A WAGE PAYMENT PLAN FOR THE GORTON-PEW FISHERIES COMPANY

by

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Dear Sir:

In accordance with the requirements for graduation, I herewith submit a thesis entitled "A Wage Payment Plan for the Gorton-Pew Fisheries Company."

I am grateful indebted to my thesis advisors, Professor Pigors and Mr. C. J. Brown, for their valuable assistance in the compilation of this report.

Sincerely yours,

Harry C. Rice Jr.
THESIS AUTHORIZATION

Date July 3, 1947

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Topic  A Wage Payment Plan for the Gorton-Pew Fisheries Company

This is your authority to proceed with the thesis investigation as outlined in your preliminary report. Please return this sheet with the original copy of the finished thesis.

Advisor  Mr. C. J. Brown and  Room
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Signature of the Advisor, indicating completion of a satisfactory preliminary report.

Date  July 3, 1947

Signature of the Supervisor, indicating proper registration for credit, and generally satisfactory progress.
CONTENTS

Letter of Transmittal 1

I Introduction
   A. Statement of the Problem 1
   B. History-Packing Department 2
   C. Method of Attack 4

II Wage Payment Plans
   A. General 6
   B. Charts 7
   C. Time System 12
   D. Time System Based on Past Production 14
   E. Piece Rate Plan 15
   F. Taylor Differential Piece Rate 18
   G. The Gantt Task and Bonus System 19
   H. The Halsey System 21
   I. The Rowan Plan 22
   J. The Bedaux System 23
   K. The Emerson Plan 24
   L. Group Bonus 25

III Basic Requirements of a Sound Incentive Plan 28

IV Discussion of Proposal 29

V Straight Piece Work
   A. General 32
   B. Operation 33
   C. Rates 34

VI Distribution of Savings 37
VII Feeders

VIII The Attitude of Union Toward the Piece Wage System

IX Conclusion

I Bibliography
INTRODUCTION

STATEMENT OF THE PROBLEM

The purpose of this investigation is to select a suitable wage incentive plan for the fish packing department of the Gorton-Pew Company, a large producer, manufacturer, and shipper of sea foods and sea products. The present method of paying the workers on an hourly basis has created a condition known as "systematic soldiering." This soldiering is an evil that is inherent in the practise of bringing a number of workers together on the same type of work and at a uniform hourly rate. Since all the workers are paid the same, the poorest one tends to establish the amount of output. Therefore, it is the purpose of this investigation to establish a wage payment plan which will be designed to provide the greatest incentive for the workers and thereby increase production.

It is essential that this proposed plan give direct incentive to performance which feature is now lacking in this department. Also, this plan should be one that helps to make the individual realize, to a large extent, that he is in business for himself. This can be accomplished by making the plan in such a nature as to be easily understood by the workers, so that they
are able to calculate their own wages. Furthermore, the plan must not be so complicated that it involves excessive accounting expense. The proposed plan must be applicable to existing conditions in the department, since it is not feasible to change the existing layout of the department.

This investigation is limited in scope to the fish packing department, in which are employed approximately thirty women. The most important issue in the problem is to devise a plan whereby each worker is paid some degree proportionally to his output. Thus an incentive is furnished to the workers to put forth their best efforts. Therefore, this proposed plan will have a direct bearing upon the amount of work turned out, to the extent that this new plan will bring out a higher degree of productiveness than the present hourly system. This is the principal reason for desiring a new wage payment plan in this department.

PACKING DEPARTMENT

The department treated in this thesis is one of the many packing departments in operation at Gorton-Pew. This particular department is set up for the express purpose of packing haddock in five pound boxes which are then shipped to the retailer for sale to the general public. In order to obtain a satisfactory wage payment plan for
the girls working in this department, it is necessary
to understand the existing set up and the operations of
this department.

The function of the packing department as
mentioned above consists of packing haddock in five
pound boxes. These boxes are packed by girls located
on both sides of a long conveyor belt. The fish is
placed on the belt by feeders located at the head of
the line. These feeders take the fish from a trough
which enters the department from the scaling room and
places a five pound quantity in each box. Next, the
boxes are placed on the conveyor running between girls
who then take these boxes from the conveyor and dump
the content on the bench in front of them. They then
proceed to: (1) split the content up into five equal
parts, (2) wrap each part in cellophane paper, (3)
place the wrapped fish into the five pound box, and
(4) put the box on the conveyor. The conveyor which
carries the finished product to the end of the line
is located beneath the one carrying the unpacked fish.
When the wrapped boxes reach the end of the conveyor,
they are packed in cartons for shipment by men stationed
there.

The present wage payment plan consists of
paying the girls on an hourly basis which is at the
rate of 70 cent an hour. For this 70 cents, management
has only been able to obtain an average of 25 boxes per hour from the girls. This average of 25 boxes was obtained from Gorton's records which cover a period of five years. The company checks the output of each girl by keeping a count of the number of boxes turned out. This they accomplish by having the girls place an identification tag on each box they wrap. These tags are collected and recorded by a girl located at the end of the belt.

**METHOD OF ATTACK**

In attacking the problem, I first familiarized myself with a number of books and articles written on the subject of wage payment plans. From reading these sources I have become familiar with the difficulty of getting a thoroughly satisfactory system of wage payment. However, unquestionably, the earning arrangement which gives directed incentive to performance is the most satisfactory.

To be sure of selecting the best wage plan, it is necessary to compare the many plans. In this investigation I have considered most of the basic wage payment plans used in industry together with some of their numerous variations and modifications. Therefore, this thesis on the selection of a wage payment plan for the packing department is divided into two parts. These are:
(1) Discussion of the various basic wage payment plans which are applicable to my study.

(2) A plan for the Gorton-Pew Company.

Also, in addition to reading numerous articles on wage payment plans, I familiarized myself with the situation within the packing department at Gorton's by close observation of the girls at work. It was further necessary to obtain from the foreman of the packing department various data concerning the present wage system which was needed for a clear understanding of the problem.

From my reading and observation of the present wage payment plan in operation, I am able by a process of elimination to obtain the plan which will best fit existing conditions in the packing department.
WAGE PAYMENT PLANS

In order to select the best wage payment plan for Gorton-Pew, it is necessary to discuss and compare the basic payment plans plus a few of their modifications used in industry. It is not necessary to consider all the possible plans in use today, because most of them are merely modifications of the basic plans. By eliminating the wage payment plans which are not applicable to the packing department, the plan which best fits the conditions of this department will be obtained.

Wage payment plans in general can be classified according to the manner in which they relate to production and earnings and distribute earnings. Three broad types of plans or bases for payment may be distinguished. One is time wages, which assign to the employer the gain or loss resulting from changes in worker productivity. In the second group are the piece rate systems, which give the gain or loss to the workers. In the third group are the many premium and bonus plans, which share the gains from increased output between employers and workers in varying proportions.

The following section contains a graphical presentation and a brief description of the various types of wage payment plans which are discussed in greater detail in a later section.
The time wage system pays the worker a fixed rate per hour, per day, or per week and is not a function of task. This system offers no extra-financial incentive for increased production.

Workers are divided into groups according to past production records; a task is set for the groups.
The straight piece rate means a constant rate of pay per unit of work properly produced and for all units from zero up. In order to be straight piece the earning line must pass through the origin.

Taylor's system consisted of two piece rates. One was a low rate applying to any rate of production below average or task. At task and above a second rate 50% higher went into effect.
This plan is a cross between time wages and piece work. A standard is set for average performance, or task, on each job, guaranteed time wages being paid up to that point, but for production at task a bonus of from 20–50% is paid and above it piece rates are paid.

Time wages are paid for production up to some stipulated percentage of standard task. For performance above this point workers are paid a premium.
Time wages are paid for production up to low task of $62\frac{1}{2}\%$ production. For output above this point workers are paid a premium. Under this plan it is impossible for the worker to exceed twice his base time wages.

Ordinarily 60 B's per hour represent standard performance or task. Time wages guaranteed up to task; from there on constant sharing enters.
A relatively high standard or task is set and workers are guaranteed a time wage up to 67% of task. As production increases from this point to task itself workers are rewarded with a series of small incentive bonuses more or less empirically set which total about 20% at task. Above task a straight piece work type of rate applies.
The oldest and still the most used wage payment plan is the time system. In this system the employee is paid a definite rate by the hour, day, or week. Frequently, there is no definite measure of what a worker does other than the time spent upon the job. In other cases where the work is definitely measurable, it has not been thought worth while to measure what the individual worker accomplishes and to relate compensation to accomplishment. The fact that it is hard to change well established things partly accounts for the 50% figure of plants that still use the time system. In a plant where quality, workmanship, and painstaking care is required, rather than mass production, the time system is the only system.

This system of wage payment has little or no incentive for the worker to increase his production except the possibility of superior ability attracting attention and leading to further promotion. The time system is a spur for management to maintain close supervision and to see that the workers aren't kept idle through equipment failure, since management has to stand all the loss when the men are idle. On the other hand, management gains where there is any increase in production, since it reduces the unit cost.

Many workers prefer the time plan because of
the ease with which wages are predetermined. They always know what they will receive at the end of the week. Labor unions are also inclined to favor this payment system because they exist for the benefit of all members, and this type of payment tends to weld the members into a closer union. The lower, more inexperienced class of workers are able to obtain higher pay than would be possible under a piece rate, the average worker is paid what he is worth, and the superior workers are constantly trying to raise the general level of all the workers.

The time method of payment is useful in cases where workers have a definite job to perform, that is where their production is limited by outside circumstances other than their ability. The only incentive that is required for workers of this kind is the retention of their jobs.

The most important disadvantage of the straight time system is its lack of incentive in cases other than the type mentioned above. The quickest way to induce a worker to produce more is to give him a chance to earn more money. It is only natural that there should be a tendency for workers to take it easy and not produce to the maximum when they feel they are receiving no additional benefits.

The time system works very well for certain types of work when it is impossible to measure the quantity
of work done, as in the case of repair men in a plant.

The time system of payment is in operation at the present time in the packing department at Gorton-Pew. It has proven to be ineffective because of its lack of incentive. This system has slackened the productive effort of the best workers and has failed to stimulate those who are less efficient. This flat hourly rate for all workers has failed to induce the women to put forth their best efforts. In fact, it often discourages them from so doing, and thereby results in loss of potential production and in higher costs for output produced.

**TIME SYSTEM BASED ON PAST PRODUCTION**

The time system of payment based on past production is a slight modification of the straight time payment plan. This system of payment is the first step toward paying workers according to their productive capacity, however, it is still quite far from being an effective incentive plan. The time system based on past production attempts to take notice of differences in the skill, ability and productive capacity of the workers. In a given occupation workers are divided into groups according to experience and a general estimate of their past production, and these different groups receive different rates of pay. Standards of output are established for each group which the workers are
expected to meet. However, should they go above or below these standards they will automatically be changed to the group in which standards of production they are meeting. The changes from one group to another are usually made every month or at some other convenient period.

This wage payment plan has all of the advantages of the straight time system plus the additional advantage of an incentive for the workers to increase their production. However, this system does not offer a strong enough incentive for the workers because of the length of time spent in each group. The workers are not able to realize an immediate gain, therefore, this type of payment plan falls short of being a good system for the packing department. Although this method of paying the workers at Gorton's would be better than the straight time rates, it still lacks a strong incentive which is badly needed in the packing department. This system has about the same disadvantages as given under the straight time rate and therefore would not be applicable for our situation.

PIECE RATE PLAN

The piece rate was the first wage incentive plan. A straight piece rate is a constant rate of pay per unit produced which enables the worker to compute his earnings simply by multiplying the number of pieces
produced or operations performed by the rate per unit
or piece on his job. Rates are usually expressed in
monetary terms. This wage payment plan is based on the
theory that the average worker needs some stimulant to
make him produce what he is capable of. If all are
paid at the same rate the best worker will tend to pro-
duce at the rate of the poorer worker. When each worker
is paid by some plan whereby the wages are proportional
to his output the wage cost is nearer to what it should
be and the incentive or source of stimulation enters.
The more work produced the higher will be the wages per
week. And this, in turn, causes the unit cost to drop
for the manufacturer. The proper proportion must be
found for increase of wages and increase of production.
If wages go up the cost of each piece must drop if the
manufacturer's interest is to be held.

There are two general types of piece rates,
namely piece rate established without time study and
piece rates with time study. Under the former plan,
piece rate was established on the basis of past production
without any thought given to the possible pegging of
production by the workers. This method of setting stan-
dards is dangerous and inefficient both for management
and the worker. Management will suffer if there is a
guarantee made that the rate once set will not be sub-
ject to change, because once the workers are placed on
a job whose rates have been loosely determined they undoubtedly will find short cuts and improved methods which results in high earnings. However, if there is no guarantee by management against rate cutting, the workers, who are earning wages out of proportion to production, lead management to cut the rates, a very bad practice. If management follows this practice of cutting rates the workers retaliate by pegging production, and thus maximum production is not secured.

The success or failure of piece rate plan depends primarily upon the fairness and accuracy with which the standards are set and whether or not they are guaranteed against unsupportable and unjustified changes. Therefore, a piece rate that has been set after a thorough time study has been made and processes have been standardized is much more effective than the rate without time study and standardization. Management is now in a position to guarantee that the rates won't be cut unless some new method is developed. The workers are free to produce as much as possible because now there is no need to peg production.

The piece wage system has been successful in overcoming certain disadvantages of the time wage. It has increased production, increased the employee's earnings, and decreased unit costs. On the other hand, the disadvantages of this system are: the difficulty in
establishing the original rate, rate cutting, changes in process which necessitate rate modification, and no compensation for unavoidable interruptions.

This wage payment plan is applicable to the packing department since management is interested in securing a reduction in the unit cost of manufacture and the workers interested in increased wages. However, certain modifications will be necessary in order to obliterate the disadvantages of this system mentioned above.

**TAYLOR DIFFERENTIAL PIECE RATE**

The Taylor differential piece rate is a modification of the piece wage system. The essence of his plan was to set two rates, one well above the normal time rate, and one somewhat below, and to limit the workers who should receive the high rate to those who were able to reach and surpass a specified standard of performance. These rates are established on facts as revealed by careful investigation.

The crucial point of this system is the ascertainment of the standard above which the higher, below which the lower piece rates prevail. To ascertain this standard, Taylor introduced his accurate time studies. By the use of time studies, Taylor was able to establish piece rates which could be based, not on the workers
actual performance in the shop, but on facts as revealed by careful investigation.

This plan offers a very strong incentive for the worker to reach the standard that guarantees the high rate because the differential between the two is so great. One or two pieces in a day's production may mean a difference of 50% in the wage for that day of a worker. This abrupt change from the low to the high rate has been advanced as the chief criticism of this plan. It places too much of a strain, both physical and mental, on the worker who keeps constantly striving to remain in the upper bracket. An average worker usually falls in the lower bracket and is soon eliminated.

This system although applicable to the packing department, would not offer the best solution because of its objectionable jump in rates. Also, the workers would be reluctant to accept this payment plan because of the strain necessary to maintain a position in the upper rate bracket.

THE GANTT TASK AND BONUS SYSTEM

The Gantt task and bonus plan is a cross between time wages and piece work. This system aims to eliminate the jump in the Taylor system and to bring in the Halsey system. The system is expressed in terms of time wages with a set standard. For reaching the standard or task
a 20 to 50% bonus was given and above it piece rates are paid. Time wages are guaranteed and this prevents discouraging the new workers, and also prevents the elimination of the poorer worker. Yet each man should have a job equal to his capacity. It is not the function of a wage payment plan to keep poor workers from being discharged. The system may be said to be better than the Taylor System but it still has the bad feature of the one step jump from low to high rate.

The essence of this plan is to set a fairly high standard for average performance, or task, on each job, guaranteed time wages being paid up to that point, but for production at task a bonus of from 20 to 50% is paid and above it piece rates are paid on that stepped-up scale. Only those workers who reach this specified standard or task will receive the high rate. It is to be seen that the setting of this standard is going to be difficult and to do it Taylor's time studies were introduced.

This plan gives to the workers the advantages of the time rate plus the advantage of a high piece rate to the best workers. There are also the advantages of easy cost determination and the strong incentive which is offered to reach the task. The principal disadvantages are the complexity of the accounting involved and the difficulty of pre calculation of wages by the workers, therefore, should not be considered for installation in
the packing department at Gorton-Pew. It is essential that
the workers in the packing department should be able to
figure their earnings in order to obtain maximum pro-
duction, because without this feature much of the incen-
tive will be lost.

THE HALSEY SYSTEM

This was one of the first incentive plans other
than piece work and was the original gain sharing plan.
The Halsey plan of wage payment provided that the worker,
while receiving his regular time wage, was offered in
addition a premium for increased production over a stated
normal day's work. This premium or bonus was expressed
as a percentage of the time saved applied to the time rate.

Assuming present output to be a fair average,
the Halsey plan offers to share with the worker the saving
accomplished by doing the job in less time. For each
job a time limit or standard is set, within which there
should be no difficulty in performing the work. The
employer guarantees that the time limit will not be
changed unless there is some fundamental change in the
method of manufacture; also, that even if the standard
performance is not attained, the worker will receive his
full hourly rate. The worker who finishes his task in
less than the allotted time is paid, in addition to his
base day rate, a proportion ranging from one-quarter to
one-half of the time saved applied to his hourly rate.

The method of figuring wages under this system is expressed in the following equation:

\[ \text{Wages} = \text{time taken} \times \text{the hourly rate} + \text{a fraction of the time saved} \times \text{the hourly rate}. \]

The chief advantage of the Halsey scheme is the retention of the ordinary time wage. Adoption of the plan involves no disturbing changes, no question as to rates, and every worker above normal efficiency has an opportunity to earn a bonus according to his ability. The chief disadvantage of this system is the absence of careful time studies to determine a normal day's work, and the ease, therefore, with which the employee can loaf while the rate is being set.

This wage payment plan will not result in maximum production because the average worker will not be able to compute his earnings, therefore, taking much of the necessary incentive out of the plan. Thus the Halsey plan will not meet the needs of the packing department and should be discarded.

**THE ROWAN PLAN**

The Rowan plan is similar to the Halsey plan except in the method of calculating the bonus or premium. This plan seeks to protect the manufacturer from the necessity of paying excessive premiums resulting from
some error in establishing the normal piece rate. In
this plan the premium or bonus which the worker receives
above the hourly rate is the percentage of time saved
multiplied by the hourly pay for the time spent on the
job. For example, if the time limit is 10 hours for a
piece of work on which is employed a man receiving 80
cents an hour, and he does the work in 8 hours, then his
pay will be 8 times 80, or $6.40, for his regular time,
the premium to be added will be $1.28.

This plan has the objection of the apparent
unreasonableness of penalizing highest efficiency.
Another objection to the system is that it requires a
higher grade of clerical help to figure out the premium,
also that figuring the premium is too complicated an
affair for the workman, and that he will therefore be-
come dissatisfied. This plan should not be considered
for the packing department because of these objection-
able features.

THE Bedaux SYSTEM

This plan put into effect by U. E. Bedaux,
consists in reducing worker performance to a common
denominator and expressed in small standardized units
of time. The Bedaux plan calls these units "B's." The
B unit is the amount of work and necessary rest compris-
ing an average minute of working time of an average
employee working under normal conditions. The relative proportions of effort and rest making up this minute or $\mathbb{B}$ unit vary according to the character and strain of the work. Ordinarily, 60$\mathbb{B}$'s per hour represent standard performance or task and around 80 $\mathbb{B}$'s per hour are usually considered expected performance for experienced workers. Like other gain sharing systems, the Bedaux plan guarantees time wages up to task and gives workers a share in savings above task.

The Bedaux system is complicated and difficult to understand. Its important advantage lies in the fact that it reduces the work of all departments and men to a common denominator, enabling the comparison of efficiency between departments of a plant. This system provides a very attractive incentive for maximum production and provides an exceptionally satisfactory means of executive control.

The amount of clerical work which this plan entails would make it unsatisfactory for installation at Gorton's. Also, this wage payment plan is usually installed throughout a plant in order to obtain the best results.

THE EMERSON PLAN

The Emerson bonus plan calls for giving a bonus to production below standard of efficiency. Under this
system a standard of efficiency is determined. This standard is obtained by a thorough analysis and standardization of manufacturing operations and conditions. The shortest and best method of performing each operation is determined by means of time and motion studies, and standards are set. At a certain percentage of standard efficiency, usually 67%, bonus payments begin, but instead of being at a rate equivalent to a flat piece rate, a carefully graduated scale is prepared, giving in effect a time rate rising slowly for the lower grades of performance, and more rapidly for the higher grades. At 100% efficiency the rate becomes almost a straight piece rate; below 67% efficiency the worker receives his straight time wage.

There are many workers in a plant who can rarely reach the standard performance, but who, for the sake of the reward they can obtain for an output short of standard, will continue to strive for the maximum earnings within their reach. This plan does not, like the Taylor and Gantt plans, discourage the man who is unable to equal the standard.

This system of payment although applicable to Gorton-Pew is too complicated for the average worker. Thus very few of them will be able to figure their earnings.

GROUP BONUS
When the finished article is the joint product of a number of workmen, the group bonus method of payment can be employed. It is important in the group bonus plan that the work done by the members of the group either be the same or very closely related so that the men can cooperate with each other in obtaining maximum of production in a minimum of time.

There is one advantage in the group bonus that does not appear in the individual bonus, namely, the development of an "esprit de corps" and the strong pressure of group sentiment bearing upon each member to maintain his share of the work. Another advantage of the group bonus is that it eliminates the setting of individual standards. It is much easier to set a standard for a group of say five workers than to set five individual standards. Also, the group bonus plan reduces the expense of keeping payroll records.

A disadvantage of the group bonus is that poor workmanship of one member may be covered up in superior activity of the others. Not only may one individual be so carried by others, but where the group system is extended to cover the plant, some departments have to carry others.

The group bonus system is not applicable to the packing department because the work done by the women is purely individual and not related to the other
members of the department. A group bonus in this department will not make for cooperation and good feeling among the workers which is a prerequisite of this system.
BASIC REQUIREMENTS OF A SOUND INCENTIVE PLAN

The eleven basic requirements of a sound wage
payment plan as developed by J. K. Louden are as follows:

(1) The plan should reward the employee in direct pro-
portion to the increased output.

(2) The plan should be understandable and easily cal-
culable by the employees.

(3) Hourly base rates should be guaranteed.

(4) There should be enough spread between the guaranteed
base rate and the normal bonus rate to provide in-
centive to extra effort or sustained effort.

(5) It should provide enough of a guarantee of standards
to give the worker a feeling of security.

(6) Definite instructions covering policy and methods
should be provided.

(7) Shop procedure should be standardized.

(8) Measured standards must be based on definite quality
requirements with proper and direct controls placed
over waste.

(9) Equitable adjustment for failure to meet the task
when the cause of the failure is beyond the employee's
control should be provided.

(10) Once production is such that bonus is earned, unit
costs should be constant.

(11) To be effective the plan must be rigidly maintained.
DISCUSSION OF PROPOSAL

I believe the piece work wage payment plan with a guaranteed hourly base rate is the most generally satisfactory of all the plans discussed in the previous sections. However, the problem which confronts us now is whether or not the standards should be expressed in time per unit of production rather than in money. Most writers on the subject of wage incentive plans have maintained that standards expressed in terms of time eliminate all the disadvantages of money rates, yet has all of its advantages. On the other hand, standards expressed in terms of money will best fit existing conditions at Gorton-Rew. Since the mental caliber of the women working in this department is of grammar school level, rates expressed in terms of money rather than time will be more easily understood.

The selection of the piece payment plan in preference to the other plans discussed can be further justified in the light of the eleven basic requirements for a wage payment plan given in the previous section. By considering the various points one by one, we can conclude that the piece rate plan satisfies all the requirements, and therefore, should be installed in Gorton's packing department.

The following is a detailed analysis of the various wage payment plans as applied to the eleven basic
requirements of a good wage incentive plan.

1. The plan should reward the employee in direct proportion to the increased output.

   The straight piece rate plan, Taylor differential piece rate plan, Gantt task and bonus plan, Bedaux plan and Emerson plan meet this requirement. The Halsey and Rowan plans do not as they call for sharing the results of the increased production.

2. The plan should be understandable and easily calculable by the employee.

   The straight piece rate plan is the most easily understood of all the plans.

3. Hourly base rates should be guaranteed.

   All plans meet this requirement in modern practice.

4. There should be enough spread between the guaranteed base rate and the normal bonus rate to provide incentive to extra effort or sustained effort.

   The straight piece rate plan can and should be designed to meet this requirement. The Taylor differential piece rate has too much of a spread between low task or guaranteed base rate and high task. The Bedaux, Gantt, and Emerson plans more than meet this requirement. Halsey and Rowan plans do not fully meet the above requirement because of their increasingly diminishing returns.
5. It should provide enough of a guarantee of standards to give the worker a feeling of security. All plans can and should meet this requirement.

6. Definite instructions covering policy and methods should be provided. Here again all plans could and should meet this requirement.

7. Shop procedure should be standardized. This requirement can be incorporated in the basis of all plans.

8. Measured standards must be based on definite quality requirements with proper and direct controls placed over waste. All plans can meet this requirement.

9. Equitable adjustment for failure to meet the task when the cause of the failure is beyond the employee's control should be provided. This requirement is up to management, but should be a feature of any incentive plan.

10. Once production is such that bonus is earned, unit costs should be constant. The piece rate plans and Medaux's plan meet this requirement. The Halsey, Rowan, and Emerson plans do not.

11. To be effective the plan must be rigidly maintained. This is another management policy that can be applied to all plans.
STRAIGHT PIECE WORK

GENERAL

The straight piece work wage payment plan should be adopted by the Gorton-Few Company in order to secure maximum output in the fish packing department. The company at the present time is struggling with the problem of pegged production brought about by their present method of paying employees in the packing department. These employees are now working on an hourly basis which naturally lends itself to the old art of pegging production. Since Gorton's wish to increase production thereby reducing their unit cost, they must provide the workers with a strong incentive. This can be accomplished by the introduction of a piece rate plan whereby the workers are paid a stated amount for each box packed. The amount of money paid for doing this job is determined by time study methods which will be discussed in a following section under the heading of rates.

Under this proposed plan the worker will be guaranteed his base rate so that he knows that no matter what happens the least he can earn for any hour spent in the plant is his guaranteed base rate. This guaranteed base rate will eliminate the uncertainty and insecurity of earnings that accompany straight piece rates with no guaranteed base rate. This feature should make this new plan readily acceptable by the workers with
nothing to lose and everything to gain. On the other hand, the company stands to gain by this plan; for with increased production, the company will receive greater output plus a drop in unit cost. Another feature which makes this plan particularly suited to the packing department is the fact that the employee will be able to figure his pay readily thus enhancing the incentive to the piece work plan.

**OPERATION**

With the individual piece rate system the girls should be assigned positions along the belt and these positions should be changed each day. By changing positions each girl will be given a chance at the head of the belt where an ample supply of fish is insured. However, by regulating the speeding of the belt, the girls at the foot will receive enough fish to enable them to meet the output of the girls at the head of the belt. But to maintain harmony among the girls, it would be wise to follow the policy of having them change positions.

The company should continue with their present policy of checking the number of packages turned out by each girl, that is, have the girls put their identification tag on each package. These tags will be collected at the end of the line by a girl stationed there. It will be her job to tabulate the number of
packages turned out by the girls on the line. These tabulations are turned over to the foreman at the end of the working day and are used to compute the amount of pay due each girl.

**RATES**

In order to guarantee the women that the rates once set will not be changed, it is necessary to establish these rates by time study. The following is a series of times obtained by clocking the girls as they packed the fish. It is not necessary in this case to determine whether or not the girls were working above or below normal efficiency when these time studies were obtained. This statement can be justified as follows: (1) The twenty-five times were obtained on five different days, (2) The same girl was not timed more than five times, and (3) The time necessary to pack one box was not long enough to permit much of a slow down by the worker.

<table>
<thead>
<tr>
<th>( x ) (seconds)</th>
<th>( f )</th>
<th>( u )</th>
<th>( uf )</th>
</tr>
</thead>
<tbody>
<tr>
<td>55</td>
<td>1</td>
<td>-3</td>
<td>-3</td>
</tr>
<tr>
<td>60</td>
<td>1</td>
<td>-2</td>
<td>-2</td>
</tr>
<tr>
<td>65</td>
<td>5</td>
<td>-1</td>
<td>-5</td>
</tr>
<tr>
<td>70</td>
<td>8</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>75</td>
<td>7</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>80</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>85</td>
<td>( \frac{1}{25} )</td>
<td>3</td>
<td>( \frac{3}{4} )</td>
</tr>
</tbody>
</table>
From this data we are able to calculate the mean time required to pack one box of fish.

\[
\bar{x} = \frac{5(4/25)}{4} + 70 = 0.8 + 70 = 70.8 \text{ mean time}
\]

\[
70.8 \times 0.10 = 7.08 \text{ fatigue allowance}
\]

\[
70.8 + 7.08 = 77.88 \text{ seconds or 1.3 minutes average time per box.}
\]

Thus we can conclude that the workers should be able to turn out 46.3 boxes per hour as compared with their present output of 25 per hour. The girls are now receiving 70 cents an hour for an 8 hour day, however, within this 8 hours they are allowed two 15 minute rest periods. Under the piece rate system the girls will be guaranteed this present base rate of 70 cents an hour, or $5.60 a day. Management under this new plan should and is willing to give the girls a 50% increase in their base rate, that is, $1.05 an hour for increased output. This increased output under the proposed piece rate plan should just about double present production as brought out in the time study.

The rate, or price per piece, is figured as follows:

\[
\text{Price per piece} = \frac{\text{Base rate per hour}}{60} \times \frac{\text{Task Time in minutes per piece}}{60}
\]

\[
= \frac{\$1.05}{60} \times \frac{1.3 \text{ minutes per box}}{60}
\]

\[
= \$0.02275 \text{ per box}
\]
Personal time: ½ hour per 8 hour day

8 \times 7.5 = 1.066 \text{ allowance}

Standard: 1.066 \times 0.02275 = 0.0243 \text{ per box}

In order to meet the guaranteed base rate under the piece rate plan, the workers will have to turn out approximately 29 boxes per hour. Therefore, each worker will be on a day rate up to this standard of production (29 boxes), from this point on she will automatically be on a piece rate of $0.0243 per box.
DISTRIBUTION OF SAVINGS

This piece wage payment plan will have a direct bearing upon Gorton's manufacturing costs, to the extent that it will bring out a higher degree of productiveness than the time system. Since the costs of manufacturing are spread over the entire product, the greater the output produced by this department, the smaller the unit cost. Therefore, the anticipated increased wages brought about by the piece rate system will not involve a corresponding increase in other manufacturing expenses, particularly that designated as overhead expenses. Thus, management is justified in installing a piece rate system which offers to the workers a chance to increase their present earnings. Furthermore, under this new system both management and labor will profit, both will share in the savings made possible by increased production. The workers will be able to increase their earnings approximately 50% which amounts to $1.05 per hour instead of $0.70 per hour as under their present time rate plan. The company will, on the other hand, receive just about double production for which they will be obligated to pay in wages $1.05 per hour under the piece rate payment plan whereas under their present payment plan they would be required to pay $1.40 per hour for the same output, thus a saving to management of 35 cents in wages. Also, since Gorton's are still
enjoying a sellers market, they will further gain by the profits realized in the sale of this increased output.
FEEDERS

Feeders are the men stationed at the head of the line whose job is to place the fish in the five pound boxes. These boxes are then placed on the conveyor for further packing by the girls. Their job is paced by the girls, that is, these men are able to keep a supply of fish well in advance of the number of boxes the girls are able to pack. Consequently, these men are idle about half of the working day. With the piece rate system they would easily be able to keep a constant supply of fish on the conveyor. Since these men are now receiving a $1.15 per hour, the affect of a piece rate system upon them should not create friction between them and the girls. Furthermore, since their operation is paced by the girls, it would not be necessary to place these men on an incentive plan. They have a definite task to perform which does not lend itself to "soldiering." The foreman can readily determine whether or not these men are attempting to pace the output of the girls by observing the conveyor which should contain a back log of fish for packing. However, should a controversy arise over the different methods of payment, the company could remedy this by increasing their wages in order to maintain the same ratio of pay between the men and the girls that exists under the present system. The company would be justified...
in doing this in the light of the expect increased production.

The packers at the end of the conveyor should not be put on an incentive plan because again their job is paced by the girls. Since these boys are common laborers, the company should not experience trouble over methods of payment with them. They should be paid on their present hourly basis.

Actually it is hard to foretell what repercussions will result from the establishment of the piece rate system. However, the company, by the use of much tact, should be able to cope with the various problems as they arise. It might further be added that should the piece rate system prove successful in this department, it should be added to the other production lines throughout the organization.
THE ATTITUDE OF UNION TOWARD THE PIECE WAGE SYSTEM

The union at Gorton-Pew definitely is apposed to any form of incentives. The company, realizing the faults of their present wage payment plan, has a number of times over the past ten years tried to obtain an incentive plan for its various departments, but to date their efforts have been in vain. The main objections advanced by the union for refusing an incentive system have been: (1) the suspicion of employers' motives and fairness, (2) opposition to the nature of incentive payment itself, and (3) fear that an incentive system would penalize the older workers.

This adverse attitude of the union towards the piece system, or towards any system of wage payment in which compensation is directly related to output, would probably change once they could see the system in operation. Tact is most essential. Management should attempt to obtain a trial period of say a week in which time they should try to convince the workers that they stand to gain under the new system. If this trial period is granted, the company should explain fully the fundamentals of the incentive plan to all the workers affected by it at a group meeting just prior to the installation. In this meeting it will be necessary to explain how the standard is developed so that each worker will understand how to compute his own earnings.
It is also very advisable to mention the fact that the rate will not be cut and that the workers will be guaranteed their present base rate. Furthermore, it should be brought out that the company will not lay off any worker, however, when a buyers' market returns and a reduction in output is necessary, the company should agree to absorb the excess workers in other departments. Since there is a constant labor turn over, the company will be able to cut its personnel by not rehiring.

If management is able to try this piece rate system, the attitude of the workers should be reversed; they will probably oppose a return to the time system.
CONCLUSION

The adoption of the piece wage system with a guaranteed base rate by Gorton-Few should prove successful in overcoming the main disadvantage of the time wage. Namely, the problem whereby the poorest worker and the best worker are paid at the same rate which has caused a tendency towards uniformity of output. That is, the difference in output between the better and the poorer workers tend to be obliterated and all tend to produce at a rate established by these poorer workers. The proposed wage payment plan has been devised to pay the workers directly with their output thereby furnishing an incentive for the women to put forth their best efforts. Thus, the plan will increase the output per worker, it will increase their earnings, and decrease unit cost.

Management before installing this plan should provide the workers with definite instructions covering the operation of the new plan. They should assure the workers that the rates set will not be cut except when necessitated by a technical change in the operation of this department. Furthermore, they should reassure the workers of a base rate which they will receive independent of their output, thereby, giving them a feeling of security.

Finally, it might be said that this piece wage
payment plan should be acceptable to both the management and the workers. Since management desires increased production and the workers increased earnings, this proposed system of wage payment will satisfy the wants of both parties.
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