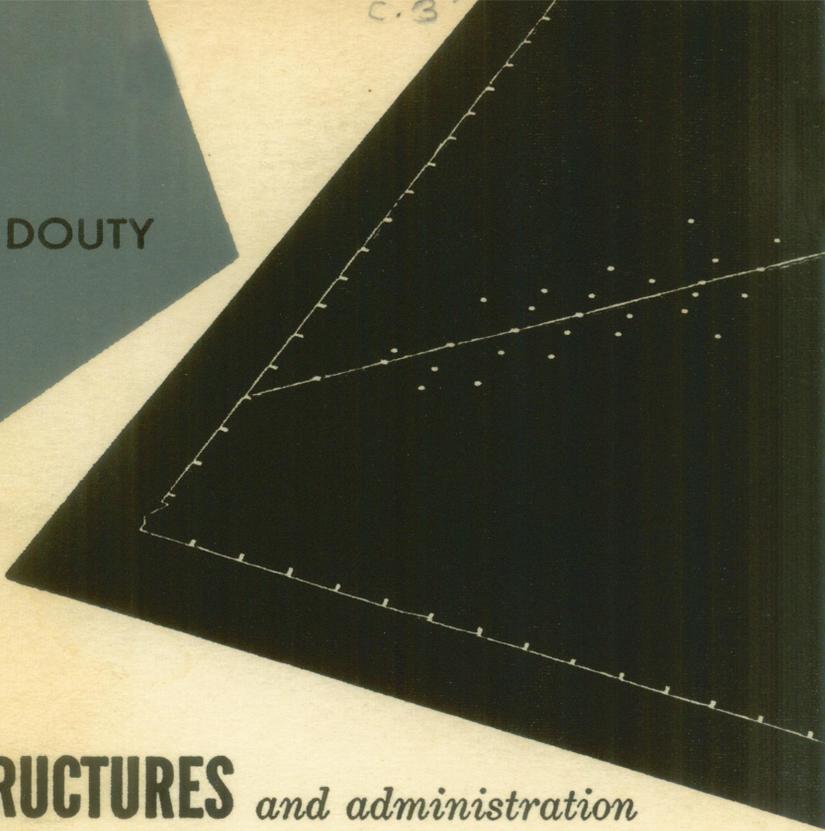


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by H. M. DOUTY



WAGE STRUCTURES *and administration*

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**WAGE STRUCTURES
AND ADMINISTRATION**

WAGE STRUCTURES AND ADMINISTRATION

By

H. M. DOUTY

Edited by Irving Bernstein



(Popular pamphlet)

INSTITUTE OF INDUSTRIAL RELATIONS
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Foreword

THE INSTITUTE OF INDUSTRIAL RELATIONS of the University of California was created for the purpose, among others, of conducting research in industrial relations. A basic problem is to reach as large an audience as possible. Hence the Institute seeks through this series of popular pamphlets to disseminate research beyond the professional academic group. Pamphlets like this one are designed for the use of labor organizations, management, government officials, schools and universities, and the general public. Those pamphlets already published (a list appears on the preceding page) have achieved a wide distribution among these groups. The Institute research program includes, as well, a substantial number of monographs and journal articles, a list of which is available to interested persons upon request.

The public is inclined to concentrate its attention upon the general wage change, particularly when it arises in the dramatic context of a dispute. In fact, however, the mundane day-to-day administration of wages is at least equally important. The establishment and administration of a wage structure, as Dr. Douty observes, is a dynamic process. Its analysis, therefore, is beset with complexities. Nevertheless, the author has set forth logically and simply this introduction to plant wage struc-

tures and their administration. He has suggested a list of readings at the close of the pamphlet to lead the inquiring reader further into the subject.

H. M. Douty comes unusually well prepared to his present task. He is chief of the Division of Wages and Industrial Relations of the Bureau of Labor Statistics, U. S. Department of Labor. Further, he has been closely identified with work in the wage field for many years and is the author of another pamphlet in this series, *Wages: An Introduction*. The Institute is grateful to him for having undertaken this difficult job as a labor of love.

Appreciation must also be expressed by the Institute to the following individuals for their review and constructive criticism of the manuscript: Robert B. Buchele, Joseph W. Garbarino, William Goldner, J. A. C. Grant, Theodore Grant, and George A. Pettitt. The cover design is the work of J. Chris Smith, and Mrs. Anne P. Cook assisted with the editing.

The viewpoint expressed is that of the author and may not necessarily be that of the Institute of Industrial Relations, the Bureau of Labor Statistics, or the Department of Labor.

EDGAR L. WARREN, *Director*
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Contents

	PAGE
I. INTRODUCTION	1
II. THE NATURE OF WAGE STRUCTURES	3
1. Job and Related Rates	3
2. Influence of Occupational Requirements	4
3. Occupational Change	6
III. FUNCTIONS OF WAGE STRUCTURES	11
IV. THE UNION ROLE	12
V. ESTABLISHING JOB RELATIONSHIPS	15
1. Job Analysis and Description	15
2. Ranking Jobs	19
a. Rule of Thumb	19
b. Collective Bargaining	20
c. Job Evaluation	21
d. Some Advantages and Limitations of Job Evaluation	24
e. Administration of Job Evaluation	26
VI. ESTABLISHING THE JOB RATE STRUCTURE	29
1. Use of Existing Plant Rates	29
2. Use of Survey Rates	31
3. Single Rates and Rate Ranges	34

viii · *C O N T E N T S*

	PAGE
VI. (<i>Continued</i>)	
4. Minimum Plant Entrance Rates	41
5. Probationary Rates	42
6. Premium and Other Special Rates	43
VII. INCENTIVE RATES	45
1. Incentives and Job Ranking	46
2. Theory of Wage Incentives	46
3. Incentive Rate Systems	48
4. Some Incentive Practices and Problems	51
VIII. GENERAL WAGE CHANGES	55
IX. CONCLUSION	58
X. SUGGESTIONS FOR FURTHER READING	61
APPENDIX: TWO REPORTS ON JOB EVALUATION	63

I. Introduction

THE PURPOSE of the present pamphlet is to describe the nature of plant wage structures and some of the problems encountered in their administration.

General principles, problems, and objectives are emphasized. The pamphlet is not intended, even on a small scale, to serve as a handbook for the wage administrator or the union negotiator. However, it may help to provide a general framework within which a variety of wage structure problems can be placed in perspective.

Workers often attach as much importance to the “fairness” of wage rates for different jobs within the plant as they do to the general level of rates. Even where the general level of wages is not in question, deep dissatisfactions can develop among workers over job rate relationships. These dissatisfactions, in turn, may be reflected in reduced effort and output and in excessive labor turnover.

Moreover, numerous formal grievances, often difficult to resolve, arise over real or alleged inequities in the structure of job rates. A substantial number of work stoppages result each year over wage structure issues.

For these and related reasons, a well designed and administered wage structure is highly important to management. In terms of the welfare of their members,

2 • *INTRODUCTION*

equitable job rate relationships are important also to unions. Both management and labor can play constructive and creative roles in the fashioning of adequate plant wage structures, and both should strive to do so.

II. The Nature of Wage Structures

I. JOB AND RELATED RATES

AMONG ITS several meanings, the term “structure” implies a series of relationships. The basic “wage structure” of a plant, accordingly, can be viewed as a series of wage rates designed to compensate workers for the varying skills and abilities required in the production process.

Wage rates usually, although not invariably, are fixed with reference to jobs or tasks rather than to individual employees as such. Sometimes jobs are grouped into a limited number of labor grades for which rates are established. In these instances, the basic wage structure consists of the labor grade rates.

But the concept of “structure” also has dimensional aspects. In the case of wages, the significant dimension is the number of workers at each rate in the scale. A basic wage structure is defined, therefore, not only by a series or hierarchy of rates, but also by the relative importance of each rate.

In addition to job or labor grade rates, a variety of other rates are frequently found in wage structures.

4 • WAGE STRUCTURES AND ADMINISTRATION

Many firms, for example, have entrance rates for inexperienced employees that are below the bottom job rate. Handicapped and superannuated workers are sometimes paid at special rates. In plants with apprenticeship programs, rate progressions for apprentices are typically found. Various types of guaranteed rates are often established in connection with incentive wage systems.

Job and related wage rates constitute the heart of the wage structure problem. However, there are also a variety of general wage or personnel policies or practices that are, in an integral sense, a part of the structure of wages in most firms. Such policies may include premium rates for overtime, late-shift, or holiday work; pay for vacations or other time not worked; and insurance and pension benefits of several kinds.

2. INFLUENCE OF OCCUPATIONAL REQUIREMENTS

The wage structure of a firm cannot be understood without reference to its occupational requirements, which may be comparatively simple or highly complex. Even within the same industry, moreover, occupational requirements may differ greatly among firms. Among the determining factors are size of company, type of product, extent of production integration, and nature of technology.

No one knows exactly how many different kinds of jobs or occupations exist in the United States. The 1949 edition of the *Dictionary of Occupational Titles*, pre-

pared by the United States Employment Service, presents definitions for more than 22,000 separate jobs. Many of these jobs have to be subdivided and more narrowly defined for pay purposes. Truck drivers, for example, are often paid different rates depending upon type or size of truck, type of product hauled, or other factors. Engine lathe operators frequently receive different rates depending upon whether they are required to set up their lathes or upon the tolerances to which they must work.

In other words, rates of pay frequently may relate not to a general occupational or job classification, but to specific tasks or responsibilities within that classification. This is most clearly seen in a plant using wage incentives, where rates for literally thousands of specific operations may exist. However, these incentive rates are typically expected to result in certain levels of hourly earnings. In studying wage structures, it is convenient for most purposes to look at the earnings that result from incentive rates rather than at the incentive rates as such.

The influence of occupational composition in shaping wage structures can be illustrated by a simple example relating to two small plants in the same general labor market area. One is a chemical plant engaged in a mixing and packaging operation; the other is a machine shop operating largely on a jobbing basis. The chemical plant has 40 employees at the working foreman level and below; the machine shop has 36 workers.

The *range* in rates in these two plants is not greatly dissimilar. The machine shop pays its watchman \$1.30 an hour; the chemical mixing plant, \$1.40. At the upper

end, the machine shop has two working foremen (one for machining and one for assembly) at \$2.20 an hour; the chemical plant has a working foreman (mixing) at \$2.00 and a packing and shipping foreman at \$1.90.

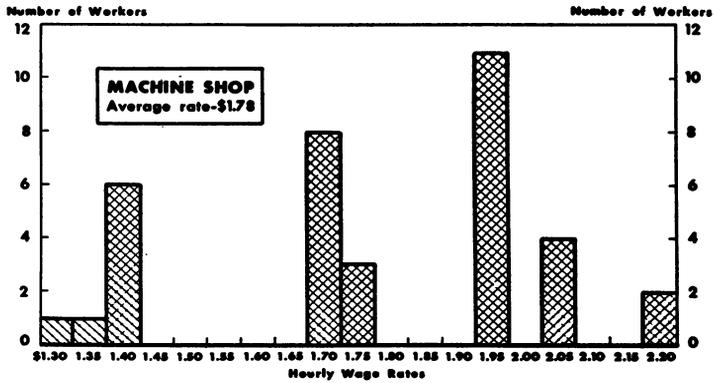
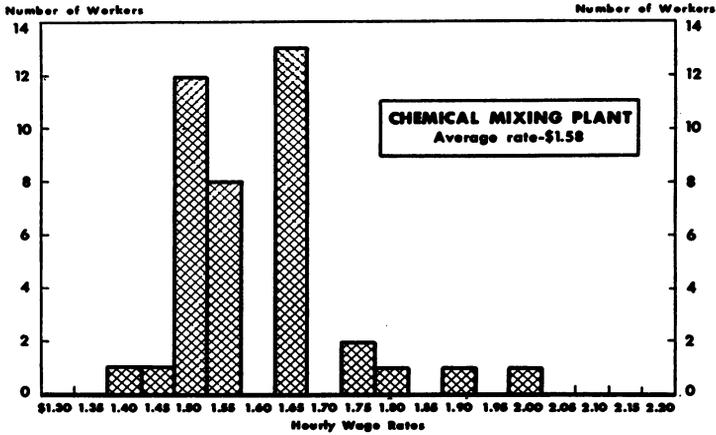
However, as Chart 1 shows, the distribution of wage rates is quite different in the two plants, reflecting differences in occupational requirements. The machine shop employs a much higher proportion of skilled workers (production machinists, first class machine tool operators, first class assemblers, etc.). The chemical plant has need for a few skilled employees, but its requirements are met more largely by the use of semiskilled or relatively unskilled workers (drum fillers, packers, mixer helpers, laborers for material handling). Consequently, the bulk of the workers in the chemical plant fall toward the lower end of the wage distribution.

It will be noted from the chart that the average wage rate in the chemical plant is \$1.58 as compared with an average of \$1.78 in the machine shop. This difference of 20 cents clearly does not mean that wages for comparable work are lower in the chemical plant; in fact, judging by the respective watchman rates, they may be higher. The difference in general wage level reflects largely differences in occupational requirements.

3. OCCUPATIONAL CHANGE

It is necessary to emphasize one additional point of importance with reference to occupational requirements. Since modern industry is dynamic, the oc-

Chart 1. Distribution of Workers by Wage Rates in Two Small Plants



8 · WAGE STRUCTURES AND ADMINISTRATION

occupational requirements of a firm are rarely static. New technology, new or altered products, and changes in work organization join to produce changes in occupational composition. A job is eliminated here; a new job is created there. The skill content of a third job may be diluted or increased.

The classic examples of changes in occupational requirements are known to almost everyone. The skilled hand cigarmaker leads a precarious existence in the shadow of the cigar-making machine. The hand compositor has given way largely to the linotype operator whose existence, in turn, is jeopardized by still newer innovations in the printing industry. The National Window Glass Workers' Union, organized in 1880 with the brave motto of "Never Surrender," ceased to exist in 1928 under the impact of technological changes which rendered obsolete the skills upon which it was based.

Vast new occupational and job groupings have emerged. The automobile industry alone has produced awesome changes in occupational requirements. The development of machines for excavating and for the moving and stacking of materials has made the term "common labor" almost meaningless. The growing importance of record-keeping and the mechanization of office-clerical operations have altered old occupations and created new.

It is in the individual firm, of course, that these dynamic impulses come into focus. Through an endless process of managerial decision, new products are introduced, old products redesigned or discarded, new

materials utilized, new machines adopted, work flows rearranged. And it is within the individual firm that the necessary occupational adaptations are made.

By and large, changes in occupational requirements are not as rapid as the above illustrations might suggest. Even basic changes, such as occurred with the introduction of the cylinder blowing machine and other devices in the glass industry, appear sharp and dramatic only in the perspective of time. Sweeping innovations, such as the continuous rolling mill in steel, are comparatively rare.

Most changes are small; it is their cumulative impact that is great. For example, a garment factory may install automatic electric trimmers to replace the use of hand scissors. One occupation is affected and readjustments must be made. Perhaps two years later a new model buttonhole-sewing machine with automatic features is introduced. More adjustments are required. Over a period of time these comparatively small innovations combine to produce a fundamental shift in the occupational composition of the work force.

The significant point for our purpose is that changing job requirements create problems of internal wage rate adjustment. A new job is introduced. At what rate? A process has been simplified. Should the rate for the job be changed? A group of workers claim that the rate for their job is too low in relation to rates for other jobs in the plant. Is the claim justified? If so, what is the proper rate?

These are examples of day-to-day problems in the ad-

ministration of wages. There are other issues of broader scope. For example, through rapid expansion, specific labor market pressures, or just plain inattention, the wage structure of a plant may have gotten out of balance. Has the time come for a comprehensive overhaul? What procedures should be used to obtain an alignment of rates that will appear equitable to both labor and management?

Or, to give another illustration, a firm decides to shift part of its operation from time to incentive rates. What system should be utilized? How should its installation be handled?

Or, to cite a third instance, a general wage increase has been decided upon. Shall the increase be applied uniformly across-the-board in cents-per-hour? In percentage terms? Or in some other fashion?

Wage structure problems are important for two reasons: First, they affect people—the wages that workers earn and their pay status relative to other employees in the plant. Second, they determine the wage costs of the firm and hence, in part, its ability to survive.

III. Functions of Wage Structures

IT IS NOW POSSIBLE to indicate briefly the principal functions that a properly designed wage structure should perform:

1) A plant wage structure should provide a system of rate differentials among jobs acceptable both to the workers and to management. This means that workers must feel that the job rates are "fair" in the sense that they properly reflect differences in job requirements.

2) The structure should, when job rates are averaged, produce a general wage level that management can "live with" in relation to the wage costs of its competitors.

3) The rates should relate realistically to the labor market in which the firm operates. This is necessary for the recruitment and retention of the kinds of labor needed by the firm. There are, of course, many examples of firms that have ceased to operate in a particular labor market because "market rates" exceeded the rates paid by similar firms in other areas. A century ago, for example, there were cotton textile mills in Pittsburgh.

4) For ease of administration the structure should be as simple as the job requirements permit. Workers and supervisors should be able to understand it readily. It should be designed for quick adjustment when (a) the job requirements of the firm change, or (b) the general level of rates is altered.

IV. The Union Role

COLLECTIVE BARGAINING is widely practiced in many industries and unions are vitally interested in wage relationships among jobs. The role of the union with respect to the structure of wages and its administration is likely to differ somewhat from industry to industry and even among companies in the same industry. Union actions can affect (1) the structure of job rates in a company, (2) internal wage policies, and (3) wage administration.

1. Unions sometimes press for a comprehensive revision of the wage structure of a firm. This is most likely to happen when job rate relationships have gotten badly out of balance and there is widespread feeling among the workers that numerous inequities exist. In general, a consequence of the growth of collective bargaining has been greater systematic attention by management to the establishment and maintenance of proper job rate relationships.

Unions also affect the shape of the wage structure by influencing the way in which general wage increases (or decreases) are applied. For example, a wage increase may be distributed uniformly to all employees in cents-per-hour. This has the effect, of course, of reducing relative differentials among occupations.

2. Similarly, unions play a part in shaping internal

wage policies. In the automobile assembly industry, for example, the union has, except in one or two small companies, eliminated incentive methods of wage payment. On the other hand, a labor organization struck several years ago in a branch of the garment industry to obtain piece rates in shops operating on hourly rates. In companies with rate ranges, policy for the advancement of workers within the ranges may be determined through collective bargaining. In a host of ways, then, wage policies may be changed or modified over time as a result of union effort.

3. Wage administration is largely a management function. Under most union contracts, however, decisions on specific job classification cases are subject to appeal through the grievance machinery. Moreover, in some industries unions share certain administrative responsibilities with management. In the apparel trades, for example, joint determination of piece rates is widely practiced.

It would be a mistake to suppose that there is anything like a uniform view among labor organizations on the issues of wage structure and administration. Unions also differ greatly in their ability to influence company wage policy.

In nonunion firms the control of the wage structure is in the hands of the employer. This does not mean that management can be capricious. In its internal wage policy it must take account of worker reaction within the plant and of the labor market situation without.

In fact, modern professionalized management has

14 · *WAGE STRUCTURES AND ADMINISTRATION*

tended increasingly to become aware of the “human aspects” of wage administration. Moreover, the trend in this field is toward systematic actions based on plainly enunciated policies of general application. This tendency is evident in nonunion and union firms alike.

V. Establishing Job Relationships

JOBS IN A PLANT are likely to differ with respect to a whole range of requirements, such as academic or specialized education, manual skill, mental application, physical effort, responsibility for damage to tools, equipment, or materials, and working conditions (noise, dust, extreme temperatures, job hazards, etc.). Some jobs call for skills that can be gained only over a period of years; others can be performed with virtually no training at all. Some occupations demand substantial physical effort; this factor is of little importance in others.

The essential problem is to determine, in some fashion, how dissimilar jobs should be ranked in the plant. Is job A on the same level as B, or higher, or lower? If higher or lower, by how much? These simple questions are often very difficult to answer. Defensible answers, however, are basic in building a wage structure that will appear equitable to labor and management.

I. JOB ANALYSIS AND DESCRIPTION

It is plainly necessary, as a first step, to know what jobs consist of—what workers must know and do

to perform adequately, what tools or equipment they must use, what physical working conditions attach to the job.

In a small plant or with a simple operation sufficient knowledge of the requirements may be in the head of the owner or his superintendent. There may be—or appear to be—no need to reduce them to writing.

Certainly, in plants of some size with an appreciable division of labor written job descriptions are important for wage administration. The systematic recording of job duties and requirements has made tremendous strides in recent years. The practice, however, is by no means universal. Even in some fairly large plants, as the Bureau of Labor Statistics has found in recent surveys, position descriptions do not exist.

A good illustration of the need for adequate job descriptions is the experience of the Atlantic Refining Company in deciding to initiate a new wage administration program for its manufacturing operations in 1934. Mr. Samuel L. H. Burk writes in the *AMA Handbook*:

The first problem to be met by the company was the fact that the job titles used and developed over many years were rapidly becoming obsolete, at least for rate-setting purposes. The job titles had little, if any, significance to men and management in general, because in a large number of cases they gave no indication of the work performed, afforded no reflection of the qualifications necessary to the performance of the work or of the varying degrees of responsibility, and were variously interpreted in different locations. This confusion was largely due to a combination of a number of factors,

chief among which were the rapid growth of the industry, technological changes, specialization of effort, oversimplification of titles in the past, and a natural tendency to employ customary terminology when describing new or revised occupations.

As a result of the use of these inaccurate job titles, management found it almost impossible to compare jobs in various plants or even in different divisions of the same plant. There was no systematic, standardized basis for discussion of comparable work, rates, etc., with employees. Difficulty was experienced in hiring, promotion and transfer unless personnel department employees were quite familiar with the actual work of all positions, but the chief difficulty was that top management was unable to give cogent consideration to wage problems.

There are various ways to prepare job descriptions. The employees involved should ordinarily participate in the process. Some companies have them prepare the initial descriptions, usually with the aid of guides to the job elements to be covered. Job analysts then review these drafts, conduct worker interviews or on-the-spot observations, and write final descriptions. Other companies prefer that descriptions be prepared entirely by job analysts on the basis of interview and observation. The assistance of foremen or other supervisors is usually enlisted at some stage.

Whatever the procedure, the task obviously should be carefully done. To some extent, the degree of detail with which a description is drawn is a matter of judgment. However, each description should state clearly the prin-

cial requirements and conditions of the job in terms that adequately characterize it and that facilitate comparison with other jobs.

The following description for a first class tool and die maker, prepared in a large metal-working company, illustrates the essentials of a job description:

Tool and Die Maker—A

Layout any type of tools or dies from prints or sketches. Complete any information lacking in print or sketch and as required make tool or die from part drawing. Plan and perform all necessary machine or bench operations to construct, alter, or repair die sets, blanking, piercing forming dies, deep draw dies where accurate relationships, fitting, interchangeability of parts require development of close tolerances or fits.

Normally six years' experience in tool and die making is required, or the completion of an approved apprenticeship.

Use shop mathematics, including geometry and trigonometry. Work from engineering or part drawings, sketches, or verbal instructions. Use all types of precision measuring instruments. Thorough knowledge of machine shop practice, principles of mechanics, working qualities of metals including the operation of all types of machine tools, punch presses, forming presses, power brakes, etc.

Improper setups, operations or layouts may cause damage to machine tools or damage to expensive tools and dies being made. Responsibility for damage will seldom exceed \$1,000.

Intense mental application studying drawings, planning and laying out work, setting instruments, performing wide variety of operations requiring very close attention and a high degree of skill and accuracy.

Occasionally handle heavy die tools or machine attachments. Largely bench work performing some machine operations.

Slightly dirty working conditions and general factory noise.

Exposure to accident hazards, such as severe cuts.

It will be noticed that the above description indicates, rather briefly, what the worker in the job must do, and then proceeds to describe essential qualifications of the worker (experience, knowledge), responsibility for damage, mental and physical effort required, working conditions, and hazards.

This particular description was one of a series used in a job evaluation program. Other job elements could have been separated out for analysis. Attention to fewer elements might well have yielded a satisfactory description for ranking (and other) purposes.

2. RANKING JOBS

It is only in the past several decades that close attention has been given to placing jobs in relationship to one another. Jobs, of course, have always been ranked in some fashion for pay purposes. Broadly, three types of rankings can be distinguished.

a. *Rule of thumb.* Historically, job ranking has been a rule-of-thumb process. This is true to some extent today. On the basis of general knowledge, jobs at the lower and upper ends of the structure can usually be spotted with reasonable accuracy. Then the employer or his represen-

tatives place others at various points in the scale, depending on their estimates of worth.

Often this has not been a conscious process. Many job structures have developed and changed through numerous uncoordinated decisions. In the past, the process in large establishments was often decentralized to department heads or even foremen.

There is nothing especially wrong with rule-of-thumb job ranking if it works. It probably does operate reasonably well in small establishments. It has worked, though probably not satisfactorily by modern standards, in many larger firms.

The basic difficulty with this approach is that systematic consideration ordinarily is not and usually cannot be given to all of the major elements that go to make up a job. Almost by definition, there is no recourse to carefully prepared descriptions, as discussed in the preceding section. Jobs are ranked haphazardly to begin with and no clear procedure exists to take account of changes in requirements. Even though the structure may not break down entirely, constant patching is likely to be necessary. Grievances (either felt or expressed) over alleged inequities in classification may become a serious problem. In time the structure may fail by a considerable margin to perform the functions outlined in Chapter III, above.

b. *Collective bargaining.* The rule-of-thumb approach to job ranking may in a real sense be modified through collective bargaining. Bargaining over job classification may assume several forms. The union from time to time

may appeal the appropriateness of particular classifications through the grievance procedure. At the other extreme, management and the union may review the whole structure of jobs at one time.

Job ranking influenced by bargaining may represent an improvement over the rule-of-thumb method in at least two ways. First, management may feel impelled to give greater thought to the problem of appropriate job relationships. Second, the union representatives may usefully supplement the knowledge of job elements possessed by management.

Constructive labor-management effort, in fact, may produce job structures satisfactory to both parties. This process calls for a pooling of judgments and an approach toward systematic appraisal of job content. In bargaining (or discussion) factors affecting job relationships that otherwise might not be considered may be brought to light.

Collective bargaining, of course, is no guarantee that sound job structures will be established. Much depends on the attitude of the parties and their willingness or ability to develop some sort of reasoned approach to job classification.

c. *Job evaluation.* In the past two decades job evaluation as a technique for ranking jobs has developed remarkably. It may be defined as a systematic appraisal and ranking of jobs in terms of requirements and conditions.

There are various systems of job evaluation. For those who wish to study the subject in some detail, references

will be found at the end of this pamphlet. The present discussion is limited to the general nature of the process and to some of its advantages and limitations.

Job evaluation may grow out of collective bargaining. This, in fact, has frequently been the case. Numerous grievances involving appropriate classification may convince an employer, or an employer and union jointly, that the job structure needs systematic overhaul. Or the employer may spot a variety of jobs whose rates seem out of line and decide that a more "rational" structure is called for. Or the sheer complexity of a structure and the problems incident to its administration may suggest the need for a comprehensive reappraisal of relationships.

Job evaluation is flexible. It can be applied to manual jobs in a plant, to the complex of occupations found in a modern office, even to higher salaried administrative, professional, and executive positions. The plan should be tailored to fit the group to which it is applied.

Job evaluation seeks to rank jobs in terms of their relative worth. Hence—this should be emphasized—ratings apply to jobs and not to the individuals who occupy them at the time of the evaluation.

Successful evaluation is based on job knowledge. The first step, therefore, is the preparation of detailed descriptions of at least the key jobs in the plant. They should encompass those job elements upon which the evaluation is based. The sample description presented earlier singled out eight elements. The plan adopted after World War II in the basic steel industry utilized twelve. As few as five factors have been used in many successful programs.

The information contained in the descriptions is supplemented by the knowledge possessed by the evaluators. Ordinarily, jobs are appraised by a committee. It may consist of management representatives alone or of both management and employee representatives. However composed, the committee should not be too large to operate effectively. Its members should be thoroughly familiar with job evaluation, should possess maturity of judgment, and should be capable of objective analysis.

Job evaluation as such is devoted solely to ranking jobs. It is not concerned with the wage rates that attach to the jobs. Hence the task of the committee is confined to decisions as to the relative worth of one job as compared with others. This is accomplished by weighing such factors as skill, responsibility, physical effort, and working conditions.

One type of job evaluation system—used here in a grossly simplified form only for illustrative purposes—involves the assignment of maximum points to each of the factors considered. Suppose that only the four broad elements listed in the preceding paragraph are used. Then, on a scale of 100, skill might be assigned a maximum of 40 points, responsibility 30, physical effort 20, and working conditions 10. The evaluation committee then proceeds to rate jobs in terms of these element scores.

In the rating process each job should be thoroughly discussed by the committee. The job descriptions are consulted and used as guides. Often the committee begins with several jobs that, by general consensus, fit into

the upper and lower ends of the structure. Thorough discussion and agreement on the point values to be assigned the factors for these jobs facilitate the rating of others.

When all jobs are rated, they are then ranked (in point systems) according to their scores. Jobs falling within a comparatively narrow range may be grouped for pay purposes. Thus, hundreds of jobs in a large plant may be slotted into a small number of labor grades or classes. The number of grades established will depend upon several factors, including the nature of job requirements in the plant and the nature of the rate structure—i.e., whether flat rates or wide or narrow rate ranges are to be used.

The job-class structure in the steel producing subsidiaries of the United States Steel Corporation consists of 32 labor grades. The range of occupations in basic steel is quite wide; in many other industries a smaller number would undoubtedly prove satisfactory. Some examples of the jobs slotted into selected labor grades at U. S. Steel are given below.

d. *Some advantages and limitations of job evaluation.* Job evaluation is a technique for utilizing organized knowledge about occupations to arrive at informed and reasonably objective judgments as to the relative worth of jobs. In the U. S. Steel structure, for example, truck drivers and bench wire drawers are in the same labor grade. Hence they receive the same rate. Should such dissimilar jobs be valued equally for pay purposes? There is at least this answer under a job evaluation program: the duties and conditions of the jobs were ana-

<i>Job class</i>	<i>Typical jobs</i>	
	<i>Job title</i>	<i>Department</i>
O-1	Sweepers and janitors	All departments
	Pipe cap man	Tube finishing
2	General labor (unassigned)	All departments
	Bloom butt scrapman Painter's helper	Billet mill Paint shop
8	Truck driver	Automotive
	Bench wire drawer Craneman, ladle house	Wire mill Blast furnaces
12	Locomotive craneman Coremaker	Cranes Foundry
	Ore bridge operator Strander	Blast furnaces Merchant mill
16	Machinist	Machine shop
	Axle maker (forger) Lay-out man Charging machine operator	Axle mill Boiler shop Open hearth
20	Roller (mechanical mills) Heater	Hot strip pack mills Plate mills
	32	Roller

lyzed and weighed under a consistent set of criteria. Claims of improper description and rating can be reviewed and discussed as factual matters that admit of reasonable solution.

A properly installed program should materially reduce grievances relating to job classification and rates. A forthcoming study by the Bureau of Labor Statistics of grievance arbitration during a ten-year period at a lead-

ing company reveals a sharp reduction in such cases after a rationalized wage structure had been adopted. In fact, the union contract now clearly limits the circumstances under which arbitration of job classification grievances is permitted.

Further, an evaluation program facilitates the introduction of new jobs and the reappraisal of old jobs when their content changes. This is a most important aspect of wage administration.

On the other hand, too much must not be claimed for job evaluation. It is not, in any rigid sense, scientific. Human judgment clearly enters into the evaluation process. The success of job evaluation is determined in large measure by how carefully and intelligently the program is developed, how well it is tailored to the circumstances of the particular plant or office, and how fully it is understood by the employees to whom it is applied. Once established, its long-run value depends upon the care and consistency with which it is administered.

Another limitation is that any particular evaluation plan may fail to produce an acceptable ranking for some jobs. There may be a few jobs in a plant which have elements that are not common to other jobs, and unacceptable rankings may result. Exceptions, therefore, may have to be made and these should be clearly recognized.

e. *Administration of job evaluation.* The importance of careful administration of an evaluated job structure can scarcely be overemphasized. In view of the dynamics of occupational requirements, as discussed earlier, rational structures soon tend to get out of joint. Hence new jobs

and changes in the content of existing jobs must promptly be fitted into the evaluation system. This also holds true for less formal methods of job ranking.

The administration of the job structure is, of course, a management function. The right of the employer to classify or reclassify jobs, however, is typically not absolute in unionized plants. The usual arrangement is that the union may challenge an act of management through the grievance procedure. This is illustrated by the following provision relating to job evaluation in the contract effective June 22, 1951, between the Boeing Airplane Company (Seattle Division) and the International Association of Machinists (AFL):

The job evaluation plan, including the Formula, Rules and Glossary and the job descriptions, titles and evaluations made thereunder as existing on the date of this Agreement, shall be and are hereby made a part of this Agreement.

During the life of this Agreement the Company will determine the necessity of any changes in job functions and will prepare appropriate descriptions and job titles to cover any such changes. The Company will evaluate any new or changed job classifications so arising by application of the job evaluation formula (factory direct or indirect as the case may be) and forward the new or changed job description to the Union, being free immediately to apply the change in operation. In the event the Union disagrees with the evaluation made of such new or changed job as described, it may challenge that evaluation on the basis of the job evaluation formula. The Company and Union Representatives thereupon will meet for the purpose of reaching agreement. If no agreement is reached within thirty calendar days after re-

28 · *WAGE STRUCTURES AND ADMINISTRATION*

ceipt by the Union of the new or changed job description, the matter promptly will be referred to arbitration under Article II.

A similar provision with respect to the handling of new jobs or jobs with changed content may be found in the August 15, 1952, agreement between United States Steel and the Steelworkers (CIO).

VI. Establishing the Job Rate Structure

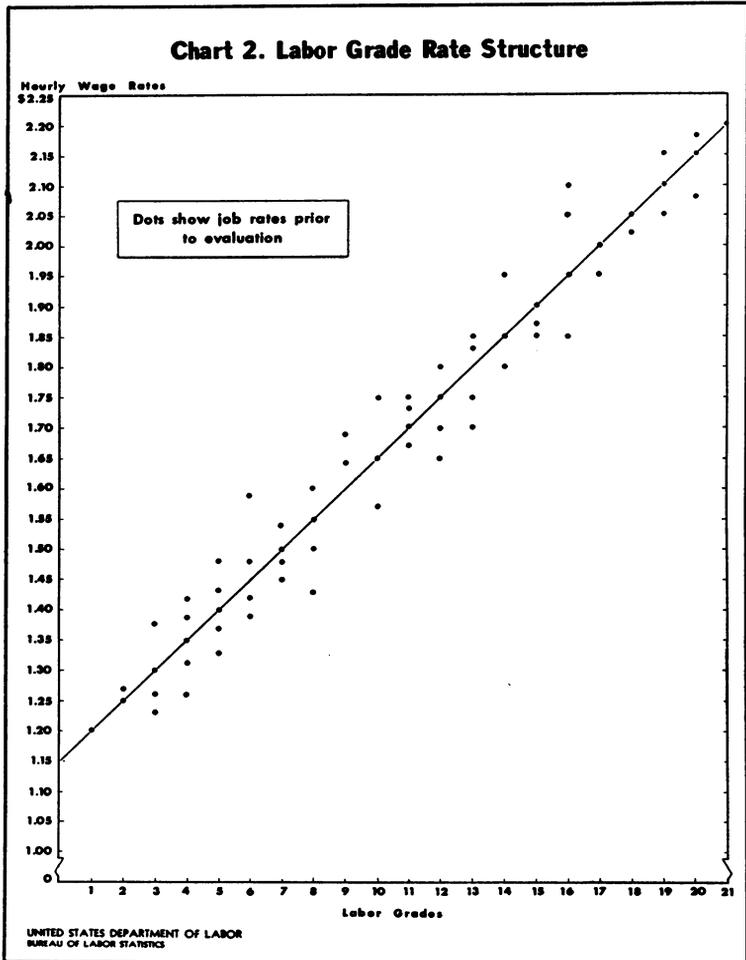
IN ANOTHER PAMPHLET in this series, the term “rational wage structure” was defined as a structure that provides “equal pay for jobs of equal worth and a defensible system of pay differentials for jobs of unequal worth.” The preceding chapter discussed ranking. With jobs ranked in some acceptable fashion, how are rates of pay determined?

1. USE OF EXISTING PLANT RATES

One procedure is to make use of existing plant rates, especially if the bottom and top rates are considered satisfactory or can be negotiated through collective bargaining. The simplest method, although not necessarily the best, is to draw a straight line between these two points to provide a rate line. Alternatively, the line can be established by taking a number of key jobs at various points in the structure and computing a trend line representing the rates of such jobs.

For purposes of illustration, and at this point considering only the use of single rates, suppose the terminal rates are \$1.20 and \$2.20, and it has been decided to

Chart 2. Labor Grade Rate Structure



draw the rate line through these points. The number of labor grades will then have to be decided upon. If 21 are deemed appropriate, the money spread between grades will be 5 cents (assuming that equality of spread is desired). Chart 2, which relates to a hypothetical plant, shows what this structure would look like.

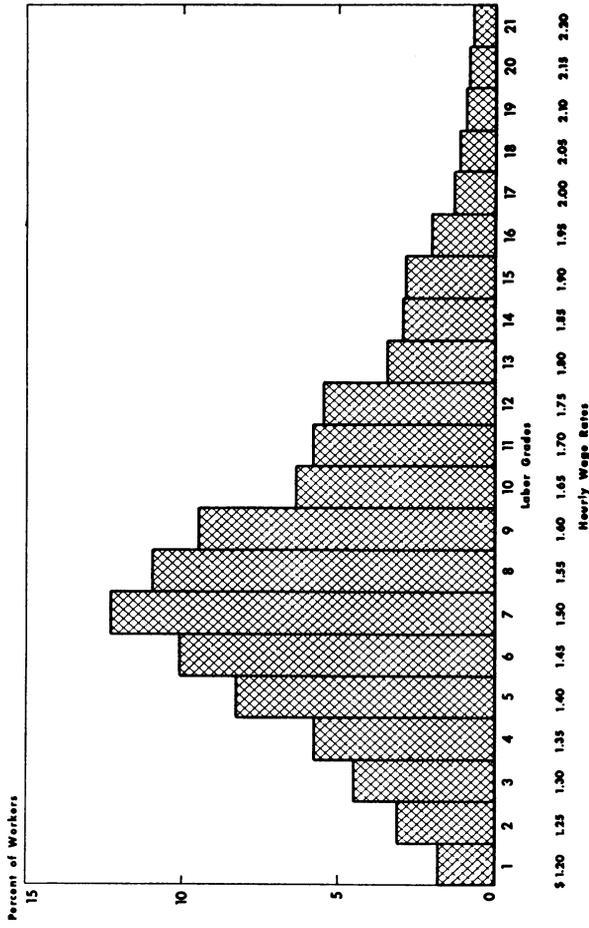
The dots on Chart 2 show wage rates prior to the evaluation. Some are above and others below the new rate line. Those rates below should be raised to the evaluated rates. It is a cardinal principle of job evaluation that individuals whose rates are above the new line should not suffer reductions. Individual workers should not be penalized for past mistakes in rate-setting. If possible, such workers should be placed in jobs with evaluated rates equivalent to their old rates. If this is not possible, at least immediately, these "red circle" rates should gradually disappear with turnover and promotion.

Another view of this wage structure is obtained in Chart 3, where the proportion of workers in each labor grade in a hypothetical plant is shown. For the purposes of the chart, workers with out-of-line rates have been given their evaluated rate. This chart provides the "dimensional" view of a plant wage structure, as explained in Chapter II.

2. USE OF SURVEY RATES

Probably most companies, when installing job evaluation, will not want to use company rates in establishing the new rate line without checking rates in the

Chart 3. Percentage Distribution of Workers by Labor Grades and Wage Rates



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labor market. Collective bargaining may well require such consideration. This involves the use of a reasonably current existing wage survey or the conduct of a special one.

The making of reliable occupational wage surveys is a complicated business. A bad survey, in most cases, is worse than none at all. Techniques cannot be reviewed in detail in this pamphlet, but a few points can be made.

What a company wants to know from a wage survey is how its present rate structure compares, in general, with wages in the market in which it operates. The first step is to select a number of key jobs for survey purposes. These should be "stable" jobs in the sense that their content is capable of clear description, they are found in a substantial number of other companies, and they contain appreciable numbers of workers. Perhaps ten or fifteen such jobs, ranging from the bottom to the top of the structure, are selected.

Next, the plants that represent the market must be chosen. This can be done by scientific sampling from a defined universe of plants; many companies, however, appear simply to select those establishments (either in the same industry or in a variety of industries) with which they believe they compete directly for labor.

In any case, the actual wage information should be gathered on the basis of job descriptions, preferably by personal visit rather than by mail or telephone. Such a survey typically will show a range of rates for each job.

When the study has been completed, a line can be plotted showing the relationship between labor grades

and the market rates for each survey job. This can be compared with a similar line based on job rates in the company making the survey. If the *slope* of the company line differs markedly from the slope of the labor market line, this indicates that, as compared with the market, some jobs in the company are overpaid and some are underpaid. If the company line falls below the market line, the general level of rates in the company is below the market; if it falls above, the reverse, of course, is the case.

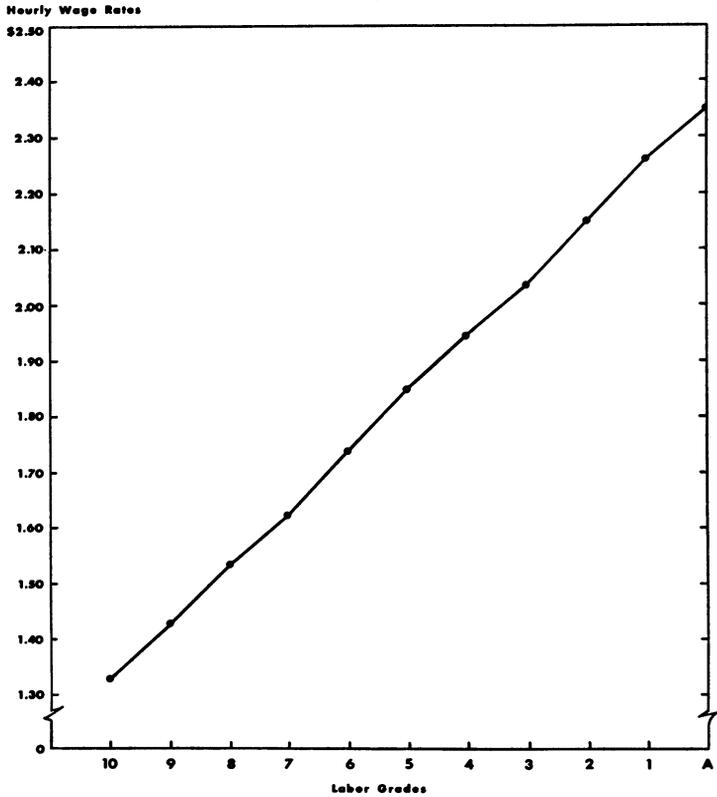
With information of this nature in hand, it can then be decided how the rate structure should be fixed in relation to the labor market. This is a matter of collective bargaining or of company wage policy. For example, a rate scale may be established that corresponds to the average scale in the market. Or the scale may be fixed above or below the market average, depending, in part, on the type of workers the company hopes to recruit and retain.

Chart 4 shows the rate structure established by agreement between the Boeing Airplane Company (Seattle Division) and the International Association of Machinists, effective May 22, 1951. This structure has 11 labor grades, each with a single rate. The rates range from \$1.33 to \$2.35 an hour.

3. SINGLE RATES AND RATE RANGES

Thus far the discussion has been in terms of single rates for each job or for labor grades each contain-

Chart 4. Single Rate Structure
BOEING AIRPLANE COMPANY
Seattle Division
Effective May 22, 1951



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ing a variety of jobs of approximately equal difficulty. As an alternative to single rates, ranges of rates for each job or labor grade can be used. Both single rate and rate range structures are, in fact, widely found in American industry.

In late 1951 and early 1952, the Bureau of Labor Statistics conducted comprehensive wage surveys in 40 major labor markets. Information was developed on the wage structures in these areas for time-rated production workers and for office employees. Formal wage structures were defined by the Bureau as those containing "a single rate or a rate range for each job category in the establishment."

Formal wage structures for office workers applied to a majority of such employees in 32 of the 40 labor market areas. They were predominantly of the rate range type. A majority of office workers in 8 of the 40 areas—and appreciable proportions in the remaining 32—were employed in establishments in which rates were determined on a personal rather than a job basis. In these cases, no formalized structure of job or labor grade rates existed.

For production workers, on the other hand, rate determination on a personal basis was comparatively unimportant. In manufacturing, for example, the labor market areas were about equally divided between those in which formal single rate structures predominated and those in which rate ranges were most prevalent. In public utility industries, ranges predominated in twice as many areas as single rates.

Single job rate structures have the advantage of simplicity and ease of administration. Each experienced worker in a particular job or labor grade receives the same rate. No question of personal rate discrimination among employees on the same job can arise. However, wage inequities in terms of quantity and quality of work may exist. The use of single rates may facilitate company cost and budgetary control procedures. Many unions, as a matter of wage policy, prefer single rates.

In rate range structures, as the term implies, a range of rates rather than a single rate applies to each job or labor grade. Where jobs are broadly defined, so that the job content for individual workers within a single classification varies considerably, the use of ranges is a reflection of the lack of an adequate job rating program. This situation appears to be found among office clerical workers in many firms. In these cases, the rate range is really not an alternative to the single rate; rate ranges are necessary to compensate workers whose jobs, even though within the same classification, are at different levels of difficulty. In many instances of this nature, a formal rate structure may scarcely exist at all. Rate determination, even though within broad ranges, may be essentially on a personal rather than a job basis.

Rate ranges, however, are widely used for job structures based on careful evaluation or determined through collective bargaining. In these situations, they constitute a genuine alternative to single rates. Probably the most compelling reason for the adoption of rate ranges is that some scope is provided for the recognition of individual

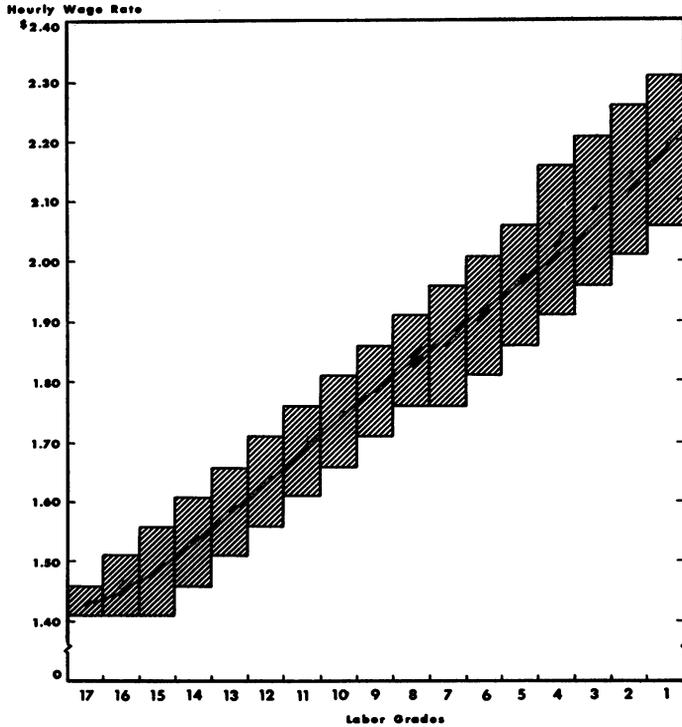
differences among workers in the same job or grade. With single rate structures, the only way to recognize individual merit or length of service is through selectivity in promotion. The use of ranges permits some rate differentiation among workers within jobs.

Ranges are typically built around the single rates that would be appropriate for the job structure. If the lowest labor grade rate is \$1.00 an hour, and it is decided that the range should be 10 percent below and above this amount, then the range would be \$0.90–\$1.10. A worker hired into the labor grade would presumably start at 90 cents and progress through length of service or merit review, or both, to \$1.10.

The width of the ranges is, of course, a matter of company wage policy or collective bargaining. The width should be great enough to have some incentive effect. Ranges can be fixed in uniform cents-per-hour, which means that in percentage terms the ranges narrow as the rate structure ascends. That is, a range of \$0.90–\$1.10 represents a 22 percent increase from the minimum of the range; the same 20-cent spread at \$1.90–\$2.10 represents an increase of only 10.5 percent. Alternatively, the ranges can be fixed in uniform percentage terms, or in variable cents-per-hour or percentages.

Chart 5 shows the rate range structure made effective on April 28, 1952, in the southern California plants of North American Aviation, Inc., as provided for in its contract with the United Automobile Workers (CIO). The rate range for the bottom labor grade is from \$1.41 to \$1.46, a spread of 3.5 percent from the minimum of

Chart 5 Rate Range Structure
NORTH AMERICAN AVIATION, Inc.
Southern California Plants
EFFECTIVE APRIL 28, 1952



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the range; the top grade carries a range of \$2.06–\$2.31, a spread of approximately 12 percent. The general theory of variable percentage ranges is that individual differences, including length of service, are likely to be of greater importance at the upper end of the job structure.

In rate range structures, some procedure has to be adopted for the advancement of workers within the ranges. In some companies, advancement is solely on the basis of periodic merit reviews. In others, the sole criterion is length of service. In still others, these two tests are combined, with automatic advancement up to, say, the midpoint of the range and subsequent advancement based on the results of merit reviews. In the case of North American Aviation, progression from the minimum of each range is in the form of automatic 5-cent-an-hour increases every 16 weeks until the maximum of the job classification is reached. The company may, however, grant more frequent merit increases to individual employees.

As compared with single rates, ranges provide a somewhat more flexible wage structure. When coupled with a sound merit review program, they afford a means for recognizing individual differences in effort and effectiveness among workers on the same job. This advantage of rate range structures, however, is limited where advancement is completely automatic on the basis of length of service.

Rate ranges providing for progression by merit are not as simple to administer as single rates. A good merit review program is difficult to institute and maintain. Em-

ployees passed up in merit review may feel aggrieved, especially if there is any question as to the objectivity of the review program. Partly for this reason, unions tend to press for automatic rather than discretionary adjustments. There is also, in the union view, some presumption to the effect that workers on the same job, whose performance is generally satisfactory, should receive the same rate for equal periods of service up to the maximum for the job. Further, lower level supervision often exerts excessive pressure to upgrade jobs, in part because foremen concentrate on only a narrow sector of the wage structure and also because of personal advantage. However, many companies have operated merit review programs satisfactorily over long periods.

4. MINIMUM PLANT ENTRANCE RATES

Job rate structures, as discussed above, should be understood as applying to experienced workers. Many plants, in addition, make use of what may be termed a minimum entrance rate. This is a hiring-in rate for the inexperienced and unskilled. Such workers, usually after a comparatively short qualifying period, advance to the rate for the job to which they are assigned.

Minimum entrance rates in plants in some industries may effectively coincide with the legal minimum (75 cents an hour) under the federal Fair Labor Standards Act; in many industries at the present time, however, hiring-in rates for inexperienced workers are materially

above this level. In any particular plant, the hiring-in rate is either set moderately below or is identical with the bottom job rate.

5. PROBATIONARY RATES

Notably in single rate structures, probationary rates may be paid to new entrants into particular jobs. A worker promoted to job X, for example, may be paid for a qualifying period a rate somewhat below the job rate. If his service is satisfactory, he is advanced to the job rate after a stipulated interval. The automobile assembly industry, for instance, uses predominantly single rates, except in the skilled trades where spread rates prevail. A new worker entering an occupation typically receives a rate below the job rate; he reaches the job rate after a qualifying period usually up to 90 days.

Probationary or "learner" rates are also found in some rate range structures. Thus, an agreement effective November 15, 1952, between the International Harvester Company and the United Farm Equipment and Metal Workers, U. E. (Ind.) provides for such rates. In this instance, a new employee or one transferred to a different job, who requires training, is paid the minimum of the rate range if the job is classified in labor grades 1 through 3; if the job is classified in labor grade 4 or above, the employee is paid a starting rate not lower than 10 cents below the minimum of the appropriate range for a period of 30 to 60 days.

6. PREMIUM AND OTHER SPECIAL RATES

During the past several decades there has been a remarkable growth in the payment of premium rates under specified circumstances. Hence they must be taken into account in any plant wage structure analysis. Premiums are either based directly on regular rates, as when expressed as a percentage of such rates, or consist of regular rates plus a flat cents-per-hour addition. The more important premiums are briefly characterized below:

a. *Overtime.* Workers covered by the federal Fair Labor Standards Act must be paid at the rate of time and one-half their regular rate of pay for hours worked in excess of 40 in any workweek. The federal Public Contracts Act and many union agreements provide for the payment of premium overtime on a daily basis (e.g., after 8 hours per day). Premium overtime rates are designed to discourage work beyond the “standard” day or week.

b. *Late-shift work.* Premium pay for work on other than the day shift is now widely found in American industry. Where three-shift operation is employed, the premium rate may be higher for the third than for the second shift. Premiums are usually expressed either as a percentage of regular rates (e.g., 5 percent for the second shift, 7.5 percent for the third) or as a flat addition to regular rates (e.g., 6 cents an hour for the second shift, 9 cents for the third). The justification for shift differentials is that they compensate employees for undesirable hours of work.

c. *Holiday and week-end work.* Work on recognized holidays is often paid for at premium rates. Especially in plants where employees are granted holidays with pay, those required to work commonly receive double their straight-time rate. Triple time is sometimes paid.

Especially when not part of the regularly scheduled workweek, work on Saturdays and Sundays as such is often compensated at premium rates.

d. *Call-back pay.* Workers called back to duty after completing their regular shifts are often guaranteed pay for a minimum number of hours, frequently at premium rates. This provision should not be confused with *call-in pay*, which relates to the amount of pay guaranteed a worker who is called to work on a day on which he otherwise would not have reported and is not given a full or half shift's employment. A somewhat related provision involves *reporting pay*—the amount guaranteed to a worker who reports for work at the usual hour, without notification to the contrary, and finds no work available or is not given a full shift's employment. Typically, pay for a minimum number of hours at the regular rate is provided for in union agreements.

VII. Incentive Rates

IN THE PRECEDING CHAPTER, rate ranges were described as providing some scope for the recognition of individual differences among workers in the same job or labor grade. A wage incentive plan also serves this purpose. In addition, pay related directly to output is a more direct stimulus to effort than the prospect of advancement through merit review (or length of service) under a rate range plan.

Incentive wage systems are widely found in manufacturing industry. Studies by the Bureau of Labor Statistics indicate that approximately 30 percent of the plant workers in manufacturing are paid on this basis. Individual manufacturing industries differ greatly as to their use of incentive methods. In clothing, textiles, footwear, metal fabrication, electrical equipment, basic steel, and a number of others, wage incentive plans are widely found. On the other hand, incentive rates are of comparatively little importance in such industries as petroleum refining, automobile assembly, and industrial chemicals.

In nonmanufacturing, incentives in the form of commission payments are widely used in selling occupations. Tonnage rates in coal mining appear to be declining in importance because of technological developments. In

such service industries as power laundries and automobile repair shops, incentive systems are extensively employed.

Even in plants making the widest use of wage incentives, some time-rated jobs are typically found. For example, custodial workers at one end of the wage structure and maintenance workers at the other are usually paid by the hour.

1. INCENTIVES AND JOB RANKING

The use of wage incentives does not obviate the need for a sound program of job ranking through job evaluation or negotiation. It is as important for the avoidance of pay inequities under an incentive as under a time-rated plan. Clearly, production standards under incentives have to be set so that the earnings of the typical worker bear some relationship to the wages of employees paid time rates for the same type of work. If, for example, the hourly rate for a particular job is \$1.40, the expected earnings of the average worker on incentive might be \$1.63.

2. THEORY OF WAGE INCENTIVES

In most occupations, even those that appear most definitely to be machine-paced, the worker has some control over the output he achieves. When wage payment is by the hour, day, or week, reliance for the attainment of acceptable levels of output has to be

placed on the desire of workers, which is widespread, to produce at an acceptable level; on the desire for advancement; on good supervision; and, negatively, on the fear of demotion or discharge.

Incentive pay plans relate wages or earnings directly to output. A direct connection is therefore established between what a worker produces and what he earns. Thus, a powerful stimulus is provided for the achievement of high-level output.

There is a good deal of evidence to suggest that wage incentives, in many situations, do result in greater output per man-hour, lower unit costs for direct labor and overhead, and higher wages. On the other hand, as a number of studies have shown, incentive plans are no certain cure for output restriction; moreover, they do present a variety of problems in application and administration.

In some arrangements, such as plant-wide incentives, the relationship of wages to output, as far as the individual worker is concerned, is quite remote. Such plans are not considered in this pamphlet.

Incentive plans are likely to be most effective where the output of individual workers or groups of workers can be readily measured. Group incentive is especially suited for teams operating units of equipment, responsible for a particular process, or working on a single product along a production line. Incentives may not work well where quality is important or, at any rate, where satisfactory control over quality cannot readily be established. Incentives are difficult to employ where

output is fixed substantially by the requirements of the productive process, as in industrial chemicals. Where production is in small lots and quality standards are high, as in many tool and die jobbing shops, time rates may be preferable.

Incentives, as a method of wage payment, have caused a substantial amount of controversy between labor and management. Organized labor does not, however, have a uniform position with respect to this issue. Some unions, at least in part because of past abuses, are opposed in principle to incentive plans; others accept them and are concerned primarily with the equitable determination of incentive rates and the prevention of abuses. Several unions have established engineering departments that assist in the handling of incentive rate cases.

3. INCENTIVE RATE SYSTEMS

Incentive methods of wage payment, except for straight piece rate systems, were pioneered by industrial engineers and their installation and operation is still primarily a function of engineering departments. However, there appears to be increasing realization of the need for industrial relations training or background on the part of technicians engaged in incentive plan administration.

There are a number of systems identified by the names of their originators—Taylor, Gantt, Emerson, Rowan, Halsey, Bedaux, and others. Particular advantages are claimed for each of these plans, which are described in

any good handbook on incentive methods. Actually, the differences among some of them are not very great. Adaptations of particular systems to meet the operating needs of individual companies are widely found.

For the purpose of this pamphlet, incentive plans can be classified as either straight piecework or bonus.

a. *Straight piecework.* The most common form of wage incentive appears to be straight piecework, which simply means a constant rate of pay per unit of output. Examples are legion—5 cents per piece for machining a small metal part, \$1.25 for picking 100 pounds of cotton, a commission of 5 percent of its retail price for selling a particular article. The earnings of the worker are determined largely by the rate per piece times the number of pieces produced during the payroll period. The term “largely” is used in the preceding sentence because the worker may not spend his entire time on incentive work.

In straight piecework systems, earnings increase directly in proportion to output. If, over a period of time, a worker on a particular operation increases his output by 20 percent, his earnings will increase by the same amount. Studies by the Bureau of Labor Statistics indicate that a substantial range of earnings often exists among pieceworkers (or workers on other types of incentive) on the same operation in the same plant. This presumably reflects variations in effort and effectiveness among workers, but it may also reflect differences in equipment, quality of materials, work flows, and other factors.

Piece rates can be established on the basis of time

study or, more roughly, on records or estimates of past performance. The use of records of past production may result in uneven standards—some loose, some tight—for different jobs. If the work of setting output standards is well done, both management and labor will know what the typical or average worker on each job should produce per hour. The piece rate itself should be such that the average worker, without excessive fatigue, can make the level of earnings appropriate to the job. Higher levels of output will result in proportionately greater earnings.

Workers on straight piecework may not be guaranteed a basic hourly or daily wage, except for whatever legal minimum wage may exist. Where a time rate is guaranteed, it is often set at a level below the expected average earnings on piecework.

b. *Bonus systems.* In bonus systems, production standards are established in terms of number of pieces per unit of time (hour, day) or in terms of *time allowed* for a definite amount of work. Workers who exceed standard production then receive bonus payments. Suppose that the time allowed for a given operation (perhaps the installation of a piece of equipment) is 10 hours and the job is completed in 8. The two hours “saved” are bonus hours for which the worker receives extra compensation. Or suppose the production standard is expressed in terms of 20 pieces per hour and the worker produces 25. Extra compensation would be paid for this production above standard.

For the reasons indicated earlier, production stand-

ards in bonus systems should be carefully established, wherever possible, through time study. Moreover, the specifications, methods, and facilities of jobs to be put on incentive should be standardized as much as possible before production standards are set.

The pay formulas under some bonus systems are very complex and have tended to discredit the use of incentives. In general, the formula should be as simple as possible, readily understood by workers, and easily handled by the payroll department.

Almost all bonus systems guarantee a worker a time rate if his output does not reach a specified level. There appears to be a tendency for the guarantee to equal the day rate for production at standard, with output above standard paid for in proportion. Unless this is done, the more an employee produces above standard the less he is paid per unit of output. The reader who wants to explore this matter in detail, however, will find a variety of pay plans under bonus systems described in any handbook on wage incentives.

4. SOME INCENTIVE PRACTICES AND PROBLEMS

It is generally agreed that no incentive plan is likely to work well unless it has the confidence of the workers. Among other things, employees need to feel that standards are fairly established, that management will not permit equipment or other factors affecting the job to deteriorate, and that complaints will be handled

promptly. There must be no restrictions on earnings; that is, incentive rates must be guaranteed against change unless the requirements of the job change.

A study some years ago by the Bureau of Labor Statistics of collective bargaining provisions relating to wage incentives points out that:

Much of the opposition of workers to incentive plans is due to past experience with rate cutting and the speed-up. The claim has been made that whenever workers became adept at an operation and increased their output, and thereby their earnings, management would re-time the job and cut the rate for the operation so that workers turned out more with no corresponding increase in pay. Piece rates were sometimes lowered without clear justification, or on the ground that some adjustment in machinery or process had warranted a re-timing of the work. Even where rate changes were justified by some change in operations, workers often felt that a more than proportionate reduction in rates had been made. Management also would re-time jobs after workers had hit their stride and then set the new, high production level as the normal standard for base pay, resulting in a speed-up.

With respect to the nature of specific union agreement provisions on wage incentives, this study states:

Most of the detailed provisions in the agreements are concerned with establishing safeguards and controls against abuse of the incentive wage principle. The principal safeguards include: (1) participation in rate setting, either by joint negotiation of new rates before they are put into effect, or by appeal through the regular grievance procedure if incentive rates are found to be unsatisfactory; (2) guaranteed

minimum rates and maintenance of a normal incentive differential above base rates; (3) guarantee of earnings when a worker's output is reduced through no fault of his own, such as machine break-down, transfers at the request of management, work on unrelated operations; (4) assurance that rates will not be cut unless changed conditions warrant such adjustment; (5) provision for computing extra pay on a daily basis so that poor days do not reduce extra pay earned on days when the workers exceed the standard.

It has already been pointed out that typically not all workers in a plant using incentives are on such rates. Where incentive earnings drift upward, an inequity in wages between incentive and time-rated workers can develop. This can become a troublesome problem. It may require special wage treatment for time-rated employees. Some companies, in fact, develop incentive systems for indirect workers.

As compared with time rates, incentive plans appear ordinarily more difficult to administer. Careful arrangements for the inspection and count of individual or group output and more elaborate record-keeping are necessary. Production standards must be set with great care. Standards and rates that are too tight can be corrected much more easily than those that are too loose. Changes in job conditions need to be taken promptly into account.

On the other hand, a sound incentive plan, well administered, has real advantages. In fact, the establishment of production standards, which are essential to such a system, is also helpful in planning, scheduling,

and coordinating production. Incentives should provide more precise and certain knowledge of costs. They should, of course, enable the firm to utilize labor more effectively and to pay higher wages than might otherwise be possible.

VIII. General Wage Changes

WHEN A GENERAL WAGE INCREASE is decided upon through collective bargaining or company action, its application to the existing structure of job rates must be determined.

General increases applied uniformly in cents across-the-board have the effect of narrowing relative differentials among jobs. Absolute differentials are, of course, preserved. Thus, if the lowest and highest job rates in a plant are \$1.30 and \$2.10, respectively, a 10-cent across-the-board increase will preserve the money spread—80 cents—but will lower the relative differential between the bottom and top jobs from 62 percent to 57 percent. Ten cents to workers in the \$1.30 job represents an increase of almost 8 percent; to workers in the \$2.10 job, less than 5 percent.

For a variety of reasons, relative rate differences among jobs have been declining in American industry. One factor has been the tendency in recent years to grant increases uniformly in cents. Escalator clause increases tend to be made in this way. There is probably some point beyond which compression in the wage structure cannot go. It is interesting to observe that in the supplemental agreements negotiated in the automobile industry in the late spring of 1953, special increases were

granted to skilled workers. Similar action was taken at about that time in a number of other important collective bargaining agreements.

General increases can be granted in money terms in such a way as to preserve relative differentials. Several of the postwar adjustments in basic steel were administered in this fashion. For example, in 1952, at the United States Steel Corporation an increase of 12.5 cents an hour was applied to the bottom labor grade and successive additional increases of one-half cent to the higher labor grades. Thus the adjustment ranged from 12.5 cents in labor grade 1 to 28 cents in labor grade 32. On the other hand, the increase at U. S. Steel of 8.5 cents an hour negotiated in 1953 was applied uniformly across-the-board.

A percentage increase—say 5 percent—applied uniformly has precisely the opposite effect on wage differentials from a cents-per-hour increase administered in the same way. In this case, relative rate differences among jobs are not changed, while the spread in terms of money is increased.

Many wage settlements in recent years have combined a uniform wage increase in cents-per-hour with an additional increase—say an average of 2 cents an hour—for the correction of “inequities” in particular job rates.

The application of a general wage increase to workers on incentive presents particular problems. One device that has been used widely of late is simply to add the increase to incentive earnings. Thus the structure of

piece or bonus rates remains unchanged and incentive earnings are supplemented by time payments.

In straight piecework systems, the increase may be “factored” into the structure. This means that piece rates are changed so that the level of expected earnings will reflect the increase in wages agreed upon. In bonus systems, factoring must be related to the particular bonus plan in use.

The comments above have been in terms of wage increases; the several methods of applying wage changes will have opposite consequences in the case of decreases. For example, a wage cut applied uniformly in cents-per-hour will increase relative wage differences among jobs.

There is no ideal way to apply general wage changes to an existing structure of job rates. It may appear appropriate in some instances to maintain the percentage differences in job rates and in others to preserve the money spread. In still other cases, uniformity (in either percentage or money terms) will appear less desirable than some other method of distributing an increase or decrease in wages among jobs. What is important is that labor and management realize what they are doing when they decide on one rather than another method.

IX. Conclusion

WAGE STRUCTURES are designed to provide systems of compensation that will encourage workers to cooperate in production. They are also a mechanism for distributing the workers' share of the values created in the productive process.

It is not an easy task, even in a comparatively long pamphlet, to describe the chief characteristics of plant wage structures.

One difficulty, of course, is that no one structure can be described as representative of all. A wage structure that meets the requirements of one firm may not be suitable for another. In part, this may reflect choice or accident or the predilections of plant management or the consequences of collective bargaining. For example, one firm may use time rates; another similar firm may use incentives. Or both firms may use incentives, but the nature of the systems may differ markedly. In part, however, wage structure differences grow out of such objective factors as size of plant, nature of product, technology, and labor market conditions.

Wage structures are complex and varied, in part, simply because industry—or large parts of it—is complex. One of the limiting factors of large-scale produc-

tion with extensive division of labor is the difficulty of devising and maintaining satisfactory systems of wage payment. This problem is being met in some measure by the rationalization of job and rate structures through such devices as job evaluation and the classification of jobs into a limited number of grades.

In a sense, too, the complexity of wage structures reflects the great productivity of our industrial system. For this reason we can sustain comparatively short workdays and workweeks with premium pay beyond standard hours, on late shifts, and on holidays. The growth of a variety of employee benefits is also evidence of this productive power. Only thirty years ago wage structures for plant workers could be described almost wholly in terms of job or personal rates; the superstructure of premium rates and benefits has been erected largely in recent decades.

The broad growth of union organization undoubtedly has influenced wage administration and the character of wage structures in many situations. The achievement of equitable job rate relationships or, to put it another way, defensible rate differentials among jobs has been stimulated by the union-management relationship. This tendency has been reinforced, as suggested earlier, by the professionalization of wage administration.

Wage structures, finally, are not developed in a vacuum. They must be related realistically to the economic environment in which a firm operates. The general level of rates and their interrelationship cannot be determined independently of labor market conditions

and of the more general economic situation. When this has been said, the fact remains that, in its present state, the determination of wages has some of the aspects of an art.

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Appendix: Two Reports on Job Evaluation

THE PROCESS of wage determination through job evaluation is described in two different settings in the articles reprinted below. The first article is taken from the magazine published for employees by the Allstate Insurance Company. It relates, of course, to clerical workers and is in the form of a report to employees on company policy and procedure in the establishment of salary ranges. The second article is by a representative of the United Steelworkers (CIO) and was designed to explain, to an international union audience, the job evaluation program for plant workers in the steel industry.

LET'S TALK ABOUT WAGES

(Reprinted from *AIM*, published by the
Allstate Insurance Company, May, 1953)

You wouldn't be human if you didn't occasionally give the guy working next to you the once-over, and then ask yourself: "What has he got that I haven't got? I wonder if he makes more money than I do."

All of us at one time or another have appraised the other

fellow and usually decided that he doesn't have so much on the ball. But if you're puzzled as to how he got where he is, you may be surprised to learn that a lot more than effervescent personality is responsible for the salary he commands.

This you will discover if you examine the intricacies of the present Job Evaluation Plan which was adopted by Allstate a little more than two years ago to provide a yardstick for determining salaries.

Certain jobs need skills which come after years of training and experience. Often, a file clerk can learn her job fundamentals in a matter of weeks, but a secretary must usually take a special course to learn the hieroglyphics of her trade. It is obvious that one job should be paid more than another.

When Allstate was small, it was easy to determine wage rates. But as the company grew there were more jobs and the task of appraising the worth of each became harder. The Job Evaluation Plan was introduced to make this task easier.

The important thing about this system is that it does not rate *you* but *your job* and that it does not compare *you* with *others* but *your job* with *other jobs*.

In 1951, when the present system was first being established, each of you was asked to write a description of your duties. This was to determine how much knowledge, skill, independent judgment and supervisory responsibility as well as the different personality traits each job required of the person holding it. You supplied the facts because you, the employee, actually did the work.

Pay Grades Established

After supervisors and department heads reviewed your answers, a rating scale was devised to measure differences between jobs. The factors of independent judgment, knowl-

edge, skill, supervisory responsibility and personality traits, here again, were most important.

For example, if your job called for operating on your own, it ranked higher on the scale than one requiring close supervision. If it needed a person with specialized, on-the-job experience, it got a higher rating than one which requires no experience.

Jobs were then grouped in various pay grades, ranging from Pay Grade 1 to Pay Grade 17. Individual personalities were not considered when these levels were set up, *only the nature of the work and the background required to perform it.*

Surveyed Prevailing Wages

To place Allstate salaries on a par with or above the going rate, company men surveyed the wages paid in branch cities by other companies. We also contacted a number of other organizations such as the National Industrial Conference Board and the Bureau of Labor Statistics for other facts on salaries and benefits.

Following this thorough examination of all possible factors, maximum and minimum wage limits were finally set up for each pay grade. The pay grade range is the spread in dollars between the minimum and maximum salary amounts through which an employee may progress on the basis of merit.

In order to make sure that these wage categories were fair, we hired the outside consulting firm of Griffenhagen and Associates to double check each of our steps.

The Job Evaluation program ties in directly with the company's program to promote from within, whenever possible. When an employee takes a step up the ladder, another is boosted up to the vacated rung, whenever possible. Usually, no one employee moves up alone. Often as many as six or eight individuals are promoted if the initial promotion occurs on a high level.

Jobs Reviewed Yearly

Even if you do not receive a promotion, your job rating does not necessarily remain fixed. For instance, you may find that your job duties have changed. Evaluating committees in the branch and zone offices will then re-examine your job, and if it is justified, will recommend a change in classification subject to approval by the Senior Evaluation Committee in Home Office. All jobs are also reviewed once yearly as a routine matter to insure that the job descriptions reflect actual duties.

Company personnel managers make an annual survey, too, of the prevalent wages in each branch city. Checking of this sort often leads to changes in Allstate's own wage structure, such as the 10 percent increase in all pay grade maximums which went into effect April 15.

After reading this, you may ask, "But how fast can I reach the maximum in my pay grade?" The answer: it depends on you! Although it takes time to accumulate experience and skill, seniority alone is not the basis of your progress. The real determining factor is how well you learn your job and how well you perform its prescribed duties.

JOB EVALUATION IN THE UNITED STATES
STEEL INDUSTRY

By JOE GOIN, *United Steelworkers of America*

(Reprinted from the *Bulletin* of the International
Metalworkers' Federation, March, 1953)

There are so many reasons for the adoption of a uniform method for establishing wage rates in the steel industry that it is impossible to list all of them; however, I will describe the major ones.

The industry is composed of many varieties of operations and produces such a diversity of products that almost every type of job found in any industry can be found in the steel industry in one plant or another.

The wage rates in steel plants were established by almost every method known to man, ranging from the personal opinion of some individual to elaborate methods of job evaluation. Most of the job evaluation methods were installed unilaterally by the companies and were usually so arranged as to prove that the existing wage scale of the company involved was approximately correct. For example: Hourly rates in the coke plants were much lower than in other departments, due to the type of labor used and because these plants worked on a schedule of continuous operations, which were not subject to seasonal fluctuation. Although the hourly rates were lower than in other departments, the monthly or yearly earnings were on a par with other departments in the plant until the adoption of the uniform 40-hour workweek for all the steel industry. Blast furnace job rates were also universally lower than in other departments for much the same reasons as in coke plants. Earnings for craft and assigned maintenance workers were on the average much too low as compared with those of less skilled workers on production jobs who had the benefit of additional earnings from incentive rates.

Over the years, many so-called common labor or other unskilled jobs had become coupled with duties requiring various skills and parts of other jobs, for which usually no additional compensation was granted. Even with identical jobs, there was no uniformity of rates between the many plants or even within the departments of the same plant. The application of general wage increases on a flat cents-per-

hour basis had caused a flattening out of all the wage scales and had depreciated the percentage spread between the minimum plant rates and the rates paid to skilled workers. Other rates were out of line because of geographical location, the condition of the local labor market, the financial condition of the company involved, or for any number of other reasons.

All of the many variations in rates were a constant source of irritation among the employees and were the cause of countless work disturbances and grievances. Before the job evaluation program in the steel industry, over 90 percent of all grievances came from disputes over wage rates. The settlement of these grievances by raising certain rates created further inequities and dissatisfaction.

These disputes finally reached such a crisis that in the early part of 1944 the matter was referred to the National War Labor Board. The Board, after extended hearings on the question, directed the company and the Union to negotiate the elimination of existing intra-plant wage rate inequities and reduction in the number of job classifications, in accordance with the following steps:

- (1) Describe simply and concisely the content of each job.
- (2) Place the jobs in their proper relationship.
- (3) Reduce the job classifications to the smallest practical number by grouping those jobs having substantially equivalent content.

Craft and assigned maintenance jobs, because of their variable nature, were given special treatment by using job descriptions of a general nature describing over-all duties generally found in this type of job, and the jobs were classified on the basis of over-all skill and training required to perform these jobs under all conditions.

After the National War Labor Board had issued its directive, most of the basic steel companies then established with the United Steelworkers Joint Wage Rate Inequity Committees to implement the Board's directive and the text of the directive was incorporated in all of the 1945 basic contracts. The Union Committee negotiated with the United States Steel Corporation the method of job evaluation and establishment of a wage scale, with the understanding that the resultant program could be used as a pattern for the other basic steel companies to follow. How sound this reasoning was can be proved by the fact that all the large basic steel companies have adopted the same program.

The United States Steel Joint Committee met for the first time in February 1945. They met in an atmosphere of suspicion and distrust because of the failure of previous attempts to solve this tremendous problem. They first discussed the form and scope of the job descriptions to be used for the purpose of identifying the job and providing the proper material for future classification. Without too much delay, a form was mutually agreed upon and the companies then prepared descriptions for some 130 benchmark jobs in all of its 43 basic plants where these jobs were found. That these descriptions were simple and concise as well as satisfactory is shown by the fact that they are used as a pattern universally throughout the industry.

After the benchmark job descriptions had been checked and jointly approved, the Joint Committee then faced the task of agreeing on a method of classification or manual of evaluation. This task was probably the greatest undertaking ever faced by any committee or engineering firm in the job evaluation field. The number of plants involved was about 450. The total number of jobs described and classified up to

70 · WAGE STRUCTURES AND ADMINISTRATION

this date is about 150,000. The manual for job classification now in use in the steel industry (to which I will hereafter refer as the Steel Manual) was then introduced and discussed at length by the Joint Committee.

The Steel Manual has 12 factors and each has a number of divisions or levels. The total points possible under the Manual are 43, and up to the present 32, (Job Class 32), has been the highest total given to any classified job.

The factors are as follows:

- (1) Pre-Employment Training;
- (2) Employment Training and Experience;
- (3) Mental Skill;
- (4) Manual Skill;
- (5) Responsibility for Materials;
- (6) Responsibility for Tools and Equipment;
- (7) Responsibility for Operations;
- (8) Responsibility for Safety of Others;
- (9) Mental Effort;
- (10) Physical Effort;
- (11) Surroundings;
- (12) Hazards.

The heaviest weighting (53 percent) of the Steel Manual has been allotted to the responsibility factors. We believe this is sound because of the rapid mechanization of the steel industry, where individual skills and physical effort are being replaced by improved mechanical equipment. Working conditions have also been improved in the industry to the point where the intolerable conditions of the past, such as excessive heat, smoke, weather, grease, oil, hazards, and tremendous physical effort, have been minimized. These mechanical and other changes have also resulted in greater production per man hour and have imposed on the employees operating the

equipment an ever increasing responsibility for production, tools and equipment, and operations. This was not true of most job evaluation manuals of the past.

The Manual eliminates the merit rating system, which was never proper or justifiable to either the management or the employees. Rate ranges are found only on craft jobs and the progression is automatic.

Some amendments were made to the original Manual and after several months of investigation and negotiation, the classification of some 1,250 benchmark jobs was completed and added to the Manual. In this classification of benchmark jobs it was found that the jobs were almost identical in each of the plants in spite of the industry's arguments to the contrary in the past. If this were true on the benchmark jobs it might also follow on most jobs in similar departments with similar duties.

A correlation of jobs in the other plants shows that about 80 percent of the jobs are in line with the specimens. After we started to classify the jobs in all the other plants, it was found necessary to negotiate specimens in Lorain, Ohio Works of the National Tube Company; in Gary, Indiana Sheet and Tin Works; in Worcester, Massachusetts American Steel and Wire, for cable plant jobs; and in Donora, Pennsylvania, for wire plant jobs. Later it was found necessary to negotiate benchmarks and specimen jobs for spring plant operations; cold rolling; inspectors; the so-called fringe jobs, including hourly clerks, recorders, weighers, technical jobs; and the laboratory jobs, including metallurgical inspectors and observers.

There are now in the production and maintenance units of the industry more than 5,000 benchmark and specimen jobs used for classification purposes, and they have been used

for classifying jobs employing about 450,000 employees—truly a tremendous undertaking—with satisfactory results both to the companies and to the union members.

The problem of educating the vast number of people in the administering of this program was another undertaking. The Union found it necessary to establish in each district rate adjusters who were competent staff representatives. We operated a school for these staff people for a full week and later sent international representatives to each district to aid the three-man committees set up in each plant of the companies where the Manual was agreed to. The fact that 150,000 jobs were classified by mutual agreement is a tribute to the very fine job done by the rate adjusters and local committee members, as well as the top committee in each company.

The Steel Manual with its many adjustments is now so constructed as to classify adequately any type of job found in the industry. This includes production and maintenance jobs of all kinds—fabricating jobs, non-salaried clerical and technical, or any miscellaneous jobs. The Union believes that a most satisfactory relationship now exists in all the basic plants and hopes to complete the work by further extension in the fabricating and related industries.

In total, we believe the Steel Manual, jointly developed by the United States Steel Corporation and the United Steelworkers of America is the best Manual ever to be developed for the steel industry and is one of the best manuals ever to be developed in any industry, for the purpose of establishing the standard hourly rate of the job.

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