing more carefully than younger people.

For the woman who is confined to a retirement home, clothing may be very important when there is daily contact with other residents. In fact, women in a retirement home may even experience more active social lives than women living in their own homes. In such an environment, compliments on one's clothing and attractive appearance can have a therapeutic effect.
I began my study in the summer of 1977. It was funded by a grant from the American Home Economics Association Foundation. My interest in the clothing needs of elderly women stems from reading numerous articles on the topic. Most of the research involved questionnaires asking elderly women what they prefer in clothing and what problems they encounter when shopping for clothing. None of these studies, however, took the next step and designed a line of clothes incorporating previous findings into garments and then obtained reactions from the women viewing them.

My study involved the construction of 15 garments that were presented to the residents of two retirement homes, Alhambra Lutheran Home for the Aged and Heritage House, and one retirement community, Leisure Village, all in Southern California. The residents at each location modeled the garments for their peers, who in turn responded to the garments in a combination program/questionnaire.

Garment designs were based on the physical changes common to elderly women as well as preferred design features. These physical changes are: added weight, thickened waist, heavier upper arms, sagging bust, rounding shoulders, dowager's hump, wrinkles, and loss of coloring of skin and hair. Design features preferred by elderly women, based on previously conducted research are: gored, gathered, or pleated skirts; 3/4-length sleeves; v-shaped or round necklines; and front openings to below the waist or all the way down.

Taking all of the previous points into consideration, 15 garments were constructed using patterns from the four major pattern companies. The garments ranged from casual day dresses to formal evening wear. Simple loose-fitting styles without a definite waistline were chosen and optional tie belts were added, increasing the fitting range of the garment. Styles with bust darts were utilized by moving the darts to a yoke, a neckline, or the waist, therefore eliminating the problem of darts that are too high. Minor changes were made in some of the patterns, the majority being the relocation of a center back zipper opening to a center front zipper opening with a zipper pull. Patch pockets were added for carrying keys, a handkerchief, and perhaps money. Dresses with long cuffed sleeves had Velcro in place of buttons for ease of manipulation.

All of the garments were made in wash 'n wear fabrics, knits and wovens, solids, prints, and plaids. The garments were made in a range of colors recommended by the residents at Northridge Park Manor, a retirement apartment complex. However, the women who viewed the garments expressed a concern over the lack of bright colors and too much blue.

There was only one pantsuit in the 15 garments because last winter's fashions favored dresses over pants. The women at Leisure Village, however, expressed a concern over the lack of pants in the group of garments. The women's overall reaction to the garments was very positive. Their main criticism was the lack of bright colors and too many blues.

The women indicated that they would prefer to shop for such garments in a separately designated section of a department store and that they would be willing to pay between $20 and $40 for a casual day dress and between $30 and $60 for an evening dress. Many of the women, as well as daughters and daughters-in-law, expressed a desire to purchase the garments.

In all, the women at each location were pleased to hear that someone was interested in the clothing needs of elderly women.
Research conducted at Washington State University*
persons. See results in Table I.

At least 20 percent of the respondents were not very willing or were unwilling to take special precautions no matter what difference in flammability could be achieved by extra effort on their part. The degree of willingness did, however, depend on how much difference could be achieved with hand washing. Chi square analysis showed a statistically greater number of respondents were willing to put forth extra effort the greater the difference in performance expected.

Generally, the respondents were not as willing to take special precautions for themselves as for others in their care; i.e., infants, children, and elderly persons. There was no statistically significant difference in degree of willingness for infants, children, and elderly persons. Therefore, the data for these three groups have been combined and the category called "others in your care."

Table I
Willingness to Put Forth Extra Effort

<table>
<thead>
<tr>
<th></th>
<th>Very Willing</th>
<th>Not Very Willing</th>
<th>Not Willing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shown small difference</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yourself</td>
<td>21.2%</td>
<td>27.3%</td>
<td>20.2%</td>
</tr>
<tr>
<td>Others in your care</td>
<td>34.8%</td>
<td>26.4%</td>
<td>17.9%</td>
</tr>
<tr>
<td>Shown larger difference</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yourself</td>
<td>35.4%</td>
<td>33.3%</td>
<td>14.6%</td>
</tr>
<tr>
<td>Others in your care</td>
<td>50.4%</td>
<td>29.3%</td>
<td>9.8%</td>
</tr>
</tbody>
</table>

The respondents were asked how much more they would be willing to pay for a garment that was flame resistant than a non-flame resistant garment. The respondents were shown the burning behavior of a non-flame resistant and a flame resistant fabric. Two differences were shown. Respondents were asked to indicate willingness to pay for themselves, infants, children, and elderly persons. Results are given in Table II.

In general, respondents were willing to pay more for garments for others in their care than garments for themselves. This result was true when respondents were shown a small difference and a large difference in flammability of their two choices. Chi square analysis showed no statistically significant differences in willingness to pay more for infant's, children's, and elderly person's clothes. Therefore, data for the three groups have been combined.

Were people more willing to pay more the larger the difference in performance expected? The answer is yes and no. Those people who indicated they would pay nothing more, $.50 or $1.00 more, when shown a small difference in performance stayed at those levels even when shown a larger difference in performance. The big change was from $1.50 to $2.00. Those people who were willing to pay $1.50 when the difference in performance was small were willing to pay $2.00 when a greater difference was expected.
Shown small difference

<table>
<thead>
<tr>
<th></th>
<th>$0.00</th>
<th>$0.50</th>
<th>$1.00</th>
<th>$1.50</th>
<th>$2.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self</td>
<td>20.6%</td>
<td>9.5%</td>
<td>21.7%</td>
<td>22.2%</td>
<td>18.5%</td>
</tr>
<tr>
<td>Others in your care</td>
<td>9.2%</td>
<td>3.2%</td>
<td>15.5%</td>
<td>34.0%</td>
<td>38.1%</td>
</tr>
</tbody>
</table>

Shown larger difference

<table>
<thead>
<tr>
<th></th>
<th>$0.00</th>
<th>$0.50</th>
<th>$1.00</th>
<th>$1.50</th>
<th>$2.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self</td>
<td>25.5%</td>
<td>9.4%</td>
<td>19.8%</td>
<td>8.9%</td>
<td>36.5%</td>
</tr>
<tr>
<td>Others in your care</td>
<td>8.7%</td>
<td>3.5%</td>
<td>15.4%</td>
<td>10.1%</td>
<td>62.7%</td>
</tr>
</tbody>
</table>

Results on Expectations. In general, the respondents underrated the potential danger of fabrics igniting and burning. When given the situation that an ignited cigarette rolls between the cushions of a nylon velvet upholstered chair and burns its entire length, 31 percent said no damage or a char the size of the cigarette, 37.5 percent said a char about fist size, and 31.5 percent said the chair would be totally destroyed. When given the situation that a woman wearing a 65 percent polyester/35 percent cotton robe brushed her sleeve across the flames of a gas stove, the results in Table III were obtained.

Table III
Outcomes of Gas Stove-Robe Situation

<table>
<thead>
<tr>
<th>Brief Descriptions of Outcomes Viewed on Video tape</th>
<th>% of Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>No ignition</td>
<td>8.0</td>
</tr>
<tr>
<td>Small melted area</td>
<td>21.9</td>
</tr>
<tr>
<td>Burned with a lot of smoke</td>
<td>45.3</td>
</tr>
<tr>
<td>Burned by melting and dripping</td>
<td>24.9</td>
</tr>
</tbody>
</table>

About 30 percent said no ignition or indicated a small melted spot on the fabric.

Respondents did perceive differences in a fabric's burning property depending on fiber content. Chi square was significant at the 0.05 level of confidence. A 100 percent polyester and a 100 percent cotton fabric as alike as possible in structure and color were shown the respondents. Four fabrics on the video tape represented four distinct burning behaviors. Respondents were told the fabrics had no special finishes. Results are shown in Table IV.

Table IV
Fiber Content

<table>
<thead>
<tr>
<th>Fabric</th>
<th>Totally Burned</th>
<th>Flame Resistant</th>
<th>Fused Away</th>
<th>Melted &amp; Dripped</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cotton</td>
<td>63.5%</td>
<td>20.5%</td>
<td>12.0%</td>
<td>4.0%</td>
</tr>
<tr>
<td>Polyester</td>
<td>14.7%</td>
<td>22.8%</td>
<td>13.7%</td>
<td>48.7%</td>
</tr>
</tbody>
</table>

Many respondents did select the correct burning behavior for the fabric. However, about 20 percent selected the flame resistant fabric for both fibers.
Respondents were asked what they thought the burning behavior of a fabric would be if it were labeled with the following terms: flammable, flame resistant, flameproof, and inflammable. They watched a video tape that showed fabrics burning with these behaviors. Results are given in Table V.

Chi square analysis shows that the terms were interpreted differently. The terms were understood in the following order: flammable, flame proof, flame resistant, and inflammable, with flammable the most understood. It is important to note that 40 percent through fire resistant means the fabric would not ignite and therefore would not burn. Labeling a product with the terms without explanation of the meaning may be creating false security for many people.

<table>
<thead>
<tr>
<th>Labeling Terms</th>
<th>Fabric did not ignite</th>
<th>Fabric ignited but self extinguished when flame removed</th>
<th>Burned completely and rapidly</th>
<th>Completely burned with melting and dripping</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammable</td>
<td>2.5%</td>
<td>3.0%</td>
<td>61.7%</td>
<td>32.8%</td>
</tr>
<tr>
<td>Flame resistant</td>
<td>39.9%</td>
<td>49.5%</td>
<td>6.1%</td>
<td>4.5%</td>
</tr>
<tr>
<td>Flame proof</td>
<td>65.0%</td>
<td>29.9%</td>
<td>4.1%</td>
<td>1.0%</td>
</tr>
<tr>
<td>Inflammable</td>
<td>69.9%</td>
<td>12.6%</td>
<td>7.7%</td>
<td>9.7%</td>
</tr>
</tbody>
</table>

Respondents also were asked what they would expect in terms of flammability performance if they did not launder an item as stated on the care label. The specific example given was a 100 percent cotton fire resistant fabric laundered with non-phosphate detergent, bleach, and fabric softener 15 times in hard water even though the label instructed phosphate detergent, no bleach, and no fabric softener. The video tape showed the burning behavior of the fabric laundered as instructed and four other possible behaviors. Results are given in Table VI.

Twenty-three percent expected very little or no change. Another 25 percent expected a large burn area but still the self-extinguishing characteristic. The literature and experiments in our lab consistently show a complete destruction of the fire retardant characteristic under the conditions described.

<table>
<thead>
<tr>
<th>Expectations If Not Laundered as Instructed</th>
<th>% of Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>No change</td>
<td>5.5</td>
</tr>
<tr>
<td>Very small change</td>
<td>17.5</td>
</tr>
<tr>
<td>Larger change - more area charred but self-extinguishing</td>
<td>25.5</td>
</tr>
<tr>
<td>Completely and rapidly burned</td>
<td>51.5</td>
</tr>
</tbody>
</table>

Conclusion. Time does not allow for greater detail of the study results. The results do point out the need for continued educational programs. The programs must address concern because many consumers are not concerned. Many fundamental facts about the flammability of fabrics are not known. An interesting approach for programs suggested by this study is the need to visually show people what difference it really makes in fabric performance if they follow directions and what they can expect in performance for an increase in price. Hopefully, this approach
The overall purpose of the research was to determine and analyze the clothing decision process of visually impaired consumers to determine what problems may be associated with the acquisition and use of apparel. Focused group interviews were conducted at various locations in Northern California to identify those variables affecting clothing selection and purchases. A total of 76 male and female consumers ranging in age from 18 to 91 and with varying degrees of blindness participated in the interviews. The data were collected and analyzed using the Decision Process Analysis model developed by Engel, Kollat, and Blackwell.

Analysis of the data focused on five major areas of the consumer decision process involved in the acquisition of clothing: (1) problem recognition, (2) internal search and evaluation, (3) external search and evaluation, (4) purchase, and (5) postpurchase evaluation. Problems associated with each phase of the model as well as the variables affecting the acquisition of clothing were identified. The results indicate several problem areas relating to the needs and preferences of the blind consumer in the marketplace. These areas include acquiring fashion information, mobility and access to stores, attitudes of salespersons toward the blind, availability of salespersons for aid in clothing selection, determining quality of garments selected, and the need for garments with special features.

The data acquired can be used as the basis for further quantitative research; it also may be used by marketers, educators, and consumers themselves to make the selection and purchase of clothing easier and more satisfying.

Information Systems for the Clothing and Daily Living Needs of the Handicapped
Naomi Reich, The University of Arizona, Tucson
Elizabeth Shannon, University of Manitoba

This was a three-year study funded by the Experiment Station. Elizabeth Shannon, from the University of Manitoba, spent a year's sabbatical with me, and we formulated the proposal. We designed a questionnaire and had it scrutinized by several people working in the rehabilitation field and a medical doctor working with Special Services at the University of Arizona University Hospital. The questionnaire was pretested by physically handicapped students using the Special Services at the Rehabilitation Department at the University of Arizona. The questionnaire was
again refined before administering it by mail to a list of Arizona representa-
tives and alternates to the 1977 White House Conference on Handicapped Individuals.

This mailing list of 2,900 was chosen as the basis for the sample population be-
cause it was composed of persons proportionately representative of the state's
entire handicapped population by age, sex, ethnic origin, and form of handicap.

An attempt was made to categorize the common physical limitations (CPL) from the
various disabilities and to identify the types and kinds of information the phy-
sically disabled require regarding their clothing and daily living activities.
The main objective of the survey was to collect data useful for describing and
clearly explaining the needs of this special group to manufacturers, educators,
retailers, professionals, and paraprofessionals. Prior to this study no such
data base had been established.

The questionnaire was developed to obtain information regarding those limitations
experienced because of the handicap, the individual's reaction to various cloth-
ing items, and the specific design features of these garments. It was hoped that
those areas requiring improvements could be identified through the responses of
the participants. The scale used allowed one of four responses: never, some-
times, frequently, always. The responses, other than never were grouped together
as indicating a positive response to the questions.

Of the 319 respondents, 288 fell between the ages of 16 and 70 years. This was
the main interest group for the study because it covered persons who were employ-
able, physical condition permitting.

A similar study is presently being done to gather data about the needs of physi-
cally handicapped children in Arizona aged 6 to 16. This data should be avail-
able at the end of summer 1979.

Description of Respondents. The respondents were fairly evenly distributed be-
tween the ages of 16 and 70. The largest cluster was in the 41 to 50 group, which
represented a quarter of the sample population. Breakdown with regard to sex indi-
cated that 55 percent of the sample were males and 45 percent were females.

Regarding employment, 7 percent were employed on a part-time basis, i.e., approxi-
mately 20 hours per week and 39 percent indicated they were employed full time,
i.e., 40 hours per week. About 30 percent of the respondents indicated that their
income level was at $5,000 or less per year, and only a quarter of the sample ob-
tained an income level of $15,000 or more in the previous year. This suggests a
high percentage of handicapped people are in the low income levels.

Description of Disabilities. The largest proportion of respondents indicated they
suffered from arthritis. This was followed by poliomyelitis and spinal cord in-
juries with about half as many in each category. The next most common disability
was a result of either nerve damage or visual impairment. It is important to note
that 75 percent of the respondents indicated they had experienced their individual
disability for 10 or more years. Therefore, it seems evident that long-term
problems have special needs requiring suitable solutions.

In analyzing the common physical limitation (CPL) resulting from the main cause
of their handicap, our respondents noted the body areas affected, which fell into
six categories: lower leg, lower torso, hands, arm, upper torso and the neck
area.
Shopping barriers stood out as one of the most critical areas for this physically handicapped population. Obstacles seemed to fall into the following categories:

<table>
<thead>
<tr>
<th>Obstacles Outside</th>
<th>Obstacles Inside</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parking</td>
<td>Aisles</td>
<td>Service/attitude</td>
</tr>
<tr>
<td>Curbs</td>
<td>Traffic</td>
<td></td>
</tr>
<tr>
<td>Steps</td>
<td>Elevator</td>
<td></td>
</tr>
<tr>
<td>Entrance</td>
<td>Location</td>
<td></td>
</tr>
<tr>
<td>Turnstiles</td>
<td>Fitting room size</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Access fitting room</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rest areas</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rest room facilities</td>
<td></td>
</tr>
</tbody>
</table>

Individuals falling into the CPL labeled neck appear to be the least restricted/affected by the shopping obstacles identified in this study. All shopping obstacles identified by this study were highly significant with the CPL labeled lower torso. The majority of the shopping obstacles identified by this study were significant with the CPL labeled lower leg, upper torso, hands, and arm; however, the level of significance varied.

Over 66 percent of the respondents indicated they experienced difficulty because of a lack of convenient parking facilities near the entrance to most stores. Seventy percent were restricted owing to the presence of steps outside stores, while 66 percent had difficulty navigating over curbs. Once these problems are overcome, 54 percent had difficulty with the store entrance way. This can apply to the weight of the door, how easily it can be opened, and the overall size of the doorway opening. The presence of turnstiles within stores created difficulty for 57 percent of the sample.

Once they have coped with the problems of actually getting into the stores, they are then confronted by another set of problems related to their mobility around the store. The limited amount of aisle space that is left free for customer movement caused difficulty for 58 percent of the group. There is often limited space between clothes racks and most other display arrangements that in turn adds to the list of problems encountered. Some 57 percent of the respondents indicated they had difficulty with determining the traffic flow pattern through the stores because they were not clearly marked. This would apply especially to those stores with only one ramp at a suitable angle to accommodate a wheelchair. The location of merchandise created problems for 66 percent of the respondents. Not only were they having difficulty with the location of the merchandise, but 50 percent clearly indicated that the service offered and the attitude of the salespeople restricted their shopping endeavors. Then 56 percent indicated that the fitting rooms were not easily accessible while 58 percent indicated that the size of the fitting rooms were inadequate to meet their needs.

The other main problem confronting handicapped people is the availability of rest areas within the stores; 61 percent commented on this point, while 65 percent indicated that the rest room facilities were inadequate in meeting their needs. Individuals who fell into the lower leg, lower torso, upper torso, and hands (CPL) categories indicated that their disability did not cause them to have more difficulty with elevators than individuals who did not fall into any of the above CPL categories.
It seems evident then that outside facilities as well as inside facilities of stores need to be redesigned taking all segments of the population into consideration.

Problems Arising During Purchasing of Clothes. Regardless of the common physical limitation category, disabled persons appear to experience the same types of problems when actually purchasing items of ready-to-wear clothing. Topping the list of problems, the fit of garments caused the greatest difficulty for 72 percent of the respondents. This resulted in 66 percent requiring alterations to the apparel before it was worn. The differences existing within any one size was pointed out as a problem by 68 percent of the participants. This is understandable, remembering that 59% clearly indicated they experienced difficulty in putting on and taking off most clothing items.

Other points contributing to the difficulty experienced by handicapped people during the purchasing of clothing were: unsuitable designs, 64 percent; clothes that were uncomfortable to wear, 59 percent; inappropriate fabric characteristics and type of care required by the garment, 52 percent. Alterations required was the only buying problem identified that was not significant across all of the common physical limitation categories.

Problems Related to Wear-Life of Ready-to-Wear Garments. The armhole and sleeve areas of garments were often too tight and restricted normal arm movement for 57 percent of the respondents. Also, waistlines with little or no "give" to adjust to body changes caused difficulty and were uncomfortable for 56 percent of the respondents, and 55 percent experienced a lack of ease in the shoulder and upper back area of garments. The same number frequently found the openings of garments skimpy or too small, thus causing difficulties during dressing activities.

Pockets were identified as causing problems for 42 percent of the respondents. These problems were related to the size, location, and ease of use. It appears that manufacturers of ready-to-wear clothing need to take a closer look at closures, fit, overall silhouette, fabric used, and sizing to meet the needs of all segments of the American population.

Common Physical Limitations (CPL) and Clothing Style Features. We were interested to investigate any relationships that might exist between common physical limitations and difficulty experienced with various clothing style features. Individuals who fell into the categories of hands and arm more frequently experienced difficulty with long set-in sleeves and cuffs of all kinds. Closures proved to be significant across all categories and side closures created the most problems for individuals.

The female respondents showed an interest in two-piece outfits consisting of a blouse and pants or slacks, although approximately 50 percent experienced some difficulty while putting on these items. This difficulty was related mainly to one-piece pull-up garments such as slacks with elastic waists and one-piece pull-down garments such as a blouse that is pulled on over the head. The women were interested in dresses without waistlines because they appear to cause fewer problems when dressing. Back closures were troublesome to over 80 percent of the women. Of all the closures, the front closure was rated the most functional but some did indicate difficulty at times with the front closure in garments owing to the type of fasteners used.
It appears as if most categories of women's clothing could be improved in design to simplify dressing activities and that a variety of closures, in regard to type and position are required to meet the needs of handicapped women.

The most frequently needed alterations to improve the fit of ready-to-wear garments proved to be length adjustments, required by 72 percent of the respondents. Alterations related to circumference adjustments were needed by 47 percent; openings in the garments and shoulder/armhole section required fewer changes.

**Conclusion**

I have only been able to bring you some of the highlights of our findings, but with information gathered on the handicapped, including knowledge of their limited financial resources, it seems imperative that we encourage efforts toward helping them realize independence.

As educators and professionals, it is important for us to make such information available. We need to be willing to search out suitable solutions on more complex handicapped clothing problems. The challenge for the future is to make people aware of the problems of the handicapped and to encourage their active participation in helping to meet the needs of others. We should seek the active participation of business and industry in considering and assuming their individual responsibilities for the future improvement of the proximate or portable environment of handicapped persons.

Information regarding needs and preferences of the handicapped population should be transmitted to the apparel designers and garment manufacturers so they will become more aware of the need for functionality along with fashion at the initial stages of apparel design and development.

Retailers and merchandisers should be made aware of the shopping obstacles that may exist in their establishments. Buyers should be encouraged to support and actively participate in satisfying some of the special needs of handicapped people. Alteration departments should be able to cope with most of the modifications needed to adjust ready-to-wear for better fit especially when given some guidelines and solutions.

It seems evident from our findings that more functional design and modification of ready-to-wear is needed the most by this population. Let us each go out as an emissary for this cause and make some impact on the ready-to-wear industry.
more women assuming nontraditional careers, entering active space, and joining the military, there is an increased need for special clothing and gear designed to meet their needs.

Needless to say, given aesthetic requirements for a specific end use must be a part of the design analysis. Within this framework, there exists a major opportunity for home economists to become involved in the design and development of new textile products that consider performance of both the textile and the product design. Today, I will first describe the course and system used in functional clothing design and secondly detail development of a bra for marathon runners.

A major curriculum change was initiated at the University of Houston. Our major objective in the functional clothing courses was to give students experience in systems analysis, project management, problem-solving, teamwork, prototype construction, and objective product evaluations. Formal presentation of projects was made before a team of judges. Resources from NASA and other organizations were used to help students in solving design problems. This course integrated textiles and product design concepts.

Model for Systems Analysis. The NASA Model for systems analysis was adapted for use in class. This allows students to work on a variety of clothing problems without limiting their abilities. Once students can solve design problems using the systems approach, it becomes easy to solve others. The nine steps are as follows:

1. Define objectives
2. Establish requirements (in terms of measurable parameters)
3. Postulate concepts (to achieve (1) + (2))
4. Analyze concepts (in terms of math models and pertinent data)
5. Examine limitations or ideas using pertinent measurements within a framework in terms of 1, 2, and 3.
6. Fabricate prototype
7. Test (in accordance with (2) + failure modest effects analysis (life time)
8. Release (market)
9. Monitor response
10. Improve

The classification of functional clothing items include some of the following categories: rehabilitation clothing; medical apparel and equipment; occupational clothing; career apparel; energy efficient apparel; clothing for elderly, handicapped, children, and military; and clothing for special environments. Special features used in functional clothing included such topics as multi-fit concepts, closures, ability and time to don and doff.

Lecture topics included principles of physiology, heat transfer in humans, apparel manufacturing, starting a small business, a diverse range of objectives and subjective products, evaluation methods, human factors analysis, creative clothing design, visual communication, human anthropometrics, and ergonomics. Speakers addressed the following special topics: design of a waste management system for females in space, multi-fit coverall and sizing system, scuba diving gear, space suits, clothing for female athletes, Arctic clothing, firemen’s clothing, and
clothing for the handicapped.

Students completed two projects during the semester. Project one was to analyze and redesign a project from a previous semester. Project work was done in teams so that the students could work on major problems. In addition, this type of experience is more like project work in the business world. Hence, students learned how to work with others. Project prototypes were pre-critiqued, improvements incorporated, and the final project report was made to a team of judges from business, education, and governmental agencies.

Student projects included the following:

"Learn as you grow" children's clothing
Wet-wet scuba suit
Walking sleeping bag
Medical garment for burn patient
Blouse for nursing mother

Development of the Runners' Bra Using Systems Analysis

1. Objective
2. Requirements
   a. Materials
   b. Design
3. Approach
4. Background
5. Material Selection
   a. Material requirements
   b. Materials evaluation
6. Fabrication of Design Concepts
   a. Concept I
   b. Concept II
   c. Concept III
7. Production Cost Analysis
8. Testing
   a. Amplitude and Phase Frequency - Video Tape Evaluation
   b. Field Tests
9. Marketing Concepts
10. Conclusions
11. Recommendations

Objective. The objective of this project was to design a bra for women marathon runners to be used specifically for support and environmental adaptation. The Physician and Sport Medicine magazine reports a survey conducted at the Women's National Marathon Championship in Minnesota. Out of the 27 women interviewed, all but 4 wore a bra during the race and not one of the 4 was entirely satisfied with her own model (1978).

All runners, marathoners or joggers, have special needs, especially women. The new feminine running products are splendid: colorful shoes, graceful and soft shorts and shirts, fashionable warm-up outfits that tempt many a sedentary woman to join the ranks of joggers.

Requirements. Whether or not females who have an excess of breast tissue will be at a disadvantage in sports participation is largely determined by the requirements of individual events. Breast tissue is liable to injury in both contact and noncontact sports. Breast size is determined to some extent by excess body fat. With respect to protecting the breasts from trauma, there is no reason that proper protection cannot be provided. It is possible that clothing that restricts free movement of the thoracic cage would interfere with oxygen consumption. Vlasik and Kostkove (1964) reported a statistically significant decrease in oxygen consumption in 18- to 19-year-old students they tested wearing bras as compared to those not wearing them. Therefore, the use of specially
designed and fitted protective bras is needed and should be encouraged.

The bra should be flexible with body movement but not restrict oxygen consumption.

The sensations of smoothness and roughness as well as the perception of surface pattern are greatly enhanced by movement of an object across the surface of the skin. If there is vertical displacement of the skin, such as the breasts, the judgment of softness is facilitated by the active movement. If the movement is in a lateral direction, the perception of roughness and texture or pattern does not differ whether the skin is moved over the textured surface or that surface is moved over the inmobile skin surface.

Design approaches included the following:

1. Support and compression achieved by using alternating stretch and nonstretch materials in flat surface design.
2. Cutaway Combo Bra Top that can be worn without additional top—cotton open weft knit—next to skin with soft brushed cotton pads to prevent nipple abrasion; outer fabric spandex; velcro hook, and loop tape closure at shoulder.
3. Improve design #2—Separate layers—Spandex compression layer next to skin; uplift action achieved via wide elastic that is adjustable in rear using velcro; outer portion cotton interlock; improve P. pts. of shoulder.
4. Two Layer System Bra—compress with smaller inner layer, change direction, size, and shape of spandex to achieve support for second layer—soft, wide stable elastic supports—support achieved by crucial strap positioning.

References

1. Betcher, G. Trigger Points and Nerves.
Self-Monitoring as a Predictor of Reaction to the
Nonverbal Messages of Clothing
Tom C. Peterson
Research conducted at Utah State University, Logan

"Truly, my Satan, thou art but a dunce,
And dost not know the garment from the man."
—William Blake, Gates of Paradise Epilogue

Here is the basis for this research project. Why are people selective in their clothing choices? Why does one individual prefer one garment while others will prefer another? For what reasons?

If we accept the postulate that the more we know about someone, the easier we can get along with him/her, we can move toward a more refined definition of the social and psychological significance of apparel. When an individual appears before others, he either knowingly or unwittingly projects a conception of himself within a certain situation. How one dresses helps others to infer how he feels about himself, his situation, and what he expects from those he encounters, and what they may expect from him. Therefore, if we are trained in these clues, we will respond more quickly and elicit desired responses.

Irving Goffman's theory of presentation of self in everyday life, better known as "impression management" has held to the construct that individuals strive to influence the images that others form of them. People are constantly trying to create and maintain specific images in appropriate situations. Motivation for the creation of such images may be inner or outer directed, either to create a sense of self-confidence or to achieve approval from others.

Just how much nonverbal cueing comes from clothing is difficult to qualify, yet its significance is undeniable. In an effort to determine the effect that apparel has on self-presentation, the concept of self-monitoring developed by Dr. Mark Snyder, University of Minnesota, was employed as a qualifier for selected articles of clothing. What began as a small project with several graduate students has since grown and still continues.

An understanding of the meaning of self-monitoring is important. According to Dr. Mark Snyder, people differ in the extent to which they can and do exercise control over their verbal and nonverbal self-presentation. These differences may be conceptualized in terms of the social-psychological construct of self-monitoring. Self-monitoring is measured by the administration of a 25-question, true-false questionnaire. Two hundred twenty-seven subjects were given the test and then placed in one of three categories: low self-monitors, scores lower than 9 of a possible 25; mid self-monitors, scores between 9 and 13; and
high self-monitors, scores above 13 of a possible 25.

Following are sample questions from the self-monitoring exam:

1. When I am uncertain how to act in a social situation I look to the behavior of others for cues.
2. I may deceive people by being friendly when I really dislike them.
3. My behavior is usually an expression of my true inner feelings, attitudes, and beliefs.
4. In order to get along and be liked, I tend to be what people expect me to be rather than anything else.
5. I can look anyone in the eye and tell a lie with a straight face (if for a right end).

The 227 subjects were divided into six groups: one experimental group of college students and one experimental group of high school students, two control groups of college students and two control groups of high school students.

To test the self-presentational qualities as determined by the level of self-monitoring, each experimental group was shown 10 slides of people wearing selected articles of clothing. The respondent answered 20 questions about each slide to determine the age, marital status, living arrangement, education, occupation, income level of the model, and where the clothes might be worn. Questions 6 through 19 were likert-type to determine whether the model was conservative, intelligent, politically active, self-supporting, liberal, or wearing age-appropriate apparel. Questions 14 through 20 tested the respondents' reaction to whether the apparel looked well on the models, fit well, whether they approved of it, were attracted to it, would they or others wear it, or include it in their wardrobes.

Each of the first college and high school control groups answered the same 20 questions, except that each fashion slide had been cropped to exclude the head. The second college and high school control groups answered only those questions with no reference to clothing, as the slides they viewed had been cropped to exclude everything below the neck of each model, leaving only the facial characteristics. The college and high school experimental groups viewed the whole slide.

Slide number one was a 20- to 25-year-old white male wearing a wool plaid sport coat with silk collarband shirt, egg-shell slacks, and a sun visor. The intent here was to show a young well-dressed male. High self-monitors responded with strong agreement that this individual was self-supporting, while the mid self-monitors responded with only mild agreement. This was our first indication that there was going to be a difference between individual responses according to their level of self-monitoring.

When shown only the body on the slide, there was a difference between the low and mid self-monitors according to type of employment. That is to say that an individual scoring higher than 13 on the self-monitoring exam viewed this person's occupation as being different from someone scoring between 9 and 13. slide showing the head yielded no comments of significance.
Slide number two was a 25- to 35-year-old black female wearing an off-white skirted suit with a light colored print blouse. This illustration was meant to represent a younger career-oriented female. A strong difference existed between high and low self-monitors with respect to level of education.

The high self-monitors indicated that she had had much more education than did the low self-monitors. Also, low self-monitors more often disagreed that she was liberal, while mid self-monitors agreed that she was a liberal. This would seem to follow since a low self-monitor is perhaps less capable of taking on the various roles that liberalism might require. A difference existed between the low self-monitors and the mid self-monitors according to their views of her living arrangements—either living alone or with the same gender roommate, married, divorced or separated. The suggestion that high self-monitors can accept more change and less perfection would account for the fact that they strongly agreed that the fit of this garment was perfect; while the low self-monitors only mildly agreed, therefore finding some imperfection. According to most standards the garment would have been seen as fitting very well.

While viewing a slide showing only the body of the subject and when asked about occupation, the low self-monitors varied from both the mid and high self-monitors. A check of responses indicated that the low group saw her as technical or skilled, while the other groups tended toward seeing her as employed in a clerical, secretarial, or sales position.

When viewing the head only of the same subject, the group was asked about this individual's living arrangements. The low self-monitors differed from the mid self-monitors; one group saw her as living alone, or with the same gender roommate, while the other group saw her as married or living with the opposite gender roommate. Again, upon review of responses, the indication was that opposite viewpoints occurred between responses to the entire figure and the head only.

Slide number three was a 40- to 50-year-old Caucasian male, with hair graying at the temples. The subject was wearing a fleece-lined jacket of arms length. The coat was hooded with four large front flap pockets and a zipper front opening. Under the jacket he had on a turtleneck sweater and was also wearing blue jeans. This photograph represented an older individual in outdoor recreational attire.

Upon analysis we found a significant variance between high and low self-monitors. The high group, as predicted, were more capable of approving of these articles of clothing, while the low group exhibited less approval.

The slide showing only the clothing caused the high self-monitors to disagree that they would like to see themselves, their husbands, or their boyfriends wearing this type of outfit, while the low self-monitors agreed that they would like to see themselves, their husbands, or their boyfriends wear such an outfit. It is difficult to predict why the responses went this way except that perhaps this particular item of clothing was not expressive enough for those individuals in the high self-monitoring category.

When viewing the slide of the head only, the high self-monitors and both the mid and low categories differed when asked about marital status. The high group usually placed him as divorced or separated; the low and mid groups more frequently saw him as married. On the question about living arrangements the
high self-monitors answered opposite to the mid and low self-monitors; the high group placed this male with the same gender roommate while the other groups classified him as living with the opposite gender roommate or spouse.

Slide number four was a young white girl in her early twenties. She was wearing a matching skirt and blouse in a multicolored diagonal knit fabric. She had a contrasting jacket over her shoulder and was wearing low-heeled pumps. We wanted to illustrate a younger person in clothing that appeared to be designed for older individuals. Low self-monitors agreed that this individual was politically active while the high and mid categories both disagreed.

The view excluding the head had the low self-monitors strongly disagreeing that they, their wives, or their girlfriends would wear such an outfit, while the mid self-monitors agreed that they, their wives, or girlfriends would wear the outfit. The same students were then asked if they would include this outfit in their wardrobe or would like to see their wives or girlfriends include it in theirs. The low self-monitors again disagreed while the mid self-monitors agreed that they would like to see it included.

Viewing the head only, the high self-monitors saw this person as a liberal, not a conservative; the low self-monitors saw this person as a conservative, not a liberal. This polarity of categories indicates that, given the same cues, high and low self-monitors will interpret information in a somewhat different manner. High self-monitors strongly agreed that the person was self-supporting, while the mid and low self-monitors disagreed that the individual was self-supporting.

Slide number five was of a Caucasian male between 20 and 30 years of age. He was photographed wearing blue jeans and suspenders, no shirt. Our intent was to see how individuals responded to a male without a shirt to determine if one group was more accepting of casual appearance than another.

Seeing this photo with the head excluded, the high self-monitors indicated that they strongly disagreed that they, their husbands, or boyfriends would wear such an outfit; midrange self-monitors agreed that they or their husbands or boyfriends would wear such an outfit. This indicated that the high self-monitor might want to retain more control over his own image and would not make an overt type nonverbal statement. High self-monitors also said that they would wear this or that their husbands or boyfriends might wear it to places other than those specified by the mid range self-monitors. The slide of the head only was also nonindicative of any existing differences between the three groups.

Slide number six was of a young girl, late teens, or early twenties, wearing a skirt, jacket, and turtleneck sweater. This particular illustration was chosen because it received so many negative responses from those who initially viewed it. The outfit was made from blue denim with alternating panels of various colored prints as well as patch pockets and contrasting lapels on the jacket.

The full-figure slide caused the high self-monitors to differ from the low self-monitors as to their perception of the model's level of education. Individual responses indicated that the low category thought that she was a high school graduate, while the high category thought she was a college student or graduate.
Responses to the body-only photograph indicated that the low self-monitors disagreed that the model was intelligent; mid self-monitors agreed that she was intelligent. High self-monitors agreed that the outfit was age-appropriate; low self-monitors disagreed that this outfit was age-appropriate. Our evaluation here is that, even without facial indicators, the three groups had very different and yet, perhaps preconceived, ideas concerning appropriateness. All three self-monitoring categories found this outfit disagreeable. The low category, however, exhibited a stronger disagreement or dislike. Perhaps this disagreement in the low group was due to the type of outfit and what might be considered an inappropriate nonverbal message.

The slide of the head only was also nonindicative of any existing differences between the three groups (high, mid and low self-monitors).

Slide number seven was of a male Caucasian 35 to 40 years of age. He was wearing a three-piece black suit with small white, gray, and red alternating pinstripes. He also was wearing a white shirt and a light-colored tie. The suit was a two-button style with flap pockets and peaked lapels.

The responses to the full-figure slide gave us our first indication of age difference. The high self-monitors felt that the individual was 36-50, the low self-monitors stated his age to be between 26-35. This might be interpreted as an indication that in some cases different categories will monitor nonverbal cues from things other than the face.

The slide of the body only brought out a variance between the high and low categories with reference to level of education. The high category thought him to have more education than did the low category. The high self-monitors also differed from the mid self-monitors by indicating that they, their husbands, or their boyfriends would wear this outfit to events of different types; that is to say, social vs. business.

The face-only slide showed that in our sample high and mid self-monitors both agreed that this individual was conservative; low self-monitors, however, disagreed that this individual was conservative. (This particular suit would be judged by most as "conservative.") The high self-monitors were capable of predicting to some extent the conservatism of this individual’s choice in clothes by facial features alone.

Slide number eight was of a 25- to 30-year-old white female. She was wearing a beige-colored trench coat with black knee-high boots, a black and ecru scarf tied around her neck. Facial makeup also needs to be mentioned since it was very striking, with red lipstick, dark eyeshadow, and accented cheekbones.

Viewing the full-figure slide brought out that marital status created a variance between the high and low self-monitors. The high category thought she was single; the low category thought she was married. High self-monitors strongly agreed that the outfit appealed to them, while low self-monitors were in only mild agreement. Remember here that high self-monitors prefer to imitate others more often than low self-monitors and with greater purpose or motivation. Within this group we have a very strong acceptance for this article of clothing. Both the high and low categories strongly and mildly agree, respectively, that they would like to see themselves, their wives, or girlfriends wear and include this outfit in their wardrobes. There was no such desire by any category when the face was excluded from the photograph.
The face alone, however, caused high self-monitors to think that this individual was a married college graduate; the low self-monitors thought this individual was divorced or separated and only a high school graduate. The significance here, as in past significant indications, is in the fact that a difference existed between the high and low categories and not so much in what the differences were.

Slide number nine was of a male Caucasian between 40 and 50 years of age. He was wearing a maroon-colored polyester suit. The jacket was single-button with a notched lapel and double patch pockets. His shirt was a white knit with maroon edging and a three-button front placket. A maroon-colored scarf was knotted around his neck in lieu of a tie.

The first slide of the full figure gave us an age variance between the high and low self-monitors. As with the previous male in a suit, age classification indicated a significant difference between the high and low self-monitoring categories. Again, as with the previous slide of a suited male, the high self-monitors thought this individual was 36-50, the low self-monitors thought this individual was only 26-35.

There also exists here a variance between high and low self-monitors concerning the question of fit. The high self-monitors indicated agreement that the fit was perfect while the low self-monitors indicated disagreement. (There were, however, no obvious flaws in the fit of the garment.)

The slide of the body only yielded no comments of significance. The view of the head only indicated that a variance existed between the groups when questioned about the individual's income. Low self-monitors thought he earned less than $20,000 per year, high and mid self-monitors thought he earned more than $20,000 per year.

Slide number ten was of a white female between the ages of 20 and 30 years. She was wearing a V-neck big top tied at the waist. The fabric was white with blue pinstripes; a matching bandana was tied around her head. The pants were navy blue, wide flare, cotton gauze. The slide of the entire figure yielded a variance between the low and mid self-monitors. The low self-monitors disapproved of this outfit, the mid self-monitors approved.

High self-monitors mildly agreed that the model was intelligent; the low self-monitors strongly agreed that she was intelligent. This would indicate that low self-monitors are likely to make more sweeping assumptions about others than are the high self-monitors. Neither the body nor the head only illustrations yielded any comments or variances of significance.

Of the hypotheses that were developed at the beginning of this study, several remain insufficiently tested to either accept or reject. However, our major hypothesis has been accepted which states that there will be a significance between high self-monitors and low self-monitors and their response to selected articles of clothing.

In conclusion, we think that the construct of self-monitoring could usefully qualify individuals who would react in predicted ways towards selected articles of clothing. Social-psychological research involving clothing has in the past been done to achieve goals much different from the ones we now hope to achieve.
An Experimental Approach to the Construction of Winterwear for Home Sewers
Mary Cados
Research conducted at San Jose State University, California

The purpose of this study was to develop written and illustrated instructional materials to be used in the home sewing of insulated winterwear. No other comprehensive source of information covering fabrics, insulation options, sewing techniques, and methods of customizing garments is available. The writer interviewed owners and designers of winterwear pattern companies, participated in commercially sponsored seminars, reviewed the limited amount of promotional and motivational material, and tested and evaluated specialized patterns and winterwear fabrics. Appropriate patterns and fabrics for home sewing of winterwear are becoming more generally available. With a background of applicable consumer information and knowledge of techniques, it is possible for the home sewer to construct creative and economical garments for sports such as skiing or everyday cold/wet weather wear.

Establishing Priorities in a Clothing Program
Jeane G. Johnson and Barbara Christensen
Research conducted at San Jose State University, California

The title of my thesis was: "An Illustrated Handbook to Assist the Clothing Teaching in Sequencing Learning to Incorporate Change." The review of literature explored changes in these areas: technological, social, educational methods, educational priorities such as motivation, concepts and creativity, as well as the role of the teacher and the teaching of decision-making.

The research problem was to develop a handbook to be used for teacher-training workshops, in student teacher training, and by the individual teacher who wants to update her own curriculum. A skeleton for training teachers was deemed important because teachers tend to teach as they have been taught. By the time prospective teachers have mastered the subject matter, there is little time to review it in terms of putting it into teachable form for the grade levels they are assigned to teach.

Subject matter has changed rapidly. Other basic changes in society that have immediate impact upon our curriculums include the new assessments of time, money, and clothing values. Educationally, the emphasis has been upon changing "the packaging" instead of the content. Yet placing irrelevant subject matter into individualized learning packets does not result in a dynamic curriculum.

Teachers from other disciplines are now entering the clothing field, a combination of declining enrollment and teacher tenure. In my own experiences in clothing workshops last summer, teachers from the fields of English, Spanish, physical education, and even a principal's secretary were among those slated to teach clothing this fall.

The book that resulted from this problem is divided into 13 chapters and is designed to take the teacher step-by-step into developing a teaching plan for a specific area, or into revising an entire clothing program. The first eight
chapters deal with specifics such as how to update yourself, changing methods of evaluation, defining concepts and sequencing them, as well as other aspects of teaching. Several levels of clothing programs are explored in detail, and the final chapter encourages the teacher to keep abreast of future changes.

I shall deal here with an overview of several chapters, to give you an idea of how this skeleton for updating a clothing program works in actuality. If we can imagine that we have the foundation for a brick wall stretched before us, and that each foundation brick is a category in a clothing program, this enables us to view the breadth of the clothing field, from coordinating a wardrobe, using new products, understanding fashion trends, to enhancement of self-image and various facets of clothing construction. The next step is to place additional "bricks" in each category, which list the learnings in that category. The teacher who has been teaching all clothing construction is led graphically to understand the limits she has placed around her program.

The artist who illustrated the book was a junior high dropout in clothing, and the illustrations produced for you here represent her own feelings. There are many graphs, such as this one, where the user is asked to add her own thinking.
Detailing the learnings in each category is the first step toward placing them in a sequence geared to age, ability, and interests of the student. The "sewing machine skills" category is an easy one to enumerate, since most teachers are familiar with the small steps outlined here:

- Starting and stopping
- Control of speed
- Length of stitch
- How a stitch is formed
- Continuous stitching
- Guiding
- Locking stitches
- Threading the top
- The bobbin
- Tension
- Pressure on presser foot
- Machine hemming
- Zigzagging to prevent raveling

Other categories such as fit, color, self-image, and fibers are mind-boggling to the teacher who is inadequately grounded in subject matter.

Teaching, in order to be effective, must be divided into small groups of learnings. The size and scope of these learnings vary and can embrace several categories, but each must be taught successfully to provide the student with a background on which to build. If the teacher knows exactly the learnings she is teaching, evaluation will show where repetition is necessary for understanding as well as skill. The adult students who must repeat basic learnings because these learnings were not mastered with understanding are frustrated. Understanding the principles involved can lead into decision-making in future situations.

When we group these learnings together, they will include several categories. If we imagine the brick wall being built, we know that it must go upward at an even pace. If one section were to be built much higher and faster, it could collapse because it has no support from adjoining bricks. Our curriculum is similar. If one category becomes top-heavy, it dominates our teaching and soon collapses because not enough concepts from other categories were adding depth. When a teacher learns to think of the learnings instead of "how you do it," a basis is established for later decision-making. For example, the technique "Hems for knits" in a second level of clothing, might give a choice of fusing, blindhemming, or twin-needle hemming, and embody these categories:

<table>
<thead>
<tr>
<th>When not to press</th>
<th>Twin needle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fusing Bulk</td>
<td>Handling</td>
</tr>
<tr>
<td>FIBER FABRIC</td>
<td>Blindhem</td>
</tr>
<tr>
<td>PRESSING</td>
<td>Choice</td>
</tr>
</tbody>
</table>

When not to press: Bulk, Stretching, Handling, Organizing, Sewing, Machine Skills, Time.
Jotting down an idea may come before actually deciding which concepts, and in which sequence to place them, are a part of the plan. These ideas may look something like this, for a unit on wardrobe planning.

<table>
<thead>
<tr>
<th>Hypothetical wardrobes</th>
<th>Using ready-to wear ideas</th>
<th>Seasonal changes</th>
<th>Planning</th>
<th>Fashion changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individuality</td>
<td>Style and occasion</td>
<td>Sales</td>
<td>Limiting number</td>
<td>My role</td>
</tr>
<tr>
<td>Cosmetics</td>
<td>Extending a wardrobe</td>
<td>Defining a grouping</td>
<td>Buying habits</td>
<td>Intensity</td>
</tr>
<tr>
<td>GROOMING</td>
<td>ACCESSORIES</td>
<td>WARDROBE PLANNING</td>
<td>BUDGET</td>
<td>COLOR</td>
</tr>
</tbody>
</table>

After wrestling with the depth of subject matter, we must turn our attention to our own students. We are limited in what we can teach according to needs and backgrounds of our students. Here is a quick summary that starts the teacher thinking according to a student's point of view:

**KNOWING YOUR STUDENTS:**

- Lifestyle
- Clothing experiences
- Attitudes
- Background
- Why they have come to class
- General characteristics

In addition, we must project their needs:
A LOOK INTO THE FUTURE

In the working world

Economically

PERSONNEL

Marriage and family

Self image
Developing a plan for learning, whether for a unit, short course, or a semester involves putting ideas down on paper, then regrouping them again and again, until a satisfactory plan emerges that can be taught in the length of time available. This is an excerpt from the plan in the book:

**PLAN FOR LEARNING**

**ABILITY OR SKILL LEVEL:**

<table>
<thead>
<tr>
<th>BACKGROUND NEEDED:</th>
<th>WOULD INCLUDE NOW:</th>
<th>SAVE FOR LATER:</th>
</tr>
</thead>
</table>

What projects, activities, or experiences could include these learnings?

Decide where to start:

When the "would include now" list gets too long, I am forced to save some of these learnings until later. As I list the background needed, it may become clear that several activities or experiences are needed to review necessary background in order to make later learnings enjoyable. Both students and teacher end up dissatisfied when too many learnings are piled onto one project or experience.

Decision-making cannot be a part of the learning experience until alternatives are explored. Leaving space in the clothing program for decision-making forces the teacher to slow the upward spiral of teaching and to provide room for application of previous learnings to new projects or situations.

Evaluation is a natural step when we know exactly the learnings we are teaching. Evaluation provides feedback to the teacher, reinforces current learning, and discloses where repetition may be necessary.

In summary, teacher preparation must include adequate experience in listing clothing categories, detailing their learnings, and placing them into a teaching plan. The skeleton outlined here is part of an overall method to enable the teacher to update her clothing program. The end result of careful planning is to minimize discouragement on the part of student (and teacher) and to develop confidence in the student's own ability.

**NOTE:** This book has been published under the title *Teaching Clothing* and is available from Jeane Johnson, 211 Gabarda Way, Menlo Park, CA.
Alternative Methods of Pattern Alteration
Judith A. Rasband
Research conducted at Brigham Young University, Provo, Utah

Statement of the Problem: It is known that individuals vary in figure conformation, that commercial patterns cannot achieve a well-fitted garment for everyone, and that the individual concerned with proper fit must resort to pattern alteration to achieve it.

In assessing the enjoyment level and problems encountered by the home seamstress, Sharpe discovered pattern alteration to be the least enjoyable task. It was considered to be difficult, time consuming, and frustrating.

According to Sonneland, "Probably no other phase of clothing construction, both from the teaching aspect and the learning standpoint is so little appreciated or understood as that of pattern alteration."

Minott (1978:43) recently stated that "a logical method of pattern adjustment should not create a new problem in solving an old one, nor should it violate the principles of good design... Traditional methods handed down from book to book over the years have served to lower the standards of educational clothing courses... When alterations that perform poorly continue to be taught, surely it is an injustice to the students. Those involved in higher education should evaluate the results and take action toward improvement."

This study was initiated to investigate and evaluate the effectiveness of alternative methods of pattern alteration. It was the intent of the investigator to determine if relationships existed between the method used and ability to accomplish a specific pattern alteration accurately and efficiently.

Alternative Methods. The term "alternative methods" was coined to include slash, sectioning, redrawn lines, seam, and pivot methods of pattern alteration. The slash method refers to pattern alterations accomplished by slashing into the interior of a pattern at the area requiring change and spreading or lapping the pattern an even or uneven amount as needed to accommodate the figure variation. (A tuck in the paper pattern could be used in place of a slash and lap procedure.) The sectioning method refers to pattern alterations accomplished by slashing into the interior of the pattern along vertical and horizontal lines and spreading or lapping the appropriate pattern section as needed to accommodate the figure variation. The redrawn line method refers to pattern alterations accomplished by simply redrawing the edges of a pattern according to the amount of increase or decrease determined by the measured figure variation. (The above methods were considered traditional procedures due to their recurrence in references reviewed.)

As previously stated, traditional methods frequently create new and unnecessary fitting and/or construction problems. Bane advised, "Play it safe." Avoid the more complicated alterations. "Some are so difficult that it would take a professional patternmaker to execute them with scientific and predictable results." Doerr stated that traditional methods of pattern alteration led to a loss of style lines, "one change usually leads to several others, and you become confused and discouraged." Doerr advised students to rely on a minimum of alterations, avoiding the more difficult ones if possible.
Minott has stated that traditional methods are a "hindrance to the teacher who tries to make them work. Slash and spread or lap methods create a chain reaction of new problems, a comedy of errors that cannot be resolved... The easiest method is one that consistently works well... When most of the old ways propose to solve problems easily, it is rank deception."

An examination of pertinent literature provided great insight into the magnitude of the problems inherent in the presentation and use of traditional methods of pattern alteration.

It was determined that traditional methods of pattern alteration have been passed down from teacher to student and reproduced in textbooks for decades without change.

Traditional methods of pattern alteration:
- may be incomplete in their presentation.
- may be inaccurate representations of fact.
- often introduce additional and unnecessary fitting problems.
- often result in poorly fitted garments.
- create confusion and frustration on the part of both student and teacher.

For the seamstress in the home, the teacher, or the student, such illustrated alterations will serve only to increase confusion, frustration, and dissatisfaction as well as undermine the confidence of the user. The presence of such alteration procedures strikes a major blow at professional credibility and substantiates the need for alternative methods more easily understood and applied.

The seam method refers to pattern alterations accomplished by a controlled cut on the garment side and adjacent to the seam line of a pattern. The released seam allowance is then slid away from or onto the pattern an even or uneven amount, as required to accommodate the figure variation. Cuts across the seam allowance create "hinges" that allow for control of the alteration. These cuts are made at designated pivot points.

The pivot method refers to pattern alterations accomplished by pivoting or sliding a portion of a pattern requiring change in a particular direction so as to increase or decrease a measurement as required to accommodate a figure variation. The pattern is then pivoted back into position. Pivoting is done according to designated pivot points.

Pivot Points. These are the points where a figure variation occurs. (Where figure measurements would differ from the pattern measurement)
- Traditional slash method: That spot at which a slash line intersects with a seam line
- Seam method: That spot to which one cuts along the inside of the seam line and points where "hinges" are created in the seam allowance
- Pivot method: That spot on the stitching line at which one pivots the pattern to achieve a change in direction.

When executed properly, identical altered patterns should result, regardless of the method used. This is based on the realization that (1) the closer an alteration is made to the edge of a pattern, the less distortion that will occur, and (2) ultimately it is the outside edge of a pattern that is changed due to alteration.
Hypothesis. For the purpose of this investigation, it was hypothesized that students using seam and pivot methods of pattern alteration will achieve more accurate and visually acceptable altered patterns, and omit fewer required restorations with less frustration and in less time than students using traditional methods.

Data for this study were collected from 64 female students enrolled in several sections of a course in fitting and pattern alteration. Students in an experimental group were taught traditional, seam, and pivot methods of alteration. Students in a control group were taught only traditional methods.

Data were collected by means of a practical skill test and an attitude scale. The figure variations selected to test student performance on an assigned pattern alteration included a hollow chest in combination with a narrow chest and rib cage. The hypothetical individual was considered to be average in shoulder width, narrowing in the upper torso, widening at the waist so as to conform to a standard waist measurement and with an average bust, conforming to a standard B-cup sizing.

Comparisons between the experimental and control groups were made on the basis of the accuracy of the alteration, number of restorations required by the method, visual acceptability of the altered pattern, amount of frustration experienced during the testing period, and time used to complete the alteration.

Measurement of critical points on the altered pattern involved comparing the completed student alteration with a sample version of the method the student had used. The comparison was made by overlaying the student problem with the appropriate sample and measuring each critical point as to its accuracy. The number of inaccurate critical points identified on the altered student pattern was recorded on a score card. The number of restorations required to produce a correct alteration was counted. The number of required restorations omitted by each student procedure was recorded on the score card.

Visual acceptability required an assessment of the number of visual features that caused the pattern to look less like a ready-to-use commercial pattern. Such features included omission of an assigned alteration, slashes or folds into the interior of the pattern, unnecessary cuts into the seam allowance, distortions in the pattern outline, indented cutting lines, pattern areas that would not lie flat due to wrinkles, and failure of the method to communicate what had been altered. The number of unacceptable visual features was tallied and recorded on the score card.

Attitude Scale. A five-point Likert-type attitude scale was developed to determine perceived student frustration as experienced during the practical skill test. The attitude scale consisted of five items, all of which were considered as contributing to feelings of frustration. Students were limited to a forced choice response, with varying degrees of intensity on a scale ranging between the extremes of "strongly agree" to "strongly disagree."

All items on the attitude scale were structured so that they indicated a consistent direction. Responses on the five-point scale were given values from zero, indicating no frustration, to four, indicating an increase in frustration. The value for each student response was recorded on the score card. Values were summed to yield an individual's attitude score.
The recorded time taken to complete the problem was recorded on the score card. Data obtained in the administration of a practical skill test and an attitude scale were statistically analyzed using a t-test to measure differences in the means of the sample groups. The sample size was 32 for each of the comparative groups. The significance level of $\alpha = .01$ was selected for acceptance of the hypotheses. Test results were observed to be highly significant at the .0005 level.

Findings showed that students using seam and pivot methods completed pattern alterations that were more accurate and visually acceptable, required fewer restorations, and were completed in less time and with less frustration than did students using traditional methods.

The confirmation of hypotheses implies that seam and pivot methods of pattern alteration are more accurate than traditional methods. It further suggests that teaching alternative methods of pattern alteration enables the student to select a method of alteration suited to the needs of the problem and thus accomplish the alteration in a more efficient and effective way with less frustration and in less time than those students taught traditional methods only.

**Recommendations.** It is recommended that seam and pivot methods be implemented into the home economics curriculum and that supportive materials such as a textbook and visual aids be developed to facilitate that implementation. (Such a book is currently being written by Elizabeth Liechty, Della Pottberg and Judith Rasband.)

A summer workshop program is recommended to acquaint clothing construction teachers on all educational levels with the essentials of seam and pivot methods and to provide experience in the use of the methods.

NOTE: Copies of the complete thesis may be purchased through the Brigham Young University Press, Provo, Utah, 84602.

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**Consumers' Understanding of Alternative and Affirmative Care Information**

Sue Ellen Lane and Kathryn L. Hatch

Research conducted at Washington State University

The Permanent Care Rule of 1972 requires labels giving "complete" care information must be attached to most items of wearing apparel. The application of this rule by the apparel industry has resulted in labels with minimal to complex amounts of information.

There are indications that the 1972 Rule has not been entirely successful. Often care labels give washing instructions without drying instructions. Also, consumers do not understand care instructions. For example, drycleaning is considered an acceptable alternative to machine wash by many apparel manufacturers and oxygen bleach may be used instead of chlorine bleach.
In 1975 the Federal Trade Commission proposed a revision to the 1972 Permanent Care Rule that would require alternative and affirmative care information. Under an affirmative labeling scheme, washing method and water temperature, bleaching instructions, drying method and temperature, and ironing temperature must be included. Under an alternative scheme, all possible procedures that can be used to successfully maintain the appearance of a garment must be included on the label. For example, if a machine washable garment may be dry-cleaned, the label must state that information.

The revision attempts to eliminate some of the criticisms of the 1972 Rule, but there is some controversy about whether the revised Rule is an improvement over the present one. The points of controversy center around the issue of alternative and affirmative care information and whether labels with additional information are more informative than labels without that information. One position is that consumers know what procedures are acceptable unless the label warns against a procedure. The other position is that consumers do not assume a procedure is acceptable in absence of directions. Many of these arguments are based on informed opinion. Very few studies have been done on what consumers understand about care information.

The specific objectives of this study were: (1) to determine whether there is a difference in interpretation of care labels that give alternative and affirmative instructions and care labels that give brief instructions, and (2) to investigate whether familiarity with a fabric influences interpretation of care label information.

To achieve the objectives of this study a questionnaire was developed. Within each questionnaire the respondent was presented with four actual fabrics, a care label for each fabric and a list of 17 care procedures. They were asked to indicate for each fabric whether the label instructed that each procedure "must be used," "could be used," or "should not be used." The respondents also were asked to indicate whether they had ever cared for each fabric.

To obtain data for the first objective, the care labels were chosen in pairs. There was one brief label and one extended label with alternative and affirmative care information for each fabric. For the second objective, the fabrics were chosen on the basis that half were likely to be similar to fabrics cared for by the respondents and half were likely to be fabrics with which they had not had previous experience. The fabrics were selected so that one familiar and one unfamiliar fabric could have the same pair of labels.

The fabric and label pair combinations were:

Label Pair I

<table>
<thead>
<tr>
<th>Brief</th>
<th>Extended</th>
</tr>
</thead>
</table>

100% dark green polyester doubleknit, familiar fabric
65% triacetate/35% nylon light green tricot, unfamiliar fabric
Label Pair II

<table>
<thead>
<tr>
<th>Brief</th>
<th>Extended</th>
</tr>
</thead>
</table>

100% rust cotton interlock knit, familiar fabric
80% polyester/20% wool woven print, unfamiliar fabric

The sample consisted of 150 women attending the state meeting of the Washington State Extension Homemakers Council. The ages ranged from 21 to 80 years old; the average age was 50.

The results indicate that consumers do interpret brief care labels differently from extended care labels. When the extended label gave directions about a specific procedure or product and the brief label did not, there was a difference in interpretation. When both labels gave the same directions, the labels were interpreted the same.

The respondents were inclined to select a low level of care when the label did not give complete care instructions. When given specific instructions, they tended to follow. Also, when a label gave specific instructions, many understood that a lower level than stated was acceptable and that a higher level than stated was unacceptable.

A number of respondents assumed that certain procedures and products were acceptable though the label did not give instructions. Many assumed when a label said "machine wash" it also meant the fabric could be bleached and drycleaned. However, when the label did include bleaching and drycleaning instructions, significantly more understood these procedures were acceptable. The use of bleach depended on the fabric.

Some of the respondents did not interpret the label correctly even when they were given specific instructions. For example, when the label said "do not bleach" many indicated they would still use bleach on that fabric.

The data did not strongly indicate familiarity affected the interpretation of care labels. There was no difference in interpretation between the polyester and triacetate/nylon fabrics. Sixty-five percent were familiar with the triacetate/nylon. The groups used for pretesting were not familiar with this fabric. Also, the cotton and polyester/wool fabrics may not have been a good combination to use. Cotton is a fiber that usually is considered easy to care for while wool is a fiber that many consumers would be careful with and probably dryclean.

The results support the inclusion of alternative and affirmative care information on labels. About 60 percent understood what procedures were acceptable with only the brief label, but the extended label informed about 20 percent more what procedures were acceptable. The respondents were cautious when no directions were given. Caution may not damage a garment, but it could reduce the wear-life. Many did not understand that the definition of machine wash includes bleaching as part of the process. A number of respondents indicated that a
machine washable garment can be drycleaned unless that information is stated on the label. The results also indicate a need for education in addition to alternative and affirmative care information on care labels in order to maximize understanding.

English Women's Clothing 1660-1836: A Visual Study
Dorothy Thom
Research conducted at San Francisco State University

The purpose of this research was to study English women's garments that are still in existence and that were worn during the period 1660 to 1836. Actual garments displayed in the Museum of Costume at Bath, the Gallery of English Costume at Manchester, the Costume Court at the Victoria and Albert Museum, London, and two smaller collections—Castle Howard near York and the Central Museum of Northampton—were photographed as they appeared to the public. Limitations related to the availability of the garments, the method of display (usually behind glass), and the low lighting to protect the garments. The latter two had a definite affect on the appearance of the resulting slides.

The slides were carefully studied and works of noted authors, mainly those of C. Willett Cunnington, were researched to confirm costume details. The slides were grouped chronologically and by style periods chosen by the author. Varied artistic media also were included as artistic representations of the time period studied.

Slide #1 Gown 1660 Bath
2 Gabriel Metsu 1663 "Woman with Viola de Gamba" DeYoung Museum
3 Waistcoats 1680-90 Bath
4 Stomachers 1720-60 Bath
5 Dressing Gown 1720-30 Bath

Slides 6-10 show the fitted dress without the Sac back
6 Gown 1734 Victoria and Albert Museum
7 Francis Hayman 1735 "Milkmaid's Garlands"
   Victoria and Albert Museum
8 Gowns 1740-41 Victoria and Albert Museum
9 Gown 1747 Bath
10 & 11 Gown 1740-50 Manchester
12 Gown 1750-60 Manchester

Slides 13-16 are representative of the "mantua" style
13 Mantua 1740 Bath
14 Mantua 1740 Bath
15 Mantua 1760-65 Victoria and Albert Museum
16 Arthur Devi 1760 "Countess of Egremont"
   DeYoung Museum, San Francisco
Slides 17-24 show the fit of the Sac back
17 Gown 1750-60 Victoria and Albert Museum
18 François Boucher 1759 "The Marquise de Pompadour"
   Wallace Collection, London
19 Gown 18th Century Castle Howard
20 Gown 1720-70 Victoria and Albert Museum
21 Gown 1760 Bath
22 Gown 1765-75 Manchester
23 Gown 18th Century Castle Howard
24 Hooded Jacket 1755-70 Manchester

Slides 25 and 26 show the corsage en fourreau version of the Sac back
25 Gown 1750-65 Victoria and Albert Museum
26 Gown 1755 Victoria and Albert Museum
27 Domno 1760-70 Victoria and Albert Museum
28 Gown 1775 Victoria and Albert Museum
29 Sketch 1776 Victoria and Albert Museum

Slides 30-32 exhibit the style called the polonaise.
30 Gown 1770 Bath
31 Gown 1775-85 Victoria and Albert Museum
32 Gown 1770-80 Manchester

Slides 33-44 show the transition of the gown and petticoat to the one-piece dress of the classical lines
33 Gown 1780 Victoria and Albert Museum
34 Caraco 1784 Victoria and Albert Museum
35 Gown 1775-85 Victoria and Albert Museum
36 Gown 1780-90 Manchester
37 Sketch 1786 Victoria and Albert Museum
38 Gown 1790 Bath
39 Gown 1780 Bath
40 Gown 1791 Bath
41 Thomas Gainsborough 1785 "The Morning Walk"
   National Gallery, London
42 Gown 1795-99 Manchester
43 Gown 1798-1800 Manchester
44 Gown 1795 Victoria and Albert Museum

Slides 45-51 represent the one-piece frock in the classical lines
45 Gown 1807 Victoria and Albert Museum
46 Gown 1805-13 Castle Howard
47 Johann Zoffany 1733-1810 DeYoung Museum
48 and 49 Gown 1805 Victoria and Albert Museum
50 Gowns 1800-05 Manchester
51 Gowns 1805-13 Castle Howard

Slides 52-62 show the departure from the true classical lines by means of gores, flounces, and added fullness
52 Gown 1809 Bath
53 Gown 1805-13 Castle Howard
54 Gown 1812 Bath
55 Ingres 1780-1867 "Mlle. Riviere" Louvre
56 Gown 1815 Bath
57 and 58 Gown 1820 Northampton
59 and 60 Frock 1820-24 Northampton
61 Pelisse 1815-20 Victoria and Albert Museum
62 Spencer 1820 Victoria and Albert Museum

Slides 63-73 represent the exaggerated width of the shoulder area characteristic of the Romantic period.

63 Frock 1823 Bath
64 Frock 1823 Bath
65 Pelisse and Frock 1825-30 Victoria and Albert Museum
66 and 67 Frock 1825-30 Victoria and Albert Museum
68 Frock 1830 Bath
69 Frock 1832 Victoria and Albert Museum
70 Fashion Plate 1830 "Lady's Magazine"
71 Frock 1833 Bath
72 Frock 1832-36 Manchester
73 W. White 1836 "Florence Nightingale and her Sister Parthenope" National Portrait Gallery, London

As an extension of this study, the following are recommended: (1) a reduction in the years covered with the inclusion of accessories, (2) the inclusion of garments from the smaller collections to supplement the earlier years, and/or (3) the physical examination of the garments with notations and sketches.

This research of necessity reviews superficially the available garments for the period of this study. The above recommendations would extend the instructional merits of this research.
The business meeting of ACPTC-WR was called to order by Anne Kernaleguen, WR President.

WR Executive Board members, WR Representatives to National and the ASTM Representative were introduced.

Several items were added to the agenda:

4.1 Audit Committee Report
4.2 Historian’s Report
4.3 President’s Report
6.2 Proposed Budget for next fiscal year.
6.3 WR Research Coordinating Committee - 23 Report

Highlights of the minutes of October 14, 1977 ACPTC-WR Business meeting in Dallas, Texas were read by Marilyn Burns, Secretary as corrected and accepted by the WR Executive Board on October 25, 1978. The Secretary moved acceptance of the minutes, seconded by Charlene Lind.

Reports

Treasurer's Report - Christine Milodragovich

The treasurer's report was given by Christine Milodragovich for treasurer, Clara Fink.

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash on Hand, in Bank, October 12, 1977</td>
<td>$ 2,601.39</td>
</tr>
<tr>
<td>Receipts from Dues Plus Interest on Savings Certificates</td>
<td>$ 977.58</td>
</tr>
<tr>
<td><strong>Total Cash Available</strong></td>
<td>$ 3,578.97</td>
</tr>
<tr>
<td>Disbursements</td>
<td>$ 1,005.12</td>
</tr>
<tr>
<td>Cash on Hand, in Bank, October 15, 1978</td>
<td>$ 2,573.85</td>
</tr>
<tr>
<td>Four Savings Certificates, $500.00 each in the First Security Bank of Utah, Provo Branch</td>
<td></td>
</tr>
</tbody>
</table>

Charlene Lind moved acceptance of the treasurer's report; motion seconded by Holly Schrank and passed.

Audit Committee Report - Naomi Reich, Kathryn Hatch, Amy Sinclair

Naomi Reich reported that the Audit Committee found the treasurer's books in order and correct as of October 26, 1978.

Historian Report - Janet Else

Janet Else is compiling a historical file for ACPTC-WR and requested copies of proceedings from 1969 to the present to replace her personal copies.
President's Report - Anne Kernaleguen

Anne Kernaleguen made the statement that several committees had been working hard this past year in behalf of ACPTC. One difficulty we still have is communication; she urged more contribution to the Newsletter as one way to help the situation. She commented that the strength of ACPTC depends on the work of all members and hoped that everyone consider becoming more active. Let the Executive Board know that you are available to serve. The requirements for membership on the Board are: (1) to be willing to make contributions on behalf of the organization, (2) to be willing to attend Board meetings regularly for a three year period.

Anne expressed her thanks to the past presidents for their help and wished the new members of the Board good luck as they started their terms. It was moved by Elisabeth Liechty, seconded by Charlene Lind, to accept the President's Report.

Old Business

WR Nominating Committee - Renee Thackeray, Charlene Lind, Evelyn Lee, Anne Kernaleguen, ex officio.

Anne Kernaleguen announced for Renee Thackery, chairman, the results of the membership vote.

New WR Board Members: Mary Burton, Amy Sinclair, Harriet LaGrange
Alternates: Christine Milogradovich, Edith Reynolds and Cheryl Jordan.

National ACPTC Board Member: Janet Bubl
Alternates: Eleanor Jorgensen, Marcella Martin

President for 1978-79: Winona Brooks
President Elect: Naomi Reich

WR By-laws and Handbook - Jean Rogers

Linda Thiel reported for Jean Rogers that no changes have been made in the By-laws at the national or regional level this year. A handbook for Board members use is being put together.

Membership - Doris Hime

Doris Hime reported that 280 letters were sent to potential new members last year. At this time there are approximately 150 members. Doris thanked those who had helped her in several of the states.

National Executive Board Meeting - Charlene Lind

Charlene Lind reported that the ACPTC National Executive Board recommends that ACPTC start instituting a way to keep their own membership records. AHEA is not able to tell us who the members are--the computer printouts have not been satisfactory.
The national ACPTC Board is recommending that a change in the present relationship with AHEA should be considered. The relationship should not be severed, but the change should include that ACPTC handle its own membership records and dues collection. The recommended change with AHEA would also eliminate the requirement of AHEA membership for ACPTC members. Some preliminary steps have been taken in getting ready for the proposed change with AHEA. An Executive Secretary has been hired and has been working for ACPTC on a part-time basis for almost a year. The Executive Secretary is Loy Halton who is living and working in Washington, D.C. She is also employed by AHEA at this time.

National ACPTC has currently had to dip into its reserve budget funds. It will be necessary to raise dues within a year or two. The dues increase will not be related to the proposed change in relationship with AHEA.

1978 ACPTC-WR Meeting - Joan Lare

Joan Lare reported that 130 fully paid registrants were in attendance at the conference; students, parents and non-members brought the total to 192. Joan thanked several hard working committee members for doing a fine job—Susan Kaiser, Diana Humphries, Doris Fuqua, Nancy Owens.

1979 ACPTC-WR Meeting - Janet Else

The 1979 WR meeting will be held in Denver the week of October 10-13. The proposed theme is "Minds, Markets and Mines." A questionnaire from the Colorado members was circulated asking for suggested topics, speakers, ideas for program format, etc. It is being planned to meet simultaneously with the Costume Society.

ASTM/ACPTC - Mary Jean Wylie

Marjorie Joseph presented the ASTM report for Mary Jean Wylie. Marjorie stressed the need for a good relationship between ASTM and ACPTC and expressed hope for more active involvement by ACPTC members. It was suggested that a joint membership list of ASTM/ACPTC members be compiled.

Marjorie gave background information on a task force investigation of the possibility for development of a technique for standardization of size information. Before a size standardization could be accomplished, there would be a need for an Anthropometric Survey—existing data is over 40 years old. A proposal has been written for a 3½ million dollar research project, which would include 142 measurements, all ethnic groups, all ages and all sections of the country. It was urged that all who see a need for this type of up-to-date information write to:

Dr. Jordan Baruch
Assistant Secretary of Commerce
for Science and Technology
Commerce Department
Washington, DC 20230

The data from the research would be stored in a computer in the Department of Commerce and available to all.
Another task force was formed to review existing methods of communicating product information to consumers. The goal would be to establish standard guidelines for product labels for communication of information.

A survey using one apparel item to determine what information the consumer wanted in order to make an informed buying decision will be conducted and ACPTC members are urged to participate. The steps outlined include:

1. Initial survey developed requesting information considered important by the consumer on men's dress shirts.

2. Survey critiqued by seven ACPTC members who volunteered.

3. Survey sent to participating Universities in each region to administer.

4. Tabulated results returned to committee. As many Universities as possible are requested to participate in this survey, with a return of at least 25 from each for a total of 1,000.

5. Several labels will be designed to determine a format which is acceptable to the consumer. It is hoped that they will be ready by the March meeting of ASTM.

AHEA/ACPTC - Ruth Gates, National President

Ruth Gates reported that Mary Ellen Roach Higgins hopes that progress continues toward a reorganization. The steps necessary for this is that: 1) All regions discuss ACPTC Board recommendations at the regional meetings, 2) the total membership vote in the Spring of 1979, 3) the changes implemented by August, 1979.

Ruth went on to say that the present pattern will continue through next summer. She brought greetings from the national board and introduced the new president-elect, Marjorie Joseph.

Ruth commended members who had contributed research reports during the conference. She expressed the thought that the luncheon round table discussions were good since ACPTC should act as a facilitator of information and ideas among members. She hoped the coordinators from each of the tables would send information to the Newsletter.

**New Business**

<table>
<thead>
<tr>
<th>ACPTC-UR - 1979</th>
<th>Colorado</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACPTC National (ER) 1980</td>
<td>Washington, D.C.</td>
</tr>
<tr>
<td>ACPTC-UR - 1981</td>
<td>Oregon</td>
</tr>
<tr>
<td>ACPTC-WR - 1982</td>
<td>Arizona</td>
</tr>
<tr>
<td>ACPTC National (WR) 1983</td>
<td>Hawaii</td>
</tr>
</tbody>
</table>

Acceptance of invitation for ACPTC-WR to meet in Oregon in 1981 was moved by Audrey Williams, seconded by Marjorie Joseph. Motion passed.
HR Executive Board voted approval for Hawaii meeting in 1983 (National ACPTC) so Orpha Herrick will prepare an official invitation to the National Board. The meeting will be proposed for July rather than October.

Naomi Reich extended an invitation to Arizona for 1982. Holly Schmank moved acceptance, Chris Milodragovich seconded.

Audrey Williams reported that several members of the ACPTC-CR from Kansas and Nebraska asked to join the HR meeting in Denver, 1979. After some discussion, Ruth Gates urged an open door policy through the Newsletter that anyone wanting to attend another regional meeting could do so by writing to the host group for information.

Other Business

Proposed Budget - Christine Milodragovich

The proposed budget for 1978-79:

<table>
<thead>
<tr>
<th>Disbursement</th>
<th>$ 860.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receipts</td>
<td>$ 750.00</td>
</tr>
<tr>
<td>(Interest on $2,000.00 TC)</td>
<td>$ 110.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$ 860.00</strong></td>
</tr>
</tbody>
</table>

Charlene Lind moved acceptance of the proposed budget, seconded by Holly Schrank; motion accepted.

WR Research Coordinating Committee - 23 - Tom Peterson

The WRCC-23 has been meeting annually prior to the ACPTC meetings for the purpose of discussing research in Textiles/Clothing in the Western Region. The charge from Home Economics Administrators and the Western Region Experiment Station directors is to "emphasize the identification of benefits to the consumer of various areas of Textiles and Clothing research." The committee has developed a model for analysis of research projects and hopes that approval from HEC Administrators and Experiment Station Directors will be given to proceed to write a proposal for a technical committee to carry out the initial charge.

Anne Kernaleguen passed around a list of committees for interested members to sign if interested in committee work on the WR Executive Board.

Winona Brooks was introduced as the new president for 1978-79. Winona expressed her appreciation to Anne for her service to the organization.

The meeting was adjourned by Winona Brooks.

Respectfully submitted,

Marilyn Burns
University of Northern Colorado
The meeting was called to order by Tom C. Peterson, Chairperson, at 1:00 p.m., Monday, October 23, 1978. New members were introduced.

The minutes of the 1977 meeting, held October 11-12, were discussed and approved as corrected. pp. 1 and 4.

Work in progress and completed was reviewed.

a. The status of the position papers was reported by Jean Margerum. HEJ originally asked that the papers be combined, but now that we have done so, the request is that they be subdivided.

It was moved, seconded and approved that Barbara Harger (Hawaii) get the position papers printed and distributed in an expedient manner.

b. Holly Schrank indicated that she is exploring reworking the Guide to Publication Sites in Textiles and Clothing for possible submission as a station publication.

Communication between member units.

a. Barbara Harger reported that she had not received everything that various stations sent for the Research News Notes. She asked that each station send: (1) a new research equipment inventory including a list of operators; (2) stations that did not send 1977 research project summaries (format attached to 1977 minutes) should submit their summaries for 1977 with 1978 summaries due January 30, 1979.
The Research News Notes will be continued on an annual or semi-annual basis. The following information is to be included:

1. Research abstracts of ongoing and recently completed research
2. List of research apparatus and individuals who can operate the equipment
3. Funding sources for outside funds, including names of helpful contact persons, if known
4. "Obscure" references
5. Other information of mutual interest

The next deadline is January 30, 1979, and RNN will be distributed by March 1. Material should be sent to Barbara Harger, University of Hawaii.

b. The committee discussed the communication problems caused by the significant delay in publishing of AHEA Research Abstracts. Tom Peterson was charged with the responsibility to write an official letter of concern to Alberta Hill (AHEA President-elect). Carbon copies will be sent to Ruth Gates (President, ACPTC), Naomi Reich (Textiles and Clothing Subject-Matter Section of AHEA), and Katherine Hall (Chairperson, Agency Member Unit, AHEA). If no response is received by January, Tom will pursue the question.

c. It was moved, seconded, and approved that a summary of WRCC-23 minutes/highlights be submitted to the ACPTC Newsletter editor.

5. Research ongoing and recently completed was shared by representatives of each station. Abstracts of this research will be included in the Research News Notes next winter (see item 4a).

Marjorie Keiser discussed the HERAPP report and recommended its use in identifying "the state of the art" in home economics research and establishment of priorities for the future. The USDA/AHEA Research Inventory was discussed, and Keiser indicated that Textiles and Clothing research is funded at a lesser percentage than the number of projects would indicate. The publication/output record is not as strong as other areas in home economics. Reasons for this were discussed, including lack of outlets, underfunded projects, and productivity. In general, research in the West is poorly supported, except in nutrition. Social science research is funded for federal grants at the rate of 65% of requested budget and only one in twenty projects is funded. Dr. Keiser urged that we request establishment of a T-Committee to get at the question of benefits of textiles and clothing research.

7. Work Session on Benefits Model.
Considerable time was spent working through various stages of a benefits analysis model. The components of the model included:
I. Costs:
   A. Process
   B. Delivery

II. Benefits
   A. Audiences
   B. Benefits
      1. Qualitative
      2. Quantitative

III. Impact Variables Outside of Context of Benefit Analysis

A revised stage of benefit model was evaluated using a research study reported by Tom Peterson (Utah). Definitions need to be developed further, and procedures and sequences must be established. (Details that were worked out are listed in a separate document.)

8. A request for an ad hoc committee was prepared for forwarding through appropriate channels to Western Region Directors. Committee members agreed to discuss the proposal with their home economics administrator prior to the Scottsdale meeting in early November.

If the request for an ad hoc meeting is approved, a meeting will be planned for February in the San Francisco area.

   Tom Peterson and Holly Schrank were reaffirmed as chairman and secretary of WRCC-23, respectively.

10. Assignments for Future Work.
    a. CRIS search for information on research benefits – Tom Peterson.
    b. LIRS search for information on research benefits – Holly Schrank.
    c. Distribute rough draft of minutes as soon as possible, summary of minutes mailed by December 1 – Holly Schrank.
    d. Discuss ad hoc request (item #8) with home economics administrator immediately.
    e. Identify basic readings on model building and advise other members – Barbara Harger and Naomi Reich.
    f. Read items from above by winter ad hoc meeting or by October meeting.
    g. Use initial benefits model to assess research at individual stations and
       (1) identify loopholes and problems with current model
       (2) work on development of checklists and definitions
    h. Report on WRCC-23 at WR-ACPTC business meeting – Tom Peterson.
    i. SEE ALSO ITEM 4.
    j. Next meeting of WRCC-23, October 8-9, 1979, in Denver, Colorado. The chairperson will make arrangements.

Submitted by Holly Schrank
Oregon State University
The Committee D-13 on Textiles met October 16-19, 1978, at the Doral Inn in New York. The schedule included seminars, committee and sub-committee meetings, and task force groups. Meetings ran concurrently; thus participants selected the meeting(s) that were in their field of interest.

The seminar was on:

"Sensory Testing and Textiles"

Speakers: Braham Norwick
Dr. Moskowitz
MPI Sensory Testing
Dr. Jeff Piech
E.I. DuPont de Nemours

Dr. Moskowitz's paper is available upon request. Write to James A. Thomas, ASTM Staff Manager for address.

A new task force was formed under Committee D-13.54.03, Consumer Practices, to investigate the possibility for development of a technique for standardization of size information. It was suggested that before standardization could be accomplished there was a need for an Anthropometric Survey, as the existing data is over 40 years old. A proposal has been written for a $3.5 million dollar research project, which includes 142 measurements, all ethnic groups, all ages and all sections of the country. Mr. Aubrey Jay of J.C. Penney Company urged all who see the need for this to support it by writing a letter to:

Dr. Jordan Baruch
Assistant Secretary of Commerce
for Science & Technology
Commerce Department
Washington, DC 20230
The data would be stored in a computer in the Department of Commerce and available to all who need that information, from apparel manufacturers to industrial planners to educators. There was a great deal of interest in this idea to standardize sizes, and it would appear that this committee would become active.

Another task force, Information Disclosure, was formed under Committee D-13.54.03, Consumer Practices, to review existing methods of communicating product information to consumers. The goal would be to establish standard guidelines for product labels for communication information.

It was decided to conduct a survey using one apparel item to determine what information the consumer wanted in order to make an informed buying decision. It seemed that ACPTC could make a definite contribution in this project by distribution, collection, and tabulation of the survey through their three regional liaison representatives.

Briefly the steps include:

1. Initial survey developed requesting information considered important by the consumer on men's dress shirts.
2. Survey critiqued by seven ACPTC members who volunteered.
3. Survey sent to participating universities in each region to administer.
4. Tabulated results returned to committee. As many universities as possible are requested to participate in this survey, with a return of at least 25 from each for a total of 1000 (hopefully).
5. Several labels will be designed to determine a format that is acceptable to the consumer. It is hoped that they will be ready by the March meeting of ASTM.

It was suggested that it might be appropriate to recommend that a third book related to textile test methods for component parts of garments (thread, zippers, buttons, etc.) be compiled. The reason for this is the increased number of tests and a more logical organization of tests.

It was decided to form another subgroup to work on standards for Household Textile Products under D-13.54.04 on Ultimate Textile Products. The subgroups would include upholstery, bedding, towels, draperies/curtains, blankets, bedspreads. This is in the formative stages.

Other committees met to review standards and to gather information in specific areas. For example, committees included Flammability Fiber, Yarn and Fabric Tests Methods, Statistics, and International Standards.
REGISTRATIONS
ACPTC-WR CONFERENCE
OCTOBER 1978

Maurine S. Abbott
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