

TRAINING WITHIN INDUSTRY BULLETIN SERIES

Bureau of Training
War Manpower Commission

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DEVELOPING ALL-ROUND SKILLED CRAFTSMEN THROUGH APPRENTICESHIP

This bulletin embodies the principal features of apprenticeship taken from the best practices found in leading industries and will serve as a basis for apprentice training in practically all situations. It was prepared with the assistance of the staff of the Apprentice-Training Service, War Manpower Commission. The field and headquarters staff of Training Within Industry assists the Apprentice-Training Service by promoting the use of apprenticeship and advancing worker programs. On the other hand, many Apprentice-Training representatives are serving as Training Within Industry panel members.

The training of production workers in operations requiring a single skill is not a substitute for apprenticeship. Both programs have a distinct place in emergency war production and should be carried out simultaneously. Trade apprenticeship should be regarded not only as a long-term program from which industry must procure most of its future skilled craftsmen but also as a source from which set-up men, lead men, and some future supervisory and technical personnel, maybe drawn.

Apprentices trained under the standards of the Federal Committee earn their wages from the beginning, and they carry their weight in output.

C. R. Dooley, Director
Training Within Industry

APPRENTICESHIP POLICIES FOR WARTIME

Apprenticeship is a war activity and must continue to expand to meet war needs. Planning for a long war is necessary for victory, and apprenticeship is a long-range program. Its features are really expanded by the war program, for a certain number of all-round skilled workers will always be needed to supervise the large number of workers knowing only one skill or a small group of skills, and to perform that small proportion of highly skilled work which mass production cannot eliminate.

Skilled men are needed to produce delicate and complicated mechanisms for anti-aircraft guns, airplanes, and other vital war weapons. Since a large number of present skilled workers fall into the older age groups, apprentices must be trained both to replace these older workers and to meet the war demand for additional highly trained journeymen. Even while in training, apprentices frequently are assigned to the important function of breaking in new workers on single machines.

The Federal Committee on Apprenticeship recommends that apprenticeship programs be continued and maintained with new vigor, and that solutions be found for war time apprentice training problems which will serve the pressing needs of war production for all-round skilled workers and also serve the best interests of the nation's young people. For the war's duration the Federal Committee has made the following recommendations concerning the training and utilization of apprentices:

1. Establish apprenticeship programs on the basis of regular peacetime standards, but including such wartime standards as are necessary to develop trained orders essential to the conduct of the war.
2. Amend existing apprenticeship programs to provide for the training of apprentices as rapidly as they can acquire reasonable proficiency in each trade process.
3. Improve job supervision and related classroom instruction of apprentices so that the period of learning time may be shortened. Advancements should be measured by objective tests established or given by joint apprenticeship committees.
4. Where it is imperative in the interests of war production to secure all-round skilled workers in the minimum of time, apprentices should be selected from groups least vulnerable to military service. Preferred groups in this category include married men from 20 to 30 years of age with one or more children, men classified as ineligible for military service for physical reasons, military personnel released from active service, and, for some trades, women.
5. Where the need is for all-round skilled men in the future, the Committee recommends that apprentices be selected from the 16- and 17-year age group but without the expectation that they will be deferred if the time comes when they are needed in the military service.
6. Because in some war production plants and industries there are acute shortages of skilled workers to serve as supervisors, foremen, lead men, and job instructors, the Committee recommends that advanced apprentices be moved into any job classification which will permit utilization of their highest skills; and that they should be paid the wage rate applicable to the job to which they are promoted.
7. Where advanced apprentices exist in any plant in excess of the number of jobs available for the utilization of their highest skills, the Committee recommends that employers and employees voluntarily set up machinery for the reclassification of such advanced apprentices and for their transfer to other plants where there is a critical need for such skilled workers.

The needs of each industry and of each plant should be carefully analyzed and the apprentice training program should be worked out in the manner best suited to fill those needs.

APPRENTICESHIP PROGRAM

The objective of apprenticeship is the development of all-round skilled craftsmen. This is accomplished by a program of production work assignments in which each apprentice follows a pre-determined work training schedule which is accompanied by supplementary instruction. The major part of apprentice training is done on the job, at productive work.

A well-balanced program provides not only for efficient training in trade skills, but also for enough time for the apprentice to mature as a responsible worker.

On the other hand, the program should enable each apprentice to progress according to his individual learning ability. Some apprentices are thus able to successfully complete their training in a somewhat shorter time than the established period.

Definition of “Apprentice” and Minimum Standards of Apprenticeship

The Federal Committee on Apprenticeship has issued the following brief descriptions:

1. Definition of “Apprentice”:

The term “apprentice” shall mean a person at least 16 years of age who is covered by a written agreement registered with a State Apprenticeship Council or the Federal Committee on Apprenticeship, providing for not less than 4,000 hours of reasonably continuous employment for such person, and for his participation in an approved schedule of work experience through employment, which is supplemented by 144 hours per year of related classroom instruction.

2. Basic Standards:

- a. An apprenticeable occupation is considered one which requires 4,000 or more hours to learn.
- b. A schedule of the work processes to be learned on the job.
- c. A progressively increasing scale of wages for the apprentice should average approximately 50 percent of the journeyman’s rate over the period of apprenticeship.
- d. Provision for related classroom instruction (144 hours per year of such instruction is normally considered necessary).
- e. The terms and conditions of the employment and training of each apprentice to be stated in written agreement and registered with the State Apprenticeship Council.
- f. Review of local apprenticeship programs by a State Apprenticeship Council.
- g. Apprenticeship should be jointly established by the employer and the employees.
- h. Adequate supervision and the keeping of records should be required for all Apprenticeship programs.

THE APPRENTICE-TRAINING SERVICE

The functions of the staff of the Apprentice-Training Service are:

1. To promote sound labor standards of apprenticeship in industry by joint cooperation between management and labor.
2. To provide technical assistance in the establishment or improvement of apprenticeship systems.
3. To assist in the development of programs for trainees at less than the apprenticeship level.
4. To provide advice and assistance on labor problems affecting training.

The actual training of apprentices is provided by industry under planned programs meeting the standards recommended by the Federal Committee. The Apprentice-Training Service, with the cooperation of state Apprenticeship Councils, promotes and assists industry in developing such training programs.

Setting up an Apprenticeship Program in an Industrial Plant

The responsibility for the apprentice program should be assigned to one qualified person. Most companies find that the plan is productive of best results when responsibility for it is placed upon a single supervisor fitted for this work by both personal qualities and experience. This is a full-time job in large plants and a part-time job, but a major responsibility, in smaller plants.

Experience with well established apprenticeship plans indicates that, in setting up a program, action should be taken on the items indicated in the sections which follow. Experience in plants having bargaining agreements with organized labor shows that joint committees of management and labor can most effectively establish policies and procedures for the training of apprentices covering all following points:

1. Determine the skilled occupations in which apprentices are to be trained.
2. Determine the number of apprentices to be trained.
3. Establish the term of apprenticeship.
4. Provide for instruction and coaching on the job, including the selection and scheduling of work experience.
5. Arrange for classroom instruction in related trade subjects.
6. Establish a wage scale for apprentices in relation to the going rates for skilled workers in the trades in which apprentices are to be trained. The scale should be so established as to provide periodic increases in apprentices' progress. Apprentices produce while learning and their wages should correspond to the level of their skill.
7. Provide for periodic tests of the progress of apprentices.

Selecting Candidates for Apprenticeship

The ultimate success of an apprenticeship plan depends more upon the ability and character of the young men selected than upon any other single factor in the program. The following are fundamental considerations in selecting those to be trained:

1. Give special attention to the character (including indications of perseverance), mechanical aptitude, and intelligence of candidates. Consider not only subjects (such as arithmetic and blueprint reading) which have been covered in school, but also whether school progress was at a normal rate or better.
2. Take full advantage of all information available in plant personnel records for those already employed who desire to be all-round skilled workers.
3. Consult with school authorities for additional evidence of aptitude and suitability of apprentice candidates.

4. Establish a definite probationary period to serve as a double check on the suitability of apprentice candidates.
5. Usually there are candidates who have some trade experience who can be given credit on the term of apprenticeship and who will complete the program in less than the full period. This is particularly helpful in launching a new program and will make available some trained men at an earlier date.

Carrying on the Program

Experience with well established programs indicates that continuous attention is needed on the two basic features of apprentice training, i.e., shop experience and related instruction.

1. Shop Experience: It is essential that carefully organized instruction be given to each apprentice when he starts to work on each new job. In some larger plants where the number of apprentices justifies, a section of the regular shop is equipped and used especially for apprentices.

The Apprentice Shop is not a practice department. All work is productive and standards are uniform with other sections of the plant. The arrangement is desirable simply because a great deal of individual instruction and attention can be given when the apprentices are grouped. This contributes to thorough mastery of the trade and to shortened learning time. It also enables the apprentice to do a good job alongside the journeymen when he goes into the regular department.

The Apprentice Shop is often used during second and third shifts as a convenient unit for training production specialists on particular machines.

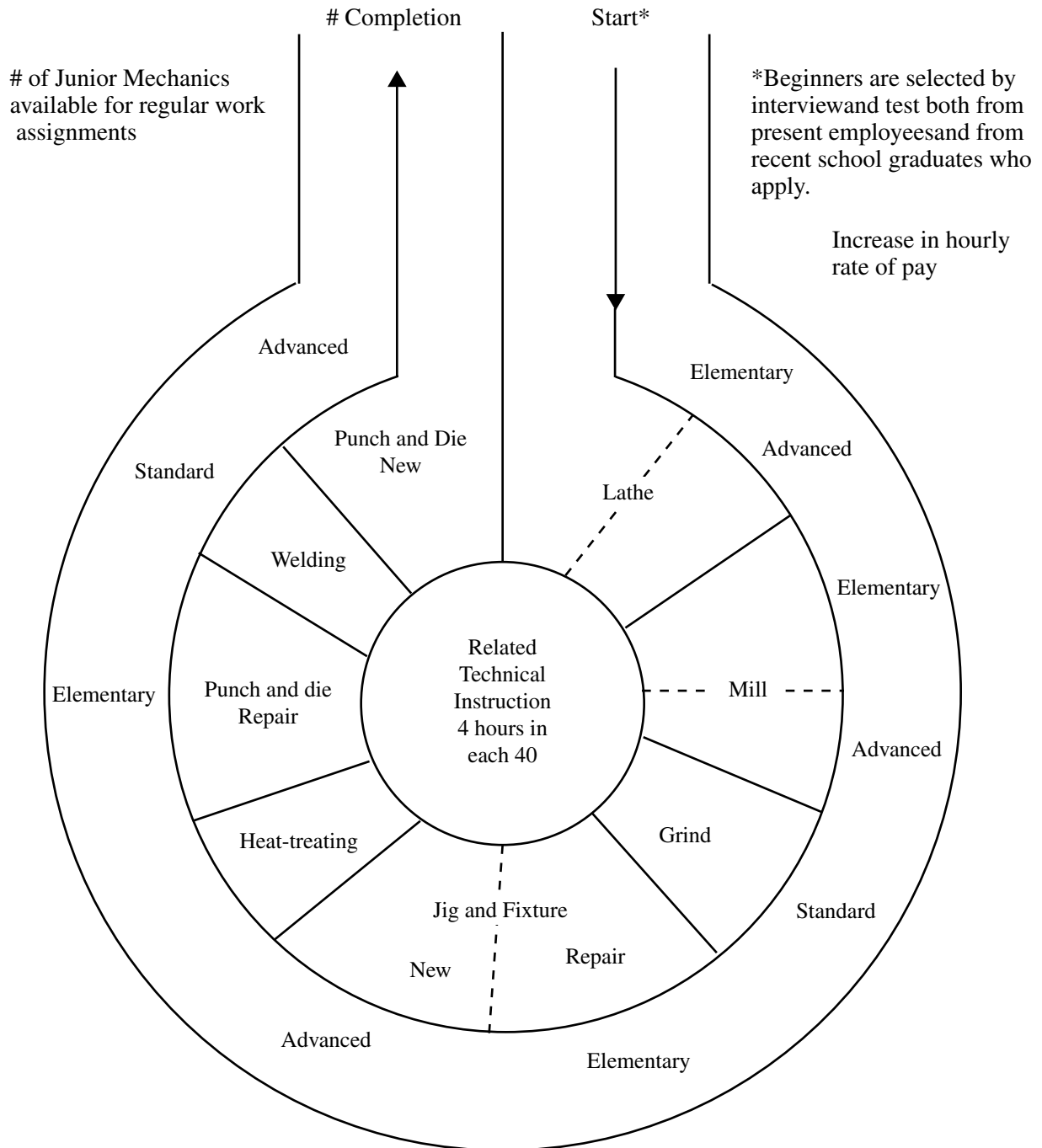
In smaller plants the apprentice's shop experience is gained entirely on regular jobs in the shop. In either case care should be used in choosing the kind of production work, bearing in mind its teaching and experience value. The thoroughness and speed with which the apprentice learns his trade will largely depend upon the instruction ability and continuous coaching of the foremen and journeymen immediately over him.

In cooperation with the foremen, the apprentice supervisor, or the person in the small plant who is responsible for apprenticeship as part of his duties, should have authority to move apprentices from job to job in accordance with the planned training schedule. Apprentices should be given appropriate increases in their pay when justified by increased skill and knowledge, but according to the pre-determined schedule.

2. Related Instruction: Public vocational schools usually provide related instruction on technical subjects, although some companies establish their own plans. This supplemental instruction should coincide with current production experience. Ordinarily, up to ten percent of the working hours should be devoted to such related instruction.

SAMPLE PROGRAM FOR TOOL AND DIE-MAKING APPRENTICES

Sequence of Work Assignments and Proportion of Time Spent in
Production Shopwork and Related Instruction



Community Apprenticeship Program

Occasionally smaller plants or activities which cannot provide the breadth of on-the-job experience required for apprentice training will combine with other plants and activities in the community. By routing apprentices from jobs providing training in one set of skills in one company, to those which furnish experience in another set of skills in another company, the full range of training can be covered cooperatively.

THE ADVANCING WORKER PROGRAM

In order to meet needs for highly skilled men where there is not enough time to develop all-round craftsmen, the Apprentice-Training Service has set up its Advancing Worker Program. This provides for training through a progressive series of jobs with supplementary instruction where needed. Well-rounded skill is attained in specific work of a type which is ordinarily part of a craft or trade.

COOPERATION IN APPRENTICESHIP PROGRAM

The Apprentice-Training Service operates throughout the United States largely through its regional offices. In addition, other public agencies and groups cooperate in the training of apprentices. State and federal employment bureaus assist in setting up the definite selection measures which are necessary, and vocational education funds and facilities supply much of the related instruction.