



PARKER RETIRES

James S. "Jim" Parker, long-time director of the International Center, has elected to retire effective April 30, 1992. **Harvin R. Smith**, head of the materials evaluation department, has been appointed to serve as interim director until a new director is named.

Jim Parker was appointed director of the Textile Research Center on March 15, 1973. During his nineteen-year tenure he was involved in a major expansion of the facilities on the Texas Tech University campus and in the move off-campus in 1985 to the much larger building the Center now occupies, located in the East Research Center on the eastern edge of Lubbock.

Parker and his wife **Kris** plan to remain in Lubbock, where he will continue his private consulting activities. His home address is 7811 Kenosha Avenue, Lubbock, Texas 79423.

NEP COVERAGE RESEARCH

Research into the dyeing of cotton fabrics containing neps of immature and dead cotton is ongoing at the International Center. In a previous issue of *Textile Topics* (Vol. XVII, No. 1, Sept. 1988), we presented the results of studies involving a pretreatment of fabric which required the application by the pad/dry method of a cationic polymer which could be cured at low temperature. This pretreatment was found to be highly effective in covering cotton neps after dyeing with both direct and reactive dyes, and also produced higher color yields.

The process was found to have minimal influence on fabric breaking strength and provided significant improvement in both flex abrasion and wrinkle recovery. Potential drawbacks lay in the tendency toward reduced lightfastness and an alteration in fabric hand which may or may not have been considered desirable.

From the industrial aspect, a major limitation of the process was the need to dry the fabric after scouring or bleaching, prior to the application of the pretreatment. Consequently, efforts have been directed toward the use of a treatment based on the exhaust

process which would eliminate the drying stage, permitting its incorporation into a conventional fabric preparation sequence. The pretreatments which have been assessed have utilized either Chitosan or polyethyleneimine. In this issue of *Topics*, we would like to present some information regarding the use of Chitosan.

Desized, scoured and bleached fabrics were first treated in a jig with an aqueous solution containing 0.1% nonionic wetting agent for five minutes. Using the weight of fabric as a basis, 0.4% Chitosan was dissolved in dilute acetic acid and added to the bath. The material to liquor ratio was 1:10. The machine was run for ten minutes at room temperature. The temperature was then raised to 60°C and 10% sodium sulfate (o.w.f.) was added over a period of ten minutes. Conditions were maintained for a further thirty minutes.

After a thorough rinsing, the fabrics were dyed with various dyes, using procedures recommended by the dyestuff manufacturer. Direct, Indosol and reactive dyes were used. Indosol dyes are direct dyes which are reactant-fixable, manufactured by Sandoz.

Table I shows the color strengths of both untreated and pretreated fabrics when (continued on page 2)

TABLE I: COLOR YIELD OF UNTREATED AND 0.4% (o.w.f.) CHITOSAN PRETREATED FABRICS AFTER DYEING WITH INDOSOL DYES*

Fabric State	Dye	Percent (o.w.f.)	K/S Value
Untreated	Indosol Navy SF-RL	1	10.33
Pretreated	Indosol Navy SF-RL	1	11.08
Untreated	Indosol Navy SF-RL	2	13.74
Pretreated	Indosol Navy SF-RL	2	13.97
Untreated	Indosol Grey SF-BL	1	8.78
Pretreated	Indosol Grey SF-BL	1	9.02
Untreated	Indosol Grey SF-BL	2	11.79
Pretreated	Indosol Grey SF-BL	2	12.73
Untreated	Indosol Rubine SF-R	1	7.06
Pretreated	Indosol Rubine SF-R	1	8.09
Untreated	Indosol Rubine SF-R	2	10.37
Pretreated	Indosol Rubine SF-R	2	10.79
Untreated	Indosol Brown SF-B	1	6.37
Pretreated	Indosol Brown SF-B	1	9.44
Untreated	Indosol Brown SF-B	2	9.99
Pretreated	Indosol Brown SF-B	2	10.63

*Water-soluble, reactant-fixable direct dyes manufactured by Sandoz

died in the same manner with Indosol dyes. The Chitosan-pretreated fabrics realized higher color values with all dyes and neps were covered.

Table II presents the colorfastness data for the fabrics dyed with Indosol dyestuffs. The results indicate the pretreated fabrics were almost as colorfast as untreated fabrics.

The evaluation was extended to fabrics composed of cottons of different micronaire value. After applying the Chitosan pretreatment, they were dyed with C.I. Direct Blue 80 and also C. I. Reactive Blue 19. Despite the fact that treated fabrics exhibited a deeper hue, nep coverage was inadequate with the reactive dyestuff, yet satisfactory for the direct dye. Interestingly, the pretreatment gave a proportionately greater improvement in color strength with fabrics of lower micronaire cotton, as shown in Table III.

These studies have been conducted by Dr. R. D. Mehta, manager of finishes research. He was assisted by P. A. Salame.

TABLE II: FASTNESS PROPERTIES OF UNTREATED AND 0.4% (o.w.f.) CHITOSAN PRETREATED FABRICS AFTER DYEING WITH INDOSOL DYES*

Fabric State	Dye	Percent Shade	Washfastness Rating		Crocking Test		Lightfastness Rating (20-hr.)
			Alteration	Staining	Dry	Wet	
Untreated	Indosol Navy SF-BL	1	4	5	5	3-5	3-4
Pretreated	Indosol Navy SF-BL	1	4	4	5	3	3
Untreated	Indosol Navy SF-BL	2	3-4	5	5	3	4-5
Pretreated	Indosol Navy SF-BL	2	3	4-5	5	3	4
Untreated	Indosol Grey SF-BL	1	4.5	5	5	4	3-4
Pretreated	Indosol Grey SF-BL	1	4.5	5	5	3-4	3-4
Untreated	Indosol Grey SF-BL	2	5	5	5	4	4
Pretreated	Indosol Grey SF-BL	2	5	5	5	3-4	4
Untreated	Indosol Rubine SF-R	1	4.5	5	5	3-4	2
Pretreated	Indosol Rubine SF-R	1	4.5	4-5	4.5	3	2
Untreated	Indosol Rubine SF-R	2	4-5	5	5	4	2
Pretreated	Indosol Rubine SF-R	2	4	4-5	4-5	3	2
Untreated	Indosol Brown SF-B	1	4	5	5	4	2
Pretreated	Indosol Brown SF-B	1	4-5	5	5	4	2
Untreated	Indosol Brown SF-B	2	5	5	5	4	2
Pretreated	Indosol Brown SF-B	2	4-5	5	5	4	2

*Water-soluble, reactant-fixable direct dyes manufactured by Sandoz

TABLE III: EFFECT OF MICRONAIRE ON THE COLOR VALUE OF DIRECT BLUE 80 AND REACTIVE BLUE 19 DYED FABRICS PRETREATED WITH 0.6% (o.w.f.) CHITOSAN

Micronaire	Fabric State	Dye	K/S Value	Strong/Weak (-)
2.6	Untreated	1.0% Direct Blue 80	5.59	
	Pretreated	1.0% Direct Blue 80	6.12	9.63
	Untreated	4.0% Reactive Blue 19	7.30	
	Pretreated	4.0% Reactive Blue 19	8.91	22.87
4.6	Untreated	1.0% Direct Blue 80	7.71	
	Pretreated	1.0% Direct Blue 80	8.85	1.73
	Untreated	4.0% Reactive Blue 19	11.61	
	Pretreated	4.0% Reactive Blue 19	12.18	4.91

ABOUT DR. R. D. MEHTA

R. D. Mehta has been a member of our staff since 1969, when he came to the Texas Tech University Textile Research Center as a research associate. He was named manager of protective finishes research in 1974 and in 1977 his title was changed to manager of finishes research.

In addition to being known for his research in nep covering and durable press finishing, Dr. Mehta is recognized as an expert in the field of flame-retardant finishes. Through his efforts and in recognition of his expertise, the International Center for Textile Research and Development was designated in 1989 as a Federal Aviation Authority-approved testing facility. Licensed as Testing Facility LDYR406K, ICTRD is authorized to conduct flammability testing and application of flame-retardant finishes on textiles intended for aircraft use.

A graduate of Gujarat University in India, Mehta has more than 35 years of experience in textile chemistry. He was elected a Fellow of the Textile Institute in 1975, is a senior member of the American Association of Textile Chemists and Colorists and is often requested to act as a legal consultant in the field of textile flammability. He has presented numerous papers at national and international conferences and published more than 50 articles on textile dyeing and finishing in leading scientific journals.

We are proud to have **Dr. R. D. Mehta** on our staff.

TEXAS INTERNATIONAL COTTON SCHOOL

The sixth class of the Texas International Cotton School was held at the International Center from April 6 through 17. Participants included seventeen students from eight countries.

The school is sponsored by the Lubbock Cotton Exchange and two classes are held each year, in April and October, beginning on the first Monday of the month. Starting with Class VI, the classes will be for a duration of two weeks.

Students attending Class VI were:

from Australia: Stuart Gordon, TEXTILES & FIBRE RESEARCH INSTITUTE, Melbourne;

from Colombia: Luis Guillermo Posada C. and Carlos E. Valdes D., COLTEJER, Medellin;

from France: Juan Perez, COPACO/COMPAGNIE COTONNIERE, Paris;

from Mexico: Javier Adrian, TEXTILES POTOSI, S.A. de C.V., San Luis Potosi;

from Switzerland: Fatah Mami, FIBERYARN, LTD., Granges-Pacot;

from Taiwan: Peace K. H. Hsu, Tonny T. C. Liu, Jung-le C. C. Tu, and David Heng-Yi Tu, all from WAN YUAN TEXTILES CO., LTD., Taipei;

from Turkey: Erdem A. Ozsoy, ETEM OZSOY TARIM AS, Izmir;

from the United States: Ken Arnott II, DUNAVANT ENTERPRISES, Memphis, TN; Darla Gwinn, RED BALL GIN, Roaring Springs, TX; Brock R. Lyon, III, AMCOT, INC., Atlanta, GA; Richard (Ric) Mattice, SWIG, Pima, AZ; Cindy Pilgrim, HASELOFF COTTON CO., INC., Lubbock, TX; and Chris W. Pope, SOUTHSIDE GIN, INC., Emporia, VA.

Instructors for the textile technology sessions included James R. Supak, Texas A&M Agricultural Research Service, Lubbock; Roy Baker and Alan Brashears, USDA-ARS, Lubbock; and ICTRD Interim Director Harvin Smith and Assistant Director John B. Price.

Visiting lecturers for some of the marketing classes were Joseph J. O'Neill, New York Cotton Exchange, New York, NY; Tom Bell, ContiCotton, Chicago, IL; Keth Henley, Cotton Outlook, Memphis, TN; Barbara Shaeffer, Motion Control Inc., Dallas, TX; and Joe Yankey, Zellweger Uster (Spinlab), Knoxville, TN.

The next class of the Texas International Cotton School will begin on the first Monday of October (Oct. 5, 1992). Information may be obtained by contacting the Lubbock Cotton Exchange, 1517 Texas Ave., Lubbock, Texas 79401; telephone 806/763-4646; FAX 806-763-8647.



TICS VI students are shown with Mandy Howell, TICS Coordinator, 4th from left, middle row and Karen Cole, Ass't TICS Coordinator, front row right.

VISITORS

Visitors to the Center during April in addition to those already mentioned included Roger Bolick and Mary Jean Shannon, Allied Fibers, Hopewell, VA; John T. Childers, Henkel Corporation, Charlotte, NC; Kurt Masurat, Goulston Chemicals, Monroe, NC; Gregory Poole, Esprit, San Francisco, CA; Kent and Sally Gurley, Allegro Rug Weaving Co., Boulder, CO; Suzanne Dungan, Dungan Designs, Dallas, TX; James E. Warnock, Jr., Tiger Brand Knitting Co., Cambridge, Ontario, Canada; Christopher J. Lupton, Texas A&M University, San Angelo, TX; Tony Ainsworth, SGS Australia (Pty) Ltd., Alexandria, New South Wales; Roger C. Johnson, Moree, New South Wales; and Phillip D. Ryan, San Luis Obispo, CA.

Others were A. A. (Tony) Ball, Schubert & Salzer Maschinenfabrik AG, Ingolstadt, Germany; Barbara Shaeffer, Motion Control Inc., Dallas, TX; Chiou Hsin-Hsiung and I. F. Kao, China Textile Institute,

Taipei, Taiwan; Brent Wiseman, Texas Dept. of Agriculture, Austin, TX; Keith T. Lucas, South Bryan and Ned Townsend, Swift Textiles, Inc., Columbus, GA; Calvin C. Fischer, Lummus Industries, Inc., Columbus, GA; and Richard Leroi, Lionel Bouton and Richard Dubeau, Compagnie Francaise pour le Developpement des fibres Textiles (CFDT), Paris, France.

In addition to those named above, several groups visited during the month. John F. Visic and Curtis Stewart brought a group of 30 from Chickasha Cotton Oil Co., Casa Grande, AZ; and fifteen members of the Sweetwater Home Extension Club, Sweetwater, TX came for a tour of the Center. Also, 52 students from Texas Tech University's College of Home Economics, accompanied by their instructor Janie Van Zandt; and twelve students from Garden City High School, Garden City, TX were our guests in April.