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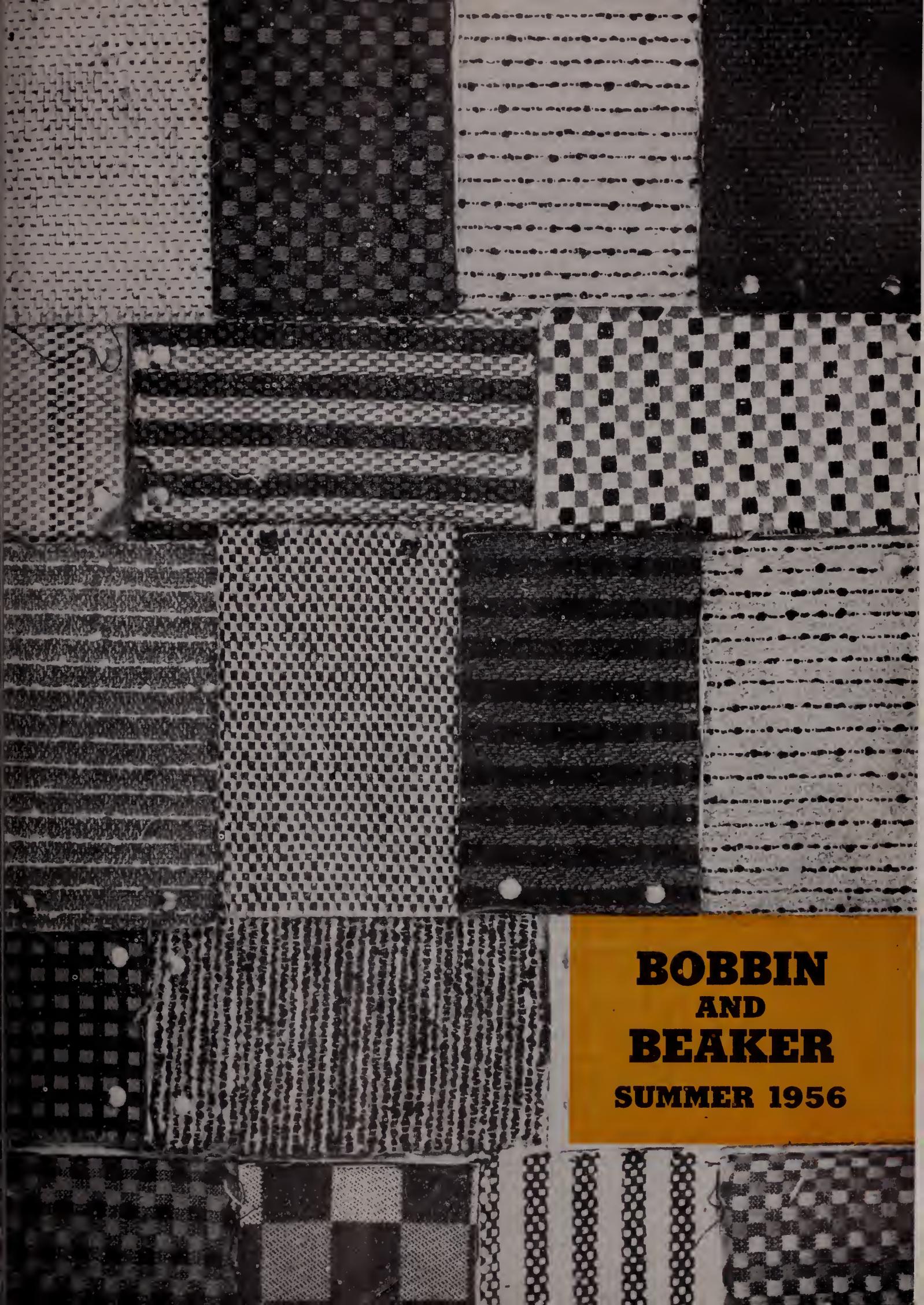

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SUMMER 1956

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The Staff

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Faculty Advisers

In This Issue

THE COVER:
By ---- TED PAPPAS '57

Address: The Bobbin and Beaker, School of Textiles, Clemson College, Clemson, South Carolina.

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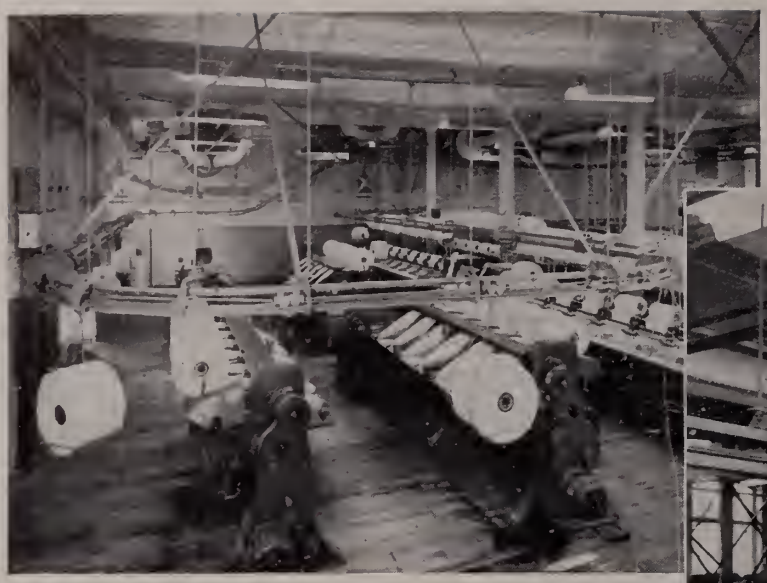
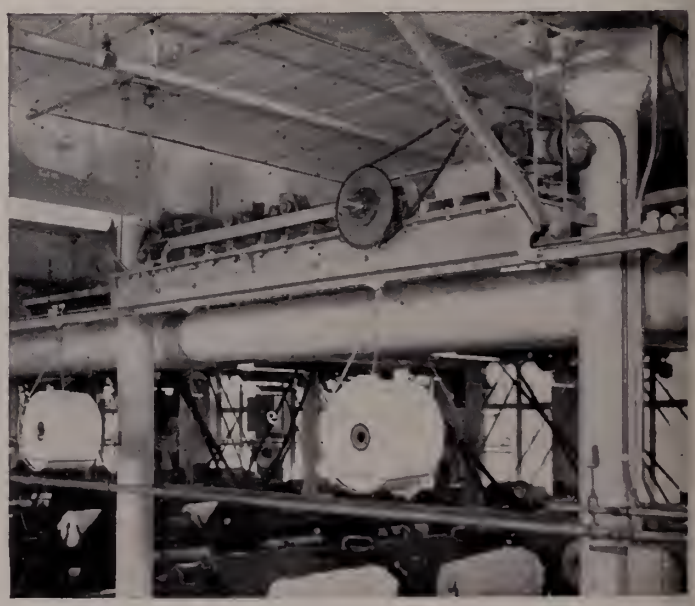


Sliver laps are transferred continuously between the combers and the lappers on a Landahl Chainless Conveyor.

Complicated curves are no problem with Landahl Chainless Conveyor. The light track sections are easily fabricated into short radius turns in any direction.

new CONVEYOR SOLVES OLD HANDLING HEADACHE



Caterpillar drive brings dogs in pairs mounted on endless roller chain down to engage the Landahl trolley housings for forward propulsion.

The unique patented design of the Landahl Chainless Conveyor offers many distinct advantages not found in any other conveyor.

Basically, the conveyor is a series of solid steel rods connected by ball-and-socket type universal joints housed in compact trolley units. The trolley units move freely on ball-bearing steel wheels, over tracks formed by parallel steel angles supported from above by track plates.

These design advantages make the Landahl Chainless Overhead Conveyor lower in initial cost, more flexible, simpler to install, safer to operate and easier to maintain than any other system.

Write for Bulletin G-100—showing many other advantages of Landahl Chainless Overhead Conveyors.

LANDAHL **Chainless** CONVEYORS

Photos courtesy F. W. Poe Mfg. Co., Greenville, S. C.

The LANDAHL CONVEYOR CO.

13136 Athens Ave., CLEVELAND 7, OHIO

A SUBSIDIARY OF THE AMERICAN MONORAIL COMPANY

Significance In Quality Of Textiles

W. H. Esslinger, Quality Coordinator
Central Manufacturing Division
M. Lowenstein and Sons, Inc.

The quality of cloth made will be the variable upon which economic success in textile manufacturing depends. So, in view of the significance of quality, a study has been made to determined the best methods in the control of it and also to determine in what way statistics can be used. Statistics as we use them here refers to a body of methods by which useful conclusions can be drawn from numerical data.

Textiles is one of the oldest and most competitive in America today. It does not enjoy a protected position or opportunity profits resulting from patents, or secret processes. Their basic production, cotton, is in itself a very complicated product, graded and sold on a highly stabilized world market.

The first two, cost and production, are relatively stable; one, because of the statue of the price of cotton; second, because all favorable changes resulting from new processes, or mechanical inventions are quickly adopted by all companies with the industry.

Therefore, if cost and production can be predicted for a given market, then one might ask on what basis does the industry compete among themselves. Quality is the only item left for competition. Their customers compare the variation in the quality of their product. With the supply, demand and price relatively fixed at a given time, the buyers will buy from that company having the best quality on the market.

Quality is the only variable that is unstable. The success of a company in maintaining or improving its position on the market will depend on their ability to control the quality of their cloth. To insure their accomplishing this control, men, materials, and machinery, as well as methods, must be constantly regulated or changed to produce the utmost quality without sacrificing the predetermined estimate of cost and production.

Textile companies, realizing the very important role quality plays in their success, have set up quality control departments as a check and an aid to assist them in obtaining their goals. They must make sure that their quality is equal to or better than their competitors.

The significance of quality covers so many different phases of a company's activities that to do a proper job in discussing it, it requires that it be broken down into many different subjects. A few of them are presented here.

After first realizing the big problem confronting them in quality, and just how much it means to them in obtaining and controlling it, they should consider the cost of off quality. They grade their product and class it into several classifications. Each class has a lower grade and lower value after first quality. The value decreases as follows:

First quality	=	100% of first quality
Second quality	=	95% of first quality
10/40's	=	92% of first quality
1/10's	=	75% of first quality
lb. goods	=	50% of first quality

On a market, the difference between a profit and a loss is often determined by their ability to hold their off goods to an absolute minimum.

Since production and cost are relatively stable, the quality is their variable. This being true, their customers have to pay everybody the same price, so naturally they want the best quality they can get for their money. Quality is their deciding factor in making a purchase. Should a company's quality fall below that of their competitors, either through ignorance or laxness on their part ,they immediately are in danger of losing an account.

Not only do they lose one account, but soon this news will spread and they will have established a bad quality reputation. Then their salesmen have a very difficult task in selling their cloth.

By the same manner, a good quality reputation can be established and the selling of their cloth is much easier. A good quality always has the favorable position on the market.

Many companies spend a considerable amount of time checking, comparing and studying different methods and processes, always trying to improve quality. They are constantly asking their quality control departments for comparisons between their production and other companies'. They ask their selling agents and finishing plants for comparisons and criticisms on their production. To be able to do a good job quality wise, they must first know what a good job is. The only way to be sure of this is to compare and check constantly. They must try to benefit from other peoples experiences. To be able to do this, they must know what they are doing, what the other fellow is doing and if they can do it better than the competition.

What causes off quality? Off quality is just what the name implies—defective cloth, a lower quality than that considered as first. This is usually caused by either off cotton, machinery failure, or the human element. Poor quality cotton containing immature fibers causes what we call neps. They are small white spots or tufts which under a microscope are entanglements of immature fibers. In the finishing and dyeing of the cloth, these neps absorb or react to the dye differently. In certain instances after the cloth has been dyed, the neps will move or leave white undyed spots. Excesively dirty cotton or insufficient cleaning of it, leaves us with an inferior piece of cloth. Cotton containing too much short staple lowers our breaking strength.

The yarn and weaving defects caused by machinery failure are much too numerous to go into detail. However, a few of the major machinery failures are choked spinning rolls causing uneven yarn, loom smashes, group floats or pick outs caused by mat ups in the warp yarn on the loom and jerked in filling on the transfer.

Off quality caused by the human element is perhaps just as costly as the other two. Some of these are wrong draws, double ends, reeds bent by the weavers hook, excesive amounts of oil put on the loom bearing or hanger bearing and loom cleaners blowing foreign matter into the cloth as it is being woven.

Grading of cloth. This is one of the most important of cloth room functions. It is one point in their operation where they retain good relations with their customers or lose them. Their customers care nothing whatsoever about how much trouble or how costly it is for them to make cloth. He is interested only in what the quality is when he receives it. However, we all know it is impossible to make a perfect piece of cloth, so they have set up a standard or a grading

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Engineers Keeping Pace With Industry's Demand

By E. J. McVey

Vice President, Saco-Lowell Shops

As the cost equation containing the various factors involved in the evaluation of mill operations becomes more and more complicated with the passage of time, the task of the textile machinery manufacturer who is conscious of his responsibilities to his clients becomes more and more complicated.

First of all, there is that law of economics, the law of diminishing returns, which confronts him on the one hand; the demands for the maintenance of quality on the other; while around the circumference of his efforts are the complications arising from the complexity of the raw materials now generally used in the production of all kinds of fabrics; for industrial goods, for wearing apparel, household furnishings, and containers.

The designing engineer seeking to produce machinery which will improve the operations and quality in the mills of his clients must solve the difficult problems developed by these basic factors. Naturally no mill is interested in making yarns or cloths which they cannot successfully market on account of poor quality or high costs; and for this reason, before the responsible machinery manufacturer can release a new product for general distribution throughout the industry, the new equipment must be completely proven, to the most minute detail, by exhaustive tests in first, the shop laboratory, and then in several production stages.

This kind of testing, involving many redesigns of construction, and numerous changes in the materials and finishes used, is truly a costly process, both in regards to capital expenditure, in engineering man hours, and in the consumption of the raw material.

Many mills do not appreciate these facts and are therefore prone to often criticize their machinery supplier when he refuses to release equipment which is not completely tested and proven.

When the machinery manufacturer, under pressure from his friends and clients, the mill executive, does release this equipment prematurely, there is always a tough period of time when the mill operating staff and the engineers of the manufacturer must seek out the factors in design or material which are the root of the trouble; these efforts are always productive of unnecesary costly expenditures, to the detriment of all concerned.

We have gone to some length to point out these conditions because many of the mill executives are quite conscious of the great developments being made through the application of electronics, through "automation" in many fields, and are pushing their machinery supplier to adopt some form of "automation" in the mill in order to either increase the efficiency of the individual machine, or to increase the production per man hour, or to improve the quality of the yarn and cloth.

Many times these ideas possess a degree of merit, but often the application, upon a careful analysis, has so many hidden sources of trouble that all that can be done is to put it in the file for future reference.

At this time we now affirm that the engineers and designers of the shops have not been unaware of the miracles of this wonderful era in which we are living; and to prove this, it now becomes our privilege to point out how we have, in the last few years, brought "automation to the yarn spinning industry, even though the equipment does not carry a crown of electronic tubes, resistors, solenoids, and similar tools used by the electronic engineer, but only those tried and tested assemblies which can easily be understood by the average mill maintenance staff, and which is so rugged and dependable that it can stay in operation week after week without more than routine cleaning and inspection.

The average mill when buying new equipment expects from this new production tool the ability to earn a high return on the investment, and if the new machinery required a staff of electronic experts to keep the production upon an efficient basis, this anticipated amortization would be impossible to attain.

The above explanation brings us to a discussion of "automation" in the cotton spinning industry as it has possibily cleared up some of the difficulties confronting research in this field.

As we have pointed out in the past, the term "automation" has been used rather loosely in all of the industrial arts. Therefore, for our purpose we will define "automation' 'as a means or system for making a better yarn with an increase in the production per man hour. This increase in the production per man hour naturally develops through the elimination of some process on account of a better preparation, or through the increase in the production of the several production units, or through a decrease in the frequency with which the stock in production must be handled. It is now that we can take a look at what has been accomplished by this kind of "automation" in the last decade or less.

In the modern picker room, after the stock, whether it be cotton or synthetic, has been placed in the primary feeder, it is never again touched by the operative until the lap is doffed. All of the primary feeders, the intermediate opening and cleaning machines, the overflow box and distributors, and then the controlled feed chutes are all operated by a system of synchronized control which keeps the stock flowing evenly at a predetermined rate through the system.

For a concrete example of what this "automation" has accomplished in this particular department of the yarn spinning mill, assume that there are six pickers making a total of 2100 pounds of laps per hour. In the mill which is properly staffed, this poundage will be handled by a section supervisor who will do the oiling and fixing, and two machine tenders—attaining a production rate of 700 pounds per hour.

It is doubtful if a better example of practical "automation" can be found in any industry handling similar raw material and with the same quality requirements. These machines normally operate at better than 90 pct. efficiency, and we expect to do better than this when our new picker calander is ready for production in the early future. This new calander will enable the mill to produce laps weighing over 80 pounds—almost twice the weight of the average lap in general use today.

As an added advantage to the controlled operation of the modern picker room is the better preparation of the stock delivered to the card room; it is cleaner with stronger fibers and more uniformly sheeted than ever before. It is not unusual for the lap to contain better than 95 pct. of the yardage within the close tolerances demanded by the quality controls in use at this time.

The improvement in the production per man hour in the card room has been one of the major accomplishments of the industry. It was not many years ago when three process drawing, two and three process roving, the use of 10" and 12" cans were considered as standard and accepted practices. Those manufacturers seeking the ultimate in quality were convinced that the doublings created by these multistage processes were completely essential and a prime necessity to secure uniformity in the yarns of a degree which would satisfy the prevailing standards.

Our type of "automation" has brought about a complete change in both the thinking and practice, and at the same time has been the source of bringing about a definite improvement in the quality of the ultimate yarn. 14" and 15" cans, some measuring 42" long ,at the card, drawing, and in back of the slubber has reduced the effort expended in material handling between processes as much as 50 pct., and in some cases more.

The increased use of the 12"x6-1/2" slubber, and the resulting advantages, has made the 8" x 4" frame obsolete, and the 10" x 5" semi-obsolete, except in special cases where it is necessary to produce rovings finer than 1.25 hank. In other words, the ambitions and progressive mill can now meet almost any production requirment with but two sizes of roving frames; the 12" x 6-1/2" for rovings to 1.25 or 1.50 hank; the 10" x 5" for those as high as 3.00 hank to 4.00 hank.

With the long drafts now practical in spinning, no mill in producing the ordinary commercial counts should be called upon to make finer rovings. Naturally, these large creel packages, long drafts, and large bobbins reduce the cost of material handling, improve the overall operation of the card reduce the amount of costly reworkable waste, all with a definite improvement in the uniformity of the strand and its spinning qualities and characteristics.

To give a concrete idea as to what this "automation" has already accomplished in the card room, we should recall that no longer ago than 1936 to produce 1200 pounds of roving for print cloth numbers, the card room installation would consist of a total of 13,-000 slubber, intermediate ,and fine frame spindles; the same work today is accomplished by using 14 slubbers, 80 spindles each, a total of 1120 spindles,

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Causes and Detection of Damage in Raw Cotton II

By A. N. J. Heyn

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

In a previous article, the causes and effects of microbial damage of cotton have been discussed. The present article deals with some other causes of damage of raw cotton, namely, chemical, mechanical and heat damage.

1. CHEMICAL DAMAGE

Chemical damage mainly occurs in the dyeing and finishing process, but in a few cases may also be cause in raw cotton, namely during weathering, where photochemical damage and honey dew may affect the fiber; and in transportation, where different substances like tar and oil may cause contamination.

Photochemical damage. During weathering, photochemical degradation of the fiber may be caused by exposure to sunlight. This effect consists in a breaking down of the cellulose molecules, as can be shown by the lower viscosity of the dissolved cellulose. This molecular breakdown results in a "hidden" damage which is not directly observed but, which exhibits itself later on by a weakening of the fabric upon bleaching, finishing and laundering. Only little work has been done about this type of damage.

Tar and Oil Spots. A completely different type of chemical damage is caused by the presence of tar and oil spots. The tar spots are mainly found on the outside of the bale but in certain cases, also occur in the inside. If the spotted cotton is not removed, the tar will spread during the manufacturing process and the finished fabric will show numerous small black spots. High temperature favors this spreading. This annoying type of damage has caused a great deal of trouble and financial loss and is recently flaring up again after a temporary recess. Most mills carefully check the bales for tar and often remove the entire outside layer if contamination is suspected.

The importance of this problem in South Carolina became clear from the author's survey which showed that twenty of the thirty mills contacted, reported trouble with tar spots.

The National Cotton Council has investigated the sources and origin of tar spots and found that they may result from various causes such as picking bags preserved with tar, contaminated railroad cars, asphalt from roads, tarred bale bands, etc. Oil spots often originate from the bale press. An educational program by the National Cotton Council has already resulted in a considerable reduction of the evil.

The Cotton Council has also investigated possibilities for reducing the damage by improved wrappings. The American cotton bale has the worst wrapping of any cotton bale in the world, and most of the complaints about exported American cotton pertain to this shortcoming. Experiments are being conducted at present with diverse new wrapping such as unwoven cotton, synthetic fibers (polyethelene), cardboard, etc. Promising results have been obtained which may soon revolutionize the packing methods.

The Institute of Textile Technology has made a different approach and has worked out methods for easy removal of the spots in the finishing of the cloth. This spotting process, however, is time consuming and involves extra costs.

Honeydew is a chemical defect of lesser importance. It is caused by the presence of sugar secreted by certain insects, namely Aphids (Aphis Gossypii). Special types of dark pigmented fungi (Cladosporium) generally develop in this gummy product. The stickiness of such cotton causes difficulties in processing. Simple chemical tests exist for recognizing this type of damage. They will be described in the next article.

A great deal of interest exists at present in **fluorescent spots** due to the presence of certain substances which show fluorescence in ultra-violet light. A discussion of these interesting spots will be given in the next article.

2. MECHANICAL DAMAGE

In almost all stages of mechanical picking, ginning and manufacturing greater or smaller mechanical damage is caused to the fiber.

This damage not only consists of a breaking down, bruising and crushing of the coarser structure of the fiber but also affects the fine structure of the fiber by breaking the molecular chains down. The first type of breakdown is recognized by microscopic examination; the latter by a lower viscosity of the dissolved cellulose. In the extreme case, a complete break of the fiber and a corresponding reduction of the fiber length may occur.

FIGURE 1. MECHANICAL DAMAGE IN COTTON

a, normal fiber; b, damaged fiber. Both are mounted in sodium hydroxide after staining with congo red.

Note crushed places of darker color, and the higher swelling of the damaged fiber in b. Only the upper part of the fiber in b is not damaged.

In the normal ginning process, a reduction of the original fiber length of the seed cotton **always** occurs and is revealed in the fiber length distribution curves by a decrease of the average length and an increase of the number of shorter fibers. Moisture, temperature and the mechanical conditions of ginning greatly influence the effect and the degree of damage which accompanies it. An 18 percent decrease of the degree of polymerization (D.P.) of the cellulose has been found to occur in normal ginning. In all mechanical operations of the cotton manufacturing process together, a total decrease of 30 percent has been found. (The greatest decrease (in D. P.) occurs during the picker operation.).

A special type of mechanical damage, which is due to faulty ginning, is the formation of an excessively high amount of **seed coat fragments,** small parts of the seeds, chipped off by the saws. The seed coat fragment, themselves, give rise to black spots in the yarn and in the cloth, whereas the immature fibers attached to them may cause certain types of neps of inferior dyeability.

3. HEAT DAMAGE

Heat degradation of cotton is particularly important in finishing and laundering of fabrics and in tire cords and has been extensively studied in these materials. It has been generally recognized that until 100 degrees C. degradation damage is not appreciable, but that it rapidly increases above this temperature.

A simultaneous **reduction** in strength and elongation of the single fiber has been found at temperatures from 110 degrees C. till 162 degrees C. The heat effect consists in the creating and intensifying of weak spots along the fiber. An increase of the number of transverse cracks can be directly demonstrated under the microscope. A decrease of the degree of polymerization of the cellulose also occurs. The percentage of cellulose chains broken is at the beginning linear proportional to the time of heat exposure. Moisture accelerates the process.

Heat damage plays a most important role in the **drying prior to ginning.** So-called **"overdrying"** causes considerable damage to the raw fiber. The effect on overdrying on the fiber properties, as studied with the customary methods for fiber quality testing, mainly consist of a shift in the fiber length distribution towards shorter fibers. The shift has a serious effect on the **processing performance:** the breakage in spinning is 21.4 percent higher with over-

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These Things Get The Job Done For Me

By Ernest W. Fair

The following article appeared in the March issue of the TEXTILE WORLD and is reprinted with their permission. This article should be very helpful and interesting to the textile students especially the graduating class.

The biggest job of every supervisor is getting and keeping the wholehearted cooperation of the men and women under his direction. If employees go along with your ideas and plans and schedules, your department gets more and better work done than any amount of driving and pressure can ever accomplish.

Most successful supervisors develop their own pet methods of getting maximum results from their employees. Recently 25 of them were asked how they go about getting the job done. Here are their answers.

"My job is to get things done through people, and I never let myself forget it. Every step I take is planned toward that goal. The hardest thing I had to learn was that I was not a ringmaster or watchdog over the people in my department. When this clear understanding of my real role as a supervisor came to me, I got better results and my work was made a lot easier."

"The most important thing that has helped me get more done in my department is a rule of my own to make sure that every man gets full credit for any job well done. I've found that the surest way to discourage initiative and extra effort in my people is to overlook such things. Even where we have a bonus for such work, I've found the men are just as eager for recognition of what they have done as they are for that bonus."

"I try to lead rather than force my people to do the job. Whenever a difficult job comes up, I've found it cleared away much faster when I stepped in and took the lead instead of pointing it out and telling the men to get the job done themselves. Any given job always gets done in far less time than under the old method."

"The biggest thing I've learned is that you have to be constantly on guard against hurting any employee's pride. Sure you can hire the kind of people who have little pride and are never affected by anything you may do; but they're not the kind of employees who make any supervisor's job easier for him. Pride is a mighty important ingredient in any worth-while worker. Guard it with care and caution."

"The most important thing I do to keep my department operating smoothly is that I keep studying each man and woman to make sure what particular incentives affect that individual the most. I doubt there are any two alike. When I've found the one thing that gets top results from any individual, then I know how to handle that employee. It sometimes takes several weeks to discover what it is, but after that there's a lot of smooth sailing."

"One thing I've found mighty important is to explain everything. Just telling a man to do something or taking it for granted that he understands all about the problem causes a lot of extra work afterwards and sometimes costly slowdowns."

"I set the example I want them to follow. No department in any company is any better than the example set by the supervisor. If he takes a sloppy attitude towards the job, his people can't help but follow suit. If he sets an example of initiative, love of his work, interest in every job, etc., his people will follow suit."

"I've found the most important single thing is to be extra careful of what you say and how you say it. When you do that, your words will mean something to the people you're talking to; and you cut down posibilities for misunderstandings and mistakes."

"My chief policy is to promote a competitive spirit among the workers in my department. Competition makes for better results, even if it's nothing more than to see who can keep his work the cleanest, make the fewest mistakes, or some other element strictly among the workers themselves. One word of caution: make sure it's not belligerant competition."

"To me it's most important that a supervisor learn to be a good listener instead of completely dominating every conversation he has on the job with the people under him. When you're a good listener, you draw your workers out—get them to thinking more about the work, developing their own ideas, and taking a greater personal interest in the job."

"The big thing is keeping a smooth-running operation. I've found one sure way to do it is to bend over backwards to avoid playing favorite. Then every employee works better with the other fellow on the job."

"I try to locate troubles before they break out. Just about 25 percent of my time is spent that way. Experience has taught me it's a lot easier to stop something before it comes to the surface than to clean up after it has boiled over."

"I always keep a favorable attitude toward the company. What gripes I have against the front office I keep to myself. I've noticed that where supervisors air their dislikes in front of their workers, the efficiency drops right there and soon the whole group is doing the same thing."

"Patience is the greatest asset any supervisor can have in handling any man or any problem. Until he learns patience, he can't call himself a good foreman. With it, you never make snap judgments."

"The toughest job any supervisor ever faces is in disciplining one of the employees under him. It's a point at which he can start a chain re-action that will lead to an explosion of future trouble for him. I make sure I have all the facts before I ever discipline any employee. That's kept me from making mistakes that could have disrupted my whole department later on."

"My pet method of getting the job done is to find every opportunity I can to praise individual employees for their work. It works wonders. But it can be dangerous if it's overdone. You have to learn the proper balance and stick to it."

"I'm careful to avoid prejudice against any individual employee. If he or she has feelings, traits, or actions I dislike, I ignore them completely as long as that individual does a good job. I've seen too many cases where supervisors let prejudices against certain employees ruin all the other good things they have done and completely mess up their departments."

"To me one of the most important things you can do is never overlook an opportunity to build up a man's job in his own estimation. The man who is proud of his job always does more for you with less trouble."

"I keep building on each employee's future with the company. I've found the people under me have to have goals toward which to work hard; without them, they never have the incentive to do anything extra. I never overlook an opportunity to give them something to work for."

"A supervisor has to dish out criticism; that's one of the reasons he's in his job. But I've found there are two ways to do it—constructively or destructively. Whenever I criticize an employee, I do it constructively; and I've always had good results with this approach."

"Show an interest in and appreciation of an employee's work; that makes him a better man and easier to handle. If you confine your efforts to keeping him working ,he'll use every dodge he can think of to keep from doing anything extra."

"My pet rule is to always discuss every job problem with the workers involved. Following it has done more for me in my department than anything else I've ever tried to do. You get more willingness to do something extra from your people when they have a chance to help you work things out."

"One of my pet methods is to give my employees things to work up on their own. That keeps them from being mere machines. It keeps them alert. It gives them something extra when they have to think out a problem all by themselves during an emergency."

"I carefully avoid making promises that I may not be able to fulfill. I've found that unkept promises are a bigger source of resentment by employees against their supervisors than anything else. When it involves the company, I make sure first it will be delivered before I promise my workers anything."

Textiles as a Career

D. P. Thomson

Associate Professor of Yarn Manufacturing
Clemson College

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 worm, the wool of the sheep and developed new and unheard of fibers of its own, very few things are impossible.

Over a 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 second in the nation—80% of it in the South and about 30% 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.

A CHALLENGE TO THE TEXTILE INDUSTRY

There are ten schools that offer textiles as a major course of study. Over the past four years there has been a decline of about one hundred per year who are majoring in this field. From slightly over 2700 in 1952, to 2500+ in 1954 to 2300 in 1956.

The above figures are enrollment only and are subject to casualties as the student progresses. Most of these courses are for a period of four years. So only about 400-500 are graduated each year. A lot of these are absorbed by allied fields so only a part of the graduates are available for the textile mill exclusively.

The armed services also takes its toll at least temporarily and a conservative estimate would be about 50%. Some of these absorbed into the military services are permanently lost to the industry.

Chronological advances make the college trained men more desirable and the one with a textile background even more so.

There are about 1300 plants in competition for these few graduates and with a decreasing supply against an increasing demand, where are your future executives and production men to come from.

Recruits for the industry for college training must come from the high school level. After the student has started one field of study, it is difficult and costly to change.

The men of the textile industry can be of help to us and to themselves if they will help tell the advantages of the textile industry to likely high school students.

It is very hard for the young high school student to get a proper perspective of our industry from the outside. We are also in competition with the so-called glamour industries that tend to fire the imagination of the immature student.

A brochure has been developed here at Clemson to help tell the story of textiles to the high school students. If you would like one or several to be used for this purpose, please return the form below.

School of Textiles
Clemson A&M College
Clemson, South Carolina

Please send me ——— copies of the textile brochure for distribution to prospective textile students.

_____

_____

_____

Position: _____

What Industry Wants From a College Graduate

Edgar Davis, Jr.

Personnel Director
Abney Mills

Recently a young man, a graduate of Clemson College, who had just finished several years of service with the armed forces, came into my office looking for employment. He filled out a routine application blank, and then we talked about his college background ,his experience in service, and the line of work in which he was interested. He had brought along a transcript of his record at college and before showing it to me apologized, saying that he was ashamed now not to be able to present to me a record of higher marks in his classes.

Too often young men in college do not recognize the importance of making high grades. Frequently, no doubt, they have heard successful men in business say that getting along with people is the main thing and that marks on subject matter earned during their period of college training are of minor consideration.

Although it is definitely true that failures to make a success after one's college career are most often due to a person's inability to adapt himself satisfactorily to the people to whom he is responsible and with whom he has to live during his working hours, an applicant for employment always receives special consideration if the college record he has made in his classes is outstanding.

For to the person who is charged with the responsibility for employing personnel the high marks made during the applicant's college years are an indication that this person not only has an alert and inquiring mind but that he has already proved he is capable of self-discipline in the matter of work, that he has actually put forth considerable effort to do the best job he can, and that he can be depended upon to do what he is expected to do.

As one successful business executive put it, he likes to work with people who have already learned how to work. He says it's like playing a round of golf, "When I pick someone to play golf with me, I'd rather play with someone who is not a rank amateur but a person who can come close to par for the course."

The charge of being a bookworm that is so frequently aimed at college men who finish with honors is as out-of-date as the Model T Ford. You will find that the honor graduates of your school are much sought after by business and industry, that they are able to command the best starting salaries, because of the simple fact that if an employer needs an engineer, he wants one who already knows his theory, not one who has to learn it after he is placed on the job.

So much for a person's grades during his college years, for they alone are not the clue to a person's success in business and industry.

A man's capacity for leadership is perhaps of prime importance. And this quality of leadership is exceedingly difficult to find. Everyone wants the high salary which goes with responsibility, but there are few who are willing to accept the work and worry and strain which a top executive must bear. And many men just out of college forget that the best training for leadership comes through humility and the willingness to learn by experience at lower levels.

Several days ago I saw a cartoon in a pamphlet which came across my desk which showed a young man with a college diploma applying for a position with a large company. The personnel director was quoted as saying, "I'll check to make sure, but I don't believe we have any openings on the board of directors."

It is a mistake, then, for a college graduate to expect to start too high up on the ladder. He need not

fear that by starting as a modest salary and at a non-supervisory position that, if he shows real ability, he will be overlooked by his employer, for men who have the essential qualities of leadership and who are capable of earning positions of trust and responsibility are too hard to find.

Recently I asked the president of a large corporation what his advice would be to a college graduate coming to work for his company, and he said, "Tell him to be humble." No one is going to be deceived into thinking that the outstanding college graduate knows all the answers. For an education can be obtained in more ways than by going to college, and the business executive knows that a man's college training is only the beginning of learning.

A young man is fortunate if he has learned in college that at the very best a man can learn only a few things in a whole lifetime, but that he **can** learn. And a store of technical knowledge is not enough. A college graduate should have learned that a closed mind is a handicap, that he must be able to think for himself, to read critically, and to make decisions based on fundamental principles. He should understand why freedom is to be preferred to authoritarianism, that the achievement of human dignity for everyone is still a prime goal in the progress of man, and that the end does not justify the means. College should have taught him self-discipline and the ability to recognize the difference between propaganda and reasoned thinking. College should have taught him that decisions must be made on principles involved rather than on the moment's expediency or the personalities of the people involved. A college graduate should have learned that he must not look at a man for what he is but for what he can be and true leadership is a leadership of service.

One cotton mill manager was talking to me several months ago about the morale of the employees in the plants under his supervision. He is a graduate of a Southern textile school, and he said, "Who am I but a servant of all the people who work for me? They are really the ones who have raised me to this position. The fact that the top executives in the company I work for offered me my present job means only that they recognize the fact that the employees are willing for me to assume the responsibility of directing their work. I am really resting on the shoulders of my employees." Because of his appreciative and respectful attitude toward the people who make up his production line his ability and record as a production supervisor are outstanding.

So industry is looking for young men who have proved by their college record their ability to do an assigned task well, who have shown by this record their dependably and their capacity to work. Industry is looking for young men to whom eventually can be entrusted positions of leadership and to whom the main consideration in accepting these positions is the joy to be found in the responsibility involved rather than in the financial remuneration. Industry is looking for young men who can approach their fellow workers and their work with the idea that service to one's company, one's community, and one's fellowman is after all the main thing in the effective and successful life.

CAUSES AND DETECTION OF DAMAGE IN RAW COTTON

(Continued from page 13)

A cooperative full-scale study on the effect of excessive gin-drying on processing has been recently carried out by a group of mills, under auspices of the National Cotton Council and the Institute of Textile Technology. In this study, the economical importance of this type of damage became clear: Processing costs between "no heat" and "high heat" ginned cotton were found to be about $10.00 per bale of cotton processed.

Reprinted in modified form with the permission of the publisher, from a more complete article appearing in the May, 1956 issue of TEXTILE INDUSTRIES.

Outstanding Seniors

Horace Hampton Hunter is a textile manufactuing student from Central, S. C., who plans to graduate in August, 1956. Hamp is a Lieutenant Colonel in the AFROTC and is serving as a group Commander. He attended summer camp at the James Connally Air Force Base, Waco, Texas. Upon graduation, he plans to enter the U.S. Air Force.

Hamp is attending Clemson on a football scholarship and has been a member of the football team for three years. Naturally his hobby is sports, both participating and watching. He is a member of the Block "C" Club and has received honors for three semesters in his scholastic work. His summers have been spent in Washington, D. C., where he earned his spending money by doing different types of work.

After his stay in the Air Force, Hamp plans to enter the production division of the textile field.

Bobby Allen Painter is a textile manufacturing senior who came to Clemson from Arcadia, S. C. As hobbies, Bobby enjoys swimming, hunting and sports. He holds the rank of 1st Lt. in the Infantry branch of the Army ROTC and attended summer camp at Ft. Benning, Georgia.

Bobby is a member of Executive Sergeants, Alpha Phi Omega, Phi Kappa Phi and Phi Psi where he is serving in the office of Treasurer.

During the summer he has been employed by the Mayfair Mills at Arcadia, S. C. He plans to enter the Army in September. After his tour of duty, Bobby plans to work in the production line of the textile industry.

Ansel Crayton Sutherland is one of the many veterans returning to Clemson College, to further his education in textiles. Sut is a native of Pendleton, S. C., and is a textile manufacturing major. His main achievements at Clemson are in a scholastic field, being a member of Phi Psi and making honors for three semesters. His main hobby is golf which consumes a large amount of his spare time.

Richard Perry Moore, from Pendleton, S. C., is known to everyone as "Dick". He is majoring in textile manufacturing. While at Clemson, Dick has has participated in a great many things. Just to mention a few, we find that he is the Business Manager of THE BOBBIN & BEAKER, Treasurer of N.T.-M.S., a member of Phi Psi, Arnold Air Society, Scabbard and Blade, Senior Platoon, Minor "C" Club, Executive Sergeants and the Rifle Team. Also, he is a member of "Who's Who in American Colleges and Universities," and he was awarded the AFROTC Outstanding Award at San Antonio, Texas, where he attended Summer Camp. His hobbies are many but he seems to like hunting and fishing best of all. Upon graduation, Dick plans to enter the Air Force. The other plans for the future haven't materialized as yet, but upon completion of his tour of duty, he plans to enter the textile field.

Ronald Lee Childress—"Ron", as most of us know him, is a textile engineering student and hails from New Orleans, La. As hobbies, "Ron" enjoys reading about automobiles and English Motorcycles and occasionally working on them.

He is attending Clemson on a M. Lowenstein & Sons scholarship and has received scholastic honors for two semesters and high honors for five semesters. He is a member of S.A.E., having joined his junior year, and a member of Phi Psi during his junior and senior year. He is currently serving as Vice-President of Phi Psi, the textile honor fraternity.

His summers have been occupied by working in the cloth room, standards department and weave room of Lane Cotton Mills in New Orleans. He has also worked at Fulton Bag and Cotton Mill in Atlanta, Georgia.

Standing (l to r) J. P. Campbell and C. E. Browne. (Seated) J. C. McConnell and E. T. Smith

The New Staff

It is customary in many organizations at Clemson for the Junior Officers or Staff to take over the reins at the close of the year. This is done in order to give the Juniors a dress rehearsal of their duties and to relieve the Seniors of some of their responsibilities. This also gives the Seniors a final chance to show the Juniors the ropes and to act as advisors.

The Junior Staff is headed by J. P. Campbell as Editor. Mr. Campbell is a textile manufacturing student from Anderson, S. C., and has done summer work at Abney Mills. Advertising Manager for the coming year will be Edwin T. Smith, a textile manufacturing major from Startex, S. C., who has had experience in laboratory, cost and standards during the summer. John McConnell, a textile manufacturing student from Sandy Springs, S. C., will serve as Business Manager for the 1956-1957 issues of THE BOBBIN & BEAKER. Mr. McConnel has worked at LaFrance during his summer vacations. Charles E. Browne, textile engineering major from Troy, S. C., will serve as Circulation Manager for next year.

Notes on Underwear

By

Roy A. Cheney, President
Underwear Institute

The underwear industry like every other branch of the textile industry is faced with a terrific threat by imports from foreign countries.

In the popular line known as T-shirts or skivvy shirts, i.e., the quarter-sleeve knitted shirt which can be worn either as outerwear or underwear, the Japanese doubled the substantial exports of that garment to the United States in one year. Inasmuch as the Japanese average hourly earnings are 11 cents and they work a 70 or 80 hour work week and inasmuch as we in this country pay our people an average hourly wage of $1.18 to $1.20 under the 75c minimum plus fringe benefits such as insurance, vacation, etc., amounting to about 40 cents more, one can grasp very quickly the troubles which are coming up. Japanese merchandise is offered at probably 50 percent of what we must get for ours at least, and the impact of these goods not only lowers the price range throughout the whole scope of knitted goods but undoubtedly will take away our markets in the dime stores and the basement stores of the country. Another by-product of this threat is the fact that it will prevent mills from expanding, therefore I can predict confidently that the South, the Middle South and the Southwest will not see the growth in textiles and apparel which took place in the past decade. You yourselves can see very quickly that manufacturers are not going to risk money of their stockholders while this threat persists. Also and undoubtedly there will be less demand for the textile graduates and there will be increasing pressure throughout the industry for lower pay rates.

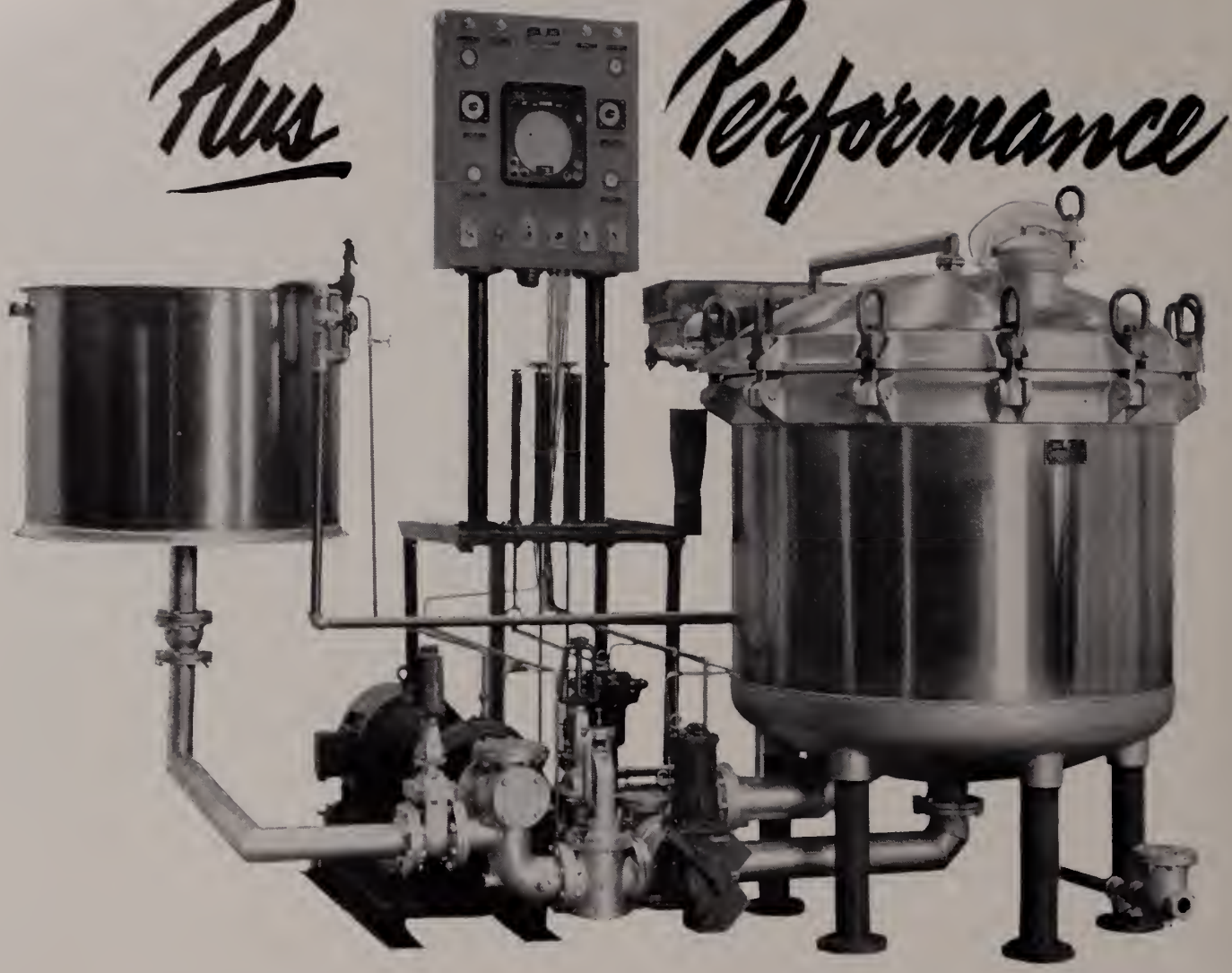
Incidentally, Hong Kong can undersell the Japanese and in the last report of the Chamber of Congress for Hong Kong, they were cussing out the Indonesians, Siamese and Indo Chinese for raising tariff walls and imposing quotas on imports of underwear. It seems a very strange thing that our State Department opposes any increase in tariff or the imposition of quotas in this country and yet pours money into countries like Indo China, Siam and what have you and permits them to do the very things which they have denied us.

Furthermore, the British who have been very strong in their protestation about our tariff have fixed things up through their so-called Sterling Bloc so that our markets in the British Colonies and possessions in the Caribbean have been wiped out entirely.

What our State Department is also doing is exemplified by an article in the January NATIONAL GEOGRAPHIC MAGAZINE about Turkey. It seems that in 1942 the Turks had about two thousand tractors. We have poured over 500 million dollars into Turkey and today they have over 40 thousand tractors. That, of course, is quite all right, but it has raised Turkey to the status of a large exporter of wheat, sugar beets AND COTTON.

All of this hurts the cotton farmer and hurts him drastically, and it seems utterly foolish to talk about parity and support prices, etc., etc., etc., when our State Department and Federal Government permits these termites that I have mentioned to undermine the very foundations of the farmer's prosperity.

Plus Performance



OVER EXTREME TEMPERATURE RANGE

Gaston County developed the **first** dyeing machines to successfully meet the high pressure, high temperature requirements of synthetic yarns. Continuous improvements **plus** Gaston County's rugged construction still make them first choice of the industry.

WIDE RANGE OF APPLICATION

These machines enable you to dye **any** fiber at any temperature . . . are available with closed add-dye tank and sampling device, in single or twin-kier set-ups

QUALITY CONTROLS

As pioneers in automatically controlled dyeing equipment, you get the advantage of Gaston County's positive control from the loading to the unloading of the kiers — the Robot Dyemaster for matching colors quickly and economically.

GASTON COUNTY DYEING MACHINE CO.

Pioneers in Automatically Controlled Dyeing Machines

STANLEY, NORTH CAROLINA

Gaston Co. Dyeing Machine Co.
Terminal Bldg., 68 Hudson St.
Hoboken, N. J., G. Lindner, Mgr.

The Rudel Machinery Co. Ltd.
614 St. James St. W., Montreal
137 Wellington St. W., Toronto

ENGINEERS KEEPING PACE WITH DEMANDS

(Continued from page 11)

and these 14 slubbers are generally operated by two frame tenders and a helper. This is indeed real "automation."

In the spinning room, the introduction of the new Gwaltney type of spinning is bringing about a new era in the operations of this department. The 350,000 spindles of this advanced frame is now beginning to have its impact upon the industry in general in that the mills operating this new and revolutionary spinning frame are able to obtain quality at a cost which is setting a new standard in the market on the basis of most quality for the dollar.

It has been the experience of those mills operating large units of Gwaltney spinning under the proper conditions that the direct labor cost as well as the costs of maintenance create a distinct advantage in the total cost of production formula. It is evident that with the cost of direct labor at its present level in any cost equation that any factor which will decrease the percentage of direct labor in the total cost creates a tremendous advantage, and it is definitely within the ability of mills operating Gwaltney spinning to do this.

The "automation" inherent in the Gwaltney frame almost automatically increases the production per man hour, not only in the overall operation of the spinning room, but in each particular category; spinners, doffers, and auxiliary jobs.

A true study of the facts must convince any fair-operating executive that the future of his mill, in a way, tied to the use of Gwaltney spinning, which is now the universal frame for cotton, for synthetics, wool and all types of blends.

To review our contributions to the development of "automation" in the textile mill, we recall that over ten years ago our engineers foresaw this trend, and at that time laid the basis for implementing this trend into real action through a program of SACO-LOWELLIZING. This timely program, in its several forms, has been successfully carried on by many mills.

We are sure that even after the lapse of ten years since its first development, SACO-LOWELLIZING is a safe and practical way to secure, in the quickest time and at a satisfactory cost level, the definite, time and at a satisfactory cost level, the definite, money-saving, cost-reducing advantages of "automation."

Mills, to retain all of their calculated profit margin, must use modern equipment; they must SACO-LOWELLIZE and do this before it is too late.

SIGNIFICANCE OF QUALITY IN TEXTILES

(Continued from page 9)

schedule. This grading standard gives them tolerances that are consistent with good mill practices. It is based on what the cloth is to to be used for, what the customers will take, and what their competitors are doing. Should they grade to a perfect piece of cloth, then their seconds would be so high and costly that they would endanger their economic success.

Why do they grade cloth? To take out imperfections, especially those that would make the cloth unmerchantable for whatever the cloth is to be used for.

It is important for them to know that the cloth is going to be used for; then they can grade it accordingly. For instance; we all know that for a plain pattern print a lower quality will be accepted than that which is required for shade cloth, which requires a very high quality. Or, we know that cloth which is to be used for raincoat backing (actually it is only a base for about eight plies of rubber coating) can contain even more defects than ordinary prints.

The end usage of our cloth determines what kind and how many defects we should or should not let go, so we must be flexible to be able to meet these requirements.

Therefore, the most important duty of the cloth room is one that rarely ever is given the important attention it is due. That is, the prompt reporting of defects in the cloth to the department responsible for them. This information can be used to prevent more defective cloth from being made. Since a loom weaves from 3½ to 7 yards of cloth per hour, this information should be furnished promptly and used promptly.

Mill management all over the industry, in realizing the very important role quality plays in their ultimate success, has created quality control departments as an aid and assist to their manufacturing units. They are no longer guessing as to what other mills are doing; they know. They also know how they stand competively and what they must do to stay competitive.

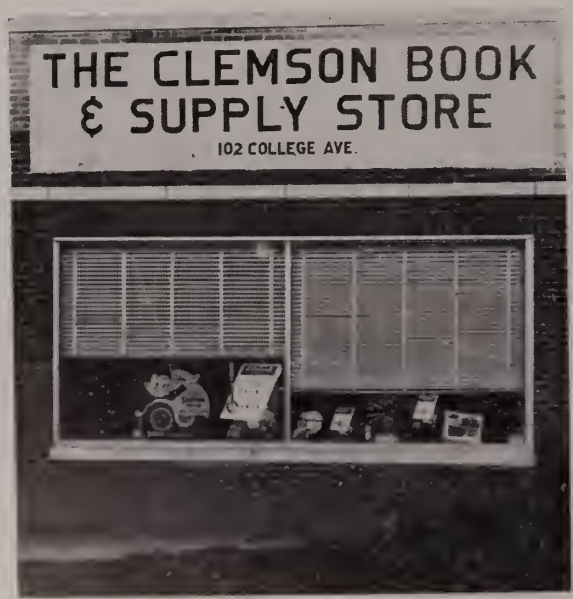
J. P. CAMPBELL

From the Editor . .

William Shakespeare once wrote:

"Life's but a walking shadow, a poor player
That struts and frets his hour upon the stage."

and so the old actor leaves the stage and a new one takes over, thus the Junior Staff of THE BOBBIN & BEAKER takes control. Our hour upon the stage is the magazine which comes in four acts: one in the Summer, Fall, Winter, and Spring. At this time next year, our hour will have passed and in the interim we will strive to bring to you an interesting magazine. Our purpose is to serve students and industry alike; we hope you will like what we have to offer.



Sulphonated Oils

STILL FIRST IN TEXTILE PROCESSING

Great progress has been made in surface-acting agents during the most recent years. Still, the tremendous value of Sulphonated Fatty Oils in the wet processing of textiles has never been questioned. Continued and increasing uses are being found in dyeing and finishing textiles for Monopole Oil (a double sulphonated castor oil), Olive, Teaseed and other fatty oils. This is because of the soft, full hand which sulphonated oils impart, as well as the lubricating qualities which are distinctly theirs.

There is a definite return to these products by numberless mills. And Jacques Wolf, with fifty years experience as the leading sulphonator, is offering Sulphonated Fatty Oils with advanced methods of sulphonation . . . oils with increased value for all purposes in textile processing. May we have your inquiries? Samples, of course, on request.

Sulphonated: Castor Oil 40-90% • Coconut Oil • Cod Oil • Mineral Oil • Neatsfoot Oil • Olive Oil • Peanut Oil • Pine Oil • Red Oil • Sperm Oil • Tall Oil • Teaseed Oil • Monopole Oil (a double sulphonated castor oil)

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Chemicals PASSAIC, N.J.

Plants in: Clifton, N.J., Carlstadt, N.J., Los Angeles, Calif.

Index to Advertisers


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DISCOLITE® — A concentrated reducing agent, highly stable at high temperatures, outstanding for discharge and vat color printing. Employed successfully wherever the reducing agent must dry into the fabric and retain its reducing power.
NEOZYME® — Concentrated low temperature desizing enzyme. Removes starch and gelatine. Excellent for eliminating thickeners from printed goods at low temperatures.
PAROLITE® — A dust-free white crystalline reducing agent. Soluble, colorless, excellent for stripping wool, wool rags, shoddy acetate or Nylon fabric.
NEOZYME® HT — Concentrated high temperature desizing enzyme. Removes bath starch and gelatine. Suitable for continuous pad-steam method. Remarkable stability at very high temperatures.
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CASTROLITE® — A highly sulphanated castor oil used as a staple penetrant for dyeing or bleaching in leading textile mills.
NEOWET® — Permits effective wetting at all temperatures — particularly useful with enzymatic desizing agents. No reaction to soft or hard water. Not affected by either acid or alkali chemicals. Non-ionic.
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NEOQUEST® — Removes the unwanted metallic ions from your processing liquors. Kier boiling assistant; dyeing assistant; does good even in the finishing mix. Cleaner whites; brighter colors.
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