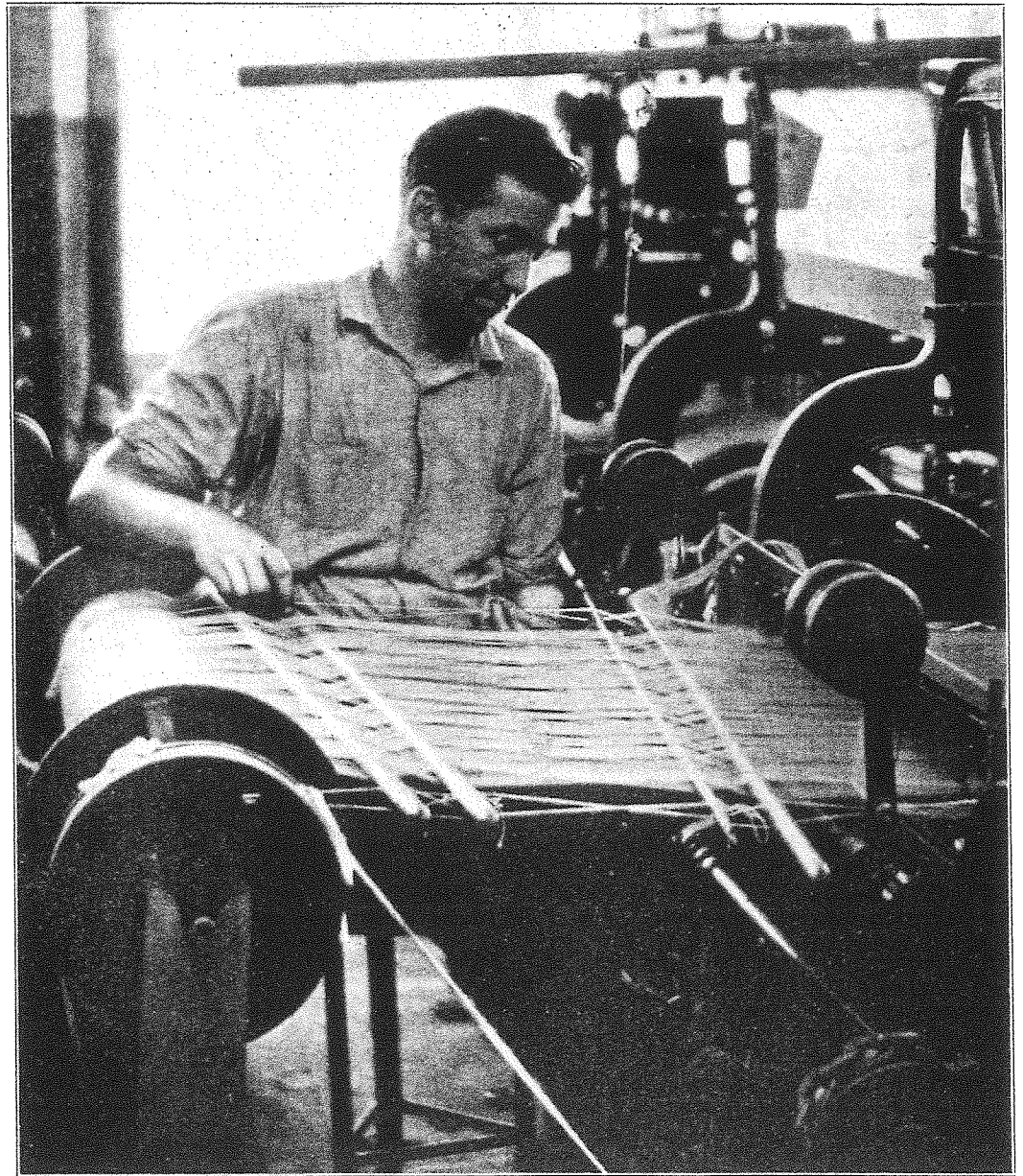


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Manufacturing Standards

Works Council Speaker Tells How Standardization Meets Competition And Battles Waste

The following article is quoted, in part, from a talk given by John W. Nickerson, head of the Production and Compensation Research Division, at a meeting of the Works Council in the Executive Office, June 16th.

I AM very glad of the opportunity to present this subject, because it is something which is vital to all of us, something to whose success we must all contribute. It is therefore right that we should together have a clear understanding of its purposes. 'Standards' of some sort have existed as long as people have lived together.

"As we look back in history, we see that standards have been set up often as the result of the fixing of habits; and the more civilized people became, the more fixed and standard these habits became. Development of the art of war very early made necessary the standardization of the work of its various branches, such as infantry, cavalry, archery, and later artillery, ordinance, etc. This led to the establishment of routine procedures called tactics, which are standard methods for dealing with certain situations in coping with the enemy.

"Other forms of human activity have similarly developed through the use of progressively changing standards. History has taught us the very definite social, moral, and religious codes which the many different groups of people have set up to govern them. . . .

"Mechanical pursuits have from the earliest time made necessary standard measures. At first these units were very crude, as illustrated by the original English ell, or yard, which in 1120 was defined as 'the exact length of King Henry's arm.' By gradual refinement, these units have been made invariable by reference to carefully guarded master standards true to possibly the one hundred thousandth of an inch.

"The rise of the machine industry started at the time of the 'Industrial

Revolution' (1760-1830) and with it came the first real progress in standardization.

"An early example of standardization occurred in the making of muskets by Eli Whitney, sometimes called the 'father of standardization,' because he was the first to manufacture articles on a large scale with the idea of complete interchangeability of parts. Similarly in railroad operations, where different track sizes and varying patterns of parts had created confusion, it became necessary to adopt standardization.

"With widening of markets all over the world during the geographical expansion of the nineteenth century, manufacturers concentrated not upon producing cheaply but upon producing the most and selling the most.

"During this time a sort of competition was going on between expansion in industry and standardization. No sooner was a process standardized for a uniform product, than a new invention called for an entire reorganization of production. Such reorganization was costly and blocked continued production, and it came to be seen that research is vital to industry and that scientific information must be coupled with standardization.

Effects of World War

ALTHOUGH the value of standardization was being recognized at the beginning of the twentieth century, it was the World War which really made necessary its rapid adoption. Germany was ready, and caused universal attention as well as dismay by the sweeping force of her drive toward elimination of all unnecessary waste motion and by her apparent standardization of processes of manufacture. The Allies, including the United States, were forced to try the same methods and to do so quickly. The War Industries Board, in controlling all purchases for war purposes, faced shortages of supplies and a fearful confusion of sizes, etc. By demanding standard-

ization and simplification, great economies were effected.

"Termination of the war brought on a severe strain; markets were disorganized, and expanded industries were forced to reorganize. Keen competition set in, with consequent need for economic manufacture.

"The Hoover committee for elimination of waste in industry was formed after the war. It decided that a nation-wide program of industrial standardization should be encouraged by the government in cooperation with industry. In one of his reports on the progress of this work, while he was Secretary of Commerce, Mr. Hoover stated:

"One of the major attacks upon industrial and commercial waste lies in standardization and simplification.'

He further stated, 'The economic savings by the adoption of standards and simplification are enormous,' going on in his report to cite instances. For example, common bricks were reduced from 44 varieties to 1; bed blankets from 78 sizes to 12; milk bottles from 78 to 10; and so on. . . .

"Most of the larger and best-known companies, such as the Bell Telephone, General Electric, United States Steel Corporation, General Motors, have pushed ahead rapidly, and claim millions of dollars of savings through standardization. . . .

The "Best" Way

STANDARDS in business are developed by research. Research is simply a continuous search after truth. By this search, we should endeavor to choose among the many possibilities the best equipment to use, the best material to work with, the best methods and conditions to operate under; and this combination must result in the best, or lowest, cost and the best quality.

"What is the 'best' way to do a thing? It is the sum of all the good ways that we have discovered up to the present. It therefore becomes standard. To say that today's standard will become that of the future is to exceed our power or authority. We see all around us yesterday's standards, but no one mistakes them for today's. So today's best, which superseded yesterday's, will be superseded by tomorrow's. Today's standards, then, instead of

being a barricade against improvements, form the foundation on which tomorrow's improvements will be based.

"Now what is Cheney Brothers' history in standards? From the interesting and valuable talk on Cheney Brothers' early history which Mr. Frank Cheney, Jr., has given before the Works Council, it is clear that this Company was actually founded on standards—the very real standards of integrity, intelligence, perseverance, and loyalty. We cannot have too much respect for those who through their use of these standards in their twelve-hour working day built up and maintained such an industry. As expansion came, superintendents, foremen, and operatives no doubt all took part in developing and changing manufacturing practices and standards; and this work must have been well done when we consider the continued good name of Cheney Brothers.

Mr. Gantt's Work

"NEVERTHELESS, as in other industries, competition became severe as time went on; and it seemed wise to the directors to be among the first to start working along the line of what was known as 'scientific management.' So Mr. Henry L. Gantt was called here in 1912, and we started in to set up methods of standardization new to Cheney Brothers. Mr. Gantt was a clear thinking, plain spoken, straightforward man, who stood strongly for the interests of the employees as well as the management. Mr. Horace Cheney once wrote an appreciation of Mr. Gantt for the magazine 'Industrial Management,' from which I should like to quote a few lines:

"All kinds of injustices and driving of employees have been perpetuated under the name of scientific management and efficiency, and these injustices have recently given our people a bad name in the eyes of the public and of the workers as well. It is the responsibility of management to make it plain to all that the only way to increase production is by the use of common sense. It is the duty of management to make it plain to all that the only way to increase production is by the use of common sense. It is the duty of management to make it plain to all that the only way to increase production is by the use of common sense."

On The Cover

Louis Laine, fast hand twister, nears the finish of the joining of two warps at the Broad Goods Weaving Mill.

not be improved in some manner which would result in greater product being made with less effort and better quality, in higher wages, or in anything which might be considered an advance in industry.'

"Most of you are familiar with task and bonus work, which Mr. Gantt introduced. You have often been told by the management of its value to Cheney Brothers, and you have experienced yourselves the guaranteed day rate and higher earnings of the bonus worker, together with the obligation which it sets up for the management to investigate and remedy your difficulties. Some of the original details have been changed; but the fact that the basic ideas which Mr. Gantt brought here have been maintained and respected alike by the employees and the management, is in itself a tribute to him.

Functional Control

"DURING all this time, however, the methods in each mill were under complete control of each mill manager and superintendent, as were very largely the decisions as to what we should make, development of new things, scheduling, costing, etc. In 1927, it was deemed wise to make a change in the organization so that these various activities might be co-ordinated and standardized.

"A division was set up, known as the Product Control Division, headed by Mr. Frank D. Cheney. It is the duty of this division to so study the market as to determine, in conjunction with the Sales Division, just what products we should have in our line. This division also sets up the specifications for what we make; they tell us what yarns to use, what the construction of the cloth must be, what it must look like and feel like. Then, after we have made the goods, the Product Control Division,

through its Quality Department, tells us whether it is made up to specifications.

"Another change has been the setting up of a division known as the Production and Compensation Research Division. Within this division is the Project Department, the Manufacturing Standards Department, and the Wage Control Department.

"The Project Department, which is managed by Mr. J. F. Van Ness, has the duty of receiving from the Product Control Division complete specifications regarding the new articles which they have decided to ask us to make up as samples, so that they may see whether, after proper examination and cost investigation, they seem to be desirable to add to our line.

"Then the Project Department is responsible for deciding how these projects will be manufactured, what machines will be used, what speed, tension, temperature, materials such as oils, sizes, and so on. In thus planning the method of manufacture, however, the Project Department goes for advice and assistance to those who, for each particular step in the process, have the most helpful information. This means the closest contact with superintendents, foremen, laboratory, Auxiliary Division, and Manufacturing Standards Department.

"After a project has been made and proved acceptable, the Manufacturing Standards Department enters into the picture. This department is managed by Mr. R. C. Pillsbury, and is divided into four sections: the Dressing, Spinning, Throwing, Winding and Spooling, and Yarn Dye Section under Mr. Joseph Moore; the B. G. Weaving and Auxiliary Section under Mr. N. P. Cubberly; the Velvet and Cravat Section under Mr. Robert Pratt; and the Piece Dyeing, Printing, and Finishing Section under Mr. A. S. Helm.

"The Manufacturing Standards Department, when a distinctly new type of article is proposed for the line, usually asks for a trial order of several hundred or more yards in order that with the records obtained by the Project Department as guides, the best known routes and process standards may be set up. These routes and standards are determined by the Manufacturing Standards De-

partment, but in practically every instance they are discussed with foremen and superintendents, and bear their signatures; so that for the moment they represent the best accumulation of information which we are able to obtain in Cheney Brothers. After such standards have been completely set up, and after the Product Control Division has issued commission specification cards, and a sample of the goods for us to finish by, all of these things are issued to the Scheduling Division and to the superintendents and foremen. . . .

Standards Must Change

"We have so far traced the course of the new addition to the line; and it might seem as though our endeavors could then stop, but many things are operating to prevent this. Raw silk comes to us from the four corners of the world, and although under much closer control than formerly, still it is subject to extreme variation. Change in the nature of silk may cause changes in yarn operations, warping, weaving, and boil-off, dyeing, finishing. These changes may have to be met by changed standards, perhaps by changed tasks and changed costs. Again, the requirements of our customers may change so that it seems desirable to alter constructions or finishes; and still again, in accordance with the fundamental principles of progress, we should expect between us all to be continually endeavoring to improve our methods; and improvement of methods means change of standards.

"Many times these changes in methods are made by arbitrary agreement, but probably in most cases changes in standards are made only after careful comparative experiments are run; and for this purpose we have a regular orderly method of experimenting so that at one central place records are available from all the different trials, failures as well as successes, which have been made in the effort for more economic or better manufacture.

Promotes Coordination

"IT is well to consider why a central standards department was formed, and why we do not have individual standards set up by our many foremen. In the first place, it

was logical to gather up all of the old so-called standards in departments which had been under separate control of the foremen, and inasmuch as these standards have always been and still are responsible for the making of slow studies, setting of tasks and standards, and establishing the various quality premium scales and the setting up of all standards of cost, it is apparent that we had the nucleus of a group who could be given the responsibility of determining upon and then developing complete standards.

"On account of the large number of operations taking place in the mills and because of the great variety of commissions, it is important that Cheney Brothers' methods of doing things should be written down. Such records should be written and compiled in a uniform way, which could scarcely be achieved by individual foremen or even superintendents to understand clearly the result in his own room or mill of all of the preceding and succeeding operations is next to impossible. Often, to cure a quality trouble, many different changes have been made by as many foremen perhaps without complete notification to others. Now such changes are backed up by experiment either before or after they have been made, so that costly additions of labor or materials are not unnecessarily made.

"There have also been cases when the good ideas of foremen and superintendents have been nullified because they could not carry the idea into further operations or secure the cooperation of those directing later operations. Then again, it is difficult, except through a central agency, to transmit changes in customer demands and increased quality requirements to all places where this information should go.

"In this whole plan, then, there is no thought to lessen the responsibility of the foreman so far as the development of ideas is concerned, but rather to give him assistance from every part of the mill.

"The need for central control of standard methods is also seen when we consider the important item of costs. Standard times, standard hourly rates, bonuses and standard materials, are the basis of standard costs, which for several years have

been the basis of our cost accounting system.

Standard times, bonuses, and standard materials have actual figures attached due to factors in the nature of the manufacturing which are not in dollars and cents. Changes made effective so far in '33 made possible savings of considerably more than \$100,000 per year.

Would Salvage Ideas

"IN this discussion," he continued, "I have endeavored to make it clear that the working out of manufacturing standards, although controlled by the Manufacturing Standards Department, is nevertheless a cooperative plan in which all should join. Each member of the Works Council and each employee of Cheney Brothers may have as great a part as he desires; and each one should think of his job not as a fixed and unchangeable series of motions but as representing the best which we in South Manchester have yet developed. As we work at our daily tasks, we should direct our thought along such lines that ideas will come to us involving improvements in quality, machinery and equipment, methods, materials, conditions, costs, reduction of waste, etc. Such ideas should not be lost, but whether it be through the foreman or through the assistance of the Employees' Suggestion Plan, should be sent along the proper channels for the general good."

▼ ▼ ▼

Will Finish Term

At the June Works Council meeting, it was announced that Joseph Lyttle of the Yarn Dyeing Department will continue as representative until his term expires. Mr. Lyttle had previously resigned after being assigned to a job which, it had appeared, would make it impossible for him to attend meetings.

▼ ▼ ▼

Result of Drive

The recent drive for the Tuberculosis and Cancer Free Bed Fund Association netted \$3,004.66, half of which was contributed by employees and half by the Company.

YOUR REPRESENTATIVES



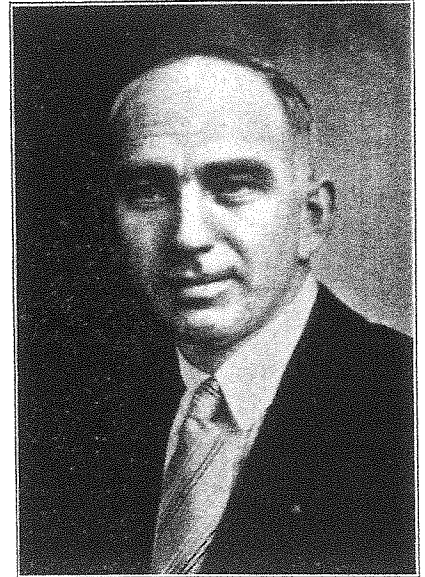
EDITH JACKSON

An employee for twenty years and a Works Council member for three, Miss Jackson represents the Throwing and Yarn Testing Departments of the Cravat Mill, where she is a winder.



RALPH VONDECK

Mr. VonDeck, a machinist, is representing the Auxiliary Division for his fifth term. He serves on the Council's Planning Committee and has been with the Company for eighteen years.



ARTHUR LARDER

Now in his fourth term on the Council, Mr. Larder is a member of the Planning and Editorial Committees. A cutter in the Cravat Mill, he has a service record of fifteen years.



JAMES FINNEGAN

Mr. Finnegan is a member of the Outside Labor Department which he represents, Mr. Finnegan wears a ten-year service badge. This is his third term as a Works Council member.



RUTH HANSON

The Spinning Mill Service Aide has been in Cheney Brothers' employ for thirteen years. She has been elected to the Council for three successive terms.

"That Dress of Mine"

Wherein It Appears That No End of Education
Will Improve An Ungrateful Frock

The Author

SIXTY years ago, Mrs. Jane Grey Swisshelm bought the "makings" of a dress. Here is the story of that dress, told in as delightful a style as one could find outside the famous old Diary of Pepys.

The article, which probably first appeared in a Pittsburgh, Pa., newspaper away back about 1880, was sent to Charles Cheney, president of the Company, by Miss Eleanor Mitchell, of St. Paul, Minnesota, great niece of the author, and was recently read to the Works Council. Miss Mitchell copied the story from a book of newspaper clippings found among Mrs. Swisshelm's possessions. She sends the following biographical data:

"Jane Grey Swisshelm, author, journalist and lecturer, was born in Pittsburgh, Pa., 1815.

"In '57 she left the east and went to join her married sister in St. Cloud, Minnesota.

"There she became a practical printer and from '58 to '63 published a weekly newspaper together with job work, legal advertising, tax lists and extras during the Indian massacres.

"She lectured in St. Paul and other large cities on anti-slavery, and also Women's Legal Disabilities. In '63 she went to Washington (D. C.) to lecture on the Indian situation in Minnesota and for the next two years did relief work in the hospitals for Civil War soldiers.

"This article was written from her home in Swissvale, now a part of Pittsburgh. Her book, 'Half a Century,' was published in '80 by Jansen McClurg & Co., in Chicago."

She died in 1884.

The adventures which Mrs. Swisshelm and the dress shared in so friendly a fashion took place when that remarkable lady was travelling triumphantly from her fifty-sixth to sixty-second birthdays.

By Jane Grey Swisshelm

THERE is much ado about this age of improvement, but it is my opinion that the things which most concern me do not always improve. For instance, here is this dress which, after six years of such opportunities as seldom, if ever, were accorded to a dress, is no better than the day on which its education began. Nay, it seems to me it has been going backward, deteriorating instead of improving.

I bought it—or rather the stuff of which it is made—from Field & Leiter, down State Street, in the old stable in which they took refuge after the great Chicago fire; bought it in November, 1871; chose the Cheney Brothers' brand of silk, because it was said that this was always improving. Alas for the improvement.

I made it up immediately and its opportunities began. Made it long for the platform, with strings to tie it up for travelling. I wore it that winter and the next, in season and out, sometimes for two months straight along, introduced it to more folks than ever a dress of mine saw before or since, and won for it no end of compliments. It was treated with great considera-

tion; and yet the fact became apparent, in the fall of '73, that that dress was soiled.

I ripped it up, laid it, breadth by breadth, in strong ammonia water; washed it well with a sponge, then rinsed it in the water, being careful to make no creases, and hung it up. When dry, it seemed all right. I made it up, but it soon became shiny, for I had neglected to put alum in the rinse, and so I sponged it with beer.

THAT winter I gave it an eight weeks' visit to Philadelphia, New York and Pittsburgh, with opportunities of improvement that should have stimulated it to exertion. The next winter I wore it in the West, a greater portion of the time; and, in April following, carried it out of our mountain home when this was all ablaze and most things burned in it. Then I wore it out to Northern Minnesota and back to Pittsburgh; wore it for a street dress that summer and next winter, and in the spring of '76 decided to go to Europe; but what was my surprise and indignation to be told that my dress was "not fit to be seen," that it was stained and brown and beginning to fray



JANE GREY SWISSELM

"...sponged it with beer..."

around the pockets! That good-for-nothing dress—and after all I had done for it!

Well, I ripped it up once more, gave it another washing in ammonia water, and still did not think to rinse it in alum water; made it up; put patches around the pockets and made believe they were trimmings; wore it to Washington, showed it the sights in the Capitol, from the Senate Chamber gallery to the sewers which supply the House of Representatives with fresh air for the use of the members; wore it on to New York, across to Liverpool and up to London; introduced it to the bloody beauties of the Dore Gallery, and other things too tedious to mention; gave it over two weeks of airing in London fog, then wore it to Dover; gave it special opportunity for enjoying its passage across to Calais; showed it Cologne, the Cathedral, and the Chapel of St. Ursula; the river Rhine and the coal barges which make it picturesque; wore it to Leipsic and most of the six months I stayed there, simply alternating it with a flannel wrapper and putting on a summer dress occasionally, out of respect to the Leipsic opinion that the weather was warm.

LATE in August, old Kaiser Wilhelm came to Leipsic with his Crown Prince, Von Moltke, and other folks of that kind; and the

King and Queen of Saxony with their Crown Prince and Princess, and ever so many people with long handles to their names, came to meet them. It seemed highly probable the good old Emperor had come on purpose to see me, for he had not been there since he was a boy. I must needs afford him the opportunity of forming a favorable opinion of American costumes, and so put on my dress to welcome him! Now the soil of Saxony is as yellow as the hair of her children, and as adhesive as a porous plaster, and when stirred up after a long drought, by forty thousand soldiers and twice as many civilians, it showed a great power of distribution. Then the Americanism of that dress asserted itself, and forthwith it set about gathering mementoes of the occasion.

Such an amount of Saxon clay as it did collect, and the tenacity with which it held fast to its real estate! Well, September brought the time to come home, and I was not going to bring a German farm to this country, so the only way was to rip up that dress, once more, and give it another washing. This I gave it, then wore it back to London, showed it Westminster, the Parliament House, Sydenham, Spurgeon, the Tower, Smithfield, and other places in which there are ample opportunities for culture; got to Philadelphia in time to give it the advantage of seeing the Centennial; wore it pretty much all last winter in Pittsburgh, Washington and railroad cars; and, last March, brought it to Swissvale, where it has seen a new phase of life, while I was having an old, log house screwed up; a story built under it; old chimneys and plaster pulled down, old floors and roofs taken out and replaced by new; swamps drained or filled up; water-courses changed, barns and fences built, orchards planted, crops put in, mementoes and other things of that kind, and a whole new dress and a new life was put on the old one. It was a long and hard job, but it was worth it, for it has seen a new phase of life, while I was having an old, log house screwed up; a story built under it; old chimneys and plaster pulled down, old floors and roofs taken out and replaced by new; swamps drained or filled up; water-courses changed, barns and fences built, orchards planted, crops put in, mementoes and other things of that kind, and a whole new dress and a new life was put on the old one.

that dress was like the sick girl in Scripture, who had had the care of many physicians, and was "nothing the better but rather grew worse."

I was disgusted with it, and I had half a mind to give it, with my blessing, to some worthy applicant for charity, when one day my conscience pricked me, and I concluded to give it one more chance. A boy had put on a washboiler with some rain water and potash to clean the oil off a floor, then went off and forgot; and thinks I to myself now or never is the time to clean that dress; but there shall be no more ripping. So I put it, linings and all, into a tub, with plenty of the hot water and lye; took soft soap, and, with a washboard, gave that dress such a cleaning as it had never yet had, rinsed it in alum water and hung it on the fence in a good hot sun. Well, would anyone believe it. After that dress was dry it was all clouded and blue, and I was in despair; but presently I bethought me, made a pot of strong coffee, spread the dress on a table, and with a piece of black muslin, gave it a thorough sponging; but now it does not begin to look as well as it did six years ago. True it is quite a respectable dress, though I should not wear it for any great occasion. I conclude that all this talk about American silks constantly improving, is a mere advertising dodge. No one could do more for one than I have done for that dress of mine, and it has not improved in the least. So there!



Thousands Earned

By Suggestions

"IDEAS are what progress is built upon," said John W. Nickerson, head of the Production and Compensation Research Division, at a discussion of the Suggestion Plan at the monthly meeting of the Works Council, June 16. After summarizing the history of the present plan and its method of operation and its results, the speaker displayed interesting charts showing that since August, 1926, more than four hundred dollars have been awarded for suggestions, accepted out of a total of 1,270 submitted.

In August, 1926, it was decided by the company to inaugurate an official suggestion plan which would banish obstacles to

the advancement of suggestions. Employees had hesitated because they felt the management had shown no especial desire for their ideas. Moreover, they possessed no definite guarantee that their suggestions would be considered or rewarded; finally, some feared that the disclosing of the identity of the suggestor might result in ridicule or prejudice.

The present plan was started, then, to give a definite invitation to all employees, to insure consideration of an award by the highest officials of the Company, and to prevent disclosure of the identity of the suggestor except when he desires otherwise.

Since the plan necessitates experiments and production research, it is supervised by the Production and Compensation Research Division. Charles J. Felber, who is directly in charge of suggestions, also has close contact with the Manufacturing Standards Department and receives the cooperation of other departments.

The plan has been treated with dignity and respect, and the consideration given to awards has brought the confidence of the employees.

"Ideas come to all of us if we are thinking rightly," Mr. Nickerson concluded. "Today more than ever our purposes and efforts are bound together, and it is distinctly to the advantages of each of us and to the Company that these ideas be brought to the front and made available for use. The suggestion plan offers a simple and well-protected means to this end."

Disposition of Employee Suggestions

Accepted and Awarded	366
Accepted and Not Rewarded	102
Rejected	745
In Progress	57

Total	1270
Total amount of awards	\$4,310.
Average amount of awards	11.77

Seventy-five suggestions were submitted pertaining to a title for the plant magazine. Excluding these and also the 57 still in progress, there are 1,213 that have been considered by the Executive Officers. The disposition of these has been as follows:

Accepted and awarded	32%
Accepted and not awarded	9%
Rejected	59%

Suggestions which are accepted but which do not earn awards are those made in the line of duty.

SKILL OF THE HAND

Nimble Fingers Twist or Draw in Silk
in Preparation for the Loom

IN the last issue of Cheney Silk News, warping was described as perhaps the most picturesque of all textile operations. The processes which follow warping—drawing-in and twisting—may perhaps be called the most minute. They are minute in the sense that the operator is obliged to handle the threads almost individually. When one considers the thousands of threads that go into the making of a single warp, it is evident even to a person who has never seen these operations, how patient and assiduous the workers must be, and how agile their fingers if they are to turn out an appreciable amount of work. In both occupations it is essential that the operator be capable of sustained attention to the constant repetition of a task that involves almost no variety.

When the warp has been made and beamed, the next job is to get it into the loom so that the filling—the cross-wise threads—can be put in.

This stage begins with the curious operation of twisting. Hand twisting is especially remarkable, since it is done entirely by the fingers. There is in use, also, a machine which does the work faster but which has only partly replaced the hand operation.

In twisting, the threads of a new warp yet to be woven are joined to the ends of an old one. After a weaver has finished a warp, he leaves enough silk in the harness so that the two warps can be united. It is then a simple matter to draw the new warp into place through the harness and reed, and it is ready for weaving.

The old warp in most cases must contain the same number of threads as the new, but there are some exceptions, and on these occasions heddles are either added or dropped in order to even up the number of threads. Since there is a different harness arrangement for the varying weaves of fabric, the harness line-up must also be the same. For example, if it is planned to weave an eight harness satin, the old warp must be

the old warp with his left hand and a thread from the new warp with his right hand. Sections of the two warps are held together by a hook attached to a belt which the twister wears. This hook also helps to cut the two threads just before the twisting, which is done with the thumb and



Louisa Hahn, right, "draws in" threads handed to her by Dorothy Brennan. The warp, rigged up on a drawing-in frame, is being threaded through a 16-shaft harness. This is considered a "big job".

threaded through an eight shaft harness.

How Hand Job is Done

THE hand twister usually must learn his job while young so that his fingers can develop agility. He seldom watches his work, but proceeds by the sense of touch. Sitting with his left shoulder toward the harness, he picks out a thread from

index finger of the left hand. The twister proceeds thread by thread from one side of the warp to the other. A particular and unchanging task and an important one is twisting, and the operation cannot be done successfully by all types of workers.

To make bonus, the hand twister is required to twist an average of 1,540 ends per hour, or 25 a minute, on crepe. The number required varies

with the type of yarn. The twister almost invariably exceeds the bonus requirement. His dexterous fingers are outdistanced, however, by the machine which rolls off the joined threads almost twice as fast. The majority of yarns can be handled equally satisfactorily either by the hand or machine method. All crepe and other lively yarns are always hand twisted, and cannot be managed by the machine. Since the machine is faster, it is profitable to use it where possible and most gum stock is twisted by this method.

Sometimes the new warp is twisted at the loom. At other times, the harness is lifted out of the loom and the twisting is done at the twisting frame. It is more advantageous to twist in the loom, for instance, when the harness is large and requires several men for moving. On the other hand, it may be inadvisable to keep the loom idle while waiting for the twister to begin work, and also while he is actually twisting.

Twisting, then, amounts to the making of a thread-by-thread joining of two warps. Men only are employed for the job, since it includes not only the actual twisting but the lifting and the mechanical work necessary to rigging up the job. It takes a number of years to perfect a good "all-around" twister.

Drawing-In

IT is clear from the above that, owing to the vast number of commissions, with their diversity of width and weave, it frequently happens that a suitable harness to which the new material may be joined is not available. Similarly, in the case of "projects," in which entirely new weaves may be undergoing experimentation, it is seldom possible to use a twist which is on hand.

In such cases it is necessary to draw in the warp, and a fresh harness is used. Drawing in is a slow and laborious job, and that is why it is not done very often. It is a job which is done by hand, and it is a job which is done by a man who is experienced in the work. It is a job which is done by a man who is experienced in the work. It is a job which is done by a man who is experienced in the work.

woven. The harness is then set up in a frame, which is shown in the accompanying photograph. One girl, the drawer-in, sits in front of the harness and her partner, the hander-in, takes her place in back of the harness. The drawer-in, whose work is the more important and skilled job, hooks the threads through eyelets on the shafts of the harness as the hander-in picks them from the lease and places them on the hook. The drawer-in, with great speed, whips the threads through the eyelets in the proper order, according to the "draft," which is the particular arrangement desired for the weave.

The accuracy of the drawer-in is important, since misplacement of a single thread will show a decided defect in the finished cloth.

The lease, which is made in warping, is of much importance in twisting and drawing-in. In both operations, the lease keeps the threads in proper arrangement so that they can be picked up in sequence.

Reeding

DURING drawing-in, the "false reed" is usually put on. This reed is similar to a leaf of harness, except that the small reed wires do not have eyelets. The threads pass between the wires which help to eliminate "floss"—imperfections caused when threads cling together.

The purpose of reeding, which follows drawing-in, is to hold the warp at the uniform width desired in the woven goods. The reed also beats the filling into the warp as the shuttle lays down pick after pick. In reeding, the silk is threaded through a row of steel dents which hold the material in place.

The above description fits the processes as they are carried on in the Broad Goods Weaving Mill where Jacob Corzilius is foreman of twisting and drawing-in. At the Velvet Mill, where Carl Carlson is in charge of this work, there are some variations.

Here the work is made more complicated by the necessity of twisting the double warp with which velvet is made, and also the pile warp. Because of the complexity of the work, twisting for velvet is always done in the loom. It takes several years before a man is able to do all of the intricate work which twisting

for this fabric involves.

Business Outlook

CHENEY Brothers' sales for the month of June continued in practically all lines to show a falling off from the sales of the corresponding periods of last year.

The total sales of the year to date, however, show a slight increase over last year, though the prices obtained have on the average been less satisfactory.

The prospects for the immediate future are still uncertain. General commodity prices in the central markets of the world have been slowly but steadily falling, and this is as true in London, Paris and Berlin, as it is in New York. This decline in commodity prices has gone on continuously in every month since July, 1929. There is some encouragement in the fact that the cost of living is thus constantly decreasing.

The recent renewal of a fall in values on the stock exchanges of all countries has brought them down approximately to the level of the crash of last October and November, which may indicate that values will be stabilized around that level to which business can safely adjust itself.

The encouraging features in the general situation are the expected adjournment of Congress, and the removal of the disturbing feature of the tariff debate from the picture. The prospect for good crops is fair, and if realized will decidedly help to improve conditions.

The outlook for longer working schedules at Cheney Brothers is not good for the immediate future.

Girls' A. A. Program

The girls are planning a week-end shore party at Ocean Side Cottage, Fort Mansfield Road, Watch Hill, L. I., July 19 and 20. Directors in each mill department are selling tickets, \$5 for members and \$5.50 for non-members. This sum includes room, meals and transportation. Busses will leave the corner of Center and Spruce Streets at 2 Saturday and will leave Watch Hill for the return trip Sunday at 5.

To qualify for tournament play, girls must sign for tennis before July 15.

Making The Job

3. The Responsibility of

IN previous articles we have considered the responsibility of the management and of the supervisory force for the safeguarding of the plant and the preventing of accidents. There remains the responsibility of the employee.

Previous to the enactment of the Workmen's Compensation Law practically the whole responsibility rested upon the employee, because he was able to collect for an injury only when he could prove gross negligence on the part of the employer. The employer could set up as a counter defense the negligence either of a fellow employee or of the injured individual himself, or he could claim that the employee had assumed the trade risk, which covers all hazards inherent in the very nature of the employment itself.

Under these conditions injured employees recovered in the average far less money than doctors, lawyers and ambulance chasers, and the whole system became thoroughly unsatisfactory both to the employer and to the employee.

This system was supplanted by the Compensation Laws which are now in general existence in all civilized industrial communities. These laws require that injuries received during employment and arising out of a cause existing in the employment be paid for automatically by the employer and be charged to the cost of production.

This system has a tremendous advantage over the previous procedure and is almost universally approved and adopted. It has resulted in the payment of great sums of money, but on the whole a much larger proportion of the money has gone into the pockets of those who were injured.

Negligence A Result

LIKE all efforts at social legislation which attempt to relieve the individual of some part of his responsibility, the present compensation system has had its unhappy effects. It has tended in many in-

stances to make the employee less careful, and the accident has now become one of depending upon those engaged in industry their responsibility for the prevention of accidents.

Another factor has contributed to negligence on the part of the employee. With the enactment of the Workmen's Compensation Law there was a tremendous incentive put upon industry to safeguard machinery and plant, and to take every physical means known to avoid peril. This campaign for safety, and the existence of so many safeguards, has undoubtedly had its effect upon the mind of the worker in making him feel that he does not have to exert his own efforts so constantly to avoid accidents.

Hence we often have in the hazardous industries the spectacle of men carelessly disregarding the use of safety devices and of voluntarily undertaking risks which the employer has exercised every precaution within his power to avoid.

The Careful Employee

THE measures which an employee can take to protect himself are those which have always existed to a greater or less extent, as follows:

1. Individual and personal care. Safety has been well said to be, not a device, but a habit; not a mechanical protection, but a quality of mind. The careful man is the one who keeps his mind fixed upon his own protection as a matter of continuous habit.

2. Care in the use of safety devices where they are provided, and suggestion that new ones be installed where it can be shown that they are reasonably necessary. The failure to use safety devices when they are provided should be followed by definite discipline, and in the case of men who are habitually careless and who continuously disregard the protective devices prepared for them, the Company can adopt no other method than lay-off.

3. Immediate reporting of all accidents and proper dressing and treating. One of the major risks of

injury is the failure to report an injury immediately. It is a common mistake to think that an injury is not serious and that it will pass off. In many cases, however, the injury is serious and the delay in reporting it makes it more difficult to treat. The employee should report an injury immediately to his supervisor or to the company doctor. If the injury is serious, the employee should be taken to the hospital immediately. The employee should also take care to dress the injury properly and to keep it clean. The employee should also take care to get the injury treated as soon as possible. The employee should also take care to get the injury treated as soon as possible. The employee should also take care to get the injury treated as soon as possible.

4. Obedience to all rules and regulations. Some of our most serious injuries have resulted from crowding or running down stairways or through alleys. The most expensive and the most distressing case of personal injury received by an employee of the Company resulted from falling while running down a stairway, an action directly contrary to the rules of the Company. Not only is it necessary for an individual to obey the rules himself; his common sense and a regard for his own safety should lead him to require obedience of his associates. It lies within everyone's power not only to shun risks, but to prevent others from taking unreasonable and unnecessary chances which are a danger to all.

5. Finally, there is the habitually careless individual whom no definition or rule can reach. He does not seem to have control of his own powers of attention, or he has so destroyed these powers by the abuse of his mental and physical machinery that they no longer exist. The Company cannot afford either in its own interests or those of its employees to be sentimental about such cases. The offenders must be discharged: there is no other way in which the danger they engender can be eliminated.

For the convenience of Italian customers, Mrs. Anna Dellafera, formerly of the Spinning Mill, has been added to the sales staff of Cheney Brothers' Remnant Salesroom opposite Cheney Hall on Elm Street. Mrs. Dellafera speaks both Italian and English.

What's Happening in Departmental Meetings

Velvet Mill

A MEETING of the Velvet Mill Works Council was held June 18. Austin Cheney told the representatives of the very discouraging condition that exists at present in the velvet business of the world. All velvet manufacturers, both in America and Europe, report very small sales; stocks of goods on hand are large and it becomes necessary to cut down the present production still more. A large number of looms now running will run down between July 1 and September 1, with no present prospects of improvement.

A few looms are now being rigged in the Velvet Department to run crepes for the Broad Goods Department. If this trial proves practical and if the velvet weavers show that they are able to make good quality on a full job, this work will be a great help to the Velvet Department.

Mr. Cheney stated that he proposed, in the near future, to extend to the Velvet Department a management policy, explained below, which has been in force in the Broad Goods Department for several years. This policy was originally proposed to enable old, long service employees who were unable or unwilling to do a full job to remain on work they enjoyed rather than be transferred to jobs of a different character.

Manufacturing costs are figured and sales prices are calculated on the basis of a weaver running a full job. If the average weaver in a certain class is able to run two looms, the man who only runs one loom on the same quality is producing at a much higher cost. This may occur:

1. Because the management has not provided the opportunity to run a larger job either due to poor machine arrangement or to the unwillingness of the weaver; or,
 2. Because the weaver is not able to run a larger job or make good quality on a larger job.
- In the first case the fault is of the management and thus pay should be based on a full job present. In the second case when a weaver is unable to run a larger job it is felt

that he should either be placed on some other kind of work for which he is more fitted or else be paid considerably less than at present, so that costs will not run up unduly.

Therefore, the superintendent may place such a weaver on a piece work basis. To obtain this piece rate, we add the day pay used for standard costs and the high bonus for a 100% job and divide the sum by the total daily task for a 100% job. In such cases, all time in the mill will be considered piece work time. There will be no stamp-outs or allowances for such reasons as lack of filling, breakdown, etc.

The piece work plan does not apply to those weavers who are able and willing to run two-thirds or more of a job and to whom the management has been unable to furnish such work.

Auxiliary Department

THE regular Auxiliary Division Works Council meeting was held in the Manager's office June 12.

Six subjects were presented and discussed: Three related to transfers and adjustments made to meet short time operations in the various Auxiliary Departments along the lines discussed at the previous meeting; one related to carrying out an operation suggestion made by one of the employee members of this group at the previous meeting—the suggestion was that awnings, screens and windows should be numbered throughout the plant for efficient matching; two concerned the final report and decision in regard to employee problems which had been presented and discussed at previous meetings. These will be outlined here.

The millwrights have been in need of more adequate provision for storing their tools and equipment used regularly in the Dyeing and Finishing Department. When the Auxiliary Division took over the Repair Shop formerly operated under the direction of the mill organization much of the work was centralized in the main Machine Shop and a small compact shop was arranged for in the mill. Most of the space thus released from the old shop was taken over by the

Technical Research Division and gradually the space formerly used by the millwrights was absorbed by others.

Through the assistance of the Plant Layout Department several rearrangements were made which resulted in enlarging the present branch Machine Shop so that it will accommodate not only machinists, but millwrights as well. Not only will this provide the necessary space, but also will prove beneficial in operation, as the machinists' and millwrights' work naturally ties in together and requires close cooperation.

The Auxiliary Division workers have special lockers marked and set aside for their exclusive use in the various mill groups. Gradually other departments have appropriated a few of these lockers, placing padlocks upon them. This was easily taken care of and straightened out to the satisfaction of all concerned. The lockers are now available for the use originally intended.

Weaving Mill

THE following matters were discussed at a meeting of the Broad Goods Weaving Mill Works Council June 18.

For some time the Works Council representatives have been urging the management to revise the size of job for loomfixers on 58" and 68" plain looms. Thirty-three looms has been considered the size job. Inasmuch as these looms have lately been occupied with very difficult work, the management granted a revision and the job is now rated as thirty looms to a full job.

The Works Council representatives have been urging on the management for some time a proposition to make weaving tasks operative for a longer period than one year. Austin Cheney announced that hereafter tasks for weaving gum silk will be established for a period of three years, unless some change in process or materials is made. Tasks for weaving dyed silk will be established for three years if past experience has shown that the same task has been set for three successive years. If any change in process or materials is made before tasks

expire, new studies will be made and new tasks set accordingly.

For years the management has thought it advisable to limit the productivity per cent used in figuring bonus for loomfixers and smash piecers. Austin Cheney announced that hereafter the limit will be removed on these jobs.

The Works Council representatives brought to the attention of the management a condition which it was thought should receive attention. Many upholstery weavers run two looms, and due to the present slack times it often happens that when one warp runs out before the other, the weaver has to run out the other loom, which makes a very small job. It was feared this would affect the weaver's credit rating.

Mr. Cheney promised to study the question and see if anything could be done in scheduling to keep the looms occupied more continuously.

Throwing, Winding & Spooling

A VARIETY of subjects were considered at a meeting of the Throwing, Winding and Spooling representatives of the Works Council with Department heads in the Main Office June 11. R. O. Cheney reported that he had made further investigation of spindles in the Winding and Spooling, and found that a great many were worn out or needed new springs. It was felt that a considerable advantage would be gained if a supply of extra spindles was available for substitutions until all machines are properly equipped.

Investigations are being made of winding 28/30 Japan Yellow since it was reported that it is necessary for operators to work very hard to make bonus on this stock. A check-up of production on all stocks in winding showed that girls were making higher gains on 28/30 Japan than on any other stock. The size job on 28/30 Japan spins were 100 per cent (no more) 2/16 and the price of the same run is 2/16 and 1/16. The new law in the factory is that the credit rating of the operator is based on the amount of stock produced.

As a result of this investigation it was found that the girls were making higher gains on 28/30 Japan than on any other stock. The size job on 28/30 Japan spins were 100 per cent (no more) 2/16 and the price of the same run is 2/16 and 1/16. The new law in the factory is that the credit rating of the operator is based on the amount of stock produced.

the skeins would be delivered to the operator in the original put-up was discussed. The approximate production under a proposed new method has been figured with the result that it would entail very little difference in the size of job or production. The matter is being further investigated.

As a result of a complaint that the operators have trouble in changing guides when a machine is changed from organzine spools to tram, the matter has been investigated and it was stated that where the change is made on an empty machine the guides can be regulated from the end of the machine. When it is necessary to make the change with stock on the machines it will be necessary to adjust the individual spindles.

Requests were made for an electric fan at the east end of the Winding and Spooling room, and for benches in the hallway for employees who come to work early. These matters are to be investigated and reported on at the next meeting.

Question Box

QUESTION: What is Cheney Brothers' policy in regard to employment of married women?

Answer: Preference is always given to the person having the best qualifications for the job, other things being equal. When a married and unmarried woman have equal qualifications, preference is given to the single woman.

A married woman without children may be taken for permanent employment if she passes a class "2" physical rating, which is the rating the majority of employees hold. She may have temporary employment even though the rating is lower than class "2." Classes lower than "2" limit applicants to certain jobs suitable to their condition.

Married or widowed women with children under three years of age can in no case be employed. Women with children between three and twelve years of age may be employed under certain conditions: (1) if satisfactory arrangements have been made for care of the children, (2) if the applicant has had at least six months' ex-

perience on the job sought, and (3) if she has a class "2" physical rating.

QUESTION: Is there an order of selection in the case of employees to be laid off on account of lack of work?

Answer: The first consideration is to retain those who will be of most value to the Company. In determining the employee's value, the credit rating factors of quantity and quality of product, years of service, regularity of attendance, and the factors of residence, citizenship and co-operation, are considered.

In addition, preference for retention is given to unmarried women rather than married women, when their qualifications for the job are equal, and to those who must support themselves or a family rather than to those who are not under obligations to support anyone.

Any employee who is not receiving regularly a copy of Cheney Silk News should notify his foreman or the head of his department who in turn should notify the editor of the magazine. Department heads and foremen who receive extra copies should also notify the editor.

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