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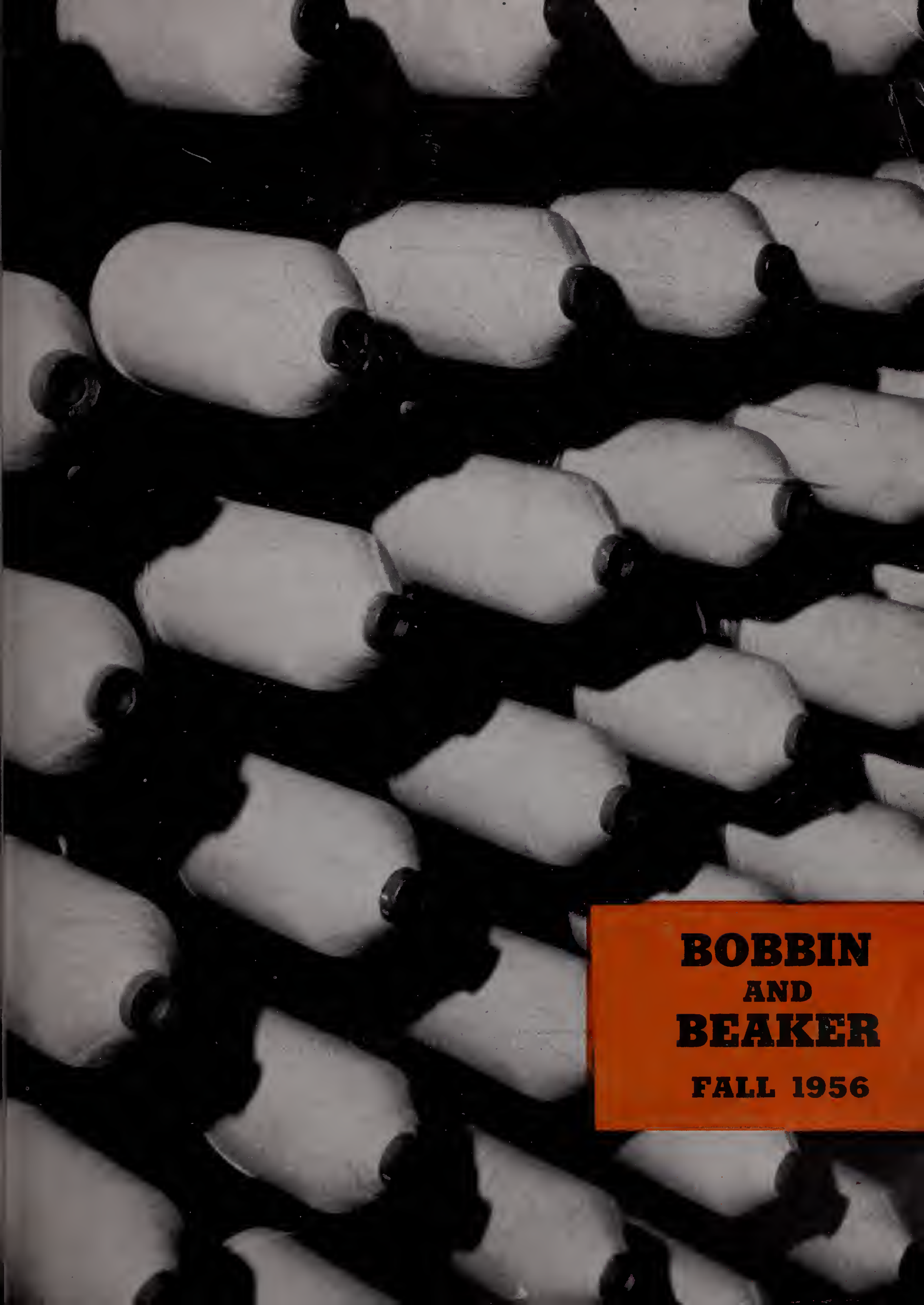

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FALL 1956

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THE COVER:
By ... TED PAPPAS '57

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 Textiles.

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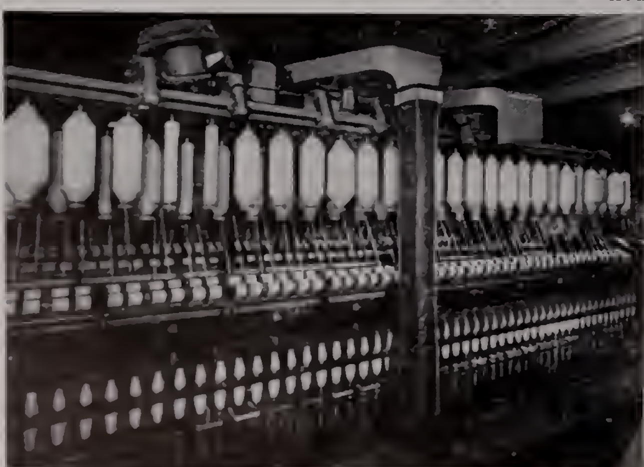

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Top row, left to right: Howard B. Carlisle, president of the S. C. Textile Manufacturers Associations; George P. McClenaghan, chairman of the group; J. J. Lyon, and A. B. Sibley. Bottom row, left to right, are Samuel H. Swint, J. C. Self, P. S. Bailey and F. E. Grier.

Clemson and the Textile Industry Initiate Program To Reverse 6-Year Downward Trend

Clemson College and the South Carolina Textile Manufacturers' Association have initiated a vigorous educational program designed to provide more college-trained personnel for the textile industry.

The industry has been alerted to the necessity of a long-range plan of action by a growing six-year decline in textile student enrollment. The stark truth is that the number of graduates during this period has been on the downgrade at a time when demands for qualified men in ever-expanding fields of the industry have been increasing.

It is startling fact that enrollment figures for this year will be significantly less, thus even accelerating the downward trend. At Clemson College, a leader in textile education, less than seven per cent of the freshmen expected this fall now plan to study textiles. Registrars at Georgia Tech, Auburn and North Carolina State have forecast a pattern identical with Clemson's.

Why?

"Our light has been hidden under a barrel," says R. C. Edwards, vice president for development at Clemson College, who left a top position in the industry in June.

"A combination of the unrestricted flow of Japanese products and fierce domestic competition," Edwards summarizes, "has created a pessimistic picture in the public eye. In waging an all-out publicity campaign, particularly against foreign competition, the industry has failed of necessity to talk enough about the positive; to re-emphasize its opportunities. Far too many young men fail to consider the challenge of a textile career because other industries appear to present greater opportunities. As a matter of fact, few industries, and certainly no other in South Carolina, offer greater possibilities for a successful, profitable career than does the textile industry."

Realizing the importance of the job to be done, the Board of Trustees of Clemson College requested the South Carolina Textile Manufacturers' Association to appoint a committee from its top executives to work with the Board and college officials in seeking a solution to any problems affecting the future welfare of the textile industry where resources of Clemson College might be used effectively. The initial aim of the committee is to perfect a plan which will assure a steady stream of college-trained men flowing into the industry each year.

Reaction to the request, on the part of the association, was both instant and positive.

President Howard B. Carlisle, Jr., appointed the following executives to represent the textile industry on this committee: George P. McClenaghan, vice president of J. P. Stevens Co., Inc., who is serving as chairman; J. J. Lyons, executive vice president of M. Lowenstein and Sons, Inc., Anderson; A. B. Sibley, vice president of Judson Mills and executive vice president of Deering Milliken & Co., Inc.; S. H. Swint, president of the Graniteville Company; J. C. Self, president, Greenwood Mills; P. S. Bailey, president, Clinton-Lydia Mills, Clinton, and F. E. Grier, president of Abney Mills and president of the American Cotton Manufacturers Institute.

Carlisle, personnel director of the Lyman Printing and Finishing Company, is an ex-officio member as president of the association.

The enrollment turnabout is a disconcerting revelation to an industry in the throes of a new dynamic and exciting revolution.

"The Industrial Revolution started in the textile industry in 1770 and has never stopped," says Association President Carlisle. "The development of new products, new fibers, new processes, and the application of automation has resulted in a tremendous need for college-trained men.

"This year," he illustrates, "there were from eight to 10 jobs for every graduate in textiles. The demand in the future will be even greater."

The manufacturers' association, to pinpoint specific needs of college graduates over a 10-year period, conducted a survey of all South Carolina textile plants. Results bluntly contradicted the trends in enrollment.

What are the factors which cause a young man to select or reject a particular organization or industry for his career? Certainly one of the major considerations is the matter of compensation involved.

A further survey of the industry in South Carolina reveals that men in position of responsibility are being very well paid. When measured by the yardstick of financial reward for services rendered, the opportunities in textiles become very apparent.

This survey indicates that approximately 40 percent of the management personnel filling positions of the type included in the survey of future manpower needs, earns from $6,000 to $11,500 annually. Men with greater experience earn substantially more ranging from $11,500 to more than $27,500 annually.

Almost since 1849, when first records were kept, South Carolina has been indisputably acknowledged as the "center of the textile industry." In that year there were only 18 cotton mills, with 36,500 spindles in place and consuming 9,029 bales of cotton. Today, with the nations's total cotton spindles in place decreasing, South Carolina's have grown to 6,474,000. This represents almost one-third of the entire total in the United States and twice that of all New England.

As a result, South Carolina is substantially ahead in the production of cotton woven finished goods, turning out more than two billion yards annually. This is one-third of the nation's total and about one billion yards more than that of the second state.

Today, capital invested in the state's textile industry is more than $600,000,000, an increase of $378,000,000 in the last 10 years. Goods valued at more than $1,600,000,000 are produced, constituting three-fourths of all those manufactured in the state.

Within the industry itself, however, production is varied. No longer is the textile business devoted almost entirely to the making of yarns. In one segment of the giant industry, the manufacture of clothing, more than 100 new plants have been established and production has now reached more than $120,000,000 annually.

Existing industry has been constantly expanding since the war, building new plants and enlarging old ones. A total of $64,596,000 was spent or allocated in 1955 for expansion, a recent State Development Board survey shows. The bulk of the capital outlay has been negotiated by existing industries, attesting to the continued faith of textile executives in the state's industrial future.

Eight completely new plants have been announced for construction, continuing a trend which has been evident since 1945. Some of the outstanding projects are the Cone Mills finishing plant at Union, the

(Continued on page 24)

Remarks on a Career in Textiles

Hugh M. Brown, Dean
School of Textiles

The Textile School has the task of making clear to the students what is implied in a textile career. Lately a story has come our way that will illustrate some of our thinking on this problem.

The story is of three stone cutters who were employed on the construction of a Cathedral. One day a man came by and asked one stone cutter, "What are you doing?". The stone cutter rather apathetically replied, "I'm working for wages to buy bread and butter. The cost of living comes high these days." The man asked the next stone cutter the same question, "What are you doing?", and the worker somewhat impatiently said, "Isn't it plain that I am cutting stone?". The man then asked still another stone cutter the identical question, "What are you doing?", and with enthusiasm in his voice the third stone cutter replied, "I'm building a Cathedral."

Now all three men were working on the same job but with such a difference! Does anyone doubt for which of the three, the days seemed longest and for which the shortest—which probably did the poorest and which the best work—which one the construction company may have advanced the most rapidly through the years?

This story of the stone cutters can so aptly describe three textile students. The first one may say, "I'm studying textiles to get a job to make a living." He

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History of Textile School

Gaston Gage, Head
Yarn Manufacturing Department

In an address to the Cadets on the opening day of college in September, 1898, Dr. Hartzog, the college's third President commented "Today the doors of the first Textile School in the South are thrown open to students." He stated that the invested capital of the textile industry in South Carolina was $120,000,000.00. Today this capital is more than $600,000,000.00.

This textile building that was opened in 1898 was part of what is now the Physics building. The original building was from the tower where the entrance is to the south end toward the new dormitories. The offices and the Yarn Manufacturing were on the first floor. The Weaving and Designing and the Dyeing were on the second floor.

About 1903, the part from the tower to the present north end toward the YMCA was added. When this was added, the Dyeing was moved to the basement at this end and the whole top floor given over to Weaving and Designing and the first floor to Yarn Manufacturing.

This building is standard mill construction of its day. The similarity between it and the old textile mills can readily be seen. Heavy wooden columns support the heavy wooden beams which hold the floor and the roof. As in all mills of the day the tower was a water tank which held the water supply surrounded by a brick wall on all sides it acted as a more or less fireproof stairway. In the top of the tower was a water tank which held the water supply for the automatic fire sprinkler system. The tower at the back, as in the case of all mill buildings, held the toilet facilities.

Back of this building was a small boiler room. This furnished steam to heat the building and for use in the Dyeing department and for the slasher. This building was torn down after a few years.

The machinery was driven from a long shaft, extending the length of the building and having counter shafts driven by belts from the main shaft. This main shaft was driven by a direct current motor, the electricity for the motor being generated in a power house in the old Engineering building which burned in 1926.

In 1906 a new power plant was built to generate all power for the college and to furnish steam for the whole college. This power plant was designed by Dr. Riggs who at that time was head of the Engineering Department but later became President of the College in 1911. The old power plant was dismantled when this new plant was built in 1906 and it in turn was torn down when the present power house was built and the new dormitories came into being.

The old Textile Building continued to use direct current electricity from this 1906 power plant until the College started buying electricity from the Duke Power Company in 1924. Then the change was made to alternating current motors.

All machinery in the old building was driven from overhead shafting and belts until about 1930 when some individual drive equipment began to be installed. When the move was made to Sirrine Hall in 1939, all machinery was changed over to individual drive.

The Textile School opened in 1898 in charge of J. H. M. Beaty, who came from the managership of one of the mills of the state. He was joined in a year or two by F. D. Frissell, a graduate of the Philadelphia Textile Institute and he took over the Weaving and Designing. A year later they were joined by L. C. Raiford who came to take charge of the dyeing. He was a graduate pharmacist from Brown University. In these years, no textile subjects were taught until the Junior year.

In 1908, Mr. Fred Taylor, who now is retired from the U.S.D.A. and lives at Clemson, came to take over the Yarn Manufacturing. At that time Mr. C. W. McSwain, who was a Clemson graduate, was in charge of the Weaving and Designing and Mr. C. S. Doggett was director of the School and in charge of Dyeing. Mr. Doggett remained a Director of the School until 1927 when he was succeeded by Mr. H. H. Willis. During Mr. Willis' service the title was changed to Dean. Mr. Willis in turn resigned in 1943 and was succeeded by Mr. R. K. Eaton as Acting Dean. Mr. Eaton had been head of the Yarn Manufacturing Department since 1923. Mr. Eaton took the Acting Deanship as a temporary appointment, not desirous of the permanent appointment because of his health. Mr. Eaton was succeeded in 1945 by the present Dean, Dr. H. M. Brown.

From the beginning of the School through 1920 the textile course was entitled "Textile Industry." Beginning in 1921 the course was called "Textile Engineering" and there has been a course known as "Textile Engineering" continuously since that time. In 1924 an additional curriculum was added, known as "Textile Industrial Education." This course was designed to train teachers for high schools that wished to put in textile subjects. This course continued as such until 1943 when it was discontinued. There were never many graduates after the first three years.

A major in Weaving and Designing was begun in 1931 and continued through 1942. There were never more than from three to five students graduating in this course each year.

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ARE YOU WITH THEM?

By Johnny Hefner, T.E., '57

College graduates walk starry eyed across a stage each year, their diploma in one hand, numerous job offers grasped tightly in the other, not knowing which way to turn after reaching the other side. Most of these men will be found, years later, still grasping their diploma in one hand, a small pay check in the other, lost in the maze of filing cabinets provided by industry for employee's serial numbers. Yet, once in a while one of the same group that crossed that stage together will be found in Industry's penthouse, miles above the others, realizing ambitions that each of those happy wanderers in his graduating class had visualized so clearly while they walked across the stage. Why can one man in such a large group climb to such fantastic heights in industry while the others mill so aimlessly about the lower rungs of his ladder?

An analysis of some of the great industrial leaders of the past and of those still living, today, will definitely show that each possess the characteristics and principles of a leader, but men with these same qualities may be found in the multitudes of unknowns found in the lower ranks. What then, do the few at the top possess that pushes them to the peak of success?

The answer, in my opinion, is two-fold! If you look into reports of competent sociologists who have devoted years of their lives studying top level management and the source of this select group's ability to climb, always upward, you will find the following to be true:

1. These men are truly "individuals."

2. Job security is of minor importance in their way of thinking.

By calling these men individuals, I do not mean that they are eccentric or that they act differently from the remainder of society. These men think differently. They make sharp, clear cut, and timely decisions, and are seldom wrong in doing so. Their confidence is felt throughout the organization which they represent, yet they are not arrogant or cocky. This ability to have overflowing self confidence, and to be able to think clearly, day in, day out, is not in them by birth or by chance. It is there through a tireless effort to be "tops" in their field, to give industry something to remember them by and, most of all, through hard work. These men did not think they "had it made" after graduating from college. They realized that their diploma merely opened the door to industry and gave them a chance to progress forward, and upward. Instead of sitting still, watching the production line go by, these men walked uphill, and produced!

One thing, however, which seems odd to most of us when considereing these "men of industry" is their nonchalant attitude toward job security. How could they overlook themselves so easily? It never seems to register in their brilliant minds that one muffled decision could cost them their job, their livihood, and their social prominence. The truth is they are probably too busy at their work to worry about their job. They didn't reach the top by worrying. They climbed the ladder of success, rung by rung, never worrying about falling. Their college diploma is stuffed in their back pocket, leaving them two good hands to climb with; their eyes and thoughts are focused upward, to the next rung in that ladder. Are you with them?

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Causes and Detection of Damage in Raw Cotton III

Dr. A. N. J. Heyn

Professor of Natural and Synthetic Fibers
School of Textiles, Clemson College, S. C.

In previous articles, the various types of damage in raw cotton have been discussed. The present articles deals with the detection and identification of damage.

DETECTION OF DAMAGE

In damaged cotton most of the quality properties are impaired and changed. These chances may be a general indication of some type of damage, but cannot be used for the identification of damage since they may also result from other causes than damage, and since they are not specific. For **identification** of damage, special tests are used; the most important ones are briefly reviewed here.

MICROSCOPIC AND MICROCHEMICAL TESTS

The main microscopic tests for damage are based on the demonstration of **rupture** of the cuticle and primary wall, upon swelling of the fiber (1-3) or on the affinity for specific stains (4).

1. **Congo red test** — The most universal microscopic test is the congo red test. The principle is as follows. Congo red has a great affinity for cellulose, which composes the secondary wall, but cannot pass the outer primary wall and wax cuticle, for which it has no affinity. The dye can only pass the primary wall and stain the underlying cellulose, if the cuticle is ruptured. This is the case when the fiber is damaged.

The test is carried out by swelling the fiber in caustic soda and after quick washing, placing it in a concentrated solution of congo red. The fiber is investigated in 18 percent sodium hydroxide. By using different concentrations of alkali in the initial swelling, it is possible to differentiate between various types of damage. (see Figure 1).

2. **Balloon test**—Another test for rupture of the primary wall is the "balloon test" which has been originally designed for detecting microbial damage. In this test, the fibers are swollen in equal parts of carbon-disulfide and 15 percent caustic soda. Normal fibers swell and, after about half an hour, form so-called balloons or beads. The absence of balloons indicates damage (generally) from microbial activity (see Figure 2). A condition for balloons to be formed, is namely an intact primary wall, which constricts the swollen fiber at regular intervals between the balloons.

3. **Swelling in 18 percent caustic soda**—Swelling in 18 percent caustic soda has been designated as a special test for "cavitomic cotton." Abnormal high swelling is associated with the first stages of microbial damage. The fibers are mounted in the solution and after 15 minutes their diameter is compared with the diameter of normal control fibers. Normal fibers may, for instance, swell from 17 till 27 microns, damaged fibers up to 37 microns (see Figure 3.)

4. **Methylene blue test**—This is a micro-chemical test for hydrocellulose, which substance is formed by various types of chemical damage, e.g., acid tendering. The presence of hydrocellulose is indicated by an increased affinity for stain.

Details of the above tests are found in our text book on "Fiber Microscopy".[1]

CHEMICAL TESTS

1. **Extract pH**—This is one of the most promising tests for detecting microbial growth. The test was originally introduced for the detection of "cavitoma." It is carried out by kneading, with a glass rod for 30 seconds, one gram of the fiber with 15 cc. distilled water and determining the pH of the liquid. (This can be done in a simple way by adding .25 cc. of "Gramercy" universal indicator to 5 cc. of the liquid

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[1] A. N. J. Heyn. "Fiber Microscopy", a textbook and manual. Interscience Publishers, New York, 1954.

in a test tube and estimating the pH in comparison with the color chart supplied with the indicator). The normal pH of undamaged cotton ranges from 6.3 to 7.3 in case of microbial growth, it may be as high as 10.0. For cavitomic cotton values from 8.2 to 9.5 have been reported. The pH change would be a response to growth of fungi on non-cellulosic constituents of the fiber.

2. **Kendall copper index for reducing substances** (E.S.R.M.) — Another chemical test, originally used for identifying cavitomic cotton, is a test for reducing substances. One gram of cotton is kneaded with a glass rod in 3 ml. of hot, distilled water; 2½ ml. of extract is recovered by centrifuging. One ml. of the extract is brought to a boil after adding a "Clinitest" tablet (as used for urinalysis of sugar). After 15 seconds, the solution is diluted to 15 ml. and the color compared with that of standard dextrose solutions.[2] Although fungi can definitely cause a decrease in reducing substance content cotton fiber, a low content does not necessarily imply microbial action, since leaching by heavy rainfall and other conditions may complicate the situation.

3. **Tests for honeydew**—The presence of honeydew on the fiber can be demonstrated with the customary sugar reactions, e.g., Fehling's (Benedict's) copper solution. This reaction can be intensified by subsequent spraying of the cotton with phospho molybdic acid (using a glass atomizer). The cuprous oxide of the sugar contaminated areas react to give an intense blue color. The uncontaminated areas appear colorless.

Figure 1. CONGO RED TEST: left, undamaged fibers; center, slight mechanical damage (note stained damaged spots); right, seriously mildewed fiber (upper and lower portion stained). (250 X).

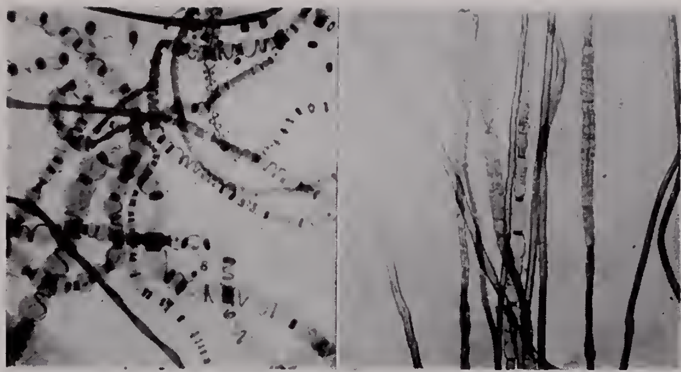

Figure 2. SWELLING TEST in carbon disulfide and sodium hydroxide; left undamaged fiber (note regular balloons); right, cavitomic cotton. Swelling is more evenly distributed along the cavitomic fibers, and no typical balloons are formed. (About 50 X).

4. **Tests for changes of the cellulose molecule**—Various tests exist for the detection of chemical changes of the cellulose molecule, such as a change in length (DP) and the formation of oxy- and hydrocellulose. These standard tests have long since been customary in cellulose chemistry and have been review in various texts.[3] They are only briefly mentioned here.

The **chain** length can be measured from the viscosity of cellulose dissolved in cuprammonium hydroxide or in cupriethylene diamine solution.

An increased **copper number** (the copper reduced from cupric to the cuprous state by the aldehyde groups) is also associated with degradation of cellulose molecules.

Also, an **increase of cardoxyl groups** may accompany degradation and is indicated by an increased absorption of basic dyes such as methylene blue.

A **test for oxycellulose is Turnbull's blue test.** It is based on the formation of an insoluble ferrous salt by the larger number of carboxyl groups. Methylene blue absorption can be, also, used for indicating carboxyl groups.

(**Hydrocellulose** is formed under the action of acids and results in shorter molecules of higher reducing power. **Oxycellulose** is formed under the action of oxidizing agents or light. Oxidation in acid condition results in an increase of aldehyde groups; oxidation in alkaline condition results in an increase of acid groups; Chain shortening only occurs if oxidation takes place in alkaline condition and in laundering).

[2] The five standard solutions contain from zero till 1,5 mgr./ml. dextrose. E.S.R.M. value 1 corresponds to .1 mgr.-dextrose per ml. etc. In normal cotton, the values lie between 8 and 10, in cavitomic cotton in advanced stages, between 0 and 3.

PHYSICAL TESTS

1. **Color and light reflectance** — Discoloration of cotton occurs mainly during weathering and has been associated with the presence of dark colored mycelia of fungi. The determination of color and light reflectance is customary in normal cotton grading. New instruments, for measuring color and light reflectance by cotton, have recently been introduced. (Color Difference Meter and Cotton Luster Meter).

2. **Colored spots**—The presence of colored spots may indicate mildew or chemical contamination. Microscopic examination readily reveals mildew by the presence of dark colored hyphae or fructifications (conidia). Contamination may result from grease and tar. Tests with suitable solvents like carbon tetrachloride differentiates the latter spots from the first ones.

Certain yellow spots have been associated with pink boll worm. Other types of yellow spots show fluorescence in ultra violet light, and have not yet been fully explained.

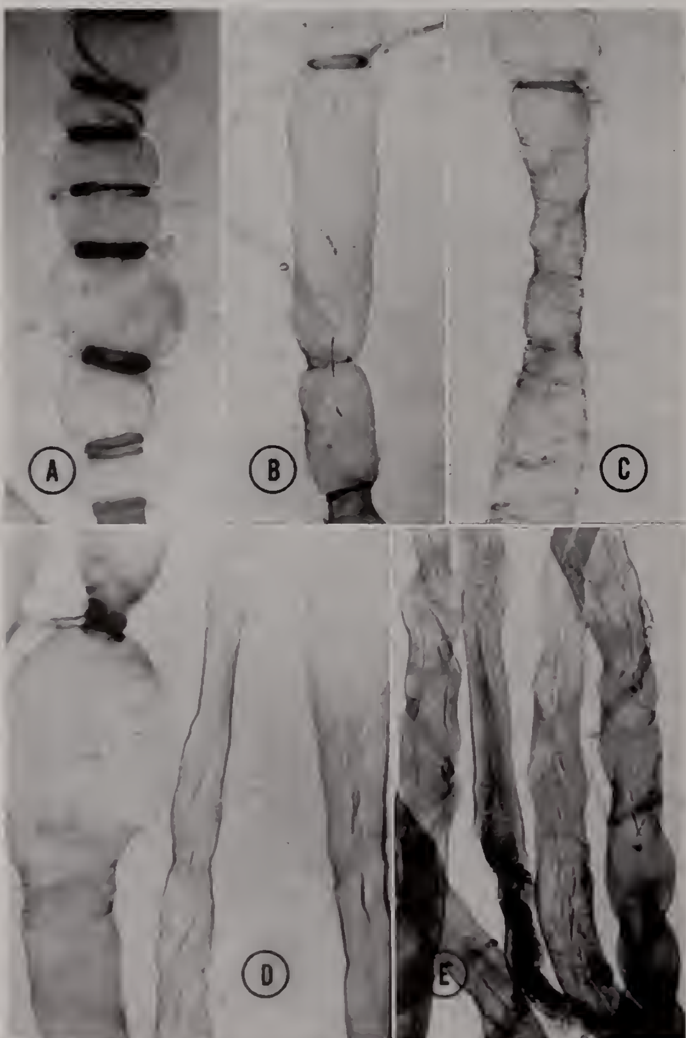

Figure 3. SWELLING TEST in carbon disulfide and sodium hydroxide: A—undamaged fibers (note regular balloons separated by strings of primary wall); B and C—cavitomic cotton (note absence of regular balloons, strings of primary wall at large, irregular distance); D—different degrees of swelling in cavitomic cotton; E—fibers severely damaged by fungi (note absence of typical swelling, and presence of fungal hyphae). (About 230 X).

3. **Fluorescence in ultra violet light** — the use of ultra violet light for detecting microbial and other damage has been known for many years and has been suggested long ago for detecting mildew in cotton. The investigation in ultra violet light has lately gained new interest and has even been "rediscovered." A tendency exists now for using it as a rapid universal test for damage. Wave lengths of 3660 and 2537 A. U. are used. The long wave ultra violet radiation is sometimes called "black light." Inexpensive portable lamps are available. (They are used in our Textile School).

Various types of fluorescence are found in cotton (dull ivory, yellow, bright green, and a blue type), and a variety of different causes may underlie fluorescence in cotton.

Many contaminants such as machine oil and tramper grease and certain oil sprays, as used lately in processing, have an inherent fluorescence.

A bright green fluorescence is associated with growth on the fiber of a special fungus (Aspergillus flavus). The growth of another fungus (Alternaria) may cause white fluorescence. This type of microbial fluorescence has been first discovered in cottons from Arizona, Texas and California. The author found in his present research project that, also, certain cellulose bacteria may cause fluorescence in cotton. (see Fig. 4 and 5) The growth of other fungi and bacteria is not associated, however, with fluorescence and it is not allowed, therefore, to use fluorescence as a **general** test for microbial growth as has been done sometimes.

Intense yellow fluorescence and a reddish fluorescence of low intensity are associated with the prescence of honeydew, and have been suggested as a rapid test for this defect.

An ivory white fluorescence has been associated with **age** and with **heat** damage. This fluorescence has been ascribed to the presence of oxycellulose formed by exposure to light and heat. It has been suggested as a rapid test for these types of damage.

It will be clear from the above, that fluorescence of cotton is a complicated phenomenon, which may result from different causes.

BIOLOGICAL TESTS

The most positive evidence for microbial damage is the isolation and growing of the microorganisms from the fiber on suitable substrates, and the testing of their cellulolytic ability. The microscopic recognition of hyphae on the fiber is in itself not sufficient for this purpose, since many fungi grow on other

[3] J. Skinkle, **Textile Testing**, Chemical Publishing Co., Inc., 1949.

Figure. 4. FLUORESCENT COTTON: left in light; right; in ultra violet light; radium dial for comparison.

Figure 5. CULTURE ON FILTER PAPER IN PETRI DISH OF FLUORESCENT BACTERIA ISOLATED FROM FIELD COTTON: left in ordinary light; right in ultra violet light; radium dial for comparison.

components of the cotton fiber than cellulose, without causing damage to the cellulose.

For purposes of identification, it often suffices to bring small tufts of the fiber on sterile 2 percent agar agar in glass dishes under which condition the fungi rapidly grow out to form fructifications.

The cellulolytic ability can be directly tested by transferring the fungus on a substrate containing cellulose **as the only carbon source** (a suitable substrate is sterile filter paper wetted in an aqueous solution of certain mineral salts). Figure 6 is a photograph of colonies of cellulolytic fungi grown in this way on filter paper.

Standard techniques for testing fungi use cotton duck instead of filter paper, the loss in strength of the fabric in a certain period of time is used as a measure for the cellulolytic activity of the microorganism.

Modern **biochemical** methods for detecting microbial growth in cotton are being investigated in Clemson.

From the above, it will be clear that only a few exist that are fully specific. The most specific tests are those for **microbial damage. Mechanical damage** can be specifically recognized by the Congo red test, in the hand of experts. Changes in D. P. are not specific for mechanical damage. Certain types of **chemical damage,** like oxidation of cellulose, can be chemically detected. The changes in D. P. in chemical damage, again do not furnish a specific test. For the detection of **heat damage,** no suitable specific test exists at all. The decreased D. P. is not specific since it occurs also in mechanical and chemical damage. The Congo red test requires great experience and is both tedious and unreliable here. Certain changes of some mechanical properties like brittleness, torsion resistance, etc. might offer a basis for tests. It would be of utmost importance if a suitable test for this type of damage could be designed.

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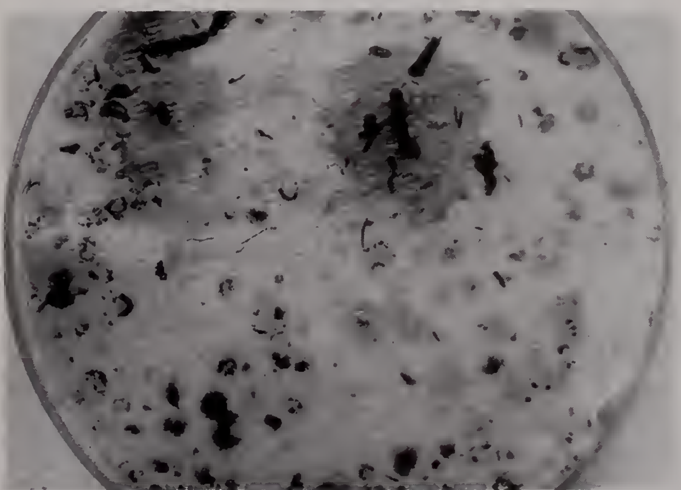

Figure 6. CELLULOSE-DECOMPOSING FUNGI: grown on filter paper (in Petri dish); paper wet in a solution of mineral salts.

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For Management

By
CHAUNCEY W. LEVER
Director of Public Relations
Abney Mills - Erwin Mills

Abraham Lincoln said: "Public opinion is everything. With public opinion nothing can fail; without it nothing can succeed."

Public relations is the fourth pillar of support for management, along with production, finance, and distribution. Public relations was so established when two truths were recognized: first, that sound public acceptance business cannot hope to exist.

People today listen to more words, more stories, and more ideas than ever before. As a result, people hear the story about us and form an attitude or an impression.

The practice of public relations did not gain general acceptance until some twenty years ago. Even now it is not as widely understood as it should be.

Fundamental

Public relations is fundamental in every constructive effort of management in the sense of its being an effort to obtain favorable public opinion of a company and its products.

An often-quoted corollary is that every company in any way in contact with the public has "public relations" whether it likes it or not. A company's public relations is expressed in public opinion of the company and, whether it is good or poor, depends solely on what the company does about it.

Any company can enjoy the advantages of good public relations if it will make an adequate effort.

No business management is today considered to be progressive and modern by other business managements unless the public likes it, unless its public relations are in good order.

Must Be Planned

Public relations must be planned. Two types of plans may be used: (1) an overall-plan which outlines the entire program for a certain period and which can be revised periodically, and (2) a "Project" plan which considers one activity at a time. Both should be committed to writing.

The public relations program of work should cover (a) the need, (b) the goals, (c) the special groups to be reached, (d) ways to reach these groups, and (e) ideas that will help put across the company's story.

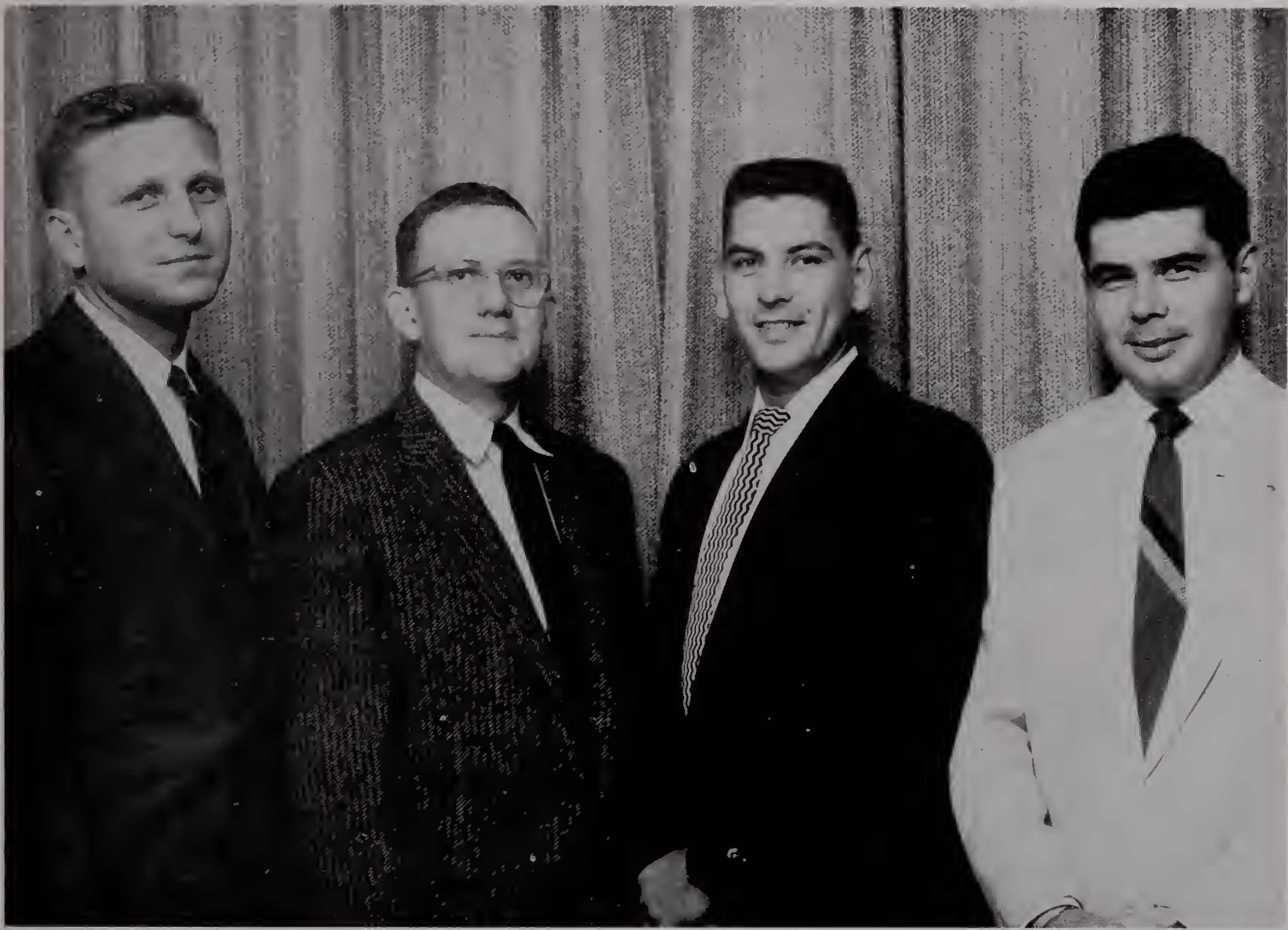
Special Publics

The company should direct its public relations program to at least seven special publics as well as to the general public: its employees, the people of its community as neighbors, its trade groups, its customers, its suppliers, its stockholders, the students in schools and colleges.

If the company is to serve its customers with quality products and make prompt delivery of these products, then its employee relations must be good.

The company which does not have friendly relations with the people in its community is likely to have trouble keeping its employees loyal and its labor turnover at a minimum. It will have difficulty in recruiting promising young people. These are only three of the penalties for a poor local reputation.

(Continued on page 26)



Left to right, L. T. Runge, President; Stanley Powell, Secretary; J. E. Atkins, Jr., Warden; E. F. Puryear, Sr., Warden. Absent when picture was made: Vice-President, J. H. Coleman; Treasurer, Richard McClellan.

Clemson's Iota Chapter of Phi Psi

Phi Psi fraternity had its beginning on March 18, 1903, at the Philadelphia College of Textile Engineering. Five students of that institution met with the comomn goal of founding a fraternity which was to promote good fellowship, social intercourse, mutual advancement of its members and the art of textile manufacturing. These ideals have been promoted through the years, and Phi Psi can now point with pride to many of its alumni who hold high positions in all branches of the industry.

Clemson's Iota chapter was formed in May, 1927. Since its beginning, Iota chapter has constantly been engaged in activities and projects aimed at improving the local organization.

This year, the members are selling towels in the school colors with CLEMSON TIGERS woven down the center. For several years, the fraternity has made its club room in the basement of the textile building available to all students. This has become a favorite place to relax between classes and enjoy refreshments from the two vending machines located there.

Eligibility for membership in the fraternity is based largely on an individual's class standing at the textile school. Persons who are in the upper one-fifth of the junior class or the upper one-third of the senior class are given consideration. Also, the top two men of the sophomore class are eligible for membership.

Officers are elected each spring to serve their terms the following year. This year's officers are: President—Louis Runge, Textile Manufacturing, Greenville, S. C.; Vice President—Jim Coleman, Textile Manufacturing, Anderson, S. C.; Secretary—Stanley Powell, Textile Chemistry, Rock Hill, S. C.; Treasurer — Richard McClelland, Textile Engineering, Spartanburg, S. C.

The Ideal Drawing *for carpet yarns*

IDEAL High Speed Ball Bearing Drawing Rolls* are today producing perfect carpet yarn sliver from 3" staple 15 denier Nylon and other synthetics combined with each other or with cotton or wool fibres. They do this at their usual high speeds without any evidence of shearing or "cockling". Ideal's exclusive construction also eliminates practically all of the static troubles usually encountered when synthetic fibres are run.

And, of course, Ideal Drawing gives you the famous Feathertouch Drafting which never crushes, cuts, or bruises even the finest fibres—and which requires no adjustments and practically no maintenance. If you produce carpet yarns—or any other type yarns—it will pay you to get the facts about Ideal High Speed Ball Bearing Drawing today.

Ideal Drawing can be furnished on complete new Ideal Frames or as replacements on any make drawing frame.

*Patent Nos. 2,610,363; 2,490,544; 2,412,357. Other patents pending

Ideal Industries, Inc.
Bessemer City, N. C.

PROCESSING SYNTHETICS ON A ONE-PROCESS PICKER

RAYMOND C. GAGNON, Director
School of Textiles
International Correspondence Schools

Adapting to the Requirements

Introduction of synthetic fibers to the textile industries presented many complex problems. In practically all instances, machinery manufacturers were not prepared to cope with the problems. Responsibilities were placed on the shoulders of mill personnel—from the superintendent down to the operators. These persons had to solve the problems if the mills were to satisfy the needs of the buyers. Picking was not left out of this picture. As a matter of fact, picking became one of the most important processes involved.

Although most of the machinery used for processing cotton can be used without change for the synthetics, the picker must undergo certain drastic changes in order to obtain the best results. Many models and makes of pickers were quickly adapted to synthetics and they produced good laps consistently.

There has been much controversy over the type of picker best suited for the job. You can understand this if you realize that individual mills adapted its own pickers to meet their requirements. In spite of what one mill or another may say, there are certain conclusions which were reached, and these were reached in practically all the mills. A brief outline for processing various synthetics will be given here as a guide to any person or persons who may some day be responsible for this process. It must be remembered, however, that certain changes might have to be made to fit each particular problem.

Beaters

Blade beaters are not recommended for synthetics although they have been used with some success. Porcupine, or Buckley beaters also are not too satisfactory for the staples. As a rule, most machinery manufacturers and fiber manufacturers will recommend the use of Kirschner beaters with bullet-nose pins. This type of beater will open the stock satisfactorily and does not have the tendency to load up. Also, the bullet-nose pins, with their somewhat rounded ends, are less apt to damage the fibers.

General Recommendations

For most synthetics, the grid bars should be closed as much as possible. This prevents the loss of good fiber but does not interfere with the air currents. The air currents should be strong enough to properly carry the fibers to the cages. In other words, the fans must be operated at high speeds, as much as 1,400 rpm in some cases.

Most cotton pickers are equipped with a single split-lap eliminator, which acts on the lower surface of the lap as the lap is formed. In processing synthetics, a double eliminator should be utilized; that is, another split-lap eliminator should be made to act on the upper surface of the lap. This arrangement will generally eliminate all split laps, common with synthetics. It has been found practical to use roving made of the same fiber being processed to prevent split laps. In this case, a wooden creel can be constructed to hold the roving bobbins and placed over the calendar section of the picker. As the lap is being started, the roving is drawn around the lap pin and is made to rotate with the lap. This forms a binder between each successive layer of the lap. Here, however, you must be certain the fibers are identical.

Important Data

The following data is based on practices that have been proved successful. As you have been told, certain changes from speeds and adjustments suggested are often necessary to meet specific requirements. You will find, however, that the information given will give you a sound and firm knowledge with which to begin.

RAYON

A two-beater one-process picker will give the best results. Maximum production should be between 350 and 400 pounds per hour. Beats per inch should be maintained around 33 to 36. Fan speeds should be about 1,100 to 1,400 rpm. Any speed above that should be avoided if possible. Adjust the dampers so that most of the draft will come through the top cage.

ACETATE

Maintain the beater speed between 700 and 800 rpm for best results. Recommended fan speed is 1,600 to 1,800 rpm. A double split-lap eliminator is practically a necessity to produce a good acetate lap.

NYLON

Kirschner beaters should be used in almost all instances. Other types can be used successfully when low percentage blends of nylon with cotton are to be processed. Beater speed should be held to from 800 to 1,100 rpm, and 33 beats per inch is generally sufficient. Fan speed is regulated so that the stock is directed to both cages in equal proportion—1,200 to 1,750 rpm should do the trick. Nylon's bulkiness more or less requires a light lap, say around 12 ounces per yard and about 30 yards in length. A setting of 1/8 to 1/2 inch between the beater and feed rolls works well. Pressure on the lap rack should be from 40 to 60 pounds.

ORLON

Orlon can be processed more or less similar to nylon with minor changes. The beater to feed roll setting should be between 3/16 and 3/8 inch. For Kirschner beaters, 25 to 30 beats per inch will produce satisfactory results. Air flow should be directed primarily to the top cage to prevent split laps. Fan speeds of 1,400 to 1,700 rpm are usually required. Pressure on the calender section is critical with Orlon. Some mills have used cardboard tubes over the lap pin, but a single layer of heavy paper works equally well in preventing the lap pin from sticking. Above all, paper does not prevent the lap from contracting. If Orlon laps are to be stored for any amount of time, they should be wrapped in paper.

DACRON

This staple will react somewhat similar to Orlon in a one-process picker. Beating of the staple should be held to a minimum. Fan speeds of 1,200 to 1,400 rpm give satisfactory results. The weight of the lap should be in the immediate vicinity of 12 ounces per yard.

DYNEL

Kirschner beaters with bullet-nose pins should be used for best results with this fiber. Beater speeds of from 550 to 700 rpm are sufficient. Fan speeds should be high to produce an even lap — 1,400 rpm being quite satisfactory. Beater to feed roll settings should be about 1/4 inch. Bulkiness is the big problem here and limits the length of finished lap although the usual weights of 12 to 14 ounces per yard can be utilized. Static electricity can be minimized with highly controlled humidity in the picker room.

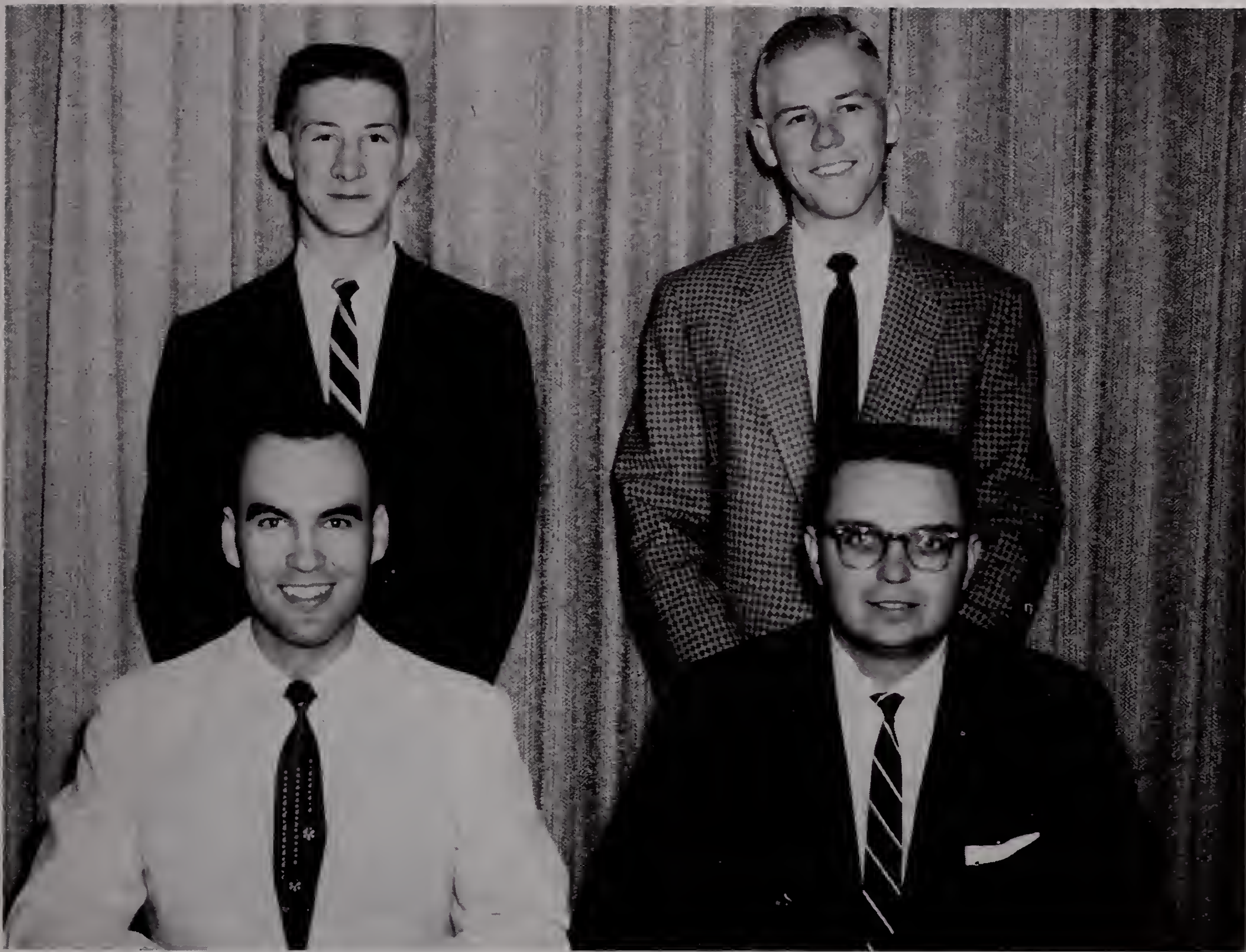
ACRILAN

This is another of the many synthetics that can be successfully processed on cotton pickers. Lap weight should be limited to from 12 to 13.5 ounces per yard and around 30 yards in length. Beater speeds of from 650 to 900 rpm have been used satisfactorily. Pressure on the lap rach can be between 40 and 60 pounds for good results. Unlike Orlon, a cardboard tube is recommended for use over the lap pin. A double split-lap eliminator is practically a necessity. If the picker is equipped with a blending reserve, the draft in the finisher section should be reduced by about 30 percent.

Summary

The outlined procedures may or may not be suitable to all mills. It is up to the mills themselves to determine exactly what settings and speeds will produce the best results. The foregoing recommendations offer a starting point and an excellent position from which to begin.

No attempt has been made to cover all the synthetics manufactured for consumer use today. New synthetics are apppearing all the time. It has been attempted here to supply a general background and knowledge which can, at some future date, give you somthing to start with in an attempt to achieve good results. By keeping abreast of all new synthetics and the recommendations of the fiber and machinery manufacturers you are in a position to be many steps ahead of the next man.



Seated, left to right: D. E. Smart, Vice-President, Greenwood, S. C.; W. T. Linton, Jr., President, Columbia, S. C.; Standing, left to right: T. B. Philips, Treasurer, Anderson, S. C.; J. C. Bright, Secretary, Spartanburg, S. C.

National Textile Manufacturers Society

The Alpha Chapter of the National Textile Manufacturers Society was formed on March 13, 1951, for the purpose of bringing about a more intimate relationship between the textile industry and the undergraduates of the textile manufacturing, textile engineering and knitting schools.

The organizational colors of the Alpha Chapter are white and purple. The seal is a coat of arms containing a bale of fibers, a cone of yarn, and a bolt of cloth.

All sophomore, juniors, and seniors majoring in textile manufacturing, textile engineering and knitting are eligible for membership. There are no requirements for membership except those listed above.

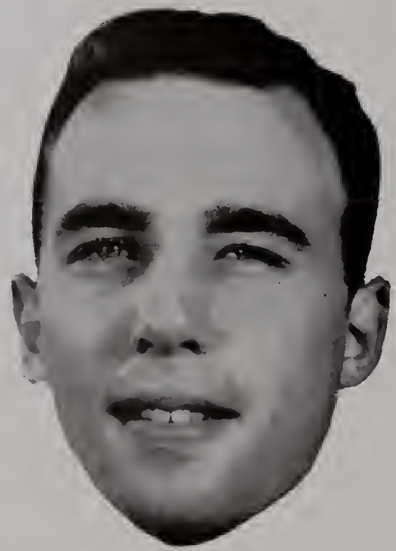
During the last few years membership and interest has fallen off considerably because of one reason or another. This year, however, NTMS is striving to get back on its feet again and become a worthwhile organization as it was in the past.

This year, NTMS plans to have one speaker a month. This speaker will be from some branch of the textile industry or an industry closely related to textiles. NTMS meets twice monthly, so with a speaker scheduled for one meeting, the other is left free for a business meeting or a student program.

Last year a directory was purchased for the Textile Building by NTMS from money made from the sale of socks. This year, NTMS again plans to sell socks for some worthwhile cause which has not been decided upon. Also in the planning stages is an open house at the Textile Building during Homecoming Weekend with guided tours through the building sponsored by NTMS.

These are just a few of the activities planned for NTMS in 1956.

Outstanding Seniors



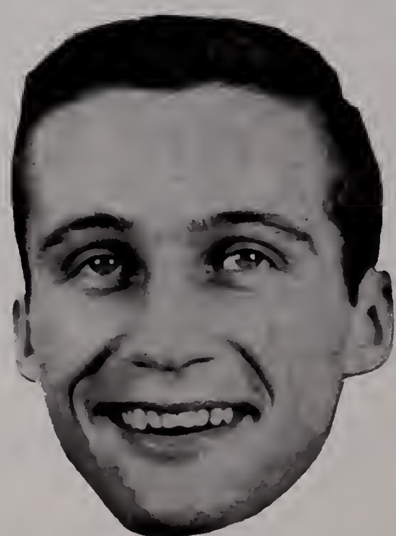
Charles Wates Bussey, Jr., is a Textile Manufacturing senior from Henderson, N. C., and plans to graduate in June, 1957. Aside from participating in football, in which he is presently captain of the varsity team, he has proved himself by making excellent records in many campus organizations and by maintaining commendable grades. He received honors his junior year. Charlie is a member of the Tiger Brotherhood, treasurer of the Arnold Air Society, vice-president of the Blue Key, a member of the Block "C" Club, and a Group Commander in AF-ROTC.

Upon graduation Charlie plans to serve his required time in the Air Force. After this he is interested in entering the production line of textiles.

Newton Stall, Jr., is a Textile Manufacturing senior who hails from Greenville, South Carolina. Newt is a person who has participated in practically every activity on the campus. He is now President of the Presbyterian Student Association, President of the Clemson Student Body, and Student Chairman of Religious Emphasis Week.

Organizations in which he is a member are Phi Psi — the textile honor fraternity, Blue Key — a national service organization, Phi Eta Sigma, Phi Kappa Phi—a scholarship fraternity, and the YMCA Cabinet. He is also Alternus of the Central Dance Association, Lt. Col. in Army R.O.T.C. and is holder this year of Fiberglas Senior Scholarship.

After graduation Newt will enter the Army for 2 years and then return to the textile field.



James H. Coleman, Jr., is a Textile Manufacturing senior who came to Clemson from Honea Path, S. C., but he now resides in Anderson, S. C.

Jim is very active in sports in that he plays baseball and is presently a member of the varsity football team. Although he is very active in sports, his talents are noticed not only in the many organizations to which he belongs but also in his scholastic work.

His activities include being vice-president of Phi Psi, president of Block "C" club, secretary-treasurer of Blue Key, treasurer of Tiger Brotherhood and a member of the Arnold Air Society, Council of Club Presidents, and Student Assembly.

Jim is a Major in the Air Force ROTC and will enter the Air Force upon graduation.

Research at Clemson During the Past Summer

Dean Brown and Assistant Professor J. S. Graham were working on several machine developments, including the following:

1. A sliver evening device. It is hoped the device will be used in conjunction with roving frames to produce a more nearly even roving from sliver of varying size. It seems the device may be able to correct for long time variations of plus or minus 25% and greatly reduces short time variations.

2. A shuttle checking device for looms in which the shuttle is tightly gripped when it is completely boxed, eliminating rebound and reducing the amount of checking usually needed.

3. A new loom pick motion in which the energy for the pick is stored up during the part of the cycle that is idle in usual loom operation, resulting in a large reduction in peak power, and considerable reduction in average power required to operate the loom and also greatly reduces vibration, resulting in smoother operation of the loom and longer life of the various parts.

Professors J. C. Hubbard and J. H. Marvin carried out a study of various opening methods, carrying the stock through all processes into yarn. The quality of the yarn was correlated with various degrees of opening.

Professor L. H. Jameson had a project on determination of stress strain curves for various finite loading times. The study showed that the curves are considerably different than those taken from the regular loading method and that the yarns have a considerably different modulus for finite loading times.

Professor T. D. Efland and Dean Brown continued work on the development of a knitting machine, designed in the Textile School. The machine knits unusual designs without needles, using thread guides only.

Professor E. A. LaRoche carried on a study of elongation in flat bundle tests for a number of selected cotton. The purpose was to correlate the elongation with variation of cotton strength with flat bundle gage length.

C. V. Wray, Associate Professor of Textiles, was engaged in a fiber density project during the summer. The object was to determine, in seven varieties of cotton, the change in fiber density during progressive stages of maturity. Further tests have been planned as a result of the findings and these will be undertaken at a later date.

Most of these projects are still in progress and when completed the articles and results will be published in various textile journals.

CLEMSON AND THE TEXTILE INDUSTRY INITIATE PROGRAM TO REVERSE 6-YEAR DOWNWARD TREND

(Continued from page 8)

Amerotron woolen goods plant at Barnwell, both multi-million dollar undertakings, and Bigelow-Sanford plant at Landrum.

Despite inroads by Japanese imports, the growth has continued this year. Almost $21,000,000 has been allocated for new plants and expansions, with another large textile company, J. B. Martin, choosing a South Carolina location for a Southern branch.

A development of significance for the woolen and worsted industry is the establishment of a wool top dyeing plant. Modern Dye Southern, at Sumter. South Carolina now has "all three"—two wool processing plants and the new dyeing company nearby.

In 1955 the second large wool processing plant, Santee River Wool Combing (branch of Amedee Prouvost of France) began operation. Previously, the Wellman Combing Company (branch of Nichols and Company, Boston) had started production at Johnsonville, not many miles away. Both are importing their raw wool through the Port of Charleston, now the full-fledged port of entry for wool for the Southeast, and potentially the No. 1 port of the nation in the future.

Another important development is the invasion of the carpet industry. Three "big names" in the industry have located in the state — Mohawk, Bigelow-Sanford and Alexander Smith. Four other rug mills were already in operation.

Encouraging trends today are toward integration and diversification. In one vast South Carolina plant, the largest on one floor in the world, a bale of cotton comes in the back door and a finished product goes out the front door. Diversification means that the industry need not depend on the success of any one phase and that all possible profits from the various steps of production can be realized.

The State Development Board says textile men find South Carolina ideally suited to their needs. Studies point to an almost unending supply of labor. For every 100 men on the farm who die or reach retirement age, there are 215 grown men to take their places. This means a constant stream of workers from the farm into industry.

A second potent factor, says the Board, is a sound, stable state government. For many years in South Carolina there has been a drop in corporate taxes. The state property tax was abolished many years ago. In 1945, the franchise tax was three mills. Later it was reduced to two mills and, finally, in 1953 was reduced further to one mill. Last year a provision went into effect permitting new industries a tax carry-forward on initial loses for three years.

The textile industry today employs 127,250 wage earners, or 68 per cent of the total number of employed industrial wage earners in South Carolina. To those employees, $336,845,000 was paid in 1954. That represents 71 per cent of the total industrial wages paid in the state's fiscal year.

The industry, as a whole, stretching through 39 states, employs 1,631,100 in 7,000 plants for an annual total payroll of $2,985,000.000. Total assets of the industry on Dec. 31, 1955 had reached $8,819,000,000.

The very scope and size of the textile industry demands confidence and faith. South Carolina's textile leaders are dedicating themselves to the task of building confidence for the future.

The advisory committee, working arm-in-arm with the Clemson College Textile School and the industry, will concentrate on four major immediate tasks.

Item number one is the development of a plan for enlisting the "full interest and support" of the state's textile industry in selling its career opportunities to the enrollment of large numbers of outstanding young men in the Clemson Textile School.

Item number two is the development of a plan to provide funds for more academic scholarships in the Clemson Textile School. Clemson recently passed the $25,000 mark in yearly textile scholarship assistance, all of which is earmarked for upperclassmen. The critical need is aid for freshmen . . . students entering the textile school who do not meet requirements currently imposed by the companies selecting recipients.

Sixteen of 46 scholarships and fellowships existing at Clemson are awarded by college selection committees. Fourteen directed to juniors or seniors, one to a sophomore, and two to graduate students. None to freshmen.

Item number three is the development of a program of summer employment for all students of the

Textile School. This program, providing each student with experience under practical mill conditions, is being developed on recommendations of the school and concurred in by the industry committee.

The committee, finally, seeks to more clearly define the expectations of the industry regarding the type of training desired in a textile graduate.

The gears of promotion were accelerated late last month at the 19th Southern Textile Exposition in Greenville. Through this medium, Clemson College saluted the textile industry's contribution to the industrial development and progress of South Carolina . . . for invaluable support of textile education through the J. E. Sirrine Foundation and other textile agencies . . . and for focusing attention on career opportunities in the industry.

Clemson also saluted its textile graduates for magnificent records of service and accomplishment in the textile and allied industries . . . for research successes that have improved the competitive position of the industry . . . and for relentless work in the field of textile education. Clemson further saluted future textile students for recognizing the variety and virility of the industry . . . and for choosing a career that affords unlimited opportunities in South Carolina.

Copies of this ad were posted on bulletin boards of the state's textile plants and high schools. Promising high school students were invited to attend the exposition. An information booth at the show was staffed by students and faculty members of industry. Literature made available includes three recently-published brochures on "Textile Opportunities at Clemson," "Clemson — a Dream Come True," and "There's a Place for You at Clemson."

The program was, in summary, three-dimensional. It proposed to keep before the public "a most interesting story of a most interesting industry," and to keep the Clemson School of Textiles and the industry it serves on a mutually cooperative basis.

And, foremost, it proposed to maintain an awareness that "people"—most particularly the supply of trained leaders—is the most important single component necessary in the future success of the textile industry . . . anywhere.

REMARKS ON A CAREER IN TEXTILES

(Continued from page 9)

may be the one whose **first** question of the personnel man will be, "What will be my starting pay with your company?". He may be the one who thinks passing his work is good enough and when he gets a position will always be thinking more of the size of the pay envelope than of giving the company a better day's work. He may be the one a union could most easily influence in its favor, believing the company could be forced to pay higher wages whether there would be profits or not. Like the first stone cutter he may think and say that he is just making a living.

The second textile student may say, "I am studying textiles to become a good overseer or superintendent. I want to learn how to run a good spinning room, a good weave shed or a good mill." This student will study harder than the first to learn all the technical phases of textiles and methods of management. He will realize the importance of working with other people and of good writing and speaking ability. Wherever employed he will strive to do a good job, using the approved methods of promoting production, reducing waste, and managing men. If asked what he is doing, like the second stone cutter he may say, "Can you not see that I am over-seeing this shift or running this spinning room?", or this grey mill, whichever is the case.

The third student may seem to be studying textiles like the first two but there will be a difference. He will be looking forward to having a thrilling part in the great, challenging textile industry, the third largest industry of the nation. He sees that textiles, being the dominant industry in the State gives him an opportunity of having a larger part in the State itself. It goes without saying that this student will make the most of his college opportunities and will realize that in addition to good operation of his shift, or of his plant, he will reach his fullest development only by enthusiastically becoming a part of an ever larger team as he advances to higher positions with his chosen company. When he gets into the industry, like the first student, he will be making his living but his real interest will be something greater. Like the second student he will be running some manufacturing unit but his attitude will not be the same. His heart and soul will be in it because of his larger vision of his part in the whole industry. In production he may have the insight and enthusiasm that is needed for his division to succeed, where otherwise it would fail. He may be one with the imagination required to produce the ever changing, glamorous fabrics that capture the consumers interest. In research he may be the one to discover new methods, processes or machines that will advance his company and all the industry. In management he can aspire to reaching positions of influence in his own company, in the industry and in the State. Whether he reaches these high places or only serves in lesser capacities he will know that all are necessary and just as the third stone cutter was "building a Cathedral," he can say that he is building the textile industry.

HISTORY OF TEXTILE SCHOOL

(Continued from page 10)

In 1931 the major in Textile Chemistry was begun and has continued to the present time. There have usually been about ten or twelve students graduating in Textile Chemistry each year.

After the Second World War there was a general curriculum revision in the whole College. In the the School of Textiles, the old Textile Engineering course was revised, dropping the few engineering subjects that were left and adding more of the Social Sciences and Textile Management courses. The name was changed to "Textile Manufacturing." At the same time a new curriculum in "Textile Engineering" was adopted, including more engineering courses than had ever been in the old "Textile Engineering" course. The Textile Chemistry curriculum was continued with only minor changes. With the addition of a Knitting Option in the Textile Manufacturing curriculum, we have our present major courses.

Except for the classes of 17 and 21 in 1902 and 1903, the number of graduates from the Textile School before 1925 remained small, never as many as twenty, a good part of the time closer to ten and in 1908 and 1909 there were no graduates. In 1925 the graduating class went above thirty but again dropped down so that thirty was not reached again until 1934. From then on there was a steady increase until the War took all students. Up until the War, the largest graduating class was in 1941 when 88 were graduated. After the War, with the return of veterans, there was a great increase in the enrollment in the School of Textiles and it reached its peak in 1950 when 216 degrees were awarded.

The present textile building, Sirrine Hall, was occupied in September, 1938. It was built during the Deanship of H. H. Willis. It was built as a P.W.A. project at a cost of about $485,000.00. It would probably take $2,000,000.00 to replace it today. At the time it was completed there were no funds for new equipment. Soon afterwards, the South Carolina Legislature appropriated $50,000.00 for equipment and the mills of South Carolina raised another $50,000.00 for equipment. By this time the Second World War had started and equipment could not be bought until after the War. Then, beginning in 1947, this $100,000.00 was used to buy new equipment for the new building. In 1950 largely through the effort of Senator Charles E. Daniel, who is a life member of the Board of Trustees, about $300,000.00 was made available to the School for equipment. With gifts and discounts from the makers of equipment, the the value of equipment procured is far more than the money that was spent. All equipment in the School of Textiles is valued at about $2,000 000.00. This expansion program was completed in 1951. At this time Sirrine Hall was dedicated.

In the early years not a great many Textile School graduates went into industry. David and Harry Jennings, brothers who graduated in 1902, both went into the textile industry and became mill presidents It was not until about 1920 that the graduates started going into the textile industry and its allied fields in large numbers. Beginning with this date there is a rather imposing list who has reached high places in the industry.

PUBLIC RELATIONS — (Continued from page 16)

Objectives

A company which does not now have an organized and effective public relations program might begin by drafting a statement of objectives and sub-objectives as follows:

1. Maintaining and furthering:
   * The long standing prestige of the Company.
   * Good community relations.
   * Good employee relations.
   * The cooperation between the company and opinion moulding groups — press, radio, television, and civic leaders.
2. Sub-Objectives:
   * Familiarizing the public with the services and the institutional significance of the company.
   * Best serving the community in a lasting manner.
   * Giving recognition to civic accomplishment.
   * Giving recognition to civic accomplishment.
   * Cooperating with community organizations.
   * Making available in the best posible way the services of the mills.

A program of activities should then be prepared and initiated.

Good public relations cannot be attained overnight. Nor can good public relations be maintained without continuing effort.

Public relations is simply doing the right thing and telling the employees and the community what you are doing.

Being a good business citizen is not enough. We must tell the public about it. At the same time, bragging has no place in public relations.

Everyone is a public relations man—from the president to the learner.

The understanding and participation of management is essential. Public relations consciousness must be developed within the company.

The functions of the public relations department are two-fold: (1) to convey and interpret information about public attitudes and reactions to members of the organization, and (2) to convey information and impressions about the organization to the public or to individual "publics."

The most powerful influence on a company's community standing **is what its own employees think and say about it.**

VATROLITE® — Use this powerful concentrated reducing agent for brighter vot dyed colors on cotton, linen and rayon . . . for faster, cleaner stripping results on silk, cotton and rayon.

DISCOLITE® — A concentrated reducing agent, highly stable at high temperatures, outstanding for dischorge and vat color printing. Employed successfully wherever the reducing agent must dry into the fabric and retain its reducing power.

PAROLITE® — A dust-free white crystalline reducing agent. Soluble, colorless, excellent for stripping wool piece goods and rags, shoddy, acetate or nylon fabric.

DISPERSALL — Effective retarder for dyeing vat colors, dispersing and leveling qualities, for dyeing nopthol and vat colors, useful in wool and acetate dyeing. Valuable auxiliary in stripping vat colors, naphthols.

CASTROLITE® — A highly sulphonated castor oil used as a staple penetrant for dyeing or kier boiling in leading textile mills. Still used extensively in finishing.

NEOZYME® — Concentroted low temperature desizing enzyme. Removes storch ond gelatine. Excellent for eliminoting thickeners from printed goods ot low temperatures.

NEOWET — Permits effective wetting at all temperatures — particularly useful with enzymatic desizing agents. No reaction to soft or hord woter. Not offected by dilute ocids or alkolies. Non-ionic. Not suitable for use in peroxide boths.

VELVORAY® — A blend of sulphonated vegetable oils and selected fats for o superior, non-foaming finishing oil. High in combined SO_3 ond stability. Excellent for compressive shrinking, will not smoke off at high temperotures.

NEOZYME® HT — Concentroted high temperoture desizing enzyme. Removes both storch ond gelatine. Suitoble for continuous pod-streom method. Remorkoble stability ot very high temperotures.

NEOWET X — Effective wetting agent ot oll temperatures from cold to boiling. Does not inhibit enzyme action in desizing bath. Good for use with resin finishes, and hydrogen peroxide bleoching liquors. Good rewetting properties. Anionic.

P.S. . . . A centrally located plant . . . strategically placed warehouses . . . and Royce's own fleet of trucks . . . mean fast, dependable delivery—always!

NEOZYME® L & NEOZYME Special —Liquid desizing enzymes in two degrees of concentrotion. Remarkable stability at very high temperotures.

VELVO SOFTENER #25 — Economical creamy white poste softener derived from highly sulphonated tallows. Gives softness and body without stiffness or offecting whites.

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Manufacturers of Chemicals for the Textile Industry