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Clemson University

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THE
BOBBIN & BEAKER
STUDENT PUBLICATION OF THE CLEMSON TEXTILE SCHOOL

DECEMBER 1953
Vol. 12

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THE COVER

The three lovely young ladies pictured on the cover won top honors in the South Carolina Maid of Cotton contest held at Clemson recently. Miss Barbara Cates of Spartanburg, is the South Carolina Maid of Cotton of 1954. Miss Cates is shown with Miss Alice Rustin of Columbia (right) first alternate; and Miss Anne Evans of Camden, (left) second alternate. Miss Cates will compete for the national title in Memphis, Tennessee, in January.
Recently a slight decline has been noted in enrollment at textile schools throughout the country. This is disturbing to those of us in the industry who are in position to see that opportunities in the textile field are greater today than ever before.

Actually the textile industry is just scratching the surface of a major revolution which began less than 25 years ago with the introduction of chemical fibers to textile manufacturing.

Today that revolution is in full swing, and bids fair to continue for many years to come, with horizons of unlimited opportunity for the young men of today who choose that field in which to seek their careers.

In every field of American industry, more new developments are pending in laboratories and research departments than ever before. In any industry you might examine you will find new ideas in the making that are calculated to bring greater comfort and convenience to man at lower costs than ever before in history.

This is every bit as true,—if not more so,—in textiles as in any other industry. Right now by conservative estimate there are at least ten new fibers emerging, or ready to emerge, from the chemists' test tubes. Many of these will prove far superior to anything yet offered to the public. And, along with the many new uses and applications that are constantly being found for the established natural fibers, they promise entire new areas of development and use for textile products.

Because of its highly competitive nature, the textile industry places a far higher premium on initiative and ability than less competitive fields. There are in textiles enormous opportunities for the individual to stake out a claim for himself in creative styling, in original fabric construction, and in effective merchandising.

Some young men striving to choose a career have perhaps been coaxed away from textiles by the lure of bigger starting salaries held out by some other industries. A chemical company working on a huge high-priority defense project, for example, can obviously afford to offer higher salaries to young men just starting out. But a closer look will show that in the long range prospect, the man entering textiles
may fare better. Studies have shown that despite higher starting salaries in many such industries, advancement afterwards is often slow. Frequently the man in textiles after a few years will be doing considerably better salary-wise and in scope of responsibility than those who may have chosen higher beginning salaries elsewhere. Fortune magazine just recently made an exhaustive survey which showed that salaries of top personnel in the textile industry rank near the top of the list, while at the same time the average age of top textile executives is younger than that of other industries.

Another fact that we in the industry believe to be of especial significance today is the necessity for a well-rounded knowledge of textiles rather than a highly specialized knowledge of one phase.

The day of the salesman who knows nothing of manufacturing, or the mill superintendent who is entirely unfamiliar with merchandising methods and practices, is past. The young man seeking a career in textiles must have some knowledge of all phases of the industry. The development of new fibers and blends, new end uses, new manufacturing techniques, and a generally closer integration within the industry have brought merchandising and manufacturing closer together. And today, in order to be an outstanding success in merchandising, the salesman must have a broad understanding of manufacturing processes. Similarly, the mill superintendent or manufacturing executive must likewise be familiar with and keep abreast of new sales methods and techniques.

To that end, many of us in the industry have recognized the need for inclusion of courses in textile marketing, merchandising and distribution in the curricula of our southern textile schools. The availability of such courses could mean much to the young man who realizes while still in college that he has qualifications that would particularly fit him for selling — they could help him that much farther along the road to a successful selling career.

In summary then, I should like to emphasize once again that opportunities in the industrial world — and particularly in textiles—are unlimited. Authorities at textile and other technical schools will have far more calls for trained graduates next spring than they will be able to fill. And this demand for skills of trained Americans is increasing over the world—because of the unique know-how in techniques of productivity that have been developed in this country.

So, contrary to skeptics who would have us believe that the frontiers are all explored, the fortunes all made, or the substantial businesses all built up—just the opposite is true: the surface has hardly been scratched.
Industrial Engineering, A Management Tool

Dr. R. G. Carson, Jr., Associate Professor of Textiles
Textile Management Department

Dr. Carson is a graduate of Clemson, receiving his B.S. in Weaving and Designing in 1939. Since then, he has done graduate work at Georgia Tech where he earned his M.S. in Industrial Engineering in 1950, and in 1953, received his Ph.D. in Industrial Engineering from Michigan State.

There is a feeling among some textile plant managers that staff or auxiliary departments are so much window dressing—“These departments don’t really help produce the goods, they just add to the overhead.” At the first sign of a drop in the market, the manager looks around for some place to cut expenses. As a consequence of his feeling that only line management really counts, such departments as the Industrial Engineering, Research and Development, Personnel, and Quality Control are either entirely or are sharply curtailed. Nothing could be more short sighted. These departments should pay for themselves at any level of prosperity, but especially so at a time when management is cutting every corner and watching every penny.

Management is sometimes misled by the fact that the ratio of overhead to direct labor cost is higher now than ever before, and getting higher all the time. The continual increase in technology that results in more automatic machines, more pounds per spindle or loom hour, and more pounds per operator hour tends to reduce direct labor cost per pound. Thus, if overhead stays constant, the ratio of overhead to direct labor will increase, and if overhead increases, because we have more technicians on the monthly payroll, then the ratio will increase even more.

Industrial Engineering is one of these staff departments that add to the overhead. Industrial Engineering is a valuable tool for management; and a tool that should pay for itself in good times and bad, else it has no reason for existence. Industrial Engineering is not alone for the big plant or chain of mills; it is a tool for all big and little alike, regardless of product.

Let’s examine some of the uses of this management tool.

1. Set work loads, using the most accurate information obtainable. This might include stop watch time studies, fundamental motion time systems, like Methods Time Measurement or Basic Time Study, or even accumulated production data. The plants’ own Industrial Engineering department should be able to set most of the work loads, but outside help may be necessary occasionally to take care of major plant changes or to train plant personnel initially in the techniques of work load determination.

The establishment of standards of operation is a necessary preliminary to setting intelligent work loads and quality control standards, so it need not be considered separately.

The alternative to having work loads set by trained personnel is to set them by guess, or have the overseer set them by his guess. Example: “We know from years of experience that a man can take care of about 25 looms stops per hour, so we keep juggling our assignments until we get one that size.”

2. Spearhead the work simplification program. Better methods result in more production with no increase of effort on the part of the operator. These things don’t happen spontaneously however, someone has to show supervisors and key personnel how to do their own simplification. Some one has to awaken their imagination and their thinking. Some one has to follow up and give expert assistance to people in working out their improved methods. The natural stimulus is the Industrial Engineering Department.

(continued on page fifteen)
Activities of the American Cotton Manufacturers Institute, Inc., at Clemson, S. C.

John T. Wigington. Director
The Division of Technical Service

The American Cotton Manufacturers Institute, which is the central trade association serving the nation's textile industry and representing spinning, bleaching, finishing and allied plants, both small and large, all over America, maintains in the textile school at Clemson its Division of Technical Service which includes a modern cotton fiber testing laboratory.

The Division of Technical Service was established at Clemson in 1941 under the Cotton Textile Institute and taken over by The Cotton Manufacturers Institute in 1949. The activities of the Division are divided into two separate classifications. One of these services covers the entire membership and the other available to interested members on a fee basis.

The service covering the entire membership includes the handling of requests for technical information, the distribution of technical reports and the attendance at important textile research conferences and meetings.

The Institute's cotton fiber testing laboratory serves two functions. First, it makes available to the mills a laboratory for the training of their technicians in all the techniques of cotton fiber testing. Incidentally, this is the only laboratory of this type in the United States. Second, it affords the mills a place to have their cottons tested. These activities are offered to all American Cotton Manufacturers Institute members, to cotton breeders, producers, ginners and merchants.

The training program and the cotton fiber testing work is under the supervision of Helen G. Beasley, fiber technologist of the Institute. This program, which was initiated during the summer of 1944, has proven popular with all branches of the cotton industry. During this almost ten-year period mills controlling better than thirty-five percent of the spindles in place in this country today have had technologists trained in this laboratory. Cotton breeders and cotton merchants have also sent their technologists to the Institute's laboratory for the regular courses and for special training.

The Institute's main office is located in Charlotte, North Carolina. Offices are maintained in Washington, D. C., and New York, N. Y., along with the one at Clemson.

The president of the Institute is always an operating executive of a manufacturing plant. H. K. Hallett, of Charlotte, N. C., who is vice-president and general manager of Kendall Mills is the present president. Robert C. Jackson of Washington, D. C., is the executive vice-president and F. S. Love, of Charlotte, North Carolina is the secretary and treasurer.

ACMI CLASS IN COTTON FIBER TESTING


RAYON WARPER CREEL CONE HOLDER PATCHES

Mills having trouble with sheepskin patches not sticking to iron cone holders in horizontal creels may correct this difficulty by using cotton jersey slip covers on cone holders as a base to glue patches. The Clemson Textile School has been using this method for several years and have experienced no further difficulty with patches falling over or failing to stick to iron cone holders.

DECEMBER 1953
During these hurried times of complex industries with their multitude of statistics, labor laws, policies, and productive procedures, it behooves us to pause for a moment to consider the human side of things.

There is not a single day that passes during which management does not deal with the problems of better quality, lower costs, less waste, increased production, etc. Management is looking for the young men with the qualifications to solve these problems for industry. The basic fundamentals for a beginning to the solution of these problems comes from the training programs carried out by the industries, and the years of actual experience to follow on the job. An industry's success is measured largely by its profits through high productivity of quality products at lower costs. Can our young men of today contribute to these successes?

Yes, our young men can contribute to an industry's success if they approach the tasks via the human side. They will have to become convinced that their industry's success is gained through the people on the job and not merely by the supervisor in charge. These people are the production; the quality; the lower costs. It is all there within them; it is the supervisor's task to see that they give forth willingly and freely; for only through their whole-hearted cooperation will the supervisor be able to claim this success. An industry is made up of the countless hundreds who keep the wheels turning that produce the goods that produce the profits. These people are human beings and all they ask of those who supervise is to be treated as such. The average worker takes pride in producing a better than average product. He will produce a superior product if somewhere along the way the supervisor will say, "John, we appreciate the effort you are putting forth to help our company stay on top." Most of us are quick to criticize; slow to praise.

You hear people say, "John Doe isn't interested in costs." He might be more interested if his supervisor had taken more time to develop a cost-consciousness in his employees. The average worker is interested in costs. His whole life revolves around such basic facts as how much money he will make and just how much he will have left over when all his bills are paid. All a supervisor has to get across to the employee is that there is a direct relationship between controlling the company's costs and the worker's own security. This can be done through frank and direct discussions of cost problems. Make the worker feel a part of things; it is his efforts that will reduce costs. Above all, the supervisor should show interest in costs through his own actions.

A production increase can be obtained by either stepping up the present routine or by improving the job method. Here again the worker becomes involved. Very few employees care to have additional burdens added to their daily routine; nor are they overjoyed by abrupt departures from the normal. The more logical approach to the increased production is to improve upon the present method. There is always a certain amount of resistance from the worker when such a change is to occur. Remember that he is only human — wouldn't you feel the same if you were in his shoes? These production problems must be discussed with the employees so that each person may understand his part. Give credit to the worker for his suggestions. He will be more than willing to cooperate if he feels that his was the suggestion that helped solve the problem.

The young men graduating from our institutions today will become tomorrow's supervisors of industry. Their trees of knowledge are fundamental, and the degree to which they develop depends upon their application of these fundamentals to the practical problems they will encounter in their daily tasks. It must be remembered, however, that few of these problems will be solved without an insight into human nature; for it is the human element that is the heart of the industry! These young men should begin to develop a social consciousness, while still a student, which can be broadened by their actual experiences from contacts with people later on in industry. Their degree of success and that of their industries depends largely upon their understanding of human desires, emotions, convictions, and human behaviour under varying conditions.
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IT'S A Riegel FABRIC
The Textile School Takes to the Air

Prof. J. C. Hubbard, Jr.
Weaving and Designing Department

Since the last publication of the BOBBIN and BEAKER, the faculty of the School of Textiles Clemson College, has taken to the "air waves" seven times. This is a live program, as previously stated, and may be received over WIS, 560 on your dial each Wednesday from 12:45 until 1 o'clock as part of the Clemson Journal, with our genial host, Bob Mattison as moderator. In addition to the live program it is taped for transcription and is used by 29 radio stations throughout the state. Also a four minute "Voice of Clemson" condensation of these programs is sent to and used by Greenwood, Orangeburg, Florence, Easley two stations in Charleston, and Sumter and WMIT, Mount Mitchell FM which covers seven states.

On October 28, Prof. H. B. Wilson, of the Yarn Manufacturing Department, had as his guests the Burmese students, Maung M. Aye, Maung K. Si, and Maung M. Than, attending the Textile School here at Clemson. These students are about as far away from home as any student can possibly get. It was interesting to note that these students are sent to school by the Burmese Government and the Washington Embassy of their government chose Clemson as "the textile school" for them to attend.

Prof. L. Hugh Jameson, of the Weaving and Designing Department, on November 4, discussed the different phases of weaving and other textile manufacturing necessary to convert yarns to fabrics. The interview covered the basic weaves and more complex and intricate weaves for cloth fabrication such as plain weaves, twill and sateen weaves and their derivations, double cloths, bedford cords, piques, velveteens, corduroys, and toweling, not to mention those more intricate fabrics such as drapery material, upholstery fabrics, damask table cloths, figured bed spreads and blankets. These were then broken down as to the type of loom involved in their production such as cam, dobby or jacquard.

To give a well-rounded program, Mr. Roscoe J. Breazeale, Instructor in Textile Chemistry and Dyeing, covered soaps, water and synthetic detergents. Water, as far as cost goes, seems to have some bearing on the location of textile plants where large quantities are used. Not only must the water be suitable for processing textiles but in the South, the winter temperature of water is higher than the North and in the case where it is a question of raising the temperature to 30°C, the difference in the starting point, say 5°C for the North, and 15°C for the South, when a finishing plant uses several million gallons a day, there would be quite a saving on fuel alone by locating this plant in the South.

Prof. James H. Langston, of the Textile Chemistry and Dyeing Department discussed the synthetic fibers. He stated that "All synthetic fibers and yarns are man-made but all man-made yarns and fibers are not synthetic. Some man-made fibers are regenerated cellulose which is not a true synthetic."

It was interesting to note from Prof. Tom Hendrick's talk that cotton sewing thread is not as dated as the textile industry. The first cotton sewing thread mill came into existence during the War of 1812 in Scotland, and was a direct result of Napoleon Bonaparte's Berlin Decree which curtailed the import of silk to Great Britain.

Most cotton sewing thread in the United States is made of imported Egyptian cottons, however, some American Egyptian, Arizona Peeler, and Pima cottons are used. The numbering system is somewhat complex. A three cord, 30's sewing thread is equivalent in weight and diameter or bulk to one strand of 10's yarn; from there on it becomes more confusing.

In addition to the normal processes of yarn manufacturing the yarn must be further processed. The yarn must be passed through a flame in order to remove the fuzzy ends of fibers that protrude from the main body of the yarn. The yarns are then mercerized, bleached and dyed. It takes approximately six weeks to convert a bale of cotton to spooled yarn.
Textile mills create openings for materials other than cotton, wool and synthetic fibers and yarn. There is, for instance, approximately one ton of starch, either corn, potato or some other type, used per 60 bales of cotton consumed. In South Carolina, in 1953, there were 2,246,000 bales of cotton consumed.

Prof. E. A. LaRoche of the Weaving and Designing Department, covered these markets rather extensively. Among some of the other major items used in the textile industry are waxes and tallow, which are used together with the starch to form a size for the warp yarns; lubricants for the machine involved; chemicals for finishing and dying; leather goods for roll coverings, check straps on looms and belting to drive the machinery; paper, wooden supplies and rubber material. The list is incomplete without electricity and machines.

Of course the foregoing list contains most of the mechanical items but one remains without which no industry could operate, personnel. Prof. T. A. Campbell, of the Textile Management Department, discussed “Textiles as a Career for Southern Boys and Girls.” In view of the general interest, this talk appears in this issue of THE BOBBIN & BEAKER.

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CHARLOTTE, NORTH CAROLINA
Textiles as a Career for Southern Boys and Girls

Prof. T. A. Campbell
Textile Management Department

The textile industry is expanding at a rapid pace in the South and more especially in the Carolinas. A young person planning a business career, could select no better environment than the Carolinas. This is home and there are excellent opportunities for the young people who have had good training and possess qualifications required in this progressive and expanding industry.

It is not necessary to have a college education to go into the textile industry, because the mills train, to a certain extent, and the rest is left up to the worker and he can go forward if he shows initiative and interest. One mill manager reports that bright high school graduates can advance faster from learner to a job classification in textiles than any other industry. The jobs open to the high school graduates after a training period are retail clerks, office assistants, assistant foreman and foreman, warehouse workers, and production operators. One executive advised that 75% of the men occupying managerial positions in his company came up through the ranks. The extent of formal education is very important, but the lack of it is no absolute bar to advancement. Frankly, the person who ends his education with high school handicaps himself, because college education is more usual today than it was a generation ago.

We are fortunate to have three good textile schools in this section of the South: North Carolina State, Raleigh, North Carolina; Georgia School of Technology, Atlanta, Georgia; and Clemson College, Clemson, South Carolina. These schools are well equipped to train the young man or woman in textiles and other courses related to mill work.

Just to give an idea of the scope of job possibilities for the technically trained college graduate, a few are enumerated. Machinery designers, engineers, chemists, accountants, salesmen, stylists and designers, and related activities. Mr. J. H. Sutherland, president of J. P. Stevens & Co., New York says, "There is certainly a challenge ahead to the young technician who finds new ways of creating interest in the old and new fibers, either by the development of new textures, or through the application of novel finishes. Science has moved in, with complex chemistry, physics, precise mechanics, exhaustive merchandising and marketing surveys, accounting and other exacting analyses."

The textile industry employs more women than any other industry and 91% of them are semi-skilled. It can readily be seen that the girls have a definite place in this industry. During the war, women were in the majority in the mills and the mills have not yet fully returned to the pre-war basis when 42% of the mill workers in the North were women, 36% in the South.

Rates of pay are commonly equal for men and women doing the same type of work. Women are preferred for many jobs because of superior patience and dexterity. Girls can expect to be earning an income within a few months higher than possible in any other field requiring similar training. In addition to mill jobs, there are opening for labor and designing assistants, clerks, stenographers, telephone operators, receptionists, personnel interviewer, nurses, cafeteria managers and etc. Girls with training beyond high school may find many other opportunities. Women frequently excel in research work and the woman chemist or textile graduate will find a warm welcome from many mills with salaries and opportunities equaling those of men.

The South Atlantic States have approximately 1700 plants and employ about 485,000 people.

The magnitude of the textile industry is considered in terms of loom and spindles. There are approximately 26,265,000 spinning spindles and 531,000 looms (all kinds) in the United States. 59% of the spindles and 57% of the looms are located in the South Atlantic States. North Carolina, South Carolina and Georgia contain 14,986,000 spinning spindles and 277,000 looms or 96% of the spindles and 91% of the looms in the South Atlantic States.

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FOURTEEN THE BOBBIN AND BEAKER
A MANAGEMENT TOOL

(Continued from page six)

It can plan and conduct periodic training sessions in work simplification and can go into various parts of the plants to work with the personnel in each department.

The alternative is an almost stagnant situation as far as methods improvement is concerned; the use of only a part of the brains and ingenuity available to the management.

3. Establish wage incentives. Wage incentives are a natural adjunct to measured work loads. The combination should result in lower direct and indirect labor costs. An Industrial Engineer with immigration can work out cost saving wage incentive plans for such unlikely operations as warehousing, stock room, and truck or box car loading.

The alternatives to a sound wage incentive plan are either a dangerous make shift plan or day work; payment for the time put in on a job instead of for the amount of work produced.

4. Set up and administer the job evaluation program. Job evaluation is a program for setting wage levels so that they will be consistent from job to job. It also provides for comparison with the level of wages paid in other plants for selected key jobs. The actual evaluation is done by a committee, made up of people from the Industrial Engineering, Personnel, and Operating Departments. The Industrial department however, should administer the program.

The alternative is wages set by guess, with no assurance that the wages paid on one department are in line with those paid for similar work in other departments, or that skilled jobs are paid commensurately more than unskilled jobs.

5. Set up and maintain a quality control program. This department may become so big that it is separated from the Industrial Engineering department. In either situation it serves the same purpose; to use its technical skills to determine what quality to aim for and keep production at that quality at the lowest possible cost.

Savings can often be made in the amount of testing done, the amount of seconds, produced, the amount of raw material consumed, and the quality of raw material bought. Statistical Quality Control is a help in defining the capabilities of the process or parts of the process under a given set of circumstances.

The alternative to a sound quality control program is quality control by rule of thumb, resulting in inconsistent standards of quality from year to year.

6. Issue weekly and monthly cost reports, showing actual cost compared to standard cost by operations and departments. This type of report makes trouble spots stick out. Only in this way can management exercise "management by exception"; that is, put it's time and effort on those processes that need attention. Such weekly and monthly reports can be expanded to include waste, seconds, labor supplies, and other items that go into the total cost of the product. The essential thing is to have a standard figure, competitively set, and an actual figure. Such reports can also be the basis for a supervisory bonus, or for group incentives.

The alternative is for management to dig out its own figures on different processes, decide whether they are excessive or not, and then go after the ones that they think need attention.

7. Make engineering economy studies. When a choice must be made between the purchase of two or more different models of a machine, or between purchasing new equipment and continuing the use of the present equipment, the Industrial Engineering Department makes a complete and thorough study of all alternatives and presents a report based on the results of the study. Such a study includes labor costs, upkeep, depreciation, floor space and overhead requirements, ease of operation, and any other factor that would affect the choice. The best information available is used, not just figures furnished by the manufacturer.

The alternative is to operate on opinion and estimates of salesmen, with results like those of one plant, which discontinued the use of an expensive machine when shown how costs actually compared between doing the operation by hand and doing it by machine. If a thorough study had been made, the machine would not have been bought in the first place.

The Industrial Engineering department is a staff department, not a line department. It does not have authority to hire and fire personnel in the weave room or any other operating department of the company. Its function is technical; to furnish technical know-how and assistance to the plant supervisors. The staff department should advise the plant manager. It should also be on call to furnish technical help to him, or any other line supervisor.

No line supervisor is replaced. The responsibility of the line supervisor to "get out" production in the quantities, of the proper qualities, and at the proper time, is not in the least diminished. However, the line supervisor now has technical aid that he can use to help him run his department in a more efficient manner.

(Continued on next page)
A thorough going program would include some instruction of all supervisors in the fundamentals of all the techniques outlined above. Line supervision in modern management, to properly use the technical help available to it, must be better today than ever before. The Industrial Engineering department, including all the techniques discussed, is no substitution for first class line supervision.

Incidentally, the Industrial Engineering department is often an excellent training ground for supervision. In no other department can the young management trainee get such thorough training in such a wide variety of operations. The Industrial Engineer department is the natural place to look for new line supervisors.

In summary, Management can:
1. Guess at work loads, or measure the work content of jobs.
2. Keep the same methods, or improve them systematically.
3. Use Ineffective wage incentives, or have a sound integrated wage incentive program.
4. Guess at the wage level to use, or use job evaluation.
5. Do quality control by rule of thumb, or use modern Statistical Quality Control.
6. Ferret out the weak places by personal examination of all processes, or use management by exception based on weekly and monthly reports showing actual and standard figures.
7. Rely on the advice of the salesman or base decisions on engineering economy studies.

Management can use a good Industrial Engineering Department or it can manage the hard way.

**PLEASE!**

Help us to keep our files up to date. Our sincere THANKS to all of you who answered our appeal in the last issue. If you haven't answered, please fill in the form below and mail to:

**THE BOBBIN AND BEAKER**

Box 542
Clemson, S. C.

Name

Position

Mill or Company

Local Address

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Ideal’s Flyer Tune-Up Service
Saves Money 2 Ways

By the time your flyers ride up or down, or wobble from side to side so badly that you decide to have them reconditioned, you have already lost a lot of money. Such operation causes weak places in the roving, builds bobbins unevenly, and causes costly wear on spindle tops, flyer legs, and other parts.

A Stitch in Time
Don’t wait until your flyers must be repaired . . . and have already produced many pounds of inferior roving . . . and caused hours of down-time. Use Ideal’s Flyer Tune-Up Service before they wear out and you will get perfect production as well as put off the expense of flyer repairs for a long time. This service includes Nose Straightening, Slot Gauging, Blocking Flyers and Pressers . . . and Selecto-Speed® Balancing which balances all of your flyers for the exact speed at which you run your frames.

The cost of Ideal Tune-Up Service is small. The benefits in longer life for spindles and flyers, in better quality roving and better built bobbins, and in reduced down-time is great. Don’t wait until your flyers need repairs. Send us your flyers for an Ideal Tune-Up job now. If you wish, we will supply you with extra flyers while yours are being serviced.

Save on Production . . .
Save on Equipment . . .
Start Regular Tune-Up Service Today.

Ideal Machine Shops, Inc.
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29th Year of Continuous Service to Textile Mills
For: Dyeing, Printing, Reducing, Stripping

REDUCING AGENT FOR VAT DYEING:
A pure, full strength Sodium Hydrosulfite (Na₂S₃O₃).
A reducing agent for dyeing vat colors on cotton, rayon and other fabrics. Also HYDROSOULFITE OF SODA Q.D. for immediate solubility in continuous vat dyeing machines.

APPLICATION & DISCHARGE PRINTING:
The highest strength of Sodium Formaldehyde Sulphoxylate. (NaHSO₃·CH₂O·H₂O). For application printing of vat colors and for discharge printing on all textiles. Also used for stripping.

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A clear-dissolving, soluble Zinc Formaldehyde Sulphoxylate. (Zn(HSO₃·CH₂O)₂). For discharge printing on acetate dyed grounds. Also for stripping certain colors on wool, acetate and nylon.

STRIPPING WOOL STOCK:
This is a Basic Zinc Formaldehyde Sulphoxylate (Zn(OH)HSO₃·H·CHO) used for stripping wool stock, Shoddy and rags.

DISCHARGE FOR INDIGO:
Mixture of Leucotrope W and Hydrosulfite AWC in the proper proportions to give a white discharge on Indigo-dyed grounds.

DISCHARGE FOR INDIGO:
Sulphonated quaternary base. For pure white discharges on Indigo-dyed grounds when mixed with Hydrosulfite AWC.

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Hydrosulfites

Write today for complete information as to how a Jacques Wolf Hydrosulfite can help you do your job better. Samples for testing sent without obligation.

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