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**IMPROVING PRODUCTIVITY:
Labor and Management
Approaches**

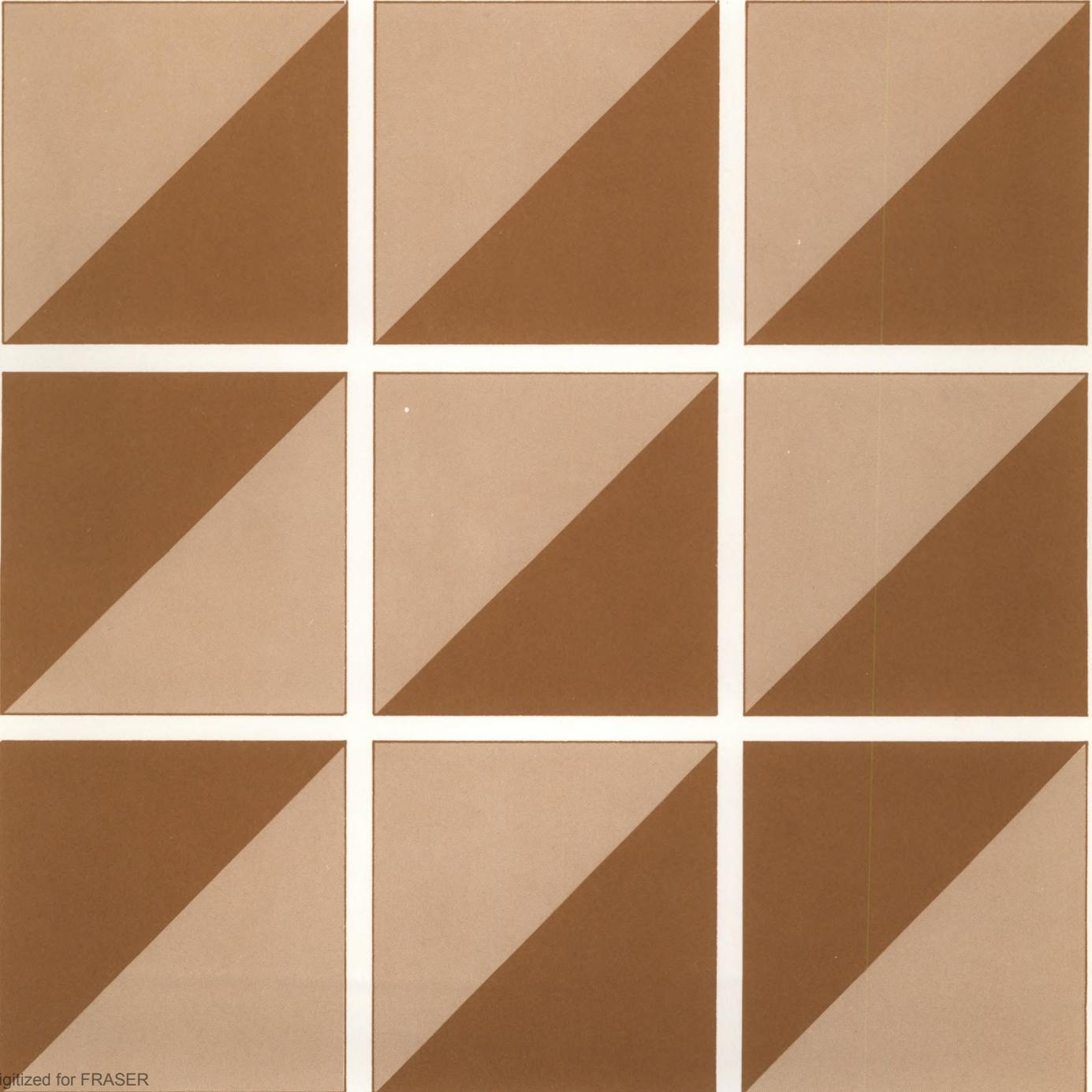
Bulletin 1715

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**IMPROVING PRODUCTIVITY:
Labor and Management
Approaches**

Bulletin 1715

**Prepared for the
National Commission
on Productivity**

**by the Bureau of
Labor Statistics
U. S. Department of Labor
September 1971**



**U. S. DEPARTMENT OF LABOR
J. D. Hodgson, Secretary
BUREAU OF LABOR STATISTICS
Geoffrey H. Moore, Commissioner**

Preface

The National Commission on Productivity was established by President Richard Nixon in June 1970 to develop recommendations for programs and policies to improve the productivity of the U.S. economy. The Commission is composed of top-level representatives of business, labor, government, and the public. In order to aid the members in their consideration of various topics, staff papers will be prepared by government or private industry experts in different subject matter fields. These papers serve as background material for the members but do not necessarily represent their views.

This bulletin presents examples of formal efforts by labor and management to improve productivity. The focus is on plant level practices that are within the control of management or unions, leaving broad economic, technological, institutional, and other factors that affect productivity change for examination in other studies.

Most of the examples in the report involve measures developed through collective bargaining or in special arrangements between unions and management outside the bargaining table. A few examples lie primarily within the scope of personnel administration or industrial engineering, in which unions play a less active role. They are included because they represent new directions that may become future issues for labor and management.

The study is based mainly on information available from secondary sources, supplemented in a few cases by current data obtained through personal communication with labor and management officials. A few examples, however, were based on previous field investigations by the staff of the Bureau itself. A selected bibliography is appended to the report.

Nineteen examples were prepared in the Bureau of Labor Statistics under the direction of Edgar Weinberg, Deputy Assistant Commissioner for Productivity and Technology, by the staff of the Division of Technological Studies. Most of the material on work rule settlements and methods of adjusting to change was prepared under the direction of Harry P. Cohany, Chief, Division of Industrial Relations, by the Division staff. Material on improving productivity in dentistry is based on information furnished by the Public Health Service.

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Chapter I. Introduction

Improvements in productivity are the result of many factors. Technological innovations, greater investment in capital equipment per worker, and improved managerial techniques are critical. But researchers on the sources of productivity growth also stress the great importance of human factors: for example, improved skills and education of the work force; wider acceptance of change; and greater flexibility and mobility. Although the influence of these factors cannot be measured, undoubtedly their interaction creates a climate favorable to the growth in output per man-hour.

This bulletin describes efforts by labor and management to provide training and promotional opportunities, to make greater use of workers' know how, and to establish more satisfactory work schedules, greater job security, and more effective work incentives. Success in improving working conditions could contribute to reducing excessive absenteeism, tardiness, and turnover. It could lead to greater motivation on the job, higher quality of workmanship, and less resistance to technological change. These improvements in dealing with the

human factor of production often contribute to advances in productivity.

Special attention has been given to several outstanding collective bargained settlements of problems of work rules and job security. These issues arise in the everyday conduct of collective bargaining and usually are settled, though at times only after considerable turmoil. Productivity is generally not an explicit issue in negotiation, but both sides realize that cost increases must be matched by efforts to improve efficiency.

The examples in this study are drawn from a wide range of industries. Each case reflects efforts to meet the special circumstances of an industry or plant and may not be directly applicable to others. Moreover, as in labor-management relations generally, the settlement of a particular problem does not necessarily guarantee long lasting industrial peace. New problems are arising constantly to test the ingenuity of labor and management in resolving them. Nevertheless, the experiences of the plants and industries recorded in the report will assist others who are seeking ways of improving productivity.

Chapter II. Retraining Programs

Retraining programs contribute to improving productivity in several different ways. Well trained workers need a shorter time period for starting up, produce less scrap material and cause fewer delays. Also, technological changes often modify the skills needed by workers and require retraining which also contributes to reducing resistance to change. Finally, training programs lessen worker discontent by providing opportunities to advance to jobs of higher skill and pay and of greater interest.

The following five examples describe retraining programs for journeymen and other workers. Although retraining of workers on the job often is regarded as primarily management's duty, the prominent role played by unions in these five programs is one of the most significant features of the cases. In three examples, the unions initiated training to update skills of craftsmen—plumbers, printers and seamen. The unions in each of these cases have long had a leading role in apprenticeship training. In the other two cases, unions, in cooperation with management and government manpower agencies, set up programs to raise the skills and knowledge of less skilled workers—hospital workers and steelworkers.

Retraining of plumbers

A national program for updating the skills of journeymen plumbers and steamfitters was established in 1956 by agreement between the United Association of Journeymen and Apprentices of the Plumbing and Pipefitters Industry of the United States and Canada (AFL-CIO) and the National Constructors Association. Union leaders and contractors both recognized that retraining would be necessary to meet the skill requirements of technological advances such as automation, use of atomic energy, and the changes in space and petrochemical industries.

The agreement set up an "International Training Fund" financed by contributions from union contractors based on manhours paid for. Administered by a joint board of trustees, the fund assists local committees in purchasing equipment and in improving local training programs under national standards. A national staff of training coordinators is employed to assist local instructors. Each year a number of instructors attend

classes at Purdue University to learn new training requirements created by changes in technology. The same agreement and administrative arrangements are used to upgrade local apprenticeship but the retraining program for journeymen is a separate operation.

An example of a formal retraining program supported by ITF but run locally is the National Pipeline Welding School in Tulsa, Okla. Founded in 1965 by the local union and contractors association, the school was organized to retrain skilled plumbers to work on the expanding pipeline systems in the region without the special onsite training that had been needed previously. A small staff of full-time instructors give classroom training to upgrade the skills of helper trainees and journeymen.

The ITF program has expanded from 32 programs for about 1,000 journeymen in 1956 to 397 with an enrollment of over 18,000 in 1967, the latest year for which data are available. Since its inception, over 80,000 union journeymen have taken some training. Financial assistance to local programs for journeymen and apprentices averaged roughly \$1 million annually in recent years. This covered the cost of instruction, equipment, classrooms, etc. The program is entirely privately supported.

Union sponsored retraining for printers

A national training center, established by the International Typographical Union, provides its members with new skills required to operate modern composing equipment. Similar centers have been established by other unions in the printing industry, notably the pressmen and lithographers.

The ITU Training Center is an outgrowth of the union's longstanding policy of training printing craftsmen to operate the latest machinery so that it can assure union employers an adequate supply of skilled craftsmen and thereby maintain its jurisdiction. This was the policy followed in the introduction of the linotype machine 80 years ago. In recent years, radically different technologies—for example, phototypesetting, and the application of computers to perform justification and hyphenation operations—aroused the union's interest in expanding retraining of craftsmen.

The ITU school began operations at Colorado Springs, Colo., in January 1962 with 15 ITU members in training. The training school cost about \$2 million to construct and equip and is financed entirely by contributions from a union fund. No funds are received from employers. Today about 100 students are enrolled in each class. The center offers 28 separate courses, including electronics, photocomposition, and others. In addition, some ITU members who have been trained at the Colorado center, provide instruction on the latest methods at about 100 local centers throughout the country.

Any member of the ITU in good standing is eligible to attend the training center. A member may register for one or more of the 28 courses. Most courses are 3 weeks in duration and trainees attend classes full time. Most employees attend the school during their scheduled paid vacation period and pay for their own room and board; financial assistance sometimes is provided by the local union and by the employer.

More than 2,000 ITU printers have completed training at the center. Additional thousands have received instruction at their locals. One interesting byproduct of the program has been the development by ITU Center instructors of several new types of cost saving equipment which are rented to union employers.

Upgrading hospital employees

An experimental project initiated by a union in 1967 demonstrated how low paid nurse's aides can be trained to take over routine nursing duties. Both registered and practical nurses are in extremely short supply in New York City and elsewhere.

The project was cosponsored by District Council 37, American Federation of State, County and Municipal Employees (AFL-CIO) and New York City's Department of Hospitals; training allowances were paid by the U.S. Department of Labor's Manpower Administration. The project was focused on training nurse's aides who needed to maintain their income while in training and who could not qualify for existing training programs for licensed practical nurses under current educational standards and tests for admission. Trainees worked 20 hours a week at their regular hospital jobs and attended school about 25 hours a week; their combined salary and training allowances about equaled their regular pay as nurse's aides.

The work-study program lasted 14 months. The number of instruction hours totaled 1,500 per trainee—about 300 more than the minimum required by the basic curriculum for licensed practical nurses. Trainees also received counseling and remedial social services, and

some received tutoring under a program funded by District Council 37.

Altogether 422 nurses' aides graduated from the work-study program and returned to their hospitals as practical nurses; 91 percent of those originally enrolled passed the licensing examination. Many of the aides were disadvantaged minority workers, with limited education. Although the training and services proved to be relatively costly, the project demonstrated the feasibility of a career ladder for low-paid workers in a shortage occupation.

The technique of upgrading of nurse's aides to meet skill shortages also has been adopted by private hospitals in New York City. Under an agreement effective July 1969, between the National Union of Hospital and Nursing Home Employees (a Local of the Retail Wholesale and Department Union, AFL-CIO) a jointly administered fund of about \$1 million is setup for training and upgrading union represented workers. The fund is based on 1 percent of gross payrolls. No government contribution is involved. The agreement covers over 20,000 workers in 17 private institutions.

These upgrading programs are welcomed by many medical care experts who believe that hospital efficiency can be enhanced through greater use of paramedical personnel who can be trained in a relatively short period of time.

Training and retraining in the Maritime Industry

Training schools for seamen typically are financed by shipping firms but operated by maritime trade unions who contract to supply employers with an adequate number of trained workers. As shipping activity and shipboard modernization are accelerated, there is great interest in expanding training and upgrading at every level. Recent progress is exemplified by three formal programs.

The Seafarers' International Union (SIU) (covering unlicensed maritime personnel) conducts, with employer funding, the Harry Lundeberg School of Seamanship for the Atlantic and Gulf Ports. The school conducts advanced courses in deck, steward, and engineroom skills for upgrading experienced seamen. About 1,500 men also are trained annually for entry into the merchant marines. The complete 30-day course is free. Trainees attend classes conducted by experienced seamen and undertake practical on-the-job training on vessels in port.

Faced with a shortage of engineroom officers, District 2 of the Marine Engineers' Beneficial Association (MEBA) (covering licensed merchant seamen) set up the School of Marine Engineering in New York in 1965. The School is employer-financed. While in training, MEBA

members receive, in addition to meals and lodging, a weekly subsistence allowance. Courses cover the mathematical and practical knowledge required for advancement. As of early 1971, the school had qualified a total of 390 MEBA licensed engineers for higher ratings. Also, since 1966, MEBA District 2 and SIU have jointly operated a 30- to 90-day training program to upgrade unlicensed SIU members to licensed engineers ratings.

The National Maritime Union, with 45,000 members, initiated a comprehensive retraining and upgrading program in May 1966 in New York City. The program is financed under a jointly administered pension and welfare plan. Every year since 1966, roughly 1,000 men, on the average, have been qualified for higher classifications. Unlike the Seafarers' program for entrants, the NMU program gives instruction in the most advanced unlicensed skills in the deck, stewards, and engine departments in both cargo and passenger vessels. A curriculum of 22 courses, varying in length from 3 to 12 weeks, are offered to NMU members with at least 6 months of seetime. Trainees receive a subsistence allowance in addition to meals and living quarters. A part of the training costs are financed by grants from the U.S. Department of Labor's Manpower Administration under the Manpower Development and Training Act of 1962 (MDTA), and from the Military Sea Transport Service.

Improving basic education of steelworkers

Union, management, and the Federal Government have been cooperating since 1967 to provide oppor-

tunities for steelworkers to improve their skills in reading and arithmetic. The lack of these basic educational skills prevents many steelworkers from entering apprenticeship and other upgrading programs and hampers them in retraining for new opportunities opened by technological change.

The Board for Fundamental Education, a nonprofit agency, was chosen by the union and steel companies to provide experimental basic education classes after work hours to steelworkers in the Baltimore and Chicago-Gary areas. The Federal Government pays the salaries of instructors and other costs from an allocation of funds under MDTA. The Cooperative Steel Industry Basic Education Program provides three levels of instruction: A basic level for employees testing below grade 4.5 in both word meaning and arithmetic; an advanced level for employees testing between 4.5 and 8.0; and a special mathematics class for employees with deficiencies in arithmetic only. Each course is given for 20 weeks.

A total of over 2,700 workers attended at least one class in the first year; 62 percent completed the course. Most of the participants were men in the 35- to 54-year age group. The courses were repeated several times and high school level courses were begun. By February 1971, a total of 3,300 workers had participated and graduated.

Steel plant management considers the program a useful contribution to greater efficiency because it improves communication, encourages workers to have an interest in their jobs, and increases understanding of instructions. The 1968 collective bargaining contract renewed the program for 3 years.

Chapter III. Work Rules Settlement

Written and unwritten work rules exist in all places of work, whether organized or unorganized. Frequently, a particular rule or practice may have been introduced as a safety measure but has continued in effect even after the reason for its adoption is hard to recall or justify. Unions and workers are reluctant to yield work rules once they have become the "law of the shop"; often they fear that such changes, initiated by employers, are not likely to accrue to their benefit. Thus, the modification or elimination of work rules presents a difficult problem to collective bargainers.

The following five examples illustrate how work rules issues were dealt with in such diverse industries as the performing arts, retail trade, newspapers, construction, and longshoring. Although the details of the settlement fit only the needs of a particular situation, the cases demonstrate the versatility of collective bargaining in solving troublesome issues and adjusting to change.

The music performance trust funds

Since the turn of the century, the demand for live music has fallen off steadily and the number of job opportunities for professional musicians has declined sharply. The development of the phonograph record, originally for home use, and its uncontrolled use for commercial purposes, especially by radio stations and juke box companies, posed a particularly serious threat to the livelihood of musicians. The American Federation of Musicians (AFM) protested to no avail, and the record manufacturers were unable, through legal means, to restrict the use of records once sold.

AFM President James C. Petrillo finally undertook in 1942 to stem the erosion of opportunities by prohibiting musicians from making any further recordings. In 1943 and 1944, the stoppages against individual recording companies ended through a series of agreements under which employers agreed to pay royalties on sales into a union administered Radio and Transcription Fund (RTF). Income was allocated to free public service performances. In 1947, 1948, and 1949, the fund spent approximately \$4.5 million for admission-free performances. The Taft-Hartley Act, however, necessitated the suspension of payments at the end of 1947, and

consequently President Petrillo reinstated the recording stoppage on January 1, 1948.

Almost a full year later, on December 14, 1948, agreement was reached on an independently administered fund, the Music Performance Trust Fund (MPTF) which basically carried forward the same objectives as the earlier RTF. In 1950, producers of television film sound track agreed to a parallel fund as part of the MPTF; from 1951 to 1958 distributors of motion pictures for television exhibition also established trust funds, as did producers of TV films and commercial announcements in 1954. Under all these trusts, the MPTF receives royalties which do not accumulate, but are spent as currently as possible to meet the goals of the MPTF.

For some years, recording musicians had been discontented because none of the royalties on sales were allocated specifically to them for the contribution they made of their talents. Following internal disputes and the defection of west coast musicians from the union, the AFM worked out a new settlement with the recording companies in 1964. Payments for free music performances were halved, and the other half was allocated to a special payment fund which now provides disbursements directly to recording musicians.

Almost \$100 million has been disbursed since the MPTF reinstated allocations in fiscal 1950, and the amount of allocation has grown from \$900,000 in fiscal 1950 to \$7,370,000 in fiscal 1970. It is estimated that \$7,310,000 will be disbursed in fiscal 1971.

In recent years, over 300,000 musicians have been employed annually in free admission performances. The highest number, 396,700, were employed in fiscal 1969 for a record 35,970 performances. The first 6 months of fiscal 1970 showed 136,000 musicians employed in 16,224 performances. Payments are made to union and nonunion musicians at local union scale.

Centralized meatcutting and the Butchers' Union

In the evolution of meat department operations in retail food stores, the changeover during the 1950's from service to self-service is a major landmark. The butcher's block moved from a highly visible location behind the

counter, where custom meatcutting under the customer's eye took place, to the backroom where meats are cut, packaged, and priced in a standardized operation. In this changeover, as in others, the amalgamated Meat Cutters and Butcher Workmen of North America (AMCBW), (AFL-CIO), bargained over the entrance of new techniques and eventually achieved higher wages and fringe benefits in return for greater management flexibility.

The development of the backroom operation improved productivity and permitted volume sales, but stores sought still further cost-cutting changes such as the purchase of certain cuts of meat and poultry delivered prepackaged and prepriced from packing-houses and poultry processors. The AMCBW exercised some measure of control over changes by writing a list of permitted cuts (the products clause) into the collective bargaining agreement. These cuts were to be negotiable and could be traded off for gains in wages and benefits. Over the years, some cuts were allowed to come into stores frozen, and others prepackaged but not prepriced. In this way, the union was able to retain work for journeymen meatcutters on fresh cut foods and for weighers and wrappers on pricing.

Eventually, some chains moved towards centralized meatcutting operations. As planned, cutting would be done at a central chain-owned packinghouse that would then prepackage and preprice meats and poultry for delivery to chain outlet meat counters. In the 1971 chain store negotiations in the tri-State Philadelphia area, the issue of centralized meatcutting by one chain and by independent packers came up. The employer's goal was not accomplished fully, but some new cuts were permitted in exchange for traditional trade-offs and an employment guarantee.

For the first time boneless hind quarter and fore-quarter cuts were allowed thus, diminishing the boning operation ordinarily performed in the backroom. In addition, ground meat was permitted, again lessening the grinding operation of the backroom; and finally prepackaged fresh (as against frozen) poultry was allowed to be brought in.

These represent significant changes for one contract term, and the tradeoff again was in wages and fringe benefits. Journeyman meatcutters are to receive \$30 a week in 1971 and an additional \$25 weekly in 1972. Also, substantial improvements were negotiated in the health and welfare and pension plans. Negotiators are unable to quantify that part of the increase due to the changes in the permissible list, but the consensus is that the chains were more generous, as a result, in their settlement.

The union further agreed that the chains may

introduce new methods and new products, that is, make revisions in the contract's products clause. In consideration for this additional flexibility, the chains agreed to notify the union in advance of any future revision, listing specifically all new methods and products in writing, and in addition the companies guaranteed that no union member's job would be eliminated as a result of any revision. The Philadelphia chain stores are in a period of expansion when journeymen meatcutters are in short supply. However, when expansion ends and the number of stores stabilizes, the guarantee will take on more significance than it presently has. Meanwhile, the chains have gained flexibility and the union has won major wage and fringe benefit gains, in addition to a potentially valuable employment guarantee.

The International Typographical Union and "bogus" typesetting

In the printing industry, make-work practices were associated for many years with "bogus," alternatively called "reproduction," or "resetting," or "dead horse." Under the General Laws of the ITU, the "reproduction" of certain materials in the form of type and matrices, when they were interchanged or purchased between newspapers or newspapers and job offices, was made mandatory. Bogus involved the resetting of type only for local newspaper advertisements that had already been printed. Although the type was reset, it was not used, but was assigned to the "hell box" where it was melted down into lead.

Because of the question of the legality of bogus under Taft-Hartley, the ITU conducted a questionnaire survey of its locals in 1960 to determine their "reproduction" practices. Of the locals that responded, 65 percent asserted that they were no longer adhering to this custom, 20 percent admitted that they were utilizing bogus practices, and 15 percent stated that they had not performed bogus work during the month under survey although local advertisements were placed on the "bogus hook."

This inquiry and an ensuing survey which revealed that only 2 to 5 percent of locals were performing bogus work convinced ITU President Elmer Brown to seek an amendment to the union's constitution to shift the "Plate Matter and Matrice Section" from the General Laws to the Bylaws. Although the proposal was defeated by a union referendum in October 1960, the 1967 convention did vote to endorse this proposition which gave locals wide latitude with publishers in the negotiations of bogus clauses. One further step was taken in August 1969 when the international union eased the bogus rules by allowing locals to relax or eliminate this

right in exchange for other improvements in their contracts.

Before the 1969 convention, some locals informally exchanged their bogus clauses for coffee breaks, overtime, time off, sick leave, and other forms of paid leave. With the impetus of the international union's endorsement of more formal "trade-offs," many locals apparently negotiated improvements in pensions and in other economic benefits.

Union and management accommodation in prefabricated housing construction

It is generally agreed that greater productivity could be achieved in housing construction if industrialized methods were adopted in place of craft methods of construction. New laborsaving production technology has been adopted slowly because of building codes, marketing and financial considerations, and fear of job losses due to lower craft barriers. In recent years, the building trades unions have reconsidered their closely guarded position on craft jurisdictions in the light of changing circumstances. Several events illustrate this trend.

The Building and Construction Trades Department of the AFL-CIO commissioned the Battelle Memorial Institute in 1968 to conduct an in-depth study of the impact on labor of the prefabrication and systems concept in the building industry. One of the conclusions was that the new technology would "... appear to offer opportunities to half of the affiliates and threats to the other half." The report indicated that all building trades—some more than others—would be affected by the reallocation of work from the jobsite to the factory as prefabricated technology expanded. Interpretation of the specific effects, while subject to debate, indicated that an overall loss of onsite jobs would result.

An important collective bargaining breakthrough occurred in September 1968 with an agreement between the Carpenters and Stirling Homex Corp of Avon, N. Y., a producer of modular housing. The carpenters agreed to provide journeymen for the company's factories. In June 1969, the agreement was extended to onsite projects. For its part, the company agreed to employ only union building trades labor and to pay current construction wage scales in the areas involved.

Another important step was the joint Tri-Trades agreement by three unions—the Carpenters, Electricians, and Plumbers—with a number of producers of prefabricated and modular structures. These unions have

attempted to establish a firm claim to jurisdiction in the event factory produced homes gain wide acceptance.

In November 1969, Tri-Trade locals signed an agreement with modular home producer, Prestige Structures, Inc., of Charlotte, Mich., and requested their internationals to lend their support by guaranteeing that units produced would be accepted by onsite craftsmen. Subsequently, the three international unions agreed to cooperate and to establish some uniformity in the contracts negotiated by the locals. In addition to Prestige Structures, 23 other prefabricated and modular companies have signed Tri-Trades and Union Label agreements.

The most significant aspect of the Tri-Trades agreements is the cooperation by the three unions in an industry known for its jurisdictional conflicts. Construction locals have relinquished part of their autonomy by accepting the internationals' position that factory built structures bearing a specially designed Tri-Trades label be accepted onsite and that any onsite controversy will be resolved by the international offices.

Among themselves the three unions agreed that employees, depending on their jobs, would be assigned as members of 1 of the 3 unions. For example, a newly hired worker primarily performing electrical work is assigned membership in the IBEW. Although no set formula was established, in practice approximately 60-70 percent of a plant's work force are members of the Carpenters, and between 15-20 percent each become members of the Plumbers and the IBEW. Uniform initiation fees and dues that conform to those established in manufacturing rather than in construction, were agreed upon.

Although local agreements do not conform in all respects, the model agreements are intended to lend uniformity at the area level. They have been patterned after industrial agreements. These include a grievance procedure with arbitration as a final and binding method of settling disputes; waiver of the right to strike during the term of the agreements; the right of management to hire from any source, as opposed to the union referral system commonly used in the construction industry, checkoff of initiation fees and dues, and paid holidays and vacations. In return, the company guaranteed that construction scales would be paid the employees assigned to work on construction sites.

Wage rates for plant employees are to be comparable with factory production rates rather than prevailing construction scales. The highest paid production job in a plant, filled by a journeyman from each trade, is termed the "code coordinator," who works in a supervisory capacity. By accommodating to the new technology, the unions have yielded on the issue of craft jurisdiction;

Article VI of the Tri Trades International Agreement states:

“Union recognizes that because of the nature of the company’s business, employees shall be expected to perform work assigned to them, even though the work assigned may be the work normally performed by another classification and trade.”

Although some progress has been made in resolving labor problems, the production of prefabricated units has been low. Some companies have discontinued production because of market conditions; others, because of financial difficulties.

Nevertheless, although few in number, these agreements are significant because they indicate changes in attitudes on the part of construction craft unions, and the acceptance of practices which may facilitate greater productivity in construction of low and middle cost housing.

Mechanization and modernization agreements in west coast longshoring

The west coast stevedoring industry was faced in 1960 with a pressing need for a new approach to reconciling the workers’ needs for job security and income maintenance and managements’ goals of flexibility and increased productivity. The immediate issues centered on restrictive work rules and practices. Management asserted that the International Longshoremen’s and Warehousemen’s Union (ILWU) had gained control over both the work force and the production process. The principal purpose of the restrictive rules was maximization of employment, but the result was the highest dock costs in the United States.

The prospective decline in job opportunities in the late 1950’s because of impending mechanization persuaded ILWU leaders of the need for longrun solutions to job security. The union’s leadership recognized the need for productivity improvement but felt that the Pacific Maritime Association (PMA) should give a “quid pro quo.”

On October 18, 1960, the ILWU and the PMA consummated an agreement that attempted to accommodate their divergent goals. The union accepted the introduction of laborsaving devices and the extensive relaxation of work rules. The employers’ association generally achieved more control over work rules dealing with manning and gang sizes, slingload limits, place of rest procedures, multiple cargo handling, gear priorities, minimum work or pay guarantees, and other rules “so as to permit them to operate efficiently, change methods of work (and) utilize worksaving devices . . . without incurring speedups or encouraging onerous work.”

In return, management agreed to establish a \$27.5 million fund over a 5½-year period to provide early retirement benefits and a supplementary wage fund. Entirely financed by PMA, the fund was instituted to insure the regular work force (“A” men) against layoffs resulting from changes in cargo handling, to establish minimum weekly earning guarantees, to encourage early retirement, and to augment death and disability benefits. All fully registered longshoremen and clerks qualified for 36 monthly payments of \$220 or lump-sum payments up to \$7,920, in addition to their regular pensions upon normal or early retirement. Provisions were included for mandatory early retirement at \$320 a month until age 65 if work opportunities declined. When hours of work fell below 35 a week due to modernization and mechanization—but not because of a business decline—a weekly wage guarantee was to become operative. In addition, the contract stipulated death payments up to \$5,000 and disability benefits up to \$7,920.

When the original contract expired in 1966, the parties negotiated another 5-year contract. Major modifications in the agreement included: the provision of an additional \$34.5 million for the fund, a \$13,000 vested retirement benefit; pensions up to \$235 a month; up to \$5,000 in death benefits and \$13,000 in disability benefits; plus improvements in vacations and in other benefits. Perhaps the most significant change was the elimination of the wage guarantee at the union’s behest, since job opportunities had not declined during the term of the first agreement. Adopting a lump-sum scheme of wage pay and bonus, the parties distributed the Supplemental Wage Fund (\$12.9 million in principal, and interest at the time), giving \$1,223 to each eligible union member. In return, PMA secured further modifications in work rules relating to maximum availability of registered workers, manning scales (especially in the elimination of men under the “unnecessary man” rule), and slingload limitations.

In the opinion of the union, it was necessary for the successful administration of the system to rotate hiring of workers to provide equal “sharing” of decreased job opportunity in combination with joint registration of longshoremen to control the quantity of manpower resources. The program was supported by a sufficiently adaptable machinery to process numerous grievances and to provide a “basis for a continuing dialogue during the life of the agreement;” contract periods were sufficient to stabilize the industrial relations environment by allowing long-range planning.

Various inadequacies in the pacts also have been noted. Some employees, such as those who pack sacks, find their workload more onerous and mechanization, especially relating to containerization, has resulted in

safety problems. Some younger workers, at least in the earlier years, claimed the pact was an "old man's contract," providing generous retirement and pension benefits, but little for younger members. Smaller stevedoring firms claim that the agreement was too expensive and that they are unable to effectively compete with larger companies that invest heavily in capital equipment. The parties differed about productivity increases: The association believed that the union did not recognize the effect of changing capital inputs and the union felt that the PMA was "hiding" some of the productivity increases.

The union leadership admitted that it underestimated the pace of containerization and that the future of the union depends on the amount of work related to this process. These problems relate not to loading and unloading containers, but to "stuffing" (placing cargo in the container itself) and "stripping" (taking the cargo out of the container). When the second contract was signed in 1966, the union did not foresee the establishment of container stations located just off a dock, a situation that led to members of another union performing "stuffing" and "stripping" duties. At various times, jurisdictional disputes have arisen, mainly with the Teamsters.

In August 1969, the leadership of ILWU and PMA

signed a Container Freight Station Agreement (CFS), supplementing the M & M agreement and providing that "all CFS work will be performed by ILWU members dispatched from ILWU-PMA hiring halls . . . (with) a 40-hour work or pay guarantee while the job lasts The intent and purpose of this contract supplement is to have all container work brought to Container Freight Stations on the dock or in areas adjacent to the dock . . . by removing the option . . . to have this type of work done elsewhere."

Jurisdictional disputes over containers stems from the union's concern with the downward trend in man-hours and employment of longshoremen and the anticipated further reductions in the work force in the immediate years ahead. From 1960 to 1970, longshoring man-hours fell from 23.5 million to 19.6 million. Longshoring union membership ("A" and "B" men) also declined significantly (15.3 percent), from 14,490 on January 1, 1960, to 12,277 on January 1, 1971.

During the 1960's the agreement was apparently sufficiently flexible to absorb the shocks generated by its day-to-day administration. On July 1, 1971, the long history of peaceful settlements was broken when the parties were unable to reach an agreement. As of early August 1971, the strike was still in progress.

Chapter IV. Methods of Adjustment to Technological Change

American unions generally accept technological changes at the place of work but are very much concerned with their effects on the job security of workers. Most issues are resolved in normal collective bargaining and the contract clauses which can come into play are as varied as the agreements themselves, covering advance notice to wage setting on new equipment, seniority rules regarding transfers, grievance and arbitration procedures, and severance pay and retirement. In some situations, bargaining may deal simultaneously with methods of avoiding layoffs, easing the burden of unemployment, and facilitating new employment.

Various arrangements worked out by the parties are discussed briefly in the following six examples. As noted, attrition clauses are confined almost entirely to the railroad industry. However, interplant transfers, relocation allowances, and early retirement benefits are more widespread. Two examples deal with arrangements negotiated to cover specific problems occasioned by technological change: the guaranteed annual wage in New York longshoring; and the Armour and Company Automation Fund Committee.

Attrition arrangements in the railroad industry

Mergers and consolidations, technological changes, and the growth of competitive means of transportation have steadily reduced railway employment over the past two decades. The railroad unions have been increasingly concerned for their members' job security and, in some instances, for their own continued existence. Much of the chronic conflict that characterizes railway labor negotiations has been over work rules that protect union members by preventing elimination of jobs management no longer considers necessary.

The strong resistance of railway unions to outright elimination of jobs, with consequent involuntary layoffs and terminations has contributed to a wide application of the attrition principle; employees already on the payroll are assured of continued employment, but unneeded jobs vacated through voluntary quits, discharge for cause, retirements, and deaths need not be filled.

The principle of attrition in railway mergers and consolidations was first established by the Emergency Railroad Act of 1933, which was passed to facilitate consolidations and to strengthen the depression troubled industry. After the act expired in 1935, unions and management, with Presidential urging, negotiated the "Washington Job Protection Agreement," in 1936. The agreement provided that employees deprived of employment due to consolidation were afforded partial wage protection for up to 5 years, on the assumption that normal attrition would permit their reabsorption into the industry within this period. The agreement is still in effect. The Federal Transportation Act of 1940 similarly prescribed that the ICC, in authorizing a consolidation, require that affected employees receive full wage protection for up to 4 years.

Application of the attrition principle to jobs eliminated due to technological change began in the 1950's. In 1958, the Railway Clerks and Union Pacific agreed to abolish positions effected by technological change by attrition for 4 years. Two years later, a Railroad Telegraphers-Chicago and North Western dispute resulted in a Supreme Court decision making attrition a bargainable issue. Following the ruling, numerous attrition provisions were negotiated. Many of the clauses limited annual job elimination, even through attrition, to a specified percentage of the work force. The largest attrition agreement, signed in 1965 between five non-operating employee unions and a number of railways, covered nearly 300,000 employees. Reduction in force through attrition is limited to 6 percent of the total number of jobs each year, although layoffs are permitted in significant business declines.

When technological changes threaten to eliminate an occupation entirely, as with the railroad firemen, agreement is more difficult to achieve. In 1963, Congress established a Railroad Arbitration Board in an attempt to settle a 4-year work rules dispute between operating unions and three railway conferences. The Board ruled that most firemen and helpers were not needed for freight and yard service, and that only 10 percent of such jobs need be retained. Employees with 10 years' service, however, were to be given job protection for life,

and reductions were to be effected only through attrition. Employees who had less seniority were protected for up to 5 years or provided with severance pay.

The companies, although not fully satisfied, accepted the Board's award, but the unions did not, claiming the firemen positions were needed as a safety factor. Following expiration of the award after 2 years, the controversy continued.

Although reduction-in-force by attrition is an effective method for coping with a surplus labor problem, it is held to be less efficient than involuntary layoffs and terminations, and has met with little acceptance in other industries. The wider use of the attrition principle in the railroad industry is a consequence of the industry's values and traditions, its older work force, and its relatively generous retirement and early retirement benefits.

Aid to railroad workers under AMTRAK

The attrition principle has recently been extended by the Railroad Passenger Service Act of 1970 to cover railroad workers affected by the discontinuance of passenger service. Because of specific provisions relating to the Federal Government's role in protecting workers, this program is treated in detail separately from the programs described in the previous section.

The act was adopted to relieve railroads of the financial burden of running unprofitable passenger trains. It established a national railroad passenger corporation (AMTRAK) to take over passenger train service with train operators acting as contractors to provide passenger service between a limited number of cities. As part of agreements with railroads belonging to AMTRAK, the act requires employee protective arrangements which must be certified by the Secretary of Labor as "fair and equitable."

The plan for employee protection proposed by AMTRAK was approved by the Secretary on May 1, 1971, when AMTRAK began operation of the Nation's intercity passenger trains. The plan requires railroads to provide full wages and benefits for up to 6 years on a monthly basis to workers displaced by AMTRAK's planned cut of 114 of the 300 passenger trains. Estimates of the number affected ranged from 12,000 to 25,000. Any income a worker earned from other jobs would be subtracted from these payments. He would be covered for up to 6 years and would qualify for any pay increases during the "protective" period, while still eligible to be recalled to work. The worker also would have the option of receiving lump sums of up to 1 year's salary, instead of the monthly payments.

In addition, railroads are required to pay moving expenses and to reimburse a worker for any loss

occasioned by the sale of his home so that he might move to accept railroad employment elsewhere. Also, on request, any dismissed employee would be given training leading to reemployment, as well as priority for employment or reemployment in the railroad industry.

AMTRAK submitted its plan after the carriers and the rail unions failed to negotiate a mutually acceptable job protection plan. Under the law, the Secretary of Labor has the ultimate responsibility for protecting employees "against a worsening of their positions with respect to their employment."

Although the Association of American Railroads accepted the job protection plan, the Congress of Railway Unions, an association of railroad union presidents, termed the layoff protection plan "completely deficient." The unions preferred "full attrition" which would require that no employee could be dismissed except for cause and that only the normal process of death, retirement, and outmigration would be utilized in reducing the excess work force. The railroads argued for protection for 4 years from the date of discontinuance of rail passenger service, the minimum duration acceptable under the act. The protection, however, was extended by the Secretary to a period of 6 years from the date the employee is dismissed or displaced, rather than for merely the 4 years from the date of service discontinuance. In the Secretary's judgment, a "fair and equitable" standard required "greater time protection in order to more reasonably insure that dislocated employees might be afforded a more reasonable opportunity for railroad employment or reemployment before their period of protection had run its course." The railroad unions are seeking "full attrition" and are contesting the decision in the Federal courts.

Interplant transfer arrangements in the Ford-UAW agreement

In recent years, major firms in the automobile industry, including Ford, have decentralized in response to technological change. Older plants have been replaced by new ones located in other areas. In addition, specific operations have been transferred from one plant to another.

These changes inevitably have resulted in job insecurity among workers and the resolution of these problems has become a matter for collective bargaining. The response of the United Automobile Workers (UAW), Ind., and Ford and other automobile companies, was to negotiate a program of protection including interplant transfer arrangements. The agreements provide interplant transfers in several instances. First, there may be voluntary transfers of seniority employees (that is,

workers who have completed a 3-month probationary period within 1 year following the date hired) between plants with the signed consent of the employee and his committeeman. Employees transferred on this basis are considered seniority employees of the new plant as of the date of transfer, and if affected by a reduction-in-force in the new plant, they will be laid off or returned to their original plant, according to their choice.

Second, in the event of a transfer of an operation from one plant to another, workers with 1 year or more of seniority are allowed to follow their work and retain their seniority rights. This provision does not apply to partial transfers of operations incident to adjustments in production schedules or changes in products, but to the complete or partial transfer of an operation to a new plant from an old plant which may be closed or continued on a reduced employment basis.

Third, employees laid off because of permanent discontinuance of a group, unit, or plant are granted preferential hiring consideration at other company plants. Fourth, any employee who has exhausted his seniority rights within his seniority unit would be eligible to receive an offer of any available work in any plant in the same labor market area, and may even displace probationary employees at these plants, if there are no open jobs available. There is no statement regarding the seniority status of the employee once he moves. Conceivably, he retains seniority for benefit purposes (that is, vacations, etc.), but loses it for competitive purposes (that is, promotions, assignments, etc.). Fifth, when the cause of layoff is discontinuance or partial discontinuance of a classification or of a seniority unit or of an operation with a seniority unit, then the offer of available work or the right to displace probationary employees applies to any plant under the agreement without regard to area.

Interplant transfer rights, as in the second case were exercised in February 1971, when Ford closed an assembly plant at Dallas, Tex., that employed 1,600 to 1,700 workers. The plant was old, and management had the alternatives either to modernize or close the plant. The decision to close came in January 1971.

Of the 1,600 to 1,700 workers involved, nearly 800 initially moved to plants in Kansas City, Chicago, and Louisville. Many chose to return to Dallas within a short time, however, and take severance pay benefits, leaving, as of April 1971, 400-500 permanent transfers.

The union views negotiated interplant transfer provisions as essential to worker security, although it realizes that such arrangements may encounter many practical problems. Although other benefits of the negotiated job security program, such as early retirement

and SUB payments also are important, transfer provisions can be of considerable help, as in the Dallas plant closing. Employment was available for every Dallas worker who wished to transfer, although some workers took lesser paying jobs in order to move to the plant of their choice.

Relocation allowances in autos and steel industries

Relocation allowances are an important part of the protection offered to employees subject to technological displacement, since their adequacy often will determine whether an employee will accept or reject an offered interplant transfer. Even when jobs are available in other plants, displaced workers may find it difficult or even impossible to pay the cost of moving. The problem of these expenditures is compounded by the risk that the worker may not like the new job or that he and his family may not like the new location. Under such circumstances, conceivably he could be forced to assume the additional cost of a return move. The worker also may be unwilling to chance substantial loss in the sale of his home.

By availing themselves of moving allowances, workers at least in part are compensated for some of the costs of relocating. At present, relocation allowance provisions are most prevalent in the primary metal and automobile industries, where displacement and permanent layoff due to plant closings and relocations have been important since World War II, and in the transportation (primarily trucking), utility, and communication industries where the nature of business operations, or changes in the demand for services, make frequent transfers of personnel necessary. Although these five industries accounted for less than one-half the major agreements having interplant transfer provisions, and slightly less than seven-tenths of the workers so covered, they accounted for more than three-fourths of all relocation allowance clauses, and nearly nine-tenths of the protected workers.

The Ford Motor Co.-United Automobile Workers contract is among those agreements which provide relocation benefits for displaced workers. As in most agreements, the amount depends on the distance of the move and the marital status of the employee. Lump-sum allowances for single employees range from \$220 when the new location is 50 to 99 miles away, to \$475 when the plant is 1,000 miles or more distant. For married employees, the amounts range from \$570 to \$1,020. Other agreements provide for payments more closely related to actual expenses incurred. The Ford agreement, however, goes further than most in that it allows workers to return to the city from which they transferred if they dislike the new location or the new job. In

this respect, the Ford-UAW clause is similar to the provision found in the Armour Co.-Amalgamated Meat Cutters contract. The Ford provision requires a minimum of 1 year of seniority if the worker has been laid off as a result of a discontinuance of operations, but no minimum seniority in a transfer of operations.

Few provisions protect the worker from the risk of loss in the sale of his home. When U.S. Steel closed an obsolete plant at Donora, Pa., in 1962, however, it offered to purchase the homes of employees who transferred to jobs at other company facilities, primarily the Joliet, Ill. plant. Although most of the 5,000 displaced workers chose not to accept transfer and accepted instead severance pay, SUB payments, or early retirement, several hundred did transfer and took advantage of negotiated relocation allowances. Of these, a few accepted the company's offer to purchase their homes for the current appraised value, less 4 percent for appraisal and real estate fees. The contract between Western Electric Co. and the Communications Workers of America contains a similar provision.

Early retirement plans

Plans containing early retirement provisions covered about nine-tenths of all active workers who participated in private pension plans in 1969, the latest period for which data are available, compared with about three-fourths during the early 1960's. The prevalence of early retirement provisions in multiemployer plans and in noncontributory plans increased at a faster pace over the period than in either single employer or contributory plans, but the prevalence of early retirement provisions is still greatest in single employer plans. A worker must meet an age requirement, a service requirement, or both to retire under an early retirement provision. In addition, under many plans, early retirement depends on the employer's approval. The most frequent service requirement for early retirement is 10 years; 15 years is almost as common. Two-thirds of all workers covered by plans with early retirement could qualify with 15 or fewer years of service, and almost three-fourths of these after 10 years of service.

In some cases, the worker can be retired involuntarily before reaching the normal retirement age provided under the plan. Plans with such special early retirement clauses typically also have regular early retirement provisions.

Special early retirement provisions are found in plans covering about 17 percent of the workers, and are concentrated in single-employer noncontributory plans in the manufacturing industries. They are most common in plans negotiated by the Auto Workers, Steelworkers, and Meat Cutters unions. Under these plans an employee

may be retired early at the employer's request or under "mutually satisfactory conditions." In other plans, workers whose employment is terminated because of the closing of a department or plant or who have been on long layoff may be eligible for special early retirement.

The minimum age and service requirements most frequently specified are age 55 and 10, 15, or 20 years of service. In the primary and fabricated metals industries most plans provide special early retirement if the combination of age (55 or older) plus service equals 70, or if age (under 55) plus service equals 80.

The problems created because of changes in a firm's economic situation or because of the introduction of new technology permitting sustained or higher levels of total output with fewer workers have been resolved in many ways. Typically, the work force is reduced by laying off workers with least seniority and retaining those with the greatest seniority. In other cases, however, those with high seniority, chiefly older workers, are encouraged to retire early, thus permitting the firm to retain its younger employees. The encouragement typically used to enhance early retirement includes benefits larger than regular early retirement benefits, such as special early retirement benefits, cash bonuses to those electing early retirement, and other sweeteners to the early retirement benefit. These extra benefits often are made available only to those choosing to retire during a specified period.

Supplementary benefits to early retirees for example, were used widely during the 1950's and 1960's in the petroleum industry. Many firms in this industry had large numbers of excess workers because of technological change. The early retirement program inducements used by these firms (Humble, Shell, Sinclair, Ethyl, Phillips, and Gulf, among others) substantially reduced—and in some cases eliminated—the need to lay off workers. Similar techniques have been utilized also on other industries. Kaiser Aluminum and Dow Chemical, for example, have encouraged older workers to elect early retirement by substantially raising benefits payable to those who retired during the period the firm was trying to reduce employment.

The guaranteed annual wage in New York longshoring

Although labor relations between the New York Shipping Association and the International Longshoremen's Association (AFL-CIO) have never been characterized as "peaceful," the parties have been able to negotiate a historic agreement which provided for a guaranteed annual wage and greater flexibility in manpower utilization. The agreement evolved over many years.

The New York waterfront typically has had a surplus of labor (nearly 40,000 men competing for about 17,000 jobs) which, in turn, has spawned kickbacks, favoritism, loansharking, and many other unethical practices. Following investigation by the New York State Crime Commission, a Bi-State Waterfront Commission of New York Harbor was set up in 1953 to "clean up" the port by (a) registering and licensing the entire labor force, including hiring agents, (b) eliminating the shape-up methods of hiring and replacing it with hiring centers, and (c) decasualizing (removing from the register and thus from waterfront employment) those with a marginal attachment to the industry. Despite steady criticism by the union and shippers, the Waterfront Commission has managed to survive and was a major factor in achieving some stability in the port by 1960. Its continued presence had a bearing on the bargaining situation in the 1960's.

The events leading to the guaranteed annual wage originated in a prolonged stoppage in 1962-63, finally settled by a Board of Mediation chaired by Senator Wayne Morse. According to the "Morse Award," the Department of Labor was requested to conduct an extensive study of "manpower utilization, job security and all other related issues which affect the longshore industry." The results of in-depth surveys in New York (as well as in other Atlantic and Gulf ports), were released in joint meetings with the parties during 1964. Management's key demand—greater flexibility in manpower utilization—was clearly interlocked with union demands for job security, since the former, if rapidly and extensively implemented, could result in considerable loss of jobs for longshoremen. Yet a maze of restrictive work rules had grown up during periods of unemployment and had become entrenched under a "customs and practices" clause in the agreement.

As provided by the Morse Award, the Department of Labor made the following major recommendations to the parties:

1. Management should have the right to reduce the number of men in each gang from 20 to 17.
2. In addition, it should be permitted to exercise greater flexibility in the assignment of men and the use of equipment, particularly in transfers from gang to gang, between hatches and between ships.
3. An end to so-called "frozen details," that is, fixed assignments and refusals to do other work (for example, automobile checkers refusing to check in or out other cargoes).
4. In return, the workers were to receive an income guarantee of "no less than 75 percent of [a worker's] average annual gross earnings including vacation and holiday pay in the contract years 1963-64 and 1964-65."

The parties negotiated on the basis of these recommendations during the summer and fall of 1964, but

were unable to reach a settlement until February 1965 after the Taft-Hartley emergency procedures were invoked. As provided in a 4-year agreement, the union agreed to reduce the minimum gang size from 20 to 18 on April 1, 1966, and to 17 men on October 1, 1967, and further to eliminate "frozen details." In return, the union obtained, in addition to liberalized pension benefits, and hourly rate increases, unprecedented guarantee of annual income of 1,600 hours of straight-time rates for every longshoreman who worked at least 700 hours during the year April 1, 1965 to March 31, 1966. Finally, and this was seen as an important innovation, the contract also provided for a "Human Relations and Implementation Committee" to address itself to such issues as:

1. A review of existing seniority arrangements so as to increase labor mobility.
2. A system of penalties and other methods of dealing with absenteeism and tardiness.
3. The establishment of a variety of specific standards necessary to implement the GAW.

Not all issues agreed to by the parties were implemented peacefully. In some areas of the port, manpower changes were, at times accompanied by wildcat strikes. Nevertheless, the contract provisions are now a fact of life on the New York waterfront.

Following the agreement, a computer hiring system was instituted by the parties and the Waterfront Commission that permits accurate recordkeeping to determine credits and debits for purposes of the guarantee. It also has made possible better information on work in other sections of the port, thus enhancing labor mobility.

Despite hopes for a new era in labor relations following the 1964 agreement, negotiations in 1968 again broke down and a strike occurred, primarily over the issue of containerization. Nevertheless, the guaranteed annual wage was firmly established; effective April 1, 1969, the number of hours guaranteed was increased to 2,080 per worker. Also, the agreement provided improved pension benefits of \$300 a month, early retirement if the employee chooses to do so within one of two option periods at \$250 a month at age 55 if he had 20 years of service, with the amount to be increased to \$300 at age 62.

Despite much improvement on the New York docks, many problems remain, particularly the need for a revised and truly port-wide seniority system to replace the sectional priority system now in operation and an effective program to control absenteeism.

Progress typically has been with the help of outsiders—the Waterfront Commission, Taft-Hartley and other Boards, arbitrators, etc. Whether the parties can come to

terms peacefully on their own will be tested on October 1, 1971, when the current contract expires.

Armour and Co. plant closings and the automation fund committee

As a result of changes in methods of production, processing, marketing, and distribution, Armour and Co. closed nine of its plants in the late 1950's and was planning to close six more. During this period, small producers located in rural areas, who were paying nonunion wages and using up to date production, with transportation and marketing methods were making noticeable inroads into the market. Large producers reacted by closing plants in large urban areas and opening smaller, highly automated plants in rural communities.

Recognition by union and Armour and Co. officials of the effect of these changes on workers led to an agreement, in 1959, to seek means to assist displaced employees. A nine-member automation fund committee was established: four from the company, two each from the Amalgamated Meat Cutters and Butcher Workmen and the United Packinghouse, Food and Allied Workers, and a neutral chairman. Broad powers to consider any programs to aid workers affected by the plant closings were granted. The committee's only specific responsibilities were to initiate and administer training and interplant transfer programs. This was financed by a \$500,000 company fund.

The committee decided early on a flexible policy since it faced the difficult task of finding jobs for disadvantaged workers in labor markets with high unemployment rates. The displaced work force was characterized by a low education level, advanced age, and a long attachment to a particular industry and plant. Few of the skills involved in meatpacking were transferable to other industries. The 10 percent of the work force that did possess identifiable skills was employed largely in maintenance. Minority group members varied from 5 percent at Sioux City to 75 percent of the company's work force at Kansas City. Women were 12 to 15 percent of the work force and generally had a higher average age than men.

The majority of the plant closings involved displacing all the employees at the same time, thereby eliminating standard methods of easing the effects of change, such as attrition. Therefore, large numbers of workers with similar characteristics were seeking work at the same time in a specific labor market. Because of the large number involved, it was not possible to deal with all older, high-seniority employees on a corporationwide basis, to avoid displacement. An alternative approach,

more feasible under the circumstances, was to increase the employability of the displaced workers through retraining and an active campaign to find new job opportunities. For each plant closing, the committee developed programs based largely on labor market opportunities, the characteristics of the displaced workers, and the experience gained from previous closings.

Pre-shutdown planning, facilitated by a 90-day advance notice of closing negotiated in the 1961 agreement, and extended to 6 months in the 1967 agreement, proved to be important to the success of the adjustment program. It provided time to adjust for both the workers who are to be terminated and for those administering the assistance programs. Adequate lead time permitted the manpower agencies to assess the skills and desires of the workers and the community opportunities. Time also is provided to establish private and Federal education programs and to arrange early termination to accept alternative employment or to enter training programs.

Starting in 1960, the committee became the focal point of efforts to facilitate the adjustment process in the city in which a major plant closure was scheduled. Transfers of workers from plants being closed to other company facilities were not successful when first tried in 1961. Of the 800 Fort Worth employees eligible for transfer, only three transferred permanently when the plant closed in 1962. A major factor limiting the number of transfers, in this and other cases, were large lump-sum separation payments to workers who did not transfer. These payments ranged from an average of \$2,840 at Fort Worth to \$1,800 at Omaha; the overall average was \$2,000 for employees accepting these payments. Separation pay—accepted by more than two-thirds of all displaced workers—was offered to workers with 1 year or more of seniority who did not transfer or were not eligible for, or chose not to accept, a pension.

Another important hindrance to transfer was the reluctance of people to sever their community ties and relocate somewhere else. This was particularly true for members of racial minorities who faced moves to all-white rural areas.

Following the Fort Worth experience, "flowback rights" were introduced which allowed workers to reconsider and take separation pay and moving expenses to their former location, if they so desired after a few months of employment at the new plant. With this arrangement, the transfer plan was more successful in the 1963 Sioux City closing. In Sioux City, 183 of the approximately 1,040 eligible employees made permanent transfers. After the closure of the Kansas City plant in 1964, 229 of the 1,616 potential transferees

exercised this option; 182 of them remained at the new location. In Omaha, following the 1968 shutdown, 215 permanent transfers out of 1,230 eligible employees occurred.

The Omaha shutdown saw the increased use of a special monthly retirement payment, 50 percent larger than the normal amount, to employees 55-62 years of age having 20 years or more of service. At the time of the Omaha closing, the minimum payment under this plan was \$150 a month.

The committee's activities and wide array of measures significantly reduced the hardships caused by the closings. Workers with marketable skills were helped immediately by a good placement program, others with limited opportunities were retrained or given early retirement benefits, and the transfer option was available for those who wished to stay with the company. In the Omaha shutdown, where 1,600 workers were displaced, approximately 500 workers accepted interplant transfers or pensions, and another 500 made the transition into

the local labor market without filing for unemployment compensation benefits.

Despite these efforts, many displaced workers did not find new employment or accepted employment at wages below those received in the meatpacking industry. This inability to maintain the income of displaced workers is attributable largely to factors beyond the control of the fund.

Recognizing that only a small proportion of the affected workers had been protected, the union is seeking an end to plant closures. It urges a change in government tax policies which tend to encourage companies to close older plants and open smaller automated ones. The union has supported the committee's efforts, and endorses the advance notice and severance pay provisions as helpful, if not always adequate. It believes that the transfer plan has worked "fairly well" and could be improved by liberalizing the seniority rights offered to transferees.

Chapter V. Manpower Planning

Manpower planning, involving projections of labor requirements and supply, is being increasingly used as a tool to improve the development and efficient utilization of the labor force. BLS manpower projections provide educators, manpower agencies, and officials with a framework for policy development at the national and local levels. The use of manpower forecasts at the plant and company levels for recruitment and training also is becoming more widespread. A few companies use manpower projections to facilitate adjustment to technological change. Projections at the plant level provide a basis for the use of attrition as a measure of avoiding layoffs of workers when laborsaving changes are planned. In this way, manpower planning helps to foster a climate favorable to change and productivity improvement.

The following two examples illustrate the use of manpower planning at the plant level to adjust to productivity change. Although many of the adjustment methods described in the previous section are applied here, the systematic approach to handling manpower changes is unique. One study describes the practices used in the telephone industry to coordinate technical and manpower changes. Also, the long range manpower projections of the industry, sponsored by the Communications Workers of America, is illustrative of its use in planning union policies on automation. The second study reviews the experience of the Internal Revenue Service in planning large scale manpower adjustments to automation without layoffs. Both studies highlight the importance of advance notice and communication, and of planning a variety of adjustment measures to meet the needs of different groups of workers.

Manpower planning in the telephone industry

The conversion of the telephone system to long distance direct dialing drastically reduced requirements for telephone operators in local offices throughout the country. The Bell System therefore has formulated procedures for anticipating the manpower effects of these changeovers and for avoiding, as far as possible, lay off of operators whose jobs have been eliminated. This type of manpower planning has contributed to a general acceptance of changes to improve productivity.

Attrition, advance notice, and transfer—the same steps as those used in the earlier changeover to local dialing—are featured. Collective bargaining, however, has modified seniority and related practices. Also, the Communications Workers of America, itself, sponsored a study in 1965 by a leading management consultant of the long range effects of automation as a basis for planning its collective bargaining policies.

The Bell System's general program for coordinating technical and manpower changes has three objectives: Retain as many permanent employees as possible; provide suitable transfer to other offices; avoid downgrading employees; and avoid a surplus work force. In practice, local management must adapt the general policy guidelines to fit local circumstances.

A BLS study of changes at four offices found that notice of the planned changes was given to the union and employees many months before the change was scheduled. Collective bargaining contracts provided for early notice and negotiation of force reduction moves. Also, employees were interviewed to inform them of displacement possibilities and transfer and training opportunities. These practices were particularly helpful to older employees by allowing them time for adjustment to change.

The use of attrition was planned carefully. As early as 2 years before changeover, each office estimated the number of operators who would be needed after dialization and the number who would have to be transferred to other local or nearby offices or retire. To reach the lower employment level as much as possible through attrition, hiring permanent employees was stopped as early as 1-year before conversion. As losses from quits and retirements reduced the regular work force, temporary employees were hired, over time was scheduled, and vacations, retirements, and leaves of absence were postponed until after the changeover. When the change was made, the number of regular employees who had to be transferred or laid off was minimized.

Despite efforts to retain all employees and a relatively high rate of voluntary turnover among women workers, displacement of a few employees was unavoidable. Transfers to other offices were offered to all regular employees. But for a few women who could not relocate

because of family responsibilities, the only other option was lay off with severance pay. These women, however, were given preference in rehiring.

Manpower planning in the Internal Revenue Service

Manpower planning by the Internal Revenue Service has been a key factor in the conversion over a 9-year period to a nationwide computer system, accompanied by a minimum of hardships on employees. Ten percent more tax returns can be handled and checking tax documents can be done more completely. An estimated 15,000 additional positions would be required to do manually the work now being accomplished by the computer system. The jobs of nearly 11,000 district office employees were eliminated or shifted to seven new regional service centers, the number of involuntary transfers or separations was minimal.

IRS managers began planning the manpower and technical phase well in advance of the change. A full time high-level planning committee was set up at IRS national headquarters. The IRS announced early in the conversion that it would avoid layoffs and reductions in force.

Several planning steps were taken during the conversion to carry out this job security policy. First, the post conversion employment level and occupational structure were projected to obtain an early estimate of the magnitude of the effect on employees. Such

information was essential for planning resources for training and other adjustments. Throughout the conversion, IRS officials kept employees informed and maintained communication with union representatives.

The emphasis was on encouraging employees whose jobs were to be eliminated to transfer to other work in district offices or to new regional service centers. Those who chose to transfer were provided liberalized travel and moving expenses and house selling expenses, and were given an opportunity to visit the new location to look for housing. IRS manpower experts also made an inventory of each employee's skills and tried to match their characteristics with the requirements of job openings. A full-time staff provided instruction for a wide range of occupations to prepare employees for the new positions.

Considerable attention was given to the problems of individual employees. The Civil Service Commission granted special authority during the changeover to relax qualification standards for some positions and to extend the time period for temporary appointments. This flexibility greatly assisted manpower specialists in making placements.

Further automation, such as elimination of keypunching, is expected to have a significant effect on IRS productivity. The experience with the computer conversion is being used to deal with the personnel problems of clerical employees whose jobs will be eliminated.

Chapter VI. Plantwide Productivity Incentive Plans

The search for a system of wage payment at the plant level most conducive to productivity improvement is going on constantly. About 30 percent of all production and maintenance workers in manufacturing are covered by some form of individual or small group incentive plan relating pay to results. This proportion has remained fairly stable in recent years. Output incentives tend to be used in highly competitive industries, such as apparel, where labor costs are high, technology is less advanced, and production bottlenecks are likely to occur. They are also widely used in the steel industry. With the trend away from man paced toward machine tending and service jobs, the applicability of individual output incentives is being questioned. Accordingly, interest is growing in incentive plans that are based on total plant performance.

The following examples deal with three different approaches to plantwide incentive plans for greater productivity. The first covers the experience of a textile company that has operated a profit sharing plan under a collective bargaining agreement for the past 30 years. The second reviews the Scanlon plan type of plant incentive program, which also involves joint committees to enlist employee cooperation in a search for productivity improvements. The third example describes the experience at the Kaiser Steel Company in revising its incentive plan to promote greater productivity.

A profit sharing plan in textiles

The American Velvet Co., the last major velvet producer in New England, has operated a profit sharing plan for over 30 years. The company employs about 500 workers and has an agreement with the Textile Workers of America (AFL-CIO). The company's record was 1 of the 12 cases studied by the National Planning Association in its 1956 report, *Causes of Industrial Peace*.

The profit sharing plan was instituted by the company after a long strike in 1939, when the company increased each weaver's task from two looms to four. In 1956, after more than 15 years of bonus payments under profit sharing, the weaver's load was increased by mutual agreement from four looms to six; in 1963, the load went from six to eight. Although the workload has been extended, the new looms that have been introduced in

the textile industry in the past two decades have generally been more automatic, requiring less human attention and physical effort. In each case of change at American Velvet, union opposition was brief and directed primarily at securing technical improvements to facilitate the change.

Briefly, the profit sharing plan provides that about 30 percent of net profits (before taxes) be paid into a fund from which an annual bonus is distributed to all employees who have worked at least 160 hours and had not quit or been discharged for cause. The funds are distributed proportionately on the basis of each employee's earnings during the year. The plan is included as part of the collective bargaining agreement.

The results of the plan, according to a 1968 appraisal by Professors Herbert R. Northup and Harvey A. Young, "continue to be remarkable. Profits have been made each year since 1939 and thus bonuses (or 'earnings') have always been paid on a steady basis." No strike or unauthorized walkout has occurred since 1939 and no grievance has gone to arbitration.

Company officials attribute their success in the face of Southern, low wage competition, to "tight" management, the high level of employee effort, and the workers' cooperative attitude. The possibility that the plant would be relocated if unprofitable has been, in the opinion of Professors Northup and Young, a powerful incentive to productivity improvement.

An important key to cooperative labor relations at American Velvet has been the effective way the firm has communicated its plans and prospects to its employees. Management introduced changes only after taking care to win local union officers over to them. Professors Northup and Young note: "... once the union is made aware of the competitive needs for the new policy it communicates this need to the work force and helps the company install the changes."

The Scanlon Plan

The Scanlon Plan is a special type of plant incentive system that features cooperative relations between union and management and employee participation in solving problems of efficiency. Gains in the company's productivity are shared by management and workers

according to a formal plan. Joe Scanlon, an official of the Steelworkers Union who developed this approach to greater productivity in the 1930's, rejected individual incentive systems on the grounds that they fostered secrecy and internal competition and resulted in below optimum plant efficiency.

Two of Scanlon's associates estimate that 120-130 companies were using the plan in 1968 and 300-500 others were using some version of the Scanlon plan. In contrast to earlier years, large as well as small companies are represented and participants are generally prosperous.

The principal impetus for increased productivity comes from employees' ideas on production problems. These suggestions are examined by joint committees of union and management representatives, first at the department in "production committees" and later at the company level in a "screening committee." Management retains the right to reject or accept the suggestion. Also, some Scanlon committees discuss company goals, analyze cost factors, and review problems of the market.

Incentive payments to workers are based on the measured productivity of the plant as a whole. The amount is determined by comparing the ratio of total payroll to sales value of production in a current month with the ratio in a base period. A reduction in the ratio provides a pool for paying monthly bonuses. Part of this pool is set aside in a reserve for paying bonuses in deficit months. The rest is divided: 25 percent is the company's share and 75 percent is paid out to employees as that month's performance bonus.

A 1970 case study of the Parker Pen Co. which contracts with the Rubber Workers and the Machinists, reported that bonuses have been paid for 142 out of 168 months. The highest yearly average has been 20 percent; the lowest 5 ½ percent. Management believes the greatest benefit has been a willingness by workers to accept change and increased worker efficiency.

In their 1960 assessment of Scanlon Plans, Professor Slichter and his associates found several administrative problems, but concluded that the plans have produced many useful results such as a large number of labor-saving suggestions; willingness of workers to accept technological change; a better pace of work; greater interest in the quality of workmanship; and greater cooperativeness among workers.

The Kaiser-Steelworkers Long-Range Sharing Plan

The Kaiser-Steelworkers Long Range Sharing Plan, first established in March 1963, developed out of complex problems that had been present since the company's Fontana plant opened in 1943. These

problems became critical during the late 1950's, due to an unsatisfactory profit position. One source of trouble was the incentive program, which resulted in earnings for some relatively unskilled incentive workers that were far above those of skilled nonincentive workers. These disparities caused morale problems, high labor turnover, and many grievances and wildcat strikes. Since only 40 percent of the work force was on incentives, compared with an average 75 percent for the basic steel industry, further extensions of this unsatisfactory system seemed imminent. Kaiser also was faced with the necessity for reducing costs to meet the industry's growing problem of competition from foreign producers and substitute metals. Modernization in turn, reduced manpower requirements and caused union and employee concern over job security.

During the long 1959 industry strike, Kaiser and the union concluded that there must be a "better way" than strikes to settle their labor problems. Consequently, Kaiser broke with the other steel companies and signed a separate agreement which, among other provisions, established a 9-man tripartite committee to formulate a long-range plan for sharing in the company's future progress, encouraging needed company expansion, and protecting employee job security and income.

After more than 2 years of study and discussion, the committee presented a plan that provided employees displaced by technological improvements with a virtual guarantee of continued employment through placement in other jobs or in "Employment Reserve," and maintenance of previous levels of earnings. Overall reductions in the work force were to be accomplished through attrition. A new group incentive system provided that participating employees would receive 32.5 percent of any reductions in the per-unit cost of steel production, including reductions in material and supply costs. The 32.5 percent figure was derived from the average proportion labor costs bore to total steel production costs over a 10-year period. Allowance was made for cost-of-living and material price increases. Part of the fund was to be paid as a monthly bonus and the remainder placed in reserve to match wage and benefit gains negotiated by other producers. Should the reserve prove inadequate, Kaiser Steel was obligated to make up the difference.

In return Kaiser management was to gain greater flexibility in introducing new cost saving machinery and methods, and to be able to phase out gradually the incentive system. No new individual incentives were to be created, but employees already on incentives were not required to participate in the sharing feature of the plan. A lump sum bonus equal to 2 years' incentive payments (to be repaid from employee bonuses) was

made available for workers electing to abandon incentives. For those electing to remain on incentives, the maximum incentive yield was set at 135 percent of the base rate, but differential payments protected the earnings of employees whose incentive levels had been higher. Although work rules provisions in the collective bargaining agreements were not eliminated, management did not anticipate any serious problems in modernizing its facilities. The plan, to run for 4 years, with annual tripartite committee reviews, was approved by an employee vote of nearly 3 to 1 and placed in operation on March 1, 1963.

Initial results under the plan were gratifying. Unit costs declined substantially, and during the first year participating employees received cash distributions averaging about 18 percent of the standard hourly wage rates, including sums placed in the reserve fund. Almost 30 percent of the incentive workers elected to transfer to the plan, raising plan coverage from 4,000 workers in March 1963, to over 5,000 at year's end. Most participating workers, having a direct stake in lowering unit costs, cooperated with management in effecting changes and discouraging waste; many changes, in fact, were suggested by hourly and clerical employees. Kaiser, with a \$5.2 million loss in 1962, recorded a 1963 profit of \$11.3 million. Wildcat walkouts and grievances declined.

Despite some modification of the plan, enthusiasm cooled during the 1964-67 period as monthly bonuses declined to lows of 5.28 percent of standard hourly rates in 1965, and 6.56 in 1967. In part, this drop was traceable to the departure of senior workers on the initial rounds of the then newly effective extended vacation program. In part, too, subsequent industrywide basic steel wage and benefit settlements required Kaiser to place larger proportions of the employees' share of cost-reduction savings in the reserve account.

As the bonuses declined, many workers who had relinquished incentive earnings voluntarily and recently hired workers, found themselves working side by side with higher paid workers who had elected to remain on incentives. Grievances multiplied, and the company was obligated to return a substantial number of workers to a modified individual incentive system.

In 1967, to counter dissatisfaction with the plan the Committee proposed major revisions, and the employees

voted, by nearly a 2-1 margin, to continue it until February 1972. The revised plan discontinued the reserve fund thereby making available the entire share in unit cost savings, with minor exceptions, to the employees. Kaiser Steel currently assumes the total obligation to match industry gains, and charges the added expense as a labor cost. Another revision permitted former incentive crews participating in the plan to transfer, for a limited period during July 1968, to a modified individual incentive program. This feature was designed to eliminate the discontent created by incentive and cost-savings plan employees working together while receiving different amounts in earnings.

Hourly bonuses at first increased as expected, to 15.27 percent of standard hourly earnings in 1968, and to a high of 18.42 percent in 1969, thereby minimizing the number of workers choosing to return to individual incentives. In 1970, low profit margins, rapidly rising costs, and decreased volume reduced amounts available for monthly bonuses, which declined to 12.31 percent of the standard hourly wage rates in 1970. Although no payment was generated in February 1971, a moderate recovery is expected for the remainder of the year.

Despite its initial success, the LRS Plan has failed in 8 years of operation, to supplant the older incentive systems. The proportion of workers participating in the plan gradually has declined from a high of nearly 73 percent in 1965 to a little over 57 percent in 1970. One factor working to the plan's disadvantage is the more direct relation between effort and increased earnings under the older incentive programs. When cost-savings plan bonuses deadline, despite employee effort, participants tend to regard this as a pay cut and pressure for return to incentives increase.

Although there have been problems, it should be noted that earnings of Kaiser employees over the period generally have exceeded the steel industry average, and through most of the period the company has prospered. Crisis bargaining has been avoided. The employment reserve and displacement differential features of the plan have lessened resistance to modernization, particularly among clerical and technical workers, at very modest cost to the company. Management has achieved some success in reducing crews on existing equipment. Despite qualified success, the plan has not been adopted by other major steel companies; only one other smaller concern—Alan Wood—has established a similar plan.

Chapter VII. Formal Union-Management Cooperative Programs

Although unions and management do not frequently make formal cooperative arrangements to improve productivity directly, many collective bargaining agreements contain pledges by unions to assist in achieving greater efficiency, eliminating accidents and waste, maintaining quality, etc. Very few, however, establish machinery to enlist the active cooperation of unions and their members in these production problems. Only during World War II were joint committees set up on a wide scale to speed defense production. This is not to say that union and management officials do not sit together informally at the plant level to solve production problems that arise in daily operations. The formal committee type of cooperation, however, focuses continuous attention on productivity problems and affords workers some opportunity to participate in decisionmaking.

The following examples describe three different formal union-management cooperative programs at the plant level. The first deals with the joint efforts at Tennessee Valley Authority to make use of the knowledge and skill of its employees to solve work problems and improve efficiency. The second example features the extensive system of joint committees in the Pacific Coast pulp and paper industry to improve job safety. The unique approach taken by the needle trade unions and employers is outlined in the third example.

Union-management cooperation at the TVA

Formal cooperation between unions and management to improve productivity at the Tennessee Valley Authority was developed early by local craft union leaders who sought to win status for their organization in a public agency. Provision for union-management cooperation is written into agreements with the 16 unions representing construction, operating, and maintenance men and the 5 unions representing white-collar workers. TVA employs about 19,500 persons.

The agreements spell out several areas of mutual interest that bear directly on productivity improvement: conserving manpower, materials, and supplies; improving quality of workmanship and services; and eliminating waste. Other objectives such as strengthening morale, improving communications between employees and

management, promoting education and training, etc., indirectly improve efficiency.

The key features of TVA's plan are the formal cooperative committees to encourage, collect, and pass on suggestions for improving operations. A central policy making committee of management and union representatives provides guidelines for the program as a whole. The 115 local cooperative committees at the plant, office, project, or department level meet monthly and act on solutions proposed by employees and supervisors. The committees do not deal with pay and other matters subject to negotiations and they do not handle grievances or jurisdictional disputes.

No cash awards are made for approved suggestions. By joint agreement, employees are recognized by publicizing their solutions to work problems throughout the TVA. In the past 4 years, over 2,500 suggestions were accepted, about 43 percent of the total submitted. The largest proportion deal with improving efficiency on the job; others concern safety and health, training, morale, the work environment, and similar matters. Suggestions result in savings ranging from an hour's labor to thousands of dollars.

TVA's cooperative, problem-solving approach is supported strongly by management and labor. Management states that the "... continuous dialogue in areas of mutual interest ... engenders positive attitudes and relationships ... (that) have a positive influence on productivity ...". Union officials recognize that beyond the bargaining process there is an area of mutual interest in TVA's efficiency. A 1965 study by the University of Michigan Institute of Social Research found that cooperative committees foster among employees a strong sense of identification with TVA's purposes and a willingness to accept job changes, which favors improvement in the organization's productivity.

Cooperative program for worker safety in the paper industry

Joint labor-management committees have been found to be useful in communicating safety know-how and developing broad participation in plant safety programs. Provision for cooperative efforts are included in many major collective bargaining agreements. A BLS study of contracts in effect in 1970 covering 5,000 workers or

more, reported that 71, covering a total of 1,226,250 workers, contained provisions for labor-management safety committees. By promoting safe performance, they contribute to increasing the efficiency of plant operations.

One of the most successful cooperative programs is one operated in paper mills belonging to the Pacific Coast Association of Pulp and Paper Manufacturers, which has over 25,000 employees. These mills have collective bargaining contracts with the Association of Western Pulp and Paper Workers (Ind.). Between 1945 and 1968, the combined injury-frequency rate of these mills fell more than 86 percent to less than half the 1968 national paper industry average of 14.0 disabling injuries per million man-hours worked. One company in the program reported a combined injury-frequency rate of only 3.51 in 1969, and another mill achieved the ultimate safety objective of a zero disability-frequency rate.

The program developed out of a union proposal for a series of educational conferences on safety. Union-management safety committees subsequently were established at each participating mill. These committees meet regularly to review reports of plant inspections and accident investigations; discuss unsafe work methods and practices, safety suggestions, and safety rules; encourage safety consciousness through bulletins, posters, and meetings; and serve as a forum for new ideas, complaints, and recommendations. Since 1965, about 8,000 employees—both labor and management—have completed a 5-hour safety course, developed with the assistance of two trained consultants. The course had first been given to over 300 management and labor discussion leaders.

The association also has sponsored a hearing conservation program. This has involved seminars with noise experts, joint educational conferences, and noise prevention devices, such as sound absorbing enclosures on machines.

To encourage interest in safety, the Association publishes monthly data on injury-frequency rates of member mills. Competition among the mills is fostered by awards presented at annual conferences, based on the lowest 5-year injury-frequency rate, the lowest frequency rate for that year, and the lowest rate in each of the three State.

Conferences are co-chaired by a labor and a management representative. By agreement, these meetings are reserved for consideration of suggestions and ideas that can be used by individual delegates to improve their plant safety programs.

Union-management cooperation in the needle trades

Union-management cooperation to improve efficiency in the needle trades has contributed to the

survival of firms threatened by low wage nonunion competition. Joint efforts have involved expert help, either from the union or from outside consultants, to reduce costs and safeguard jobs. The industry is made up of many small, owner-operated firms, operating on narrow profit margins and subject to severe fluctuations in activity, because of style and market changes. Having a broad, industry wide outlook, the International Ladies' Garment Workers' Union and the Amalgamated Clothing Workers play a dominant role in stabilizing economic conditions.

The best examples of efforts to improve efficiency come from the work of the ILGWU's Industrial Engineering Department. The major function of the Department's technicians is to help union representatives handle wage rate problems. Also, since the ability of piece work operators to earn a decent wage often depends on management's ability to schedule and allocate the work, the Department has developed a program to assist union employers, at their request, to improve their efficiency. This aid is extended principally to union firms in high cost markets facing competition from nonunion low cost producers and to newly organized firms which are not able to pay union wage increases because of substandard productivity. In these cases, the union experts may advise the employer on how to improve his plant layout, inventory and cost controls, or work scheduling so that he can pay higher piece rates without raising unit labor costs or reducing employment. The experts also may advise union members to accept certain changes in the interest of long-term job security.

Another type of joint approach is exemplified by the Industry Development Fund set up in 1966 by the ILGWU and the Knitted Outerwear Manufacturers Association of Pennsylvania. Financed by employer contributions, the Fund is used to make engineering studies of improved methods of space utilization, operations, materials handling, and quality control and to conduct training courses for upgrading workers. Recommendations for improvements by the Fund's experts are made available to all members of the Association who may or may not adopt them. The Union plays an advisory role, especially in training of operatives.

In these examples, the rank and file members of the union do not participate actively. The outside technicians do not become an integral part of the plant's organization. Nevertheless, such union-management cooperation has proven helpful in improving productivity at firms in the needle trades threatened by closing.

Chapter VIII. Job Redesign

New concepts about the relation of job design to productivity improvement have come from recent studies in the fields of engineering, psychology, and management. The traditional industrial engineering approach features job standardization, specialization, and simplification which result in mass production and productivity improvement but also much repetitive work and little job satisfaction. Human engineering, an approach that developed out of experience with military equipment, seeks to relieve physical and mental stress on the job, by giving much weight to human factors in the design of machinery. More recently, research on the nature of satisfaction in work has led to reexamination of the value of extreme job specialization and to paying greater attention to designing jobs with greater variety and responsibility and chances for achievement. Although only a few companies and unions have shown much interest in providing motivation through the work itself, the potential for higher productivity is believed to be substantial.

The following four examples illustrate the application of various approaches to job design and redesign in different industries. The first two describe applications of human engineering: one, a formal program by a large company; the other, informal uses to relieve job stress on older workers. The third example deals with job enlargement which resulted in greater productivity as well as greater job satisfaction. The fourth reviews the recent changeover from the individual to the team approach in the practice of dentistry.

Fitting jobs to men: Human engineering

Human engineering is the study of the physical and mental demands of jobs and the application of this knowledge to design jobs and machines so that the worker is not compelled to work beyond the limits of his capacities. This interdisciplinary field is also called, "ergonomics." Some large companies have set up human engineering programs to improve worker performance and safety. Unions rarely are involved in these efforts.

The human engineering approach assumes that the efficiency and reliability of machines depend not only on built-in technical features but also on the ability of the worker to control them easily. Such ability is influenced by the degree of human force and accuracy

required to operate the machines; the placement of controls and levers to regulate them; and the extent of heat, noise, and other stresses in the environment. Human engineers try to adapt machines, work places, and working conditions to the worker for maximum productivity. More and more, knowledge of human factors is considered essential in eliminating hazardous conditions in the work environment for greater occupational safety and health.

An outstanding example of this approach is the work done by the Human Factors Group at the Eastman Kodak Company. The group draws on experts in medicine, psychology, physiology, safety, and industrial engineering. It is consulted at the initial design stage of new processes and modifications of equipment.

The Group has studied a variety of tasks in the company, such as inspection requiring considerable perceptual activity; operation of complex equipment for long periods under stress of rapid decisionmaking; and production of sensitized film products demanding skilled work in low light. Also, since many jobs involve doing several tasks simultaneously, there is considerable research on ways of modifying the job as far as possible and of selecting individuals who can perform such work with a minimum of stress.

In jobs that place heavy physical loads on employees, the Human Factors Group applies new techniques of studying work physiology. The points of stress in any job on the worker's cardiovascular and respiratory systems are determined, and the duration and frequency of rest breaks and other possible improvements in the way of accomplishing the task without such effects are devised.

The location of instruments, work pieces, and controls which promotes the most comfortable work position is another subject of investigation. Careful measurements of the worker's arm reach and motions while working are made for the purpose of designing work places that minimize discomfort and stress. The efforts of the Human Factors Group are said to pay off in increased productivity as well as in reduced fatigue and injury.

Job redesign for older workers

Redesigning a job to fit a worker's abilities has been recommended by manpower experts as an effective way

of maintaining the productivity of workers whose physical capacities are diminished because of age or physical disability. Job redesign is considered more effective than reassignment or early retirement because it minimizes retraining and other difficult readjustments for older workers and allows them to utilize their skills in a familiar setting, without stress or loss of morale.

Examples of this practice were presented in a BLS report on Job Redesign for Older Workers prepared in 1966 as part of an international study conducted by the Organization for Economic Cooperation and Development (OECD). Out of 500 large industrial corporations canvassed by the BLS, only a handful reported that they had redesigned jobs specifically for older workers. Many companies, however, reported that in the normal course of mechanizing jobs to improve efficiency, fatiguing tasks often are eliminated to the benefit of both old and young workers.

Examples of job redesign for older workers were found in plants, ranging widely in size in a variety of manufacturing industries. Many of the workers affected were machine operators, some were highly skilled craftsmen and a few were laborers and porters. The typical case involved job redesign by managers on an informal basis to improve the efficiency of a specific worker or group of workers whose physical capacity was declining or who suffered an illness. Unions typically had a limited role in these situations. In several cases a substantial rise in output per man-hour was recorded. In no case did productivity decline.

One case involved 20 older women who worked as top stitchers at a shoe factory. Before the change, their job required frequent stooping, squatting, bending, and stretching. When absenteeism and complaints began to increase and productivity declined, the plant manager decided to remove the physically demanding tasks and assigned them to two younger service workers. The older top stitchers continued to work at their stitching machines uninterrupted, absenteeism and complaints declined, and productivity rose significantly.

Another case dealt with changes in the job of a 56-year old skilled operator of an electric locomotive crane. Before job redesign, the operator had to push and pull long handled levers manually, using arm, leg, and back muscles constantly. On the worker's return to this job after a long illness which affected his strength and ability to stand constantly, the plant manager replaced the original brakes and controls with more easily operated air powered levers. These improvements were quickly installed at a total cost of only about \$500. The new equipment enabled the operator to sit at his job most of the day, and required much less physical exertion. The company was able to retain an

experienced and productive operator who was difficult to replace.

Job enlargement to reduce costs

Job enlargement—the broadening of job skill, variety, and responsibility—has been adopted by several companies to counteract some of the negative aspects of extreme job specialization. The results generally have been favorable for productivity as well as for employee satisfaction.

Job enlargement is defined as the redesign of job content to enlarge worker discretion over the pace, quality, and method of operation. Programs of job enlargement prior to the mid-1950's—such as those at IBM and Detroit Edison—were concerned primarily with long-run improvement of the attitude and morale of employees in highly repetitive and specialized jobs, with the hope that eventually productivity would be increased. More recently, researchers have found that job enlargement also has potential for immediate tangible savings in manufacturing costs.

According to a 1966 University of Michigan survey, 41 of the 210 companies that provided information reported some type of job enlargement projects. Manufacturing plants, transportation companies, utilities, and life insurance firms reported that this technique had been adopted primarily for the purpose of reducing costs; other goals included improved employee attitude and morale and better quality. A majority rated their experience as satisfactory.

The potential for tangible cost savings was investigated at a firm manufacturing pump assemblies for home washing machines by Professor Maurice Kilbridge of the University of Chicago School of Business. Before job enlargement, pumps were assembled on a six-man and later on a four-man production line with annual labor costs (based on 1,500 pumps assembled daily) of about \$20,000 for each line. After pump assembly was shifted to four one-man work stations, at which each employee did a greater variety of tasks, total annual costs for the same level of output declined by more than \$2,000. Although costs of training and facilities were higher in the one-man work stations, direct labor costs dropped from about 1.77 minutes per pump, under each assembly line operation, to 1.49 minutes in the one-man work stations—a decline of 16 percent. A two-thirds reduction in nonproductive handling time was the major source of the labor savings.

Job enlargement appears to have applicability to many repetitive jobs involving batch work with idle time between operations, and material handling jobs where costs are high. Jobs that are machine paced offer less

potential for job enlargement. Researchers recommend careful advance planning before introduction of job enlargement, including advance notice and training as essential to increasing employee and union acceptance.

Improving productivity among dentists

A change in the job structure, involving the use of dental assistants is resulting in impressive improvements in the productivity of the dental profession in meeting its rapidly increasing patient load. Until a few years ago, the traditional practice was for the dentist, standing at his dental chair, to work with little or no direct assistance in the provision of treatment services. But studies made by the Public Health Service in the 1950's showed possibility of improving productivity of dentists from 35 to 75 percent by the use of one or two auxiliary workers.

To change traditional practices, the Public Health Service chose to train dental students in new methods of practice, rather than focusing on retraining practicing dentists. First on a pilot basis in 1957, and then on a grant's program in 1961, the Public Health Service with the cooperation of the American Dental Association, assisted dental schools to develop formal continuing programs of classroom and clinical instruction in the effective use of chairside assistants. In these programs, the new mode of practice has come to be known as "sit down four handed dentistry."

The Dental Auxiliary Utilization program has been adopted by all dental schools. Moreover, instruction in how to utilize auxiliary staff has become an official requirement for dental school accreditation. About 30,000 dental graduates—nearly a third of all dentists in practice—have had such training. By 1975, the Public Health Service estimates that about half of all professional dentists will have been trained in these techniques.

Recent Public Health Service studies suggest that further substantial improvements in dental productivity is possible by delegating selected additional procedures to trained auxiliary workers. In a new program recently started, students will be taught to work with, manage, and supervise a team of dental auxiliary workers trained in additional procedures. Twenty-two States already have liberalized their dental practice acts to permit the broader delegation of duties envisioned in this advanced program.

Although full evaluation of this change has not yet been completed, the experience of the Indian Health Service where the new system, along with other management improvements, has been put into effect shows impressive productivity gains. Between 1957 and 1970, dental services increased by 195 percent; at the same time only 102 percent in dental office and staff increased, some of the increase in dental officers went into administration and training. By 1970, the Indian Health Service had achieved a ratio of 1.4 dental assistants per dental clinician.

Chapter IX. Absenteeism and Hours of Work

Absenteeism often has a disruptive effect on plant productivity, especially where the production process involves sequential work and requires the presence of all team members for efficiency. Although no definitive data are available on the extent, trend, and causes, the general impression is that absenteeism has risen in recent years. Accordingly, there is a constant search for more effective ways of reducing the rate. In part, growing interest in the 4-day workweek has been stimulated by a concern about absenteeism. Since absenteeism is to some extent a symptom of dissatisfaction with working conditions, many measures discussed in other parts of the report also have a bearing on its control.

The following two examples are concerned with two aspects of the absenteeism problem: a review of methods used by management to control excessive absenteeism, including a recent development in collective bargaining and a review of the trend toward the adoption of the 4-day week.

Control of absenteeism

Many plant managers are deeply concerned about the harmful effects of excessive absenteeism on productivity, work scheduling, and overtime labor costs. A reasonable amount of absenteeism due to bona fide illness, family emergencies, transportation breakdowns, etc.—the major causes—generally is recognized as beyond the employee's control. But when absenteeism becomes critical (for example, when sick pay is grossly misused) many companies try to work out special control procedures.

Disciplinary measures, according to a 1969-70 survey of personnel directors by the Bureau of National Affairs, were considered by the respondents to be the most effective. This procedure often follows a progressive pattern: for example, oral reprimand by the employee's supervisor for three absences in a year; written warning for five absences; warning and probation for seven absences; and discharge and termination for more than seven. Enforcement, however, requires attendance records on each employee. Other difficult administrative tasks are defining excessive absenteeism and applying the formula with flexibility in regard to the reasons for absences.

Another frequent approach, sometimes coupled with the first, provides for counselling and education of employees about the importance of adhering to a reasonable attendance standard. The union's help is sometimes enlisted to good advantage. For example, at one company the supervisor warns and counsels the employee in the presence of the department manager and the union steward. The 1970 contracts between the General Motors Corporation and the Ford Motor Company and the United Auto Workers provide for union participation in orientation talks to new employees where the importance of regular attendance is stressed.

A few companies use incentive awards such as cash bonuses for perfect attendance or full pay for unused sick leave. One company paid a \$10 a month perfect attendance bonus for certain types of unskilled labor with good results. Another cut Monday and Friday absenteeism substantially by having a lottery on those days; the workers were required to be present to collect.

Finally, many companies try to show concern about absenteeism by publishing absenteeism statistics, training supervisors, and investigating causes of poor attendance. One company uses closed circuit TV for training while another applied a computer to tabulate records and developed for supervisors a package program for control purposes.

The 4-day 40-hour week

The adoption of a 4-day workweek by a number of companies has attracted recent attention because of its effects on leisure time and worker productivity. A 1970 study located 27 companies on the 4-day week, mainly in manufacturing. Only five were unionized. A July 1971 article reported 367 firms, in industries including manufacturing, retail trade, advertising, banking, hospitals, and government. While the typical plant is relatively small, some large organizations, such as Amour, IBM, and the Social Security Administration are installing the 4-day week in some plants or studying its possibilities.

Typically, this innovation means a reallocation of 40 hours from 5 to 4 days, and no change in pay. The work day is usually lengthened but employees enjoy a 3-day

weekend. A few companies in the 1970 study shortened the workweek by 4 hours in lieu of a pay raise and one paid overtime for over 8 hours in a day.

Management usually initiated the 4-day schedule. In some cases, however, the change was installed after a vote of approval by employees. The principal management objectives were to recruit a better labor force; to reduce absenteeism, tardiness, and turnover; and to cut labor costs. In a few cases, the new schedule was adopted to handle peak work loads or sales.

The experience of a small New England manufacturing plant illustrates some conversion problems. Union members voted by a large margin to adopt management's proposed 4-day week. Factory workers were put on a 9-hour day; office workers, on an 8 ½ hour day. Both groups were paid for 40 hours. However, the factory workers no longer have coffee breaks, and washup time was reduced by half.

A western, nonunion manufacturing plant instituted a 4-day week: the day shift reports a 7 a.m. and leaves at 5 p.m., Monday to Wednesday; on Thursday, 7 a.m. and 4 p.m. In weeks when a holiday falls on a Monday, the workweeks begin Tuesday and run through Fridays. Employees receive 40 hours' pay plus the holiday if the holiday is a scheduled paid one, not on a Monday. Four formerly paid holidays have been discontinued; the

company still pays for 5 holidays.

Generally, companies reported in the 1970 study, greater gains than originally anticipated. Many reported, shortly after the change, lower turnover and less absenteeism. Some reported unexpected gains in output with fewer man-hours. An auto executive sees the 4-day week as a possible key to improving worker motivation and thereby quality control.

Some companies, however, discontinued their plans because of the inability to service customers adequately, less time to promote sales, and employee dissatisfaction. Also, some managers in industries that run on a round-the-clock basis are concerned that two 10-hour shifts would leave costly equipment idle for 4 hours a day.

Workers' reactions were mixed: many valued the longer weekend and lower commuting costs. But a few, mostly women, reported greater fatigue and inconvenience in tending to family needs. Unions express little interest in the 4-day week itself unless coupled with fewer hours or more pay. Some officials fear increased moonlighting would sharpen competition for jobs with unemployed workers. The Chrysler Corporation and the United Auto Workers, however, agreed to study the feasibility of the 4-day week and to set up pilot operations to test it.

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