1963

The Bobbin and Beaker Vol. 20 No. 3

Clemson University

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The BOBBIN & BEAKER. Organized in November, 1939, by Iota Chapter of Phi Psi Fraternity, and published and distributed without charge four times during the school year by students of the Clemson College School of Industrial Management and Textile Science. All rights reserved.

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THE BOBBIN & BEAKER is a non-profit magazine organized to serve Clemson students and the textile industry. We ask our readers to consider favorably our advertisers when buying.
In Memoriam

George M. Wright
This, the last issue by the Senior Staff, features an article concerning the scholarships that are available to deserving students in the Textile School.

We, the Senior Staff, have attempted to give something of interest to all of our readers—students, faculty, and textile men.

I want to thank all of our advertiser's who make this publication possible and the readers who patronize our advertisers.

The Junior Staff will now take over the magazine for the next four publications.

—W. E. B.

Seated left to right: C. E. Crocker, Jr., Business Manager; R. R. Sarratt, Circulation Manager; R. W. Ellis, Advertising Manager; J. W. Blackwood, Managing Editor. Standing: W. E. Barrineau, Jr., Editor.
TEXTILE SCHOLARSHIPS

By Gary A. Hall. T.S. '64

Starting in February any student, including incoming freshmen, majoring in Textiles at Clemson may apply for one of numerous scholarships that are awarded each year. There are approximately $8800 given out each year, plus $10,800.00 worth of scholarships that are given on a four year basis.

The recipients of these scholarships are chosen each year by a scholarship committee which is headed by Mr. E. A. LaRoche. Other members of this group are J. V. Walters, J. H. Marvin, and W. C. Edel. These professors have the very difficult task of choosing the student that they feel deserves the aid out of 35-40 applicants. Their action on requests for financial aid will be based primarily on scholastic record, eligibility to attend Clemson, financial resources, and date application is received by the Student Affairs Office. Eligible applicants will be considered for other scholarships that become available during the school year.

These scholarships are made available by various sources. These sources are composed of textile firms, business organizations and memorial funds. The donors make it clear to the recipients that they are obligated in no way by receiving one of their scholarships. These organizations are helping the textile industry as a whole, while, at the same time, they are spreading the good name of their organizations. The generosity of these groups makes it possible for many good men to enter the textile industry with a college degree.

These funds are divided into two categories. Some of the organizations give their scholarships on a four year basis. If the student maintains satisfactory grades, he will keep the scholarship for four years, but if he fails to meet the requirements of the selection board from semester to semester, the board will not hesitate in taking his aid away.

J. P. Stevens, The South Carolina Textile Manufacturers Association and the Lowenstein Foundation all give scholarships on the four year basis. If the student progress is unsatisfactory, J. P. Stevens and the S.C.T.M.A. will allow the Scholarship Committee to award the fund to another student, but Lowenstein will not permit the re-awarding of their scholarships to someone else. These scholarships are all given to incoming freshmen. Stevens and the S.C.T.M.A. give one to to a freshman annually and Lowenstein awards two each year.

Some of the donors prefer to give their scholarships on an annual basis. They will give a certain amount to a deserving student every year. These scholarships are made available to some applicant every year (unless otherwise specified.) Some are given to specific majors such as Textile Chemistry, etc. The student that held the scholarship the junior year is also eligible to apply for the aid again. There is no limit on the number of times he can receive the same scholarship.

The annual scholarships (some bi-annually) that are given are: Callaway Scholarship, Ciba Scholarship (T.C.), Geigy Chemical Company Scholarship (T.C.), Ben and Kitty Gossett Scholarship, David Jennings ('02) Memorial Scholarship (2), Keever Starch Company (SR), Owens-Corning Fiberglas Scholarship (Text. or Engr.), Seydel-Wooley Scholarship, Sonoco Scholarship (2), Carolina Yarn Association, and the Textile Overseers Association.

As afore mentioned, the choice of the students who receive these scholarships is a real task, but the records show that most of the boys who receive these scholarships have lived up to their expectations and are some of the outstanding students at Clemson. Present students who now hold these scholarships are:
J. P. Stevens Scholarship:
Bobby L. Waters, Calhoun Falls, S. C.—Soph.
Fred M. Hicklin, Richburg, S. C.—Fresh.

South Carolina Textile Manufacturers Association Scholarships:
Special one-semester:
Tommie W. James, Sumter, S. C.—Fresh.

Leon Lowenstein Foundation Scholarships:
Robert W. Ellis, Huntersville, S. C.—Sr.
Bruce R. Edwards, Tryon, N. C.—Fresh.

Wunda-Weve Scholarship:
Forest F. Dixon, Greer, S. C.—Sr.

Callaway Scholarship

Ciba Scholarship:
Davis A. MacEwen, Greenville, S. C.—Sr.

Geigy Chemical Company Scholarship:
James N. Lindsay, Lanett, Alabama—Jr.

Ben and Kitty Gossett Scholarship:

David Jennings ('02) Fund:

Keever Starch Scholarship:

Owens-Corning Fiberglas Scholarship:
Leon J. Hendrix, McBee, S. C.—Sr.

Seydel-Wooley & Company Scholarship:

Sonoco Products Scholarships:
Russell H. Lawimore, Mullins, S. C.—Sr.
George L. Harmon, Chesterfield, S. C.—Sr.

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EMPEROR'S FAVORITE FABRIC

Silk, symbol of quality and elegance for nearly five thousand years, has had its ups and downs, but now appears on the way back for another period of preference by discerning ladies.

Stories from New York and in the women's magazines indicate silk's popularity is rising, thanks largely to a new chemical treatment that rids of some of its basic faults.

It seems paradoxical that silk, the choice of emperors and the oldest fiber of fashion, should come from such humble beginning—a worm. But let's go back just a little.

Bombyx Mori is a medium-sized moth that adores silk and grows from the larva stage to adulthood while sleeping in a cocoon of pure silk. The larva, of course, is the silkworm, regardless of any fancy name. It is cream-colored and has a tremendous appetite for mulberry leaves. It so happens that mulberry leaves contain certain certain chemical components that furnish the raw material for silk.

The worm has a couple of glands that become gorged with a clear, viscous fluid which, when exposed to air, immediately hardens into a solid. The fluid is ejected through a spinneret and the larva turns his head constantly for about three days while the tiny filaments emerge, slowly forming a wrapping about its body. This wrapping, or cocoon, consists of a continuous thread of from 800 to 1,200 yards in length.

This is a fatal accomplishment, however, as the makers of silk kill the larva, put the cocoons in warm water and begin unwinding the silken threads, which are reeled into skeins. This is raw silk, and most of it comes from Japan and the Far East. A sizable amount is imported into the U. S. for dyeing, finishing and weaving. A little silk goes a long way. On a poundage basis, the consumption of silk is relatively small compared with heavier fibers.

Historians tell us silk has been made since 2640 B. C. There is a legend that during the reign of Chinese emperor Huang-Ti, an ambitious courtier picked up a cocoon and unreeled the thread. He thought even the emperor would be flattered by it. The courtier made some cloth and, with a low bow, presented it to the emperor. Sure enough, the emperor was flattered by it—so much that, by decree, only the emperor could wear silk clothing.

The Chinese guarded the secret of silk for many centuries before it finally spread to Korea and to Japan in the third century B.C. During the Christian era, silk became one of the most prized items of the Roman aristocracy. Its cost was tremendous, but trading expeditions were sent into the East with orders to bring back silk—or else. Later silk cultivation spread to parts of Italy and even to England during the reign of Henry IV.

King James I sent some silkworms to America in 1609. A small industry sprang up, mainly in South Carolina, Louisiana and Georgia. This grew haltingly and by the time of the Civil War the American silk industry was valued at only about six million dollars.

The growing of silk in this country faded, but the manufacture of fabrics from imported silk thrived to the extent that by 1919 this country was producing nearly $700 million worth of silk fabrics.

Then came the man-made fibers, and silk was displaced to a great extent.

But now comes a newly developed finish that solves some of silk's special problems—especially the stain problem—and makes silk easy to care for. It is claimed that this new chemical product gives silk not only resistance to stain, but improved washability, wrinkle and shrink resistance and new resiliency.

So, things are looking promising again for the favorite fabric of the emperors.
New Faculty Member

By Marshall White, Jr.
T. C. '65

Mr. David Raymond Gentry is one of the newer additions to the faculty of the School of Industrial Management and Textile Science. He came to Clemson in January of 1960. Mr. Gentry is on the Textile Management faculty, and he teaches Physical Textile Testing.

Mr. Gentry is from Easley, S. C. He received his B.S. degree from Clemson in 1955, and in 1957 he received his M.S. degree from the Institute of Textile Technology in Charlottesville, Virginia.

Before becoming a member of the faculty of the Textile Department, Mr. Gentry worked for 2½ years for the research division of the Westpoint Manufacturing Co., West Point, Georgia. He is presently doing research in the field of physical textile testing here at Clemson. He also serves as faculty advisor for the Iota Chapter of Phi Psi Fraternity.

Mr. Gentry resides in Sunny Acres with his wife and two children.

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P.O. Box 10586, Atlanta, Georgia
Then there’s the executive who is so old that when he chases his secretary around the desk, he can’t remember why.

* * * * *

I heard you took out the gorgeous new receptionist last night,” said one exec to another. “How was she?”

“Not so good,” was the reply.

“Yeah,” said the first exec, “you always were lucky.”

* * * * *

The honeymoon couple was driving through Georgia but when they got to Aiken, they stopped.

* * * * *

A local distillery pays its overtime workers time-and-a-fifth.

* * * * *

One coffee bean to another: “I can be made instant, but I prefer the slow grind.

* * * * *

Clyde: “I’ve got a tricky cure for colds. You sit in a bathtub filled with gasoline and light two matches.”

Clarence: “What’s so tricky about that?”

Clyde: “Lighting the second match.”

* * * * *

TV Commercial: “These wash-and-wear pajamas dry instantly, need no ironing, you can wash them at night and they’ll be ready to put on in the morning.”

* * * * *

Life Guard (with girl in his arms): “Sir, I’ve just resuscitated your daughter.”

Father: “Then by gawd, you’ll marry her.”

* * * * *

A drunk staggered into a pub and asked for a double rye.

“Nope,” said the bartender, “no drink for you. You can’t even lift your head.”

“Okay,” said the drunk, “then gimme a haircut.”
Where Are They Now?

The Bobbin & Beaker staff has made this survey on several Clemson grads majoring in Textile Manufacturing, Textile Engineering and Textile Chemistry. If there are any errors in the information below, please contact us.

CLASS OF '31
John B. League—TC—President of Industrial Products, Inc.—Greenville, South Carolina.

CLASS OF '48
Arthur C. Dorsey, Jr.—TE—J. P. Stevens & Co., Inc.—Greer plant—Planning Overseer—Greer, South Carolina
Joseph G. Connelly—TE—Shuford Mills, Inc.—Technical Service Supervisor—Hickory, N. C.
Charles T. Cockrell—TE—E. I. DuPont deNemours & Co.—Technical Service Representative—Wilmington, Delaware

CLASS OF '49
David E. Cowan—TM—Greenwood Mills—Cost Department—Greenwood, South Carolina
Luther P. Corley—TM—Corley Home & Auto Supply Co.—Owner-Manager—Lexington, N. C.

CLASS OF '51
Joseph A. Wyse—TM—Inman Mills—Director of Research—Inman, South Carolina
Charles R. Ulmer—TM—J. P. Stevens & Co., Inc.—Planning Department—Greensboro, North Carolina

CLASS OF '52
Walter G.Holmes—TE—Raeford Thorsted Corp.—Cost Supervisor—Clarksville, Virginia
Max Hinson Hance—TM—Burlington Industries—Sample Weaving Department—Greensboro, N. C.
James E. Aughtry—TM—Limestone Manufacturing Co.—Gaffney, South Carolina

CLASS OF '54
Harold L. Dantzler, Jr.—TE—Berkeley Mills, Inc.—Balfour, North Carolina

CLASS OF '56
John R. Swetenburg, Jr.—TE—Gainesville Mill—Gainesville, Georgia

William L. Polhemus—TC—The Dow Chemical Co.—Midland, Michigan

CLASS OF '57
William T. Linton, Jr.—TM—Blue Bell, Inc.—Luray, Virginia

CLASS OF '58
Richard K. Hall—TM—J. P. Stevens & Co., Inc.—Overseer of Slashing and Drawing-In—Ninety Six, South Carolina
William L. Reed—TE—J. P. Stevens & Co.,—Plant #1—Great Falls, South Carolina

J. E. SIRRINE COMPANY

Engineers Since 1902

GREENVILLE, SOUTH CAROLINA

ELEVEN
The Dean says...

(Professor H. B. Wilson is pinch-hitting for the Dean in this issue)

In February 1957, after being associated with the teaching profession in the School of Textiles for ten years, I accepted a new assignment which sounded exciting, challenging, and rewarding. This new assignment covered a number of duties—work to coordinate the industry’s needs with the potential of Clemson Textile students in all educational matters; to help the industry encourage more and better students to fill the growing demand for college-trained textile personnel; to establish practical summer employment for Clemson textile students and to point up the industry’s research needs that can be met by Clemson College.

The reasons for creating this job falls directly on the steady decline in enrollment at Clemson in the School Textiles. In 1949 there were 3,445 students enrolled in ten textile schools throughout the country. In 1958 the number had dropped to 1,679. As for the Clemson School of Textiles 830 students were enrolled in 1949 as compared with 269 in 1959. Today the textile enrollment is 325 and now that the school has combined with Industrial Management the total is 839 or the second largest school on the campus.

As of February 1, 1963 course preferences of new students on file for entrance in June and September 1963, as compared with February 1, 1962, are up 71.3%. We attribute this upswing to the fine work of the Clemson Liaison Committee. Recent favorable reports from the textile industry, better starting salaries for our graduates, and much work has been done by the various state foundations and associations in providing scholarships and generally attempting to promote interest on the part of high school graduates in textiles. Brochures have been prepared. In fact, A.T.M.I. provided a “Teachers Kit” for use in schools. Members of the School of Textiles and mill staff participated in career days and are always available for speech making to encourage young men to enter textiles as a career.

Textile men, without exception, agree that the textile industry must become more “glamorized” if it is to attract its fair share of college graduates. It is a well known fact that all existing industries, textiles appears to manage least of all, to stir professional enthusiasm. There seems to be a wide spread notion that the production of yarn and fabrics is pretty much a handicraft trade rather than a qualified industrial process. Only a few appear to know the highly developed technical level of up-to-date textile enterprises, the comprehensive requirements and opportunities offered.

The textile industry today is the leader in the use of electronic computers in scientific managerial techniques, quality control, methods and standards, costing, and inventory control. Automation today is being used and developed throughout the textile industry in all phases of operations.
Textiles On Wheels

Since Henry Ford introduced America to a steering wheel made of soybean oil, product research has played an important role in the automobile industry. Textile research developed super-strong cords for tires, long-wearing fan belts, tough and reliable brake linings, and luxurious but practical interiors.

Nearly every model change announced in Detroit incorporates findings of textile product research and suggests ways to increase the comfort, utility and safety of accessories for older models.

One such development, a knitted nylon slip-on seat cover, was introduced in January. Competing directly with non-textile products, the new seat covers are made of the latest type of stretch nylon with a locked corner seam to insure a snug fit. The washable fabric has been treated with a stain repeller to resist grease and oil spots. The covers are available in four colors and will be nationally distributed through auto accessory stores, department stores and supermarkets. Six types are available for two-door and four-door cars, fitting all models except those with bucket seats. They are in the same price range as terry-cloth seat covers—additional proof of the increasing values consumers find in textile products.

Another new development is an improved material for seat belts to reduce elongation (stretch) when the belt is subjected to the type of strain which might come if the car was involved in a wreck. The new material does not exceed 15 per cent elongation at 2,500 pounds static pull, while present government and Society of Automotive Engineers (SAE) specifications allow as much as 25 per cent elongation.

This reduction in stretch is a step toward greater safety, since the new webbing will hold belt users more securely. Other advantages in the new material include high degrees of resistance to abrasion, moisture, staining and soiling, plus ease of cleaning.
William E. (Barry) Barrineau is a Textile Management major from Lake City, South Carolina. He is twenty years old and married. To help with his college expenses, Barry received the David Jennings ('02) Memorial Scholarship. He has received honors for two semesters and high honors one semester.

For the past three years Barry has been a member of the Bobbin and Beaker staff, and he is presently serving as Editor. Among the other campus organizations of which he is a member are the following: AATT, Phi Psi, SAM, NTMS, Council of Club Presidents, and the Student Senate. He is active in the Air Force ROTC program, presently holds the rank of lieutenant colonel. Barry is also a distinguished military student.

During summer vacations, Barry has gained valuable first-hand experience in the textile industry. This work experience includes one summer with Excelsior Mills of Rutherfordton, N. C. and one summer with Kingstree Manufacturing Co., of Kingstree, South Carolina.

DONALD F. SHIRLEY

Donald F. (Don) Shirley is a Textile Management major from Cateeechee, South Carolina. He is twenty-six years old and is married. He has completed his military obligation by serving four years in the Navy.

To aid with his college expenses, Don received a Keever Starch Scholarship. He has received honors for two semesters while at Clemson. He is an active member of Phi Psi, the national textile honorary fraternity.

For the past several years Don has done part-time work for Woodside Mills in Cateeechee. After graduation he plans to enter graduate school, but at the present time he is undecided on the institution.

Harold D. Turner, a twenty-one year old native of Inman, S. C., is a Textile Management major. He is married and is the proud “papa” of a six-week-old daughter, Lisa. An Inman-Riverside Foundation Scholarship has helped finance his four years at Clemson.

Harold has been kept busy while at Clemson with many extra curricular activities. Among these are Phi Psi, NTMS, SAM, Student Senate, Council of Club Presidents and Chairman of AATT. He has received honors for one semester.

Harold has gained first-hand experience in the textile industry by summer work at Inman Mills in Inman, S. C. Harold has accepted a position with Cannon Mills of Kannapolis, N. C.
What are your plans after graduation?

When you cross from a life of preparing to one of performing, what kind of career should you choose? Are you thinking about research—academic or industrial? Or production, or sales, or management?

While you still have time to decide, why not have a talk with men who might offer new slants? These are men with a background of unusual accomplishment in textiles, chemistry, physics and other sciences—the men at Leesona.

Leesona Corporation is well known to every progressive textile man as the developer of the Unifil Loom Winder, the Uniconer Automatic Cone Winder, and other cost saving equipment that contribute much to improved textile production.

Leesona is known too, in other fields, for achievements that include:

**Nuclear Batteries and Timing Devices**, used in military and space systems.

**Coil Winding Machinery**, serving in control, communications, and automotive fields.

**Research and Development**, in such diverse areas as fuel cells...ICBM components...infra-red devices...electro-chemical power sources.

In expanding its activities in such areas, Leesona needs talent competent for scientific investigations. If you feel that the Leesona program may have potential for you in your own career, why not have a talk with a Leesona representative?

There are opportunities at Leesona for graduates whose chief talents and interests are in the fields of textiles, physics, mathematics, metallurgy, ceramics, electronics and all engineering disciplines. Just write to Personnel Director, Leesona Corporation, Warwick, Rhode Island.

To help you decide—talk to Leesona!
Formulas For Practical Use

The following formulas are published in hope that they will provide an easily accessible reference for the textile student. They were obtained from the 1955-56 Fact File issue of TEXTILE WORLD and are reproduced with the permission of TEXTILE WORLD.

**SIXTEEN**

**THE BOBBIN AND BEAKER**
ROVING FRAME

Draft
Slubber

draft = 12 x gr. silver fed x bank roving delivered

draft gear needed = present gear x present draft

If gr. silver and bank roving are changed:
draft gear needed = present gear x present HR x present gr. silver

If gr. silver remains the same but bank roving is changed:
draft gear needed = present gear x present HR

If gr. sliver is changed but bank roving remains the same:
draft gear needed = present gear x present gr. silver gr. silver needed

Twist

tpi. = rpm. of sliver + rpm. (front roll x cir. front roll)

 tension constant = twist constant x tpi.
twist gear = twist constant + tpi.
tpi. = twist constant + twist gear

To change tpi:

twist gear needed = present gear x present tpi.

If bank roving is changed:

twist gear needed = present gear x HR

Lay

lay constant = lays per inch x lay gear
lay gear = lay constant + lays per inch

If lays per inch are to be changed:
lay gear needed = present gear x present lays per inch
lays per inch needed

If bank roving is to be changed but the twist multiplier remains the same:
lay gear needed = present gear x HR

Tension

tension gear needed = present gear x HR

Running time

(minutes bobbin in creel will last) x inches of roving on bobbin + surface speed of back roll

Production

minutes per doff = 3 x 103 x HR x oz. on full bobbin

63 = 845 rpm. front roll x dia. front roll

doffs in 8 hrs. = mins. per doff + mins. for doffing
lbs. in 8 hrs. = doffs in 8 hrs. x lbs. per doff

ROVING AND YARN NUMBER

1 lb. = 7,000 grains
1 skein or 1 spool = 120 yds.
1 hank = 840 yds.

yarn number (or hank roving) = hanks in 1 lb.
yarn number (or HR) = 1 + weight (in lbs.) of 1 hank

pounds in 1 hank = 1 + yarn number (or HR)
yarn number (or HR) = hanks + weight (in lbs.)
pounds = hanks + yarn number (or HR)
yarn number (or HR) = 8.33 x wt. (in grs.) of 1 yd.

yarn number (or HR) = 8.33 x yds.
wt. (in grs.) = 8.33 x yds.
yarn number (or HR)
yds. = 3 x wt. (in grs.) x yarn number (or HR)
25

Roving or yarn on bobbins, spool, or beam

yarn number (or HR) = ends x yds. in each end

840 x yds. (in lbs.)
yds. in each end

yds. of yarn on beam, etc. = ends x yds. in each end

840 x yds. of yarn on beam x yarn number (or HR)
yds. in each end

SPINNING FRAME

Spin: speed

Band drive

rpm. of spindles (and/or spools) = 1.75 in. of cylinder + 0.06 in. of back roll
rpm. of cylinder = 4 in. of cylinder + 0.06 in. of back roll

Tape drive

rpm. of spindles = 1000 x 0.975 x (rpm. cylinder)

Twist

tpi. = surface speed of front roll

rpm. front roll = S.S. = rpm. cylinder

rpm. front roll = driver x cir. front roll

twist gear = driver x dr. on front roll

twist constant = tpi. x twist gear

twist gear = twist constant + tpi.
twist gear = twist constant + twist gear

To calculate twist changes:
twist gear needed = present tpi. x present twist gear

Twist gear needed = √ present yarn number x √ present twist gear

Draft

draft = driver roll gear x cir. of front roll

draft gear = driver roll gear x cir. back roll

draft constant = draft gear x cir. of front roll

draft gear = draft constant + draft gear

draft = draft constant + draft gear

To calculate draft changes:
draft gear needed = present gear x present draft

Pick gear

rpm. of spindles = ppi x surface speed of take-up roll
S.S. take-up roll = rpm. x cir.

rpm. of take-up roll = rpm. x cir. take-up roll

If the loom has a pick-pawl take-up (pick gear is a driven gear):

ppi. = driven gears in pick-gear chain

driver gears x cir. take-up roll = 255% cir. take-up roll

driver gears in pick-gear chain x ppi.

pick gear = 0.975 cir. take-up roll

pick constant = pick gear + ppi.
pick gear = pick constant + ppi.

If the loom has a double-warp take-up (pick gear is a driven gear):
production = pick gear x ppi.
pick gear = pick constant + ppi.
pick gear needed = present gear x ppi. needed

LOOM

Pick gear

ppm. = gr. x surface speed of take-up roll
S.S. take-up roll = rpm. x cir.

rpm. of take-up roll = ppm. x cir. take-up roll

If the loom has a pick-pawl take-up (pick gear is a driven gear):

ppi. = driven gears in pick-gear chain

driver gears x cir. take-up roll = 255% cir. take-up roll

driver gears in pick-gear chain x ppi.

pick gear = 0.975 cir. take-up roll

pick constant = pick gear + ppi.
pick gear = pick constant + ppi.

If the loom has a double-warp take-up (pick gear is a driven gear):
production = pick gear x ppi.

pick gear = pick constant + ppi.
pick gear needed = present gear x ppi. needed

SEVENTEEN
Holding Back The Sea

Textile products are playing an increasingly important role in a 25-year project to give the Dutch people an additional 500,000 acres of land now on the bottom of the ocean.

Nylon is being used in various forms to replace older methods of protecting Holland's famous dikes from the scouring action of ocean currents. The same man-made fiber is being used in other ways to speed completion of a dike reinforcement program begun in 1953 and scheduled for completion in 1978.

The whole operation is being pushed ahead of schedule however, by the use of nylon sheeting to protect the sea bed of dikes from being washed away by swift movement of ocean waters. The nylon used to protect the dike beds is formed into units 50 feet by 250 feet, sewed to form a series of tubes which are filled with a mixture of sand and water. The number of tubes, which act as anchors, is determined by the force of the current at any given area in which the sheeting is used.

The nylon sheeting, called "sunk sheets", is replacing normally used fascine (bundles of wood sticks) and stone mattresses. The textile product is considerably less expensive than the older method and can be laid faster, through the use of special equipment which unfolds the "sunk sheets" in a predetermined pattern and stretches them into place at the base of the dikes.

In addition to the "sunk sheets", several other applications have been found for nylon in the dike reinforcement project.

One is as a lining to protect the sloping side of a dike, dam or mound from the scouring action of rapidly moving water. For years such protection has been provided by stone and concrete, applied on a clay base which closed in the sand beneath it.

Another development involves strips of nylon which are cemented into the edges of tiles. The extensions of the strips are spread on the sloping sides of dikes, allowing water to be drained but holding the sand in place. This new technique eliminates the need for an expensive layer of clay which has been applied to the sand base of dikes.
Other uses for nylon fabric in the dike project include:

— Stretching waterproofed, bitumen-coated nylon sheets on the bottom of dikes to prevent dike leakage and the loss of water in canals.

— Constructing dams and breakwaters with 2200-pound capacity sand-filled bags of rip-stop nylon which can be used again after a dike has been completed and the protecting dams and breakwaters removed.

— Utilizing smaller, 88-pound-capacity nylon sand bags for closing breaks and other openings in dikes and dams. These smaller bags can be stored in areas of potential danger, and are both moistureproof and rotproof.

— Strengthening wooden paling poles with nylon fabric to prevent erosion of canal banks. This is still in the testing stage, but the new method already appears to be more suitable than the use of synthetic foil which has low strength.

John G. Snip of the Department of Waterways in The Netherlands has said that the use of man-made fibers in the dike reinforcement project may lead to better and cheaper construction methods than has ever been possible with more conventional construction techniques. The project has already demonstrated that modern textiles can be successfully adapted to almost any need—including holding back the sea.

In the first nine months of 1962, the countries which exported more than 323 million square yards of cotton textile products to the United States markets bought less than 6 million yards from American mills. This is a strong contributing factor in the outflow of gold from the United States.
SEARCH and RESEARCH

New business opportunities and improved profitability, twin goals of alert management, are being realized through work in the laboratory as more and more textile producers place strong emphasis on research and development programs.

In the constant battle to remain competitive in the face of never-ending technological break-throughs, the role of the scientist is increasing rapidly in the textile industry.

Textile scientists and technicians are constantly searching for new uses for current products and, at the same time, are seeking ways to improve manufacturing processes in the effort to turn out better products at lower costs.

Coupled with these efforts is the search for completely new products and methods to produce those new products economically. Changes within the textile industry during the past few years have been described as astounding. Products on the market today were but a gleam in some scientist's eye only a short 20 years ago.

As management has learned that research expenditures have a direct bearing on increased income, accelerated research efforts in the industry are inevitable. As these efforts bear fruit, they will bring about changes in products and manufacturing processes that today would seem incredible.

SHELTERS

Shelters made of a translucent nylon-vinyl fabric have saved the U. S. Corps of Engineers both time and money in constructing 11 circuit breakers at the Bonneville Dam in Oregon. The shelters protected the circuit breakers, located on the roof of the power house, from inclement weather, and, also, prevented moisture from collecting and being absorbed by sensitive parts. The company which produced the shelters said winds up to 87 miles-per-hour had almost no effect and work moved ahead regardless of weather conditions.
Whitin manufactures a complete line of modern, efficient, high-production equipment for the processing of cottons, wools, worsteds, synthetics and blends. Whitin's world-wide reputation for producing the very finest in textile machinery is built upon more than 130 years of experience in the field. Regardless of its preparatory function, each Whitin machine will do its specific job better, faster or more economically than that job has ever been done before. Each will show unmistakable evidence of the advanced research, engineering and craftsmanship which are inherent in all machinery made by Whitin.

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Special TEXTILE DICTIONARY for BEST RESULTS in Textile Processing

C
Corobex (Köb 'a-bex)
A durable anti-bacterial additive for textiles. Provides fixed, lasting protection against germs, mildew, perspiration odors and other odors of bacterial origin.

D
Discolite* (dis'kō-līt)
Concentrated sodium sulphoxinate formaldehyde available in lump, powder or powder form. A powerful reducing agent, stable at high temperatures. Widely used to effect reduction and solution of vat colors, and for discharge effects when applied to colored grounds. Effective when mixed with vat colors and discharge pastes wherever the reducing agent must retain its reducing power after being dried into the fabric.

Dispersall (dis'-pūr-sal)
A long chain ethylene oxide condensate in the form of a colorless, neutral, somewhat viscous liquid. Fully resistant to hard water, and miscible with water in all proportions. A retardant and leveling assistant in vat dyeing.

Effective in stripping to prevent redeposition of the color on stripped goods.

N
Neofinish (Nef'O:Finsh)
Non-Ionic softener dispersible in hot water, suitable for all textile fibres, both natural and synthetic. Compatible with all types of finishing materials, including resin finishes. No development of color or odor in goods finished with Neofinish, even in storage. No yellowing at time of application.

Neowet (nē'ō-wet)
Complex Polyethylene Ether in the form of a pale yellow, slightly viscous liquid.
A non-ionic surface active wetting agent, effective at all temperatures. Completely compatible with enzymatic design agents and readily soluble in water. Contains 90% active ingredients. Widely used in scouring all types of textile fabrics and for general wetting purposes.

Neowet X (nē'ō-wēt)
Organic Ether Sulphonate in the form of a water white distinctly viscous liquid.
An anionic surface active wetting agent, effective at all temperatures. Does not affect enzyme activity in decolorizing. Contains 90% active ingredients.

Neozymes* (né'ō-zēms)
Discoloring agents made up of amylolytic, proteolytic and fat splitting enzymes available in the form of crystalline powder or liquid concentrate for high or low temperature requirements.
Neozymes quickly remove all trace of starch glue or gelatin sizing without danger of damage to even the most delicate fabrics. For best results, use with NEOWET to speed saturation.

P
Parolite* (pa-rō-līt)
Zinc sulphoxinate formaldehyde in the form of white crystalline powder. A highly concentrated stripping agent for all forms of wool and modern synthetics.
Completely soluble in water. Leaves stripped goods soft, completely free of zinc dust and in most receptive condition for further processing. Often completely strips goods where other stripping agents fail. Very effective in discharge printing on acetate rayon.

V
Vatrolite* (vat'ō-līt)
Concentrated sodium hydrosulphite in the form of white crystalline powder. A powerful reducing agent for vat colors, ideal for dry-feeding because of its free flowing, dustless character. Completely soluble in water.
Effective stripping agent for direct, sulphur and vat colors on cellulosic fabrics.
Quickly removes rust stains from cotton goods. May be stored indefinitely.
Available with optical whites and in buffered formulas for high temperature use without excessive alkalinity.

Velco Softener (vēl'kō)
A highly sulphoxinate formaldehyde in the form of a creamy white paste, easily dispersed in water. Used in general finishing of all types of textile fabrics. Will not "smoke off" or change color in high temperature operations such as calendering or drying. Has no effect on light fastness of colors.

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