

on raw materials with the exception that no string board inventory is kept of regular supply stores and a supply requisition is substituted for the bill of materials.

(c) Economics Resulting From Precise Control.

It has been our experience that the thorough functionalizing of the factory organization and the resulting development of close control on all manufacturing activities has brought about many economies. The control of manufacturing operations through the study of proper routing and the elimination of all unnecessary operations has resulted in lower manufacturing costs. This has been very appreciably helped by the establishment of definite and precisely understood instructions for all operations, whether piece work or day work. We are not content with securing efficiency through piece work, but we have also established control of production on day work on both manufacturing operations and detail inspection operations. By maintaining accurate records we are able to compare individual efficiencies on the same operation or on similar operations, and gradually we are establishing dependable standards for operations not on piece work as well as for those on piece work. The direct saving in labor cost through the establishment of standards and the maintenance of records has been very high, resulting in lower costs for operations and higher returns to the operator.

Control of manufacturing operations through our planning system, and especially through the functioning of the route division, has enabled us to greatly reduce process and finished parts inventories. Our stores system has had the same effect on raw material inventories, and a close control of assembling operations through the daily posting of string boards in my office has enabled us to materially reduce assembly inventories by permitting us to operate on smaller cushions between jobs.

Possibly the best indication of the value of accurate production control mechanisms is our experience in the two years that we have operated our Cortland plant. We manufacture parts at Groton and we ship them each week day throughout the year by motor trucks to our Cortland plant, eleven miles from Groton, where we perform all sub-assembly operations and all major assembly operations on the machine. We also manufacture carrying cases. In the truck which carries over the parts we bring back the assembled machines in their cases ready for the operation known as adjusting. In winter we are obliged to keep the eleven miles of road open by means of a tractor operated snow plow. Dur-

ing the two years that we have operated in the face of blizzards and cloud bursts we have not had one hour's loss in production through failure of parts to reach the Cortland plant or the failure of the assembled machines to reach the Groton plant. Without precise control of all manufacturing functions such an accomplishment would have been impossible.

Furthermore, inasmuch as our plant operated eight years under the old line method of management and has now operated five years under the functional method of management, we have been able to definitely prove that what we have accomplished in the way of increased production and the avoidance of increased cost in the face of greatly increased wages, material costs and some expense items, could not have been accomplished under the old plan of control.

VI. RELATIONS WITH EMPLOYEES AND EMPLOYEE ACTIVITIES

During the thirteen years that the company has operated at Groton under the same management, unusual effort has been made to gain the confidence of all members of the organization in management policies. To be successful, therefore, it has been essential at all times that these policies be fundamentally sound and invariably fair. No effort has been spared to prevent the slightest semblance of paternalism from entering into relations between employees and the company. One of the rules, which has always been in force, is that any employee may interview the employment manager, or the works manager at any time on matters pertaining to wages, factory rules, or even purely personal matters, and he may also talk with the general manager or president of the company. The doors to all executive offices are open to employees, the only stipulation being that when the matter is to be taken up during regular working hours the employee shall arrange for an appointment through his supervisor. We extend this further than merely to the employee in that the same privilege is granted to a group of employees, or should the occasion arise, to an entire department. Where an employee or group of employees go to any executive's office for purposes such as outlined they are paid by the company the same as if they continued working in their department and the time so lost from production is recorded on an idle time ticket and the idle time expense is analyzed monthly by reasons.

I remember very distinctly a conference held some few years ago between the general manager and the new head of our employment department. The gen-

eral manager, after carefully going over the situation with us, explained his attitude toward employees in this way:

"I want at all times a strictly fifty-fifty basis between the company and the employee, but occasions will arise where it may be difficult to make a decision on exactly that basis. In such cases you should favor the employee, not the company. In other words, where a strictly fifty-fifty decision cannot be made, the employee shall have all benefit of the doubt—shall have the larger end."

This instruction has been literally interpreted and carried out.

The problem of an industry in a small and somewhat isolated village is sometimes a difficult one inasmuch as the people are so largely dependent on themselves for recreation and amusement. We try to help in this as much as possible in the following ways:

Corona Band. This is an organization composed of an average of thirty-five skilled musicians employed by the company. The leader is a highly experienced musician and conductor. The band is uniformed and has weekly rehearsals every Tuesday for two hours at the company's expense and on company time. Men on hourly rates or piece work are paid for the rehearsal an amount equivalent to what their earnings would have been during that time had they worked in the factory on their regular jobs. Salaried employees are not paid for rehearsals. During the summer months the band gives weekly concerts out of doors and it is not uncommon for parties to come from quite distant points for these free concerts. In the winter free concerts are given monthly in the company gymnasium, followed by public dances to which a small admission is charged. The band also takes outside engagements for parades and concerts, and in such cases the members are not paid by the company, but the time lost from work is not marked against the employee. When playing for free concerts all members of the band are paid for each concert by the company.

Athletics. The company has provided a gymnasium for company activities only, and in the winter the company basketball five play with other industrial teams, at least one game a week at home and one away from home.

During the summer our baseball team plays all of its games on Saturday at Groton and Sunday games away from Groton. The company has provided an excellent baseball diamond with grand stand and bleachers;

the former having a seating capacity of 350 and the latter of 1,100. In addition there is parking space for about thirty cars where games can be seen without leaving the cars.

Tennis courts are provided for employees and are maintained by the company.

All athletic activities are under the direction of an athletic director employed by the company for the sole purpose of handling such activities. It is a rule of the company that only regular employees shall be utilized in athletics conducted under the company name, except in cases where sickness, accident or some other abnormal factor makes a temporary substitution necessary. It is our desire to have only regular employees appear in the name of the company.

In addition to the activities described there are inter-department teams which arouse considerable interest, especially during the basketball season.

Club. At the present time restricted space limits club activities to the men, but it is planned that at sometime we shall have suitable quarters for men and women. All male employees of the company are eligible to club membership without the formality of a ballot, but they need not be members. Dues are twenty-five cents per month and club members elect their own officers and board of managers. The company supplies the rooms, heat and light, and the club from its dues purchases and maintains its pool and billiard tables, phonograph, reading material, furniture and equipment, and provides whatever forms of entertainment the house committee may decide upon. The club is entirely independent of the company in its operation although it has always been the practice of the members of the club (by far the greater majority of whom are in the factory) to elect to its board of managers two or three executives or department heads in addition to men from the factory.

Group Insurance. All employees in the company between sixteen and sixty years are automatically covered without examination; insurance becoming effective when an employee has been continuously in our employ for six months. The original amount of the insurance is five hundred dollars and the amount is increased annually by one hundred dollars for each year of uninterrupted service until the maximum of fifteen hundred dollars is reached. The entire expense of the insurance is carried by the company.

Medical Department. Our medical department is in charge of a graduate nurse, working under the direction of our factory physician. The department con-