We Could Build Them Cheaper
BUT WE WON'T

Many products are built for "planned obsolescence" in order to sell new models each year.

Dyeing machines represent substantial capital investments that bring good returns for many years.

That is why we build our machines UP TO A QUALITY AND NOT DOWN TO A PRICE.

The rugged construction of Gaston County machines is your assurance of dependable performance and long service life.

Of course we are constantly improving our machines through research, but most improvements can be added to existing machines in the field.
THE BOBBIN & BEAKER

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NEOZYME® HT - Concentrated high temperature desizing enzyme. Removes both starch and gelatine. Suitable for continuous pad-stream method. Remarkable stability at very high temperatures.

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VELVO SOFTENER #25 - Economical creamy white paste softener derived from highly sulphonated tallows. Gives softness and body without stiffness or affecting whites.

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P.S. A centrally located plant...strategically placed warehouses...and Royce's own fleet of trucks...mean fast, dependable delivery—always!
In this issue, the staff has tried to make the mill employee more aware of cotton before it reaches the opening room. Mr. Warren Garner enlightens many of us in his “Recent Developments in Cotton Ginning.” Mr. Roy Davis re-emphasizes the importance of research in “Utilization Research of Cotton.” The Kendall Company’s new testing laboratory report will be of interest to our many readers.

We thank everyone for such a good response to our Alumni News and encourage others to send to us their past experiences. We the staff, hope that as you read these articles, you will approach them negatively. The cotton in the raw state is important. One can not always confine his interests to his immediate area. Look around and realize that others have problems; especially since these problems definitely affect you in the mill.

—R. E. W.
Research Utilization of Cotton

By
Mr. Roy B. Davis

Research has brought about great changes in the cotton industry during the past 20 years. From raw fiber to finished fabric, every step of the manufacturing cycle has been affected.

In mechanical processing, emphasis has been placed on technological improvements designed to increase efficiency and lower costs. Since the end of World War II, a new philosophy of modernization has become evident. Larger packages, automatic cleaning devices, and machinery improvements such as antifriction bearings have increased the productive capacity of each worker to the extent that cottons are produced at rates which would have been called impossible 15 years ago.

The greater efficiency of improved cotton mill machinery has whittled down still another important cost factor — that of processing waste. A recent survey of more than 200 cotton mills shows that average processing waste has declined from 18% in 1930 to 13 1/4% in 1958.

Research continues to seek improvements in equipment and better methods of processing. The establishment of a pilot spinning laboratory at Clemson has come about as a result of the industry’s awareness of the shortcomings of conventional fiber testing methods. As fiber and processing data are accumulated at the pilot laboratory, studies will be undertaken to discover how and to what extent fiber properties influence processing performance. When these relationships have been established, rapid and accurate tests will be devised. Eventually, work at the pilot laboratory should make it possible to develop means for measuring cotton’s use value fully.

The remarkable progress brought about by research in mechanical processing has done much to enable the cotton industry to maintain reasonable costs in an expanding economy. The truly revolutionary change, however, has taken place in the art and science of cotton finishing. Today’s new concept of finishing, which actually had its beginnings many years ago, involves the use of chemical instead of additive finishes on cotton. Chemical finishes react with the cellulose molecule to provide many new qualities which consumers find desirable. Because these finishes are chemically bonded to cotton they exhibit permanence which is not attainable with additive treatments.

Mr. Davis is a graduate of Lubbock High School and Texas A. & M. College. Following graduation from A. & M. in Agriculture, he served five years as County Extension Agent; some eight years as manager of a cooperative creamery; then four years as vice president and secretary of the Houston Bank for Cooperatives; and during the past 18 years, he has been manager of Plains Cooperative Oil Mill.
Mr. Davis is a past director of Texas A. & M. College, and served several years as a member of the Cotton and Cottonseed Research and Marketing Advisory Committee of the USDA. He is a delegate to the National Cottonseed Products Association, a director of the National Cottonseed Products Association, and is associated with several of the area groups that are identified with promotion of cotton.

A good example of the properties which may be imparted to cotton through chemical finishing can be found in the wash-wear or easy-care development. The original research leading to the present finishes actually dates back to the late 1920’s. During the early years, the textile and chemical industries largely over-looked the possibility of using cotton as a base for chemical finishes. After World War II, however, these chemicals were applied in volume to cotton, and resulted in the crushproof and crease resistant finishes of the early 1950’s.

Since then improvements in easy-care finishes have come thick and fast. Melamine-formaldehyde pre-condensates, an improvement over urea-formaldehyde products, were introduced shortly after World War II. The cyclic ureas followed in the early 1950’s. Now, one of the most commonly used of the cyclic ureas is dimethylol ethylene urea. Still more recently, several new types of cellulose-reactant creaseproofing chemicals, such as acetics, epoxides, triazones, and specially modified triazine compounds have been introduced. Each offers improved creaseproofing properties over formerly used compounds, particularly for white fabrics.

The acceptance of easy-care cottons by the consumer is graphically portrayed by recent production figures.

<table>
<thead>
<tr>
<th>Production of Resin Finished Cotton Fabrics, 1955-1959</th>
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<tbody>
<tr>
<td><strong>Million Linear Yards</strong></td>
</tr>
<tr>
<td>1955</td>
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<td>1959</td>
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<td>(Derived from “Easy-Care Cottons,” National Cotton Council of America, June 1960)</td>
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From a level of 600 million linear yards in 1955, production of resin finished cotton fabrics has moved upward sharply to an estimated 1.9 billion yards in 1959. While the rate of increase has leveled off, current interviews with cutters and retailers indicate that the growth trend is still upward. Furthermore, a leveling off in production suggests that consumers are looking for further improvements in easy care qualities; not that the demand for easy care products has been saturated.

The following table shows cotton's position, in 1959, among the other major types of easy-care fabrics:

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<th></th>
<th>Billion Lin. Yds</th>
<th>% of Total</th>
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<tr>
<td>Cotton</td>
<td>1.93</td>
<td>63</td>
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<tr>
<td>Rayon</td>
<td>.38</td>
<td>13</td>
</tr>
<tr>
<td>Cotton-Synthetic Blends</td>
<td>.13</td>
<td>4</td>
</tr>
<tr>
<td>Synthetic Blends</td>
<td>.07</td>
<td>2</td>
</tr>
<tr>
<td>Glass Fiber Fabrics</td>
<td>.10</td>
<td>3</td>
</tr>
<tr>
<td>Nylon</td>
<td>.27</td>
<td>9</td>
</tr>
<tr>
<td>Polyester Fibers</td>
<td>.15</td>
<td>5</td>
</tr>
<tr>
<td>Other Synthetic Fiber</td>
<td>.03</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>3.06</td>
<td>100</td>
</tr>
</tbody>
</table>


These figures give adequate proof that past research on easy-care properties for cotton has paid off in a big way.

Consumer demand for improved easy-care cottons has lead research to what could easily be called the most significant development in easy-care finishes since their inception. New finishes, which are just becoming commercially available, promise to bring cotton closer than any other fiber to the ideal in wash-wear performance. By providing cotton with an optimum combination of both wet and dry wrinkle resistance, the new easy-care finishes completely eliminate the need for messy drip drying. These finishes are, in addition, non-chlorine retentive, non-yellowing, completely bleachable, and unaffected by high laundering or drying temperatures. The time is close at hand when all easy-care cottons can carry the simple instructions, “wash and dry in any way you please”.

Easy-care cotton is a highly successful example of the accomplishments of chemical finishing. Equally great opportunities lie in other areas. Chemical finishes are applied to easy-care cottons to give them a memory for the flat, unwrinkled state. By applying these same treatments to highly twisted or crimped cotton yarns, the yarn can be given a mem-

(Continued on page 18)
The Kendall Company Cotton Testing Laboratory

by
L. D. Pryor

The Kendall Co.'s Textile Division has recently completed the construction of a new cotton testing laboratory in Newberry, S. C. Formerly most of the Kendall's fiber testing operations were conducted at the company's research laboratories in Charlotte, N. C.

The new laboratory now adjacent to the cotton buying office is designed to provide the company with an expanded fiber testing program as well as reduced sample handling and shipping costs. Closer communications between the laboratory and the cotton buying office, as well as between the laboratory and the mills can be maintained.

The laboratory, rather than become a part of the cotton buying, continues to remain under the jurisdiction of the research department which it is felt gives it a greater value to the company as a whole in carrying out its three basic functions which are:

(1) A service-type testing for the cotton buying office is provided. This becomes most active as the new crop cotton begins to become available on the market. Believing very strongly in the old adage that "an ounce of prevention is worth a pound of cure" great emphasis is placed on pre-purchase testing of cotton from the various buying points and areas in which the company is interested. Since neither facilities nor time are available for testing on a 100% basis for all the desired fiber properties, this program is kept flexible and more emphasis is given to certain fiber properties during certain years and even within the buying season itself.

(2) Special fiber testing is provided for the mills to help them to make better use of the cottons on hand in relation to greater processing efficiency and better quality of end product.

(3) Fiber research projects are conducted. In recent years special emphasis has been placed on various things which cause a decrease in the fiber length distribution. Such things as the physical damage from over-machining, chemical damage from over-heating of the fibers, and damage resulting from weathering, microbial attack, etc., have been investigated in the laboratory as well as by mill tests. In several instances new and faster techniques have been developed for detecting these types of damage. Also some experiments have been done in conjunction with the breeders who are further trying to improve the fiber properties of cotton.

Physical tests conducted at the laboratory include fiber strength, fineness, maturity, nepping tendency, length distribution, and percent waste in the fibers.

Fiber strength tests are made with the Scott-Clemson bundle tester. For years Kendall has used 1/16" gauge length rather than the conventional 0 gauge or more recently the 1/8" which does not seem to be readily accepted by the cotton industry. Fiber strength is highly associated with yarn strength and plant running conditions, including ends down in spinning and weaving efficiency.

Fiber fineness is tested with Spinlab's self contained Speedar instrument which may be moved easily from one location to the other. The values are read off in micronaire units; however, not only is a narrow range of fineness desirable, depending on the on the end product of course, but when wide differences do occur it is essential to know about these and to blend them properly. Coarse cottons do not process very well, and fine cottons tend to have a high nepping tendency which cause imperfections in the yarn and uneven dyeing in the cloth. Fineness is measured for the mix as well as at subsequent places in processing.

Fiber length measurements are made on another Spinlab testing instrument, the Digital Fibrograph. This machine measures the long part of the fiber distribution in addition to the short fiber content. Fiber distribution, especially short fibers (one-half inch and less) have a great influence on running conditions. High short fiber content in the raw stock means more lint, fly and waste in processing as well as more ends-down in spinning and a poorer quality yarn. Fiber length distribution of the mix as well as

(Continued on page 11)
CONES — All types in a variety of sizes, tapers, noses, colors, surfaces, colored tips and bases, printed, treated, perforated; all to customer specification.

TUBES and CORES — For every textile need. Parallel, convolute or spiral construction. Special treatments for strength, moisture resistance, etc. Made in colors, lacquer ends; with printed, smooth, rough or plain surface. Up to 45” I.D.

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Constant research for better, economical paper carriers!

No item in the Sonoco line is ever static ... improvement is constantly sought. It started in 1899 when Sonoco revolutionized the entire textile industry by introducing an inexpensive, high quality paper cone as a carrier for yarn. Since then, experience, engineering and research have been the foundation for every advancement Sonoco has made. This never-ending program has provided the textile industry with carriers for better and faster production — at less cost.

Completely integrated manufacturing facilities assure close quality control. Only Sonoco, in its field, provides the necessary knowledge, skill and capacities to meet the ever-changing techniques of the textile industry. Let Sonoco experience help you!
Since textile Mr. THE Class Inc. and S. Class ville, chants and in S. Mills, generally of TEN ville,structor Smith Springs S. graduated, trial Class is presently Manager of Monarch and Ottaray for Monarch Mills in Union.

Class of 1924

WHITE, JESSE A., a textile major from Chester, S. C. Since graduation, Mr. White has worked for Erlanger Mills, Cleveland Cloth Mills, Slater Mills and Republic Mills. At present he is Vice President and General Manager of J. P. Stevens and Company, Inc.

SHIRLEY, LEVI R., a textile major from Langley, S. C. Mr. Shirley is now employed by United Merchants and Manufacturers, Inc., as manager of Bath Mill Division in Bath, S. C.

STRIBLING, R. S., a textile major from Lancaster, S. C., employed by Springs Cotton Mill. Mr. Stribling is General Manager of Grace Bleachery in Lancaster, S. C.

TOLLESON, LOUIS C., a textile major from Greenville, S. C. Mr. Tolleston is now employed by Cone Mills as Chief Engineer of their Finishing Division in Greenville.

Class of 1926

TAYLOR, WALTER HERMAN, a textile engineering major from Laurens, S. C. Since graduation, Mr. Taylor has been card room overseer, superintendent, general superintendent, and is now General Manager of Pelzer Mills, Kendall Company, Pelzer, S. C.

CARPENTER, ERNEST W., from Greenwood, S. C. Mr. Carpenter is now manager of Cotton Department of Greenwood Mills.

SAUNDERS, J. H., a textile major from Chester, S. C. Mr. Saunders is now Manager of Springsteen, Springs Cotton Mills.

SMITH, GEORGE A., from Greensboro, N. C. Mr. Smith is presently Manager of Quality Control for Cone Mills Corporation.

Class of 1929

VINCENT, WALTER DURELLE, a textile industrial education major from Orangeburg, S. C. Since graduation, Mr. Vincent has worked as a Textile Instructor in Great Falls, S. C., and as Principal of Danville, Virginia Textile Trade School. He has also been Personnel Director of Dan River Mills and presently is Superintendent, No. 1 Division, Dan River Mills, Inc.

ADAMS, JAY L., from Spartanburg, S. C. Mr. Adams is presently General Superintendent of Beaumont Division, Spartan Mills.

FUNDERBURK, OSCAR F., from Greenville, S. C. Mr. Funderburk is now Standards Supervisor of the Lyman Plant for Wamsutta Mills, Inc.

PITTS, IRA J., from Union, S. C. Mr. Pitts is presently Manager of Monarch and Ottaray for Monarch Mills in Union.

Class of 1932

HOFFMAN, HENRY C., a textile chemistry major from Sumter, S. C. Mr. Hoffman is now Head Colorist for Santee Print Works in Sumter, S. C.

HOWZE, WILBER KELLY, a textile chemistry major from Sumter, S. C., employed as a night superintendent. Mr. Howze works for Santee Print Works.

RHINEHEART, JAMES BERRY, from Winnsboro, S. C. Mr. Rhineheart is now serving in the capacity as Overseer in Card Room for Winnsboro Mills, U. S. Rubber Company.

SUNDER, HENRY W., from Great Falls, S. C. Mr. Suber is now Assistant General Manager in Rock Hill for J. P. Stevens & Company, Inc.

WILLIS, THOMAS JERALD, from Danville, Virginia. Mr. Willis is now Assistant Superintendent of Division #1 for Dan River Mills in Danville.

Class of 1934

ADAMS, L. M., from Cramerton, N. C., employed by Burlington. Mr. Adams is now overseer of Cloth Dyeing in the Cramerton Plant.

LYNES, O. B., from LaGrange, Georgia. Mr. Lynes is now Sales Assistant for Callaway Mills Company in the Val Way Plant.

METTS, WILLIAM P., from High Shoals, North Carolina. Mr. Metts is presently Shift Overseer in the Weave Room for Burlington in the Carolinian Plant.

SHARP, BENJAMIN K., from Albemarle, North Carolina. Mr. Sharp is now Superintendent of Norwood Plant, Collins and Aikman Corporation.

SIMONS, DAVID E., from Fieldale, Virginia. Mr. Simons is now serving as Superintendent at the Towel Plant, Fieldcrest Mills.

Class of 1939

MONTGOMERY, JAMES B., from Martinsville, Virginia. Mr. Montgomery is now Vice-President in charge of Sales for the Walker Knitting Company.

SMITH, JOSEPH GORDON, from Statesville, North Carolina. Mr. Smith is serving in the capacity of Quality Control Engineer for Statesville Division, Seminole Mills, Inc.
Outstanding Seniors . . .

By Gene Crocker, T.C. ’63

Charles Cleveland Hagood

One of Clemson College’s busiest seniors is Charlie Hagood, a Textile Science major from Easley, S. C. Charlie has ranked high on scholarship from his first year at Clemson, having attained the “Honors” list his freshman and sophomore years and the “High Honors” list his junior year. He is a Presbyterian, is single, and 21 years old.

He has been a member of the Freshman Drill Team and the Pershing Rifles. He is presently a member of Delta Kappa Alpha and was president during his Sophomore year. Charlie is a member of the Council of Club Presidents, the Interfraternity Council, and the Student Senate. He is to be one of Clemson’s delegates to the State Student Legislature this year.

Charlie serves as president of the Blue Key honorary fraternity and Phi Psi, the Textile honorary fraternity. He attended the Phi Psi national convention last year. At present he is Advertising Manager of the Bobbin and Beaker. He is also Director of Tigerama this year.

He has worked four summers in the textile industry and holds a scholarship from Owens-Corning Fiberglas.

Roy Engene Phillips

Gene Phillips is a Textile Chemistry major from Rock Hill, S. C. He is 22 years old, married, and the father of a daughter, Sharon Denise. Gene has been very active in getting the student chapter of A.A.T.C.C. started at Clemson and serves this year as its president. He achieved “Honors” during his freshman and junior years, and made the “High Honor” list during his sophomore year. He is a member of Phi Psi, and attended the Phi Psi national convention last year. Gene is also a member of the Council of Club Presidents. He was a member of the track team his freshman year.

Gene worked this past summer at Excelsior Finishing Plant, Clemson, S. C. He has received a Maxwell Bros. Scholarship, a Sonoco Products Scholarship, and the CIBA junior and senior scholarships.

He plans to do graduate work at Clemson towards a master’s degree in Textile Chemistry.

Thomas Crawford Love

Crawford Love has been a member of the Bobbin and Beaker for three years, and this year serves as its circulation manager. He is a Textile Management major from Spartanburg, S. C., is 21 years old, and is married. He was a member of the Freshman Drill Platoon and served as assistant Drill Platoon instructor his sophomore year. He attained the “Honor” list his junior year. He is Vice-president of Phi Psi, the textile honorary fraternity.

Crawford has worked in the textile industry for six summers at Mayfair Mills, Arcadia, S. C.

Upon graduation, he would like to go into textile production.
Recent Developments in Cotton Ginning

By Warren E. Garner, Engineer in Charge
Cotton Ginning Research Laboratory
Clemson, S. C.

The past fifteen years have witnessed many changes in the cotton ginning industry. In fact it is likely that more significant developments in ginning have occurred during this period than in all the years prior to World War II. Changes in the ginning industry have been characterized by great reduction in the number of ginning plants and by large increases in the amount of auxiliary equipment in gins. These developments have been brought about by changing economic conditions, technological advances in ginning, shifts to mechanical harvesting, and a need to process a crop whose harvesting season seems to get shorter every year.

That the ginnings have kept pace with the times is evidenced by the fact that they are processing a U. S. cotton crop of about 14 million bales per year as they did years ago, but they are doing it adequately with less than one-fourth the original number of gins. At one time there were about 28,000 cotton gins in the United States. By 1956 the number had decreased to 6,836, according to reports of the USDA Agricultural Marketing Service, and in 1961 there are 5,619 total gin batteries. However, the gin of today is a far cry from its predecessor which did little more than separate the fibers from the seed. Seed cotton was brought to the gin clean and dry, therefore no other equipment was needed. The modern gin receives cotton with widely varying amounts of moisture and foreign matter in it. To handle such cotton adequately it can easily represent an investment of over $300,000, and have such auxiliary equipment as automatic seed cotton input controls, one or more seed cotton driers with automatic controls, green boll and rock traps, seed cotton cleaners of various designs, special purpose equipment such as bur machines and stick and green leaf machines, large extractor-feeder-cleaners over each gin stand, one or more lint cleaners, and packing equipment for producing bales with much greater density than the standard flat bale.

Developments in ginning have been due primarily to the efforts of the USDA Cotton Ginning Research Laboratories and the research departments of the gin machinery manufacturers. The USDA Cotton Ginning Research Laboratory at Clemson serves the Southeast, with others located at Stoneville, Miss.; Mesilla Park, New Mexico, and Chickasha, Okla. The objectives of cotton ginning research in the USDA are to discover and develop basic and applied principles useful in the cleaning of seed cotton, drying and conveying of seed cotton, the separation of lint from cotton seed, and cleaning and packaging of lint cotton. Once a principle is established the normal procedure is for the gin machinery companies to build machines according to their own design, yet embodying the principle established by research. For example, new principles of drying and cleaning seed cotton have shown up in commercial products of various design, either as complete units or as attachments to other machines. Before new machines or techniques are released to the public they must pass exhaustive tests in the laboratory and the field. The

“A Good Place
... for a Career in Textiles”

Spartan Mills
SPARTANBURG, S. C.

Spartan Beaumont
Startex
Plants

Received BSAE and MSAE degrees from University of Georgia, Athens, Georgia; Served with Corps of Engineers, U. S. Army, 1943-1946, European Theatre; Did research on Mechanical Processing of Farm Products at College Experiment Station, University of Georgia 1946-1953; Research Agricultural Engineer at USDA Southeastern Cotton Ginning Research Laboratory since its establishment in 1955.
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1. Seed Cotton Preparation and Conditioning.
2. Gin Stands.
3. Lint Cotton Handling and Conditioning.
7. Materials Handling.

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PIONEER HEDDLE & REED CO., INC.
P.O. Box 10586, Atlanta, Georgia
Recent efforts in the field of seed cotton preparation and conditioning have been concerned with improved techniques and equipment for more efficiency in ginning, yet maintaining quality at the same time. One development in this field has been an automatic seed cotton input control to meter the seed cotton to the drying and cleaning processes. The machine, which is now available in several different designs, prevents chokage of machinery due to fast feeding rates and produces an even flow of cotton to allow more uniform drying and cleaning during ginning. Another development has been a device for removing sticks and green leaves from machine picked cotton. It has gained wide acceptance and is now available in several designs either as a separate unit or as an attachment for such conventional machines as bur extractors or extractor-feeders. Work under way in this field includes storage of seed cotton in compressed units similar to hay bales, both green boll and grass-removal devices, and a device for restoring moisture to dry seed cotton before ginning using large volumes of high humidity air. The latter is now commercially available.

Progress in gin stand development has been with an objective of increased capacity. This can be seen in gin stands with more saws and with larger saws. Although many gins are still in use with 70 or 80 saws per stand, it is quite common to find gins with 90, 100, 110, 120 or even 140 saws per stand. Whereas the 12-inch diameter saw was standard until recently, they are being replaced by saws of 16-inch or 18-inch diameter. Large increases in capacity have also been obtained by seed roll turning and agitating devices which cause the saws to be more fully loaded in the ginning process.

Machine harvesting and rough hand harvesting could not have been economically feasible without the development of the lint cleaner. It has been widely accepted and is now used in 90 percent of the gins in the United States. As with any mechanical device for handling lint, it can cause damage if improperly used. A point of diminishing returns in cleaning is reached where further grade increases are offset by lower spinning quality. Lint cleaners are available in air-types, saw-types, unit or bulk types, and may be installed in various tandem arrangements. Experiments at the Clemson Ginning Laboratory have shown that for greatest return to producer, ginner and spinner no lint cleaning should be used for early season clean hand picked cotton, single stage for mid or late season hand picked cotton, and double stage for rough hand picked, snapped or machine picked cotton. Recent studies of basic design to improve lint cleaning equipment have included changes in saw speeds, feed plate design and combing ratios. Several leads were developed which warrant more extensive testing.

Renewed attention has been given to cottonseed handling and conditioning as reports of poor planting seed quality become more prevalent. A triple-drum drier for drying cottonseed concurrently with ginning has been developed and subjected to extensive laboratory and field testing. Experiments have shown that the viability of damp seed processed through this drier will not be affected by exposure of four minutes at a body temperature of 140° F. Work is under way on a pneumatic device for cleaning cotton seed which appears promising.

Considerable effort has been devoted to process instrumentation in the ginning industry as it moves toward complete automation. Gins are now available with push-button control panels centrally located for operating such equipment as fans, valves, gin stands, and packaging equipment. A product of research has been the system for measuring and controlling moisture concurrent with ginning. Since moisture con-
tent of the fibers when they hit the gin saws is a most important factor in preserving quality, much effort has been devoted to this system. The system is based on using electrical resistance of the fiber as an indicator of moisture content, and can use the signal obtained to direct cotton through appropriate paths for proper drying or to control the supply of fuel to the heater on the drier. One model, commercially available this year for the first time, utilizes the latter procedure. It is claimed to produce more efficient ginning by making seed cotton cleaning easier, preventing excessive drying, and preserving the length and strength properties of the fiber.

Several improvements in fiber quality measurements as affected by ginning have resulted from work at the cotton ginning laboratories. They in-
clude measurements of seedcoat fragments in ginned lint, rapid maturity and fineness predictions, a mechanical device for sorting fibers into length groups and improvements in the well-known array technique.

Cotton is conveyed through ginning plants by both pneumatic and mechanical devices. Both are high users of horsepower. In an effort to reduce ginning costs studies are under way to pinpoint power waste in gins. One example is in the trash handling system, which can be expected to be more troublesome in the Southeast in the future. A development to alleviate this problem is a small pipe trash handling system. Laboratory tests have shown that it can handle up to 12,000 lbs. of trash per hour with an air volume of only 600 cfm.

The foregoing are just a few of the significant developments in cotton ginning in recent years. In the future we can expect to see fewer but more elaborate plants with automated systems for preparing, conditioning, ginning and packaging our cotton crop. This crop will arrive at the gin with increasing and widely varying amounts of moisture and trash as strides continue to be made in mechanized production. It will be imperative to process it through the needed equipment only, using trained personnel, to produce the highest bale value consistent with turning out a product desirable to our spinning mills.

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“RESEARCH UTILIZATION OF COTTON” (Continued from page 7)

ory for its resilient, crimped state. There is a large potential market for such resilient cotton yarns in such end uses as socks and other stretchable apparel items. A full-scale research project, sponsored by the U. S. Department of Agriculture, is now underway at Clemson College to develop this important quality.

Warmth is important in such apparel and household products such as coats, jackets, suits, sweaters, and blankets. Improved warmth could open new markets amounting to 728 million pounds a year where cotton has a big price advantage over competing materials such as wool.

Warmth comparable to that of wool can be obtained in light-weight, high-bulk cotton fabrics. Cotton in its natural state, however, does not have the fiber resilience necessary to maintain bulk under repeated compression. A research project, aimed at improving these fiber bulking properties through chemical finishing, has been placed at Lowell Technological Institute by the U. S. Department of Agriculture.

Not every opportunity suggested by chemical finishing has resulted in a definite research plan. There are many consumer qualities yet to be fully explored in the light of the industry’s present knowledge of chemical finishing techniques.
The market for luster is a good example. Because consumers associate certain types of luster with quality and attractiveness, this property is important in nearly all apparel, and in most household uses. Luster is especially desirable in such items as sport clothes, suits, shirts, blouses, dresses, lining fabrics, upholstery and covers, draperies.

Luster can be imparted to cotton by a number of chemical or mechanical processes. The degree of luster attainable, however, is not sufficient to meet consumer's desires in many of the end uses mentioned above. Methods are needed to improve on this attainable luster.

Good tensile strength is important in industrial uses such as belting, hose, and tire cord and in such fabrics as tarpaulins. It is also needed in very light, sheer fabrics for clothing.

A process that could increase cotton's tensile strength by 25 to 50% or more, with a corresponding increase in fiber toughness, would be highly desirable. Cotton products, as a result, would be more durable, lighter in weight, and less bulky. Greater strength-to-weight ratios would improve cotton's position relative to the newer synthetic fibers in such industrial markets as conveyor belts, fire hose, tarpaulins, cordage, twine, tapes, and thread.

For cotton to have the same strength-to-weight ratio as nylon in tire cord, it would need to be about 250% stronger. However, because of such other factors as price, cotton actually would not have to be improved that much to re-enter the tire cord market.

Cotton inherently has a better balance and wider range of useful consumer qualities than any other textile fiber. Research has given cotton the means to overcome its problems and capitalize on its opportunities. New pressures will be brought to bear cotton's competitors and new qualities will be sought by consumers. The cotton industry has enough scientific talent, enough concentrated research attention, to meet these challenges with considerable optimism for the future.
Textiles as a Career

Many of you perhaps think that you know what a textile career would be—just running machines in a mill.

But that is only one of its many sides—the textile industry is broad, it's basic. It does make cloth from raw materials, but it does a lot more—there are many kinds of cloth, from sheer nylon to coarse industrial ducks.

All the tints and hues of the rainbow are imparted to the finished product. Finishes of all types are added. The product is bleached, is made into clothes, yarn is knitted into socks and underwear.

Special fabrics to meet special needs are developed. Different fibers are blended to impart their special characteristics to the finished whole.

Today, fabrics are engineered, not just made. New fibers come into being, new and less costly methods are devised. More beautiful fabrics are still in the test tube.

To an industry that has duplicated the work of the silk worm, the wool of the sheep and developed new and unheard of fibers of its own, very few things are impossible.

Over three million workers are teamed together to accomplish this gigantic task of clothing the nation and supplying industry with its textile needs.

One of the most important steps that a young man takes is that of choosing a career. It's not easy—his whole future and happiness may depend upon how and where he makes his living. Before making the final decision for your life's work we would like for you to seriously consider a career in the textile field. This industry ranks third in the nation—80% of it in the South and about 33% in the state of South Carolina. Consider all sides of the problem. What will the pay be—not only now, but later—what chances are open for advancement—under what conditions will I work—what security do I have—where will I be able to obtain employment—near home—in the South or will I have to pull up roots and move to another part of the country. Here are some of the answers:

Textiles offer the college trained man a chance to stay in the South and grow with it. A recent survey shows that about 75% of our textile graduates—based on a 66% return—are still in Textiles. Their salaries are as high and in most cases above those of other engineering graduates after the lapse of a few years. Advancement is rapid for most graduates. This same survey shows that about 40% of our graduates held jobs from superintendent upwards, with another 20% holding jobs of equal status such as research, teaching, office, sales and staff members. The other forty percent are advancing right on the heels of the leaders, some are just out of college.

The conditions of work are among the best in any industry. There are approximately 325 plants scattered over our state mostly in the Piedmont region. The opportunity is here!

To you high school students who are still undecided on your life work, we invite you to visit our school, confer with textile leaders in your community, weigh the advantages against the disadvantages and make up your mind. The Textile Industry offers alert young men a challenge. Will YOU join us?

D. P. Thomson
Associate Professor of Yarn Manufacturing
Clemson College

THE BOBBIN AND BEAKER
Marketers of Creative Chemistry

Ask a housewife what Texize Chemicals makes, and she'll talk with enthusiasm of liquid cleaners, starches, and bleaches.

Ask a purchasing agent at almost any major plant in the South the same question, and you'll get a different answer. He'll tell you about all sorts of industrial cleaning products. And — if he's in any phase of textiles — he'll mention a wide range of others: warp sizings, wet processing chemicals, and auxiliaries.

Ask both about Texize quality standards, and the answer will be the same: none but the highest. As long as there are problems that precision chemistry ... creative chemistry ... can solve, look to Texize for the answer!

Texize Chemicals, Inc., Greenville, South Carolina
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