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# THE ROLE OF APPRENTICESHIP IN MANPOWER DEVELOPMENT: UNITED STATES AND WESTERN EUROPE

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BCOMMITTEE ON EMPLOYMENT AND MANPOWER

OF THE

COMMITTEE ON LABOR AND PUBLIC WELFARE

UNITED STATES SENATE

VOLUME 3 OF SELECTED READINGS IN EMPLOYMENT AND MANPOWER

Printed for the use of the Committee on Labor and Public Welfare

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# FOREWORD

## THE ROLE OF APPRENTICESHIP: UNITED STATES AND WESTERN EUROPE

As one element of its 8-month 1963 exploration of the Nation's employment and manpower problems, this subcommitee undertook in October 1963 an appraisal of the methods by which our manpower resources are developed. The statements on apprenticeship by Charles F. Hanna, chief of the California State Division of Apprenticeship Standards, and Prof. Felician F. Foltman, of Cornell University excited particular interest.

A followup of this testimony revealed that little information was generally available concerning the role of apprenticeship in the skill training resources of the United States. In order to increase its own knowledge of this subject, the subcommitee directed its staff to request statements from other interested parties and request detailed information from the Bureau of Apprenticeship and Training. For sake of comparison, the Legislative Reference Service was requested to prepare a study of the role of apprenticeship in Western Europe.

Publication of these selections does not necessarily imply endorsement by the subcommittee or its members.

The assembled information is available through no other single source. It is reproduced to assist subcommittee members and the Senate to fully and correctly appraise the ability of our skill training resources to meet the demands of a rapidly changing labor market.

JOSEPH S. CLARK,
*Chairman, Subcommittee on Employment and Manpower.*

# INTRODUCTION

Apprenticeship and on-the-job training has a number of advantages as skill acquirement methods. The trainee is provided income and employment as well as experience and training. Training opportunities are tied directly to the demand for labor in the occupation. The training includes the discipline and practices of the work place which cannot be duplicated in an institutional training environment. Public investment in plant and equipment is avoided along with the vocational education problem of keeping up with the latest in equipment developments. Skilled craftsmen double as workmen and instructors, avoiding another serious vocational education problem.

Despite these apparent advantages, apprenticeships in the United States provides no more than a minor proportion of the requirements for skilled workers in any occupation. This is in sharp contrast to the role of apprenticeship abroad. The reasons are not completely clear though some disadvantages are observable. Employers, particularly small ones in industries where the employment relationship is casual, are reluctant to undertake the expense of training with no assurance that the trained workman will remain in their employ. Considerable administrative effort is necessary to see that the apprentice is given a full range of training experience. Training for the demands of the future is dependent upon the employment opportunities of today. If the latter are more restricted than the former, the number of trainees is likely to be inadequate.

The dropout rate of apprentices is high. Apprentices in the United States are older with more family responsibilities than their European counterparts. They are prone to choose higher present income in a semiskilled job over the delayed higher long-term income of a skilled craftsman. Incumbent journeymen have a built-in fear of labor surpluses and see apprentices as potential competitors. Where the number of apprentice opportunities are within their control, journeymen may attempt to restrict entry, save positions for members of their own families, or deny entrance on the basis of social and other prejudice.

Broad transferable skills can be taught in a school environment. In the final analysis, everyone receives specialized training on the job, formally or informally. This is as true of the Ph. D. as the high school dropout, the medical doctor, and even U.S. Senator as the laborer. Too little attention has been given to the efficient integration of institutional and on-the-job training. Each has its advantages and disadvantages which complement the other.

Of all skill acquirement methods, apprenticeship has been the subject of the least research. Why is the role of apprenticeship so limited in the United States relative to the future demands of apprenticeable occupations? What are the costs to the economy of filling demands for skilled craftsmen with those who have "picked up the trade" rather than receiving formal training? What are the real costs and benefits

of apprenticeship to employers, employees, and the economy compared to the costs and benefits of alternative methods of skill acquirement? How long does it actually take to acquire competency in each skilled craft under the best training methods? How can apprenticeship be expanded to assure exploitation by the economy of its full advantages?

The following pages are instructive but most of the answers await future research. Section I reflects the apprenticeship views of Federal and State Governments, academic experts, labor, and management. Section II contains a question-and-answer summary of apprenticeship data. Section III contains material relevant to current opinion and government policy on the issue of equal apprenticeship opportunity. Section IV is a comparative study of apprenticeship in the United States and other nations. The final section summarizes the problem of providing incentives for expansion of apprenticeship opportunities.

GARTH L. MANGUM,
*Research Director,*
*Subcommittee on Employment and Manpower.*

# I. SOME VIEWS ON APPRENTICESHIP

## EXPANDING APPRENTICESHIP OPPORTUNITIES

By Charles F. Hanna, Chief, Division of Apprenticeship Standards,
Department of Industrial Relations, State of California

The critical role of education and skill training in problems of employment has received increasing attention in recent years in the face of persistently high joblessness and our knowledge that much unemployment is rooted in the mismatching of skills and available jobs.

While major shares of blame for unemployment can be placed on slow economic growth and worker displacement by automation and technology, it is impossible to escape the conclusion that the Nation has not keep abreast of its training needs—a fact that should have been cause for as much concern during periods when it was obscured by better economic conditions as it is now that symptoms of our failure are apparent. A skilled work force is as vital to our Nation's economy as a job is to the economic well-being of an individual. The availability of needed skills is essential if we are to maintain an adequate defense posture. Full employment and economic growth are complementary, since fully employed persons purchase more products—and pay more taxes.

The relationship between training and employment is of special concern to the State of California, where in spite of unprecedented economic growth unemployment has held stubbornly at near 6 percent. Joblessness is highest, of course, among unskilled workers, including youth just entering the labor market. The rate of unemployment for Negroes, who are frequently impoverished educationally, is about twice the rate for whites.

California's industrial base is becoming increasingly technical. More and more of our industry is directed to defense, to electronics and aerospace research and development. Recent studies have indicated that by 1980 population pressures will require the building of nearly one new home for every one that now exists. Immense public works projects will be needed. All of these things require skilled manpower.

At the same time, the decade between 1960 and 1970 will have seen a half million youth enter the California labor market for the first time. California needs and will continue to need more and more skilled workers. The question is whether through training we can mesh the needs of industry with those of the new labor market entrant and the worker displaced by technological advance.

The same challenge faces the rest of the Nation. But it can be said without any hesitation that the challenge will not be met unless we

are willing to triple our present efforts in developing apprenticeship and other on-the-job training opportunities. It can be said with equal conviction that if the challenge is to be met, basic changes will be required in the attitude of many educators toward blue-collar skills, along with the correction of a number of misconceptions about how skilled labor is trained and utilized.

The proposition behind the Federal Manpower Development and Training Act is that if an individual is unemployed because he lacks a marketable skill, providing him with a marketable skill will make him employable. Since "marketable skill" and "employable" mean the same thing, the proposition is indisputable. But the key, of course, lies in the word "marketable." Whether or not the new skills provided an individual are truly marketable depends on two factors:

1. The accuracy of our assessment of what skills are needed and in what number.

2. The thoroughness with which the individual is trained.

These two factors relate directly to the questions the subcommittee has asked to be dealth with in testimony here today:

1. How do we develop each individual to his highest employment potential?

2. How do we develop a skill structure that matches our labor demand structure?

3. How do we develop a built-in work force flexibility so that it may be easily adjusted to fit changing patterns of consumption and technology?

The view I wish to express in the following testimony is that there is nothing basically wrong with the tools we presently have for accomplishing these three tasks. The problem is that we have not been using these tools to their highest potential, and that in many instances we are attempting to use educational tools for purposes they were never intended to achieve.

## APPRENTICESHIP TRAINING

On a nationwide basis, apprenticeship training has not only failed to keep pace with population and economic growth but has actually shrunk. There are presently fewer than 160,000 apprentices in training in the United States. That is more than 70,000 less than were being trained 15 years ago. In spite of the national trend, California has been able to maintain slow but steady gains in the number of apprentices in training. One out of every seven registered apprentices in the Nation is a Californian. The nearly 23,000 apprentices now in training in California marks a 30-percent gain over a period of 10 years. Over this last fiscal year we gained 2,600 apprentices over the average of the past 2 fiscal years.

But we are far from meeting needs, and we should be training more like 100,000 craftsmen through apprenticeship. Only about 25 percent of the eligible employers in California are making use of apprenticeship. The remainder depend primarily on pirating workers trained by other employers in order to obtain needed skills, or absorb skilled manpower shortages by working available craftsmen on an overtime basis.

At very best, a few trades may be replacing as many as three-fourths of the journeymen who leave the craft through death, retirement, or other kinds of attrition. But in most instances, fewer than one-fifth are being replaced. We know, for example, of instances of long-term shortages of up to 200 journeymen machinists in a single metropolitan area; of long-term shortages of from 300 to 400 journeyman meatcutters, and of heavy overtime hours spent in such crafts as tool and diemaker.

What is wrong with apprenticeship? If skill shortages are indicated, why are they not being filled through apprenticeship? These questions demand serious consideration, especially in view of unique advantages enjoyed by apprenticeship over other kinds of skill training:

1. Its combination of on-the-job training and related classroom instruction are a proven effective means of passing on skills and knowledge.

2. It provides economic security to the trainee at no cost to the taxpayer. The apprentice produces while he learns. His wage scale is graduated as he increases his skills and becomes more valuable to his employer.

3. Apprenticeship costs less to the taxpayer than any other form of training. In California, we spend an estimated $130 per year per apprentice. This is substantially more than is spent in any other State, but it is substantially less than is needed. Only about $50 of this cost is spent by the Division of Apprenticeship Standards in maintaining and servicing existing programs and promoting new apprentice opportunities. The remaining $80 per year goes to covering the cost of related classroom instruction. This compares to a cost of approximately $1,900 per year for maintaining a student at the University of California and an average of $1,170 per year per student in the State college system. These latter figures, of course, do not include capital expenditure and investment which total in the millions for our system of higher education and are all but nonexistent for apprenticeship, involving only a share of the State's investment in office space.

These comparisons are made not to indicate that we should be spending less on higher education, but to suggest that we are neglecting an area of training with an excellent investment-to-yield ratio.

A trained craftsman in California can obtain an income of from $7,500 to $10,000 a year. Some in such skills as plumbing and electrical can expect more. In a survey of our completed apprentices made in 1960, 40 percent of those responding to the questionnaire had advanced to positions of supervisor or employer. The economic success potential for the apprentice graduate would certainly seem comparable to that of many college graduates, and probably better than that of the large majority of students who fail to complete college.

4. Apprenticeship (as well as some other forms of on-the-job training) has built-in machinery for matching the structure of skills and demands, as well as a built-in capacity for adjusting to changing patterns of consumption and technology—the major need we must meet.

In most instances, apprentice-to-journeyman ratios are established jointly by labor and management. The number of apprentices is thus ideally based on thorough knowledge of the particular industry and local conditions affecting it.

Since the apprentice is trained on the job, he is exposed to new methods and technology as rapidly as economic and other conditions induce employers to introduce them.

Unlike trade and vocational schools which attempt to teach skills in the classroom or classroom shop, capital investment in machinery is made by the employer. But perhaps more important than savings to the taxpayer is the fact that it is impossible for the institutional type of training to keep abreast of the rapid changes which take place in technology.

5. The apprenticeship system maintains the responsibility of industry (both management and labor) to play the leading role in meeting its skill needs. Training takes place and is shaped by the realities of competition and production needs. Equally important, it takes place within the realities of the collective bargaining agreements which shape hiring and work force utilization in the skilled crafts.

Institutional training programs which fail to recognize the bilateral nature of training and hiring are doomed to failure, and we have seen many examples of the results of this kind of oversight in recent years.

In view of these actual and potential advantages built into the apprenticeship system, the question of why there are not more apprentices becomes all the more perplexing. There are, however, some solid reasons for the failure of apprenticeship to keep pace.

*Promotion*

Unlike Europe where apprenticeship training is highly formalized and often mandatory, apprenticeship training in the United States is voluntary. The responsibility of government is to maintain training standards and wage scales, provide consultative services, and foster and promote more apprenticeship opportunities.

Individual training programs are mostly conducted at the local or industry level by joint apprenticeship committees made up of labor and management representatives, with the State and Federal apprenticeship agencies serving in a consultative capacity.

The problem is not that apprentice-to-journeymen ratios established through collective bargaining are insufficient, but that only a fraction of eligible firms train any apprentices at all.

Employers who express reluctance to train apprentices give a number of reasons, ranging from an unwillingness to share training prerogatives with labor (though this is not necessary where collective bargaining does not exist) to an unwillingness to bear any extra cost that might result from the apprentice's inability to produce adequately during the first few months of his training. In some crafts, such as parts of the automotive repair industry where work is performed at piece rates, it is contended that journeymen would balk at taking valuable time for on-the-job training of an apprentice.

Aside from the possibility of providing incentives to reduce some of the early training costs (a matter to be discussed later), the major problem here is lack of effective promotional efforts. Not only have many potential employers of apprentices never heard of apprenticeship, but many who have, have an imperfect knowledge of how the system works and the advantages it holds for the employer.

At a time when the attention of the public is becoming increasingly difficult to obtain even for mass media, we are still attempting to gain

the attention of the employer with the same information techniques used in 1939. It cannot be done.

We need not only more literature but more imaginative literature; we need greater ability to cooperate with the mass media to obtain our share of public service newspaper space and television time; we need the ability to provide interesting material for trade and management journals which are read by those who must be won over if we are to obtain more apprentice and other on-the-job training opportunities. We need the ability to hire trained, professional people to produce this material so that it will not follow the stereotyped pattern of material aired grudgingly by newspapers and television as public service. We need to capture the attention and imagination not only of the employer but of educators, parents, and youth.

This latter is especially important. Our educators tend generally to be white-collar oriented. For many, the only recognition of a blue-collar middle class comes when they have to pay a plumber—or periodically when a teachers' committee points out during a drive for increased pay that many a skilled craftsman has higher earnings. The result is that most high school students are pushed toward college, and many of them, it has been pointed out in recent years, who should not be. By the same token, those not considered college material are often ignored and left to get by as best they can. In some cases, vocational classes are used as dumping grounds for students the counselors have given up on. We see the effects of this attitude in our apprenticeship system when the majority of applicants in some of our programs fail to pass the aptitude test. It does little good that some of them have learned in shop to cut with a tinsnips or square a board if they have not been taught the elementary mathematics necessary for them to do accurate, fast layout work on the job.

We need to do a better job of publicizing the dignity and rewards of craftsmanship. We need to be able to do a better job of informing the educator and the counselor of both the opportunities and the requirements of craft training. We need to be able to keep them informed of which crafts are growing and which shrinking; of those with a future and those with little or none. We need visual aids such as slides and movies so that we can inform parents and youth directly.

But most of all, we need to expand opportunities for apprenticeship. And here, even in the field, we are lacking in the backing necessary to get the job done. Over the last year we have put considerable effort into developing apprentice programs in industries that had none. At least 500 of the new apprentices gained over the last year came from this effort, largely from surveyors and engineers programs initiated in an operating engineers local, with a union membership of more than 30,000 but with previously no apprentice program.

We have just begun in this area of new programs, and we hope to do more. But with every new program developed, our ability to develop additional ones is diminished. We have learned from long, hard experience that programs once initiated cannot be left to run themselves. The must be serviced or they deteriorate. With each new program, the apprenticeship consultant's service workload is increased and he has less time for promotional effort.

*Incentives*

Although incentive payments to employers have precedent in other on-the-job training programs, such as the Manpower Development and

Training Act and under Defense Department Regulation 15.205–44, the idea is radical to apprenticeship, which has always obtained its basic support voluntarily from labor and management. However, the notion is not new to Western European nations, many of which provide substantial support to apprenticeship in order to maintain the high level of craftsmanship they recognize is necessary if they are to compete economically with other nations.

Employers who maintain apprenticeship in the United States have done so solely on the premise that costs are returned in the long run through development of a well-trained, more efficient work force. It is generally conceded that during his first 6 months of work the apprentice does not produce much for his employer and may cost him a slight amount. Other costs are involved in administration. A realistic reimbursement program, either for losses during early training or for administrative costs (or a portion of both), would be an incentive for many employers to accept their responsibilities in manpower training.

I have had no opportunity to study recent estimates of the costs of training under the Manpower Development and Training Act institutional programs, and one-the-job training under the Manpower Development and Training Act is so new that no valid data is available. However, in one California program the cost per trainee-year will approximate $1,600. Under the National Defense Act, one firm I am familiar with estimates the cost per trainee-year at from $2,000 to $7,000, depending on the level of training. The relatively small incentive required to increase apprenticeship would, in my view, yield as good, and in many instances, better return per dollar invested.

However, any incentive program should be developed so that money goes to developing additional opportunities and new apprentice systems. Reimbursement of cost would serve no good purpose if it merely replaced existing programs.

*Government example*

Government should provide an example to private industry in meeting training responsibilities, and yet there are broad areas of Government expenditure where little or no training in apprenticeship is done.

1. National defense industries are reimbursed for training under the National Defense Act. Yet in California, fewer than 200 apprentices are being training in the aerospace and electronics research and production industry.

Steps should be taken to require that a portion of reimbursable Defense Act training funds be devoted to apprenticeship.

2. In many instances, vast Federal public works projects are carried through with few or no apprentices hired. No apprentices were employed during 3 years of construction at Trinity Dam in California. At Vandenburg Air Force Base, a plumbing contractor employing 100 journeymen refused to hire a single local apprentice.

We should not interfere with the collective-bargaining process which sets apprentice-to-journeyman ratios. However, full quotas of apprentices should be one of the criteria in awarding public construction works contracts, with provisions for reimbursing costs of training certified by State apprenticeship agencies or by the Bureau of Apprenticeship and Training where there is no State apprenticeship agency recognized by the Bureau of Apprenticeship and Training.

3. Another area of substantial employment with great potential for apprenticeship and other on-the-job training is the Federal civil service. Although the Navy has for some time had a substantial apprenticeship program, I would estimate that there are at least 10,000 journeymen employed on California Army bases without any apprentice program. At one Army base surveyed, some 200 craftsmen were employed, with a potential for training at least 38 apprentices.

Although the number of opportunities involved in the survey may seem small, multiplied several times over it would add substantially to the opportunities available to the large number of youth entering the labor market in need of training.

Action should be taken to require apprentice training in the Federal civil service.

### OTHER ON-THE-JOB TRAINING

Apprenticeship, of course, cannot meet all of the critical skill training problems arising from our rapidly changing economy and industrial technology. Vast training needs exist in the semiskilled and single-skill occupations. Most of what I have said earlier about apprenticeship training applies as well here.

We need to take extreme care that the kind of training offered meets the needs of industry. We cannot afford to continue to delude ourselves that simply putting the unemployed in a school will solve the problem.

Institutional courses under the Manpower Development and Training Act have been most successful in those kinds of occupations best taught in the classroom, such as typing and bookkeeping.

In those attempts to duplicate the machinery and materials of private industry in the classroom, the cost per trainee is often comparatively high.

Greater use must be made of private industry in skill training. In most instances only private industry can provide the modern equipment—it has to to stay in business—and the skilled supervisors and journeymen required to produce marketable skills.

Only industry has the capability of selling the product the trainee is involved in making, thereby recovering some of the cost of training or even making a nominal profit.

What is needed is more encouragement and less redtape. The objective of Government should be to encourage private industry to do as much of the job as possible, while refraining as much as possible from trying to tell private industry how to do it. This was accomplished to a great extent under the GI bill, where the States were made the responsible approving agencies and resulting programs could be described in three or four pages. A Manpower Development and Training Act on-the-job training program just completed by our agency required 61 pages and the signatures of 15 agency heads. Because of this volume of paperwork, employers are wary of Manpower Development and Training Act projects and many State apprenticeship agencies have been reluctant to participate in promoting Manpower Development and Training Act on-the-job training.

*Retraining*

One of the major roadblocks to retraining journeymen or other skilled and semiskilled workers under Manpower Development and

Training Act on-the-job training is the lack of training allowances or reimbursement. Employers are unwilling to pay the objective wages of the industry to trainees.

The unions involved are reluctant to allow deterioration of their contract through the payment of wages that are less than those called for by the collective-bargaining agreement. In other instances, a skilled worker in a dead end trade may find it economically difficult or impossible to take advantage of on-the-job training if loss of pay is involved. As a result, he stays in a trade with no future. Training allowances to the trainee or reimbursement to the employer to make up the difference between trainee wage rates and the standard rate would solve the problem. Unemployment funds might be considered as a source of such training allowances or reimbursements.

## EQUAL OPPORTUNITIES

California was the first State to take definitive steps toward obtaining equal opportunity in apprenticeship and other on-the-job training for minorities. Under the California plan, a statewide committee for equal opportunity in apprenticeship and training for minority groups has been a part of the California apprenticeship system since 1961. Local committees have been formed, and others are in the process of formation. The equal opportunities committees will operate as an integral part of the apprenticeship system to develop more apprenticeship and training opportunities for qualified minority youth.

As part of this plan, we attempted during the last State legislative session to obtain funds for establishing apprenticeship and training information centers in key areas of the State. Although the legislation failed of passage, we hope it will be possible to implement such a program in the future.

Purpose of the centers would be to act as clearinghouses on apprenticeship and training information for labor, industry, school counselors, and interested youth and parents. The centers would be of special benefit to minority youth, who are often poorly counseled on training opportunities in industry and the requirements they must meet to obtain them.

## CONCLUSIONS

Efforts to increase the number of opportunities available to minority youth, especially Negro youth, seem to me to point up vividly the training problems we face and the need to take sound, effective steps to solve them. Much has been written and said recently about the role of apprenticeship in solving problems of discrimination in the skilled crafts. While there is still much to be done to assure equal opportunity for all, ending discrimination will not, by itself, solve the problem. What we need are more apprenticeship and other on-the-job training opportunities.

If we are to find a place for the record number of youth entering the labor market, if we are going to find productive roles for the millions of workers being displaced by changing work methods and technology—then we must be prepared to take more effective, imaginative steps than have been offered in the past. We hope some of the suggestions made above may be helpful toward that end.

# PUBLIC POLICY IN APPRENTICESHIP TRAINING AND SKILL DEVELOPMENT

By Felician F. Foltman, New York State School of Industrial and Labor Relations, Cornell University

## Introduction

Apprenticeship as a form of training is rooted deep in antiquity. From the earliest civilization to the present it has survived innumerable technological developments. But many thoughtful students of this aspect of industrial training seriously believe that apprenticeship is now obsolete. It is indeed time that we reevaluate our policy and program concerning apprenticeship training because our human resource requirements for an automated technology will not be met by simple continuation of existing programs. Specifically this paper will attempt to answer a number of questions, including: Is apprenticeship training a viable form of training for the preparation of skilled persons for tomorrow's needs? Assuming that apprenticeship training is still appropriate, what role should the Federal Government play in supporting and encouraging this method of training? Are changes indicated in our public policy for skilled manpower training? To answer these and related questions it will be necessary to review the evolution of our apprenticeship training policy, to assess the results and accomplishments of the existing national policy and program, and to assay the training implications of evolving science and technology.

It is particularly appropriate that we reassess the role of apprentice training at this moment in our history when we are very actively engaged in massive reappraisals of our public educational system, of our system of collective bargaining, and of just about everything else that we do in connection with earning a living in a highly complicated industrial society. If some new or modified form of apprenticeship training is to be encouraged, this period of ferment would seem the opportune time to change public policy. We must not be sanguine about the possibilities of changing a system as old as apprentice training, however. Apprenticeship training is both a form of training and a time-honored union tactic for controlling wages and entry to occupations. Quite obviously anything that is perceived by organized labor as something that diminishes its control will not receive active support of organized labor, and properly so.



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## QUESTIONS, PROBLEMS, CRITICISMS RELATING TO NATIONAL APPRENTICESHIP POLICY

Perhaps the most persistent and important question pertaining to apprenticeship training is the one that challenges the very need and existence of the program. The reasons behind this challenge are many. For some the rapid developments in science and technology require an educational emphasis on knowledge and adaptability rather than skill. It is argued that our future manpower requirements will continue to demand the engineer, the technician; i.e., the person with a theoretical background who can adapt his theory to the new circumstance. In this scheme of things, even the skilled craftsman is displaced by the programed machine tool, or by the factory fabricated doorframe, or by the more traditional method of engineering the work to be done in small segments that can be performed by semiskilled or unskilled persons. For a decade now we have had a plethora of philosophizing about the social consequences of the great technological revolution called automation. Many have spoken but few have had much to say. But it is becoming clear that skilled manpower, as currently defined, will, when affected, contract rather than expand.

Is apprentice training obsolete in the light of current technological developments? One is bound to answer in a speculative vein because the evidence is not yet in. Other critics attack our national apprenticeship program on the grounds that it has not and cannot produce our required number of skilled craftsmen. There are skilled manpower needs extant and there will continue to be demand for skilled manpower, but our decentralized and completely voluntaristic approach to developing skilled manpower is too little and too late. In the paradoxical situation where persistent and serious unemployment since World War II has existed side by side with known shortages of skilled and technical manpower, the finger of blame is pointed at our national apprenticeship program. Still another dimension of this general orientation is the criticism implied in the fact that only a small proportion of the Nation's current group of skilled craftsmen has been trained by the apprenticeship method. They trained themselves informally; they acquired certain understandings and skills in the military services or in other schools; but a relatively small proportion of them were apprentices.

Although there was some Federal interest in apprenticeship training in the early days of the National Recovery Administration, our present public policy is usually traced back to 1937 when the National Apprenticeship Act (Fitzgerald Act) was passed. How effective has our public policy in this area been? Cannot it be presumed that after 25 years of experience we should have both a policy and an operational program adaptable to almost any situation? It should be emphasized here that our national policy on apprenticeship is basically hortative in that employers and organized labor are urged to establish apprentice training programs to meet certain standards and with due regard for safeguards. A related question here might be: Would a public policy that provides more tangible financial incentives to employers to train apprentices be more useful than our present voluntary policy? As of this writing (fall 1963) the Federal program of encouraging apprenticeship is undergoing a radical change in that, for the first

time in 25 years, the BAT has been directed to assume some responsibility for enforcement of directives relating to discrimination in employment on Government defense contracts. This change in orientation for a bureau that traditionally persuaded but could not command raises a question about the compatibility of two conflicting programs: (1) to exhort, or (2) to exercise a policing function.

The young person with a brown or black skin interested in learning a skilled trade via an apprenticeship certainly would criticize the usefulness of our present system which, subtly or bluntly, places almost insuperable obstacles in his path. Negroes have been and are now barred from some of the skilled trades because of apprenticeship training practices which discriminate against them. Is it a function of the Government through its Bureau of Apprentice Training to strive to alleviate this discrimination or should this responsibility best be assumed by other agencies or institutions? A related question can be raised about the feasibility of alleviating or curtailing discrimination in apprenticeship through moral suasion alone. Perhaps it might be desirable to provide some form of training subsidy for the apprentice in training which would, in turn, provide a powerful incentive for employers to undertake training. In any event, it is clear that modern apprenticeship can be criticized severely for its poor record in providing training opportunities for Negroes.

It has always been assumed, even by its critics, that apprenticeship is, among other things, a form of training. As a form of training, there is, at least in theory, a strong emphasis on systematic coverage of specified skills and related knowledge in the shop and in the classroom. Too often in practice the related theory is completely neglected. The reasons for this are many and complex but to the critic the fact that the schoolwork is often neglected is sufficient to raise serious doubts about the entire training method. Serious questions can be raised about other aspects of apprenticeship as a form of training. It is argued by many that the length of training provided in our current apprenticeship programs is wholly unrealistic. Programs range from 2 to 5 years in some cases with the majority of programs scheduled for 4 years. But 4 years at a relatively modest wage seems a long time to an apprentice—especially to one with a wife and children. Should we continue to maintain the fiction that apprenticeable trades require at least 2 years of training time, or should we, through job analysis and time and motion study, more systematically decide on requirements in the course of study and then provide the required amount of training? Another troublesome aspect of our current approach to apprenticeship is the fact that the educational standards are set nationally by union-management agreements, but the responsibility for conducting training programs by these standards rests with thousands of unions, employers, and public schools throughout the country. One may ask, therefore, whether high training standards could ever be maintained in a situation where so much of the responsibility for the type of apprenticeship training rests both with the institution of collecive bargaining and with our public schools.

Thus far we have been concerned with public policy, social and economic phenomena but not with people. What problems or questions are raised by the person who is or was an apprentice in training? Deficiencies in our program are suggested by the number of apprentice

dropouts. According to a 1960 Bureau of Apprenticeship and Training study of apprentice dropouts in the construction industry, "approximately half of the workers apprenticed in the construction industry in the United States do not complete their training."[1] The dropout pattern ranges from about 30 percent for bricklaying apprentices to a high of about 80 percent dropout for roofer apprentices.[2] Why did they drop out? To begin with, 77 percent of those who dropped out did so voluntarily while 20 percent were laid off or discharged and 3 percent had no choice in the matter because the program was discontinued. They dropped out because they were dissatisfied with the pay. They obtained other jobs, sometimes at the journeymen rate of pay, but they did not complete their formal apprenticeships.[3]

These data pose several questions. Are apprentice wage rates realistically related to wage rates in other jobs and are they realistically escalated during the apprentice training period? How can we resolve the seeming dilemma of choosing between the desire for mature apprentices by employers and unions on the one hand and the financial security on the part of the older apprentice on the other hand? On a more positive note we find that apprentices who do complete their training more often than not stay within the industry and find useful careers as skilled craftsmen or as supervisors.

To summarize the criticisms and soul searching, some additional questions are posed. Can persons be attracted to apprenticeship to train for occupations which are no longer paid a wide differential over other semiskilled or unskilled occupations and for occupations which no longer are at the top of our occupational status ranking? If youth become available to train for apprenticeable occupations, will employers provide the training? A related question becomes important: Would employers provide more training opportunities than presently offered if some form of financial subsidy were paid by the Federal Government? If, as some Federal and State personnel who work in apprenticeship bureaus are inclined to say, all that is required is more and better selling, then why is it that so many employers and unions have not bought the concept? Furthermore, why is it that so many employers bluntly tell Government personnel, "Bureaucrat, go home. We don't need your forms and strictures; we can run a good training effort without you"?

All of these issues cannot be treated adequately in a short paper. So instead of covering the many details of the BAT operation, this paper will concentrate on selected broad issues in the hope that this broad treatment will point the way to important guidelines for our future policy.

## EVOLUTION OF OUR SKILLED MANPOWER POLICIES AND PROGRAMS

The United States does not have a coordinated national policy for education and training. What does exist is a collection of disparate laws like the Fitzgerald Act, or the newer Manpower Development and Training Act which, with accompanying governmental staff,

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[1] U.S. Department of Labor, Bureau of Apprenticeship and Training, "Apprentice Dropouts in the Construction Industry," December 1960, p. 1.
[2] Ibid., p. 5.
[3] Ibid., p. 6.

attempts to solve some of our more acute manpower problems. To be precise the country has had only two traditional national manpower policies: one relating to immigration and the other to publicly supported education. But by electing a broader frame of reference, we see that many facets of law and practice relate to skill manpower development. To cite several examples, the Federal Government supports a public employment service; it regulates certain employment operations; and almost too frequently is concerned with all aspects of the collective-bargaining process. Most sweeping of all in its impact on all manpower, is the Employment Act of 1946 through which the Federal Government assumed an obligation to foster maximum employment, production, and purchasing power.

This attenuated review of some of the developments in public policy points up the fact that the Nation has never had a grand design for our human resources. As a nation we usually have muddled through by developing policy and program to fit each particular crisis. This pattern seems to have been followed in 1937 when the Federal Government was supporting a number of programs designed to alleviate unemployment or to promote economic activity. The national interest in apprenticeship was established with the passage, in 1937, of the Fitzgerald Act—an advisory law designed to encourage and promote apprentice training programs. In this act the Secretary of Labor is authorized and directed to: (1) Formulate and promote the furtherance of labor standards necessary to safeguard the welfare of apprentices; (2) extend the application of such standards by encouraging the inclusion thereof in standards of apprenticeship; (3) bring together management and labor for the formulation and promotion of standards of apprenticeship; and (4) cooperate with the Office of Education on certain matters of mutual interest. The act also authorizes the Secretary of Labor to publish information relating to apprenticeship standards and to appoint a National Advisory Committee on Apprenticeship Training.[4] In its essence the policy is completely voluntary and hortatory.

One of the first approaches to promoting apprentice training was the drafting of a model State apprenticeship law which was sent to appropriate State labor commissioners soon after the national act was passed. It was reasoned that the National Government could best implement its apprenticeship mandate by enlisting the support of the States in this endeavor. A number of States, New York, for example, passed apprenticeship laws during the late 1930's and early 1940's to implement on the State level this national policy. This and other promising developments were soon curtailed, however, with the advent of World War II during which the staff of the Bureau of Apprenticeship were transferred to the War Manpower Commission to serve in that agency's Bureau of Training. Responsibility for the apprenticeship function was reassigned to the Department of Labor in 1945 when the Bureau of Apprenticeship was transferred back from the War Manpower Commission. It was during this period that all forms of education and training including apprenticeship received a tremendous impetus from the GI bill. Moreover, traditional union policies relating to apprentice-journeymen ratios and age limits were sus-

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[4] U.S. Department of Health, Education, and Welfare, "Federal Funds for Education 1958–59 and 1959–60," U.S. Government Printing Office, 1961, p. 178.

pended or flexibly interpreted by trade unions during this period. This combination of circumstances created the conditions in which apprenticeship training reached a zenith of sorts, at least so far as numbers of apprentices in training were concerned. The number of apprentices in training in registered programs[5] went from 17,300 on January 1, 1941, to 40,571 on January 1, 1945; to 131,217 on January 1, 1947; to a high of 230,823 for the first of the year 1950.[6] There has been a small but steady decline in the number of apprentices in training from the high of 230,823 in 1950 to the present number which is approximately 155,000.

In 1954 all activities of the U.S. Department of Labor, including the Bureau of Apprenticeship, were evaluated by a special task force of consultants and key officials from the Department. This evaluation resulted in a redefinition of mission and program for the BAT which with minor exceptions can be considered to be the current program. Some of the highlights from this programs and organization evaluation include:

(1) The Federal Government does have a specific and continuing interest in the skills of the work force, as do the individual States; but the basic responsibility for the skills of employed workers lies with industry.

(2) The Federal Government will limit its activities to those functions that cannot be performed by the States; but the Federal Government will compile and disseminate information on skill resources and requirements, stimulate activity to provide adequate skills, and provide technical assistance to others who accept responsibility for developing adequate skills.

(3) The Bureau of Apprenticeship is assigned the responsibility for encouraging and providing technical assistance for all training of employed workers rather than in the restricted field of the apprenticeable trades.[7]

Although the BAT still retains this broadened mandate to promote and to encourage all training, it has not really implemented the concept because of the concerted opposition of vocational educators, trade unionists, and some employers. In reviewing the work of the Federal Bureau of Apprenticeship and Training it is very important to remember that the Bureau is relatively small, at least by Federal bureaucratic standards. In 1951, $2,776,000 and 485 positions were allocated to the Bureau; this was increased to $4,061,000 and 493 positions in 1961.[8]

*The role of the States in developing skilled manpower*

The States of Wisconsin and Oregon had passed apprenticeship laws before the Federal Government became active in the field in the 1930's. As indicated, a number of States passed State apprenticeship laws as a result of the encouragement received from the Federal

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[5] A registered program is one which meets Federal or State apprenticeship standards pertaining to the training process. Registration is voluntary with the result that there is no accurate way of determining the number of apprentices in training. It is calculated by BAT personnel that there are an equal number of unregistered apprentice training programs.

[6] Slichter, S., Healy, J., and Livernash, E. R., "The Impact of Collective Bargaining on Management." The Brookings Institution, Washington, D.C., 1960. P. 69.

[7] The highlights of this report were obtained from an unpublished background paper prepared by BAT personnel.

[8] Ibid.

Government. Following the passage of the Fitzgerald Act, 15 States passed apprenticeship laws and a number of States set up apprenticeship agencies to implement the new laws.[9] But this era of development, in which the Federal personnel encouraged States to develop State apprenticeship agencies, came a cropper in meeting the question, Who should do what in a given State—Federal personnel or State personnel? Various solutions have been attempted to meet this problem of Federal-State jurisdiction, including the negotiation of formal written agreements between a State and the Federal BAT. Despite the strenuous efforts made by both Federal and State personnel the jurisdictional squabbles still persist. Perhaps the most accurate description of the present relationship is the phrase "uneasy truce." To be completely fair as well as accurate, one should point out that other Federal agencies have similar difficulties with their counterparts in the States. Such difficulties are almost inherent in the complicated relationships that must be set up between the Federal Government and a State government for programs of shared responsibility by Federal and State personnel. Where Federal and State personnel are stationed in the same jurisdiction (as in New York) there exists a standing invitation to suspicion and to difficulty. But overriding these bureaucratic complications is the more important question of who has responsibility for development of skilled human resources.

*Vocational education, training, and retraining*

Since 1917 public vocational schools have played a significant part in training and preparing persons for work. The program of vocational education is a Federal-State cooperative activity. Federal funds are allocated to States which have approval of their submitted plans for vocational education. These funds are available on a matching basis and are used chiefly for the partial reimbursement of salaries of teachers and vocational administrators. Principal laws authorizing the expenditure of funds for vocational education include Smith-Hughes, George Barden Act, National Defense Education Act, Area Redevelopment Act, and the Manpower Development and Training Act. In fiscal 1963 Congress appropriated a total of $79,358,278 to various vocational education programs specified in the above-mentioned legislation.[10]

Our traditional vocational educational programs have been designed to meet the needs of (1) persons who are preparing for employment, and (2) of those who have already entered the labor market in agriculture, home economics, trades and industry, fishery, and practical nursing; then in 1958 with the passage of the National Defense Education Act, technician occupations. Most recently, the Area Redevelopment Act and the Manpower Development and Training Act provides training in any occupation, assuming that the occupation can be learned during the stipulated training period, which is currently set at 52 weeks.

Programs of vocational education are directly related to apprenticeship training in that the public vocational schools offer, in the majority of cases, related technical and theoretical instruction supplemental

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[9] McCauley, John S., "Promoting Training in Industry: The Task of the BAT." Unpublished staff report.

[10] P. 27. U.S. Department of Health, Education, and Welfare, "Education for a Changing World," report of the panel of consultants on vocational education, U.S. Government Printing Office. 1963.

to their on-the-job-training. According to HEW records, 121,460 apprentices registered in related training classes in 1954 and 132,027 during 1961.[11] In recent years, however, according to the vocational educators, industry is tending to remove related classroom instruction for apprentices from the public vocational educational institutions and to establish training in private facilities supported jointly by labor and management in the industry. The report goes on to say:

> It is, therefore, of utmost importance that a careful evaluation be made of the existing deficiencies and of the action necessary in order to return these programs to the public vocational educational facilities.[12]

The recommendation would appear to be to find the absolute minimum level of action to be taken and to do so in the light of the fact that vocational educators have traditionally taught related theory to apprentices and, perhaps more significantly, in the light of the fact that this related training was largely subsidized through vocational education funds.

The most recent additions to our slowly expanding national training and retraining arsenal are the training opportunities offered under the Area Redevelopment Act and the Manpower Development and Training Act. Space permits mention of a few highlights of these programs. The Area Redevelopment Act allows some financial aid for instructors, providing subsistance allowances (based on the average of unemployment compensation in the State in which the training is being given). The Area Redevelopment Act does not limit or restrict youth from training programs, but by any criterion this is a modest effort relative to our total national needs. The Manpower Development and Training Act, on the other hand, provides for subsistence payments for 52 weeks as contrasted with 16 under Area Redevelopment Act, and does restrict programs for youth in the sense that not more than 5 percent can be spent for training allowances for youth. This last provision, almost everybody agrees, is undesirable and in time will be eliminated.

The brief recital of selected aspects in the evolution of our manpower policy highlights a number of problems and permits several conclusions. Clearly the Nation does not have a unified grand design for training and developing skilled manpower. What we do have are separate programs of vocational education, apprenticeship training, and the new occupational retraining under Manpower Development and Training Act. All of these overlap one another to a considerable degree. Because of the overlap there is jurisdictional dispute and often overt conflict between educator and Government Administrator rather than cooperation for the student's benefit. In theory there should be no conflict because the U.S. Labor Department has the responsibility in all of our skill-development programs for the selection and placement of students, for determination of occupational need in the labor market and payment of training allowances, and for training related to apprenticeship training. But disagreement is the sad reality. Vocational educators sometimes feel that their traditional programs are getting short shrift at the expense of the highly touted and greatly publicized retraining programs which, in some cases, merely duplicate an established vocatioanl educational

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[11] Ibid., p. 33.
[12] Ibid., p. 153.

program. Public employment service personnel, on the other hand, sometimes have the feeling that the educators and trainers have not kept in sufficiently close touch with the realities of the labor market.

If it is true that our skilled manpower developmental programs have not been too well planned or too well coordinated in the past, what then are the portents for the future? All indications are that we will, as a nation, continue to do more of what we have been doing. The Congress seems to be in agreement with the report of the panel of consultants on vocational education (the Willis report) that we need more of our traditional vocational educational programs. At the same time Congress seems to be agreed that our retraining effort must be continued and expanded through the Manpower Development and Training Act. Meanwhile our apprenticeship training program is limping along without benefit of any new mandate or new grants of money that would encourage innovation and experimentation.

In the final analysis, however, the jurisdictional squabbles are not as important as the question of ultimate responsibilities for training skilled manpower in a free society. The policy problem boils down to the question: What responsibility for educating and training skilled persons rests with Government and what responsibility rests with the employer? Our manpower policies will have to be more clearly delineated if we are truly to develop our human resources potential.

## APPRENTICESHIP AND SKILLED MANPOWER TRAINING: A TRIAL BALANCE

It is almost impossible to measure results of an activity so complicated as apprenticeship training. For one thing it is difficult to find a criterion for success. For another, the training involves two interested parties, employers and organized labor, whose goals in apprenticeship training may not be completely compatible. To cite the obvious example, the union is interested in limiting the number of people in a given occupation in order to control jobs and to raise wages, whereas employers are interested in the reverse. Nevertheless, an evaluation is necessary. It will be made by assessing the results obtained in our apprenticeship training programs as viewed by organized labor, by industry, by the bureau staffs at both the Federal and State levels, and by persons who have completed apprentice training programs. Success will be defined by each of these groups. It is hoped that the aggregate responses will somehow indicate some answers to the questions raised throughout this paper.

### *Union views on apprenticeship and skill training programs*

Union always have been and currently are very much concerned with the skilled occupations. Concern with skilled occupations leads inevitably to a concern with training procedures and with practices associated with entry to the skilled occupations. Historically, unions in this country and indeed all over the world have worked with employers to train craftsmen and, in some instances, have trained the craftsmen despite employer lethargy or opposition. This statement is only partially true in that not all unions train, and in that not all unions are interested in encouraging the use of apprenticeship as a method for maintaining an adequate supply of skilled craftsmen. But it is important to note that without consistent union support there would be no Federal policy or program on apprenticeship training.

There are, of course, many different types of unions in many different industries. And, clearly, union attitudes toward training vary considerably, depending on the employment conditions and the technology of the industry in which they work. Over the years the building trades and graphic arts unionist has been the strongest advocate of formal apprenticeship training. Unionists in the mass production industries, on the other hand, have evidenced little or no concern with this particular issue. Within the last couple of years the attitudes of the industrial unionist has changed slightly with regard to training because rapid technological changes have wrought so many changes in occupations and in occupational relationships. Job security, for example, is becoming the No. 1 issue in collective bargaining. It is still accurate to say that union attitudes toward apprenticeship can be placed on a continuum ranging from complete disinterest (some industrial unions) to almost passionate interest (some building trades and printing unions).

Unions concerned with apprenticeship have usually assumed one or all of the following objectives to be attainable as a result:

To protect the journeymen's wage from being undercut.
To assure apprentices a good chance to learn the trade.
To assure apprentices a reasonable rate of pay.
To prevent the trade from being flooded with too many journeymen.[13]

More recently, according to Slichter and his associates, some unions have been encouraging training programs, not to reduce the number of craftsmen but for opposite reason; namely, to build up an adequate supply of craftsmen so that their craft can compete for work. Faced with excessively high wage costs or possible schedule delays because of the shortage of really qualified craftsmen, architects and contractors may decide that new products and processes which do not require skilled craftsmen may be a good long-term solution. Some unions are aware that they are not in a position to control these technological changes so they strive to be competitive with the new technology and the changed labor costs.

How successful have unions been in the pursuit of their goals? The answer is that successes have been moderate and falures numerous. One of the means used by unions to attempt to control entry into trades and wages in the trade is to prescribe the number of apprentices to journeymen. It is a common impression that these apprentice-journeymen ratios are effectively preventing entry into a trade. There is evidence that this is not the case and that the ratios are quite irrelevant. Very few if any unions are strong enough to insist that persons can become journeymen only by serving an apprenticeship. Even in strongly unionized industries like printing or tool and diemaking it is possible for persons to learn all that is needed by observing others or by some other informal method. Perhaps the best evidence that apprentice-journeymen ratios are irrelevant is the fact that they are simply not used. "Taking the country as a whole there were not as many apprentices as the unions allowed" is the way Paul Douglas put it 40 years ago and what was true then seems to be true today.[14]

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[13] P. 73, Slichter, S., Healy J., Livernash, E. R., "The Impact of Collective Bargaining on Management," Brookings Institution, Washington, D.C., 1960.

[14] Douglas, Paul H., "American Apprenticeship and Industrial Education," Columbia University Studies in History, Economics, and Public Law, vol. XCV, No. 2, New York Columbia University Press, 1921, pp. 71–72.

Unions are interested in teaching persons all the skill and related elements of their trade. From this point of view it can be argued that unions have attained their basic objective in those situations where there are formal apprentice training programs. On the other hand, there is no reason for excessive jubilation when it is realized that from 20 to 80 percent of apprentices drop out of training programs before completion. Moreover, unions have evidenced many attitudes about training, some of which are conflicting. They have said, for example, that we must improve the quality of related training because the theoretical aspects of a skilled trade are extremely important. But in case after case they have permitted apprentice training programs to be conducted without any related training. And while unions have been concerned with training they have also permitted partially trained or untrained persons to join their ranks as journeymen. This is not to say that there were not extenuating circumstances but simply that, although organized labor is very concerned about the training of skilled craftsmen, controlling the nature of the training is not always within their power.

Thus far it would appear that unions are having limited success attaining their apprentice training objectives. Is this their perception? Are trade unionists really concerned? What attitudes do they indicate in their current statements? Answers to these questions are clearly and consistently indicated by the AFL–CIO as an amalgamated trade union movement. George Meany, speaking as president of the AFL–CIO, has said:

> There is general agreement that the demand for skilled workers will grow very rapidly in the next decade, while the opportunities for unskilled workers will continue to shrink. Therefore our interest—and the national interest—must look to an across-the-board increase in apprenticeship training.[15]

Throughout its history the AFL–CIO (when the A.F. of L. and the CIO were separate organizations, statement of support for apprentice training usually came from the A.F. of L.) has endorsed the concept of apprenticeship training. Resolutions of support appear during almost every convention proceeding. In 1959, for example, Resolution No. 98 read:

> The AFL–CIO wholeheartedly endorses the national apprenticeship and training program and urges the Congress to provide more adequate funds to permit the Bureau of Apprenticeship and Training to extend this work in the interest of our technical progress and national security.[16]

During this same convention unionists expressed concern about the supply of skilled craftsmen by pointing out that—

> recognized apprentice programs are failing to turn out anywhere near the number of skilled journeymen needed each year to offset even the number of skilled workers leaving the labor force through death or retirement, let alone to meet the increasing demand for additional skilled workers.[17]

Similar statements, viewing with alarm the declining number of apprentices in training or statements indicating moral support of the national policy, can be found in the proceedings of the craft unions and the railroad brotherhoods. Clearly, many trade unions believe that the only way to obtain skilled journeymen is to train them in apprentice training programs.

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[15] Henning, John, "Expanding Apprenticeship for All Americans," AFL–CIO American Federationist, July 1963, p. 5.
[16] Proceedings of the third annual convention, AFL–CIO, vol. I, p. 519.
[17] Ibid, vol. II, pp. 170–172.

Apprenticeship, at least as far as organized labor is concerned, is still a viable institution for training journeymen and for realizing trade union purposes. In spite of the declining number of apprentice training programs and of apprentices in training, most unions still believe that apprenticeship is desirable. Unionists are still inclined to berate employers for neglecting its responsibility to train its employees. Even under the severe criticism from many sources to the effect that there has been racial discrimination in apprenticeship, we see no signs that the training programs will be curtailed or eliminated. And there are hopeful indications that even the knotty problem of eliminating discrimination in apprenticeship training will be overcome within a reasonably short time.[18]

We see, finally, additional signs of at least a small-scale renaissance of apprentice training. Some unions are experimenting with preapprenticeship training programs (largely in the trowel trades). Here youths have an opportunity in training centers away from the job and for brief periods (4 to 6 weeks in American programs) to learn some of the basic skills of their trade. A number of advantages accrue to all parties: the union can select and screen applicants for apprentice training; the employer receives production from his apprentices from the very first day of employment; and the preapprentice learns the skills basic to a job. More important, the preapprentice can decide on his carer before fully committing himself. Another significant development of the last several years is the hiring by unions of training coordinators or training directors to supervise, to plan, and in general to promote apprenticeship training or the newer skill improvement (journeymen upgrading and improvement). In this connection some unions have negotiated funds from employers to establish an "educational fund" as a financial resource to meet the costs of operating training programs. This seems to be a very useful development. In summary, although some people feel that apprenticeship is moribund, many in organized labor feel just the opposite and so strongly that if the Federal Government discontinued its modest programs, these unions would continue to develop apprenticeship training as they have over the years. It needs to be reemphasized here that not all unions share the views just described. The basic position of many industrial unions is that apprentice training is largely irrelevant for them because strict seniority systems prevail, with little or no need for craftsmen training.

*Employer views on apprenticeship and skill training programs*

It is difficult if not impossible to speak of employers or their views on anything. There are so many employers in so many different industries, with varying technologies, business conditions, and interests that extreme caution should be used in generalizing about anything as abstract as employers. Caveats aside, some generalizations are possible. It is possible to differentiate broad segments of industry and to assess their interests related to skill training. By and large, employers in the construction and graphic arts industries are as interested in apprenticeship as are their unions. By and large, employers in mass production industries (automobiles, for example) are, if any-

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[18] New York Times, Sept. 24, 1963, "Negro Apprentice Plan Offered by Building Industry and Labor," p. 32.

thing, somewhat more interested in apprenticeship than are their unions because they must create their own skilled manpower. In addition, many industrial unions have just not concerned themselves with apprentice training. One final generalization is possible: Our very largest employers conduct apprenticeship training programs, but, with the exception of employers in the construction industry and in the graphic arts, small- and medium-size employers do not train.

Surveys of the extent of training in business and industry invariably report that large employers conduct skill training and other training, while smaller employers do not. How do these larger firms evaluate their apprentice training activity? Why do they train and what are their needs? Large employers conduct apprenticeship training not to obtain cheap labor but to obtain qualified craftsmen, now and in the future. Quite obviously these are the employers who plan their manpower needs long in advance and then train against these projections. As previously indicated, many of these programs are completely management dominated, with only sporadic or casual interest displayed in them by the bargaining union. The attitude of management in these large employing organizations toward apprenticeship is summarized in the following: We have always trained craftsmen because it assures a steady supply when we need them; and in addition it is one of our best sources of supervisory personnel; or: We have always trained apprentices. We would rather train our own craftsmen than hire them from the outside. Sometimes we can't keep all those we train, but we feel that men who go elsewhere provide good advertising for our company. Not so incidentally, a training director once told the writer that it cost their company more than $17 per hour in direct costs to train apprentices.

Not unexpectedly, large employers are not too interested in Government standards or policies relating to apprenticeship. In connection with registration of apprenticeship programs with a State or Federal bureau of apprenticeship, many of these employers feel that they have nothing to gain from such registration and everything to lose in terms of excessive recordkeeping. They feel that Government might somehow restrict them in their programs, or that Government concern in this area of manpower might somehow lead to other undesirable penetrations. To the nonunion employer, the apprentice-training representative, who more often than not is an ex-trade union official, poses a vague threat of unionization. But the really important fact is that large employers do train their own skilled craftsmen and, understandably, they are interested in conducting their own affairs without any interference or help.

The main reason given by small- and medium-size employers for not training is the stock answer: "It is too expensive." Inherent in this answer is the thought that it is always possible and perhaps cheaper to go into the labor market and to find the type of needed craftsman at an acceptable price. The attitude toward training of small- and medium-size employers reflects the difficulty of implementing the present national apprenticeship policy. These employers do not see training as something in their economic self-interest if it involves something more than informal on-the-job training of new employees. Yet these same employers were more than willing to train during the GI bill era when the Federal Government subsidized some of the training costs.

Employer evaluation of our national apprenticeship training policy varies with employer size and industry in which the employer is located. Our very largest employers in mass-production industries recognize that training and retraining is one of the costs of doing business. This is especially true at a time of continuing and rapid technological innovation. Some of the finest apprenticeship training programs in the world are conducted by large American business firms but it is significant to note that these firms were conducting apprenticeship training programs before the Federal policy was instituted. And these same firms will conduct skill-training programs with or without a program of Government support and encouragement.

Employers in the construction industry share responsibility for training craftsmen with unions in joint apprenticeship councils. Like all employers these are concerned with labor costs; their feelings about training are always tempered by the fact that any system of training will prove an additional financial burden. On the positive side, they are aware that apprenticeship training produces craftsmen who do know their trade and who are therefore in a position to make a contribution to production and profit. Printing industry employers share attitudes toward training with employers in the construction industry.

The small employer is considered to be a problem in that he does not seem to be assuming his share of the total training task. In spite of exhortations and perhaps even contrary to his long-range interest, he does not often engage in formal training activity.

*Other views on apprenticeship training*

The value of an educational effort can sometimes be judged by the successes and failures of alumni. If we use the criterion of success in occupations for which they were trained, we can conclude that apprenticeship training is performing a very useful role. According to a comprehensive survey of 3,278 persons who completed apprenticeships in 1950, an impressive percent of the group manifested a strong attachment to their trade 6 years after reaching journeymen status.[19] Ninety-three percent of these former apprentices were working in their apprentice trades or in other apprenticeable trades. Furthermore, more than one-fourth of the group advanced beyond the journeyman level into supervisory positions or became independent contractors. Nearly all of these respondents felt that the training was valuable but more than half of the group felt that their training could have been improved.[20] In an earlier study Koerble analyzed the 12-year experiences of 340 persons who completed apprenticeships during 1940 and 1941 and found that 85 percent of the group was employed in their apprentice trade or in related areas of employment. He found that a substantial percentage of those who had been trained through apprenticeship gravitated to managerial and entrepreneurial positions.[21] For the relatively few who acquire journeyman status as a result of completing a formal apprenticeship training program, it would seem that they realize long-term benefits in psychological and financial security. And as previously indicated, even apprentice training dropouts look kindly on their training ex-

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[19] U.S. Department of Labor, Bureau of Apprenticeship and Training, "Career Patterns of Former Apprentices," Bulletin T–147, March 1959, p. IV.

[20] Loc. cit.

[21] Koerble, Charles E., "An Appraisal of Machinist Apprenticeship Training Programs by Means of a Followup Study of Trainees," mimeo, June 13, 1955, p. 30.

perience, explaining that financial hardships or the possibility of more immediate financial gain alone influenced them to drop out of the training program.

Dropout studies cited here seem to indicate that for the apprentice in training there does not seem to be a really substantial financial benefit to be gained from completing his apprenticeship and obtaining journeyman pay. This finding is interesting because some wage theorists have argued that it was the declining wage differential between the journeyman's wage and the learner's wage that convinced many persons not to enroll in or to be interested in apprenticeship training.[22] On the other hand it has often been noted that most employers or joint apprentice training programs have long waiting lists of qualified applicants. Most observers seem to agree that narrowed wage differentials have not significantly affected the recruitment of skilled workers. Perhaps even more important than wage matters to this assessment is the relatively low status ascribed to skilled occupations by our society. A skilled craftsman was once considered to be near the top of our occupational hierarchy but this does not appear to be so today.

*The Federal program for developing apprenticeship training programs*

Personnel in the Federal Bureau of Apprenticeship and Training do not train apprentices, neither do they create apprentice training programs. All they can do is to persuade employers, with or without union participation, to assume responsibility for embarking on a program. In attempting to strike our trial balance it is necessary to evaluate the record of this Bureau in terms of its primary mission. It is, by Washington standards, a tiny bureau with a modest budget of a little over $4 million, in this day and age when billions are mentioned rather casually. Judged by the ultimate criterion of apprentices in training it would appear to be something less than a success. But to be fair in our assessment, some of the complicating factors should be noted: Technological and occupational changes; changing attitudes toward skilled occupations; reluctant employers; and a relatively small staff for promotion. All of these militate against the creation of training programs.

Another way to evaluate this Federal service is to attempt to obtain answers to the question, Has the Bureau exploited its resources effectively and has it tried to be creative in its task? In the period since 1937, Bureau personnel have attempted one radical approach to their assignment. Following a thorough review of all Department of Labor functions, the Secretary of Labor promulgated General Order No. 91 which expanded the role of the Bureau of Apprenticeship to include consultant services to industry on all industrial training, whether or not it involved apprenticeable trades. This added "and training" to the Bureau's title, and at least theoretically permitted Bureau personnel to consult with employers and others about all kinds of training problems, thereby promoting skill and other training at the same time. It was an interesting innovation containing the seeds of something useful. Unfortunately all that this bureaucratic change produced were sour notes from organized labor, vocational educators, and some

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[22] National Manpower Council, "A Policy for Skilled Manpower," pp. 260–265.

employers. Although the Bureau still retains the expanded "and training" functions, these were quietly shelved a number of years ago and with the advent of our present concern with retraining under the MDTA, there is now less reason for BAT personnel to compete in this field with numerous other Federal and State training consultants.

What, on balance, can we say about the Nation's apprenticeship training system? All indications are that it is not completely moribund and that it has some well-placed friends. At the same time, not even its most ardent supporters would claim spectacular success, especially in the light of the declining number of apprentices registered in formal apprenticeship training programs. What remains now is to review here our best estimates as to future human resources needs, following which conclusions will be drawn.

### CURRENT AND PROJECTED SKILLED MANPOWER NEEDS

Publication in March 1963 of the first annual manpower report of the President constituted an important milestone in our evolving manpower policy and program. Summarized in that volume are the significant trends occurring in our work force as well as changes and problems that are just beginning to be perceived. Selected substantive findings from that report are summarized here in the belief that these trends may suggest at least some of the educational and training implications.

One of the first trends that should be singled out is that now more people are in our work force engaged in producing services than in the production of goods. Somewhat parallel to this trend is the shift in the percentage of the work force that is engaged in white-collar occupations, in contrast with those engaged in blue-collar occupations. In the 1950's the percentage of the work force engaged in white-collar occupations included more than half of the work force. Since then, of course, our work force has steadily shifted from blue collar to white collar.[23] Of special importance in these shifts is the ever-increasing need for more professional, technical, and managerial personnel. Other significant findings related to our work force include:

Item: Persistent unemployment since the end of World War II, at a time when current shortages exist in a number of professions and specialized occupations.

Item: Serious and intractable unemployment problems among young people, older workers, nonwhites, those in declining or unstable industries, those located in depressed areas, and unskilled workers generally.

Item: Massive increases projected in the number of younger workers who are entering the work force during this decade (26 million).

Item: Many more workers 45 years of age and older.[24]

Thus far the emphasis has been historical. But what are our future manpower needs, especially in those occupations where apprenticeship training has, traditionally, been the accepted avenue for acquiring the required skills and knowledge? In the first place, it is estimated by authorities in apprenticeship training that the United States should

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[23] U.S. Department of Labor, "Manpower Challenge of the 1960's," p. 8.
[24] U.S. GPO., "Manpower Report of the President and a Report on Manpower Requirements, Resources, Utilization, and Training, 1963," p. 3.

produce approximately 250,000 skilled craftsmen per year just to replace our normal attrition losses. As indicated here, we are currently training around 160,000 apprentices per year. Meanwhile, the best judgment of our manpower experts is that we will have a greater than average growth for the rest of this decade, not only in the obvious professional categories but also in some skilled blue-collar occupations such as cement masons, bricklayers, sheetmetal workers, plumbers, toolmakers and diemakers, construction electricians.[25] At the same time there will be an exodus of persons from the ranks of agriculture, from some phases of the railroad industry, and from unskilled jobs in general.

Manpower trends just summarized occur in response to fundamental changes in our economy. The one change uppermost in our thoughts is technological change. Although disagreements continue among authorities as to the scope and character of technological change or as to all of its social consequences, it is clear that our human resources must be broadly educated, carefully used, and constantly renewed and retrained to meet the rapidly changing demands of new technologies. The demand for better educated and better trained people in all occupations will increase. This does not necessarily mean that classroom training is the only type of training or that some combination of on-the-job and classroom training may not still be useful. As a matter of emphasis, however, the need for continuing education is illustrated for us day after day. Journeymen electricians, for example, found themselves ill equipped to work with the newer electronic developments even though they had graduated from registered apprentice training programs. The reason for this obsolescence is simply that technological developments have occurred so rapidly as to contrast the decade or so "half life" of an electrician with the previous 30 or 40 years. Whereas many persons in our society were, at one time, permanently equipped for participation in our work force after completing six or eight grades of schooling; this is no longer the case for the majority. For the majority, education and reeducation have become quite literally a lifelong and never-ended task.

## CONCLUSIONS

Some critics of our apprenticeship system would, they say, scrap the whole system and start again. This approach is tempting especially for those who would substitute general and global solutions for hard analysis and hard work. It is a major conclusion of this paper, however, that the basic elements of our apprenticeship training system should be retained, but that the policy and the program should be radically revamped and integrated with the rest of our public systems for education and training. If revamped and reinvigorated, apprenticeship training should serve employer, unionist, apprentice (even when apprentices are union members they sometimes must endure a second-class membership) and the general public interests. The following points of emphasis are suggested:

1. *Some way should be developed to provide some form of financial assistance to employers who train skilled workers.*—Subsidies pro-

[25] Clague, Ewan. Speech delivered at the 50th anniversary celebration of the Department of Labor, Chicago, Ill., Mar. 28, 1963.

vided to veterans in the GI bill resulted in an unprecedented increase in numbers of apprentices trained. Right after World War II veterans constituted some 90 percent of total apprentice enrollment. Employers assisted in this training because they were socially responsible, but even more because they were receiving tangible financial benefits as a result. Exhorting employers to institute training programs does not seem to have had too great an impact on them. It is time to attempt other approaches.

2. *A more creative and innovative approach needs to be taken by all who are interested in apprentice training but the responsibility falls heaviest on the Federal Bureau of Apprenticeship and Training.*—The Federal Government has a basic responsibility to provide guidance and leadership with respect to all facets of apprentice training. To this end Bureau personnel should be conducting an active research and demonstration program. Active research does not mean the mere collection and dissemination of statistics and data related to apprentices or to apprentice training programs. Instead, research and demonstration activity should be conducted on all aspects of the training, with nothing taken for granted. This would include, for example, research on the length of training programs (what is so magic about the 2-year limitation imposed as dogma, or why could not respectable apprentice training programs be developed for 9 months or 1 year?). On the other hand, research might indicate the need for longer training periods or training over a relatively long time span with considerable work interspersed, or the need for concentrating on the training methods and the training content. The important point here is that those charged with responsibility for developing apprentice training should rely more on systematic research and less on pronouncements from high authority. It goes, almost without saying, that staff and financial resources must be added to the Federal Bureau of Apprenticeship and Training. It goes without saying, also, that what is needed is not more of the same but truly imaginative and qualified staff.

3. *Federal and State apprentice training personnel should take the initiative in persuading employers and unions that apprentice training should be adopted to the service industries and to white-collar jobs such as sales.*—In the past, apprenticeship has been thought of as relevant only to blue-collar occupations. This is unfortunate, especially in the light of the manpower shifts and industrial shifts that have occurred in our economy.

4. *Some existing practices should be improved and expanded by BAT personnel working closely with labor and management.*—Two developments are singled out for special attention. The first is the development of preapprenticeship (or preemployment) training, which seems to be operating successfully in the few instances where it has been instituted. The second development is the creation of special union-management apprentice training funds and the hiring of full-time training coordinators to supervise all aspects of apprenticeship training.

5. *There is a pressing need for all persons associated with apprentice training, or with any training for that matter, to communicate more effectively with one another.*—In too many instances we find that one group of trainers do not know what another group has already started or planned. Improvements in communication can be

made among Government personnel, between Government employees and employers, and, in sum, in all directions. Most important is the need for extremely close liaison between Government representatives and representatives of employers or unions.

6. *More and better data on both the supply and demand aspects of apprentice training are needed.*—Obviously, we need to have accurate data as to the number of apprentices in training, both in formal and informal programs. At the same time we need better data as to our future occupational needs. More complete and more accurate data will help policymakers as well as practitioners to form more precise judgments about the nature of the gap, if any, between the supply and demand of skilled workers. Even more important, better data will equal better manpower planning and programing.

7. *Opportunity to enroll in apprenticeship training programs should be open to qualified persons without respect to race, color, or creed.*—Government hearings and reliable researches have, rather conclusively, demonstrated that nonwhite candidates for apprentice training programs do not receive equal treatment. It would be presumptuous to attempt to prescribe for this important but complicated situation. But no one can really dispute the thesis that there is a vicious circle whereby nonwhite are excluded from apprentice training programs on the premise that they are unqualified or that this vicious circle must be broken. Some of the current suggestions for resolving this dilemma, like discrimination in reverse or overcompensation, are inherently as bad as the original discrimination—yet something must be done.

## IMPLICATIONS FOR PUBLIC POLICY

If we are to make progress toward our twin human resources goals of (1) helping individuals to fulfill themselves and (2) meeting our work force needs in the future, it will be necessary to review some of our traditional approaches to training. Some of the specifics follow:

1. *The voluntary nature of our national apprenticeship legislation should be modified to require employers engaged in defense contracting to train specified numbers of skilled workers.*—This is admittedly a controversial proposal that needs to be thoroughly aired. It has been argued that employers do not train and, even worse, they pirate from one another without adding to our total skilled manpower pool. On the other hand, it is argued that unless the employer gives his willing cooperation there will be little or no really effective training. If employers in defense contracting were required to train specified numbers of skilled workers there would be an assured increment added to our skilled manpower pool. Without some effective reward or the reverse, some penalty, employers will not train, according to many observers.

2. *Our philosophy and policy on child labor and public education should be reexamined with a view to permitting apprentice training to begin at an age earlier than 18.*—Research studies indicate that the average age of the apprentice in training is 26. The fact that he is in his twenties, often with a wife and children to support, implies that he will be dissatisfied with a wage that is a fraction of the journeyman's wage. It would be desirable to have younger persons in apprentice training, especially if these younger persons were in that great mass of jobless youth who cannot or perhaps should not go to college

and who cannot find a job because they are untrained and have little if anything to offer to employers. It is not possible here to suggest all the possible ramifications of this proposal, but at a minimum it will be necessary to review possible complications arising from either the basic legislation or the administrative interpretation of child labor laws and public school education laws. Could a youth of 15, for example, be employed in an apprenticeship program and still be enrolled in a public high school?

3. *The relationship of the Federal agency to State agencies should be reexamined by Federal agency personnel with a view to withdrawing Federal agency personnel from direct field competition with State agency personnel.*—In some States the Federal and State apprentice training representatives are in direct competition in the field. Jurisdictions are ill defined or not defined at all. It would seem that State personnel (where a State does have an apprentice-promoting activity) should develop and service programs, while Federal agency personnel assume a responsibility for leadership, research, national promotion, and general guidance.

4. *The relationship of Federal and State apprentice training personnel to public school personnel and public employment personnel at the local level must be clarified, by written agreements if necessary, so that duties, responsibilities, and authority of all manpower agency representatives are explicit and clear.*—Too frequently the right hand does not know what the left hand is doing. At the local level, where eventually all manpower activity focuses, we often find that Government programs are not synchronized or, even worse, that there is a complete lack of information about the other departments' programs. In some cases, for example, public employment service personnel work closely with employers, quite unaware that an apprentice training representative is interested in that same employer. And this operates in reverse. Both situations are unsatisfactory.

5. *Guidance and counseling programs in the public high schools and in the public employment service must make renewed efforts to assist, to encourage, and to facilitate apprentice training programs.*—Everybody should be made aware that we are not sufficiently concerned with the non-college-bound youth. Guidance counselors can play a more active role in suggesting apprentice training as an effective training scheme leading to rewarding careers.

The President's Committee on Youth Employment recommended in April 1963 that apprenticeship training policy and programs should be studied, reviewed, and changed as required. Since that time the report on vocational education by the panel of consultants has been published. It is being suggested that vocational education be expanded and improved at all levels, and very specifically including preemployment training. It is time that the programs under MDTA, ARA, vocational education, and apprenticeship were really integrated and coordinated.

Finally, it should be emphasized that a review of our basic approaches to training skilled manpower should be both objective and broad in scope. A review should, for example, reexamine: Our approaches to training technicians; approaches to accelerated training as well as breaking down skills; and approaches to Government supported training centers. There is a need for critical assessment of every aspect of our skill training programs. It is overdue.

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# AN ASSESSMENT OF APPRENTICESHIP: PUBLIC POLICIES AND PROGRAMS

By Martha F. Riche [1]

Public policy toward apprenticeship in the United States is aimed at developing a supply of skilled manpower adequate to an advancing economy. In this respect apprenticeship policy, along with other public policies such as those embodied in the Manpower Development and Training Act, the Smith-Hughes Vocational Education Act, and the Employment Act of 1946, forms part of an overall national manpower and training effort. However, unlike job retraining, which is receiving new impetus under the MDTA [2] and the Area Redevelopment Acts, and vocational education, which seems destined to expand as a result of the Vocational Education Act of 1963, apprenticeship policy has remained basically static since its initial formulation during the depressed years before World War II. Recent concern over unemployment that has helped bring about the retraining and vocational education renaissance, however, is now bringing apprenticeship under new scrutiny, too.

As a part of this reappraisal, this article summarizes the legislative framework for apprenticeship to provide a factual background for discussion of our goals for apprenticeship, and consideration of whether they can be advanced by changes in current State and Federal legislation bearing on apprenticeship.

## PROMOTIONAL LEGISLATION

Although both Wisconsin and Oregon enacted early laws promoting apprenticeship (Wisconsisn in 1911, and Oregon in 1932), a national apprenticeship policy was not inaugurated until 1937 when the National Apprenticeship Act (Fitzgerald Act) [3] was passed. One of a number of laws designed to improve employment and economic activity, the Fitzgerald Act did not directly establish a program; rather, it sought to encourage private industry and labor groups that had not already done so to set up apprenticeship programs and to maintain a minimum level of apprentice welfare. Sixteen States [4] followed suit in the next few years (Arkansas later repealed its law). After World War II, six more States [5] and Puerto Rico passed apprenticeship laws with the intention of expanding training opportunities for veterans taking advantage of the GI bill. Five additional States [6]

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[1] Of the Division of Publications, Bureau of Labor Statistics.

[2] Although MDTA funds can be used to support up to a year of apprentice training, only a few preapprentice and apprenticeship programs are presently being financed this way.

[3] 29 U.S.C. 50.

[4] Arizona, Arkansas, California, Colorado, Hawaii, Kentucky, Louisiana, Maine, Massachusetts, Minnesota, Montana, Nevada, New York, North Carolina, Virginia, and Washington.

[5] District of Columbia, Florida, New Hampshire, New Mexico, Utah, and Vermont.

[6] Connecticut, Maryland, New Jersey, Ohio, and Pennsylvania.

and the Virgin Islands have passed similar laws in the past few years, although New Jersey has yet to appoint a staff to carry out its law. Typical among the aims set by these State laws (30 in all) is that enunciated by the New York law, which says:

> Skilled manpower constitutes a great resource in this State. Apprenticeship programs, through supervised training and education, develop skilled craftsmen, and help meet the increasing needs for such workers in the State's labor force. * * * To these ends, it is the declared public policy of the State of New York to develop sound apprenticeship standards and to encourage industry and labor to institute training programs.

(Though not all States have laws promoting apprenticeship programs, there are laws requiring that an apprenticeship be served preparatory to State licensing or registration in certain occupations in approximately three out of four States. The occupations most commonly covered include barbers and beauticians, dispensing opticians, funeral directors and embalmers, and pharmacists.)

*Administration*

The Fitzgerald Act is administered by the Bureau of Apprenticeship and Training of the U.S. Department of Labor. The Bureau's principal function is the promotion of apprenticeship through both technical assistance to employers and unions developing or conducting apprenticeship programs, and dissemination of apprenticeship information through, for example, periodic conferences held throughout the country. To carry out the act's mandate of promoting apprentice welfare, the Bureau also reviews apprenticeship programs in States that have not established their own apprenticeship agencies. If these programs meet certain minimum standards, the Bureau issues them a certificate of registration. It also issues certificates of completion to individuals who successfully fulfill the requirements of a registered program in States that do not have certification programs.

The Fitzgerald Act authorized the Secretary of Labor to appoint a national advisory committee to provide guidance on policy matters. The Federal Committee on Apprenticeship is composed of five representatives each from management and labor and one from the Office of Education; it determines, among other things, what occupations are apprenticeable.

Apprenticeship councils are established by all of the State laws but Wisconsin's, as well as by Iowa, Kansas, and Rhode Island, which do not have apprenticeship legislation. Their members are appointed by either the Governor or the director of the State agency responsible for labor matters and represent management and labor, as well as the public. The responsibilities of the council generally include formulation of policies; establishment of standards for apprenticeship agreements; and issuance of any rules and regulations necessary to carry out the intent of the legislation. Almost half of the State laws give the apprenticeship council more specific duties, such as registering programs that meet the council's standards; registering, suspending, or canceling agreements between the apprentice and the employer; issuing certificates of apprenticeship completion; recording apprenticeship programs and agreements (and their disposition); establishing a list of apprenticeable trades; settling disputes between parties to an apprenticeship agreement; and gathering and compiling data on trends in employment opportunity in various trades.

An apprenticeship director or division, located within the State department of labor, supplements the activities of the council in all apprenticeship council States but Arizona, Maine, Maryland, and New Hampshire. Maryland's apprenticeship act is administered by the State department of education rather than of labor, and consequently is not recognized by the Federal Committee on Apprenticeship. This group considers that apprenticeship, being predominantly a labor-management affair, should be administered by the State department responsible for labor and/or industry.

In most States the appointment of the director of apprenticeship by the labor commissioner must be confirmed by a majority vote of the apprenticeship council. (In Oregon and Utah, the apprenticeship council can appoint, fix, and supervise the duties of the apprenticeship director.) On the other hand, several States (the District of Columbia, Hawaii, Louisiana, Massachusetts, Minnesota, and New York) make the activities of the State apprenticeship council subject to the approval of the State commissioner of labor (Puerto Rico allows the labor commissioner to remove members of the apprenticeship council).

State and local joint apprenticeship committees for particular trades and industries are appointed or approved by State apprenticeship councils, though, in contrast with the other States, California and New York place their joint committees under the supervision of the State labor department, rather than the State apprenticeship council.

Joint apprenticeship committees are composed of equal numbers of employer and employee representatives chosen by their respective trade organizations. In a few States, such as Arizona, Colorado, and Virginia, these committees perform the specific tasks involved in directing an apprenticeship program: establishing schedules for work experience and training; assisting in developing apprentice wage rates and working conditions; ascertaining employer needs in the trade; specifying the appropriate ratio of apprentices to journeymen, or the number to be employed in the trade; cooperating with school authorities in educating the apprentices; and adjusting disputes. In other States, such as California, Florida, and Minnesota, the committees act in an advisory capacity to employers and employee organizations responsible for carrying out each program, while in still others, including New York and New Jersey, the joint apprenticeship committees are merely directed to devise craft or trade standards for apprenticeship agreements, and to give any aid necessary for their operation. At present, there are about 7,000 joint apprenticeship committees; in 11 States, including Connecticut, Massachusetts, and Pennsylvania, there are no legal provisions for their appointment.

*Apprenticeship agreements*

To be approved by the Bureau of Apprenticeship and Training and by State apprenticeship agencies, apprenticeship agreements must conform to certain minimum standards. The Federal law does not specify minimum standards for federally approved apprenticeship agreements; instead, the Federal Committee on Apprenticeship has recommended that valid apprenticeship agreements contain provisions for the following:

1. A starting age of not less than 16.
2. A schedule of the work processes to be taught.

3. Organized instruction to provide knowledge in technical subjects related to the trade.
4. A progressively increasing schedule of wages.
5. Proper supervision of on-the-job training with adequate training facilities.
6. Periodic evaluation of the apprentice's progress, both in job performance and related instruction, and the maintenance of appropriate records.
7. Employee-employer cooperation.
8. Recognition for successful completions.[7]

A ninth standard, that of providing equality of opportunity for all qualified applicants, has recently been adopted, and will be discussed later.

For State-recognized agreements, basic standards are frequently fixed by the apprenticeship law; the State council and the joint committees then build upon them to fit individual trades. Agreements conforming to recognized standards generally cover these areas: (1) Apprentice qualifications (e.g., apprentices must be at least 16 years of age, and must have at least 2 years of high school, if not a diploma); (2) apprenticeship term (e.g., 2,000 to 8,000 hours of continuous employment); (3) probationary period (during which time either party may terminate the agreement); (4) work schedule (specifying the number of hours at each operation); (5) related school instruction (in most States apprentices must take at least 144 hours of instruction a year); (6) hours and working conditions (the same as those for journeymen unless a collectively bargained contract specifies otherwise); (7) wages (a graduated scale); (8) examinations (periodic); and (9) apprentice-journeyman ratio (e.g., 1 apprentice for every 10 journeymen). State laws also often specify the parties who must sign and approve the agreement, and the procedure for determining a violation of the agreement or any other disagreement. Some States, recognizing the problems of the construction industry, where employment and employer specialization makes a broad and unified training program difficult, also provide for rotation of an apprentice among a group of employees.

## OTHER LEGISLATION

*Related training*

Most State apprenticeship laws specifically provide that "the administration and supervision of related and supplemental instruction for apprentices, coordination of instruction with job experiences, and the selection and training of teachers and coordinators for such instruction" be assigned to the State and local boards responsible for vocational education. (Vermont's law was amended in 1961 to shift these duties from the State department of education to the department of industrial relations.)

Classroom training related to his trade gives the apprentice the theoretical equipment to broaden and supplement the knowledge he gains through on-the-job training. Most State apprenticeship laws specify a minimum of 144 hours of related instruction a year; the joint apprenticeship committees may require any additional training that learning their trade requires.

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[7] "Apprenticeship Past and Present" (U.S. Bureau of Apprenticeship, 1955), p. 33.

Apprentice education through the public school system is financed through State, local, and Federal funds. Federal funds authorized by the Smith-Hughes (1917)[8] and George-Barden (1946)[9] Vocational Education Acts provide partial reimbursement for salaries of teachers and vocational administrators to States with approved vocational education plans. In fiscal 1961, 132,027 of the 963,609 persons enrolled in publicly sponsored vocational trades and industry classes were apprentices taking instruction related to their work; 109,659 of these were participants in registered apprenticeship programs. Information on the number of apprentices who received class instruction outside the public school system is not readily available.

*Antidiscrimination provisions*

Charges that certain apprentice selection procedures have effectively prevented qualified Negro applicants from training for skilled employment have resulted in attempts to insure equality of apprenticeship opportunity. On June 4, 1963, President John F. Kennedy directed the Secretary of Labor "in the conduct of his duties under the Federal Aprenticeship Act * * * to require that the admission of young workers to apprenticeship programs be on a completely nondiscriminatory basis." In accordance with this directive, on December 17, 1963, Secretary W. Willard Wirtz approved new standards and compliance procedures for programs registered with the Federal Govenment, which became effective on January 17, 1964.

Under these standards, there is to be "selection of apprentices on the basis of qualifications alone * * * unless the selections otherwise made would themselves demonstrate that there is equality of opportunity * * * [action] to remove the effects of previous practices under which discriminatory patterns of employment may have resulted * * * [and] nondiscrimination in all phases of apprenticeship and employment during apprenticeship after selections are made." While noncomplying programs will be deregistered after a thorough review and hearing procedure, the regulations emphasize a voluntary approach, consistent with the original policy of the Fitzgerald Act. Deregistration could have a material effect on Federal projects, where an apprenticeship program must be registered in order for an employer to pay less than journeyman rates to apprentices.

BAT regional directors were also instructed to encourage State apprenticeship council States to adopt the equal opportunity standards for apprenticeship. In States with such standards, enforcement responsibility will be divided between State and Federal personnel; in other States, Federal apprenticeship officials will consider withdrawing Federal recognition of programs registered by the State apprenticeship agency.

Nevada and Maine have the only apprenticeship laws that require that standards for apprentice agreements include a nondiscrimination provision. California makes it unlawful for employers or labor unions to refuse to accept qualified employees as apprentices on public works on the grounds of race, creed, or color; and the Colorado State Apprenticeship Council recommends that a nondiscriminatory policy be included in approved apprenticeship agreements.

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[8] 20 U.S.C. 11–15. 16–28.
[9] 20 U.S.C. 15l–15m, 15o–15q.

Twenty-five States [10] and Puerto Rico make job discrimination unlawful through mandatory fair employment practice acts; these laws provide enforcement procedures. Two other States, Nevada and Virginia, have acts providing for voluntary rather than mandatory compliance. All of the State fair employment practices laws prohibit discrimination by employers, and all but Idaho prevent labor organizations from discriminatorily excluding or expelling persons from membership.

*Wage regulation*

To promote apprenticeship and protect apprentices, the Federal and State laws that set minimum wages often allow an employer to pay lower wages to apprentices participating in Federal- or State-registered apprenticeship programs. These provisions prevent wage minimums from pricing apprentices out of employment; an indirect effect is their encouragement of apprentice registration, without which wage exceptions cannot be granted.

But little use apparently is being made for this purpose of either the Fair Labor Standards Act of 1938 [11] or the Walsh-Healey Public Contracts Act of 1936.[12] The Fair Labor Standards Act provides that minimum wages lower than the present $1.25 rate may be granted to apprentices, provided that special certificates are first obtained from the Wage and Hour Administrator. In fiscal 1962, when the minimum wage was $1.15 an hour, employment at special minimum wage rates was authorized for only 372 apprentices—242 of those were in Puerto Rico and the Virgin Islands. Exceptions for apprentices are also authorized under the Walsh-Healey Act, where the Secretary of Labor insures that Government contracts for more than $100,000 are not awarded to firms that pay substandard wages through determining and requiring payment of the prevailing minimum wage in the industry. As of June 30, 1962, only one exception for apprentices had been made under this act that had not already been made under the Fair Labor Standards Act, and that was for apprentices in the iron and steel industry effective from 1949.

A third Federal act, the Davis-Bacon Act of 1931[13] which regulates wages for laborers and mechanics employed on Federal construction projects, also provides that registered apprentices may be employed at subjourneymen rates. Equally important, however, is the act's provision that payrolls of contractors and subcontractors for Federal construction projects be examined to insure that disproportionate numbers of laborers, helpers, and apprentices are not employed. This requirement is met if the ratio of apprentices to skilled workers on the covered project is not greater than the same ratio allowed the contractor for his entire work force, by either the craft collective-bargaining ratio under a State council and joint committee arrangement, or by the prevailing area practice as determined by the Solicitor of Labor. Contracts let under the National Housing Act, Hospital Survey and Construction Act, Federal Airport Act, Housing Act of 1949, School Survey and Construction Act, and Defense Housing and Communities

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[10] Alaska, California, Colorado, Connecticut, Delaware, Hawaii, Idaho, Illinois, Indiana, Iowa, Kansas, Massachusetts, Michigan, Minnesota, Missouri, New Jersey, New Mexico, New York, Ohio, Oregon, Pennsylvania, Rhode Island, Vermont, Washington, and Wisconsin.

[11] 29 U.S.C. 201–219.

[12] 41 U.S.C. 35–45.

[13] 40 U.S.C. 276a et seq.

Facilities and Services Act of 1951, also come under these regulations. During fiscal 1962, the Office of the Solicitor of Labor, which administers these laws, made 44,558 wage determinations of all kinds.

Though these laws are designed to protect apprentices, they may have the opposite effect. For example, the necessity to indenture apprentices working on Davis-Bacon jobs without benefit of a probation period was cited by the Virginia Division of Apprentice Training [14] as a major cause for the large numbers of apprentice cancellations relative to completions recorded in the State. (There were roughly three times as many cancellations as completions for the period 1940–61, and almost twice as many in 1962.)

Of the 29 State and territory minimum wage laws now in operation, 19 [15] allow for payment of less than the minimum rate to registered apprentices, generally for a specified length of time. For example, apprentices in the building trades in the District of Columbia may be paid 80 percent of the minimum wage for 1 year. In nine of these States,[16] however, the law only applies to apprentices while they are minors. In these same nine States, minimum wages must be set by wage board orders for specific industries; the industries most frequently covered are in service fields, where apprentices are rarely encountered. (In the State of Washington, the statutory minimum does not apply to minors, who come under wage board procedure.)

## TAKING STOCK

Legislated apprenticeship policy is a fairly recent phenomenon, dating on a national level from only 1937. As this discussion has shown, such policy has been directed toward promoting the development of apprenticeship programs, and encouraging the adoption of certain standards for apprenticeship protection. In view of the persistent decline in apprenticeship registrations and certifications, to be discussed in the next article in this series, the question of whether changes ought to be made in apprenticeship laws merits public discussion. For instance, is there a need for legislation to broaden the scope of apprenticeship to include additional occupations? Have the current laws effectively promoted enough skilled graduates that employers have no need to resort to insufficiently trained workers? Or, have the laws allowed the system enough flexibility to adjust to technological change? Further, have apprenticeship standards fixed by State law erected unnecessary barriers to full utilization of apprenticeship as a system of training? And, has the overlap of Federal and State apprenticeship jurisdiction hampered the working of the apprenticeship system? Does the need for skilled manpower call for Government to require employers and unions to train apprentices or offer them subsidies for such instruction? Or, should Government agencies enforce minimum standards for all apprenticeship programs rather than just for voluntarily registered programs? These and other questions may well be explored at the mid-January Los Angeles con-

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[14] Report of the Commissioner (Richmond, Va., State Department of Labor and Industry, 1962), p. 100.

[15] Arizona, California, District of Columbia, Hawaii, Idaho, Kentucky, Maine, Massachusetts, Minnesota, New Hampshire, New Jersey, New York, North Dakota, Ohio, Pennsylvania, Puerto Rico, Rhode Island, Utah, and Washington.

[16] Arizona, California, District of Columbia, Kentucky, Minnesota, New Jersey, North Dakota, Ohio, and Utah.

ference of the Federal Committee on Apprenticeships, the first of a possible series of public meetings sponsored by this group to explore the rapidly changing training needs of workers on a national as well as a regional basis.

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[From Fifth Convention Report of the Executive Council of the AFL–CIO]

## Building and Construction Trades Department

### APPRENTICESHIP TRAINING

The department affiliates continue to lend strong emphasis to their apprenticeship training programs in order that an adequate supply of skilled journeymen annually enter the industry.

Labor and management jointly in the construction industry through the apprentice programs have been able to meet the current demands for additional journeymen and also have continuing programs for journeymen training so that their skills are upgraded to keep pace with the rapid technological changes in the industry.

Many reports which have attempted to forecast a huge demand for journeymen during the 1960's have been based on a study which we feel was basically inaccurate with a resulting tremendous error in its predictions of projected needs. Preliminary study shows that during the first 3 years the need was 23 percent below the predicted demand. Figures show that while dollar volume of construction has risen annually since 1957, the size of the work force in the industry has steadily declined. This is due to automation, changing methods, new materials, larger capacity equipment and so on.

We feel that this erroneous compilation of the projected manpower needs, which has been compounded by its use as a basis for so many other reports, has been a serious disservice to the industry. We are confident that we are and will continue to maintain an adequate number of skilled journeymen to meet the industry needs.

## Metal Trades Department

### APPRENTICESHIP AND VOCATIONAL EDUCATION

The swift pace of the scientific and technological changes which we are experiencing has had a significant effect on the manpower needs of our industrial economy. This is reflected in a constantly decreasing need for unskilled and semiskilled workers and a continued growing demand for workers with highly developed craft skills who are competent and capable of applying and adopting such rounded skills to today's changing industrial needs.

Apprenticeship continues to be the only sure way to produce highly skilled workers with a complete craft competency capable of coping with the increasingly complex present-day trade and industrial developments. It is the only successful method of acquiring the skills and knowledge demanded of today's highly skilled craftsmen. It has its basis in the employment relationship and calls for the devoted and constant attention of both management and labor both in its development and day-to-day administration. It provides for a blending of classroom instruction under journeymen teachers and on-the-job application of the principles learned under skilled journeymen direction. It assures the apprentice of an opportunity for both systematic training and progressive advancement in the mastery of his chosen trade in accordance with a prescribed set of standards developed by his employer and his union.

It should be reemphasized, particularly today because of the growing injection of Government into manpower development and training problems, that the place of Government in apprenticeship lies in the promotion of apprenticeship and not in the administration of apprenticeship programs. Apprenticeship requires substantial investments of both money and effort. Since apprenticeship is an employment relationship and since industry pays for it, it must be geared to industrial needs, both present and future.

Unfortunately, it is still an all too prevalent practice of some employers to obtain skilled workers by pirating them from other employers rather than by developing them through the institution of full-fledged apprenticeship in cooperation with the trade unions of the crafts involved. Although the Government has,

for more than 25 years, been committed to the promotion of apprenticeship, in all too many Government-financed production plants it is still the practice to pirate the skills that are needed rather than to develop them. We are pleased to note that the Federal Committee on Apprenticeship which advises with the Secretary of Labor on apprenticeship problems is currently attacking this problem.

The metal trades department and its affiliated international unions maintain close contacts with the Bureau of Apprenticeship and Training of the U.S. Department of Labor, which is charged with promotion of apprenticeship under the Fitzgerald Act. The celebration of the 25th anniversary of this act which resulted in the creation of this bureau was recognized with appropriate ceremonies a year ago in which our department and its affiliates actively participated. A special postage stamp was also issued to awaken public interest in apprenticeship.

Our department's standing committee on apprenticeship, on which are represented the affiliated organizations particularly concerned with this matter, meets quarterly and serves as an advisory arm keeping the department informed of problems and progress in the whole apprenticeship area. We are particularly concerned in making certain that the recent major entrance of the Government into the training and retraining of unemployed workers under the Manpower Development and Training Act is not used as a vehicle for fragmentizing craft skills and jeopardizing or weakening the continued development of bona fide apprenticeship as the only satisfactory means of obtaining skilled journeymen.

The department and its affiliates have continued to play a major role in the recent reappraisals made of our vocational education system, which has its foundation in the Smith-Hughes and George-Barden Acts. These acts, which were enacted with the strong support of the trade union movement, form the cornerstone of our public vocational education system.

The trade union movement has consistently maintained that vocational education is an important part of our public school system and must be kept under public control supported by public moneys and not be brought under the domination of either private trade schools or institutions dominated by corporations. The trade union movement has consistently maintained that publicly supported vocational training facilities should in no way be designed or used to replace apprenticeship with its unique methods of blending on-the-job training with related classroom work in developing the skill and knowledge of a journeyman.

Vocational education does have a prime responsibility in connection with the development and conducting of related classroom work for apprentices designed to meet the requirements of the trades of crafts as worked out by the joint apprenticeship committees responsible for the operation of the individual programs.

In recent years the growing inadequacy of public vocational education facilities, which generally have taken a back seat to other educational needs, has resulted in a very substantial movement of apprentice-related classroom instruction from the public institutions to private facilities jointly supported by labor and management. It is of utmost importance that every effort be made so that our public vocational education facilities be improved and updated to the end that they can adequately serve the needs of apprentice-related classroom work.

It is extremely urgent that not only our interested trade unions, but management and government as well, maintain ceaseless vigilance to the end that in the efforts to find jobs for the unemployed, we do not become parties to the establishment of manpower training programs which would train workers for jobs requiring only segments of a journeymen's skills. It is a known fact that the impact of technological change falls heaviest upon those with the least skills. To train a man only to perform work which might disappear as a recognizable occupation within a short period after he starts it is no solution to our unemployment problem. A skilled journeyman who has completed his full apprenticeship and mastered all of the facets of his trade or craft is adaptable to industrial changes, while the worker who has been trained in only a segment of a craft skill is subject to the vicissitudes of technological development.

It should again be noted that apprenticeship programs and skill improvement programs for journeymen continue to receive the growing attention of more and more of the affiliates of this department. The updating of existing apprenticeships programs and the promotion and development of apprenticeship on a joint basis with management is receiving the attention of a growing number of full-time representatives which our affiliated organizations are assigning to this area.

# TRAINING IN THE ELECTRICAL CONTRACTING INDUSTRY

By Buck Baker, Director, National Joint Apprenticeship and Training Committee for the Electrical Industry

My name is Buck Baker. I am director for the National Joint Apprenticeship and Training Committee for the Electrical Industry. Our interest is in the training of apprentices and journeymen so I welcome the opportunity of making a few comments on the subject. What I have to say will be specifically related to the electrical contracting industry but much of it could be said and would apply to the building construction industry as a whole. And when I speak of apprenticeship, I am mindful of the fact that there is quite a bit of difference between the building construction industry, where two out of every three registered apprentices are being trained, and the other industries of our total economy.

For several decades the training of men in the building trades was done, in general, unilaterally by the unions but with the passage of the national apprenticeship law in 1937 there has been, primarily through the efforts of the Bureau of Apprenticeship and Training (BAT), a positive shift to joint operation of more formalized training. An example is our own industry.

In 1941, management (National Electrical Contractors Association (NECA)) and labor (International Brotherhood of Electrical Workers (IBEW)) were brought together, a national joint committee was formed. National standards for apprenticeship (see copy attached) were written and this new concept of joint sponsorship of training was passed on to their affiliated groups all over the United States.

Because of the success of this joint effort and their seeing the need for expanded training the committee's name was changed to the National Joint Apprenticeship and Training Committee. The apprenticeship standards were revised and updated several times. Increasing time and moneys were devoted to promoting training. Then in 1952, the committee established an office with a staff, its activities under a director.

This joint effort by the committee, jointly sponsored and financed, has been so successful that neither management nor labor would consider curtailing its operation. There are now over 300 active local joint committees engaged in training over 18,000 apprentices and thousands of journeymen.

These local committees, operating under local apprenticeship standards which stem from the labor agreement "Recommended Clauses on Apprenticeship and Training for contracts between IBEW Local Unions and Employer Associations") have steadily improved their operating procedures resulting in better selection, better training—both on the job and in the classroom, and a better journeyman when training is

completed. The reduced number of dropouts is evidence that selection is much improved and that interest in the work is sustained. One look at the number of young journeymen who have moved into supervisory positions attest the fact that vast improvements have been made in training methods and procedures. And the very larger number of young men applying to the local committees for apprenticeship is an indication that these young men have learned of the training they will receive. This happens in spite of the bad "image" of the tradesman painted by many who have little knowledge of the industry and cannot appreciate the satisfaction of accomplishment by those who work with their hands as well as their heads.

There is still another result of improved apprentice training, the increase in the numbers of journeymen who are taking night courses in their field of work. It is true that some of these are ones who are just continuing their search for knowledge but many have been forced to return to journeyman courses because of the competition from these young journeymen.

## OUR POSITION ON TRAINING

Our people at both the national and local levels have been putting into practice their fundamental beliefs in the democratic principles of the free enterprise system. This working together is not new. In 1920 this industry worked out a system of settling disputes with the Council of Industrial Relations, equally staffed by management and labor, sitting as the "supreme court" for the industry. We subscribe to the statement made by Mr. Edward E. Goshen, Administrator of BAT, in the foreword of a brochure, "The National Apprenticeship Program," published in 1962 which reads:

> It is the privilege and responsibility of management and labor to determine their apprenticeship needs, to decide on types of training, to select those to be hired as apprentices, and to administer the program.

We believe in it to the point that the national committee and the leaders in the sponsoring organizations, IBEW and NECA, are moving to convince those few who have not completely accepted this concept.

We believe that this responsibility can best be met when the industry is free to act. The applicant must be free to choose and the joint committee must be free to accept or reject according to their standards and judgment; participation must be voluntary. In this sort of climate, we find an unlimited number who will give of their time to carry out the duties of the Joint Apprenticeship and Training Committee. And the industry is willing to supply the needed funds.

We appreciate the guidance of BAT in the formative years and their continued counsel. The services performed by the State council representatives have been most helpful. And the cooperation of the vocational education people across the Nation will never be forgotten. We hope these governmental agencies will continue to function in their prescribed roles—assisting the industry to do more efficient training thereby meeting current and future needs for competent workmen.

May I summarize this point by saying that apprenticeship is essentially a program of training for the industry best accomplished by joint participation of management and labor, aided by BAT and State apprenticeship councils through promotion, guidance, and service and by vocational education in matters of related instruction.

## OUR CONCERN OVER TRENDS IN TRAINING

Our industry has been concerned in recent years about unemployment. Ours is a mobile work force that goes from job to job, city to city, according to where the work is. Some cities (or wage areas) may have more work than the local tradesmen can do but they call in men from other areas where work is slack. But overall (the whole United States) there have been qualified men unemployed. This unemployment reflects in the number of apprentices being trained. The joint committeemen, neither management nor labor, will agree to accept more applicants than they think can be employed. The apprentice cannot be trained if he is not working at the trade.

Our industry has not and cannot hire apprentices according to predictions such as noted in attachment No. 3 but will live in line with reality.

We are also concerned about the results of the recent clamor for training such as National Defense Training Act, Area Redevelopment Act, and Manpower Defense Training Act. If these efforts are not directed so as to serve industry's needs, much damage can be done to the individual and to the public in turning out partially trained men who may be marginal employees at the best and only be capable of doing inferior work for an unsuspecting public.

It would be preferable to spend the time, effort, and money toward giving a good foundation, a basic education, the prerequisite for further training which will broaden the potential area of employment; good guidance so as to help find the work for which one is best suited, leaving the training for employment to industry who knows what training is needed and has the work and facilities through which proper training can be accomplished.

## CONCLUSIONS

Let me summarize by saying that we feel we have made great strides in training in the last 20 years. We have done this with the assistance of governmental agencies and not their domination. We realize that there is room for improvement but with the continued assistance from the BAT, State apprenticeship councils, and vocational education we are prepared to do even better in the future. This can be done in the framework of existing laws and agencies. Our industry, both management and labor, now realizes that an investment in training buys large dividends. There is no necessity or justification for the Government to subsidize training other than through the normal services of the above-mentioned agencies.

Recent dual training programs are exerting undue pressures on our industry that threaten to disrupt and distort our efforts at proper training. We naturally are concerned about the possibilities of partially trained men (given some status by having gotten some training in a recognized institution) being forced on the industry at a time when we are working to improve standards of workmanship.

# MANPOWER NEEDS IN ELECTRICAL CONSTRUCTION

(Prepared by IBEW, Department of Research and Education, December 1963)

## THE UNEMPLOYMENT PROBLEM

The first thing that must be considered in assessing the future need for electricians is the current manpower situation in the industry. Currently, there is a large surplus of skilled electricians. High unemployment has always been a problem in the construction industry, due to both the seasonal and contract nature of the industry. However, in recent years the rate has been extremely high. In the 5-year period, 1958 through 1962, the lowest construction unemployment rate was 12 percent, the highest 14.1 percent, and the average 12.8 percent. This is much higher than the average rate of 8.6 percent in the 1948 through 1957 period and indicates the severity of the current unemployment situation in the industry.

The figures cited above pertain to total construction, but they are also indicative of the unemployment problem in the electrical construction industry. Many IBEW local unions are now faced with serious unemployment problems. One of our largest local unions, in Chicago, has had unemployment ranging up to 25 percent of its total membership. This is not an isolated example, as many of our local unions can testify. The important point in this analysis is that jobs must be found for the 12 percent of the electricians now unemployed before even one new electrician will be needed.

It is true that employment and unemployment in the industry are unevenly distributed. Because of the nature of the industry, electrical employment may be high in one area while a neighboring area is plagued with unemployment. Electrical employment has been high in New York City, but our New York local has provided many jobs for electricians who cannot find jobs in their home areas. This sharing of jobs is one of the finest traditions of the craft, and it has also effectively supplied electricians wherever and whenever they are needed. In the words of the economist the construction industry has a mobile work force, but this has not prevented large pockets of unemployment.

## DEPARTMENT OF LABOR PROJECTIONS

This high rate of unemployment has not stopped some academicians, economists, and Government officials from telling us in the industry about the great shortage of skilled electricians. Regrettably, the major spokesman among those who speak of the shortage of electricians is the U.S. Department of Labor. Almost every public statement by the Department of Labor on manpower needs contains some reference to the shortage of skilled workers in construction and almost all these claims are based on one projection. This projection first appeared in a modest pamphlet entitled "Manpower Development and Training Needs in Construction Occupations." It was later reprinted in the



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current bible of manpower needs, "The 1963 Manpower Report of the President," and from this spread to newspapers and magazine articles throughout the United States.

The Department of Labor projection predicts that 80,000 additional electricians will be needed by 1970 because of the expectant expansion of the electrical construction industry. This would result in a work force of 210,000 electricians in 1970, an increase of 61 percent, over the 130,000 employed in 1960. In effect, this calls for electrical employment to increase by 8,000 electricians per year for each year in the 10 years from 1960 to 1970.

Fortunately, almost 4 years of this 10-year period have passed, so this projection can be analyzed by the test of time. In reality, the employment record of the industry has not even approached the projected level. The actual employment record of the industry is cited in the following table:

TABLE I.—*Electrical workers in contract construction*

| | | | |
|---|---|---|---|
| 1952 | 129,000 | 1958 | 138,300 |
| 1953 | 130,700 | 1959 | [1] 138,200 |
| 1954 | 133,000 | 1960 | 147,200 |
| 1955 | 135,700 | 1961 | [2] 145,900 |
| 1956 | 149,700 | 1962 | [2] 147,000 |
| 1957 | 151,700 | 1963 | [3] 147,000 |

[1] This figure differs by 8,000 from the employment figure of 130,000 used in the Department of Labor projection. This illustrates another major difficulty in projecting electrical employment, as existing employment data in this area is very inadequate. The Department of Labor is willing to tell us how many electricians we will need in 1970, but cannot tell us how many are employed today. The figures cited in this table were published in the employment and earnings series of the Department of Labor from 1952 to 1960. The 1961 and 1962 figures are a continuation of the same series, but are unpublished estimates. Nevertheless, these are the most accurate figures available for 1961 and 1962.

[2] Unpublished estimate.

[3] This is an estimated figure based on electrical construction payroll data collected by the National Electrical Contractors Association, total payrolls in the first 9 months of 1963, adjusted for wage increases, were lower than the corresponding payrolls in the first 9 months of 1962, so no increase in yearly employment is expected.

Employment in electrical construction did increase from 1959 to 1962. However, this increase is misleading as 1959 was a recession year which is compared with a peak year in 1962. A more valid comparison is from 1957 to 1962, which is from one good year to another. During this 5-year period, electrical employment decreased, with fewer employed in 1962 than in 1957, the alltime postwar high, although the dollar volume of electrical construction has increased 34 percent in the same period.

Even if the 1959–62 period is considered valid for making employment comparisons, the increases are much less than called for in the Department of Labor projections. The 9,000 employed workers increase that did occur from 1959 to 1962 is far short of the 24,000 (8,000 per year) called for in the projection. It also is evident that employment will not materially increase in 1963 (see table I), so at the end of 1963, employment will be even farther behind the projected level. It is clear from these figures that the Department of Labor projections are unrealistically high and it is now hardly possible, if not impossible for the projected levels to be realized in 1970.

## OUR PROJECTIONS

It is always difficult to make projections; no one can be positive about what the future holds, nevertheless, this study would be less than

complete if we did not make some indication as to the level of employment we expect in the electrical construction industry in 1970. In order to do this we must study the two principal determinents of industry employment; namely, the volume of electrical construction and output per man-hour.

In order to intelligently project the volume of electrical construction, both the past record and future prospects of the industry must be studied. A historical record of industry output, its relationship to total construction activity and our projections for 1970 are found in table II.

TABLE II.—*Trends in the volume of total construction and electrical construction*

| Year | Value of new construction [1] (billions of dollars) | Value of new electrical construction [2] (billions of dollars) | Electrical construction as percent of total construction |
|---|---|---|---|
| 1970 (projected) | 77.0 | 6.2 | 8.0 |
| 1963 | 63.5 | 4.5 | 7.1 |
| 1962 | 61.0 | 4.3 | 7.0 |
| 1961 | 57.3 | 4.0 | 7.0 |
| 1960 | 55.5 | 3.9 | 7.0 |
| 1959 | 54.1 | 3.6 | 6.7 |
| 1958 | 48.9 | 3.3 | 6.7 |
| 1957 | 47.7 | 3.2 | 6.7 |
| 1956 | 45.8 | 3.0 | 6.6 |
| 1955 | 44.2 | 2.7 | 6.1 |
| 1954 | 39.2 | 2.5 | 6.4 |
| 1953 | 37.0 | 2.3 | 6.2 |
| 1952 | 34.7 | 2.1 | 6.1 |
| 1951 | 32.7 | 1.9 | 5.8 |
| 1950 | 29.9 | 1.7 | 5.7 |

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MANHATTAN, KANSAS

[1] Source: U.S. Department of Labor.
[2] Source: Electrical Construction and Maintenance magazine.

It is estimated that total new construction in 1970 will total $77 billion. This figure is based on a study of the total industry made by the building and construction trades of the AFL–CIO and will not be documented in this study.

It is estimated that the volume of output in the electrical construction industry will total $6.2 billion. This is based on the relationship of electrical construction to total construction. In recent years electrical construction has been increasing much faster than total construction.

In 1950 electrical construction accounted for 5.7 percent of total construction activity. By 1962 this percentage has risen to 7 percent. Virtually every postwar development in the construction industry involved a net increase in the percentage of electrical work. Some typical examples are air doors, automatic conveyor systems, central air conditioning, escalators, and centralized control and surveillance of unattended manufacturing processes.

Future developments will also involve more electrical work. The use of electric space heating is increasing and electric heating frequently doubles the size of the electrical contract. Air conditioning is now a must in most industrial and commercial building and is fast becoming a necessity in residential building. In the next decade there is also a good chance that static thermoelectric junction devices, that both heat and cool in response to electric current, will be fully

developed and these systems will make our current heating devices obsolete. In addition, the trend toward complete electronic control of industrial machinery will continue to increase electrical work in the commercial and industrial area.

Therefore, our projections call for electrical construction to increase from 7 percent total construction in 1960 to 8 percent in 1970. This increase is not quite as large as the increase from 1950 to 1960, but the 1961, 1962, and 1963 figures show a slowdown in the changing relationship. In dollar terms the projected increase is from $3.9 to $6.2 billion, an increase that is also in keeping with past developments.

If the volume of electrical construction increases by 70 percent from 1960 to 1970 and output per employee (productivity) remains constant, employment would also increase by 70 percent. However, if output per employee increases as is happening in every industry, the employment increase would be much less than the output increase, and in electrical construction productivity has been sharply increasing.

It is difficult to formulate reliable estimates of productivity increases in the electrical construction industry. Nevertheless, we have made such estimates, which are presented in table III. It should be emphasized that these are just rough estimates and that their only purpose is to indicate changes, rather than absolute levels.

TABLE III.—*Productivity in the electrical construction industry*

[1952 index=100]

| Year | Production index [1] | Employment index [2] | Output per employee |
|---|---|---|---|
| 1962 | 203 | 114 | 178 |
| 1961 | 189 | 113 | 167 |
| 1960 | 185 | 114 | 162 |
| 1959 | 170 | 107 | 159 |
| 1958 | 156 | 107 | 146 |
| 1957 | 152 | 118 | 129 |
| 1956 | 142 | 116 | 122 |
| 1955 | 127 | 105 | 121 |
| 1954 | 118 | 103 | 115 |
| 1953 | 109 | 101 | 108 |
| 1952 | 100 | 100 | 100 |

[1] Based on Electrical Construction and Maintenance estimates.
[2] Bureau of Labor Statistics.

These estimates do indicate that productivity in the electrical construction industry has sharply increased. The average increase from 1952 to 1962 was 6 percent per year.

Technological change in electrical construction differ from what one usually considers as automation. The industry does not have huge, unattended machines building houses, like the machines now making engine blocks in the Ford Co. But the changes in the industry have been steady, if not spectacular. Perhaps the most important change has been the development of factory-wired electrical devices. Wiring jobs, formerly done by our electricians, now come to the construction sites in "little black boxes" which are easily installed and involve very little wiring. For instance, the installation of switchboards and panelboards used to involve major wiring jobs for the construction electrician, but they now come to the construction site completely

wired and ready for installation. This is just one product among many that reach the job with the wiring already completed.

In addition, there have been great improvements in the tools and methods used by the electrician. Each year the Electrical Construction and Maintenance magazine presents a report on new tools and methods and a close reading of this report reveals the ingenuity applied toward increasing productivity. For instance modern material handling techniques have cut this cost from as much as 25 percent of total man-hours to 5 percent or less. The application of production-line techniques on larger electrical contracts can cut man-hour time by as much as 20 percent. The use of adaptable and safe scaffolding, rather than ladders, can decrease labor time by 30 percent on low-level jobs and as much as 50 percent on high-level jobs. The use of power tools in all facets of electrical construction is now an accepted practice and has led to substantial laborsavings. This list could go on and on, for the developments cover virtually all electrical operations. These complex developments might not be automation in the conventional sense, but they have led to greatly increased productivity. In the future similar changes will undoubtedly lead to equally large productivity increases, with accompanying lessening of employment.

It is clear that in the period from 1960 to 1970, productivity increases will offset most of the volume increases in electrical construction. If past productivity trends continue and if any change is indicated in the recent data it is of an upward nature, productivity will increase by 60 or 6 percent a year in the 1960's. Thus, if electrical construction volume increases by 70 percent and productivity by 60 percent, employment would increase by 10 percent.

This would lead to a work force of 151,000 electricians in 1970, if this 10-percent increase is applied to the employment level of 138,000 in 1959. However, 1959 because it is a recession year is a poor base year for predictions. Therefore, it would be more appropriate to apply the 10-percent increase to the 1957 employment data. This would result in a work force of 165,000 electricians in 1970. This estimate is 12 percent above the 147,000 employed in the industry in 1962.

It should be emphasized that this projection is a maximum estimate. For this projection to be realized, the stagnation that has characterized our economy since 1957 must be ended. We can only reach the projected levels if we have a rapidly growing economy. If our economy continues its present course, we do not expect any appreciable employment increase. We trust this will not happen, but it is a possibility that must be faced.

## SUMMARY

The most serious current manpower problem in the electrical construction industry is unemployment. Widespread unemployment has characterized the industry for the last 5 years. Despite this serious problem, many contend that there is or will soon be a shortage of electricians. Most of these contentions are based on an employment projection made by the Department of Labor. An examination of the employment record of the industry in 1960, 1961, and 1962, years included in the projection, conclusively show that this projection vastly overstates the need for electricians. In fact, recent employment developments invalidate all of the Department of Labor projections.

This study also suggests that the maximum employment growth that can be expected in electrical construction from 1960 to 1970 is 10 percent. This is based on a 70-percent increase in the value of output and a 60-percent increase in productivity. This would result in an electrical work force of 165,000 in 1970 as contrasted with the vastly overstated 210,000 projection by the Department of Labor.

# THE SCOPE OF TRAINING IN THE ELECTRICAL INDUSTRY

## Statement of Fred B. Irwin to the U.S. Senate Subcommittee on Employment and Manpower, April 23, 1964

My name is Fred B. Irwin and I am an assistant to the international president of the International Brotherhood of Electrical Workers, AFL–CIO. One of my assigned duties is to represent President Gordon M. Freeman on training matters. In addition to serving as business manager of my local union and starting an apprenticeship program and teaching the first semester of related instruction for the apprentices, my Government experience in this field embraces 3 years (1941–44) as field representative and State supervisor for what is now the Bureau of Apprenticeship and Training; a little less than 2 years as chief of training (regional) with the War Manpower Commission; and over a year as Commissioner of Conciliation, wherein some problems had a bearing on training or the lack of it. I have been an assistant to three international presidents—Dan W. Tracy, J. Scott Milne, and Gordon M. Freeman—since 1947.

The opportunity to submit materials on apprenticeship and related programs is appreciated and my approach will be to give information supplemental to that furnished by Buck Baker, director of the National Joint Apprenticeship and Training Committee for the Electrical Industry. The intent will be to show the breadth, as well as the depth, of the training activities of the IBEW, jointly with our employers where possible, and of potential developments. It is important that industry's contribution to the training of its employees be fully documented. Mr. Baker has described the growth of formalized apprenticeship in the electrical contracting industry and, while a few additional points might be offered, this statement will be chiefly concerned with other training activities in that and the other segments of the electrical industry.

The International Brotherhood of Electrical Workers, formed in 1891, began to give national attention to training in the late thirties. Concrete evidence of this national activity was the formation of the National Joint Apprenticeship Committee for our industry in 1941. Since that time the national training programs of our brotherhood have increased at an accelerating rate. (This is shown in attached exhibit A.)

The growth of the two national programs, including supplementary training of journeymen, may be illustrated by the increased financial support by the parties to the programs, as follows:

| | NECA | IBEW | Total |
|---|---|---|---|
| As of— | | | |
| 1955 | $25,000 | $25,000 | $50,000 |
| 1957 | 30,000 | 30,000 | 60,000 |
| 1959 | 35,000 | 35,000 | 70,000 |
| 1961 | 47,500 | 47,500 | 95,000 |
| 1964 | 50,000 | 50,000 | 100,000 |

These amounts are for the maintenance of the national office (NJATC) only, and you will note that the contributions have doubled in the last 10 years. The staff and service have increased proportionately.

While there are no statistics on the total amounts contributed locally for the local joint apprenticeship and training programs, the extent of this industry contribution may be shown by the following:

1. On the average, the electrical contractors participating in the local programs contribute about one-half of 1 percent of their gross payrolls for this purpose, and in some instances the local unions contribute a like amount.

2. The National Electrical Training Directors Association was formed in 1958 to assist in the development of national related technical instruction materials and the improvement of the national and local programs by attention to standardization of selection factors, tests, etc., as well as materials. This association meets annually and now numbers 54 members, 38 of whom are full-time directors. There are a great many smaller local programs which, while they cannot support a director, are receiving kindred assistance from this association and the NJATC.

As of this year, the membership of the National Joint Apprenticeship and Training Committee for the Electrical Industry has been doubled to give better representation to all parts of the Nation. There will now be one NECA member and one IBEW member from each of the respective vice presidential districts of the parties to the national programs. Joint conferences on apprenticeship and other training of employed electrical workers, under the supervision of the IBEW and NECA members from that area, are being planned.

This type of multistate conference will be of considerable value as an extension of the services of the national office on a finite area basis. The electrical contracting industry, while highly mobile, must be based on appropriate trade areas—many of which are of a multistate character, embracing parts of two or three States or all of as many as nine States for a single local or area program.

Substantial progress is being made toward national uniformity of training in the electrical contracting industry, an inherent demand of a mobile industry.

Another joint apprenticeship program of national scope, but limited to one employer, is conducted by the National Joint Television Apprenticeship Committee, established in 1952 by the RCA Service Co. and the IBEW. Provision is made in the apprenticeship standards for local joint committees in conjunction with consumer products service branches of the company. Costs are shared, though not on a pooled basis. In excess of 3,000 such apprentices have received their journeyman technician certificate and some of these, as well as many who did not finish the apprenticeship, have gone into allied electronics fields.

Coincident with the growing need for training of other than apprentices in the construction and maintenance branch of our industry, similar demands to meet technological advances appeared in other segments of the electrical industry. This necessitated the establishment of a skill improvement training department within the IBEW headquarters office and the appointment of a director, Joseph E. Taylor, to supervise the development of programs and materials. The purpose of

this activity was to give priority of attention to immediate training needs, as reflected nationally, for journeymen in the construction and maintenance fields; and, eventually, to the training of apprentices and other employed electrical workers in the segments of the industry not served by the NJATC. As any of the latter become jointly operated and financed on a national basis, they are to be transferred to the NJATC with full autonomy, except for general coordination by the director, Mr. Baker. We thus provide for the stimulation and growth of our individual programs in cooperation with our employers associations.

IBEW skill improvement training developed a course on special techniques in soldering and terminating cable assemblies, for missile base work, and over 8,000 journeymen have been so trained. Another urgent need was met by the IBEW industrial electronics course of four semester units. Over 20,000 copies of unit I, and a proportionate number of the other three units, have been supplied to our local union training programs without charge. While originally designed for construction and maintenance work, this material has found ready acceptance in such fields as railroads, utilities, plant maintenance, etc.

With the advent of nuclear reactors in electrical generating stations and the use of isotopes in measurement, control, and maintenance functions, the IBEW skill improvement training department was again called upon to reduce the necessary information to a basic educational program for the electrical workers who did, or might, work with such installations. The IBEW course "Industrial Atomic Energy Uses, Hazards, and Controls" was produced by the joint efforts of the IBEW and representatives of six public utilities which had, or were contemplating, nuclear reactors as a source of energy.

The IBEW developed an institute to qualify instructors for this course and will have trained 105 instructors, located in 38 States, upon completion of the now current sixth institute. These instructors conduct the course for employees of the electrical industry in their home localities. To date 1,097 have either completed an institute or the course in their home area. Although this training originated with the utility branch of our industry, it has had acceptance in other branches with a very pronounced use in the construction and maintenance branch, where electrical workers must make additions and modifications to existing installations.

It is of interest that this IBEW course has been supplied through the AEC to certain cognizant Government agencies and made available for certain foreign goverments and that, with some slight modification, it is now to be published by a nationally known textbook publisher for use throughout the Nation in schools and industrial training programs. Any royalties or proceeds will be contributed by the IBEW to assist underdeveloped countries.

Now that the most pressing demands have been met, the IBEW skill improvement department has undertaken more normal promotion and servicing of training in other branches of the electrical industry. One such is railroad electrical work, greatly increased by the use of diesel locomotives and automated freight yards. This will involve the training of journeymen in new developments and eventually improvement of their apprenticeship programs.

The policy of the IBEW has long been to establish and conduct the training of employed electrical workers in cooperation with our em-

ployers and that, where this cannot be immediately accomplished, the brotherhood will proceed with the needed training and, where appropriate, utilize the assistance and services of apprenticeship and vocational education agencies.

EXHIBIT A

SUMMARY OF NATIONAL TRAINING ACTIVITIES, IBEW

1941—Formation of the National Joint Apprenticeship and Training Committee for the Electrical Industry and the National Apprenticeship Standards for Construction.
1944—Electronics training program for instructors at the Engineering College of Marquette University, Milwaukee, Wis. Instructors from local areas.
1952—Full-time director for the national joint committee (IBEW and NECA).
1956—Standardized collective bargaining agreement provisions re apprenticeship.
1957—Outside (line construction) related instruction materials available nationally.
1958—Initiated inside (building construction) related instruction material planning. Formation of a National Association of Electrical JAC Training Directors.
1959—IBEW appointed a director of skill improvement training. Conference with utility managements to initiate an educational program for electrical workers in establishments using sources of atomic radiation.
1960—Completion of unit I, IBEW course in industrial electronics for journeymen. Special techniques in soldering and terminating cable assemblies course. Arranged for training journeymen in new method of cable splicing, by others.
1961—Unit II of IBEW industrial electronics completed. First year NJATC related instruction materials for inside apprentices available. IBEW course "Industrial Atomic Energy Uses, Hazards, and Controls" completed. First institute to qualify instructors for IBEW course (atomic energy). Teacher training materials prepared for subsequent institutes and other uses.
1962—Units III and IV of IBEW industrial electronics completed.
Second year NJATC related instruction materials for inside apprentices available.
NJATC fundamentals of motor control for journeymen completed.
Second and third institutes to qualify instructors for atomic energy course.
Memorandum of understanding developed with vocational education, Wasihngton, D.C.
1963—Revisions in units I and II of IBEW industrial electronics, additional coverage.
Third year NJATC related instruction materials for inside apprentices available.
NJATC basic theory for journeymen available.
NJATC national electrical code course available
Fourth institute to qualify instructors—first in field, Joliet, Ill.[1]
NJATC AC theory course for journeymen available.
NJATC blueprint reading course for journeymen review, available.
Fifth institute to qualify instructors, Oakland, Calif.[1]
IBEW skill improvement training assisting railroad managements and unions on journeyman training and improvement of apprenticeship, national program.
1964—Fourth year NJATC related instruction materials for inside apprentices to be available this summer.
NJATC fundamentals of vacuum tube electronics being field tested.
NJATC fundamentals of seminconductor electronics in planning stage.
Draft of related instruction course of railroad electrical apprentices.
Sixth institute to qualify instructors, Knoxville, Tenn.[1]

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[1] All institutes are conducted near an atomic or nuclear reactor establishment. The first three institutes were held in Washington, D.C. All but the first institute have been conducted by IBEW personnel.

# MANPOWER NEEDS IN THE CONSTRUCTION INDUSTRY

*A Summary Statement Prepared for the*
*Building and Construction Trades*
*Department Executive Council*

*November 1963*

To the Officers and Members of
All National and International Unions
State and Local Councils and
Local Unions Affiliated with the
Building and Construction Trades Department

In March of 1963 there was transmitted to the Congress of the United States, under the provisions of section 104 of the Manpower Development Training Act of 1962, a document entitled Manpower Report of the President and a Report on Manpower Requirement, Resources, Utilization and Training. This report was prepared for transmittal by the United States Department of Labor and presented to the Congress by the President of the United States.

This report contained a forecast of the number of new skilled journeymen needed in construction occupations between 1960-1970. The exact number required by 1970 as outlined in that report (Table F-6 Appendix) totaled 2,387,000 in addition to the present journeymen who would still be available for work in 1970. The report further pointed out that at the present rate of apprentice training, we would fall far short of supplying the needed numbers of new journeymen in all the various construction crafts.

This report was greeted with a wave of hysteria among many and diverse groups outside of, and with little knowledge of, the building industry. It was used as the basis for demands that we immediately undertake greatly expanded apprenticeship training programs, waive educational requirements, allow fragmentation of our crafts, and allow hastily formed governmental agencies to step in and take over the training, substituting limited standards for our time tested jointly administered programs which through the years produced the journeymen who built America.

We in the building and construction trades were not excited by this hysteria, rather we along with construction management throughout the industry were at loss to see any basis for these astronomical claims of future needs. At the time of the report, we had an unemployment rate of 18% and since 1957 had not had a year with a national annual unemployment rate below 12%. With our high mobility rate, no job in years had suffered from lack of available skilled labor.

This report was also used as the basis for charges that while we needed hundreds of thousands of new journeymen, we refused to take in apprentices, especially those from the minorities. These charges, although without basis, were repeated by many who again had little or no knowledge or concern of the building industry. Certainly if they were sincere and knowledgeable, they would not encourage the training of boys for future unemployment. They did, however, succeed in raising the hopes and causing disillusionment in thousands of young boys who did not understand their motives or failure to recognize realities.

We in the Building & Construction Trade Unions were of course baffled and concerned that such a report should have ever been released with such an air of authenticity. We immediately established a committee of research men and statisticians drawn from our affiliated unions and requested that they undertake a study to determine the basis and reliability of the report. In addition, they were asked to develop an estimate of the needs in our industry to meet the demands of 1970.

This study was completed in August of 1963 and presented to the Building and Construction Trades Department Executive Council. The conclusions of this group were at extreme variance with the President's Report and pointed out what they felt were errors in estimate and methodology used by the Labor Department in their findings.

The Executive Council then instructed the President of the Department to engage the services of an outside independent Management Consultant Company to undertake a similar study of the Manpower Report to corroborate the committees' findings and offer an unbiased study of the construction journeymen needs by 1970. We engaged the services of such a firm, one with a national and honored reputation for their work in this field. Their report has been completed, presented to us and has confirmed our doubts about the reliability of the projections in the Manpower Report sent to Congress in March of 1963.

The Building and Construction Trades Commitee has also consulted with the Manpower and Population Program, Bureau of Applied Social Research Program of Columbia University and we are most grateful to Dr. A. J. Jaffe for his assistance, particularly in giving us his latest findings on productivity increases in the building construction industry. These we feel are most realistic and based on a sound study.

In this brief booklet we have attempted to condense the voluminous findings which we have compiled and derived from every available source both public and private in the United States on the construction industry manpower needs. In striving for readability, we have posed the problem in the form of five questions in rebuttal to the Manpower Report. We feel we have answered each question in such a manner as to discount the projections in that report and have furnished answers that are in realistic tune with historic patterns, present conditions and probable future prospects.

We feel that in reaching our conclusions we used every possible caution to tend to conservatism in estimates and factoring. We used the government's anticipation of a full economy and eliminated all reference to unemployment. For this we may be criticized as there is nothing in sight to indicate full employment nor a full economy. We will accept this criticism while admitting that even our figures as to future needs will be much too high unless something is done quickly to move our economy at a faster rate of growth, with an ensuing decrease in unemployment.

It might be emphasized here that one of the historic functions of the construction craft unions in America has been to supply the employer of skilled construction labor with properly skilled, uniformly trained journeymen. This obligation demands a steady influx of talented, ambitious youth into our joint apprentice programs, and a steady graduation of skilled journeymen into the construction work force. We have been doing just that for many years. We are doing it now and will continue, without government domination, to do it on schedule in the years ahead. We will, as in the past, stand ready with an adequate number of trained journeymen to build America at any pace our economy demands. We will do this without diminishing in any way, our qualification of entrance, the high standards of training, nor our demands of job performance.

I wish to thank all those who assisted in the overall study and in the preparation of this digest of that study. I believe it will be of tremendous service to our Nation, our Building and Construction Unions, our employers, and the entire building industry and, I do hope, to the Labor Department in their contemplating the preparation of any future study involving our industry.

C. J. Haggerty
President

## Table F–6. Estimated Number of Additional Journeymen Needed by 1970 in Selected Construction Occupations, and Estimated Number Expected To Be Provided Through Apprenticeship Programs

[Numbers in thousands]

| Construction occupations | Journeymen employed [1] | Additional journeymen needed by 1970 | | | | Additional journeymen expected to be provided through apprentice-ship programs [4] | Percent of total additional journeymen needed |
|---|---|---|---|---|---|---|---|
| | | To replace losses | | To meet increased demand [1] | Total additional journeymen needed | | |
| | | Resulting from death and retirement [2] | Resulting from shifts to other occupations [3] | | | | |
| Bricklayer, stonemason, and tile setter | 270.0 | 59.0 | 2.0 | 105.0 | 166.0 | 37.1 | 22 |
| Carpenter | 1,200.0 | 288.0 | 226.0 | 440.0 | 954.0 | 55.4 | 6 |
| Cement mason | 45.0 | 11.0 | 3.0 | 20.0 | 34.0 | 4.0 | 12 |
| Electrician | 130.0 | 30.0 | 2.0 | 80.0 | 112.0 | 39.8 | 36 |
| Glazier | 12.0 | 2.0 | 2.0 | 10.0 | 14.0 | 3.0 | 21 |
| Ironworker | 90.0 | 21.0 | 12.0 | 50.0 | 83.0 | 12.4 | 15 |
| Lather | 35.0 | 9.0 | 5.0 | 5.0 | 19.0 | 1.5 | 8 |
| Painter and paperhanger | 425.0 | 106.0 | 87.0 | 90.0 | 283.0 | 8.6 | 3 |
| Plasterer | 67.0 | 16.0 | 5.0 | 20.0 | 41.0 | 6.2 | 15 |
| Plumber and pipefitter | 315.0 | 72.0 | 17.0 | 135.0 | 224.0 | 38.6 | 17 |
| Roofer | 58.0 | 12.0 | 8.0 | 25.0 | 45.0 | 5.2 | 12 |
| Sheet-metal worker | 140.0 | 28.0 | 8.0 | 85.0 | 121.0 | 25.8 | 21 |
| Elevator constructor | 10.0 | 2.0 | 1.0 | 5.0 | 8.0 | [5] | [5] |
| Operating engineer [6] | 225.0 | 56.0 | 30.0 | 150.0 | 236.0 | 1.0 | [7] |
| Asbestos worker | 20.0 | 4.0 | 3.0 | 10.0 | 17.0 | .6 | 3 |
| Boilermaker | 32.0 | 8.0 | 4.0 | 18.0 | 30.0 | 1.1 | 4 |

[1] Estimates as of 1959.

[2] Based on Tables of Working Life for Men developed by the Bureau of Labor Statistics (U.S. Department of Labor), and estimated age distributions.

[3] Estimates based on a study of the employment histories of former apprentices.

[4] Assumes continuation of current level of registered apprenticeship and rate of completion. Also includes allowance for apprentices who fail to complete their apprenticeship training but eventually become journeymen in their trade.

[5] Not available.

[6] Does not include oilers and helpers.

[7] Less than 1 percent.

*2,387,000 additional journeymen are needed by 1970, according to the Department of Labor.*

**THE CONTENTS OF THIS REPORT DISPROVES THIS FORECAST**

The number of skilled building tradesmen needed in the construction industry in 1970 can be determined by answering the following five questions:

**What will the dollar volume of construction be in 1970?**

**How many currently employed skilled building tradesmen will be available for work in 1970?**

**How many currently unemployed skilled building tradesmen will be available for work in 1970?**

**How many skilled building tradesmen now in construction industry will leave this work, and how many workers currently in other work will switch to the skilled building trades occupations in the construction industry between 1960 and 1970?**

**How will increased productivity affect the need for new workers in the construction occupations by 1970?**

The answers to these questions are presented in the following pages, and represent the careful analysis of all pertinent information available in this country from both public and private sources.

No forecast of this nature is infallible. The content is the most up-to-date information projected in scientifically accepted fashion; with the basic assumption that our national economy will develop in the next six years in the manner that it has developed since World War II.

## *WHAT WILL THE DOLLAR VOLUME OF CONSTRUCTION BE IN 1970?

To determine the number of skilled building tradesmen needed in 1970, the first question to be answered is: "How much construction will take place in 1970?"

The Department of Labor *and* the Department of Commerce have determined that total construction in 1970 will amount to $87.3 billion.

This is patently absurd.

To reach that dollar volume, our economy would have to expand at a rate of *4.2% per year.*

The long-term historical average rate of expansion has been *3.1%* per year.

The economic pundits have let their political purposes push their estimate on economic growth ***35% too high.***

The charts in this section show the per capita expenditure on construction during the past 43 years, and through the use of trend lines, project the per capita expenditure through 1970. The Department of Labor and the Department of Commerce guesses are also shown. The trend lines have been converted to dollar volumes in the table at the end of this section.

Everyting in the history of our economic growth, demonstrates that the dollar volume of construction in 1970 will be about $77.+ billion.

**In this report, all dollar values are in 1960 dollars, unless otherwise indicated.*

# CAN WE GIVE EVIDENCE THAT HISTORY IS A BETTER FORECASTER THAN THE LABOR DEPARTMENT?

The guesses made by the Departments of Labor and Commerce in 1960 deserve a good, hard look in the light of our experience in 1960, 1961, 1962 and 1963.

At the end of 1963, we will have reached the 40% mark, headed towards 1970. We should have reached 40% of our 1970 target.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 40% → | | | | | | | | | | |
| Year | 1960 | '61 | '62 | '63 | '64 | '65 | '66 | '67 | '68 | '69 | 1970 |
| Construction Value (Billion $) | **55.5** | | | **63.3** | | | | | | | 77.+ |
| | 40% → | | | | | | | | | | |

We *have* reached 40% of $77.+ billion.
We have ***not*** reached 40% of $87.3 billion.

The dollar value of construction in 1963 will total about $63 billion. At the historical rate of expansion (3.1% per yr.) the next 6 years should have an annual total construction about as follows:

| | |
|---|---|
| 1964 | $64.95 billion |
| 1965 | 66.96 |
| 1966 | 69.04 |
| 1967 | 71.18 |
| 1968 | 73.29 |
| 1969 | 75.56 |
| **1970** | **77.+** |

By applying the historical average annual rate of growth to the volume of construction in 1963, it is obvious that we *will* reach a dollar volume of about $77.+ billion in 1970.

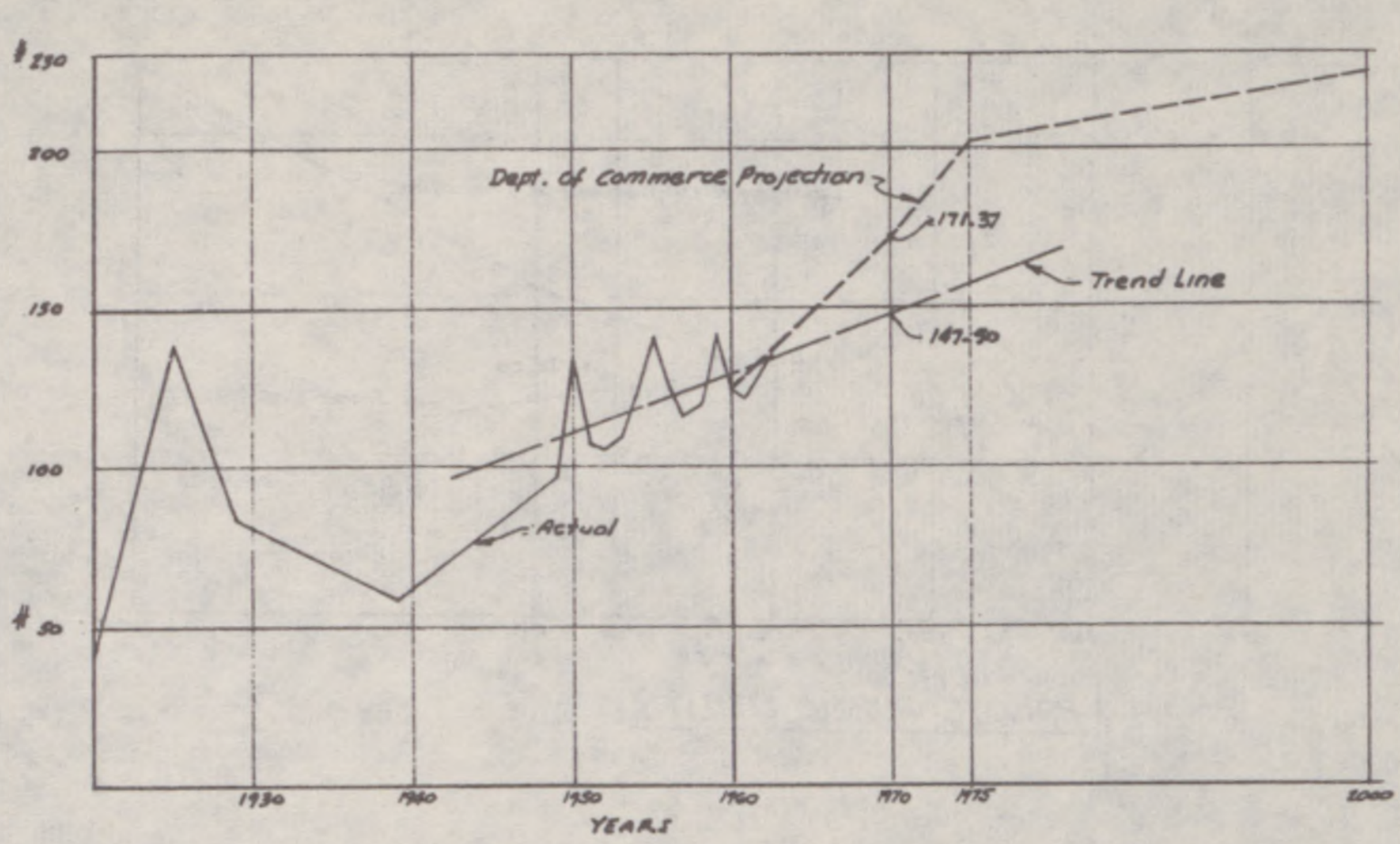
We will ***not*** do $87.3 billion worth of construction in 1970.

New Construction in the United States,
Total and Per Capita, 1920 - 1960 and as Projected to 2000

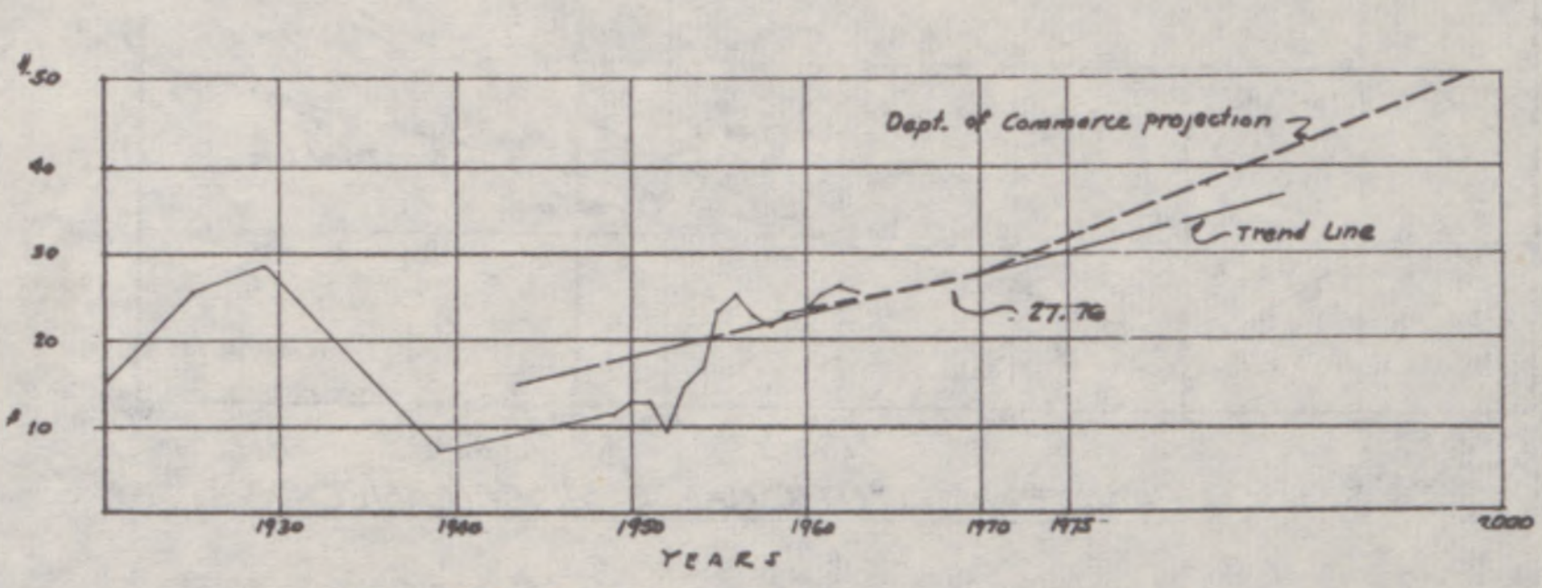
| Year | Population - Including Armed Forces Overseas (millions) | Total New Construction | | Private Construction | | | | | Public Construction | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Millions of 1960 Dollars | Per Capita | Nonfarm Residential | Commercial | Industrial | Public Utilities | Institutional and Miscellaneous | Educational | Highway | Military and Industrial | Water and Sewers | All Other Public |
| | | | | (per capita) | | | | | | | | | |
| 1920 | a) 106.5 | $ 15,376 | $144.38 | $ 44.65 | $15.28 | $24.15 | $18.09 | $ 7.69 | $ 4.54 | $ 6.96 | $ 3.07 | $ 3.79 | $ 4.79 |
| 1925 | a) 115.8 | 32,852 | 283.70 | 139.54 | 25.64 | 13.38 | 33.49 | 20.70 | 11.50 | 13.83 | .17 | 7.73 | 10.56 |
| 1929 | 121.9 | 30,642 | 251.37 | 83.56 | 28.21 | 24.52 | 38.27 | 19.47 | 10.62 | 17.97 | .41 | 6.55 | 14.99 |
| 1939 | 131.0 | 24,111 | 184.05 | 58.72 | 7.51 | 6.24 | 15.42 | 7.28 | 12.72 | 23.08 | 3.35 | 8.95 | 34.15 |
| 1949 | 149.2 | 35,590 | 238.54 | 96.80 | 11.62 | 9.25 | 36.66 | 12.88 | 9.20 | 14.12 | 2.93 | 6.80 | 21.24 |
| 1950 | 151.7 | 42,687 | 281.39 | 133.30 | 12.36 | 9.72 | 34.34 | 14.61 | 10.82 | 17.24 | 3.63 | 6.78 | 21.51 |
| 1951 | 154.3 | 42,726 | 276.90 | 107.74 | 12.10 | 16.94 | 34.39 | 15.12 | 13.25 | 16.82 | 14.91 | 7.39 | 19.75 |
| 1952 | 156.9 | 43,737 | 278.76 | 105.61 | 9.53 | 17.81 | 35.66 | 13.61 | 12.83 | 17.53 | 23.55 | 7.10 | 17.11 |
| 1953 | 159.6 | 45,697 | 286.32 | 109.45 | 14.23 | 16.43 | 36.57 | 13.83 | 13.60 | 19.74 | 22.79 | 7.44 | 16.38 |
| 1954 | 162.4 | 48,587 | 299.18 | 121.16 | 16.68 | 15.06 | 33.85 | 15.86 | 16.02 | 25.10 | 18.64 | 7.77 | 15.70 |
| 1955 | 165.3 | 52,941 | 320.27 | 140.83 | 23.27 | 17.07 | 32.76 | 15.51 | 17.59 | 24.28 | 14.16 | 8.10 | 14.91 |
| 1956 | 168.2 | 51,794 | 307.93 | 124.73 | 24.67 | 19.93 | 33.34 | 14.93 | 17.22 | 25.30 | 11.72 | 8.91 | 16.16 |
| 1957 | 171.3 | 51,979 | 303.44 | 115.42 | 22.76 | 21.19 | 34.30 | 16.61 | 17.93 | 26.74 | 10.62 | 8.80 | 17.20 |
| 1958 | 174.1 | 52,505 | 301.58 | 119.54 | 21.76 | 13.96 | 30.87 | 17.62 | 17.38 | 30.03 | 10.65 | 8.58 | 18.27 |
| 1959 | 177.1 | 57,304 | 323.57 | 141.07 | 22.64 | 11.89 | 30.40 | 17.45 | 15.30 | 32.94 | 10.40 | 8.49 | 19.64 |
| 1960 (b) | 180.7 | 55,556 | 307.45 | 124.77 | 23.13 | 15.78 | 29.46 | 18.92 | 15.59 | 30.24 | 9.92 | 8.23 | 20.34 |
| 1965 (b) | 194.5 | 69,605 | 357.87 | 139.85 | 25.19 | 16.97 | 33.32 | 23.52 | 21.59 | 41.13 | 9.90 | 10.03 | 24.04 |
| 1970 (b) | 208.9 | 87,315 | 417.98 | 171.37 | 27.76 | 19.15 | 37.65 | 28.48 | 23.93 | 47.87 | 10.53 | 11.49 | 27.29 |
| 1975 (b) | 226.0 | 107,400 | 475.22 | 201.33 | 30.53 | 22.12 | 40.71 | 33.63 | 24.34 | 53.54 | 11.06 | 12.83 | 31.86 |
| 2000 (b) | 331.1 | 218,700 | 660.53 | 224.10 | 51.34 | 37.45 | 68.86 | 56.78 | 27.79 | 83.06 | 18.73 | 21.14 | 52.55 |
| 1961 (b) | 183.7 | 56,997 | 310.27 | 121.62 | 25.20 | 14.92 | 29.13 | 19.36 | 16.49 | 31.45 | 9.79 | 8.55 | 21.25 |
| 1962 (b) | 186.6 | 59,617 | 319.49 | 129.89 | 25.96 | 14.72 | 28.81 | 20.03 | 15.61 | 32.71 | 8.69 | 9.17 | 21.52 |

a) Population residing in United States only.
b) Includes Alaska and Hawaii.

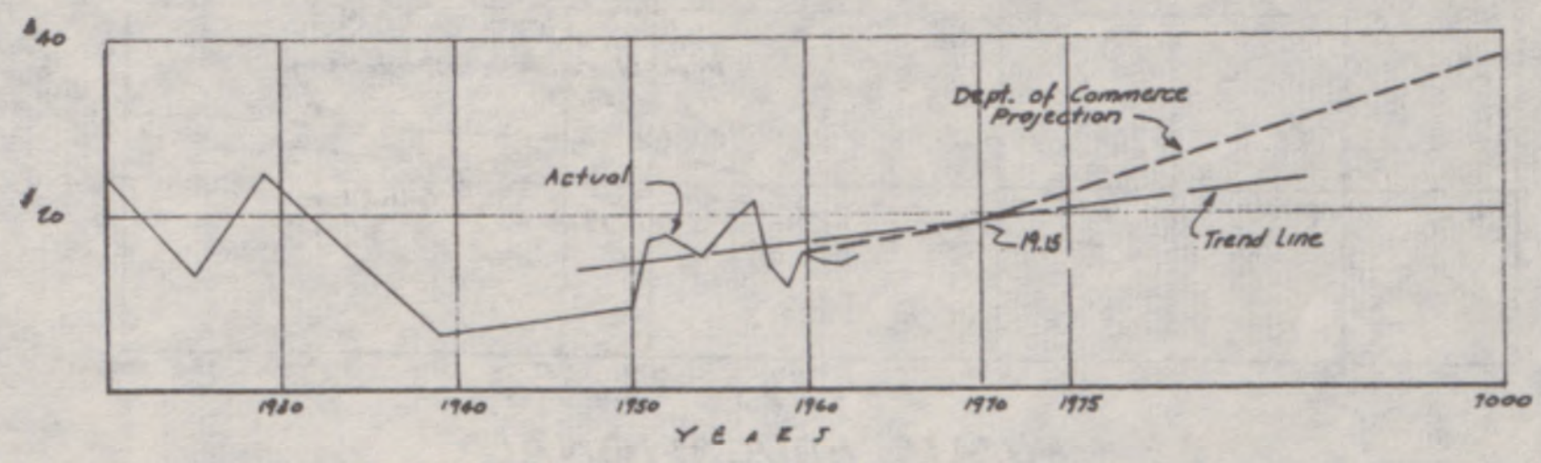
Sources: Construction - United States Department of Commerce, "Construction Review," September 1961.
Population - United States Department of Commerce, Bureau of the Census, "Current Population Reports, P-25," Nos. 250, 251 and 270. Assumed construction data to be excluding Alaska and Hawaii from 1920 - 1959. Therefore, population is presented on the same bases.




PRIVATE NONFARM RESIDENTIAL



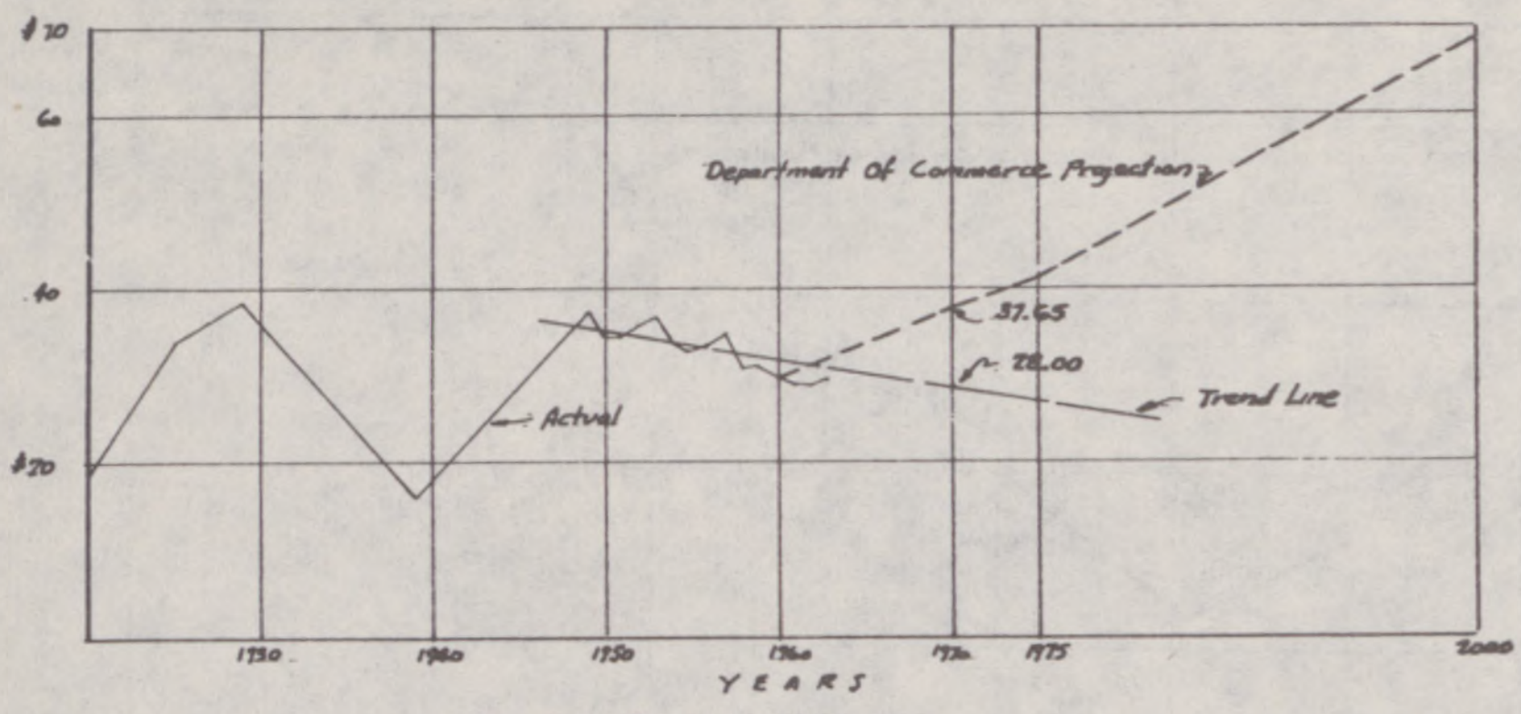

PRIVATE COMMERCIAL



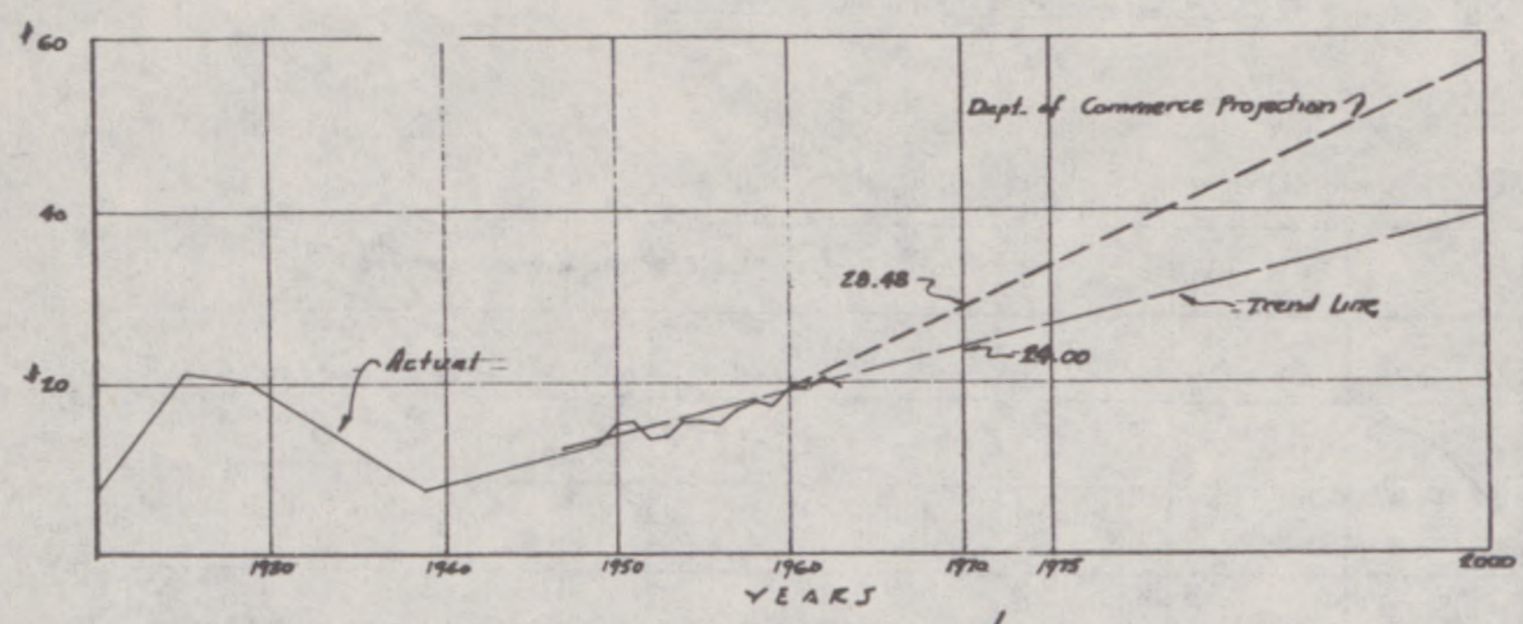

PRIVATE INDUSTRIAL

COMPARISON OF ACTUAL & PROJECTED LEVELS OF PER CAPITA EXPENDITURES FOR THREE CATEGORIES OF NEW CONSTRUCTION

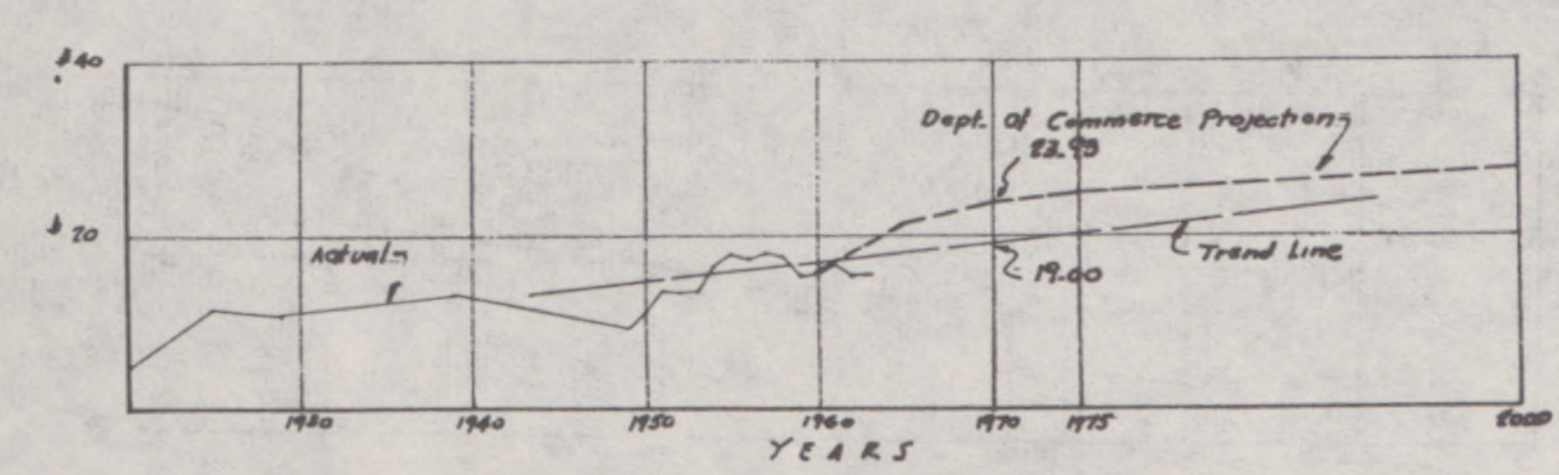
(CONSTANT 1960 DOLLARS)




PRIVATE PUBLIC UTILITY



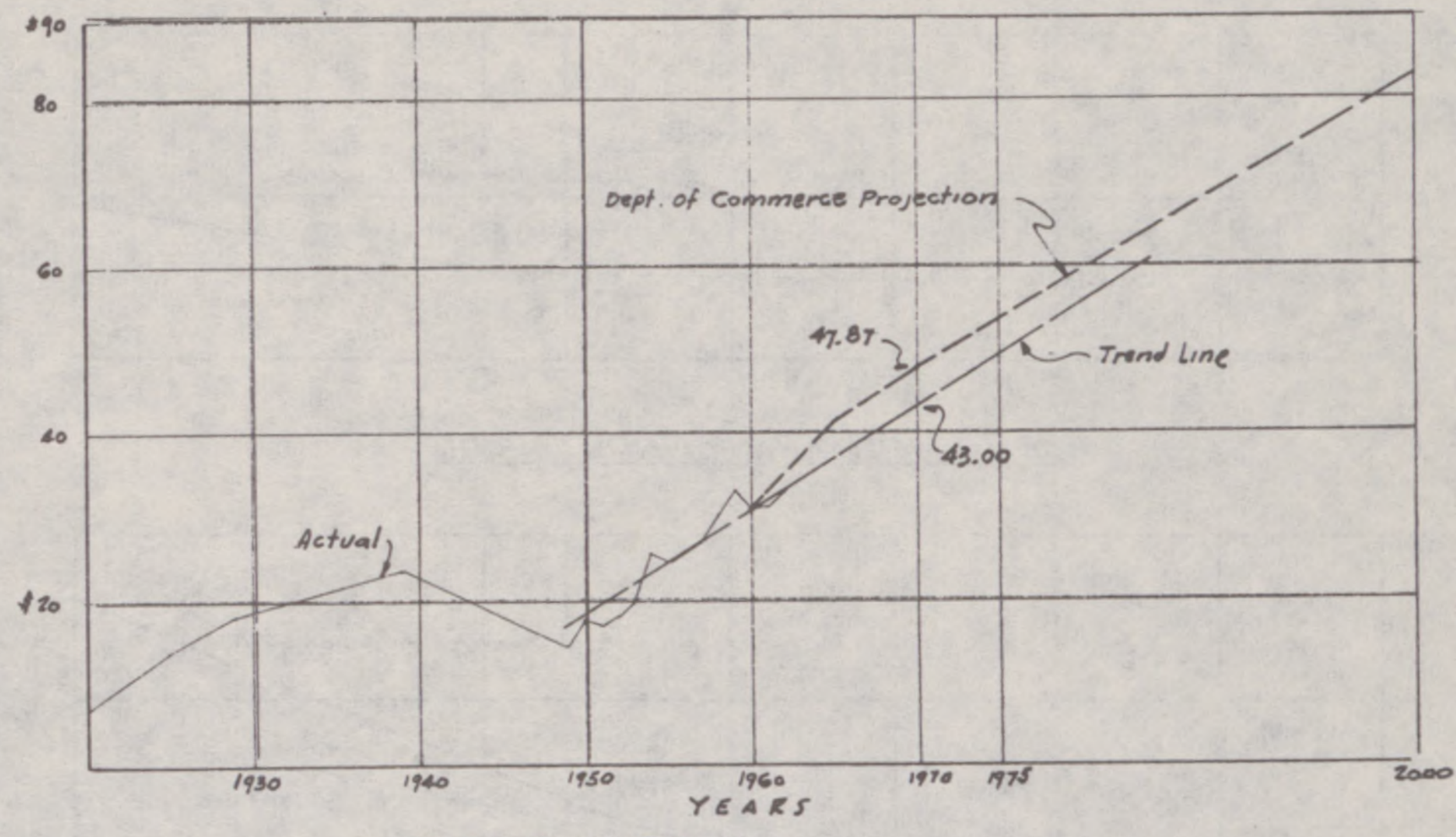

PRIVATE INSTITUTIONAL & MISCELLANEOUS



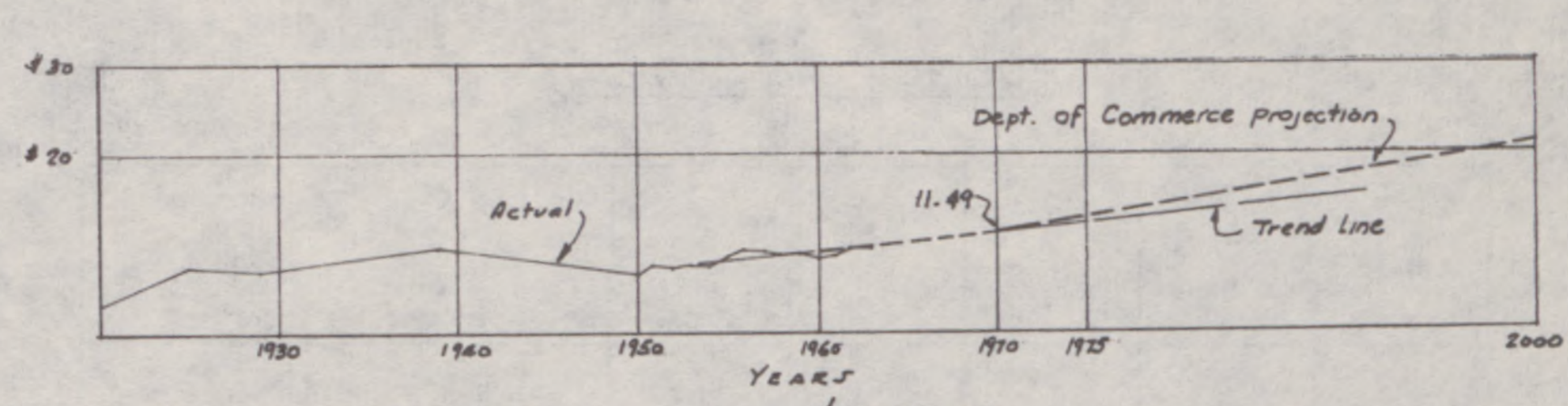

PUBLIC EDUCATIONAL

COMPARISON OF ACTUAL & PROJECTED LEVELS OF PER CAPITA EXPENDITURES FOR THREE CATEGORIES OF NEW CONSTRUCTION

(CONSTANT 1960 DOLLARS)



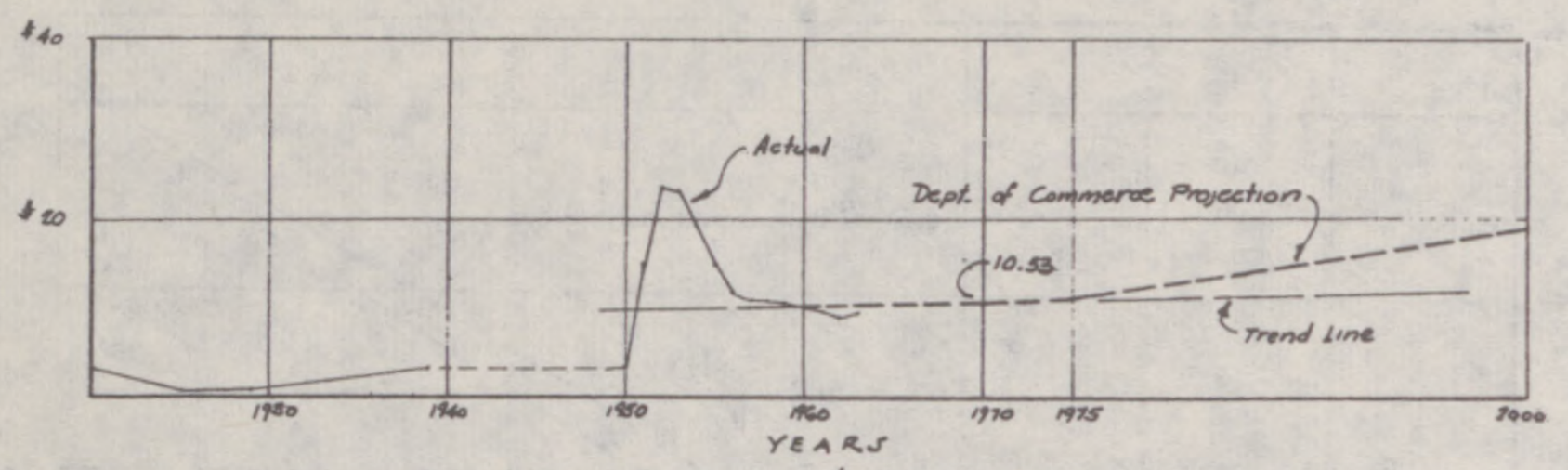

PUBLIC HIGHWAY



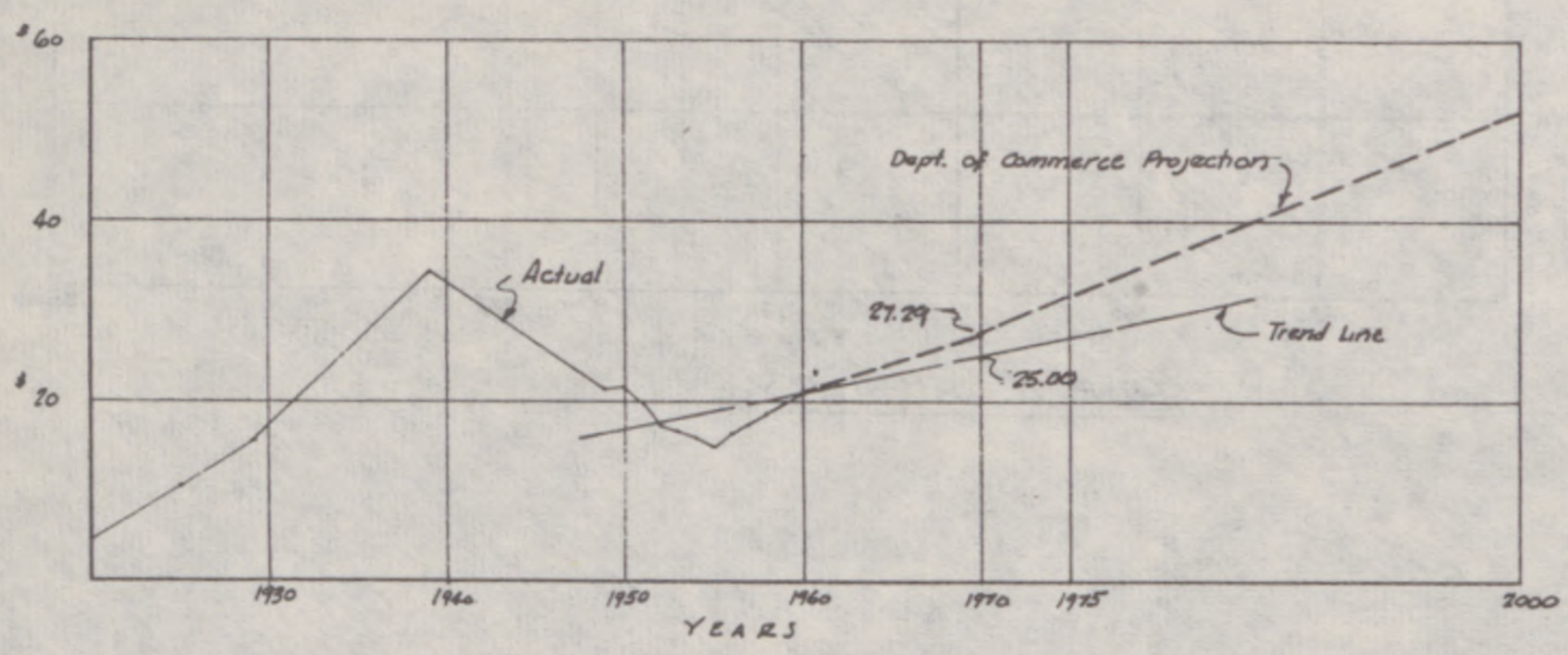

PUBLIC WATER & SEWER

COMPARISON OF ACTUAL & PROJECTED PER CAPITA EXPENDITURES FOR TWO CATEGORIES OF NEW CONSTRUCTION

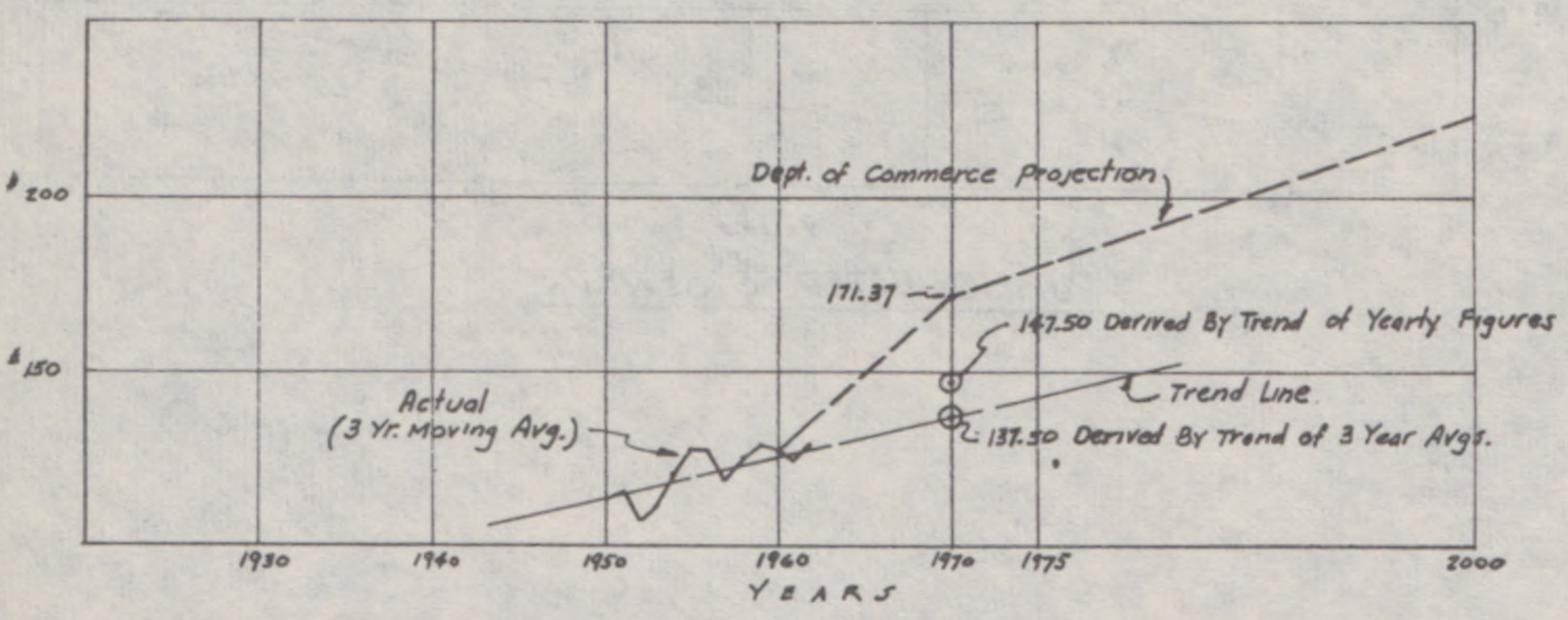
(CONSTANT 1960 DOLLARS)




PUBLIC MILITARY & INDUSTRIAL




PUBLIC - ALL OTHER




PRIVATE NONFARM RESIDENTIAL

(Actual Values Shown Are 3 Year Averages)

COMPARISON OF ACTUAL & PROJECTED LEVELS OF PER CAPITA EXPENDITURES FOR THREE CATEGORIES OF NEW CONSTRUCTION

(CONSTANT 1960 DOLLARS)

Total and Per Capita New Construction Expenditure by Category for 1960 and as Projected for 1970

| Category | Actual 1960 Total Millions of 1960 Dollars | Actual 1960 Per Capita (a) | Projection 1970 Total Millions of 1960 Dollars | Projection 1970 Per Capita (a) | Projection 1970 Percentage Increase Total Dollars 1970/1960 |
|---|---|---|---|---|---|
| Private Construction: | | | | | |
| Nonfarm residential | $22,546 | $124.77 | $30,813 | $147.50 | 36.7% |
| Commercial | 4,180 | 23.13 | 5,800 | 27.76 | 38.8 |
| Industrial | 2,851 | 15.78 | 4,000 | 19.15 | 40.3 |
| Public utilities | 5,323 | 29.46 | 6,267 | 30.00 | 17.7 |
| Farm | 1,285 | 7.11 | 1,200 | 5.75 | (6.6) |
| Institutional and misc. | 3,418 | 18.92 | 5,014 | 24.00 | 46.7 |
| Subtotal | 39,603 | 219.17 | 53,094 | 254.16 | 34.1 |
| Public Construction: | | | | | |
| Residential | 716 | 3.96 | 1,400 | 6.70 | 95.5 |
| Educational | 2,818 | 15.59 | 3,969 | 19.00 | 40.8 |
| Highway | 5,464 | 30.24 | 8,983 | 43.00 | 64.4 |
| Military and industrial | 1,793 | 9.92 | 2,200 | 10.53 | 22.7 |
| Water and sewer | 1,487 | 8.23 | 2,400 | 11.49 | 61.4 |
| All other public | 3,675 | 20.34 | 5,223 | 25.00 | 42.1 |
| Subtotal | 15,953 | 88.28 | 24,175 | 115.72 | 51.5 |
| Total | $55,556 | $307.45 | $77,269 | $369.88 | 39.1% |

a) Population of the United States including Armed Forces Overseas, 1960, 180.7 million; 1970, 208.9 million (Series III, medium rate, projection).

() Parentheses denotes red figure.

Sources: U. S. Department of Commerce -
Population - Bureau of the Census, "Current Population Reports, P-25, Nos. 251 and 257."
Construction - "Construction Review," September 1961.

Number of Male Workers in Selected Construction Occupations (a)
Who Were Employed During 1960
and Will be Available for Employment in 1970

| | Construction Industry | | | |
|---|---|---|---|---|
| | | Death and Retirement | | |
| Occupation | Actual Employed 1960 | Rate | Number of Workers | Net Available 1970 |
| Brickmason, stonemason, and tile setter | 161,018 | .185246 | 29,828 | 131,190 |
| Carpenter | 646,774 | .268605 | 173,727 | 473,047 |
| Cement mason | 40,307 | .209815 | 8,457 | 31,850 |
| Electrician | 130,273 | .208117 | 27,112 | 103,161 |
| Glazier | 4,604 | .298653 | 1,375 | 3,229 |
| Ironworker | 33,611 | .193925 | 6,518 | 27,093 |
| Painter and paper hanger | 273,158 | .299028 | 81,682 | 191,476 |
| Plasterer | 42,750 | .209778 | 8,968 | 33,782 |
| Plumber and pipe fitter | 190,229 | .227652 | 43,306 | 146,923 |
| Roofer | 44,693 | .228940 | 10,232 | 34,461 |
| Sheet metal worker | 34,015 | .176452 | 6,002 | 28,013 |
| Operating engineer | 151,030 | .258207 | 38,997 | 112,033 |
| Asbestos worker | 10,475 | .228831 | 2,397 | 8,078 |
| Boilermaker | 3,731 | .268025 | 1,000 | 2,731 |
| Total Major Skilled Crafts | 1,766,668 | | 439,601 | 1,327,067 |

a) Based on Bureau of the Census category most closely approximating Department of Labor category listed herein. "Ironworker" assumed to be Census category, "structural metal worker." "Operating engineer" assumed to be Census category, "excavating, grading and road machinery operator." Lather and elevator constructor have been omitted because these classifications do not appear in the Bureau of Census data.

## HOW MANY CURRENTLY EMPLOYED (1960) SKILLED BUILDING TRADESMEN WILL BE AVAILABLE FOR WORK IN 1970?

In 1960, there were 1,766,668 skilled building tradesmen employed in the construction industry.

Everyone, 55 years or older, in 1960 will be 65 years or older in 1970. If we assume that they will retire at age 65, then we must deduct them from the work force available in 1970.

In addition to the retirement at age 65, we know that some men under age 55 in 1960 will die before 1970, so we must remove this number of men from the work force available in 1970.

On the figure facing this page, the major trades are listed. The number of retirements and deaths for the ten years between 1960 and 1970 have been subtracted from the employed 1960 skilled building tradesmen in contract construction. The total skilled building tradesmen available in the construction industry for 1970, who were employed in 1960, will be 1,327,067.

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Number of Male Workers in Selected Construction Occupations (a)
Who Were Unemployed During 1960
and Will Be Available for Employment in 1970

| Occupation | Construction Industry | | | | | |
|---|---|---|---|---|---|---|
| | Actual Employed 1960 | Total Force Assuming 12.2% Unemployment | Unemployed | | | |
| | | | Total 1960 | Death and Retirement Rate | Death and Retirement Number of Workers | Net Available 1970 |
| Brickmason, stonemason, and tile setter | 161,018 | 183,392 | 22,374 | .185246 | 4,145 | 18,229 |
| Carpenter | 646,774 | 736,643 | 89,869 | .268605 | 24,139 | 65,730 |
| Cement mason | 40,307 | 45,908 | 5,601 | .209815 | 1,175 | 4,426 |
| Electrician | 130,273 | 148,375 | 18,102 | .208117 | 3,767 | 14,335 |
| Glazier | 4,604 | 5,244 | 640 | .298653 | 191 | 449 |
| Ironworker | 33,611 | 38,281 | 4,670 | .193925 | 906 | 3,764 |
| Painter and paper hanger | 273,158 | 311,113 | 37,955 | .299028 | 11,350 | 26,605 |
| Plasterer | 42,750 | 48,690 | 5,940 | .209778 | 1,246 | 4,694 |
| Plumber and pipe fitter | 190,229 | 216,661 | 26,432 | .227652 | 6,017 | 20,415 |
| Roofer | 44,693 | 50,903 | 6,210 | .228940 | 1,422 | 4,788 |
| Sheet metal worker | 34,015 | 38,741 | 4,726 | .176452 | 834 | 3,892 |
| Operating engineer | 151,030 | 172,016 | 20,986 | .258207 | 5,419 | 15,567 |
| Asbestos worker | 10,475 | 11,931 | 1,456 | .228831 | 333 | 1,123 |
| Boilermaker | 3,731 | 4,249 | 518 | .268025 | 139 | 379 |
| Total Major Skilled Crafts | 1,766,668 | 2,012,147 | 245,479 | | 61,083 | 184,396 |

a) Based on Bureau of the Census category most closely approximating Department of Labor category listed herein. "Ironworker" assumed to be Census category, "structural metal worker." "Operating engineer" assumed to be Census category, "excavating, grading and road machinery operator." Lather and elevator constructor have been omitted because these classifications do not appear in the Bureau of Census data.

## HOW MANY CURRENTLY UNEMPLOYED (1960) SKILLED BUILDING TRADESMEN WILL BE AVAILABLE FOR WORK IN 1970?

In 1960, the rate of unemployment in the construction industry was 12.2%. Men under 55 in 1960 will be available for work in 1970.

Obviously, we should find jobs for these men, as they are part of the work force, and will help meet the need for tradesmen in 1970.

On the figure facing this page, we have listed the major trades, and determined how many were unemployed in 1960 in the construction industry. We have then deducted the deaths and retirements and developed the number of tradesmen unemployed in 1960 who will be available for work in 1970.

For the construction industry, there will be 184,396 men available.

Analysis of Job Changes of Male Workers
by Occupation, 1961

| Original Occupation | Number of Job Shifts (000) | New Occupation: Carpenter Percent | Carpenter Number (000) | Other Construction Crafts Percent | Other Construction Crafts Number (000) | Total Out of Construction Crafts (000) | Total Into Construction Crafts (000) |
|---|---|---|---|---|---|---|---|
| Construction Crafts: | | | | | | | |
| Carpenters | 331 | 67.2% | 222 | 1.4% | 5 | 104 | 227 |
| Other crafts | 562 | 1.3 | 7 | 70.8 | 398 | 157 | 405 |
| Subtotal Construction | 893 | | 229 | | 403 | 261 | 632 |
| Other Occupations: | | | | | | | |
| Professionals | 497 | 1.6 | 8 | .3 | 1 | - | 9 |
| Managers | 360 | 1.3 | 5 | .9 | 3 | - | 8 |
| Clerical | 381 | .4 | 1 | 2.5 | 10 | - | 11 |
| Sales | 532 | .6 | 3 | 1.2 | 6 | - | 9 |
| Mechanics | 294 | 2.6 | 8 | 3.9 | 11 | - | 19 |
| Other crafts | 466 | 1.4 | 7 | 3.9 | 18 | - | 25 |
| Operatives | 1,753 | 1.5 | 26 | 3.0 | 53 | - | 79 |
| Service | 614 | .8 | 5 | .7 | 4 | - | 9 |
| Farm and farm labor | 565 | 2.3 | 13 | 1.9 | 11 | - | 24 |
| Labor, excluding farm | 1,184 | 1.2 | 14 | 2.6 | 31 | - | 45 |
| Subtotal Other Occupations | 6,646 | | 90 | | 148 | | 238 |
| Total Workers Out of Construction Occupations | | | | | | 261 | |
| Total New Workers Into Construction Occupations | | | | | | | 238 |

Source: U. S. Department of Labor "Special Labor Force Report, No. 35," August, 1963.

Analysis of Job Changes of Male Workers
by Industry, 1961

| Industry Group Left | Number of Changes (000) | Percent Into or Out of Construction | Total Into Construction (000) | Total Out of Construction (000) |
|---|---|---|---|---|
| Agriculture | 650 | In 17.6% | 114 | - |
| Forestry, fisheries, mining | 156 | In 14.2 | 22 | - |
| Construction | 1,523 | Out 39.9 | - | 608 |
| Manufacturing | 1,627 | In 11.2 | 182 | - |
| Transportation and public utilities | 376 | In 12.0 | 45 | - |
| Wholesale and retail trade | 1,575 | In 8.2 | 129 | - |
| Service industries | 1,179 | In 7.4 | 87 | - |
| Public administration | 197 | In 2.4 | 5 | - |
| Self-employed and unpaid family workers | 257 | In 15.7 | 40 | - |
| | 7,540 | | 624 | 608 |

Source: U. S. Department of Labor, "Special Labor Force Report, No. 35," August, 1963.

## HOW MANY SKILLED BUILDING TRADESMEN NOW IN THE CONSTRUCTION INDUSTRY WILL LEAVE THIS WORK, AND HOW MANY WORKERS CURRENTLY IN OTHER WORK WILL SWITCH TO THE SKILLED BUILDING TRADES OCCUPATIONS IN THE CONSTRUCTION INDUSTRY BETWEEN 1960 AND 1970?

The Department of Labor states in their forecast that 415,000 skilled workers will leave construction occupations between 1960 and 1970. They do not indicate that any skilled workers will enter the building trades from other occupations during this ten-year period.

To demonstrate how wrong the Department of Labor is, we can use their own figures.

The two figures on the following pages show an analysis of job changes by industry and by occupation.

In 1961 . . .
608,000 men changed jobs and left the construction industry
624,000 men changed jobs and joined the construction industry
In 1961 . . .
261,000 men changed jobs and left the trades
238,000 men changed jobs and joined the trades

For all intents and purposes, the number of skilled building tradesmen leaving the industry, or leaving the trades, are about equal to the number of skilled building tradesmen joining the industry or trades.

The number of skilled building tradesmen leaving the construction industry will be offset by workers in other industries joining the skilled building tradesmen in the construction industry, so no additional workers will be needed to offset this outflow.

Male Workers in Selected Construction Occupations (a)
in Construction Industry
Required to Meet Increased Demand in 1970

| Occupation | Actual Employment 1960 | 1970 Employment Requirement, Unadjusted | Less 20% Allowance for Increased Productivity | 1970 Employment Requirement, Adjusted |
|---|---|---|---|---|
| New Construction Volume (billions) | $55.6 | $77.3 | $77.3 | $77.3 |
| | (000 omitted) | | | |
| Brickmason, stonemason, and tile setter | 161 | 224 | 44 | 180 |
| Carpenter | 647 | 900 | 180 | 720 |
| Cement mason | 40 | 56 | 12 | 44 |
| Electrician | 130 | 181 | 36 | 145 |
| Glazier | 5 | 7 | 1 | 6 |
| Ironworker | 34 | 47 | 10 | 37 |
| Painter and paper hanger | 273 | 380 | 76 | 304 |
| Plasterer | 43 | 60 | 12 | 48 |
| Plumber and pipe fitter | 190 | 264 | 52 | 212 |
| Roofer | 45 | 63 | 12 | 51 |
| Sheet metal worker | 34 | 47 | 10 | 37 |
| Operating engineer | 151 | 210 | 42 | 168 |
| Asbestos worker | 10 | 14 | 2 | 12 |
| Boilermaker | 4 | 5 | 1 | 4 |
| Total Major Skilled Crafts | 1,767 | 2,458 | 490 | 1,968 |

a) Based on Bureau of the Census category most closely approximating Department of Labor category listed herein. "Ironworker" assumed to be Census category, "structural metal worker." "Operating engineer" assumed to be Census category, "excavating, grading and road machinery operator." Lather and elevator constructor have been omitted because these classifications do not appear in the Bureau of Census data.

## HOW WILL INCREASED PRODUCTIVITY AFFECT THE NEED FOR NEW WORKERS IN THE CONSTRUCTION OCCUPATIONS BY 1970?

The Department of Labor admittedly has little or no information available on productivity increases in the construction industry. Nevertheless, they needed a figure that they could use in the "Manpower Report of the President" to assist them in their determinations of manpower needs in 1970. The rate they guessed averages out to 1.2% per year.

Certainly there are wide variations in the estimates of productivity increases that have taken place in the construction industry. Not only new machines, but new techniques have affected our output per man hour. Reliable sources vary from 1% per year to over 4% per year. In an effort to be fair and objective we have applied a relatively conservative productivity factor of 2%, a figure developed by the manpower and population program of the Bureau of Applied Social Research, Columbia University.

Accepting this figure (although a higher rate is almost certain because of the rapidly changing technology) this means that from 1960 to 1970 productivity in the construction industry will increase 20%.

In 1970, five men will be doing the same amount of work that 6 men did in 1960. The total work force required in 1970 will have to take this fact into consideration.

On the figure facing this page we have listed the major trades, and indicated how this productivity will affect the need for building tradesmen in 1970.

Summary of Male Workers in the Construction Industry Labor Force in 1960
in Selected Construction Occupations (a)
Available for Employment in 1970

| Occupation | Available Workers Who Were Employed in 1960 | Available Workers Who Were Unemployed in 1960 | Total Available in 1970 |
|---|---|---|---|
| | (000 omitted) | | |
| Brickmason, stonemason, and tile setter | 131 | 18 | 149 |
| Carpenter | 473 | 65 | 538 |
| Cement mason | 32 | 5 | 37 |
| Electrician | 103 | 14 | 117 |
| Glazier | 3 | 1 | 4 |
| Ironworker | 27 | 4 | 31 |
| Painter and paper hanger | 192 | 26 | 218 |
| Plasterer | 34 | 5 | 39 |
| Plumber and pipe fitter | 147 | 21 | 168 |
| Roofer | 34 | 5 | 39 |
| Sheet metal worker | 28 | 4 | 32 |
| Operating engineer | 112 | 16 | 128 |
| Asbestos worker | 8 | 1 | 9 |
| Boilermaker | 3 | – | 3 |
| Total Major Skilled Crafts | 1,327 | 185 | 1,512 |

a) Based on Bureau of the Census category most closely approximating Department of Labor category listed herein. "Ironworker" assumed to be Census category, "structural metal worker." "Operating engineer" assumed to be Census category, "excavating, grading and road machinery operator." Lather and elevator constructor have been omitted because these classifications do not appear in the Bureau of Census data.

## THE NEED FOR NEW WORKERS . . .

The need for new building tradesmen from 1960 to 1970 is put clearly into focus by the information developed in the previous pages. The summary statement on this page focuses attention on the genuine need for skilled workers—for such a need does exist—and will always exist.

The total need for entries into the labor force of skilled building tradesmen is about 456,000.

| | |
|---|---|
| Skilled Employment Required at | |
| $77 Billion Level of Construction | 1,968,000 |
| Total Skilled Workers Available | 1,512,000 |
| New Entries Required | 456,000 |

## THE CONSTRUCTION INDUSTRY'S PROGRAM TO MEET THIS NEED

Registered apprenticeship at the 1960 level will produce about 240,000 of these needed tradesmen.

It is widely accepted, both within industry and government, that the number of apprentices in registered programs is just about equaled by apprentices that are not registered. Taking this into consideration, the total number of apprentices, both registered and unregistered, will total about 480,000 during the period 1960-1970.

The present level of apprenticeship is just about right to meet the expected need for new workers in the construction industry by 1970.

ARROW TOOL CO., INC.,
*Wethersfield, Conn., November 13, 1963.*

Mr. GARTH L. MANGUM,
*Research Director, Subcommittee on Employment and Manpower, Committee on Labor and Public Welfare, U.S. Senate, Washington, D.C.*

DEAR MR. MANGUM: Thank you very much for forwarding the testimony of Mr. Charles Hanna and Prof. F. F. Foltman on the subject of apprenticeship.

I have reviewed their testimony and supporting documents and for the most part I am in agreement with their premises that there must be much more apprenticeship training in this country. For the most part, their statistical information is in agreement with the situation that we know to exist and I have no argument with them; however, I disagree that there is a necessity to pay employers an incentive to do a job they should be doing as a matter of their own self-preservation. Anytime that the Government gets involved in a monetary way in a program that gives the Government rights to direct how the program shall be accomplished. I am flatly against further infiltration of citizens rights by either State or Federal Government. Of course, I recognize that rights have responsidilities; however, many industries, both management and labor, have failed to recognize the necessities of their personally becoming involved in apprenticeship training.

The Fitzgerald Act of 1937 was designed to help overcome this reluctance on the part of management and labor by the establishment of the Bureau of Apprenticeship in the Department of Labor. I firmly believe that the Bureau of Apprenticeship and Training has done a good job over the years with the type of direction and money that they have been given to perform their major functions, which is to promote apprenticeship. Currently the Bureau's functions have been expanded to include the areas of training as well as apprenticeship. I believe that this is only right and proper. The Bureau's functions over the years have increased so that today they are involved in many other activities (manpower development training, on-the-job training, discrimination in apprenticeship, and so forth). These additional duties have been put on the Bureau without additional money to accomplish the job that they have to do.

Many of the Bureau of Apprenticeship and Training personnel are hardworking dedicated men and women who know what their job is and who are going about it the best they can; but I believe that they are under some handicap. The handicap of having too many jobs with insufficient help and insufficient money coupled with a necessity for a good hard look at the proper advance planning and implementation of all programs under their cognizance is a necessity. To my mind the Bureau should continue its promotional activities and further should, do research and development in training methods for apprenticeship. Industry today is the largest educational institution by far over any other institution and yet the job is being done poorly, if at all. This research should include not only the particular techniques of training but what tools are necessary, what should the trainers in industry know? What is the best way to accomplish the transmittal of knowledge to apprentices? If the Bureau were to research and develop the proper training techniques, tools, and guidance for the personnel in-

volved in training and present them in proper packages to industrial groups and to individual companies and joint apprenticeship committees I am sure that the whole apprenticeship activity would be greatly improved.

I strongly feel that the Bureau should not become involved in matters of the regulatory nature but should strongly continue to promote and develop methods of apprenticeship and training.

If sometime in the future it suits your convience I would be glad to discuss this matter further with any members of your subcommittee and yourself.

Sincerely yours,

JOHN D. DEWHURST,
*President, Member Federal Committee on Apprenticeship.*

# II. APPRENTICE DATA: QUESTIONS AND ANSWERS

U.S. DEPARTMENT OF LABOR,
OFFICE OF THE UNDER SECRETARY,
*Washington, D.C., February 3, 1964.*

Hon. JOSEPH S. CLARK,
*U.S. Senate,*
*Washington, D.C.*

DEAR SENATOR CLARK: As requested in your letter of January 2, I am enclosing answers to the questions raised by Dr. Garth Mangum about apprenticeship and on-the-job training. These have been provided by the Bureau of Apprenticeship and Training.

The Bureau of Apprenticeship and Training, as you know, is primarily concerned with improving the quality and quantity of apprenticeship and other forms of on-the-job training, protecting the welfare of apprentices through the maintenance of appropriate standards, and assisting labor and management in meeting training needs. In recent years, increasing emphasis has been placed on the overall manpower aspects of the program, including journeyman training, upgrading, retraining, equal opportunity, and activities under the Manpower Development and Training Act.

You will note from the preliminary nature of some of the material that the Bureau is now devoting considerable effort to restructuring various program activities, including research, in order to get at reliable answers to some of the specific questions you raise. This effort is only beginning but it is already clear that these new emphases will be worthwhile.

I shall, of course, be glad to provide any additional information or clarification you may wish.

Sincerely yours,

JOHN F. HENNING,
*Under Secretary of Labor.*

## INFORMATION ON APPRENTICESHIP AND ON-THE-JOB TRAINING REQUESTED OF THE DEPARTMENT OF LABOR BY THE SENATE SUBCOMMITTEE ON EMPLOYMENT AND MANPOWER

### A. APPRENTICESHIP

*1. What are the characteristics of an "apprenticeship occupation"?*

An occupation, to be recognized as apprenticeable by the Bureau of Apprenticeship and Training, is one:

1. Which customarily has been learned in a practical way through training and work experience on the job.
2. Which is clearly identified and commonly recognized throughout an industry.

3. Which requires 2 or more years (4,000 or more hours) of work experience to learn.

4. Which requires related instruction to supplement the work experience (144 hours of such instruction during each year of the apprenticeship is usually considered the minimum).

5. Which is not merely part of an apprenticeable trade recognized by the Bureau of Apprenticeship and Training, as recommended by the Federal Committee on Apprenticeship.

6. Which involves the development of skill sufficiently broad to be applicable in like occupations throughout and industry, rather than of restricted application to the products of one company.

7. Which does not fall in any of the following categories:

(*a*) Selling, retailing, or similar occupations in the distributive field;

(*b*) Managerial occupations;

(*c*) Clerical occupations;

(*d*) Professional and semiprofessional occupations (this designation covers occupations for which entrance requirements customarily include education of college level);

(*e*) Agricultural occupations (this designation includes those engaged in the growing of crops, fruits, nuts, etc., and the raising of livestock, poultry, etc.).

*2. List the occupations where apprenticeship is now practiced.*

See appendix 1.

*3. List other occupations which are potentially apprenticeable.*

Potential apprenticeability is determined by the criteria listed in A–1. Thus, any occupation specified in the Dictionary of Occupational Titles as requiring 2 or more years of work experience to learn is potentially apprenticeable, if it meets the additional criteria listed.

Among some of the relatively new occupations for apprentices are a variety of technical jobs, such as electronic technician (electrical), electronic technician (electromechanical), electronic technician (microwave), broadcast technician, industrial controls technician, etc.

*4. List by industry and occupation the total number of apprentices in training, registered and unregistered, present employment in those occupations, projected employment, estimated apprenticeship needs, and the bases of the estimates.*

Despite many past efforts, it has not been possible to arrive at any reliable estmiate of so-called unregistered apprentices, primarily because of the lack of a suitable definition of the level and type of training required to differentiate an apprentice from a trainee who is merely "picking up" a trade or learning a limited, single-purpose skill. Current estimates place the number of "bona fide" apprentices at 225,000 to 250,000 active during 1962.

See appendixes 2, 3, 4, and 5 for data on registered apprentices by specified trades. (The three trade groups—construction, metal working, and printing—account for almost 140,000 of the total 160,000 registered apprentices.)

Industry data are not available for registered apprentices; however, the following table provides industry data for apprentices covered in the Bureau of Apprenticeship and Training survey of training in industry. (This survey will be published in the spring of 1964.)

*Number and percent of apprentices, by industry, spring 1962*

| Industry | Number | Percent |
|---|---|---|
| Total | 131,300 | 100.0 |
| Contract construction | 44,100 | 33.6 |
| Manufacturing | 63,700 | 48.5 |
| Durable | 30,100 | 23.0 |
| Nondurable | 33,500 | 25.5 |
| Transportation, communication and public utilities | 11,900 | 9.0 |
| Wholesale trade | 4,300 | 3.3 |
| Retail trade | 3,600 | 2.7 |
| Other | 3,700 | 2.8 |

[1] These data refer only to apprentices employed at the time of the survey, and are affected by turnover and seasonal unemployment which are significantly different in construction and manufacturing.

See appendix 6 for data currently available on detailed craftsmen occupations. Presently available employment and projected employment data are provided by the Bureau of Labor Statistics and are generally limited to occupational groups. Specific occupational details are not generally available; however, the Bureau of Apprenticeship and Training and the Bureau of Labor Statistics are currently cooperating in efforts to arrive at projected employment data for specific craft occupations. Estimated apprenticeship needs can then be based on these projections.

Of course, the Bureau of Labor Statistics does publish through its occupational outlook program projections of the trend and outlook in various crafts, but detailed figures are not included for specific occupations. (The new Occupational Outlook Handbook, which contains this information has previously been sent to Senator Clark by the Bureau of Labor Statistics.)

*5. What is the distribution of apprentices by age, education, past employment experience, and other characteristics?*

The Bureau of Apprenticeship and Training is currently developing plans to obtain information of this type on registered apprentices. In the interim, decennial census data are being analyzed to develop some measure of these characteristics from readily available sources. See appendix 7.

A few States record some of this information for their own use.

*6. Accession and completion experience by industry, occupation, age, apprentice-journeyman wage ratio, and level of unemployment in industry and total economy.*

Appendix 8 reveals clearly the close negative relationship between annual changes in the indexes of initial unemployment compensation claims and fluctuations in the number of new apprentice registrants. With the exception of 1950—a year in which the Korean war began and which may have resulted in a reduction in the number of young people available for apprenticeships—the year in which initial unemployment compensation claims are at the highest levels are almost invariably the years in which the number of new apprentice registrants fall to their lowest levels. Thus, in the recessions of 1954, 1958, and 1961, as unemployment claims levels peaked, the number of new apprentice registrants drop to successively lower levels, and then begin to increase as the volume of unemployment claims in the succeeding years of the cycle falls. The inverse relationship between these two variables is reflected in a rather high negative correlation coefficient, which was 0.76—significant at the 1-percent level. (For further de-

tails see Bureau of Apprenticeship and Training report on "Apprenticeship and Economic Change.")

For occupational data, see appendixes 3, 4, and 5.

*7. Summary of studies of reasons for failure to complete apprenticeship.*

It is expected that the new reporting program, currently being developed by the Bureau of Apprenticeship and Training, will permit regular sampling of apprentice dropouts to determine reasons for their failure to complete their terms of apprenticeship.

Results of an earlier study (1953–54) are summarized in the following table:

*Proportion of apprentices discontinuing apprenticeships for various reasons, by number of dependents*

| Reason | Total | Number of dependents, excluding self [1] | | | | | |
|---|---|---|---|---|---|---|---|
| | | 0 | 1 | 2 | 3 | 4 or more | Not reported |
| Number of persons | [2] 510 | 56 | 71 | 106 | 101 | 86 | 90 |
| Total | *Percent* 100.0 | *Percent* 100.0 | *Percent* 100.0 | *Percent* 100.0 | *Percent* 100.0 | *Percent* 100.0 | *Percent* 100.0 |
| Voluntary separations | 76.7 | 76.8 | 74.6 | 71.7 | 77.2 | 83.7 | 76,7 |
| Needed more money | 22.4 | 16.0 | 28.1 | 13.2 | 26.7 | 32.5 | 17.8 |
| Opportunity to receive journeyman's wage | 11.6 | 8.9 | 8.5 | 11.3 | 12.S | 14.0 | 12.2 |
| Unsuited to the trade | 11.6 | 14.3 | 12.7 | 10.4 | 9.9 | 7.0 | 16.8 |
| Did not like the trade | 6.7 | 12.5 | 4.2 | 11.3 | 4.0 | 4.7 | 4.4 |
| Opportunity to go into business | 6.0 | 3.6 | 5.6 | 7.5 | 3.0 | 9.3 | 6.7 |
| Wanted steady work | 5.7 | -------- | 5.6 | 1.9 | 9.9 | 9.3 | 5.5 |
| Family difficulties | 3.3 | 3.6 | 7.0 | 3.8 | 3.0 | 1.2 | 2.2 |
| Miscellaneous | 9.4 | 17.9 | 2.9 | 12.3 | 7.9 | 5.7 | 11.1 |
| Involuntary separations | 23.3 | 23.2 | 25.4 | 28.3 | 22.8 | 16.3 | 23.3 |
| Laid off | 13.3 | 12.5 | 15.5 | 19.8 | 10.9 | 9.3 | 11.1 |
| Discharged | 7.1 | 8.9 | 7.0 | 1.9 | 9.9 | 4.7 | 11.1 |
| Training program discontinued | 2.9 | 1.8 | 2.9 | 6.6 | 2.0 | 2.3 | 1.1 |

[1] As of the time apprenticeship was discontinued.
[2] Reason for discontinuance of apprenticeship was not reported by 16 former apprentices.

*8. Relationship between apprentice and journeyman wage rates by occupation and industry.*

In general, apprentice wage rates range between 50 and 90 percent of the journeyman's rates, advancing progressively about every 6 months.

In addition, see appendix 9 for comparisons of estimated median earnings.

*9. Subsequent employment, unemployment, and promotion experience of apprenticed versus nonapprenticed craftsmen.*

Some information on apprenticed craftsmen is available from a Bureau of Apprenticeship and Training study of former apprentices conducted in 1956. A summary of the results follows:

A sample of former apprentices completing training in 1950 was studied. This group of workers manifests a strong attachment to their respective trades. Six years after acquiring journeyman status 93 percent were working in their apprentice trades or other apprenticeable trades. Only 7 percent had shifted to occupations outside the skilled trades. Training gained through apprenticeship enabled many of these workers to qualify for posi-

tions of higher responsibility in industry. More than one-fourth had advanced beyond the journeyman level and were working in supervisory positions or as private contractors.

Virtually all former apprentices recommended enthusiastically the type of apprenticeship program that they completed to others planning work careers in the skilled trades. However, more than half of the respondents were of the opinion that their training could have been improved. The need for better instruction was most frequently suggested with respect to both training on the job and classroom instruction received during apprenticeship.

The new reporting system, currently being developed, should permit future followup studies of former apprentices, using sampling techniques. Special studies of selected groups of craftsmen can also be made in order to contrast apprenticed and nonapprenticed journeymen.

*10. Relationship between number of applicants and number of apprentice openings by industry, occupation, and geographic area.*

Most apprenticeship programs are characterized by long waiting lists of applicants. In general, the number of applicants far exceeds the number of openings.

*11. Relationship between union-prescribed or collectively bargained apprentice-journeymen ratios and actual existing ratios by industry, occupation, union, and geographical area.*

Typically, collective bargaining agreements provide for a ratio of apprentices to craftsmen. Ratios of 1 apprentice to 4 or 5 journeymen are common. In practice, however, actual ratios differ substantially from these, as evidenced by the following figures which are based on 1962 data collected by the Bureau of Labor Statistics from building and printing trades unions in 52 cities with populations of 100,000 or more:

| *Trade* | *Active journeymen per apprentice* [1] |
|---|---|
| Bricklayers [2] | 19.5 |
| Carpenters | 20.9 |
| Electricians | 8.5 |
| Ironworkers | 23.0 |
| Painters, paperhangers, and glaziers | 25.8 |
| Plasterers and cement masons | 19.5 |
| Plumbers and pipefitters | 10.2 |
| Roofers [3] | 7.9 |
| Sheet metal workers | 8.0 |
| Pressmen, book and job | 9.3 |
| Pressmen, news | 8.9 |
| Stereo and electrotyper, book and job | 14.0 |
| Stereo and electrotyper, news | 11.7 |
| Typographer, book and job | 10.2 |
| Typographer, news | 17.0 |
| Photoengraver, book and job | 11.3 |
| Photoengraver, news | 12.1 |
| Bookbinders, book and job | 11.1 |
| Bookbinders, news | ----- |
| Mailers, book and job | 41.8 |
| Mailers, news | 28.1 |

[1] The ratio of the number of journeymen working or available for work, to the number of persons working under apprenticeship agreements.
[2] Includes marble setter, mosaic terrazzo layer, stonemason, and tile setter.
[3] Roofer: composition, slate, and tile.

For additional details, see appendixes 11 and 12.

See also appendix 10 for a graphic illustration of these data, and appendixes 11 and 12 for detailed ratio data on building and printing trades.

*12. Comparison of characteristics of high and low apprenticeship situations.*

To the extent that this question refers to differences in quality: in general, apprenticeship programs which are guided by active joint apprenticeship committees and, particularly, those supervised by full-time coordinators or directors of apprenticeship and training tend to provide high quality training.

As to the quantity of apprenticeship, we have no assurance that all the significant factors have been isolated. However, the following analysis is highly suggestive:

1. At any level of unemployment, the number of apprentices is related very closely to the number of field representatives at work. This is shown in the attached appendix 13 and summarized below. This appendix ranks all of the States in order of their registered apprenticeship program (in relation to size of work force) and compares this with the number of apprenticeship field men active in the States. A very close correlation exists between these two series.

The highest performance States, the first 10, also have the highest average staff density. The condensed table below (drawn from app. 13) shows how closely related these two factors are:

| | Registered apprentices per 100,000 workers | Apprenticeship field staff per 100,000 workers |
|---|---|---|
| 10 highest States | 501 | 1.59 |
| 2d 10 States | 353 | 1.27 |
| 3d 10 States | 294 | .84 |
| 4th 10 States | 231 | .63 |
| Lowest 10 States | 187 | .78 |

The odds against this close correlation being accidental are prohibitive. There is no reason to question the commonsense view that the demonstrated relationship is what it seems: The more staff devoted to apprenticeship promotion, the more apprentices are employed and registered.

This relates to the unfavorable (unemploymentwise) year of 1962. When employment levels are more favorable, the positive effects of staff effort should be even more noteworthy.

2. The statistical data thus summarized are supported by the 1960 demonstration conducted in New Jersey. Temporary concentration of staff effort there resulted in a dramatic increase in the number of new apprenticeship programs developed.

3. However, after the temporary New Jersey staff was removed, most of the new programs became dormant. In other words, continued stimulation and assistance by apprenticeship agency staff is often necessary to maintenance of private apprenticeship efforts. The average Bureau of Apprenticeship and Training field representative now services 66 separate, active programs employing just over 500 registered apprentices. Since the cost of maintaining one field representative is less than $23,000 per year, the cost per year per apprentice is in the $45 range, a very modest figure.

See appendix 13 for State detail.

*13. Comparison between amount of apprenticeship supported by Government agencies, Government contractors, and non-Government employers.*

Although no overall information for Government contractors is available, the Federal Committee on Apprenticeship has expressed the opinion that defense and other Federal agency contracts should include provisions for apprenticeship where skilled workers are involved. (It is believed that an insufficient number of firms with Federal contracts are training apprentices.)

In 1963, the Federal Committee appointed a task force to study this problem and to discuss possible solutions through discussions with representatives of the Department of Defense and other Federal agencies.

*14. Summary of studies of relationship between costs of training and productivity by year of apprenticeship, by occupation and industry.*

In general, it is thought that an apprentice constitutes a "cost" dur- his first 6 months of employment and training; however, thereafter he earns roughly the equivalent of his pay by the work he performs. For this reason, in part, it has been thought that preapprenticeship programs serve to defray part of the initial "cost" of employing apprentices.

Although a variety of "cost" studies of training (including apprenticeship) have been attempted in the past, none has been satisfactory, largely because of the problems involved in determining what constitutes a "cost" and how much "production" can be attributed to the trainee or apprentice.

*15. Trends in number of apprentices by occupation and industry, registered and unregistered for past 10 years.*

Data for registered apprentices appear in appendixes 2, 3, 4, and 5. A graphic illustration of the trends appears in appendix 8.

No reliable details are available for "unregistered" apprentices.

*16. Description of apprenticeship promotion efforts of Bureau of Apprenticeship and Training and measures of success.*

The promotion of apprenticeship is engaged in with all levels of industry using a wide variety of techniques, aids, and information media.

At the national level, Bureau of Apprenticeship and Training representatives work directly with officials of management and labor organizations to obtain policies favorable to the establishment of new apprenticeship programs by affiliate local organizations and to improve existing ones. Industrywide joint labor-management committees and national apprenticeship standards are established for 24 major trades; 30 other national employer associations and international unions have been encouraged and assisted to adapt unilateral policy statements on apprenticeship for the guidance of local groups. Allied to national level promotion are Bureau industry projects wherein special promotional and factfinding efforts within selected industries for specific periods, are engaged in. Normally three such projects are active each year and are given publicity and support by the affected industry organizations. Extensive use of national trade journals is

made to publish research and technical studies, information on training procedures, and to publicize outstanding programs.

Promotion is obtained through providing leadership and assistance in the organization and conduct of statewide and multistate apprenticeship conferences. Nine such conferences will be held in the current year.

General promotion to bring about an awareness for planned manpower development proceeds at community levels. Bureau of Apprenticeship and Training representatives make use of booklets, reprints, research studies, national standards, and policy statement. Special promotional tools are employed such as exhibits, desk easels, films, and film strips. Mass media activities during fiscal 1963 included arranging for more than 700 apprenticeship completion ceremonies, 400 film presentations, 200 radio and television programs, about 2,000 local news stories, and 1,700 other presentations to civic, professional, labor, management, community groups. Some 306,000 copies of publications were distributed.

The Bureau's major promotional effort is with the individual employer association, and local labor union. Field representatives contact directly the persons responsible for and capable of providing training opportunities. Initial consultations or training or promotional visits to establishments not previously contacted totaled 7,600 in fiscal 1963. During that year about 1,200 new apprenticeship programs were established. By promotion, persuasion, and technical assistance to existing program sponsors about 2,000 significant improvements in the administration, operation, trade coverage, and extent of employer participation, were obtained in fiscal 1963.

The Bureau of Apprenticeship and Training field staff has successfully promoted areawide apprenticeship programs particularly adapted to the needs of the small employer and to relatively unstable employment demand. Such programs, common to the construction industry, permit a combining of resources for well-developed training programs and provide more apprenticeship opportunities with greater continuity of employment. Areawide programs are administered by joint labor-management committees. One of the newer developments resulting from the Bureau of Apprenticeship and Training promotional efforts with such committees and at the national level, has been the establishment of industry training trust funds. With adequate financing, there has been an increase in the number of full-time committee employed apprenticeship training directors, more than 40 at the national level and 250 at the local level. These apprenticeship training directors serve as valuable "multipliers" of the Bureau of Apprenticeship and Training promotional efforts.

*17. Summary of apprenticeship efforts and experience under Manpower Development and Training Act.*

To date, 423 projects involving 6,684 trainees have been approved under the Manpower Development and Training Act on-the-job training. Of these projects and trainees, 64 projects covering 384 trainees involve apprenticeable occupations at the entry level. The trainees enrolled in these projects will enter a formal apprenticeship program at the completion of their Manpower Development and Training Act on-the-job training.

However, the increased interest by labor and management indicates that apprenticeable occupations at the entry level will represent a

greater percentage of the overall total of Manpower Development and Training Act on-the-job training projects and trainees in the future. It is hoped that the Manpower Development and Training Act will increasingly be used as an effective stimulus to the development and expansion of needed apprenticeship programs.

*18. Discussion of relative advantages of apprenticeship and other skill-acquirement methods for various occupations.*

Among the many advantages of a bona fide apprenticeship are the following: employment with pay, training, and experience in a work setting, supervised instruction by a qualified journeyman, maintenance of work standards, orderly acquisition of skill, quality training which is widely recognized by labor and management, versatility, and relative job security.

*19. Suggestions for measures to increase the amount of apprenticeship.*

The Bureau is examining this question very carefully and while its conclusions and recommendations are not yet final, it is already clear that the following areas of concern are of major importance:

1. The clear relationship between the level of unemployment and the number of new apprentices (see answer to item 6) make it clear that one all-important factor in expanding the apprenticeship program is achievement of more ample employment opportunities. This, of course, is a major objective of the administration's program.

2. The unusually close relationship between the number of field representatives promoting and servicing apprenticeship programs (as shown in the answer to item 12) suggests strongly that more ample staffing, particularly in those States which do not now support a significant apprenticeship staff, would produce a significant increase in the amount of apprenticeship at minimal cost.

3. Employer willingness to hire apprentices in sufficient number is in general the key need in expanding the apprenticeship program in the United States. Many employers apparently do not evaluate the benefits of such action on their part as being equivalent to the cost in money or inconvenience. Thus it is, that incentives which will effectively encourage employers to expand the number of apprenticeship opportunities need careful exploration. As indicated earlier, it appears that Manpower Development and Training Act programs may be used in some circumstances to provide such incentives, and efforts to do so will be pressed for those occupations in which additional skilled workers will be needed.

4. Finally, the Government influence upon the volume of apprenticeship should be particularly strong with respect to employment support by public funds. We have reference here both to the direct employees of the Government and to the employment of Government contractors. Both types of employers, operating with public funds, may be presumed to have an obligation to cooperate, within reason, with national policies for the development of skilled manpower. Measures to assure such cooperation in in any case in which it is not forthcoming may merit examination.

*20. Discussion of program to establish apprenticeship information centers.*

This subject is covered in the answer to item 21.

*21. Discussion of racial issue.*

Comprehensive national statistics on the number of apprentices by race have not been assembled. However, there is no lack of evidence that in many parts of the Nation Negroes are not employed as apprentices in proportion to their number in the population. Since appenticeship represents the door of entry to skill and to the rewards and status which skill confers, it is only to be expected that the attention of civil rights leaders and of their constituencies would be turned to the apprenticeable trades.

The Bureau's present approach to this problem is multifaceted. Recognizing that it possesses no statutory authority to do other than promote and assist in the establishment of apprenticeship programs which meet minimum standards, it now requires that all programs which desire to be certified (by the Federal Government) as meeting such standards must select and train apprentices on a completely nondiscriminatory basis. Apprenticeship programs which do not comply with the standards set forth in the regulation implementing this policy will no longer be accorded Federal recognition. For those States where State apprenticeship councils are the program registration authority, the Bureau policy asks that the States adopt equal opportunity programs consistent with the Federal regulation if they wish State registration to continue to be recognized as the equivalent of Federal registration.

Recognizing also that a significant part of the problem of developing equal opportunity in apprenticeship is the widespread ignorance (among youth of all races) as to the existence and nature of the opportunities, the Bureau has moved also to establish apprenticeship information centers in key metropolitan areas of the Nation. These centers, commonly established in conjunction with the public employment service, serve as repositories of specific information on apprenticeship openings and the qualifications required and as agency for informing and counseling youth with respect to apprenticeship opportunities. The apprenticeship information center takes the initiative of bringing relevant information into the school system and to the school counselors so that in-school youth have a basis upon which to decide for or against careers in apprenticeship and to prepare themselves accordingly. The design of these centers is simply to clear away the mystery surrounding apprenticeship openings and to make information concerning them available to all potential applicants. Developed first by the State of California, the concept of the apprenticeship information center has been adopted for wider use, a model center has been in operation for some months in the District of Columbia, and centers should be opened shortly in Chicago, Boston, and other major centers.

In addition, the Bureau has worked through various other channels to change the climate with respect to Negro and other minority group acceptance in apprenticeship programs. It has done this notably by adding specialists to its own staff and by creating a national advisory commitee to guide and assist in the development of the equal opportunity program for apprenticeship and training.

While there are major problems in this area, the positive fact of recent notable advance toward equal opportunity in apprenticeship needs mention. Reports are being received of apprenticeship programs voluntarily changing their procedures in order to give a fair

break to peoples of all races. Change is occurring in this matter and at an accelerating rate.

### B. ON-THE-JOB TRAINING

*1. Amount of-on-the-job training by year, industry, and occupation.*

A preliminary summary of highlights from the Bureau of Apprenticeship and Training nationwide survey of training in industry appears in appendix 14. Results of this survey will be published in the spring of 1964 and will provide, for the first time, information on the type and extent of training in industry.

*2. Discussion of BAT promotion activities and methods.*

In addition to apprenticeship, the Bureau also promotes on-the-job training for journeymen and other workers. Bureau representatives call on labor organizations, industrial establishments, and other interested groups to promote these programs.

Representatives provide know-how and act as training consultants for the groups they service. They often provide visual aids, training standards, and act as coordinators for small establishments who cannot provide all the training their workers need. The Bureau does no training or teaching, it promotes skill development, by helping in-industry to program, install, and develop its training needs. Annually the Bureau assists in the development of 1,100 on-the-job training programs other than apprenticeship. There is an average of 25 workers in each program making an annual total of 28,000.

This training is varied and covers all facets of training needs in industry. However, arrangements are developing whereby the Bureau's promotional efforts give a degree of priority to the skilled job orders for which the Employment Service cannot find sufficient qualified applicants.

The Bureau has a primary responsibility for administering the on-the-job training provisions of the Manpower Development and Training Act (MDTA). This extends the Bureau's capabilities in the on-the-job training field by enabling it, in specified circumstances, to arrange for Federal payment of training costs and allowances. Bureau representatives help interested employers to provide training under the act by: interpreting the act; assisting in planning, organizing, and scheduling training; preparing necessary contracts, monitoring progress, and servicing as required under the act.

*3. Amount of on-the-job training attributable to MDTA.*

The Manpower Development and Training Act on-the-job training programs were begun in the fourth quarter of fiscal year 1963 and to date there are over 423 programs with more than 6,684 total trainees. By virtue of a strict policy of approving such programs only when assured that the employer will maintain his own previous level of training effort, all the Manpower Development and Training Act on-the-job training is net addition to the national totals.

It is estimated that in addition, approximately 4 percent of the regular on-the-job training programs developed by the Bureau of Apprenticeship and Training in fiscal year 1964 were the direct result of contacts in connection with the Manpower Development and Training Act on-the-job training activities. (This percentage is based on the regular workload reports of the Bureau of Apprenticeship and Training field staff, which contain the statistical information for non-Manpower Development and Training Act activity.)

The future number of non-Manpower Development and Training Act programs, including apprencticeship programs, is expected to expand because of the number of new contacts made by the Bureau of Apprenticeship and Training in the course of the Manpower Development and Training Act activity.

*4. Discussion of methods used to promote on-the-job training under MDTA.*

In the main, this subject is covered under item B–2. However, it should be further noted that the Bureau of Apprenticeship and Training has invited the various State apprenticeship agencies to undertake responsibility for developing Manpower Development and Training Act on-the-job training projects. Formal contracts incorporating this agreement have already been signed with several States.

In addition, the Bureau of Apprenticeship and Training gave a full presentation on Manpower Development and Training Act, on-the-job training at the 1963 annual meeting of the National Association of State and Territorial Apprenticeship Directors; regional directors of the Bureau of Apprencticeship and Training conducted mailing campaigns to supply pamphlets and other promotional materials to prospective contractors; a number of community meetings were held with State and local officials throughout the United States.

Four pamphlets have been published:

1. On-the-Job Training Under the Manpower Development and Training Act.
2. Manpower Problems and Local Action * * * The Role of Local Manpower Advisory Committees.
3. (Revised) On-the-Job Training Under the Manpower Development and Training Act.
4. Technical Manpower Publications and Services.

*5. Additions to BAT workload and staff under MDTA.*

The Bureau of Aprenticeship and Training has received added staff under the Manpower Development and Training Act as follows:

Fiscal year 1963: Ten positions were established and filled in the central office in Washington, D.C., to develop policies, procedures, and methods.

Fiscal year 1964: As approved, the 1964 Manpower Development and Training Act appropriation contained 15 positions for the Bureau of Apprenticeship and Training. Included were the 10 established in 1963 and 5 new positions of manpower development specialists for 5 regional offices.

Requests are now pending before the Appropriation Committees which would have the effect of establishing 47 additional Manpower Development and Training Act positions for the Bureau of Apprenticeship and Training field staff for the remainder of 1964.

The Bureau of Apprenticeship and Training has received added workload under the Manpower Development and Training Act as follows:

The Bureau has been assigned responsibility for planning, developing, and conducting the on-the-job training program authorized in section 204 of the act "* * * encourage, develop and secure the adoption of programs for on-the-job training * * *."

The Bureau of Apprenticeship and Training encourages industry to participate, helps develop training programs, approves contracts based upon conduct of training programs, monitors training programs, and

answers requests for information coming from industry and the public.

The Bureau of Apprenticeship and Training assists State governments to participate in the Manpower Development and Training Act program by giving technical advice, training State staff, reviewing, approving, and servicing budgets supporting State government participation.

The Bureau prepares sections of the reports which the President and the Secretary are required to make, and performs other research and analysis under the Manpower Development and Training Act.

*6. Discussion of relative merits of on-the-job training and institutional training.*

Basically, the on-the-job training program differs from the institutional program in that the on-the-job training trainee has a job commitment from an employer prior to the start of training, while under institutional training the trainee has only a "reasonable expectation of employment" after completion of the training. After the institutional training is completed, the Employment Service attempts to place the trainee.

The on-the-job training program has the advantage of giving the trainee realistic experience in the occupation, at the actual rather than a simulated worksite.

An on-the-job training trainee receives wages for most of the time spent in training, whereas an institutional trainee receives only a training allowance paid by the Government.

On-the-job training costs to the Government are less than institutional also because the on-the-job training sponsor already has the equipment needed for the training. (The major on-the-job training expense is for instructors' wages.) Equipment purchases are frequently necessary in an institutional program in order to obtain current models of production equipment with which the trainee must be familiar in order to operate effectively for the employer who hires him.

On-the-job training is adaptable to any size training class and to any location, rural or urban. Institutional classes are limited to minimum numbers which may exceed the required number of workers in a given occupation. Institutional facilities are not always available, particularly in rural locations.

However, there clearly are many situations and types of training in which institutional training is to be preferred. The guiding rule is to recommend that type of training in each specific situation which will best prepare the trainee for successful performance.

*7. Suggestions for possible additional programs to provide positive incentives for on-the-job training.*

There has been so little experience to date on this point that sound conclusions cannot yet be formulated.

APPENDIX

1. Apprenticeable Occupations.
2. Trends in Apprentice Registrations.
3. Construction Trades Summary.
4. Metalworking Trades Summary.
5. Printing Trades Summary.
6. Male Craftsmen, Foremen, and Kindred Workers in the Experienced Civilian Labor Force: U.S., 1960 and 1950.

7. Estimated Median Age of Journeymen and Apprentices, By Craft, U.S. Total.
8. Indices of Initial Unemployment Compensation Claims and of New Apprentice Registrants Each Year, 1947–62.
9. Estimated Median Earnings of Journeymen and Apprentices, By Craft, U.S. Total.
10. Indices of Number of New Apprentice Registrants and of Annual Average Number of Employed Male Craftsmen, 1947–61.
11. Comparison of Apprentices and Journeymen in Selected Building Trades, 1950–62.
12. Comparison of Apprentices and Journeymen in Selected Printing Trades, 1950–62.
13. Apprenticeship Agency Staffing and Accomplishment.
14. Reprinted From the Federal Register, December 18, 1963, Title 29—Labor: Subtitle A—Office of the Secretary of Labor—Nondiscrimination in Apprenticeship.
15. The Nationwide Survey of Training in Industry.

APPENDIX 1

# APPRENTICEABLE OCCUPATIONS

Listed on the following pages are apprenticeable occupations included in programs of apprenticeship registered with State apprenticeship agencies or the Bureau of Apprenticeship and Training.

The customary term of apprenticeship, in years, is shown for each. In some instances, a range in years is included, representing varying training practices in different industries or localities. Where possible, apprenticeable titles have been identified by code number relating them to jobs defined in the Dictionary of Occupational Titles published by the United States Department of Labor, Bureau of Employment Security.

The list of apprenticeable occupations is not to be considered final nor all-inclusive. Changes are necessary from time to time because of technological advancements in industry. (Basic trade classifications are shown in capital letters.)

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# Occupational Listing

[Code numbers from the Dictionary of Occupational Titles have been used merely as a convenient method of providing reference to a description of the work involved in each of the apprenticeable occupations listed]

Accessories Mechanic (air transportation; aircraft manufacturing). *See under* AIRPLANE MECHANIC.

Accordion Maker (musical instruments). *See under* MUSICAL-INSTRUMENT MECHANIC.

Aircraft-Assembly Mechanic (aircraft manufacturing). *See* AIRCRAFT FABRICATOR.

Aircraft-and-Engine Mechanic (air transportation; aircraft manufacturing). *See* Airplane Mechanic *under* AIRPLANE MECHANIC.

AIRCRAFT FABRICATOR; Aircraft-Assembly Mechanic (aircraft manufacturing) 3–4 years. 5–03.572 and 5–03.552 and 5–03.554 and 5–03.562.

Aircraft Machinist (air transportation; aircraft manufacturing). *See under* MACHINIST.

Aircraft Mechanic (air transportation; aircraft manufacturing). *See under* AIRPLANE MECHANIC.

Aircraft Metalsmith (air transportation; aircraft manufacturing). *See under* SHEET-METAL WORKER.

Aircraft Painter-Doper (air transportation; aircraft manufacturing). *See under* PAINTER-AND-DECORATOR.

Aircraft Plater (aircraft manufacturing). *See under* ELECTROPLATER.

AIRPLANE MECHANIC (air transportation; aircraft manufacturing) 3–4 years.

Accessories Mechanic 5–03.840 and 5–80.355 and 5–80.120.
Aircraft Mechanic 5–80.120.
Airplane Mechanic; aircraft-and-engine mechanic 5–80.120; 5–80.130.
Electrical Mechanic 4–97.915.
Engine Mechanic 5–80.130.
Instrument Mechanic 5–83.972.
Line-Service Mechanic 5–80.120 and 5–80.130.
Propeller Mechanic 5–80.130.
Radio Mechanic 5–83.447.

Airplane Woodworker (aircraft manufacturing). *See under* CABINETMAKER-MILLMAN.

Alteration Tailor (retail trade). *See under* TAILOR.

Anodizer (electroplating). *See under* ELECTROPLATER.

ARBORIST (any industry) 3 years. 0–68.13; 3–40.01; 3–40.06.

Architectural Draftsman (any industry). *See under* DRAFTSMAN-DESIGNER.

Armament Mechanic (firearms). *See* Artillery Repairman.

Artificial-Limb Maker, Metal (surgical-dental appliances). *See* Prosthetist.

Artificial-Limb Maker, Wood (surgical-dental appliances). *See* Prosthetist.

Artillery Repairman (firearms; ordnance). *See under* MAINTENANCE MECHANIC-REPAIRMAN.

ASBESTOS WORKER; Insulation Worker (construction; heat and frost insulation) 4 years. 5–33.110.

Auto Glass Installation Worker (automotive service). *See under* GLAZIER-GLASS WORKER.

Auto-Test-Vehicle-Chassis Mechanic (ordnance). *See* Mobile-Military-Equipment Mechanic.

Automobile-Body Repairman (automotive service). *See under* AUTOMOTIVE BODY BUILDER-REPAIRMAN.

Automobile Glazier (automotive service). *See* Auto Glass Installation Worker.

Automobile Machinist (automotive service). *See under* MACHINIST.

Automobile Mechanic (automotive service). *See under* AUTOMOTIVE MECHANIC.

Automobile Painter (automotive service). *See under* PAINTER-AND-DECORATOR.
Automobile Upholsterer (automotive service). *See under* UPHOLSTERER.
AUTOMOTIVE BODY BUILDER-REPAIRMAN (automobile manufacturing; automotive service) 3–4 years.
Automobile-Body Repairman 5–81.510.
Custom-Body Builder, Metal 5–81.525.
Custom-Body Builder, Wood 5–81.525.
Truck-and-Trailer-Body Builder 5–81.525.
Automotive-Test-Engine Mechanic (ordnance). See Mobile-Military-Equipment Mechanic.
AUTOMOTIVE MECHANIC (automotive service; ordnance) 3–4 years.
Automobile Mechanic 5–81.010.
Bus Mechanic 5–81.035.
Heavy-Duty-Equipment Mechanic; construction-equipment mechanic; diesel repairman 5–83.931.
Mobile-Military-Equipment Mechanic; automotive-test-engine mechanic; auto-test-vehicle-chassis mechanic 5–81.050 and 5–81.640.
Motorboat Mechanic 5–83.643.
Motorcycle Mechanic 5–81.020.
Tractor Mechanic 5–81.040.
Truck Mechanic 5–81.030.
BAKER (bakery products; hotel and restaurant) 3 years. 4–01.100; 4–01.400.
Bank-Note Designer (print. and pub.) *See under* DRAFTSMAN-DESIGNER.
Bank-Note Engraver (printing and publishing). *See under* ENGRAVER.
BARBER (personal service) 2 years. 2–32.01.
Battenmaker (textile). *See under* WOOD CARVER.
Beauty Operator (personal service). *See* COSMETICIAN.
Ben-Day Artist (printing and publishing). *See* Tint Layer.
Bench Carpenter (furniture; woodworking). *See* Cabinet Maker.
Bench Hand (jewelry). *See* Jewelry Repairman.
Benchman (optical goods). *See* Ophthalmic Finisher.
Bindery Worker, Female (printing and publishing). *See under* BOOKBINDER.
Bindery Worker, Male (printing and publishing). *See under* BOOKBINDER.
BLACKSMITH (any industry) 4 years. 4–86.010.
Hammersmith 4–86.110; 4–86.170; 4–86.125.
Sawsmith; saw straightener-and-repairer (saw manufacturing) 3 years. 7–84.230 and 7–84.240.
Spring Maker, Automotive; spring fitter-repairer (automobile manufacuring; automotive service) 4–86.011; 4–86.030.
Tool Dresser 4–86.115.
Tool Sharpener (stoneworking) 2 years. 5–84.010.
Boatbuilder, Steel (shipbuilding). *See under* IRON WORKER.
Boatbuilder, Wood (shipbuilding). *See under* CARPENTER.
BOILERMAKER (any industry) 4 years. 4–83.100.
Boilermarker, Field Erection and Repair (construction) 4 years. (6000 hours minimum.) 4–83.100.
Mold Loftsman; template maker (aircraft manufacturing; boiler making; shipbuilding). 5–17.210; 5–17.350; 5–17.245.
Shipfitter (shipbuilding) 4–84.012.
BOOKBINDER (printing and publishing).
Bindery Worker, Female 2 years. 4–49.010.
Bindery Worker, Male 4 years. 4–49.010.
Paper Ruler 3 years. 6–49.015.
Bookbinding-Machines Mechanic (printing and publishing). *See under* MAINTENANCE MECHANIC-REPAIRMAN.
Boot-and-Shoe Maker, Custom (boot and shoe manufacturing). *See under*

LEATHER WORKER.
Boot Maker, Custom (boot and shoe manufacturing). *See* Boot-and-Shoe Maker, Custom.
Bottomer, Custom Shoes (boot and shoe manufacturing). *See* under LEATHER WORKER.
Brace Maker (surgical-dental appliances). *See* Orthotist.
Bread Wrapper-and-Label Pressman (printing and publishing). *See* Specialty Pressman.
BREWER (malt liquors) 2–3 years. 4–03.260 and 4–03.280 and 4–03.250.
BRICKLAYER; Brickmason (construction) 3 years. 5–24.010.
Brickmason (construction). *See* BRICKLAYER.
Bridge-and-Structural-Steel Erector (construction). *See under* IRON WORKER.
Brilliandeerer (jewelry). *See* Lapidary.
Broadcast Technician (broadcast-telecast). *See* Radio Electrician.
Burglar-Alarm Mechanic (any industry). *See* Signal-System Electrician.
Bus Electrician (transportation). *See under* ELECTRICAL WORKER
Bus Mechanic (automotive service). *See under* AUTOMOTIVE MECHANIC.
Bushelman (retail trade). *See* Alteration Tailor.
Business-Machines Mechanic (any industry). *See under* MAINTENANCE MECHANIC-REPAIRMAN.
Butcher (slaughtering and meat packing). *See under* BUTCHER-MEAT CUTTER.
BUTCHER-MEAT CUTTER (retail trade; slaughtering and meat packing) 3 years.
    Butcher 4–09.205.
    Meat Cutter 5–58.100.
Buttermaker (dairy products). *See under* DAIRY-PRODUCTS MAKER.
Cabinetmaker (furniture; woodworking). *See under* CABINETMAKER-MILLMAN.
CABINETMAKER-MILLMAN (any industry).
    Airplane Woodworker (aircraft manufacturing) 3–4 years. 4–33.916.
    Cabinet Maker; bench carpenter (furniture; woodworking) 3–4 years. 4–32.100.
    Casket Maker (mortician goods) 2–3 years. 4–39.321.
    Furniture Maker-Repairman (furniture) 3–4 years. 4–32.100.
    Millman; shop carpenter (woodworking) 3–4 years. 4–33.914.
Cableman (construction; light and power). *See* Cable Splicer.
Cable Splicer (construction; light and power). *See under* ELECTRICAL WORKER.
Cable Splicer (telephone and telegraph). *See under* TELEPHONE WORKER.
Camera Man (printing and publishing). *See under* LITHOGRAPHER.
Camera Repairman (any industry). *See under* MAINTENANCE MECHANIC-REPAIRMAN.
CANDY MAKER (confection) 3–4 years. 4–05.211.
CANVAS WORKER (any industry) 3 years.
    Sailmaker (shipbuilding) 4–27.811.
    Tent-Awning Maker (canvas goods) 6–27.504.
Cap Cutter (hat and cap). *See under* FABRIC CUTTER.
Card-Room Mechanic (textile). *See under* TEXTILE TECHNICIAN-MECHANIC.
CARMAN (locomotive and car building and repair) 4 years. 5–79.020.
CARPENTER (any industry) 4 years.
    Boatbuilder, Wood (shipbuilding) 5–25.610.
    Carpenter (construction) 5–25.110.
    Carpenter, Maintenance (any industry) 5–25.830.
    Joiner (shipbuilding) 5–25.650.
    Loftsman (shipbuilding) 5–17.210.
    Mold Maker, Wood (brick and tile) 4–66.911.
    Shipwright (shipbuilding) 5–25.640.

Carpenter (construction). *See under* CARPENTER.
Carpenter, Maintenance (any industry). *See under* CARPENTER.
Casket Maker (mortician goods). *See under* CABINET MAKER-MILLMAN.
Caster (construction). *See under* PLASTERER.
Caster (pottery and porcelain). *See under* POTTERY WORKER.
Caster-Mold Maker (jewelry). *See under* JEWELER.
CEMENT MASON (construction) 3 years. 5–26.100.
Central Office Installer-Repairman (telephone and telegraph). *See under* TELEPHONE WORKER.
Chaser-Engraver (jewelry). *See* Engraver-Chaser.
Cheesemaker (dairy products). *See under* DAIRY-PRODUCTS MAKER.
Chemical-Process-Equipment Mechanic (chemical). *See under* MAINTENANCE MECHANIC-REPAIRMAN
Cigar-Making-Machine Mechanic (cigar manufacturing). *See under* MAINTENANCE MECHANIC-REPAIRMAN.
Color Mixer (wallpaper). *See under* WALL-PAPER CRAFTSMAN.
Comb Fixer (textile). *See under* TEXTILE TECHNICIAN-MECHANIC.
Combination Man (telephone and telegraph). *See under* TELEPHONE WORKER.
Commercial Artist (any industry). *See under* SIGN, SCENE-and-PICTORIAL ARTIST.
Commercial Photographer (any industry). *See under* PHOTOGRAPHER.
Composing-Room Machinist (printing and publishing). *See under* MAINTENANCE MECHANIC-REPAIRMAN.
Composition Roofer (construction). *See under* ROOFER.
Compositor (printing and publisher). *See* PRINTER.
Construction-Equipment Mechanic (construction). *See* Heavy-Duty-Equipment Mechanic.
COOK (hotel and restaurant) 3 years. 2–26.32.
    Pastry Cook 2–26.18.
COOPER (cooperage) 4 years. 4–38.010.
Copper Etcher (printing and publishing). *See under* PHOTO ENGRAVER.
Coppersmith (sheet metal; shipbuilding). *See under* SHEET-METAL WORKER.
Coremaker (foundry). *See under* FOUNDRYMAN.
COSMETICIAN; Beauty Operator (personal service) 2 years. 2–32.15.
Custom-Body Builder, Metal (automobile manufacturing). *See under* AUTOMOTIVE BODY BUILDER-REPAIRMAN.
Custom-Body Builder, Wood (automobile manufacturing). *See under* AUTOMOTIVE BODY BUILDER-REPAIRMAN.
Custom Tailor (retail trade). *See under* TAILOR.
Cutter (any industry). *See* FABRIC CUTTER.
Cutter-Patternmaker, shoes (boot and shoe manufacturing). *See under* LEATHER WORKER.
Cutting-and-Creasing Pressman (paper box manufacturing). *See under* PRINTING PRESSMAN.
Cutting-Die Maker (any industry). *See under* TOOL-AND-DIE MAKER.
Cylinder Pressman (printing and publishing). *See under* PRINTING PRESSMAN.
DAIRY-PRODUCTS MAKER (dairy products) 2–3 years.
    Buttermaker 4–06.310.
    Cheesemaker 4–06.410.
Damper-Waterproofer (construction). *See under* ROOFER.
Decorating-Kiln Placer (pottery and porcelain). *See under* POTTERY WORKER.
Dental-Plate Maker (surgical-dental appliances). *See* Dental Technician.
Dental Technician (surgical-dental appliances). *See under* ORTHOPEDIC-PROSTHETIC TECHNICIAN.
Detailer-Draftsman (any industry). *See under* DRAFTSMAN-DESIGNER.
Diamond-Die Maker (wire drawing). *See under* TOOL-AND-DIE MAKER.

Die-Casting-Die Maker (machine shop). *See under* TOOL-AND-DIE MAKER.
Die Maker (jewelry). *See under* TOOL-AND-DIE MAKER.
Die Maker (machine shop). *See under* TOOL-AND-DIE MAKER.
Die Maker, Paper (paper goods). *See* Cutting-Die Maker.
Die Sinker (machine shop). *See under* TOOL-AND-DIE MAKER.
Die Stamper (printing and publishing). *See under* PLATE PRINTER.
Diesel Repairman (automobile service). *See* Heavy-Duty Equipment Mechanic.
Dipper (pottery and porcelain). *See under* POTTERY WORKER.
DRAFTSMAN-DESIGNER (any industry) 3–5 years.
Architectural Draftsman 0–48.05.
Bank-Note Designer (printing and publishing) 0–46.87.
Detailer-Draftsman 0–48.01.
Electrical Draftsman 0–48.11.
Mechanical Draftsman 0–48.18.
Structural Draftsman 0–48.25.
Tool-and-Die Designer (machine shop) 0–48.41; 0–48.42.
Topographical Draftsman 0–48.26.
Drawing-Frame Fixer (textile). *See under* TEXTILE TECHNICIAN-MECHANIC.
DRY CLEANER, SPOTTER, AND PRESSER (cleaning, dyeing, and pressing) 3–4 years. 5–57.110 and 5-57.310 and 7–57.511.
Duplicating-Machines Repairman (any industry). *See* Business-Machines Mechanic.
Dyer, Master (textile). *See under* TEXTILE TECHNICIAN-MECHANIC.
Electric-Motor Repairman (any industry). *See* Repairer-and-winder.
Electrical-Appliance Serviceman (any industry). *See under* ELECTRICAL WORKER.
Electrical Draftsman (any industry). *See under* DRAFTSMAN-DESIGNER.
Electrical-Instrument Repairman (any industry). *See under* ELECTRICAL WORKER.
Electrical Mechanic (air transportation; aircraft manufacturing). *See under* AIRPLANE MECHANIC.
Electrical Repairman (any industry). *See* Maintenance Electrician.
ELECTRICAL WORKER (any industry) 4–5 years.
Bus Electrician (transportation) 5–81.420.
Cable Splicer; cableman; underground electrician (construction; light and power) 5–53.950; 5–53.965.
Electrical-Appliance Serviceman (any industry) 3 years. 5–83.041.
Electrical-Instrument Repairman; Pyrometer man 4 years. 5–83.975.
Electrician; wireman (construction) 4 years. 4–97.010.
Electronic Technician; radio-television repairman; radio repairman; television repairman (any industry) 5–83.411; 5–83.444.
Lineman; outside electrician (light and power) 3 years. 5–53.420.
Maintenance Electrician; electrical repairman; industrial electrician (any industry) 4–97.420.
Meterman; meter-relay tester; meter tester-repairer (light and power) 5–83.451 and 5–83.452 and 5–83.456.
Power-House Electrician (light and power) 4–97.510.
Power-Plant-Equipment Mechanic (light and power) 5–53.374.
Radio Electrician; broadcast technician; radio-station-maintenance electrician; radio-station technician (broadcast-telecast) 5–83.445 and 5–83.447.
Radio-Telephone-Communications Technician (telephone and telegraph) 5–83.445.
Repairer-and-Winder; electric-motor repairman; shop electrician (any industry) 5–83.432 and 5–83.433.
Ship Electrician; marine electrician (shipbuilding) 4–97.210 and 4–97.220.
Sign Electrician (signs) 5–83.872 and 7–13.348 and 5–83.871.

Signal-System Electrician; burglar-alarm mechanic; fire-alarm mechanic (any industry) 5–53.370 and 4–97.420.
Electrician (construction). *See under* ELECTRICAL WORKER.
Electronic Technician (any industry). *See under* ELECTRICAL WORKER.
ELECTROPLATER (any industry) 3–4 years.
Aircraft Plater (aircraft manufacturing) 4–74.910.
Anodizer (electroplating) 4–74.910.
Plater (electroplating) 4–74.010.
ELECTROTYPER (printing and publishing) 5–6 years. 4–45.010.
Finisher.
Molder.
Wax Engraver.
Elevator Repairman (construction). *See under* MAINTENANCE MECHANIC-REPAIRMAN.
Embossing Pressman (printing and publishing). *See under* PRINTING PRESSMAN.
Enameler (jewelry). *See under* JEWELER.
Engine Mechanic (air transportation; aircraft manufacturing). *See under* AIRPLANE MECHANIC.
ENGRAVER (any industry) 4–5 years.
Bank-note Engraver (engraving) 4–73.510.
Engraver-Chaser; chaser-engraver (jewelry) 4–73.020 and 4–73.410.
Etcher, Hand (printing and publishing) 4–73.320.
Metal Engraver (engraving) 4–73.030.
Pantograph Engraver (any industry) 4–73.510 and 4–73.520.
Siderographer (engraving) 4–73.510.
Steel-and-Copper-Plate Engraver (printing and publishing) 4–73.510.
Wood-Block Engraver (textile; printing and publishing) 4–76–210.
Engraver-Chaser (jewelry). *See under* ENGRAVER.
Engraving Pressman (printing and publishing). *See* and *see under* PLATE PRINTER.
Envelope-Machine Adjuster (paper goods). *See* Cutting-and-Creasing Pressman.
Etcher, Hand (printing and publishing). *See under* ENGRAVER.
Experimental-Body Builder, Metal (automotive manufacturing). *See* Model Maker, Metal *under* MODEL MAKER.
Experimental-Body Builder, Wood (automotive manufacturing). *See* Model Maker, Wood *under* MODEL MAKER.
FABRIC CUTTER; Cutter (any industry) 3–4 years.
Cap Cutter (hat and cap) 4–27.043 and 6–27.054.
Garment Cutter (garment) 4–27.043.
Glove Cutter (leather products) 6–62.040.
Shirt Cutter (garment) 4–27.043.
Upholstery-and-Seat-Cover Cutter (furniture; retail trade) 4–35.120.
FARM-EQUIPMENT MECHANIC (automotive service) 3–4 years 5–83.934.
Film Developer-Printer, Motion Picture (any industry). *See under* PHOTOGRAPHER.
Finisher (garment). *See under* TAILOR.
Finisher (optical goods). *See* Ophthalmic Finisher.
Finisher (printing and publishing). *See under* PHOTO ENGRAVER or ELECTROTYPER.
Fire-Alarm Mechanic (any industry). *See* Signal-System Electrician.
Fitter, Custom Shoes (boot and shoe manufacturing). *See under* LEATHER WORKER.
FLOOR COVERER; Floor Layer (construction) 3–4 years.
Linoleum, Soft Tile and Carpet Layer; linoleum-and-soft tile layer 5–32.752.
Floor Layer (construction). *See* FLOOR COVERER.
FOUNDRYMAN (foundry).
Coremaker 4 years. 4–82.010.
Melter 2–3 years. 4–91.351.

Molder 4 years. 4–81.010 through 4–81.050.
Full-Fashion-Hosiery-Knitting-Machine Mechanic (hosiery). *See* Knitting-Machine Mechanic.
Fur Cutter (fur goods). *See under* FURRIER.
Fur Finisher (fur goods). *See under* FURRIER.
Fur-Machine Operator (fur goods). *See under* FURRIER.
Furniture Finisher (furniture). *See under* PAINTER-AND-DECORATOR.
Furniture Maker-Repairman (furniture). *See under* CABINET MAKER-MILLMAN.
FURRIER (fur goods) 3–4 years. 4–21.010.
Fur Cutter 3–4 years. 4–21.210.
Fur Finisher 2–3 years. 4–21.110.
Fur-Machine Operator 2–3 years. 6–21.110.
Gage Maker (machine shop). *See under* TOOL-AND-DIE MAKER.
Garment Cutter (garment). *See under* FABRIC CUTTER.
Gas-Engine Repairman (any industry). *See under* MAINTENANCE MECHANIC-REPAIRMAN.
Gas Fitter (any industry). *See under* PLUMBER-PIPE FITTER.
Gas-Meter Repairman (light and power). *See under* MAINTENANCE MECHANIC-REPAIRMAN.
Glass Blower (glass manufacturing). *See under* GLAZIER-GLASS WORKER.
Glass Blower, Laboratory Apparatus (instruments and apparatus). *See under* GLAZIER-GLASS WORKER.
Glass Worker, Shop (construction; glass products). *See under* GLAZIER-GLASS WORKER.
Glassware Engraver-Polisher (glass products). *See under* GLAZIER-GLASS WORKER.
GLAZIER-GLASS WORKER (any industry).
Auto Glass Installation Worker; Automobile Glazier (automotive service) 2 years. 7–81.920.
Glass Blower (glass manufacturing) 3 years. 4–65.430.
Glass Blower, Laboratory Apparatus (instruments and apparatus) 3–4 years. 4–65.440.
Glass Worker, Shop (construction; glass products) 3 years. 6–65.240; 6–65.910; 6–39.285.
Glassware Engraver-Polisher (glass products) 2–3 years. 4–65.510.
Glazier (construction) 3 years. 5–77.010.
Neon-Tube Bender (signs) 3–4 years. 4–65.420 and 5–13.321.
Stained-Glass Glazier (glass products) 4 years. 5–77.120 and 5–77.110.
Window-Glass Cutter (glass manufacturing) 3 years. 4–65.120.
Glazier (construction). *See under* GLAZIER-GLASS WORKER.
Glove Cutter (leather products). *See under* FABRIC CUTTER.
Goldsmith (jewelry). *See under* JEWELER.
Granite Cutter (stoneworking). *See* Stone Cutter.
Granite Cutter, Sandblaster (stoneworking). *See under* STONE WORKER.
Granite-Lathe Operator (stoneworking). *See* Machine Stone-Cutter.
Granite Sawyer (stoneworking). *See* Stone Sawyer.
Gun Repairman (any industry). *See under* MAINTENANCE MECHANIC-REPAIRMAN.
Gunsmith (any industry). *See* Gun Repairman.
Hammersmith (any industry). *See under* BLACKSMITH.
Handler (pottery and porcelain). *See under* POTTERY WORKER.
Hardwood Finisher (furniture). *See* Furniture Finisher.
Harness Maker (leather products). *See under* LEATHER WORKER.
HEAT TREATER (heat treating) 4 years. 4–87.010.
Heavy-Duty-Equipment Mechanic (automotive service). *See under* AUTOMOTIVE MECHANIC.
Hoisting-and-Portable Engineer (construction). *See* OPERATING ENGINEER

Hub Cutter (jewelry). *See* Die Maker.
Hydraulic-Equipment Mechanic (any industry). *See under* MAINTENANCE MECHANIC-REPAIRMAN.
Impression-Die Sinker (machine shop). *See* Die Sinker.
Industrial Electrician (any industry). *See* Maintenance Electrician.
Industrial-Machine Repairman (any industry). *See* Maintenance Machinist.
Industrial-Sewing-Machine Repairman (any industry). *See under* MAINTENANCE MECHANIC-REPAIRMAN.
Instrument Maker (any industry). *See under* MACHINIST.
Instrument Mechanic (air transportation; aircraft manufacturing). *See under* AIRPLANE MECHANIC.
Instrument Repairman (any industry). *See under* MAINTENANCE MECHANIC-REPAIRMAN.
Insulation Worker (construction; heat and frost insulation). *See* ASBESTOS WORKER.
IRON WORKER (any industry).
Boatbuilder, Steel (shipbuilding) 4 years. 4–88.650; 4–84.610.
Bridge-and-Structural-Steel Erector (construction) 2 years. 4–84.010.
Ornamental-Iron Erector (construction) 2 years. 4–84.020.
Ornamental-Metal Fabricator (bronze, wire and metal specialties). 4 years. 4–84.620 and 4–84.610.
Reinforcing-Iron Worker (construction) 2 years. 7–32.251.
Structural-Steel Fabricator (structural metals) 4 years. 4–84.630 and 4–84.610.
Jacquard-Card Cutter (textile). *See* Jacquard Designer.
Jacquard Designer (textile). *See under* TEXTILE TECHNICIAN-MECHANIC.
JEWELER (jewelry).
Caster-Mold Maker 3–4 years. 4–72.411 and 4–76.031.
Enameler 2–3 years. 4–72.462.
Goldsmith 3–4 years. 4–71.010.
Jewelry Repairman; bench hand 3 years. 4–71.010.
Lapidary; brilliandeerer; stone cutter 3–4 years. 4–71.210.
Stone Setter 3–4 years. 4–71.020.
Jewelry Repairman (jewelry). *See under* JEWELER.
Jig-and-Fixture Builder (aircraft manufacturing; automobile manufacturing). *See under* TOOL-AND-DIE MAKER.
Jiggerman (pottery and porcelain). *See under* POTTERY WORKER.
Joiner (shipbulding). *See under* CARPENTER.
Kiln Drawer (pottery and porcelain). *See under* POTTERY WORKER.
Kiln Placer (pottery and porcelain). *See under* POTTERY WORKER.
Knitter, Full Fashion (hosiery). *See under* TEXTILE TECHNICIAN-MECHANIC.
Knitting-Machine Mechanic (hosiery; knit goods). *See under* MAINTENANCE MECHANIC-REPAIRMAN.
Ladies Tailor (garment). *See* Sample Maker.
Lapidary (jewelry). *See under* JEWELER.
Lapper (jewelry). *See* Polisher-Finisher.
LATHER (construction) 2–3 years. 5–32.761; 5–32.762.
Layout Man, Color (printing and publishing). *See under* ROTOGRAVURE ENGRAVER.
LEAD BURNER (chemical; petroleum and refining; shipbuilding) 5 years. 4–95.031.
LEATHER WORKER (any industry) 3–4 years.
Boot-and-Shoe Maker, Custom; boot maker, custom (boot and shoe manufacturing) 4–60.100.
Bottomer, Custom Shoes (boot and shoe manufacturing) 6–61.333.
Cutter-Patternmaker, shoes (boot and shoe manufacturing) 4–61.872.
Fitter, Custom Shoes (boot and shoe manufacturing) 4–61.217.

Harness Maker (leather products) 4–62.120.
Saddle Maker (leather products) 4–62.060.
Tanner (leather manufacturing) 4–59.011 and 4–59.031 and 4–59.501 and 4–59.912.

Leather Worker (surgical-dental appliances). *See under* ORTHOPEDIC-PROSTHETIC TECHNICIAN.

Lens Grinder (optical goods). *See* Ophthalmic Surfacer.

Line-Service Mechanic (air transportation). *See under* AIRPLANE MECHANIC.

Lineman (light and power). *See under* ELECTRICAL WORKER.

Lineman (telephone and telegraph). *See under* TELEPHONE WORKER.

Liner (pottery and porcelain). *See under* POTTERY WORKER.

Linoleum-and-Soft Tile Layer (construction). *See* Linoleum, Soft Tile and Carpet Layer.

Linoleum, Soft Tile and Carpet Layer (construction). *See under* FLOOR COVERER.

Linotype Machinist (printing and publishing). *See* Composing-Room Machinist.

Lithoengraver (printing and publishing). *See* LITHOGRAPHER.

LITHOGRAPHER; *Lithoengraver (printing and publishing) 4–5 years.
*Camera Man; Photolithographer 4–46.200.
Lithographic-Press Assistant 2 years. 4–48.050.
Lithographic Pressman; Offset Pressman 4–48.070.
*Platemaker; Transferer 4–46.400; 4–46.300; 4–46.500.
Process Artist 0–44.07.
Proofer 6–49.510.
Stripper-and-Opaquer 4–49.999.
Transferer, Hand 4–46.500; 4–46.600.

Lithographic-Press Assistant (printing and publishing). *See under* LITHOGRAPHER.

Lithographic Pressman (printing and publishing). *See under* LITHOGRAPHER.

Lock-and-Safe Repairman (any industry). *See under* MAINTENANCE MECHANIC-REPAIRMAN.

Locksmith (any industry). *See* Lock-and-Safe Repairman.

Loftsman (shipbuilding). *See under* CARPENTER.

Loom Fixer (textile). *See* Weave-Room Mechanic.

Machine Man (stoneworking). *See* Machine Stone-Cutter.

Machine Set-Up Man (paper goods). *See* Cutting-and-Creasing Pressman.

Machine Stone-Cutter (stoneworking). *See under* STONE WORKER.

MACHINIST (any industry) 4 years. 4–75.010.
Aircraft Machinist (air transportation; aircraft manufacturing). 4–75–010.
Automobile Machinist (automotive service) 4–75.010.
Instrument Maker (any industry) 4–75.130.
Maintenance Machinist; industrial machine repairman (any industry) 4–75.010.
Marine Machinist (shipbuilding) 4–75.150.
Precision-Tool Grinder (any industry) 4–75.010.
Roll Turner (iron and steel) 4–78.011.

MAILER (printing and publishing) 4–5 years.

Maintenance Electrician (any industry). *See under* ELECTRICAL WORKER.

Maintenance Machinist (any industry). *See under* MACHINIST.

MAINTENANCE MECHANIC-REPAIRMAN (any industry).
Artillery Repairman; armament mechanic 4 years. 5–83.541; 5–83.542 and 5–83.543.
Bookbinding-Machines Mechanic (printing and publishing). 4 years. 5–83.641.
Business-Machines Mechanic; duplicating-machines repairman; office-machines mechanic 3–4 years. 5–83.111; 5–83.125.
Camera Repairman 3 years. 5–83.901.
Chemical-Process-Equipment Mechanic (chemical) 4 years. 5–83.641.
Cigar-Making-Machine Mechanic (cigar manufacturing). 3–4 years. 5–83.641.

Composing-Room Machinist; linotype machinist; monotype machinist; printing-equipment mechanic (printing and publishing). 5–6 years. 5–83.641.
Elevator Repairman 4 years. 5–83.921 and 5–83.351.
Gas-Engine Repairman (any industry). 3–4 years. 5–83.652.
Gas-Meter Repairman (light and power). 3 years. 5–83.461.
Gun Repairman; gunsmith; small-arms repairman 3–4 years. 5–83.542.
Hydraulic-Equipment Mechanic (any industry) 3–4 years. 5–83.641.
Industrial-Sewing-Machine Repairman 3–4 years. 5–83.641.
Instrument Repairman 4 years. 5–83.971.
Knitting-Machine Mechanic; full-fashion-hosiery-knitting-machine mechanic; (hosiery; knit goods). 2–3 years. 5–83.322.
Lock-and-Safe Repairman; locksmith 3–4 years. 5–83.551..
Orthopedic-Shoe Repairman 3 years. 4–60.100.
Power-House Repairman (light and power) 3–4 years. 5–53.374.
Pump Repairman 3–4 years. 5–83.641.
Scale Repairman 3 years. 5–83.641.
Shoe Repairman 2–3 years. 4–60.100.
Watch-Clock Repairman 3–4 years. 4–71.510.
Wind-Tunnel-Maintenance Mechanic (aircraft manufacturing). 4 years. 5–83.644.
X-ray-Equipment Repairman 3–4 years. 5–83.420.

Marble Setter (construction). *See* Stone Setter.
Marine Electrician (any industry). *See* Ship Electrician.
Marine Machinist (shipbuilding). *See under* MACHINIST.
MARKING-DEVICE MAKER (marking device; printing and publishing) 2–3 years. 6–57.931.
Rubber-Stamp Maker; rubber-die maker
Masker (printing and publishing). *See under* PHOTO ENGRAVER.
MATTRESS MAKER, CUSTOM (mattress) 2–3 years. 4–36.414.
Meat Cutter (retail trade). *See under* BUTCHER-MEAT CUTTER.
Mechanical Draftsman (any industry). *See under* DRAFTSMAN-DESIGNER.
Melter (foundry). *See under* FOUNDRYMAN.
Metal-Denture Maker (surgical-dental appliances). *See* Dental Technician.
Metal Engraver (engraving). *See under* ENGRAVER.
Metal Patternmaker (foundry). *See under* PATTERNMAKER.
METAL POLISHER-AND-BUFFER (any industry) 3–4 years. 6–77.020 and 6–77.060.
Polisher-Finisher; lapper (jewelry). 3 years. 4–72.511.
Sandbobber (holloware; silverware) 3 years. 4–72.511.
Metal-Sign Maker (signs). *See under* SHEET-METAL WORKER.
Metal Spinner (machine shop). *See under* SHEET-METAL WORKER.
Meterman (light and power). *See under* ELECTRICAL WORKER.
Meter-Relay Tester (light and power). *See* Meterman.
Meter Tester-Repairer (light and power). *See* Meterman.
Micro-Photographer (any industry). *See* Commercial Photographer.
MILLER (grain mill) 4 years. 4–07.100.
Millman (woodworking). *See under* CABINETMAKER-MILLMAN.
MILLWRIGHT (any industry) 4 years. 5–78.100.
Mobile-Military-Equipment Mechanic (ordnance) *See under* AUTOMOTIVE MECHANIC.
MODEL MAKER (any industry) 4 years.
Model Maker, Metal; experimental-body builder, metal 5–17.110; 5–17.070; 5–17.262.
Model Maker, Plastic 5–17.262 and 5–17.120 and 5–17.130.
Model Maker, Wood; experimental-body builder, wood 5–17.110 and 5–17.120; 5–17.130.
Model-Mold Maker (stationery and art goods). *See under* PLASTERER.

Mold Loftsman (shipbuilding; aircraft manufacturing; boilermaker). *See under* BOILERMAKER.
Mold Maker (any industry). *See under* TOOL-AND-DIE-MAKER.
Mold Maker (pottery and porcelain). *See under* POTTERY WORKER.
Mold Maker, Wood (brick and tile). *See under* CARPENTER.
Molder (foundry). *See under* FOUNDRYMAN.
Molder (printing and publishing). *See under* ELECTROTYPER.
Monotype Machinist (printing and publishing). *See* Composing-Room Machinist.
Monument Maker (stoneworking). *See under* STONE WORKER.
Motorboat Mechanic (any industry). *See under* AUTOMOTIVE MECHANIC.
Motorcycle Mechanic (automotive service). *See under* AUTOMOTIVE MECHANIC.
Mounter (optical goods). *See* Ophthalmic Finisher.
MUSICAL-INSTRUMENT MECHANIC (musical instruments) 3–4 years.
Accordion Maker 5–13.351.
Musical-Instrument Repairman 5–83.211 and 5–83.224.
Piano Repairman-and-Tuner 5–83.222 and 5–12.100 and 5–13.355.
Pipe Organ Builder 5–13.999.
Pipe Organ Installer-Repairman 5–83.225.
Stringed-Instrument Repairman 5–83.223.
Violin Maker 5–13.353.
Musical-Instrument Repairman (musical instruments). *See under* MUSICAL-INSTRUMENT MECHANIC.
Neon-Tube Bender (signs). *See under* GLAZIER-GLASS WORKER.
Newspaper (Web) Pressman (printing and publishing). *See under* PRINTING PRESSMAN.
Office-Machines Mechanic (any industry). *See* Business-Machines Mechanic.
Offset Pressman (printing and publishing). *See* Lithographic Pressman or *see under* PRINTING PRESSMAN.
OPERATING ENGINEER; Hoisting-and-Portable Engineer (construction) 3–4 years. 5–23.910.
Well Driller 5–75.230; 5–75.050 and 5–75.270.
Operating Engineer, Stationary (any industry). *See* STATIONARY ENGINEER.
Ophthalmic Finisher (optical goods). *See under* OPTICAL TECHNICIAN.
Ophthalmic Surfacer (optical goods). *See under* OPTICAL TECHNICIAN.
OPTICAL TECHNICIAN; Optician (optical goods) 4 years. 5–08.010.
Ophthalmic Finisher; benchman; finisher; mounter 5–08.033.
Precision-Lens Grinder; precision-lens polisher 5–08.071; 5–08.081.
Ophthalmic Surfacer; lens grinder; surfacer 5–08.077.
Optician (optical goods). *See* OPTICAL TECHNICIAN.
Ornamental-Iron Erector (construction). *See under* IRON WORKER.
Ornamental-Metal Fabricator (bronze, wire and metal specialties). *See under* IRON WORKER.
Orthopedic-Shoe Builder (surgical appliances). *See under* ORTHOPEDIC-PROSTHETIC TECHNICIAN.
Orthopedic-Shoe Repairman (personal service). *See under* MAINTENANCE MECHANIC-REPAIRMAN.
ORTHOPEDIC-PROSTHETIC TECHNICIAN (surgical-dental appliances) 3–4 years.
Dental Technician; dental-plate maker; metal-denture maker; porcelain-acrylic-denture maker 0–50.06.
Orthopedic-Shoe Builder; pedo-practor 5–09.410.
Orthotist; brace maker 5–09.410 and 5–09.442.
Prosthetist; artificial-limb maker, metal; artificial-limb maker, wood 5–09.450; 5–09.430; and 5–09.442.
Leather Worker 5–09.454.
Orthotist (surgical-dental appliances). *See under* ORTHOPEDIC-PROSTHETIC TECHNICIAN.

Outside Electrician (light and power). *See* Lineman.
PBX Installer (telephone and telegraph). *See under* TELEPHONE WORKER.
PAINT MAKER (paint and varnish) 3–4 years. 4–50.311.
PAINTER-AND-DECORATOR (any industry).
Aircraft Painter-Doper (air transportation; aircraft manufacturing) 2–3 years. 5–16.930 and 5–16.940.
Automobile Painter (automotive service) 3 years. 5–16.910.
Furniture Finisher; hardwood finisher (furniture) 2–3 years. 5–16.710.
Painter (construction) 3 years. 5–27.010.
Painter (shipbuilding) 3 years. 5–27.110.
Stained-Glass Painter (glass products) 4 years. 0–04.21.
Statuary Painter (statuary and art goods) 3 years. 0–04.01.
Painter (construction). *See under* PAINTER-AND-DECORATOR.
Painter (shipbuilding). *See under* PAINTER-AND-DECORATOR.
Pantograph Engraver (any industry). *See under* ENGRAVER.
Paper-Goods-Machine Adjuster (paper goods; paper box manufacturing). *See* Cutting-and-Creasing Pressman.
Paper Ruler (printing and publishing). *See under* BOOKBINDER.
Pastry Cook (hotel and restaurant). *See under* COOK.
PATTERNMAKER (foundry) 5 years.
Metal Patternmaker 5–17.010.
Wood Patternmaker 5–17.020.
Plaster Patternmaker, plaster pattern caster (aircraft manufacturing). 5–17.250.
Patternmaker, Garment (garment). *See under* TAILOR.
Pedo-Practor (surgical appliances). *See* Orthopedic-Shoe Builder.
PHOTO ENGRAVER (printing and publishing) 5–6 years.
Copper Etcher 4–47.100.
Finisher 4–47.100.
Masker 4–47.100.
Photographer 4–47.100.
Proofer 6–49.510.
Router-and-Blocker 6–49.210 and 6–49.220.
Stripper-and-Printer 4–47.300.
Tint Layer; ben-day artist 0–44.01.
Zinc Etcher 4–47.100.
Photograph Retoucher (any industry). *See under* PHOTOGRAPHER.
PHOTOGRAPHER (any industry) 3 years.
Commercial Photographer; micro-photographer 0–56.11.
Film Developer-Printer, Motion Picture 5–86.020 and 5–86.030.
Photograph Retoucher 5–86.540.
Portrait Photographer 0–56.21.
Photographer (printing and publishing). *See under* PHOTO ENGRAVER *or* ROTOGRAVURE ENGRAVER.
Photolithographer (printing and publishing). *See* Camera Man.
Piano Repairman-and-Tuner (musical instruments). *See under* MUSICAL-INSTRUMENT MECHANIC.
Picture Engraver (engraving). *See* Bank-Note Engraver.
Pipe Fitter (construction). *See under* PLUMBER-PIPE FITTER.
Pipe Organ Builder (musical instruments). *See under* MUSICAL-INSTRUMENT MECHANIC.
Pipe Organ Installer-Repairman (musical instruments). *See under* MUSICAL-INSTRUMENT MECHANIC.
Plaster-Pattern Caster (aircraft manufacturing). *See* Plaster Patternmaker.
Plaster Patternmaker (aircraft manufacturing). *See under* PATTERNMAKER.
PLASTERER (construction) 3–4 years.
Caster 5–29.200.
Model-Mold Maker (stationery and art goods) 5–17.252.
Plasterer 5–29.100.
Plastics-Tool-and-Die Maker (any industry). *See under* TOOL AND DIE MAKER.

PLATE PRINTER (printing and publishing) 4 years.
Die Stamper; steel-die embosser 4–48.080.
Plate Printer; engraving pressman; pressman, copperplate 4–48.080.
Platen Pressman (printing and publishing). *See under* PRINTING PRESSMAN.
Platemaker (printing and publishing). *See under* LITHOGRAPHER.
Plater (electroplating). *See under* ELECTROPLATER.
Plumber (any industry). *See under* PLUMBER-PIPE FITTER.
PLUMBER-PIPE FITTER (any industry) 4–5 years.
Gas Fitter 5–30.010.
Pipe Fitter 5–30.010.
Plumber 5–30.210.
Sprinkler Fitter 5–30.010.
Steamfitter 5–30.410.
Polisher-Finisher (jewelry). *See under* METAL POLISHER-AND-BUFFER.
Porcelain-Acrylic-Denture Maker (surgical-dental appliances). *See* Dental Technician.
Portrait Photographer (any industry). *See under* PHOTOGRAPHER.
POTTERY WORKER (pottery and porcelain) 3 years.
Caster 4–66.454.
Decorating-Kiln Placer 6–66.611.
Dipper 6–66.052 and 6–66.511.
Handler 6–66.456.
Jiggerman 6–66.453.
Kiln Drawer 6–66.631.
Kiln Placer 6–66.623.
Liner 4–66.511.
Mold Maker 6–66.411.
Sagger Maker 6–66.421.
Tinter 4–66.511.
Turner 4–66.453.
Power-House Electrician (light and power). *See under* ELECTRICAL WORKER.
Power-House Engineer (any industry). *See under* STATIONARY ENGINEER.
Power-House Operator (light and power). *See under* STATIONARY ENGINEER.
Power-House Repairman (light and power). *See under* MAINTENANCE MECHANIC-REPAIRMAN.
Power-Plant-Equipment Mechanic (light and power). *See under* ELECTRICAL WORKER.
Precision-Lens Grinder (optical goods). *See under* OPTICAL TECHNICIAN.
Precision-Lens Polisher (optical goods). *See* Precision-Lens Grinder.
Precision-Tool Grinder (any industry). *See under* MACHINIST.
Press Assistant (all branches) (printing and publishing). *See under* PRINTING PRESSMAN.
Pressman, Copperplate (printing and publishing). *See* Plate Printer.
Print Cutter-Roller Router (wall paper). *See under* WALL-PAPER CRAFTSMAN.
PRINTER; Compositor (printing and publishing) 5–6 years. 4–44.010.
Printer-Slotter (printing and publishing). *See* Cutting-and-Creasing Pressman.
Printing-Equipment Mechanic (printing and publishing). *See* composing-room machinist.
PRINTING PRESSMAN (printing and publishing).
Cutting-and-Creasing Pressman; envelope-machine adjuster; machine set-up man; paper-goods-machine adjuster; printer-slotter (paper goods; paper box manufacturing). 4–42.316; 6–42.644; and 6–42.621.
Cylinder Pressman 4–5 years. 4–48.010.
Embossing Pressman (printing and publishing). 4–5 years. 4–48.040.
Newspaper (Web) Pressman 4–5 years. 4–48.030.
Offset Pressman 4–5 years. 4–48.050.
Platen Pressman 4–5 years. 4–48.020.

Press Assistant (All Branches) 2–3 years. 4–48.010; 4–48.030; 4–48.050.
Rotary (Magazine) Pressman 4–5 years. 4–48.030.
Specialty Pressman; bread wrapper-and-label pressman 4–5 years. 4–48.999.

Process Artist (printing and publishing). *See under* LITHOGRAPHER.

Proofer (printing and publishing). *See under* PHOTO ENGRAVER *or* LITHOGRAPHER.

Propeller Mechanic (air transportation; aircraft manufacturing). *See under* AIRPLANE MECHANIC.

Prosthetist (surgical-dental appliances). *See under* ORTHOPEDIC-PROSTHETIC TECHNICIAN.

Pump Repairman (any industry). *See under* MAINTENANCE MECHANIC-REPAIRMAN.

Pyrometer Man (any industry). *See* Electrical-Instrument Repairman.

Radio Electrician (broadcast-telecast). *See under* ELECTRICAL WORKER.

Radio Mechanic (air transportation; aircraft manufacturing). *See under* AIRPLANE MECHANIC.

Radio Repairman (any industry). *See* Electronic Technician.

Radio-Station-Maintenance Electrician (broadcast-telecast). *See* Radio Electrician.

Radio-Station Technician (broadcast-telecast). *See* Radio Electrician.

Radio-Telephone-Communications Technician (telephone and telegraph). *See under* ELECTRICAL WORKER.

Radio-Television Repairman (any industry). *See* Electronic Technician.

Ready-to-Wear Tailor (retail trade). *See* Alteration Tailor.

Reinforcing-Iron Worker (construction). *See under* IRON WORKER.

Repairer-and-Winder (any industry). *See under* ELECTRICAL WORKER.

RIGGER (any industry) 2 years. 5–88.040.
Ship Rigger (shipbuilding) 4 years. 5–05.570.

RIVER PILOT (water transportation) 3 years. 0–88.31.

Roll Turner (iron and steel). *See under* MACHINIST.

ROOFER (construction) 2–3 years.
Composition Roofer 7–31.300 and 7–31.100.
Damper-Waterproofer 7–32.611.
Slate-and-Tile Roofer 7–31.400 and 7–31.500.

Rotary (Magazine) Pressman (printing and publishing). *See under* PRINTING PRESSMAN.

Roto Etcher (printing and publishing). *See under* ROTOGRAVURE ENGRAVER.

Roto Plater-Grinder (printing and publishing). *See under* ROTOGRAVURE ENGRAVER.

Roto Printer-Transferer (printing and publishing). *See under* ROTOGRAVURE ENGRAVER.

Roto Retoucher (printing and publishing). *See under* ROTOGRAVURE ENGRAVER.

Roto Stager (printing and publishing). *See under* ROTOGRAVURE ENGRAVER.

ROTOGRAVURE ENGRAVER (printing and publishing) 5–6 years.
Layout Man, Color 0–44.26.
Photographer 4–47.100.
Roto Etcher 4–47.100.
Roto Plater-Grinder 6–49.620.
Roto Printer-Transferer 6–49.610.
Roto Retoucher 4–49.610.
Roto Stager 4–49.620.

Router-and-Blocker (printing and publishing). *See under* PHOTO ENGRAVER.

Rubber-Die Maker (marking devices; printing and publishing). *See* Rubber-Stamp Maker.

Rubber-Stamp Maker (marking devices). *See under* MARKING-DEVICE MAKER.

Saddle Maker (leather products). *See under* LEATHER WORKER.
Sagger Maker (pottery and porcelain). *See under* POTTERY WORKER.
Sailmaker (shipbuilding). *See under* CANVAS WORKER.
Sample Maker (garment). *See under* TAILOR.
Sandblaster (stoneworking). *See* Granite Cutter, Sandblaster.
Sandbobber (holloware; silverware). *See under* METAL POLISHER-AND-BUFFER.
Saw Straightener-and-Repairer (saw manufacturing). *See* Sawsmith.
Sawsmith (saw manufacturing). *See under* BLACKSMITH.
Scale Repairman (any industry). *See under* MAINTENANCE MECHANIC-REPAIRMAN.
Sheet-Metal Mechanic (construction; sheet metal; shipbuilding). *See* Sheet-Metal Worker *under* SHEET-METAL WORKER.
SHEET-METAL WORKER (any industry) 3–4 years.
Aircraft Metalsmith (air transportation; aircraft manufacturing) 4–80.060; 4–80.050.
Coppersmith (sheet metal; shipbuilding) 4–80.010; 4–80.080.
Metal-Sign Maker (signs) 4–80.010.
Metal Spinner (machine shop) 4–94.201.
Sheet-Metal Worker; sheet-metal mechanic; sheet-metal worker, shop (construction; sheet metal; shipbuilding) 4–80.010; 4–88.622.
Sheet-Metal Worker, Shop (construction; sheet metal; shipbuilding). *See* Sheet-Metal Worker.
Ship Electrician (shipbuilding). *See under* ELECTRICAL WORKER.
Ship Rigger (shipbuilding). *See under* RIGGER.
Shipfitter (shipbuilding). *See under* BOILERMAKER.
Shipwright (shipbuilding). *See under* CARPENTER.
Shirt Cutter (garment). *See under* FABRIC CUTTER.
Shoe-Last Maker, Wood (boot and shoe manufacturing). *See under* WOOD CARVER.
Shoe Repairman (personal service). *See under* MAINTENANCE MECHANIC-REPAIRMAN.
Shop Carpenter (woodworking). *See* Millman.
Shop Electrician (any industry). *See* Repairer-and-Winder.
Shop Tailor (garment). *See* Tailor (garment) *under* TAILOR.
Shuttlemaker (textile). *See under* WOOD CARVER.
Siderographer (engraving). *See under* ENGRAVER.
SIGN, SCENE-AND-PICTORIAL ARTIST (any industry) 3–4 years. 5–27.910.
Commercial Artist 0–44.21; 0–44.15; 2 years.
Sign Painter, Hand 5–27.910.
Silk-Screen-Process Printer 5–89.361.
Sign Electrician (signs). *See under* ELECTRICAL WORKER.
Sign Painter, Hand (any industry). *See under* SIGN, SCENE-AND-PICTORIAL ARTIST.
Signal-System Electrician (any industry). *See under* ELECTRICAL WORKER.
Silk-Screen-Process Printer (any industry). *See under* SIGN, SCENE-AND-PICTORIAL ARTIST.
SILVERSMITH (silverware) 3–4 years. 4–71.310.
Solderer 4–72.318.
Spinner 4–72.317.
Sketch Maker (wall paper). *See under* WALL-PAPER CRAFTSMAN.
Slate-and-Tile Roofer (construction). *See under* ROOFER.
Small-Arms Repairman (firearms; ordnance). *See* Gun Repairman.
Solderer (silverware). *See under* SILVERSMITH.
Specialty Pressman (printing and publishing). *See under* PRINTING PRESSMAN.
Spindle Carver (textile). *See under* WOOD CARVER.

Spinner (silverware). *See under* SILVERSMITH.
Spinning-Room Mechanic, Mule or Ring (textile). *See under* TEXTILE TECHNICIAN-MECHANIC.
Spring Fitter-Repairer (automobile manufacturing; automotive service). *See* Spring Maker, Automotive.
Spring Maker, Automotive (automobile manufacturing; automotive service). *See under* BLACKSMITH.
Sprinkler-Fitter (any industry). *See under* PLUMBER-PIPE FITTER.
Stained-Glass Glazier (glass products). *See under* GLAZIER-GLASS WORKER.
Stained-Glass Painter (glass products). *See under* PAINTER-AND-DECORATOR.
STATIONARY ENGINEER; Operating Engineer, Stationary (any industry) 3–4 years. 5–72.010.
Power-House Engineer (light and power) 5–51.010.
Power-House Operator; substation operator; switchboard operator (light and power) 5–51.130 and 5–51.210.
Statuary Painter (statuary and art goods). *See under* PAINTER-AND-DECORATOR.
Steamfitter (construction). *See under* PLUMBER-PIPE FITTER.
Steel-and-Copper-Plate Engraver (printing and publishing). *See under* ENGRAVER.
Steel-Die Embosser (printing and publishing). *See* Die Stamper.
Steel-Rule Die Maker (paper goods). *See* Cutting-Die Maker.
STEREOTYPER (printing and publishing) 5–6 years. 4–45.210.
Stone Carver (stoneworking). *See* Monument Maker.
Stone Cutter (jewelry). *See* Lapidary.
Stone Cutter (stoneworking). *See under* STONE WORKER.
Stone Polisher (stoneworking). *See under* STONE WORKER.
Stone Sawyer (stoneworking). *See under* STONE WORKER.
Stone Setter (construction). *See under* STONEMASON.
Stone Setter (jewelry). *See under* JEWELER.
STONE WORKER (Stoneworking).
Granite Cutter, Sandblaster; sandblaster 3 years. 4–69.160.
Machine Stone-Cutter; granite-lathe operator; machine man 2–3 years. 4–69.110, 4–69.150 and 4–69.140.
Monument Maker; stone carver 3–4 years. 4–68.100.
Stone Cutter; granite cutter 3 years. 4–68.200.
Stone Polisher; turner-polisher 2 years. 4–69.120; 6–69.360; 6–69.160 and 6–69.170.
Stone Sawyer; granite sawyer 2 years. 6–69.010 and 6–69.020.
STONEMASON (construction) 3 years. 5–24.210.
Stone Setter; marble setter 5–24.310
STOVE MOUNTER (stove) 3 years. 4–93.411.
Stringed-Instrument Repairman (musical instruments). *See under* MUSICAL-INSTRUMENT MECHANIC.
Stripper-and-Opaquer (printing and publishing). *See under* LITHOGRAPHER.
Stripper-and-Printer (printing and publishing). *See under* PHOTO ENGRAVER.
Structural Draftsman (any industry). *See under* DRAFTSMAN-DESIGNER.
Structural-Steel Fabricator (structural metal). *See under* IRON WORKER.
Substation Operator (light and power). *See* Power-House Operator.
Surfacer (optical goods). *See* Ophthalmic Surfacer.
Switchboard Operator (light and power). *See* Power-House Operator.
TAILOR (garment; retail trade) 4 years. 4–26.101.
Alteration Tailor; bushelman; ready-to-wear tailor (retail trade) 2 years. 4–26.201.
Custom Tailor (retail trade) 4 years. 4–26.101.
Finisher; tailoress (garment) 2 years. 4–27.261.

Patternmaker, Garment (garment) 3 years. 4–72.432.
Sample Maker; ladies tailor (garment) 3–4 years. 4–26.202.
Tailor; Shop Tailor (garment) 3–4 years. 4–26.201.
Tailoress (garment). *See* Finisher.
Tanner (leather manufacturing). *See under* LEATHER WORKER.
TELEPHONE WORKER (telephone and telegraph) 4 years.
Cable Splicer 5–53.950.
Central Office Installer-Repairman 5–53.010; 5–53.235.
Combination Man 5–53.210.
Lineman 5–53.410.
PBX Installer 5–53.240 and 5–53.020.
Television Repairman (any industry). *See* Electronic Technician.
Template Maker (shipbuilding; aircraft manufacturing; boilermaker). *See* Mold Loftsman.
Tent-Awning Maker (canvas goods). *See under* CANVAS WORKER.
TERRAZZO WORKER (construction) 3 years. 5–24.510.
TEXTILE TECHNICIAN-MECHANIC (textile).
Card-Room Mechanic 3–4 years. 5–83.324.
Comb Fixer 3–4 years. 5–83.324.
Drawing-Frame Fixer 3–4 years. 5–83.324.
Dyer, Master 3–4 years. 5–18.010.
Jacquard Designer; jacquard-card cutter 4 years. 0–46.91 and 4–18.020 and 4–18.470.
Knitter, Full Fashion 2–3 years. 4–14.062.
Spinning-Room Mechanic. Mule or Ring 3–4 years. 5–83.324.
Twister-Frame Fixer 3–4 years. 5–83.324.
Warp-Preparation Mechanic 3–4 years. 5–83.324.
Weave-Room Mechanic; loom fixer 3–4 years. 4–16.010.
Weaver 2–3 years. 4–15.020.
Wool Sorter 2–3 years. 4–19.991.
TILE SETTER; Tile Layer (construction) 3 years. 5–24.410.
Tile Layer (construction). *See* TILE SETTER.
Tint Layer (printing and publishing). *See under* PHOTO ENGRAVER.
Tinter (pottery and porcelain). *See under* POTTERY WORKER.
Tool-and-Die Designer (machine shop). *See under* DRAFTSMAN-DESIGNER.
TOOL-AND-DIE MAKER (any industry).
Cutting-Die Maker; die maker, paper; steel-rule die maker (any industry) 4 years. 4–42.301.
Diamond-Die Maker (machine shop) (wire drawing) 4 years. 4–71.256.
Die-Casting-Die Maker (machine shop) 4 years. 4–76.010.
Die Maker 4–5 years. 4–76.010.
Die Maker; hub cutter (jewelry) 4 years. 4–76.020.
Die Sinker; trimmer-die sinker and/or impression-die sinker (machine shop) 4–8 years. 4–76.010.
Gage Maker (machine shop) 4–5 years. 4–76.210.
Jig-and-Fixture Builder (aircraft manufacturing; automobile manufacturing) 4 years. 5–17.060.
Mold Maker (machine shop) 4 years. 4–75.010.
Plastics-Tool-and-Die Maker 4 years. 4–76.010 and 4–76.210.
Tool-and-Die Repairman (machine shop) 4–5 years. 4–76.040.
Tool Maker (machine shop) 4–5 years. 4–76.210.
Tool Maker (jewelry) 4 years. 4–76.210.
Wool-Tool Maker (aircraft manufacturing) 4 years. 5–17.060.
Tool-and-Die Repairman (machine shop). *See under* TOOL-AND-DIE MAKER.
Tool Dresser (any industry). *See under* BLACKSMITH.
Tool Maker (jewelry). *See under* TOOL-AND-DIE MAKER.
Tool Maker (machine shop). *See under* TOOL-AND-DIE MAKER.
Tool Sharpener (stoneworking). *See under* BLACKSMITH.
Topographical Draftsman (any industry). *See under* DRAFTSMAN-DESIGNER.

Tractor Mechanic (automotive service). *See under* AUTOMOTIVE MECHANIC.
Transferer, Hand (printing and publishing). *See under* LITHOGRAPHER.
Transferer (printing and publishing). *See* platemaker.
Trimmer-Die Sinker (machine shop). *See* Die Sinker.
Truck-and-Trailer-Body Builder (automotive service). *See under* AUTOMOTIVE BODY BUILDER-REPAIRMAN.
Truck Mechanic (automotive service). *See under* AUTOMOTIVE MECHANIC.
Turner (pottery and porcelain). *See under* POTTERY WORKER.
Turner-Polisher (stoneworking). *See* Stone Polisher.
Twister-Frame Fixer (textile). *See under* TEXTILE TECHNICIAN-MECHANIC.
Underground Electrician (construction; light and power). *See* Cable Splicer.
UPHOLSTERER (any industry) 3–4 years.
Automobile Upholsterer (automotive service) 4–35.610.
Upholsterer (furniture) 4–35.720.
Upholstery Repairman 4–35.710.
Upholstery-and-Seat-Cover Cutter (any industry). *See under* FABRIC CUTTER.
Upholstery Repairman (any industry). *See under* UPHOLSTERER.
Violin Maker (musical instruments). *See under* MUSICAL-INSTRUMENT MECHANIC.
WALL-PAPER CRAFTSMAN (wallpaper).
Color Mixer 4 years. 6–49.855.
Print Cutter-Roller Router 4–5 years. 4–49.850.
Sketch Maker 5 years. 0–44.44.
Wall-Paper Printer 4 years. 4–48.090.
Wall-Paper Printer (wallpaper). *See under* WALL-PAPER CRAFTSMAN.
Warp-Preparation Mechanic (textile). *See under* TEXTILE TECHNICIAN-MECHANIC.
Watch-Clock Repairman (any industry). *See under* MAINTENANCE MECHANIC-REPAIRMAN.
Wax Engraver (printing and publishing). *See under* ELECTROTYPER.
Weave-Room Mechanic (textile). *See under* TEXTILE TECHNICIAN-MECHANIC.
Weaver (textile). *See under* TEXTILE TECHNICIAN-MECHANIC.
Well Driller (construction). *See under* OPERATING ENGINEER.
Wind-Tunnel-Maintenance Mechanic (aircraft manufacturing). *See under* MAINTENANCE MECHANIC-REPAIRMAN
Window-Glass Cutter (glass manufacturing). *See under* GLAZIER-GLASS WORKER.
Wireman (construction). *See* Electrician (construction).
WIRE WEAVER (wirework) 3–4 years. 6–93.184 and 6–93.185.
Wood-Block Engraver (textile; printing and publishing). *See under* ENGRAVER.
Wood Carver, Hand (any industry). *See under* WOOD CARVER.
WOOD CARVER (any industry) 3–5 years. 4–33.361; 4–33.362; 4–33.363.
Battenmaker (textile).
Shoe-Last Maker, Wood (boot and shoe manufacturing).
Shuttlemaker (textile).
Spindle Carver (furniture).
Wood Carver, Hand (any industry).
Wood Patternmaker (foundry). *See under* PATTERNMAKER.
Wood-Tool Maker (aircraft manufacturing). *See under* TOOL-AND-DIE MAKER.
Wool Sorter (textile). *See under* TEXTILE TECHNICIAN-MECHANIC.
X-ray Equipment Repairman (any industry). *See under* MAINTENANCE MECHANIC-REPAIRMAN.
Zinc Etcher (printing and publishing). *See under* PHOTO ENGRAVER.

## APPENDIX 2

*Registered apprentices in training, new registrations, completions and cancellations, 1941–62 (adjusted to account for reporting revisions)*

| Year | In training on Jan. 1 | New registrations [1] | Completions | Cancellations [2] | In training on Dec. 31 |
|---|---|---|---|---|---|
| 1941 | 18,300 | 14,177 | 1,289 | 5,051 | 26,137 |
| 1942 | 26,137 | 20,701 | 2,011 | 4,683 | 40,144 |
| 1943 | 40,144 | 11,661 | 1,715 | 6,975 | 43,115 |
| 1944 | 43,115 | 7,775 | 2,122 | 8,197 | 40,571 |
| 1945 | 40,571 | 23,040 | 1,568 | 5,078 | 56,965 |
| 1946 | 56,965 | 84,730 | 2,042 | 8,436 | 131,217 |
| 1947 | 131,217 | 94,238 | 7,311 | 25,190 | 192,954 |
| 1948 | 192,954 | 85,918 | 13,375 | 35,117 | 230,380 |
| 1949 | 230,380 | 66,745 | 25,045 | 41,257 | 230,823 |
| 1950 | 230,823 | 60,186 | 38,533 | 49,747 | 202,729 |
| 1951 | 202,729 | 63,881 | 38,754 | 56,845 | 171,011 |
| 1952 | 171,011 | 63,055 | 32,752 | 42,782 | 158,532 |
| 1953 | 158,532 | 73,198 | 28,378 | 43,094 | 160,258 |
| 1954 | 160,258 | 58,970 | 27,176 | 33,377 | 158,675 |
| 1955 | 158,675 | 66,747 | 24,445 | 26,255 | 174,722 |
| 1956 | 174,722 | 72,869 | 26,508 | 32,946 | 188,137 |
| 1957 | 188,137 | 58,463 | 29,760 | 31,149 | 185,691 |
| 1958 | 185,691 | 50,134 | 29,824 | 28,306 | 177,695 |
| 1959 [3] | 177,695 | 63,679 | 35,741 | 39,623 | 166,005 |
| 1960 | 166,005 | 58,129 | 30,920 | 32,086 | 161,128 |
| 1961 | 161,128 | 48,889 | 28,282 | 26,086 | 155,649 |
| 1962 | 155,649 | 55,321 | 25,918 | 26,434 | 158,616 |
| 1963 | 158,616 | ---------- | ---------- | ---------- | ---------- |

[1] Includes reinstatements.
[2] Includes suspensions.
[3] Major revision in reporting system effected this year.

Source: U.S. Department of Labor, BAT, Division of Research.

## APPENDIX 3

*Construction trades summary: Registered apprentices in training, new registrations, completions, and cancellations (totals adjusted to account for reporting revisions)*

| Year | In training at beginning period | New registrations [1] | Completions | Cancellations [2] | In training at ending period |
|---|---|---|---|---|---|
| 1952 | 77,746 | 33,365 | 15,884 | 18,426 | 76,801 |
| 1953 | 76,801 | 37,106 | 13,518 | 18,402 | 81,987 |
| 1954 | 81,987 | 34,296 | 15,457 | 19,089 | 81,737 |
| 1955 | 81,737 | 46,967 | 13,295 | 14,510 | 100,899 |
| 1956 | 100,899 | 42,335 | 14,293 | 16,322 | 112,619 |
| 1957 | 112,619 | 38,057 | 17,120 | 22,694 | 110,862 |
| 1958 | 110,862 | 33,742 | 18,627 | 17,163 | 108,814 |
| 1959 | 108,814 | 35,692 | 19,660 | 18,147 | 106,699 |
| 1960 | 106,699 | 32,923 | 16,300 | 20,359 | 102,963 |
| 1961 | 102,963 | 32,964 | 17,057 | 18,119 | 100,751 |
| 1962 | 100,751 | 36,994 | 16,477 | 18,222 | 103,046 |
| 1963 | 103,046 | ---------- | ---------- | ---------- | ---------- |

[1] Includes reinstatements.
[2] Includes suspensions.

Source: U.S. Department of Labor, Bureau of Apprenticeship and Training, Division of Research.

*Registered apprentices in training, new registrations, completions and cancellations (totals adjusted to account for reporting revisions)—Construction trades*

| Trade | Year | In training at beginning period | New registrations [1] | Completions | Cancellations [2] | In training at ending period |
|---|---|---|---|---|---|---|
| Brick, stone, and tile | 1952 | 7,504 | 2,943 | 1,832 | 1,529 | 7,086 |
| | 1953 | 7,086 | 2,682 | 1,719 | 959 | 7,090 |
| | 1954 | 7,090 | 2,536 | 1,980 | 937 | 6,709 |
| | 1955 | 6,709 | 4,794 | 1,615 | 620 | 9,268 |
| | 1956 | 9,268 | 7,265 | 1,856 | 943 | 13,734 |
| | 1957 | 13,734 | 4,613 | 2,057 | 1,557 | 14,733 |
| | 1958 | 14,733 | 2,869 | 3,185 | 1,392 | 13,025 |
| | 1959 | 13,025 | 2,951 | 4,078 | 1,748 | 10,150 |
| | 1960 | 10,150 | 2,427 | 2,110 | 1,497 | 8,970 |
| | 1961 | 8,970 | 2,440 | 1,566 | 1,107 | 8,737 |
| | 1962 | 8,737 | 2,433 | 1,527 | 1,036 | 8,607 |
| | 1963 | 8,607 | | | | |
| Carpenter | 1952 | 23,213 | 8,724 | 3,878 | 7,236 | 20,828 |
| | 1953 | 20,828 | 10,465 | 2,939 | 7,060 | 21,294 |
| | 1954 | 21,294 | 10,040 | 3,526 | 7,303 | 20,505 |
| | 1955 | 20,505 | 15,367 | 3,499 | 6,125 | 26,248 |
| | 1956 | 26,248 | 9,901 | 3,022 | 6,415 | 26,712 |
| | 1957 | 26,712 | 7,642 | 3,436 | 6,975 | 23,943 |
| | 1958 | 23,943 | 9,328 | 4,817 | 4,585 | 23,869 |
| | 1959 | 23,869 | 9,572 | 3,950 | 5,925 | 23,566 |
| | 1960 | 23,566 | 8,345 | 2,567 | 7,003 | 22,341 |
| | 1961 | 22,341 | 8,329 | 2,886 | 5,858 | 21,926 |
| | 1962 | 21,926 | 9,039 | 2,986 | 5,906 | 22,073 |
| | 1963 | 22,073 | | | | |
| Cement masons | 1952 | 656 | 284 | 180 | 107 | 653 |
| | 1953 | 653 | 291 | 163 | 102 | 679 |
| | 1954 | 679 | 312 | 197 | 115 | 679 |
| | 1955 | 679 | 602 | 139 | 114 | 1,028 |
| | 1956 | 1,028 | 655 | 193 | 119 | 1,371 |
| | 1957 | 1,371 | 626 | 318 | 276 | 1,403 |
| | 1958 | 1,403 | 509 | 376 | 170 | 1,366 |
| | 1959 | 1,366 | 586 | 286 | 237 | 1,429 |
| | 1960 | 1,429 | 787 | 405 | 296 | 1,515 |
| | 1961 | 1,515 | 425 | 406 | 271 | 1,263 |
| | 1962 | 1,263 | 723 | 327 | 181 | 1,478 |
| | 1963 | 1,478 | | | | |
| Electricians | 1952 | 11,351 | 7,640 | 2,629 | 2,485 | 13,877 |
| | 1953 | 13,877 | 6,910 | 2,456 | 3,210 | 15,121 |
| | 1954 | 15,121 | 4,931 | 2,559 | 2,691 | 14,802 |
| | 1955 | 14,802 | 6,493 | 2,442 | 1,831 | 17,022 |
| | 1956 | 17,022 | 6,403 | 2,773 | 1,973 | 18,679 |
| | 1957 | 18,679 | 7,002 | 3,581 | 4,999 | 17,101 |
| | 1958 | 17,101 | 5,883 | 3,121 | 2,336 | 17,527 |
| | 1959 | 17,527 | 7,430 | 3,131 | 2,410 | 19,416 |
| | 1960 | 19,416 | 5,851 | 3,664 | 3,261 | 18,342 |
| | 1961 | 18,342 | 6,463 | 3,928 | 2,240 | 18,637 |
| | 1962 | 18,637 | 6,886 | 3,279 | 2,712 | 19,532 |
| | 1963 | 19,532 | | | | |
| Glaziers | 1952 | 609 | 175 | 126 | 97 | 561 |
| | 1953 | 561 | 377 | 133 | 130 | 675 |
| | 1954 | 675 | 288 | 152 | 126 | 685 |
| | 1955 | 685 | 503 | 142 | 99 | 947 |
| | 1956 | 947 | 568 | 166 | 127 | 1,222 |
| | 1957 | 1,222 | 483 | 284 | 333 | 1,088 |
| | 1958 | 1,088 | 310 | 251 | 138 | 1,009 |
| | 1959 | 1,009 | 506 | 334 | 143 | 1,038 |
| | 1960 | 1,038 | 438 | 264 | 174 | 1,038 |
| | 1961 | 1,038 | 358 | 210 | 202 | 984 |
| | 1962 | 984 | 373 | 202 | 132 | 1,023 |
| | 1963 | 1,023 | | | | |
| Ironworkers | 1952 | 894 | 722 | 80 | 299 | 1,237 |
| | 1953 | 1,237 | 1,256 | 159 | 417 | 1,917 |
| | 1954 | 1,917 | 1,109 | 402 | 480 | 2,144 |
| | 1955 | 2,144 | 1,321 | 359 | 486 | 2,620 |
| | 1956 | 2,620 | 2,121 | 526 | 576 | 3,639 |
| | 1957 | 3,639 | 1,964 | 686 | 831 | 4,086 |
| | 1958 | 4,086 | 1,401 | 998 | 668 | 3,821 |
| | 1959 | 3,821 | 2,008 | 985 | 803 | 4,041 |
| | 1960 | 4,041 | 2,048 | 811 | 748 | 4,460 |
| | 1961 | 4,460 | 2,109 | 727 | 1,125 | 4,717 |
| | 1962 | 4,717 | 2,045 | 896 | 971 | 4,895 |
| | 1963 | 4,895 | | | | |
| Lathers [3] | 1957 | 1,547 | 610 | 379 | 290 | 1,488 |
| | 1958 | 1,488 | 545 | 377 | 206 | 1,450 |
| | 1959 | 1,450 | 1,080 | 344 | 270 | 1,916 |
| | 1960 | 1,916 | 519 | 339 | 299 | 1,797 |
| | 1961 | 1,797 | 435 | 412 | 274 | 1,546 |
| | 1962 | 1,546 | 801 | 387 | 242 | 1,718 |
| | 1963 | 1,718 | | | | |

See footnotes at end of table.

*Registered apprentices in training, new registrations, completions and cancellations (totals adjusted to account for reporting revisions)—Construction trades*—Continued

| Trade | Year | In training at beginning period | New registrations [1] | Completions | Cancellations [2] | In training at ending period |
|---|---|---|---|---|---|---|
| Painters | 1952 | 3,861 | 1,446 | 768 | 1,082 | 3,457 |
| | 1953 | 3,457 | 1,809 | 672 | 1,099 | 3,495 |
| | 1954 | 3,495 | 2,129 | 652 | 1,218 | 3,754 |
| | 1955 | 3,754 | 2,432 | 532 | 1,044 | 4,610 |
| | 1956 | 4,610 | 2,039 | 597 | 1,148 | 4,904 |
| | 1957 | 4,904 | 1,391 | 673 | 1,307 | 4,315 |
| | 1958 | 4,315 | 1,869 | 526 | 938 | 4,720 |
| | 1959 | 4,720 | 2,177 | 819 | 1,281 | 4,797 |
| | 1960 | 4,797 | 2,339 | 654 | 1,278 | 5,204 |
| | 1961 | 5,204 | 2,277 | 765 | 1,420 | 5,296 |
| | 1962 | 5,296 | 2,457 | 790 | 1,366 | 5,597 |
| | 1963 | 5,597 | | | | |
| Plasterers | 1952 | 2,923 | 593 | 612 | 372 | 2,532 |
| | 1953 | 2,532 | 723 | 549 | 437 | 2,269 |
| | 1954 | 2,269 | 630 | 593 | 383 | 1,923 |
| | 1955 | 1,923 | 1,165 | 505 | 200 | 2,383 |
| | 1956 | 2,383 | 954 | 495 | 279 | 2,563 |
| | 1957 | 2,563 | 570 | 404 | 420 | 2,309 |
| | 1958 | 2,309 | 567 | 495 | 331 | 2,050 |
| | 1959 | 2,050 | 663 | 538 | 289 | 1,886 |
| | 1960 | 1,886 | 535 | 367 | 399 | 1,655 |
| | 1961 | 1,655 | 426 | 228 | 227 | 1,626 |
| | 1962 | 1,626 | 352 | 290 | 281 | 1,407 |
| | 1963 | 1,407 | | | | |
| Plumbers-pipefitters | 1952 | 16,511 | 5,963 | 3,425 | 2,900 | 16,149 |
| | 1953 | 16,149 | 6,729 | 2,882 | 2,548 | 17,448 |
| | 1954 | 17,448 | 6,834 | 3,185 | 2,727 | 18,370 |
| | 1955 | 18,370 | 7,584 | 2,451 | 1,866 | 21,637 |
| | 1956 | 21,637 | 5,946 | 2,976 | 2,209 | 22,398 |
| | 1957 | 22,398 | 6,789 | 3,102 | 3,948 | 22,137 |
| | 1958 | 22,137 | 5,349 | 3,387 | 2,117 | 21,982 |
| | 1959 | 21,982 | 4,804 | 3,636 | 2,527 | 20,623 |
| | 1960 | 20,623 | 5,376 | 2,780 | 2,521 | 20,698 |
| | 1961 | 20,698 | 5,052 | 3.372 | 2,067 | 20,311 |
| | 1962 | 20,311 | 5,870 | 3,409 | 2,315 | 20,457 |
| | 1963 | 20,457 | | | | |
| Roofers | 1952 | 407 | 954 | 106 | 358 | 897 |
| | 1953 | 897 | 678 | 77 | 301 | 1,197 |
| | 1954 | 1.197 | 623 | 178 | 594 | 1,048 |
| | 1955 | 1,048 | 771 | 128 | 423 | 1.268 |
| | 1956 | 1,268 | 1,073 | 150 | 551 | 1,640 |
| | 1957 | 1,640 | 1,275 | 164 | 706 | 2,045 |
| | 1958 | 2,045 | 1,216 | 216 | 885 | 2,160 |
| | 1959 | 2,160 | 1,162 | 321 | 826 | 2,175 |
| | 1960 | 2,175 | 1,296 | 186 | 829 | 2,456 |
| | 1961 | 2,456 | 1,027 | 300 | 1,130 | 2,053 |
| | 1962 | 2,053 | 1,129 | 228 | 695 | 2,259 |
| | 1963 | 2,259 | | | | |
| Sheet metal workers | 1952 | 7,207 | 3,061 | 1,535 | 1,613 | 7,120 |
| | 1953 | 7,120 | 4,203 | 1,236 | 1,754 | 8.333 |
| | 1954 | 8,333 | 3,661 | 1,330 | 1,812 | 8,852 |
| | 1955 | 8,852 | 4,479 | 1,173 | 1,401 | 10,757 |
| | 1956 | 10.757 | 4,275 | 1,493 | 1.698 | 11,841 |
| | 1957 | 11,841 | 4,036 | 1,778 | 2,119 | 11,980 |
| | 1958 | 11,980 | 3,172 | 1,936 | 1.910 | 11.306 |
| | 1959 | 11,306 | 3,478 | 1,927 | 1,641 | 11,216 |
| | 1960 | 11,216 | 2,904 | 1,891 | 1,512 | 10,717 |
| | 1961 | 10,717 | 2,952 | 1,956 | 1,734 | 9,979 |
| | 1962 | 9,979 | 3,475 | 1,749 | 1,806 | 9,899 |
| | 1963 | 9,899 | | | | |
| Not classified above | 1952 | 2,784 | 806 | 508 | 678 | 2,404 |
| | 1953 | 2,404 | 979 | 538 | 376 | 2,469 |
| | 1954 | 2,469 | 1,145 | 783 | 565 | 2,266 |
| | 1955 | 2,266 | 1,727 | 459 | 423 | 3,111 |
| | 1956 | 3,111 | 1,641 | 341 | 527 | 3,884 |
| | 1957 | 3,884 | 1,537 | 482 | 705 | 4,234 |
| | 1958 | 4,234 | 1,467 | 570 | 602 | 4,529 |
| | 1959 | 4,529 | 1,477 | 718 | 842 | 4,446 |
| | 1960 | 4,446 | 1,144 | 618 | 1,202 | 3,770 |
| | 1961 | 3,770 | 1,153 | 495 | 752 | 3,676 |
| | 1962 | 3,676 | 1,411 | 407 | 579 | 4,101 |
| | 1963 | 4,101 | | | | |

[1] Includes reinstatements.
[2] Includes suspensions.
[3] No prior reports.

## APPENDIX 4

*Metal working trades summary:* [1] *Registered apprentices in training, new registrations, completions and cancellations (totals adjusted to account for reporting revisions)*

| Year | In training at beginning period | New registrations [2] | Completions | Cancellations [3] | In training at ending period |
|---|---|---|---|---|---|
| 1952 | 14,089 | 5,342 | 1,857 | 2,077 | 15,497 |
| 1953 | 15,497 | 8,748 | 2,055 | 3,052 | 19,138 |
| 1954 | 19,138 | 6,326 | 3,573 | 3,460 | 18,431 |
| 1955 | 18,431 | 7,729 | 3,577 | 2,148 | 20,435 |
| 1956 | 20,435 | 7,789 | 4,089 | 2,517 | 21,618 |
| 1957 [1] | 21,618 | 8,053 | 4,617 | 4,627 | 20,427 |
| 1958 | 20,427 | 4,424 | 3,089 | 2,833 | 18,929 |
| 1959 | 18,929 | 5,607 | 3,457 | 2,337 | 18,742 |
| 1960 [1] | 18,742 | 13,305 | 4,797 | 3,455 | 23,795 |
| 1961 | 23,795 | 6,727 | 4,646 | 3,650 | 22,226 |
| 1962 | 22,226 | 8,351 | 3,611 | 3,428 | 23,538 |
| 1963 | 23,538 | | | | |

[1] Sheet metal workers and structural ironworkers, now included in construction trades summary, are excluded here. Major revisions in miscellaneous metal were made in 1957 and 1960 (see detail).
[2] Includes reinstatements.
[3] Includes suspensions.

Source: U.S. Department of Labor, Bureau of Apprenticeship and Training, Division of Research.

*Registered apprentices in training, new registrations, completions, and cancellations (totals adjusted to account for reporting revisions)*

| | Year | In training at beginning period | New registrations [1] | Completions | Cancellations [2] | In training at ending period |
|---|---|---|---|---|---|---|
| Automotive mechanic | 1957 [3] | 6,046 | 2,654 | 857 | 1,729 | 6,114 |
| | 1958 | 6,114 | 1,221 | 689 | 1,331 | 5,315 |
| | 1959 | 5,315 | 980 | 616 | 1,014 | 4,665 |
| | 1960 | 4,665 | 958 | 653 | 1,144 | 3,826 |
| | 1961 | 3,826 | 1,063 | 532 | 895 | 3,462 |
| | 1962 | 3,462 | 1,236 | 559 | 773 | 3,366 |
| | 1963 | 3,366 | | | | |
| Automotive body builders repairman | 1957 [3] | 1,834 | 935 | 327 | 516 | 1,926 |
| | 1958 | 1,926 | 606 | 192 | 441 | 1,899 |
| | 1959 | 1,899 | 174 | 200 | 382 | 1,491 |
| | 1960 | 1,491 | 412 | 182 | 453 | 1,268 |
| | 1961 | 1,268 | 309 | 183 | 277 | 1,117 |
| | 1962 | 1,117 | 320 | 154 | 261 | 1,022 |
| | 1963 | 1,022 | | | | |
| Boilermakers | 1952 | 371 | 95 | 43 | 63 | 360 |
| | 1953 | 360 | 171 | 55 | 91 | 385 |
| | 1954 | 385 | 104 | 74 | 80 | 335 |
| | 1955 | 335 | 174 | 86 | 85 | 338 |
| | 1956 | 338 | 137 | 48 | 37 | 390 |
| | 1957 | 390 | 285 | 56 | 141 | 478 |
| | 1958 | 478 | 177 | 59 | 71 | 525 |
| | 1959 | 525 | 219 | 80 | 117 | 547 |
| | 1960 | 547 | 125 | 59 | 60 | 553 |
| | 1961 | 553 | 185 | 91 | 59 | 588 |
| | 1962 | 588 | 171 | 59 | 72 | 628 |
| | 1963 | 628 | | | | |
| Engravers | 1952 | 136 | 13 | 38 | 22 | 89 |
| | 1953 | 89 | 35 | 25 | 19 | 80 |
| | 1954 | 80 | 32 | 17 | 21 | 74 |
| | 1955 | 74 | 51 | 5 | 7 | 113 |
| | 1956 | 113 | 38 | 23 | 31 | 97 |
| | 1957 | 97 | 70 | 11 | 26 | 130 |
| | 1958 | 130 | 9 | 12 | 7 | 120 |
| | 1959 | 120 | 20 | 31 | 21 | 88 |
| | 1960 | 88 | 11 | 15 | 8 | 76 |
| | 1961 | 76 | 10 | 29 | 12 | 45 |
| | 1962 | 45 | 11 | 7 | 4 | 45 |
| | 1963 | 45 | | | | |

See footnotes at end of table.

*Registered apprentices in training, new registrations, completions, and cancellations (totals adjusted to account for reporting revisions)*—Continued

| | Year | In training at beginning period | New registrations [1] | Completions | Cancellations [2] | In training at ending period |
|---|---|---|---|---|---|---|
| Machinists | 1952 | 7,018 | 2,418 | 978 | 1,239 | 7,219 |
| | 1953 | 7,219 | 3,760 | 1,033 | 1,616 | 8,330 |
| | 1954 | 8,330 | 2,694 | 1,444 | 1,618 | 7,962 |
| | 1955 | 7,962 | 3,692 | 1,672 | 1,085 | 8,897 |
| | 1956 | 8,897 | 3,423 | 1,767 | 1,286 | 9,267 |
| | 1957 | 9,267 | 2,974 | 1,725 | 1,509 | 9,007 |
| | 1958 | 9,007 | 1,363 | 1,217 | 1,289 | 7,864 |
| | 1959 | 7,864 | 1,909 | 1,261 | 917 | 7,595 |
| | 1960 | 7,595 | 2,397 | 1,419 | 891 | 7,682 |
| | 1961 | 7,682 | 2,218 | 1,570 | 1,044 | 7,286 |
| | 1962 | 7,286 | 2,780 | 1,011 | 953 | 8,102 |
| | 1963 | 8,102 | ---------- | ---------- | ---------- | ---------- |
| Tool and diemakers | 1952 | 5,324 | 2,247 | 635 | 781 | 6,155 |
| | 1953 | 6,155 | 3,966 | 786 | 1,101 | 8,234 |
| | 1954 | 8,234 | 2,853 | 1,714 | 1,253 | 8,120 |
| | 1955 | 8,120 | 2,920 | 1,510 | 724 | 8,806 |
| | 1956 | 8,806 | 3,538 | 1,995 | 899 | 9,450 |
| | 1957 | 9.450 | 2,509 | 2,322 | 1,902 | 7,735 |
| | 1958 | 7,735 | 1,275 | 631 | 545 | 7,834 |
| | 1959 | 7,834 | 2,235 | 1,613 | 864 | 7,592 |
| | 1960 | 7,592 | 2,515 | 1,830 | 913 | 7,364 |
| | 1961 | 7,364 | 2,171 | 1,690 | 903 | 6,942 |
| | 1962 | 6,942 | 2,808 | 1,339 | 955 | 7,456 |
| | 1963 | 7,456 | ---------- | ---------- | ---------- | ---------- |
| Molders and coremakers | 1952 | 1,051 | 238 | 137 | 192 | 960 |
| | 1953 | 810 | 507 | 103 | 231 | 983 |
| | 1954 | 983 | 246 | 191 | 224 | 814 |
| | 1955 | 814 | 459 | 200 | 139 | 934 |
| | 1956 | 934 | 412 | 147 | 171 | 1,028 |
| | 1957 | 1,028 | 269 | 183 | 257 | 857 |
| | 1958 | 857 | 113 | 73 | 93 | 804 |
| | 1959 | 804 | 195 | 124 | 151 | 724 |
| | 1960 | 724 | 137 | 127 | 97 | 637 |
| | 1961 | 637 | 163 | 121 | 123 | 556 |
| | 1962 | 556 | 186 | 83 | 93 | 566 |
| | 1963 | 566 | ---------- | ---------- | ---------- | ---------- |
| Patternmakers | 1952 | 556 | 77 | 52 | 18 | 563 |
| | 1953 | 563 | 285 | 86 | 81 | 681 |
| | 1954 | 681 | 265 | 136 | 125 | 685 |
| | 1955 | 685 | 228 | 76 | 54 | 783 |
| | 1956 | 783 | 320 | 157 | 76 | 870 |
| | 1957 | 870 | 1,155 | 370 | 725 | 930 |
| | 1958 | 930 | 221 | 389 | 125 | 637 |
| | 1959 | 637 | 866 | 263 | 85 | 1,155 |
| | 1960 | 1,155 | 301 | 445 | 117 | 894 |
| | 1961 | 894 | 277 | 260 | 141 | 770 |
| | 1962 | 770 | 229 | 195 | 105 | 699 |
| | 1963 | 699 | ---------- | ---------- | ---------- | ---------- |
| Metal working, not elsewhere classified | 1952 | 189 | 315 | 191 | 162 | 151 |
| | 1953 | 151 | 569 | 122 | 153 | 445 |
| | 1954 | 445 | 158 | 65 | 97 | 441 |
| | 1955 | 441 | 273 | 68 | 82 | 564 |
| | 1956 | 564 | 190 | 116 | 122 | 516 |
| | 1957 [4] | 516 | 1,027 | 73 | 180 | 1,290 |
| | 1958 | 1,290 | 242 | 160 | 227 | 1,145 |
| | 1959 | 1,145 | 345 | 165 | 284 | 1,041 |
| | 1960 [4] | 1,041 | 771 | 256 | 280 | 1,276 |
| | 1961 | 1,276 | 693 | 243 | 215 | 1,511 |
| | 1962 | 1,511 | 559 | 204 | 212 | 1,654 |
| | 1963 | 1,654 | ---------- | ---------- | ---------- | ---------- |

[1] Includes reinstatements.
[2] Includes suspensions.
[3] Data for prior years not available.
[4] New trades added, including sliversmith, goldsmith, coppersmith, airplane mechanic, blacksmith, and others.

## Appendix 5

*Printing trades summary: Registered apprentices in training, new registrations, completions, and cancellations (totals adjusted to account for reporting revisions)*

| Year | In training at beginning period | New registrations [1] | Completions | Cancellations [2] | In training at ending period |
|---|---|---|---|---|---|
| 1952 | 9,333 | 3,026 | 2,254 | 1,425 | 8,680 |
| 1953 | 8,680 | 4,033 | 1,936 | 1,141 | 9,636 |
| 1954 | 9,636 | 3,883 | 2,034 | 1,410 | 10,075 |
| 1955 | 10,075 | 6,377 | 1,274 | 980 | 14,198 |
| 1956 | 14,198 | 3,204 | 1,702 | 1,204 | 14,496 |
| 1957 | 14,496 | 3,189 | 1,595 | 1,872 | 14,218 |
| 1958 | 14,218 | 2,451 | 2,210 | 1,041 | 13,418 |
| 1959 | 13,418 | 1,883 | 1,656 | 902 | 12,743 |
| 1960 | 12,743 | 2,712 | 1,413 | 783 | 13,259 |
| 1961 | 13,259 | 2,949 | 2,528 | 843 | 12,837 |
| 1962 | 12,837 | 3,222 | 2,286 | 1,005 | 12,768 |
| 1963 | 12,768 | | | | |

[1] Includes reinstatements.
[2] Includes suspensions.

Source: U.S. Department of Labor, Bureau of Apprenticeship and Training, Division of Research, Washington, D.C.

*Registered apprentices in training, new registrations, completions and cancellations (totals adjusted to account for reporting revisions)*

| Trade | Year | In training at beginning period | New registrations | Completions | Cancellations | In training at ending period |
|---|---|---|---|---|---|---|
| Bookbinders | 1952 | 557 | 92 | 84 | 70 | 495 |
| | 1953 | 495 | 207 | 97 | 61 | 544 |
| | 1954 | 544 | 218 | 88 | 163 | 511 |
| | 1955 | 511 | 344 | 65 | 48 | 742 |
| | 1956 | 742 | 178 | 89 | 64 | 767 |
| | 1957 | 767 | 493 | 130 | 213 | 917 |
| | 1958 | 917 | 129 | 148 | 84 | 814 |
| | 1959 | 814 | 125 | 81 | 139 | 719 |
| | 1960 | 719 | 503 | 76 | 120 | 1,026 |
| | 1961 | 1,026 | 282 | 261 | 112 | 935 |
| | 1962 | 935 | 415 | 246 | 63 | 1,041 |
| | 1963 | 1,041 | | | | |
| Compositors | 1952 | 4,784 | 1,027 | 1,047 | 662 | 4,102 |
| | 1953 | 4,102 | 1,479 | 852 | 518 | 4,211 |
| | 1954 | 4,211 | 1,576 | 756 | 534 | 4,497 |
| | 1955 | 4,497 | 2,475 | 680 | 534 | 5,758 |
| | 1956 | 5,758 | 1,512 | 573 | 446 | 6,251 |
| | 1957 | 6,251 | 1,005 | 576 | 649 | 6,031 |
| | 1958 | 6,031 | 539 | 505 | 297 | 5,768 |
| | 1959 | 5,768 | 732 | 760 | 326 | 5,414 |
| | 1960 | 5,414 | 667 | 658 | 315 | 5,108 |
| | 1961 | 5,108 | 1,212 | 966 | 272 | 5,082 |
| | 1962 | 5,082 | 1,055 | 869 | 281 | 4,987 |
| | 1963 | 4,987 | | | | |
| Stereo and electrotypers | 1952 | 696 | 410 | 148 | 80 | 878 |
| | 1953 | 878 | 354 | 225 | 55 | 952 |
| | 1954 | 952 | 305 | 273 | 29 | 955 |
| | 1955 | 955 | 598 | 94 | 29 | 1,430 |
| | 1956 | 1,430 | 259 | 349 | 152 | 1,188 |
| | 1957 | 1,188 | 180 | 121 | 92 | 1,155 |
| | 1958 | 1,155 | 69 | 111 | 29 | 1,084 |
| | 1959 | 1,084 | 280 | 149 | 36 | 1,179 |
| | 1960 | 1,179 | 92 | 146 | 36 | 1,089 |
| | 1961 | 1,089 | 53 | 148 | 33 | 961 |
| | 1962 | 961 | 170 | 129 | 97 | 905 |
| | 1963 | 905 | | | | |
| Lithographers | 1952 | 219 | 102 | 61 | 22 | 238 |
| | 1953 | 238 | 112 | 63 | 47 | 240 |
| | 1954 | 240 | 148 | 57 | 41 | 290 |
| | 1955 | 290 | 206 | 58 | 37 | 401 |
| | 1956 | 401 | 185 | 98 | 48 | 440 |
| | 1957 | 440 | 573 | 122 | 149 | 742 |
| | 1958 | 742 | 507 | 228 | 102 | 919 |
| | 1959 | 919 | 357 | 141 | 202 | 933 |
| | 1960 | 933 | 891 | 268 | 76 | 1,480 |
| | 1961 | 1,480 | 391 | 281 | 99 | 1,491 |
| | 1962 | 1,491 | 435 | 223 | 111 | 1,592 |
| | 1963 | 1,592 | | | | |

*Registered apprentices in training, new registrations, completions and cancellations (totals adjusted to account for reporting revisions)*—Continued

| Trade | Year | In training at beginning period | New registrations | Completions | Cancellations | In training at ending period |
|---|---|---|---|---|---|---|
| Mailers | 1952 | 179 | 18 | 23 | 13 | 161 |
| | 1953 | 161 | 124 | 34 | 13 | 238 |
| | 1954 | 238 | 52 | 21 | 30 | 239 |
| | 1955 | 239 | 74 | 7 | 7 | 299 |
| | 1956 | 299 | 56 | 75 | 21 | 259 |
| | 1957 | 259 | 99 | 26 | 31 | 301 |
| | 1958 | 301 | 48 | 73 | 12 | 264 |
| | 1959 | 264 | 5 | 9 | 4 | 256 |
| | 1960 | 256 | 62 | 21 | 6 | 291 |
| | 1961 | 291 | 29 | 84 | 6 | 230 |
| | 1962 | 230 | 20 | 22 | 8 | 220 |
| | 1963 | 220 | | | | |
| Photoengravers | 1952 | 665 | 199 | 163 | 83 | 618 |
| | 1953 | 618 | 374 | 169 | 86 | 737 |
| | 1954 | 737 | 251 | 163 | 60 | 765 |
| | 1955 | 765 | 786 | 148 | 78 | 1,325 |
| | 1956 | 1,325 | 234 | 188 | 102 | 1,269 |
| | 1957 | 1,269 | 205 | 126 | 160 | 1,188 |
| | 1958 | 1,188 | 89 | 176 | 44 | 1,057 |
| | 1959 | 1,057 | 95 | 194 | 26 | 932 |
| | 1960 | 932 | 178 | 84 | 82 | 944 |
| | 1961 | 944 | 128 | 187 | 56 | 829 |
| | 1962 | 829 | 110 | 176 | 45 | 718 |
| | 1963 | 718 | | | | |
| Pressmen | 1952 | 2,429 | 732 | 653 | 478 | 2,030 |
| | 1953 | 2,030 | 1,284 | 491 | 349 | 2,474 |
| | 1954 | 2,474 | 1,158 | 694 | 411 | 2,527 |
| | 1955 | 2,527 | 1,856 | 331 | 246 | 3,806 |
| | 1956 | 3,086 | 1,030 | 542 | 453 | 3,841 |
| | 1957 | 3,841 | 1,029 | 550 | 701 | 3,619 |
| | 1958 | 3,619 | 753 | 597 | 415 | 3,360 |
| | 1959 | 3,360 | 446 | 464 | 182 | 3,160 |
| | 1960 | 3,160 | 678 | 409 | 293 | 3,136 |
| | 1961 | 3,136 | 800 | 580 | 274 | 3,082 |
| | 1962 | 3,082 | 981 | 611 | 317 | 3,135 |
| | 1963 | 3,135 | | | | |
| Printing and publishing (not elsewhere classified) | 1952 | 540 | 71 | 334 | 119 | 158 |
| | 1953 | 158 | 130 | 28 | 20 | 240 |
| | 1954 | 240 | 176 | 41 | 84 | 291 |
| | 1955 | 291 | 217 | 52 | 19 | 437 |
| | 1956 | 437 | 136 | 52 | 40 | 481 |
| | 1957 | 481 | 95 | 193 | 118 | 265 |
| | 1958 | 265 | 33 | 115 | 31 | 152 |
| | 1959 | 152 | 5 | 5 | 7 | 145 |
| | 1960 | 145 | 60 | 13 | 7 | 185 |
| | 1961 | 185 | 73 | 19 | 12 | 227 |
| | 1962 | 227 | 36 | 10 | 83 | 170 |
| | 1963 | 170 | | | | |

## APPENDIX 6

*Male craftsmen, foremen, and kindred workers in the experienced civilian labor force: United States, 1960 and 1950*

| Craftsmen, foremen, and kindred workers | Number | | Percent increase or decrease, 1950 to 1960 |
|---|---|---|---|
| | 1960 | 1950 | |
| Bakers | 94,183 | 110,598 | −14.8 |
| Blacksmiths | 21,171 | 45,141 | −53.1 |
| Boilermakers | 26,827 | 38,697 | −30.7 |
| Bookbinders | 12,261 | 14,263 | −14.0 |
| Brickmasons, stonemasons, and tile setters | 206,821 | 175,561 | +17.8 |
| Cabinetmakers | 67,986 | 75,453 | −9.9 |
| Carpenters | 920,862 | 987,365 | −6.7 |
| Cement and concrete finishers | 47,519 | 32,554 | +46.0 |
| Compositors and typesetters | 167,046 | 167,791 | −.4 |
| Cranemen, derrickmen, and hoistmen | 131,398 | 106,850 | +23.0 |
| Decorators and window dressers | 28,272 | 31,654 | −10.7 |
| Electricians | 352,806 | 323,883 | +8.9 |
| Electrotypers and stereotypers | 9,203 | 11,496 | −19.9 |
| Engravers, excluding photoengravers | 9,549 | 8,767 | +8.9 |
| Excavating, grading, and road machine operatiors | 224,864 | 110,739 | +103.1 |

*Male craftsmen, foremen, and kindred workers in the experienced civilian labor force: United States, 1960 and 1950*—Continued

| Craftsmen, foremen, and kindred workers | Number | | Percent increase or decrease, 1950 to 1960 |
|---|---|---|---|
| | 1960 | 1950 | |
| Foremen (not elsewhere classified) | 1,117,338 | 786,345 | +42.1 |
| Construction | 102,524 | 60,659 | +69.0 |
| Manufacturing | 695,909 | 467,863 | +48.7 |
| Metal industries | 128,651 | 82,267 | +56.4 |
| Machinery, including electrical | 126,903 | 76,035 | +66.9 |
| Transportation equipment | 81,345 | 49,754 | +63.5 |
| Other durable goods | 96,415 | 70,826 | +36.1 |
| Textiles, textile products, and apparel | 52,173 | 48,789 | +6.9 |
| Other nondurable goods (including not speciality manufacturing) | 210,422 | 140,192 | +50.1 |
| Railroads and railway express service | 36,387 | 54,050 | −32.7 |
| Transportation, excluding railroad | 27,186 | 19,890 | +36.7 |
| Communications, utilities, and sanitary services | 56,843 | 39,528 | +43.8 |
| Other industries (including not reported) | 198,489 | 144,355 | +37.5 |
| Forgemen and hammermen | 11,854 | 13,364 | −11.3 |
| Furriers | 3,223 | 11,108 | −71.0 |
| Glaziers | 15,665 | 10,355 | +51.3 |
| Heat treaters, annealers, and temperers | 20,132 | 18,027 | +11.7 |
| Inspectors, scalers, and graders, log and lumber | 20,165 | 19,093 | +5.6 |
| Inspectors (not elsewhere classified) | 95,279 | 90,574 | +5.2 |
| Construction | 15,379 | 8,259 | +86.2 |
| Railroads and railway express service | 30,018 | 36,858 | −18.6 |
| Transportation, excluding railroad, communications, and other public utilities | 14,435 | 12,157 | +18.7 |
| Other industries (including not reported) | 35,447 | 33,300 | +6.4 |
| Jewelers, watchmakers, goldsmiths, and silversmiths | 35,301 | 45,275 | −22.0 |
| Job setters, metal | 40,190 | 24,702 | +62.7 |
| Linemen and servicemen, telegraph, telephone, power | 272,579 | 211,795 | +28.7 |
| Locomotive engineers | 57,561 | 73,027 | −21.2 |
| Locomotive firemen | 39,008 | 55,955 | −30.3 |
| Loom fixers | 24,234 | 30,614 | −20.8 |
| Machinists | 508,389 | 526,733 | −3.5 |
| Mechanics and repairmen | 2,272,675 | 1,769,717 | +28.4 |
| Air conditioning, heating, and refrigeration | 65,273 | 45,000 | +45.1 |
| Airplane | 116,800 | 73,108 | +59.8 |
| Automobile | 700,716 | 677,365 | +3.4 |
| Office machine | 29,338 | 31,181 | −5.9 |
| Radio and television | 104,368 | 76,721 | +36.0 |
| Railroad and carshop | 40,438 | 48,179 | −16.1 |
| Not elsewhere classified | 1,215,742 | 818,163 | +48.6 |
| Millers, grain, flour, feed, etc | 9,275 | 9,719 | −4.6 |
| Millwrights | 67,792 | 59,953 | +13.1 |
| Molders, metal | 50,564 | 62,874 | −19.6 |
| Motion picture projectionists | 17,697 | 26,171 | −32.4 |
| Opticians, lens grinders, and polishers | 17,749 | 17,203 | +3.2 |
| Painters, construction and maintenance | 407,599 | 424,567 | −4.0 |
| Paperhangers | 9,578 | 19,500 | −50.9 |
| Pattern and model makers, excluding paper | 39,732 | 36,226 | +9.7 |
| Photoengravers and lithographers | 24,064 | 27,930 | −13.8 |
| Piano and organ tuners and repairmen | 6,017 | 7,740 | −22.3 |
| Plasterers | 52,686 | 63,957 | −17.6 |
| Plumbers and pipefitters | 329,983 | 295,732 | +11.6 |
| Pressmen and plate printers, printing | 72,125 | 48,211 | +49.6 |
| Rollers and roll hands, metal | 30,355 | 30,333 | +0.1 |
| Roofers and slaters | 54,752 | 48,411 | +13.1 |
| Shoemakers and repairers, excluding factory | 35,509 | 56,607 | −37.3 |
| Stationery engineers | 273,896 | 217,649 | +25.8 |
| Stone cutters and stone carvers | 6,373 | 8,841 | −27.9 |
| Structural metal workers | 65,885 | 55,087 | +19.6 |
| Tailors | 33,323 | 69,673 | −52.2 |
| Tinsmiths, coopersmiths, and sheet metal workers | 143,777 | 128,838 | +11.6 |
| Toolmakers, diemakers, and setters | 185,395 | 155,894 | +18.9 |
| Upholsterers | 55,886 | 58,427 | −4.3 |
| Craftsmen and kindred workers (not elsewhere classified) | 110,300 | 72,356 | +52.4 |
| Former members of the Armed Forces | 18,076 | 29,458 | −38.6 |
| Male technicians: | | | |
| Electrical and electronic | 88,761 | 11,949 | +642.8 |
| Other engineering and physical sciences | 163,590 | 75,809 | +115.8 |

Source: U.S. Department of Commerce, Bureau of the Census.

## Appendix 7

*Estimated median age of craftsmen and apprentices, by craft, U.S. total*[a]

| Craft | Median age | |
|---|---|---|
| | Craftsmen | Apprentices |
| Total all crafts | 41.8 | 22.9 |
| Bakers | 42.5 | 23.3 |
| Blacksmiths | 47.9 | 26.2 |
| Boilermakers | 44.7 | 24.5 |
| Cabinetmakers, patternmakers | 42.5 | 23.3 |
| Carpenters | 43.4 | 23.8 |
| Compositors and typesetters | 40.2 | 22.0 |
| Cranemen, derrickmen, etc | 42.2 | 23.1 |
| Electrician | 40.8 | 22.4 |
| Linemen | 33.7 | 18.5 |
| Machinists | 42.2 | 23.1 |
| Masons, tilesetters, etc | 37.9 | 20.8 |
| Airplane mechanics | 37.9 | 20.8 |
| Auto mechanics | 38.4 | 21.0 |
| Radio-TV mechanics | 35.8 | 19.6 |
| Millwright | 44.8 | 24.5 |
| Molders, metal | 41.0 | 22.5 |
| Painters and glaziers | 45.2 | 24.8 |
| Plasterers and cement finishers | 39.8 | 21.8 |
| Plumbers | 42.2 | 23.1 |
| Printing, excluding compositors | 38.6 | 21.1 |
| Stationary engineers | 44.0 | 24.1 |
| Structural metal workers | 41.1 | 22.5 |
| Tinsmiths and sheet metal | 39.4 | 21.6 |
| Toolmakers and diemakers | 42.1 | 23.1 |
| Other | 40.9 | 22.4 |

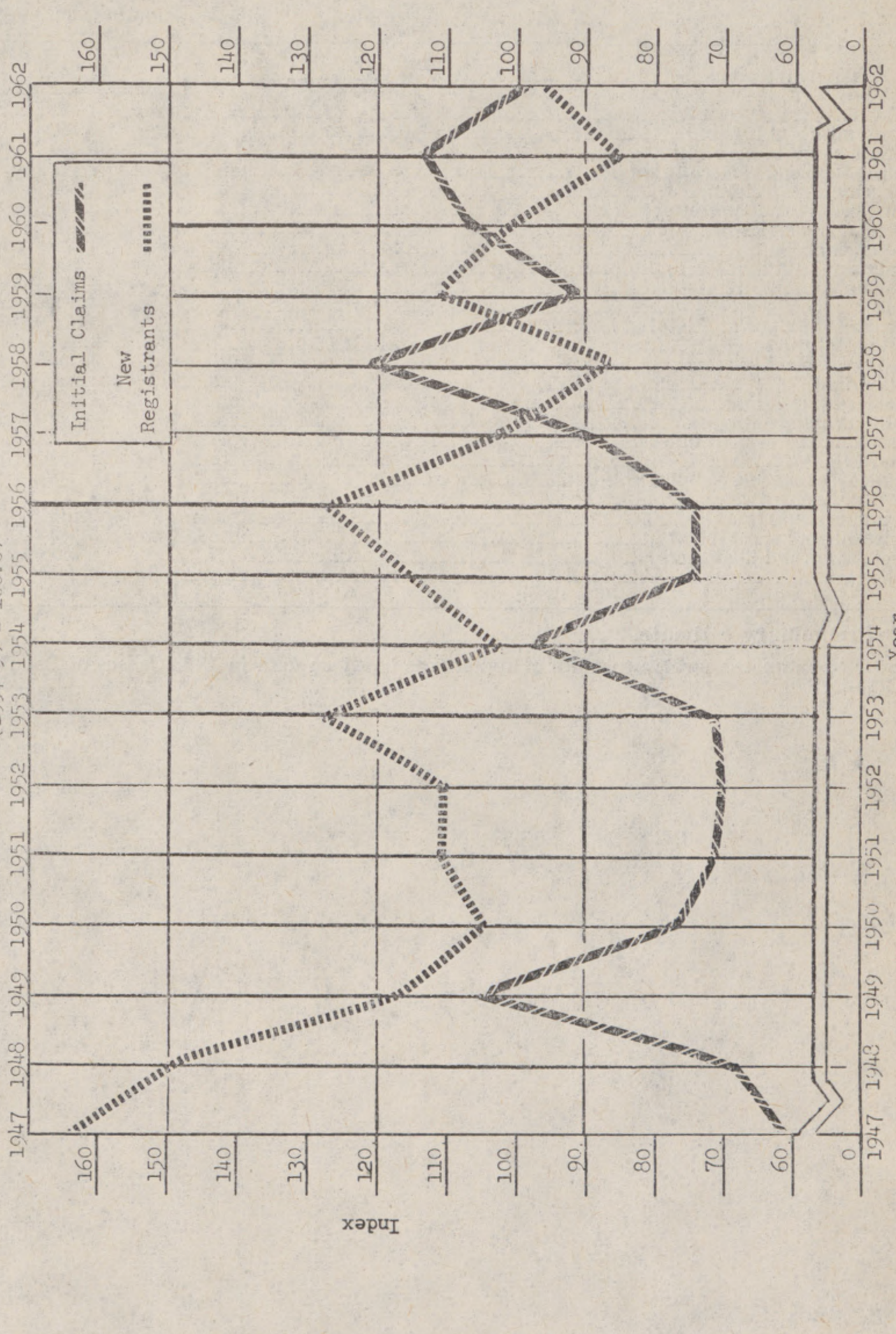
[a] Preliminary estimate.

Source: Estimated median ages of apprentices based on data in U.S. Census of Population, 1960 PC(1)–D.

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## APPENDIX 8

Indices of Initial Unemployment Compensation Claims and of New Apprentice Registrants Each Year, 1947-62 (1957-59 = 100.0)



## APPENDIX 9

*Estimated median earnings of journeymen and apprentices, by craft, U.S. total* [a]

| Craft | Median earnings | |
|---|---|---|
| | Journeymen | Apprentices |
| Total all crafts | $5,240 | $2,700 |
| Bakers | 4,552 | 2,100 |
| Blacksmiths | 4,655 | 2,700 |
| Boilermakers | 5,496 | 3,700 |
| Cabinetmakers, patternmakers | 5,142 | 2,650 |
| Carpenters | 4,164 | 3,150 |
| Compositors and typesetters | 5,758 | 2,400 |
| Cranemen, derrickmen, etc | 5,251 | 3,500 |
| Electrician | 5,959 | 3,000 |
| Linemen | 6,000 | 2,300 |
| Machinists | 5,498 | 2,500 |
| Masons, tilesetters, etc | 4,793 | 2,950 |
| Airplane mechanics | 5,898 | 2,400 |
| Auto mechanics | 4,298 | 2,050 |
| Radio-TV mechanics | 4,304 | 1,950 |
| Millwright | 5,995 | 3,350 |
| Molders, metal | 4,759 | 2,650 |
| Painters and glaziers | 3,727 | 1,900 |
| Plasterers and cement finishers | 4,646 | 2,750 |
| Plumbers | 5,593 | 3,200 |
| Printing, excluding compositors | 6,208 | 2,650 |
| Stationary engravers | 6,296 | 2,600 |
| Structural metalworkers | 5,543 | 4,200 |
| Tinsmith and sheet metal | 5,485 | 2,850 |
| Toolmakers and diemakers | 6,527 | 2,950 |
| Other | 4,800 | 2,750 |

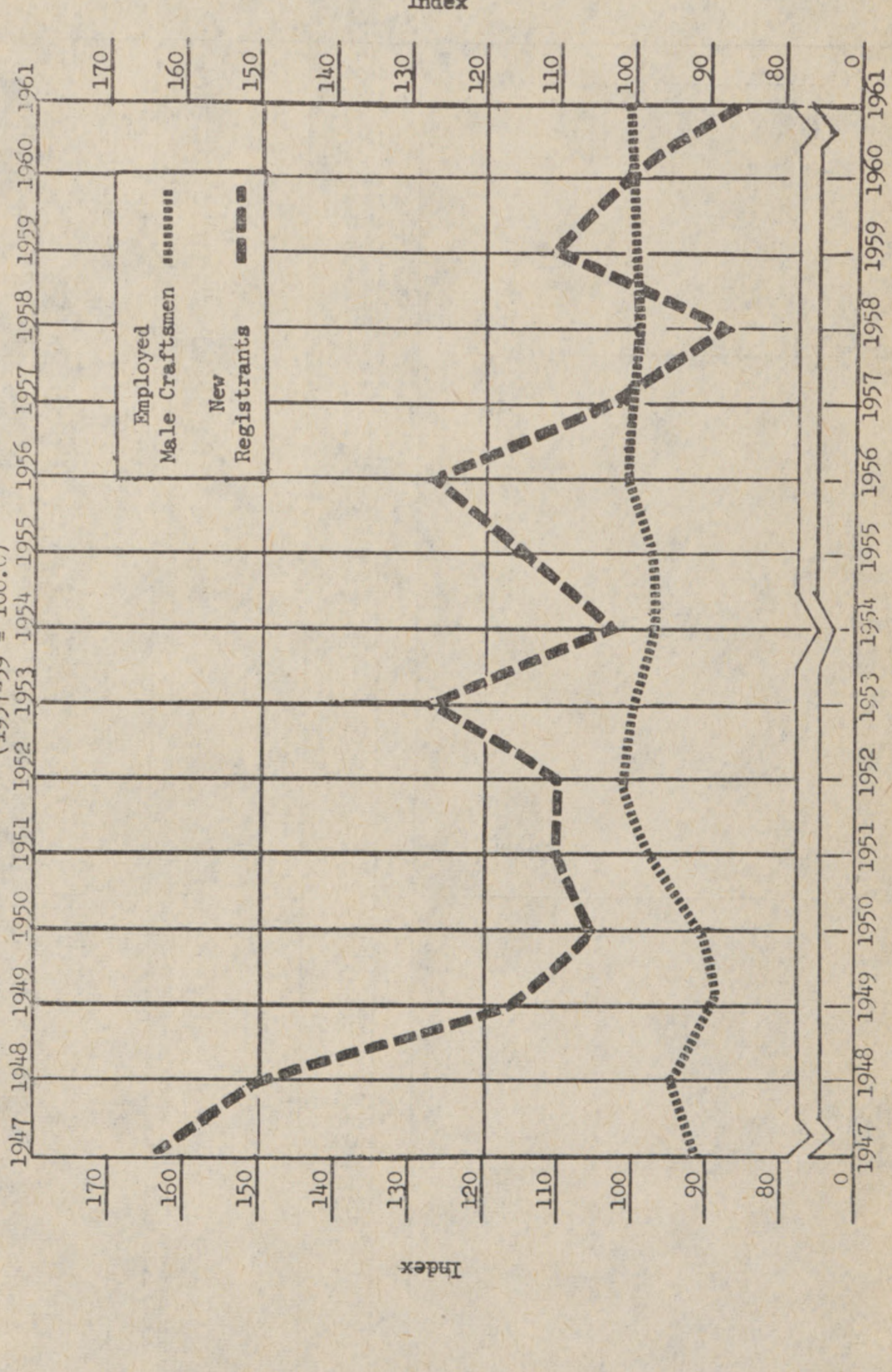
[a] Preliminary estimate.

Source: Estimated median earnings of apprentices based on data in U.S. Census of Population, 1960 PC(1)-D.

## APPENDIX B

### Chart 10

Indices of Number of New Apprentice Registrants and of Annual Average Number of Employed Male Craftsmen, 1947-61
(1957-59 = 100.0)



## APPENDIX 11

*Comparison of apprentices and journeymen in selected building trades, 1950–62* [1]

| Trade | Year | Active journeymen per apprentice [2] | Apprenticeship completions per 1,000 active journeymen [3] | Journeymen losses per 1,000 active journeymen [4] |
|---|---|---|---|---|
| Bricklayers [5] | 1950 | 6.9 | 43 | 16 |
| | 1951 | 7.4 | 69 | 16 |
| | 1952 | 10.6 | 32 | 19 |
| | 1953 | 11.0 | 24 | 16 |
| | 1954 | 12.4 | 31 | 18 |
| | 1955 | 12.1 | 27 | 20 |
| | 1956 | 11.3 | 23 | 19 |
| | 1957 | 12.0 | 22 | 22 |
| | 1958 | 13.6 | 21 | 26 |
| | 1959 | 16.0 | 23 | 27 |
| | 1960 | 18.0 | 19 | 21 |
| | 1961 | 14.5 | 14 | 22 |
| | 1962 | 19.5 | 12 | 22 |
| Carpenters | 1950 | 14.6 | 16 | 10 |
| | 1951 | 13.6 | 16 | 13 |
| | 1952 | 23.1 | 8 | 14 |
| | 1953 | 25.0 | 7 | 14 |
| | 1954 | 28.2 | 5 | 12 |
| | 1955 | 27.2 | 6 | 11 |
| | 1956 | 21.6 | 8 | 18 |
| | 1957 | 23.2 | 7 | 12 |
| | 1958 | 27.7 | 8 | 17 |
| | 1959 | 25.9 | 8 | 28 |
| | 1960 | 27.2 | 8 | 21 |
| | 1961 | 27.3 | 8 | 30 |
| | 1962 | 20.9 | 4 | 12 |
| Electricians | 1950 | 5.2 | 44 | 17 |
| | 1951 | 6.5 | 45 | 15 |
| | 1952 | 8.4 | 38 | 13 |
| | 1953 | 7.7 | 34 | 16 |
| | 1954 | 7.7 | 29 | 16 |
| | 1955 | 8.6 | 28 | 20 |
| | 1956 | 7.7 | 37 | 20 |
| | 1957 | 6.9 | 35 | 20 |
| | 1958 | 7.0 | 29 | 21 |
| | 1959 | 7.6 | 27 | 25 |
| | 1960 | 7.9 | 29 | 21 |
| | 1961 | 8.2 | 32 | 26 |
| | 1962 | 8.5 | 27 | 30 |
| Ironworkers | 1950 | 21.9 | 18 | 18 |
| | 1951 | 14.8 | 21 | 23 |
| | 1952 | 14.0 | 18 | 16 |
| | 1953 | 13.0 | 14 | 18 |
| | 1954 | 17.0 | 18 | 25 |
| | 1955 | 21.8 | 19 | 19 |
| | 1956 | 20.3 | 17 | 20 |
| | 1957 | 17.4 | 16 | 20 |
| | 1958 | 16.4 | 19 | 20 |
| | 1959 | 26.3 | 15 | 17 |
| | 1960 | 30.2 | 16 | 24 |
| | 1961 | 24.3 | 16 | 24 |
| | 1962 | 23.0 | 16 | 24 |
| Painters, paperhangers, and glaziers | 1950 | 29.1 | 9 | 10 |
| | 1951 | 31.7 | 11 | 27 |
| | 1952 | 37.0 | 5 | 18 |
| | 1953 | 40.9 | 7 | 37 |
| | 1954 | 37.2 | 9 | 15 |
| | 1955 | 32.7 | 7 | 18 |
| | 1956 | 30.5 | 6 | 18 |
| | 1957 | 28.0 | 8 | 23 |
| | 1958 | 28.3 | 9 | 23 |
| | 1959 | 31.9 | 8 | 30 |
| | 1960 | 26.8 | 8 | 34 |
| | 1961 | 27.5 | 9 | 26 |
| | 1962 | 25.8 | 7 | 19 |
| Plasterers and cement masons | 1950 | 7.7 | 29 | 17 |
| | 1951 | 8.6 | 42 | 20 |
| | 1952 | 10.6 | 27 | 16 |
| | 1953 | 11.2 | 19 | 17 |
| | 1954 | 14.9 | 19 | 27 |
| | 1955 | 14.4 | 21 | 17 |
| | 1956 | 12.6 | 17 | 22 |
| | 1957 | 13.9 | 15 | 20 |
| | 1958 | 13.3 | 18 | 22 |
| | 1959 | 16.6 | 19 | 24 |
| | 1960 | 19.7 | 17 | 25 |
| | 1961 | 19.6 | 13 | 25 |
| | 1962 | 19.5 | 11 | 23 |

See footnotes at end of table.

*Comparison of apprentices and journeymen in selected building trades, 1950–62* [1]—Continued

| Trade | Year | Active journeymen per apprentice [2] | Apprenticeship completions per 1,000 active journeymen [3] | Journeymen losses per 1,000 active journeymen [4] |
|---|---|---|---|---|
| Plumbers and pipefitters | 1950 | 8.2 | 15 | 15 |
| | 1951 | 9.5 | 27 | 18 |
| | 1952 | 9.6 | 29 | 18 |
| | 1953 | 9.8 | 18 | 18 |
| | 1954 | 9.9 | 17 | 17 |
| | 1955 | 9.9 | 18 | 21 |
| | 1956 | 9.9 | 22 | 22 |
| | 1957 | 9.5 | 19 | 18 |
| | 1958 | 9.7 | 19 | 22 |
| | 1959 | 10.7 | 20 | 24 |
| | 1960 | 10.3 | 21 | 25 |
| | 1961 | 10.2 | 16 | 26 |
| | 1962 | 10.2 | 14 | 19 |
| Roofers [6] | 1950 | 8.9 | 45 | 25 |
| | 1951 | 6.9 | 51 | 34 |
| | 1952 | 6.8 | 43 | 27 |
| | 1953 | 8.4 | 36 | 28 |
| | 1954 | 8.6 | 31 | 28 |
| | 1955 | 6.9 | 31 | 27 |
| | 1956 | 8.0 | 41 | 32 |
| | 1957 | 7.3 | 35 | 28 |
| | 1958 | 8.4 | 28 | 30 |
| | 1959 | 8.4 | 30 | 23 |
| | 1960 | 8.7 | 27 | 22 |
| | 1961 | 9.2 | 24 | 30 |
| | 1962 | 7.9 | 28 | 32 |
| Sheet metal workers | 1950 | 6.6 | 43 | 14 |
| | 1951 | 8.2 | 35 | 22 |
| | 1952 | 7.7 | 33 | 13 |
| | 1953 | 8.7 | 22 | 11 |
| | 1954 | 8.6 | 22 | 14 |
| | 1955 | 8.2 | 23 | 17 |
| | 1956 | 7.0 | 27 | 12 |
| | 1957 | 6.7 | 29 | 14 |
| | 1958 | 7.9 | 25 | 16 |
| | 1959 | 8.0 | 30 | 18 |
| | 1960 | 8.3 | 28 | 16 |
| | 1961 | 8.1 | 25 | 18 |
| | 1962 | 8.0 | 24 | 16 |

[1] Based on data collected by the Bureau of Labor Statistics from building trades unions in 52 cities with 1950 populations of 100,000 or more.
[2] The ratio of the number of journeymen working or available for work, to the number of persons working under apprenticeship agreements.
[3] The ratio of the number of persons who completed the prescribed apprentice training during the previous 12 months to the number of active journeymen on July 1 of the specified year.
[4] The ratio of the number of journeymen who became unavailable for work because of death, permanent disability, or retirement during the previous 12 months, to the number of active journeymen on July 1 of the specified year.
[5] Includes marble setter, mosaic terrazzo layer, stonemason, and tile setter.
[6] Roofer: Composition, slate, and tile.

Source: U.S. Department of Labor, Bureau of Apprenticeship and Training, Division of Research.

## Appendix 12

*Comparison of apprentices and journeymen in selected printing trades, 1950–62* [1]

| Trade | Year | Active journeymen per apprentice [2] | | Apprentice completions per 1,000 active journeymen [3] | Journeymen losses per 1,000 active journeymen [4] |
|---|---|---|---|---|---|
| | | Book and job | News | | |
| Pressmen | 1950 | 15.6 | 14.0 | 17 | 24 |
| | 1951 | 21.2 | 7.3 | 14 | 14 |
| | 1952 | 19.6 | 11.5 | 16 | 20 |
| | 1953 | 29.6 | 12.2 | 12 | 13 |
| | 1954 | 18.1 | 12.1 | 13 | 13 |
| | 1955 | 22.6 | 5.8 | 17 | 24 |
| | 1956 | 17.5 | 5.6 | 18 | 20 |
| | 1957 | 14.7 | 9.4 | 25 | 30 |
| | 1958 | 15.5 | 8.7 | 24 | 24 |
| | 1959 | 11.7 | 9.4 | 22 | 36 |
| | 1960 | 7.0 | 9.4 | 24 | 26 |
| | 1961 | 11.8 | 5.9 | 18 | 30 |
| | 1962 | 9.3 | 8.9 | 25 | 30 |

See footnotes at end of table.

*Comparison of apprentices and journeymen in slected printing trades, 1950–62* [1]—Continued

| Trade | Year | Active journeymen per apprentice [2] | | Appentice completions per 1,000 active journeymen [3] | Journeymen losses per 1,000 active journeymen [4] |
|---|---|---|---|---|---|
| | | Book and job | News | | |
| Stereotypers and electrotypers | 1950 | 4.5 | 7.4 | 12 | 22 |
| | 1951 | 5.1 | 9.9 | 11 | 25 |
| | 1952 | 5.6 | 10.8 | 47 | 28 |
| | 1953 | 6.8 | 10.3 | 64 | 39 |
| | 1954 | 6.9 | 11.4 | 50 | 40 |
| | 1955 | 7.2 | 11.4 | 45 | 33 |
| | 1956 | 7.2 | 10.9 | 37 | 60 |
| | 1957 | 6.6 | 12.5 | 24 | 32 |
| | 1958 | 7.0 | 10.9 | 31 | 26 |
| | 1959 | 7.7 | 10.7 | 35 | 41 |
| | 1960 | 9.4 | 9.8 | 29 | 39 |
| | 1961 | 9.3 | 11.0 | 19 | 36 |
| | 1962 | 14.0 | 11.7 | 30 | 41 |
| Typographers | 1950 | 10.2 | 18.5 | 24 | 53 |
| | 1951 | 10.6 | 21.5 | 14 | 41 |
| | 1952 | 11.8 | 21.6 | 15 | 56 |
| | 1953 | 13.0 | 19.2 | 12 | 29 |
| | 1954 | 12.7 | 18.9 | 14 | 35 |
| | 1955 | 10.6 | 17.8 | 12 | 35 |
| | 1956 | 8.8 | 19.5 | 16 | 37 |
| | 1957 | 11.3 | 16.5 | 16 | 39 |
| | 1958 | 10.7 | 16.2 | 15 | 37 |
| | 1959 | 10.1 | 19.3 | 19 | 45 |
| | 1960 | 11.3 | 15.8 | 19 | 41 |
| | 1961 | 9.8 | 14.6 | 16 | 58 |
| | 1962 | 10.2 | 17.0 | 19 | 42 |
| Photoengravers | 1950 | 3.5 | 4.5 | 22 | 22 |
| | 1951 | 4.4 | 4.8 | 37 | 29 |
| | 1952 | 6.6 | 5.9 | 54 | 33 |
| | 1953 | 7.1 | 6.1 | 42 | 26 |
| | 1954 | 6.6 | 6.4 | 32 | 27 |
| | 1955 | 6.7 | 10.3 | 30 | 30 |
| | 1956 | 7.8 | 8.8 | 25 | 31 |
| | 1957 | 7.0 | 8.3 | 20 | 30 |
| | 1958 | 7.4 | 9.6 | 24 | 34 |
| | 1959 | 9.0 | 10.1 | 39 | 45 |
| | 1960 | 9.2 | 8.7 | 29 | 26 |
| | 1961 | 8.2 | 8.2 | 20 | 27 |
| | 1962 | 11.3 | 12.1 | 22 | 35 |
| Bookbinders | 1950 | 15.4 | ---------- | 21 | 11 |
| | 1951 | 10.8 | ---------- | 22 | 14 |
| | 1952 | 11.1 | ---------- | 14 | 11 |
| | 1953 | 13.8 | ---------- | 15 | 8 |
| | 1954 | 13.1 | ---------- | 17 | 17 |
| | 1955 | 16.3 | ---------- | 15 | 18 |
| | 1956 | 12.5 | ---------- | 22 | 22 |
| | 1957 | 8.3 | ---------- | 32 | 30 |
| | 1958 | 10.4 | ---------- | 21 | 24 |
| | 1959 | 8.3 | ---------- | 22 | 22 |
| | 1960 | 9.7 | ---------- | 21 | 20 |
| | 1961 | 7.8 | ---------- | 20 | 28 |
| | 1962 | 11.1 | ---------- | 18 | 18 |
| Mailers | 1950 | 17.8 | 14.2 | 7 | 12 |
| | 1951 | 13.9 | 18.9 | 9 | 17 |
| | 1952 | 11.7 | 15.1 | 11 | 10 |
| | 1953 | 14.0 | 17.2 | 14 | 17 |
| | 1954 | 13.2 | 15.2 | 14 | 16 |
| | 1955 | 34.3 | 19.5 | 12 | 16 |
| | 1956 | 35.3 | 19.5 | 17 | 12 |
| | 1957 | 25.6 | 15.0 | 18 | 19 |
| | 1958 | 8.8 | 22.4 | 9 | 23 |
| | 1959 | 31.8 | 18.2 | 15 | 24 |
| | 1960 | 36.0 | 30.2 | 15 | 24 |
| | 1961 | 32.0 | 31.0 | 10 | 24 |
| | 1962 | 41.8 | 28.1 | 9 | 20 |

[1] Based on data collected by the Bureau of Labor Statistics from printing trades unions in 52 cities with populations of 100,000 or more.

[2] The ratio of the number of journeymen working or available for work to the number of persons working under apprenticeship agreements.

[3] The ratio of the number of persons who completed the prescribed apprentice training during the previous 12 months to the number of active journeymen on July 1 of the specified year.

[4] The ratio of the number of journeyman who became unavailable for work because of death, permanent disability, or retirement during the previous 12 months, to the number of active journeymen on July 1 of the specified year.

Source: U.S. Department of Labor, Bureau of Apprenticeship and Training, Division of Research.

## APPENDIX 13

*Apprenticeship agency staffing and accomplishment, 1962*

| State | Registered apprentices per 100,000 nonfarm workers | Rank | Field staff [1] per 100,000 nonfarm workers | Rank |
|---|---|---|---|---|
| Arizona | 721 | 1 | 0.91 | 26 |
| Nevada | 552 | 2 | 1.92 | 6 |
| Hawaii | 510 | 3 | 2.20 | 2 |
| Vermont | 505 | 4 | 1.96 | 5 |
| Montana | 493 | 5 | 1.89 | 7 |
| Washington | 485 | 6 | 1.29 | 14 |
| Alaska | 457 | 7 | 1.85 | 8 |
| Minnesota | 443 | 8 | 1.21 | 16 |
| California | 425 | 9 | 1.64 | 10 |
| Connecticut | 419 | 10 | 1.04 | 23 |
| Raw average | 501 | ---------- | 1.59 | ---------- |
| Rhode Island | 416 | 11 | 1.08 | 21 |
| Colorado | 392 | 13 | .79 | 27.5 |
| Oregon | 378 | 14 | 2.47 | 1 |
| Wisconsin | 350 | 15 | .97 | 24 |
| Utah | 342 | 16 | 1.15 | 18 |
| Wyoming | 341 | 17 | 2.15 | 3 |
| Delaware | 331 | 18 | 1.38 | 12 |
| Florida | 330 | 19 | .79 | 27.5 |
| New Mexico | 327 | 20 | 1.34 | 13 |
| New York | 325 | 21 | .55 | 35.5 |
| Raw average | 353 | ---------- | 1.27 | ---------- |
| North Dakota | 323 | 22 | 1.67 | 9 |
| Michigan | 317 | 23 | .47 | 43 |
| Tennessee | 308 | 24 | .56 | 33 |
| Maryland | 292 | 25 | .46 | 44.5 |
| Illinois | 283 | 26 | .39 | 49.5 |
| Ohio | 273 | 27.5 | .44 | 47 |
| South Dakota | 273 | 27.5 | 1.43 | 11 |
| Idaho | 261 | 19 | 1.97 | 4 |
| Arkansas | 258 | 30 | .56 | 33 |
| Kentucky | 254 | 31 | .48 | 42 |
| Raw average | 294 | ---------- | .84 | ---------- |
| Alabama | 250 | 32 | .54 | 38 |
| Virginia | 244 | 33 | 1.22 | 15 |
| Oklahoma | 241 | 34 | .54 | 38 |
| North Carolina | 238 | 35 | 1.12 | 19.5 |
| Missouri | 231 | 36 | .56 | 33 |
| Indiana | 230 | 37 | .45 | 46 |
| Nebraska | 222 | 38 | .55 | 35.5 |
| Mississippi | 221 | 39.5 | .51 | 40 |
| New Jersey | 221 | 39.5 | .37 | 51 |
| Iowa | 215 | 41 | .46 | 44.5 |
| Raw average | 231 | ---------- | .63 | ---------- |
| Louisiana | 207 | 42 | .94 | 25 |
| Pennsylvania | 205 | 43 | .43 | 48 |
| Texas | 204 | 44 | .59 | 31 |
| Massachusetts | 203 | 45 | 1.20 | 17 |
| Georgia | 199 | 46 | .50 | 41 |
| Kansas | 192 | 47 | .75 | 29 |
| West Virginia | 190 | 48 | .70 | 30 |
| Maine | 181 | 49 | 1.12 | 19.5 |
| South Carolina | 180 | 50 | .54 | 38 |
| New Hampshire | 109 | 51 | 1.05 | 22 |
| Raw average | 187 | ---------- | .78 | ---------- |

[1] Combined Federal and State field representatives.

NOTE.—District of Columbia not included in averages.

## Appendix 14

### The Nationwide Survey of Training in Industry

This survey was based on a 1 percent sample of establishments in American industry. Approximately 9,600 establishments were sent questionnaires, and more than 85 percent of these questionnaires were returned.

Throughout this report, the figures represent findings for 711,000 establishments employing 37 million workers.

#### HIGHLIGHTS

*Workers in training and their employers*

A wide variety of formal training is being undertaken in American industry; however:

Only one of every five establishments sponsored some type of formal training.

Of the 37 million workers employed in these establishments, only 2.7 million were actually enrolled in an employer-sponsored training program.

Because some of these workers were enrolled in more than one program, the number of trainees totaled 3.6 million. Workers in training, therefore on the average were enrolled in 1.3 programs.

The proportion of establishments with training programs was directly related to establishment size; the larger the number of employees in an establishment, the greater was the probability that a training program was in operation.

Of the 2.7 million workers in training 1.5 million were employed in goods-producing industries and 1.2 million in service industries.

The service industries, however, tended to have a somewhat higher proportion of their employees in training than the goods-producing industries. Almost 17 percent of the employees in service industries—as compared with only 13 percent in goods-producing industries—were receiving training at the time of the survey.

Larger and smaller establishments tended to emphasize different types of training programs.

Larger establishments emphasized training in the sciences, engineering, technology, and management.

smaller establishments emphasized training in the skilled crafts, in tool or machine operations, in mathematics, and in sales office, and other "white collar" skills.

Employer subsidized training in educational institutions was heavily concentrated among larger establishments.

*Type of trainees*

There were 1.8 million trainees enrolled in safety programs. "Safety" was the most prevalent type of training provided by employers.

Most trainees were enrolled in short-term or "quickie" courses in which development of new skills or enhancement of existing skills was only incidental.

Of the 3.6 million trainees, 1.8 million were enrolled in safety courses and 300,000 in orientation courses.

Only 1.5 million trainees were enrolled in courses designed to provide substantive skills.

Of the 1.5 million enrolled in some type of training other than safety or orientation, those being trained in "manual" skills—regardless how broadly one defines that term—numbered fewer than 300,000.

| | |
|---|---|
| Total trainees | 3,600,000 |
| Safety and orientation trainees | 2,100,000 |
| All other | 1,500,000 |
| Manual skill trainees | 285,000 |
| Medical and dental skills | 8,000 |
| Skilled trades | 212,000 |
| Tool, machine, and shop operation | 56,000 |
| Blueprint reading | 7,000 |
| Culinary and service training | 2,000 |
| White collar trainees | 1,215,000 |

*Skilled trades and manual training*

More than 58,000 training programs in the skilled trades were being conducted in the 142,000 establishments which were sponsoring some type of training.

The largest groups of trainees were production workers (almost one-half million), followed next by managers, supervisors, and foremen; craftsmen; apprentices; and salesworkers.

Almost one-third of all establishments which sponsored training included apprentices in their programs.

The largest number of apprentices were enrolled in plumber or pipefitter, electrician, or machinist programs.

*Industry emphasizes the skilled trades*

Of all the major types of training, skilled trades training was by far the most prominent. Better than 58,000 skilled trades programs were being conducted by the 142,138 establishments sponsoring some type of training for their workers. By contrast, there were only 9,000 programs in tool and machinery operations.

Slightly more than 29,000 programs in managerial or supervisory training were in operation. This type of training was the second most prevalent. Sales training programs were also popular—there were approximately 25,000 of these programs.

Orientation and programs in business and industry processes (background on how the business or industry operates) together numbered almost 43,000. Safety programs numbered about 18,000.

The prevalence of other types of training programs was as follows:

| *Type of training* | *Number of programs* |
|---|---|
| Skilled trades | 58,114 |
| Administration and supervision | 29,032 |
| Sales | 24,723 |
| Business and industry processing | 22,746 |
| Orientation | 20,053 |
| Safety | 18,153 |
| Training, not elsewhere classified | 18,021 |
| Office and white collar skills | 11,849 |
| Engineering and technical | 9,116 |
| Tool, machine, and shop operations | 9,011 |
| Institutional education | 7,546 |
| Mathematics | 4,519 |
| Language arts | 2,368 |
| Medical and dental | 1,401 |
| Social sciences | 1,377 |
| Natural sciences | 1,125 |

*Apprentices in training*

At the time of the survey in the spring of 1962, 131,300 apprentices were currently in training, as represented by the establishments covered in the survey. This number does not include apprentices who at the time were unemployed or temporarily working at other jobs. Nor does it include those awaiting reassignment to a new employer, those on unpaid vacation, or those employed in establishments outside the scope of the survey.[1]

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[1] An estimated 225,000 to 250,000 apprentices were in training during 1962. (Details to appear in a technical note.)

The trades for which the largest numbers of apprentices were being trained were plumber or pipefitter, electrician, and machinist. Almost two-thirds of the total number of apprentices were being trained in the following specified trades, each of which included 1,000 or more apprentices:

| *Trade* | *Number of apprentices employed* |
|---|---|
| Auto body building and repair | 1,100 |
| Bricklaying and masonry | 3,600 |
| Carpentry and cabinetmaking | 4,900 |
| Compositing | 9,800 |
| Electrician | 10,900 |
| Iron work | 1,100 |
| Linemen and cable splicer | 2,200 |
| Machining | 10,800 |
| Mailers | 1,900 |
| Mechanics maintenance and repair | 5,800 |
| Painting and decorating | 2,200 |
| Plumbing and pipefitting | 13,500 |
| Printing crafts, not elsewhere classified | 1,300 |
| Printing pressmen | 2,800 |
| Roofing | 1,400 |
| Sheet metalworking | 5,200 |
| Tool and diemaking | 6,200 |

More than half of the apprentices were employed in establishments with fewer than 100 workers, and three-fourths worked for employers of fewer than 500 workers. Details are shown following.

| Size of establishment | Number | Percent |
|---|---|---|
| Total | 131,300 | 100.0 |
| Less than 500 employees | 98,400 | 74.9 |
| 4 to 19 employees | 32,600 | 24.8 |
| 20 to 99 employees | 37,400 | 28.5 |
| 100 to 499 employees | 28,300 | 21.6 |
| 500 to 2,499 employees | 17,500 | 13.3 |
| 2,500 or more employees | 15,400 | 11.7 |

# III. EQUAL OPPORTUNITY IN APPRENTICESHIP

Apprenticeship received its share of attention in the strengthening civil rights drive of the late 1950's and the 1960's. Apprenticeship opportunities, meager at best, seemed almost nonexistent for Negro youth in many skilled crafts. The apparent reasons were a combination of racial prejudice, high unemployment, limited apprentice openings, and lack of adequate preparation and insufficient information among minority youth.

Restrictions varied widely by craft and by geographical area. AFL–CIO traditions of national autonomy and local union independence in those trades most involved in apprenticeship limited organized labor's success in "cleaning its own house." The influence of the Federal Government upon employers was largely limited to those involved in Government contracts. These contractors were forbidden to discriminate but, as several of the above selections state, these same contractors are the most deficient in the amount of apprentice training sponsored.

Apprenticeship historically has been the private concern of management and labor with State and Federal Governments playing only a promotional role, and that only in recent years. Practices vary widely by industry and by geography. The New York and California studies, selected from among the reports of advisory committees to the U.S. Commission on Civil Rights illustrates these differences and possibly different attitudes of the investigators as well.

The studies of the Commission on Civil Rights along with the 1963 demonstrations by Negro organizations dramatized the problem of apprentice opportunities for minority youth. As a result the Department of Labor moved from its policy of quiet, informal encouragement of equal opportunity manifested by the establishment of an Advisory Committee on Equal Opportunity in Apprenticeship and Training through the positive assistance provided by apprenticeship information centers to the firm requirement that all registered apprenticeships be administered on a nondiscriminatory basis.

A number of relevant documents are reproduced here. Implementation of 29 CFR part 30 will not be an easy matter. Tradition will be an obstacle. More importantly, as long as apprenticeship opportunities are limited for all and as long as the basic education supplied to many minority youth is deficient, few of the latter will find their way into the skilled crafts. There can be no excuse for denial of apprenticeship opportunities on grounds other than ability. The actual provision of opportunity will require more fundamental efforts.



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# REPORT OF THE CALIFORNIA STATE ADVISORY COMMITTEE TO THE U.S. COMMISSION ON CIVIL RIGHTS ON CALIFORNIA'S PROGRAM FOR EQUAL OPPORTUNITY IN APPRENTICESHIP

Prepared for the State Advisory Committee by William Becker

The public's picture of apprenticeship training is often short on facts and often surrounded by a confusion of claims and charges. Yet, on one fact there has been very general agreement—too few minority youth are in various apprenticeship programs.

In California this fact was recognized and a program to do something about it has been initiated. This report deals with that program and will touch on the broader problems of apprenticeship only when it is necessary to the understanding of this program. This report will not attempt to lay the blame on specific heads for the existence of the problem, but to describe what is being done to solve the problem and what we are learning in the process.

Apprenticeship programs are fundamentally voluntary programs, which employers and unions agree to administer jointly with assistance from government agencies. In California the Government assistance comes primarily from the division of apprenticeship standards (DAS) which is part of California's Department of Industrial Relations and, to a lesser degree from the U.S. Bureau of Apprenticeship and Training, which is a part of the U.S. Department of Labor. Consultants of these agencies service the basic joint apprenticeship committee (JAC) which controls each apprenticeship program.

The standards of each JAC, however, must be consistent with the rules of the California Apprenticeship Council (CAC) and be approved and registered with the administrator, through the DAS. Our program in California is based on this voluntary approach and as part of the formal structures of the DAS and the CAC.

The CAC is authorized by the Shelley-Maloney Act of 1939 to establish standards to register apprenticeship agreements, etc., and to approve the development of the JAC and other committee structures, through which the programs are administered and coordinated. Its standards, rules, and regulations become part of the California Administrative Code, title 8, chapter 10. California's program for increasing apprenticeship opportunities for minority youth was initiated by the California Labor Federation, AFL–CIO which raised the question in 1959 through its civil rights committee. The committee chairman, Albin J. Gruhn (now president of the California Labor Federation) wrote that the Federation "wishes to offer its assistance and cooperation to your division in a program to assure apprenticeship training opportunities for all youths, irrespective of their race, color, creed, or national origin."

It should be noted that this initiative and the subsequent followup by the State agencies took place in the absence of public charges of discrimination in apprenticeship.

The labor group then urged that the subject of minority opportunities be made the topic of a special workshop at the forthcoming California Conference on Apprenticeship. This 1960 conference was the first such, aimed at promoting apprenticeship, to be held every 2 years. The workshop itself on May 18–20, 1960, was chaired by Gruhn and

featured other labor officials as well as industrial leaders and spokesmen of the NAACP, Jewish Labor Committee, and Urban League. The conference as a whole however, also heard much on the subject of equal opportunity as Gov. Edmund G. Brown, California Labor Federation Secretary-Treasurer Thomas L. Pitts and director of industrial relations, John F. Henning, all referred strongly to the basic principles involved.

One of the recommendations of the May 1960 Conference was to set up a study committee on the employment of minorities in apprenticeships. This was the first step in creating a part of the formal apprenticeship structure to work on this problem area. Additional recommendations of the workshop on opportunities for minority groups called for the establishment of a central point for information to possible applicants for apprenticeship, publicity to minority communities on opportunities, the development of permanent relationships between JAC's and minority group organizations, and a DAS survey of minority apprentices "so that it will know where progress has been made and where problems, if any, exist."

It should be noted that these recommendations reached California government a year after the State (after many tries) enacted an FEPC law and after the Brown administration placed the able and committed John F. Henning at the head of the department of industrial relations. FEPC's impact on the general atmosphere of employment opportunities has been great, although I know of only one case (of over 1,500) on apprenticeship filed with it. (A 1951 law forbidding discrimination in apprenticeship on public works had been sponsored by C. J. Haggerty, then secretary-treasurer of the California State Federation of Labor. But no cases had ever been raised under it, partly perhaps, because there are relatively few apprenticeships on public works). In the period of study which followed the different aspects of "the problem" become more clearly delineated. The Urban League with a background of informal projects in the placement of Negro youth in apprenticeship training, contributed much detailed knowledge. The broadened picture of the problem to which California was urged to address itself took in more specific contributing problems.

The number of minority youth in apprenticeship training, or graduated from it was small. Exactly how small, or how evenly participating or excluded, needed to be found out. The causes of the small numbers were:

1. The failure of minority group youth to apply for apprenticeship training. This failure was related to the lack of information about apprenticeship programs, to the absence of adult job patterns with which to identify, to the weaknesses of school counseling and to the anticipation of rejection.

2. The failure of minority group youth to qualify when they did apply. This failure was related to poor counseling in the schools and in the home, to a general lack of information about the requirements for entering apprenticeship programs, and to a general misconception of apprenticeship as something to which the intellectually inadequate should be sent.

3. The practice of racial discrimination on the part of those who decide who shall be admitted to an apprenticeship program.

The Study Committee on Apprenticeship Opportunities for Minority Groups which was eventually appointed was composed of members of the CAC and of the California Conference on Apprenticeship in each case representing both employees and unions, plus representatives of the NAACP, the Japanese-American Citizens League, the Jewish Labor Committee, the Urban League, the Chinese-American Citizens Alliance and the Mexican-American's Community Service Organization and the California Committee for Fair Practices. In addition the following government agencies were represented either as part of the committee or as consultants at the meeting: the DAS, the Bureau of Indian Affairs (of the Department of the Interior), the Division of Fair Employment Practices, the U.S. Bureau of Apprenticeship and Training, the California Department of Employment, the Bureau of Industrial Education of the State Department of Education, and the Department of Corrections. The first full meeting of the Study Committee in January 1961, reviewed the recommendations of the conference workshop in detail. It found that the DAS had begun to implement a number of the recommendations. In two basic, long-term motions, it formally urged the DAS to conduct surveys of both completed and currently active apprentices on their minority identification, and to proceed to establish apprenticeship information centers.

Also, raised for the first time in the context of minority opportunities were the problems of lack of apprentices on public works (State and local) and at the plants of holders of national defense contracts. Committee members already involved in apprenticeship programs (as contrasted to those representing minority communities) made clear their apprehension that the approach of the Study Committee might endanger their present voluntary relationships and the collective bargaining basis for their JAC operations. As a result all proposals were defined, as carefully as possible to be part of the existing structure.

As the essential parts of a program began to take shape, a new general emphasis also developed: that the Study Committee and the local counterparts should become a formal part of the apprenticeship structure, based in law, not just in conference resolutions. So, at the third meeting of the Study Committee in August 1961, the CAC was requested to amend its rules to recognize as part of the states' apprenticeship structure both the statewide and local committees on equal opportunity for minority groups.

The public hearing of the California Apprenticeship Council was held on October 27, 1961. A paragraph adopted by the CAC and added to the California Administrative Code, title S, chapter 10, 18015, 3d reads:

> **Statewide and Local Community Apprenticeship Committees. The California Apprenticeship Council approves and encourages equal employment opportunity in apprenticeship and training. To foster and promote this policy the California Apprenticeship Council encourages, recognizes, and approves the establishment of a statewide committee and local community committees, composed of wide community representation from all ethnic groups, representation from labor and management, the California Apprenticeship Council and the California Conference on Apprenticeship. Each committee shall file with the administrator a written statement setting forth its composition, purposes and functions, including as one of its purposes the full recognition and support of the autonomy of the statewide and local apprenticeship committees.**

The Statewide Committee on Equal Opportunity in Apprenticeship and Training for Minority Groups became the name for the new formal structure.

The CAC took another important action at this public hearing; it added a new requirement to those which must be met by the apprenticeship standards of a JAC before they can be approved by the administrator. The new paragraph (of 18014(b)) reads:

> (13) Provision for uniform procedures for fair and impartial treatment of applications for apprenticeship, selected through uniform selection procedures.

Although this new requirement applies legally only to the standards of new JAC's as they are submitted for approval, the requirement and the principle is being adopted by existing JAC's. Of course, many were already operating on this principle, as an examination of the entrance requirements and procedures of numerous JAC's proved. The fact that each JAC in California, there are over 600, may have and often does have its own, often differing, set or requirements, and system for processing applications is one of the sources of confusion in apprenticeship. It is not possible to answer the question. "What must I do to become an apprentice?" You have to know what kind of apprentice, first. The new regulation aims to make the approach of each JAC, a uniform and impartial one for all applicants.

The statewide committee drafted proposed Articles of Organization which were then approved by the CAC and signed by representative of the participating organizations: employers, labor and minority groups. The functions of the statewide committee were spelled out in article II as follows:

> It shall be the purpose of the Statewide Committee for Equal Opportunity in Apprenticeship and Training to foster and promote equal opportunities in apprenticeship and training for all, irrespective of race, color, creed, or national origin. To accomplish this, the following more specific goals and purposes are herein outlined:
>
> 1. To fully recognize and support the autonomy of the statewide and local apprenticeship committees.
>
> 2. To promote the employment of more apprentices by employers in general.
>
> 3. To increase the number of minority youth in the apprenticeship program in accordance with the principle of equal employment opportunity.
>
> 4. To work in an advisory capacity with employers, employee organizations and joint apprenticeship committees in matters pertaining to equal opportunities in apprenticeship and training.
>
> 5. To develop plans and procedures for bringing information on apprenticeship opportunities, qualification for such training and placement, and the procedures for applying for apprenticeship and training to a larger number of young people.
>
> 6. To enlist the active support of organizations and leaders of minority groups in bringing the information described in No. 5 above to the people in their communities.
>
> 7. To enlist the cooperation of all the various State and Federal agencies which can be of aid in the program.
>
> 8. To work with schools and their counselors to develop a greater understanding of apprenticeship and training opportunities and the special needs of minority youth.
>
> 9. To make recommendation to the California Apprenticeship Council regarding equal opportunities in apprenticeship and training.
>
> 10. To stimulate more participation in the overall apprenticeship and training program by individuals of minority group backgrounds who are identified with labor and management.
>
> 11. To encourage and assist in the establishment of local committees whenever and wherever needed in the State, structured in the same pattern, and to

implement the objectives of the State program and to perform such other functions as are consistent with these articles.

12. To perform such other duties as are commonly associated with the successful discharge of the responsibilities of carrying out this program that are not in conflict with existing laws and policies of the California Apprenticeship Council.

Thus signed, sealed and formalized, the statewide committee concentrated on a few key projects:

1. The project of a central clearinghouse for information about apprenticeship in some localities, as a start.

2. The creation of tripartite local committees to develop the relationship between JAC's and the minority communities.

3. Participation in apprenticeship events and structures at all levels.

4. Continuing attention to the problem of the lack of apprentices in jobs of national defense contractors.

Involved in all these was the need to develop more quickly than in the past a larger corps of minority group leaders who understand the apprenticeship program and apprenticeship leaders who understood the problems of the minority community.

The idea for an information clearinghouse was first presented by the Bay Area Urban League which argued that, there was no one place to which a youngster interested in apprenticeship could be sent to find out whether he could qualify, what steps to take, where to file an application, or which skill he should investigate most carefully. The original Urban League proposals contained a larger element of job placement function than exists in the actual projects now being developed. Two pilot information centers were authorized, for Fresno and Los Angeles. Because such centers involve the allocation of staff for the ongoing service, and the coordination of three State agencies: DAS, department of employment and the department of education. The pilot projects were slow to actually get underway. From these experiences it became clear that a more formalized approach to this interagency project was necessary. A statement to guide the creation of these centers has been prepared and is being considered by the three State agencies. It proposed that the function of the information centers shall be:

FUNCTIONS OF THE APPRENTICESHIP INFORMATION CENTER

A. Maintain a library of apprenticeship information for youth, counselors, parents, joint apprenticeship committees, employers, unions, and others.

B. Provide group and individual counseling and guidance to junior and senior high school students and applicants about:

1. Nature of the various apprenticeable occupations.

2. Qualifications for apprenticeship including educational requirements and aptitudes.

3. How to prepare for apprenticeship.

4. How and where to apply for apprenticeship.

C. One of the responsibilities of the apprenticeship information center is referral when requested to joint apprenticeship committees or other agencies in the community having responsibility for the final selection of apprentices.

It also proposes that the centers be manned jointly by the employment service, the DAS and the local public school system. It urges preparatory meetings in each local area, first of the government agencies, and then of the labor and management groups.

Despite the problems, the pilot projects proved such a logical approach to a clear need that the demand for them is spreading. The labor management committee in Eureka asked for such an information

center on its general merits and in the absence of any large minority community in that area. Preparatory steps for a center are now being taken in San Francisco by decision of the overall labor-management committee upon the request of San Francisco's Local Committee on Minority Opportunities. Once the operations of such centers are formalized with a document to guide all participants, it is likely that they will be developed in many other areas, as staff permits. In addition, legislation to authorize and finance such centers will probably be introduced in the 1963 session of the State legislature.

The creation of local committees is also taking place, and again on the foundation of formally approved (by the statewide committee and the CAC) articles of organization. In the local articles the purposes are listed as follows:

ARTICLE II

SECTION I. It shall be the purpose of the committee for equal opportunity in appenticeship and training to foster and promote equal opportunities in appenticeship and training for all qualified persons, irrespective of race, color, creed, or national origin. To accomplish this, the following more specific goals and objectives are herein outlined.

(*a*) To cooperate with employers, employee organizations, and joint apprenticeship committees in matters pertaining to equal opportunities in apprenticeship and training.

(*b*) To develop plans and procedures for bringing information on apprenticeship opportunities, qualifications for such training and placement, and the procedures for applying for apprenticeship and training to a larger number of young people.

(*c*) To enlist the support of organizations and leaders of minority groups in bringing information about apprenticeship and training opportunities to the people in their communities.

(*d*) To enlist the cooperation of all the various local, State, and Federal agencies which can be of aid in the program.

(*e*) To promote the employment of more apprentices by employers in general.

(*f*) To work with schools and their counselors to develop a greater understanding of apprenticeship and training opportunities and the special needs of minority youth.

(*g*) To stimulate more participation in the overall apprenticeship and training program by individuals of minority group background who are identified with labor and management.

(*h*) To make recommendations to the statewide committee and the California Apprenticeship Council regarding equal opporunities in apprenticeship and training.

(*i*) To perform such other duties as are commonly associated with the successful discharge of the responsibility of carrying out this program that are not in conflict with existing laws and policies of the California Apprenticeship Council, or the statewide committee for equal opportunity in apprenticeship and training for minority groups.

(*j*) To establish a speaker bureau, the personnel of which will be available to appear before local joint apprenticeship committees and other interested groups.

(*k*) To bring to bear better informed and more constructive counseling for minority group youth with respect to apprenticeship training by school counselors and other community agencies and organizations which touch and influence this youth.

Local committees now exist in San Francisco, Los Angeles, and Sacramento and are being organized in a few other cities as DAS staff time permits. These committees are the basic "guts" of the program. They bring minority leadership into regular contact with labor and industry officials active in apprenticeship. They are the place were additional people are made more knowledgeable.

They also provide the machinery and impetus for the single most basic operation, the visitation of JAC's by committees from the minority communities. These visits, which have taken place in both San Francisco and Los Angeles have, without public drama, been basically effective as two-way exchanges. The program of visitations had been initiated before the establishment of the local committees on a formal basis. A committee of organizations in the Negro community had met with DAS staff for background discussion. The DAS made (and still makes) the appointments. Two people then attend a regular monthly JAC meeting, learn something about the needs and operations of that JAC and explain some of the needs of the Negro community.

The creation of a formal local committee requires much hard work. Like the statewide committee it is based on four employer, four labor, and eight minority group representatives plus agency consultants. And, like the statewide committee, the organization represented by each participant must approve the articles of organization and sign them. This takes more staff time than is available in the normal DAS manning table. But this is the usual, formal apprenticeship procedure and this project is a part of the State's total apprenticeship program.

Another aspect of usual apprenticeship practices which can slow down a local committee is the reliance on voluntary participation by committee members, except for assigned staff. In some areas the limited time which minority group committee members have been able to put into local committees, their increasing meeting loads, and the visitation programs have held progress below where it could now be.

As the project has become firmly established, people identified with the minority opportunity committees have been made part of the overall apprenticeship apparatus. A trustee of the Executive Committee of the California Conference on Apprenticeship is Kenneth Smith, of the Urban League. The 1962 conference was addressed by William Pollard, cochairman of the statewide committee, representing the NAACP. In San Francisco the local committee is represented on the labor management committee by John Dearman of the NAACP. Representatives of the statewide committee are on the planning committee for the next (1964) conference. The members of the statewide committee are invited to attend the quarterly meetings of the CAC, where the business of the committee is often on the agenda.

The fact that few defense contractors in California (and presumably in the rest of the Nation, too) make provision for an apprentice in their plants was raised initially by the DAS at the first meeting of the study committee. This absence of apprentices was all the more pointed since the Government was apparently committed to reimbursing contractors for the costs of training. In response to an inquiry by Senator Engle in response to a DAS letter, Deputy Assistant Secretary of Defense Bannerman wrote (March 1961):

DEAR SENATOR ENGLE: Reference is made to your referral dated March 17 of a letter from the Department of Industrial Relations, Division of Apprenticeship Standards, State of California. The letter requests information relating to the cost policies of the Department of Defense on allowance of training costs.

The letter indicates particular interest in what we have called "vocational effectiveness." These costs are allowable to the extent that the contractor's program is well managed and reasonable in cost, specifically, our policy, which is

included in paragraph 15–205.44 of the Armed Services Procurement Regulation, is as follows:

"15–205.44 *Training and educational costs*

"(*a*) Costs of preparation and maintenance of a program of instruction at noncollege level, designed to increase the vocational effectiveness of bona fide employees, including training materials, textbooks, salaries or wages of training (excluding overtime compensation which might arise therefrom), and

"(i) Salaries of the director of training and staff when the training program is conducted by the contractor; or (ii) tuition and fees when the training is in an institution not operated by the contractor are allowable."

The question was also brought to the attention of State apprenticeship officials in other States by DAS Chief Charles F. Hanna, who is also president of the National Association of State and Territorial Apprenticeship Directors. Director Henning wrote Secretary of Labor Goldberg pointing out that only five major companies doing national defense contract work in California have joint labor-management apprenticeship committees. These are Convair Astronautics, San Diego; Hughes Aircraft, Culver City; Lockheed Aircraft, Burbank; and Solar Aircraft, San Diego: Henning also used as a current example of no apprentices on the Trinity River Dam project. Henning also wrote Secretary of Defense McNamara, saying:

The President's Committee on Equal Employment Opportunities has been vigorously and effectively pursuing a policy that is increasing apprenticeship opportunities for minority groups, but this fine effort cannot amount to much so long as so few employers having defense contracts train any apprentices at all. It is axiomatic that members of minority groups cannot be employed on skilled national defense jobs unless they can learn the applicable skilled trades through apprenticeship.

We sincerely believe that a policy by the Department of Defense to encourage apprenticeship under its reimbursement for training would (1) increase the skills of our work force; (2) stabilize employment since the apprentice-trained worker is seldom unemployed; (3) provide more entrance jobs and "careers of skill" for our youth; (4) expand employment opportunities for minority groups; and (5) benefit employers by providing them with a more flexible work force.

The problem was also called to the attention of Harris Wofford, the White House staff person concerned with minority programs.

In response to a second letter from Director Henning, Secretary of Labor Goldberg wrote (August 10, 1962):

In addition to the efforts that the Bureau of Apprenticeship and Training has made in this matter, I am currently engaged in taking it up with the Department of Defense and with other procurement agencies. You may be sure that we too are interested in promoting apprenticeship programs.

In September 1962 U.S. Bureau of Apprenticeship and Training Director Edward E. Goshen wrote DAS Chief Hanna as follows:

Following up the further urging of your national association we are attempting to gather some matter.

Can you list for me some specific experiences that you have had with corporations who have defense contracts or any Government agencies that will not establish apprenticeship programs? Any material you can give me of experiences in attempts to work with these people will be greatly appreciated.

The proposal which Director Henning made the Department of Defense was that they revise their regulation No. 15–205.44 (which deals with reimbursement for the cost of training) and make it clear that apprenticeships are encouraged by the Department and that reimbursement to the companies who employ journeymen in apprenticeable occupations will be made only if the companies make a reasonable effort to train apprentices in these occupations.

The contact with Washington has not yet resulted in more defense contractor apprentices, but the issue will continue to be made by California statewide committee because the opportunities of minority youth will be so much greater if there are more apprenticeship openings. At the State level the lack of apprenticeships on State (and local) public works was also raised at the March 1961 meeting and a draft of legislation was discussed. Considerable opposition was expressed on the grounds that making apprenticeship mandatory would be counter to the voluntary approach of the apprenticeship program.

This proposal, in some form, has been kept in front of the CAC and its committees and the conference by business leader Eddy Feldman of the Los Angeles Home Furnishings Mart and by the Machinists Union. It is currently being considered by a number of the CAC's organs and by a special subcommittee of the statewide committee.

The surveys urged by the statewide committee when it was still a study committee were conducted by the DAS. The first dealt with apprentices who completed their training in 1955. A question on race or national ancestry was only one of 20 questions. Some 756 or about 24.4 percent of the 1955 "graduates" returned their questionnaires. It is assumed to be a fairly valid sample.

Some of the interesting statistics are: 52.4 percent reported earning over $8,000 per year, another 19.6 percent between $7,000 and $8,000. Sixty-four percent report no time lost from work in 1960; another 22 percent only 1 to 4 weeks lost. Eighty-three percent would advise others to learn a trade through apprenticeship. Eighty-four percent reported owning (or buying) their own homes in 1960.

Of the responding journeymen some about 9 percent listed themselves in some "minority" category: Mexican-American, Negro, Oriental, Jewish, or American Indian. However, the percentage of Negro graduates was the very low 1.1 percent.

The survey of apprentices currently in the program in 1962 did not result in a valid sample. It was decided not to try to do it by mail with the 20,575 names, but to pass out the surveys to those apprentices attending classes of related instruction. Some school systems notably San Francisco, would not allow the questionnaires to be distributed in their classes. A few large apprenticeship committees refused to cooperate in anyway. (Ironically, some of these have goodly numbers of minority apprentices). The ratio of returned questionnaires ranged from 13 percent in one DAS district to 62 percent in another. As a result of these factors the second survey does not come close to being a valid statistical sample. The answers of the 7,166 who did respond gave the following information.

The average age was 24.4; over 75 percent completed at least 12 years of school; over 500 at least 2 years of college; over 17 percent listed themselves as either American Indian, Chinese, Japanese, Jewish, Mexican, Negro, or other.

This is a considerable improvement over 1955, despite the absence of returns from some of the most integrated apprenticeship programs. However, again the Negro participation was disproportionately low, although among the responders the percentage had risen to 2.2, or double the 1955 ratio. The progress made to the beginning of 1962 has not allowed anyone concerned with the program to lose sight of how much work still remains to be done, especially for Negro youth.

The results of these surveys by geographical or trade areas are confidential statistics which the DAS is not authorized to make public. (The legality of the questions asked was first cleared with FEPC and the confidentiality of the results approved by the Attorney General.) It is hoped, however, that the results will guide the few officials who have the information in planning where more effort is needed by their staff to achieve equal opportunity.

The Second Biennial California Conference on Apprenticeship was held in Los Angeles April 25–27. Nineteen hundred and sixty-two followed the pattern of the first, but found equal opportunity concerns expressed in many of the workshops, in addition to the workshop on equal opportunities. The conference served to further involve the total apprenticeship movement in the program of equal opportunity. The workshop itself proposed the following recommendations to the conference: Commendation of the JAC's who adopted fair and impartial procedures, a call for continuing efforts to inform minority youth, a call for more apprenticeship attention by the high schools and especially by school counselors, a request to the State board of education that credit toward teaching credentials be given for college courses in apprenticeship training and in the special problems of students from different cultural and ethnic backgrounds, a call for adequate budgets for the State agencies who are responsible for the program of equal opportunities, and a call for the development of apprenticeship information centers in other cities.

In addition, keynote speakers John F. Henning and Thomas L. Pitts again gave important emphasis to this program. Speaking of problems raised at the 1960 conference on which progress had been made, Pitts, head of the California Labor Federation, AFL–CIO, listed the following:

1. State legislation regarding on-the-job training and retraining enacted by the 1961 legislature.
2. Establishment of a statewide committee to foster equal opportunities in apprenticeship for members of minority groups.
3. Broadening of apprenticeship opportunities in both Federal and State public works projects.

The emphasis on the school and school counselors as a place where much more could be done to prepare and motivate minority youth toward apprenticeship training was the result of the continuing contact of minority group representatives on the local committees with the schools and their increased concern for the deficiencies in the counseling of their young people, as reported at many of the meetings.

The national attention which this California program has received in some cases may have been premature. But it has helped to impress on those involved with the program that it must be made to work, that results must be achieved. This attention would also seem to indicate that such a program can expect support in other areas.

The program has been referred to with commendation a number of times by both AFL–CIO President George Meany and Building Trades Council President C. J. Haggerty. It is also specifically referred to in the AFL–CIO's 1961 convention civil rights resolution which said in part:

Another type of union initiative is exemplified by the leadership of the California Labor Federation, AFL–CIO, which enlisted active cooperation of other groups to work with the California State Department of Industrial Relations to

expand apprenticeship opportunities without discrimination and to establish objective standards of qualifications and eligibility for apprenticeship training, in order to make sure that recruitment of apprentices is conducted without regard to race, creed, color, or national origin.

This has been enforced by the recent adoption of the proposal of the Greater Los Angeles Central Labor Union, AFL–CIO, to establish there in conjunction with the local employment service, an apprenticeship information center where anyone interested can be fully and readily informed about apprenticeship opportunities, enrollment procedures, and training requirements in all apprenticeable trades.

Projects similar to those pioneered by our labor movement in California should be initiated by our State and local central bodies in all parts of the country in order to strengthen and invigorate all apprenticeship opportunities available to all Americans without discrimination

In California, the work of the labor's top leadership on this project was supported by official convention action in August 1962 in a resolution which commended the program and urged "affiliated unions to extend to the committee cooperation and support." (Let it be clear that this report is not an attempt at a comprehensive history of labor's record in this problem area, but an account of labor's relationship to this California program.)

An evaluation of the program must go further than the two surveys went. It would be good if we could know with complete accuracy what has taken place in the past year. We cannot, since no ongoing records list race, religion, or national origin. However, we did receive two reports at the end of 1962 which may have some significance. The able consultant in the San Francisco office of the DAS, Floyd Pierce, who as been counseling with you referred to him by organizations in the Negro community, reported for November and December that of 16 Negro youth referred, 4 were not active apprentices and 11 were in some stage of being tested, interviewed, or otherwise processed.

In Los Angeles, DAS Supervisor Theodore Timpone reported on December 13, 1962, that some of the DAS consultants compiled the following visual observations:

1. Out of seven new apprentices indentured in the Long Beach meatcutters program last month, two were Negroes. One of the completing apprentices in this program is a Negro, and upon completion was made manager of the market.

2. The Oakland roofers, in October, indentured three American Indians, three Negroes, and one Mexican-American.

3. In the Los Angeles office machine repair program, 2 of the 20 apprentices are Negroes.

4. In the Alameda-Contra Costa area, the carpenter programs, in October and November, indentured eight Negroes, one Japanese, one Chinese, and two Mexican-Americans.

5. One of the apprentices honored in the completion ceremony in November of the Los Angeles electricians was a Negro, which means he entered the program 4 years ago.

6. Our consultant who services the mill and cabinet plasterers and cement masons programs in San Bernardino reports that these programs have always admitted Negroes and other minority groups freely but in the last 3 months he has noticed an appreciable increase in the number of Negroes entering these programs.

7. In Los Angeles three of the recent machinist and tool-and-die maker apprentices who began their training have been Negroes.

8. One firm in Los Angeles that has not participated in the apprenticeship program heretofore recently hired its first apprentices. Its one machinist apprentice was a Negro, and one of the three ironworkers apprentices it hired was also a Negro.

9. The officer of one local carpenter program in Los Angeles reports that while he has not counted them and has no way of doing so, he is certain that of the 60 apprentices in the program, at least 20 are Negroes.

The California experience has identified some problems which should also be reported:

1. The staff work of the DAS which has been crucial to this program has been squeezed out of the already existing schedules for this special program. Local committees can only be organized and made into functioning and effective operations as there is staff time to service more committees. This means an increase in the budget for the DAS is needed.

2. Unfounded charges of discrimination tend to discourage minority youth from applying for that apprenticeship program. At one meeting a Negro mother reported that her son had been told at school to forget about the printing trades because he couldn't get in. An organizational official used this as a reason for charging apprenticeship discrimination. A check of the local union involved revealed that it already had at least 17 Negro members and that the apprenticeship program was open to those who passed a test given by the State department of employment. The next time the test was given some minority youth took it. Some failed, some passed. None would have taken it if the charge of discrimination had been allowed to stand unchallenged. Some of the "facts" in this field need to be brought up to date.

3. There are not enough apprenticeship openings for anyone at the present time. As reported in the Congressional Record there were in 1961 only 161,128 registered apprentices in the whole United States. Of these almost 21,000 or one-eighth were in California, the largest State program. However, the number of graduates each year is only about 40,000. This figure should be seen against that of 230,000 which the Assistant Secretary of Labor said we will need each year. California indentures annually only 8,000 to 10,000 new apprentices (of course some of these drop out) for a population which finds for 1963 alone about 250,000 people reaching the age of 18. In short, apprenticeship opportunities are not numerous enough to provide a track to a better standard of living for many people, of any race, at present levels. This is not because there is no need for these skills. Some employers who provide substantial numbers of apprenticeship openings complain bitterly that once the men are trained other employers pirate them away.

If the apprenticeship approach is as important to our national economy and national defense as many public officials have said, it would seem clear that the Federal Government has a moral responsibility to provide for more openings, in those areas it can directly influence, namely Government contractors.

4. The writing of antidiscrimination clauses into apprenticeship agreements or standards is good as an aid to establishing a basic moral tenet of Americanism but it may not result in many additional mi-

nority youth in apprenticeships. The Department of Labor issued a regulation to this end. Noncompliance would deprive an apprenticeship program of the right to be registered with the U.S. Department of Labor and this would mean the apprentice could not work on Federal public works. But, in any situation where the penalty is primarily the withdrawal of the apprentice or the ending of the opportunity for an apprenticeship, the penalty may be self-defeating since many employers do not see hiring an apprentice of economic value to them. Additional sanctions or program are needed to make the nondiscrimination clause effective in the near future.

The California program is not based on sanctions, except those of the strong FEPC law. It is based, rather, on the affirmative leadership of the Government, from the Government through the DAS the initiative and commitment of the State top labor officials and the cooperation of some employers. Undergirding this is the hard work of civil rights and minority-group organization leaders. California is in many respects, testing whether the job can be done without direct sanctions and within the framework of voluntarism which so permeates this apprenticeship movement today.

# A REPORT OF THE NEW YORK ADVISORY COMMITTEE TO THE U.S. COMMISSION ON CIVIL RIGHTS

NEW YORK STATE ADVISORY COMMITTEE

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## PREFACE

This report was submitted to the U.S. Commission on Civil Rights by the New York Advisory Committee. The New York committee is one of the 51 committees established in the 50 States and the District of Columbia by the Commission pursuant to section 105(c) of the Civil Rights Act of 1957. Its membership consists of interested citizens of standing who serve without compensation. Among the functions and responsibilities of the State advisory committees, under their mandate from the Commission on Civil Rights, are the following:

(1) To advise the Commission of all information concerning legal developments constituting a denial of equal protection of the laws under the Constitution; (2) to advise the Commission as to the effect of the laws and policies of the Federal Government with respect to equal protection of the laws under the Constitution; and (3) to advise the Commission upon matters of mutual concern in the preparation of its final report. The Commission, in turn, has been charged by the Congress to investigate allegations, made in writing and under oath, that citizens are being deprived of the right to vote by reason of color, race, religion, or national origin; to study and collect information regarding legal developments constituting a denial of equal protection of the laws; to appraise Federal laws and policies with respect to equal protection; and to report to the President and to the Congress its activities, findings, and recommendations.

In the fall of 1962, the New York State Advisory Committee to the U.S. Commission on Civil Rights appointed a subcommittee, under the chairmanship of Prof. William M. Murphy, to study whether there was a clear pattern of discrimination against Negroes in the building trades industry in New York City. The subcommittee was able to procure the services of Dr. Donald Shaughnessy of Columbia University to do most of the field work in the project. The material in this summary report is largely derived from Dr. Shaughnessy's report.

The study was necessarily limited by the relatively small amount of time that could be devoted to this complex subject. A further, and unnecessary, limitation was encountered as a result of the general policy of noncooperation followed by leaders of the building trades unions. With few exceptions, union officials failed to assist the study

in any way, making it difficult or impossible to obtain information that was readily available.

Despite these limitations, the study serves to demonstrate that Negroes are denied access to employment in most of the building trades in New York City. The study further indicates that retention of present practices in admission to apprenticeship programs will mean that Negroes can expect no more than token participation in most of the building trades in the future. Our report considers some of the economic and other factors that lead to these practices and recommends that these practices be modified.

## Discrimination in the Building Trades in New York

### BUILDING CONSTRUCTION IN NEW YORK CITY

At 6:16 on weekday mornings a train leaves Bridgeport, Conn., carrying a group of commuters relatively unknown to the general public. They are men with skills in the building trades who arrive in New York City at 7:30, and report to construction jobs. It costs about $15 a week to commute from Bridgeport to New York, but a union electrician earns $200 per week, and the work is steady.

These blue-collar commuters represent one of the many indications of the obvious fact that New York City is in the midst of a continuing boom in large construction. There is presently more office space in New York City than in the next 15 largest cities combined. Despite rows of office towers like those north of Grand Central on Park Avenue and rows of residential towers like those all along Third Avenue, there are estimates that the backlog of needed construction in New York City may take decades to fill.

How do these buildings get built? With wide allowance for oversimplification the process can be summarized as follows:

When the architect has completed his design and specifications, general contractors competent in the size of job being undertaken submit bids to the owners. Subcontractors (electrical firms, plumbing firms, and the like) have previously submitted bids to the general contractor upon which his bid, in part, is based. The contract is then awarded to a general contractor, who engages subcontractors, and men begin to appear to perform the work in the specialized trades. First the excavation, then the other trades in their turn appear on the job.

Most firms in the building industry are not large; they do not steadily employ a large number of skilled workers. These firms build a product that is immobile. This product must be built in the city, essentially by local contractors and subcontractors, and in particular by a locally based labor force.

The men who build New York City's buildings are recruited from labor pools controlled by the unions in the building trades. The union is the employment agency and the men who appear on the construction job, whether they be local or out-of-town men, are the men whom the union permits to appear. Since a building cannot be erected in Detroit or Atlanta and shipped to New York and since the unions regulate the local use of out-of-town labor, the labor supply is rigidly controlled.

The construction worker tends to identify with his union for a number of reasons. He is rarely on any job for a great length of time.

He may well have five or six employers in 1 year. He is not likely to develop an attachment for a particular firm or to have steady fellow-workers from year to year, and, of course, he has no fixed place of work. His job security comes from the local union. The local union is not only his hiring hall but the place where his friendships are formed and the continuing stable element in his employment. Local unions may or may not be ethnocentric but their members are likely to be united against outsiders. In one local outsiders may mean people not of Italian ancestry, in another it may mean Jews. For most unions in the building trades, as for many other institutions, color is the most readily identifiable badge of nonmembership.

With these economic and social bonds to his local union, the man in the building trades is little concerned with the labor views on the subject of race relations. George Meany, once a plumber, now President of the AFL–CIO, concedes that local unions can effectively disregard the resolutions opposing discrimination that are regularly adopted by federated bodies in the labor movement. On the bread-and-butter issues it is not the international or any council that delivers, but the local union.

This is not to say that the building trade unions lack the ability to unite in support of their common interests. In the building and construction trade department of the AFL–CIO there are 19 international unions. New York City locals of these unions form the New York City Building and Construction Trade Council. This council serves as a very effective spokesman for the building trade unions in city and State legislative halls and executive departments. While the council is active and effective in speaking to the outside world on behalf of its constitutent locals, it has not traditionally exerted effective internal presures. (The council's president, Peter J. Brennan, assured Mayor Wagner on June 6, 1963, of "an allout effort to end discrimination in building trades unions." This assurance clearly must be qualified in view of the council's mixed reaction to proposals to secure more Negro and Puerto Rican apprentices.)

In brief, the economic structure of the building industry tends to concentrate in the local unions the decision as to who obtains employment and, even more important, who gets admitted to the craft. The dominating role of the union in construction employment affords to contractors the opportunity to disclaim all responsibility for discrimination in the building trades. The employers seem to welcome the opportunity, which accords with their consistent tendency to avoid rocking the boat. Our study found no instance in which an employer sought to promote equal employment opportunity in the building trades.

### APPRENTICESHIP

Current apprentice progams provide from one-half to two-thirds of the skilled workers needed simply to replace craftsmen who retire, die, or leave the trade. By fixing the number of apprentices in accordance with a ratio of apprentices to journeymen (the mean ratio is 1 to 6), and not in accordance with present or future demand, the building trades unions continue to maintain an effective shortage of labor. One way that this shortage is preserved in the face of continuing high demand is in the use of commuters like those from Bridgeport who represent an auxiliary source of manpower that can be cut off at any time.

While 120-mile-per-day commuters have found steady employment for several years, a local source of skilled manpower is ignored. New York City has 22 vocational high schools in 5 of which are taught skills used in the building trades. These schools are financed by Federal, State, and city funds. The best qualified graduates of the vocational schools often take low-paying nonunion jobs, or jobs outside the trade. Federal and State apprenticeship agencies have not been heard to complain that Negro youngsters, taught a trade at public expense, are consistently deprived of the opportunity to practice it.

New York State law on the subject is clear and precise. Section 296 of article 15 of the Executive Law prohibits discrimination by employers in hiring, compensation, employment privileges, working conditions, and discharges, prohibits union discrimination in membership, and bars discrimination by employers and unions in admission to apprentice training, on-the-job training, and the like. This policy is also reflected in the existence of agencies such as the State commission for human rights, the New York City Commission on Human Rights, and the civil rights bureau of the State attorney general's office. The last-named agency is largely responsible for the fact that, in the State of New York, there are now two Negroes in the apprentice training program of the Plumbers Union.

The national agency in the field of apprenticeship is the Bureau of Apprenticeship and Training in the U.S. Department of Labor. The Bureau has an essentially passive role in certifying and registering apprentice training programs. This role is of no great importance since less than half of the apprentice programs in the city are certified by the Bureau. The Bureau appears to have been neutral in the matter of racial discrimination, an inappropriate posture the abandonment of which is recommended, at the end of this report.

First, let us review the practice of several of the unions in New York City:

*1. Local 28, International Sheet Metal Workers Union*

There has been no significant change in the size of this local in the past 10 years, despite the fast increase in construction. There are no Negroes among its 3,300 members nor among its 75 apprentices. Admission to the apprentice program of the Sheet Metal Workers Union is on the basis of a personal interview with a joint committee. The applicant is usually sponsored by a union member, sometimes by an employer. The union states that there are four applicants for every vacancy but gives no indication that any applicant sponsored by the union has ever been rejected. The apprentice committee maintains no liaison with vocational schools. Its apprentices attend a union school which obtains no Government support. Various requirements are listed for admission to the apprenticeship program, but they are not applied to sponsored applicants. In March 1963, the Civil Rights Bureau of the Attorney General's office charged local 28 with discriminatory practices.

*2. Local 2, United Association of Journeymen Plumbers & Steamfitters*

The Plumbers Union says it has four applicants for apprenticeship for every apprentice who can be accepted. On the other hand, the union admits that there are 1,000 out-of-town plumbers working in New York City. Of 3,300 members of local 2, none are Negroes. While

there are requirements that theoretically apply to admission to the apprenticeship program, the main practical requirement has to do with bloodlines; 80 to 85 percent of those admitted to membership are sons or nephews of local 2 members. Members of this union consider that the right to nominate apprentices is among the important benefits of union membership.

*3. District Council of United Brotherhood of Carpenters & Joiners (42 locals)*

The council has 34,000 members of whom over 5,000 are Negroes. While there tend to be predominantly white and predominantly Negro locals, the Carpenters Union has provided the only substantial employment opportunity for Negroes in the building trades.

*4. Local 60, Operating Plasterers & Cement Masons International Association*

In this union there is a larger ratio of Negroes presently employed in the trade than in its apprenticeship program; 300 of 2,000 members of local 60 are Negroes, as compared to 5 of the 80 apprentices. In local 60's apprenticeship program, as in most others, no aptitude tests or objective standards are applied in the admission of apprentices.

*5. Local 14 and 14B of the International Union of Operating Engineers*

This union trains its members through apprenticeship local 15—a 3-year program. Unlike most other union members, the operating engineers must take an objective examination, administered by the New York City Department of Buildings. The examination is open—not limited to union members. After passing the examination, an apprentice must obtain two sponsors (members of locals 14, 14B) in order to be admitted to the union. Thus far only 23 Negroes have been admitted to the 1,600-member union.

*6. Local 3, International Brotherhood of Electrical Workers*

Local 3 recently won fame in securing a 5-hour day. This union has different levels of membership, the most important of which is "A-card construction worker." These men (who won the 5-hour day) comprise 9,000 of the 30,000 members of local 3. The number of Negroes who hold the A-card and earn $5 per hour is small, estimates ranging from 300 to 400. There are about 2,250 men from outside New York City working in electrical construction, filling jobs from which qualified vocational school graduates are excluded. On the lower level of local 3, members work for the lamp and lamp-shade manufacturing industry and are paid about $2 per hour.

In the spring of 1962, Mr. Harry Van Arsdale, president of local 3, announced that the union would recruit 1,000 new apprentices, on a nondiscriminatory basis. The Urban League forwarded the names of 51 qualified Negroes and the NAACP forwarded 57 names. Negroes and Puerto Ricans were recruited from other sources and a total of 1,600 apprentices were screened by a nonunion committee of 3 men, one of whom was a Negro—1,020 apprentices were admitted to the program including about 140 Negroes and about 60 Puerto Ricans. This dramatic result and local 3's broad recruiting effort is, so far as we know, without parallel in any building trades union in the country.

In the course of its inquiry, the New York State Advisory Committee became aware of undocumented charges to the effect that the

approximately 200 Negro and Puerto Rican apprentices have not entered into regular apprenticeship channels, but are being utilized to perform unskilled labor. This issue was raised by Committee Chairman Sachs in a meeting with Mr. Harry Van Arsdale, business manager of Local 3, IBEW, and Mr. Theodore W. Kheel, director of the Office of Impartial Review of the Electrical Industry. Mr. Sachs received unequivocal assurances from both Mr. Van Arsdale and Mr. Kheel that these charges are unfounded, and that the 200 apprentices in question are undergoing regular apprenticeship training leading, in the course of 4 years, to full journeyman status and a class A union membership card, on the same basis as all other apprentices.

The six examples listed above illustrate that control of apprenticeship programs gives the building trades unions a potent weapon against the possibility of future unemployment. By restricting the apprenticeship program, the union can continue to maintain a chronic labor shortage and to assure reasonably full employment for their members. Entry into such a well-protected, high-paying career is an outstanding employment opportunity. These employment opportunities have, in effect, become union patronage. A union leader who is not skillful in dispensing this patronage may lose his position. They and the rank-and-file members consider that their power at the bargaining table has won them control of apprenticeship opportunities.

The unions have maintained a tight rein on apprenticeship openings despite the current widespread projections of a continued high level of new construction. Earlier projections by the Department of Commerce indicated that for every 100 men skilled in the building trades in 1955, 122 would be needed in 1965 and 145 by 1975. Current apprenticeship programs not only fail to provide for this growth but, as noted above, fail to produce enough journeymen to replace those who retire, die, or leave the trade.

In keeping with this static philosophy of apprenticeship, Negro participation has remained relatively constant. In 1950, Negroes constituted 1.5 percent of the apprentices and 13 percent of the population of New York City. In 1960, Negroes constituted 2 percent of the apprentices and 22 percent of the population of New York City. It is estimated that by 1970 Negroes will constitute about 33 percent of the population of New York City. If Negro participation in apprenticeship programs continues to bear no relation to the size of the Negro population, then larger and larger numbers of Negroes will be obliged to compete for the dwindling supply of unskilled jobs.

The alternatives are essentially three:

1. Retention by the building trades unions of presently prevailing practices. This is likely to result in no substantial increase in Negro and Puerto Rican apprenticeship.

2. Voluntary adoption by other unions of programs like that of Local 3, IBEW, with positive efforts to recruit Negroes and Puerto Ricans and an objective body to screen and approve apprenticeship applicants.

3. Adoption by public authorities of regulations, contract policies, and other practices which provide objective criteria for apprentice selection and enforce compliance by the manner in which public funds are expended and withheld.

While our study was limited, it was sufficient to reject the first alternative as intolerable and to conclude that while the second alternative

may be more desirable, the third is required for prompt and effective action.

Our conclusions and recommendations follow:

## CONCLUSIONS

1. Participation of Negroes in the building trades in New York City ranges from total exclusion in some trades (sheetmetal workers, plumbers) through token participation in others (plasterers, operating engineers) to substantial, if often segregated, local union membership in others (carpenters).

2. Access to employment in the building trades is substantially controlled by local unions. Through apprenticeship programs nominally subject to the joint control of unions and management, the unions determine who shall acquire the skills—and the journeyman rating—necessary to employment on nearly all new construction in the city.

3. The number of persons admitted to apprenticeship in any year is not determined by current demand but by the ratio of apprentices to journeymen deemed appropriate by agreement of the union and the employers in a given trade. Where demand continues to be high over a period of years as it recently has, out-of-town men are imported temporarily to meet the demand.

4. By rigid limitations on the number of apprentices, the unions have maintained a chronic labor shortage in the building trades. Admission to and completion of an apprenticeship program is fair assurance of reasonably steady employment for a regular workweek and extremely high pay for overtime work. Union members value highly the right to secure admissions to apprenticeship programs, and tend to exercise it (especially in the Plumbers Union) in favor of their sons, nephews, and others with whom they have personal connections.

5. Since admission to apprenticeship is exercised largely on a personal basis, and by persons already pursuing the various trades, patterns of exclusion of Negroes will tend to be perpetuated. The elaborate Federal, State, and local apprenticeship structure leaves essentially untouched the crucial subjective decision as to who is admitted to apprenticeship in the building trades—for example:

Five New York City high schools train young men in the building trades. Their honor graduates have less chance of admission to an apprenticeship program than any business agent's nephew.

The complex New York State Apprenticeship Council, created by statute to "promote an orderly development of the supply of skilled journeymen or craftsmen," is fearful that if the issue of minority apprenticeships is raised, industry and labor might withdraw from, or not join in, apprenticeship programs registered with the council.

The Federal Bureau of Apprenticeship and Training, created to promote and improve standards of apprenticeship, clearly has lacked the power (and apparently the inclination) to enforce nondiscrimination as a "standard" of admission to apprenticeship.

6. The men who now control admission to apprenticeship programs remember with fear the chronic job scarcity of the 1930's. This memory and their enormous bargaining power suggest that union leaders will not lightly surrender the prerogative of regulating admission to apprenticeship programs.

7. The admission of Negroes to apprenticeship beyond a token basis requires that there be introduced into the present personal, subjective procedures for entry into apprenticeship programs standards that are objective and public. Recommendations that fail to move in this direction do not come to grips with the economic realities and the highly personal relationships that underlie the present system. If the building trades unions insist on retaining the present "patronage" approach, they will eventually be confronted with a form of "civil service" selection analagous to that which has deprived the political parties of their former control of most areas of public employment.

8. The commendable voluntary approach of Local 3, IBEW, actively recruiting of minority group youngsters and investing apprentice selection upon an independent group, has not been followed by other unions, and as of July 1963, there is little indication that it will be adopted by other building trade locals in New York City.

## RECOMMENDATIONS

The New York State Advisory Committee recommends to the U.S. Commission on Civil Rights that steps be taken to bring about the following changes in present practices:

1. (*a*) That the Federal Bureau of Apprenticeship and Training be authorized and empowered to require that all apprenticeship programs in the construction industry be registered by the Bureau; that it establish, in consultation with representatives of unions and management, objective criteria for admission to apprenticeship programs; that it determine the number of available apprenticeship openings in each program, giving consideration to the skilled manpower needs of the Nation as well as to those of the industry and the immediate locality; and that it establish a meaningful and effective evaluation system for each of the trades;

(*b*) That the Federal Bureau of Apprenticeship and Training be authorized and empowered to require that all notices of acceptance and rejection to apprenticeship programs be filed with the Bureau, and that acceptances and rejections be accounted for in terms of the established objective criteria of admission;

(*c*) That the Federal Bureau of Apprenticeship and Training be authorized and empowered to conduct systematic apprenticeship recruiting programs, in part by means of uniform vocational guidance procedures in public schools, and to investigate, on its own initiative, apprentice training programs which are, or are believed to be, engaged in discriminatory practices.

2. (*a*) That departments, agencies, offices, and bureaus of the Federal Government be required to withhold all financial support from apprenticeship programs which fail to admit qualified Negro applicants or fail to comply with the requirements of the Bureau of Apprenticeship and Training described above;

(*b*) That departments, agencies, offices, and bureaus of the Federal Government be required to withhold all financial assistance from any contractor and from any building project employing the labor of any union or local thereof which cannot give satisfactory proof that it does not follow discriminatory practices.

3. In the event that the foregoing procedures are found to be ineffective, we recommend that Congress enact legislation declaring that

admission to apprenticeship in the construction trades is a matter affecting interstate commerce and that such admission be vested in a suitable agency empowered to adopt and enforce procedures analagous to those employed by the Civil Service Commission.

The foregoing is a report which primarily summarizes material supplied to the New York State Advisory Committee by Dr. Donald Shaughnessy. It also draws upon "Apprentices, Skilled Craftsman, and the Negro," a publication of the New York State Commission for Human Rights, and the experience of Frank Logue, regional consultant to the U.S. Commission on Civil Rights for New York and the New England States.

[Reprinted from the American Federationist, July 1963]

# EXPANDING APPRENTICESHIP FOR ALL AMERICANS

By John F. Henning[1]

American Negro demands for fair employment have turned sharply to a precise area of dispute: apprenticeship training.

The new emphasis is hardly surprising. Skilled journeymen are the income elite of manual labor. They look to a brightening future. All responsible projections of U.S. labor force needs cite the continuing call for skilled labor and the declining proportions of unskilled work.

Back in 1957 the U.S. Department of Labor issued its now historic projections of the labor force requirements of the 1960's. The study estimated that in 1970 America will need 42 percent more professional and technical workers than in 1960, 24 percent more sales and service personnel, 22 percent more skilled workers and 18 percent more semiskilled. The percentage of the unskilled will be down.

The prophecy presumes a full employment economy in 1970. Without economic growth, both skilled and unskilled will suffer. But not alike. For example, during the past 5 years, the national unemployment rate has approximated a disturbingly high 5.5 percent, but in this period the jobless rate among the unskilled has been at least twice that of the skilled. Whatever the course of the economy, the days of the unskilled appear numbered.

Long ago Benjamin Franklin observed that he who hath a trade hath an estate. The difficulty is that he who hath a trade usually hath a white skin.

As in Franklin's time, the one certain road to journeyman training is the apprenticeship system. To some the road seems a narrow, twisted trail, bordered by bigotry and privilege. Whatever its hazards, more than 150,000 young Americans today are found in registered apprenticeship programs.

The average apprenticeship embraces 4 years of on-the-job training and normally entails 144 hours of related classroom instruction a year.

The tripartite forces of labor, management, and Government shape the character of apprenticeship training. But the shape of things does not satisfy any American sensitive to the demands of democracy.

Federal responsibility came to apprenticeship with the adoption of the Fitzgerald Act in 1937.

The Fitzgerald Act called for Federal and State Government promotion of labor-management apprenticeship programs. The Government role has been noncontrolling in that actual on-the-job training has been directed by the employer, usually under union-negotiated conditions.

The Government role has been significant in that the U.S. Department of Labor and the several State apprenticeship agencies fix minimum standards for program registration. Registration entitles apprentices in approved programs to employment on Federal public works projects and assures approved programs of the services of the Labor Department's Bureau of Apprenticeship and Training or the services of the pertinent State agency. Historically, Federal registration of programs has applied alike to State-sponsored as well as Federally directed programs.

Thirty States manage their own apprenticeship agencies. In the remaining 20, the Federal Government alone sponsors and guides apprenticeship.

Civil rights spokesmen long have held the idea that Federal registration should be denied any program stained by ethnic discrimination. AFL–CIO President George Meany agrees. Meany backed a 1961 attempt to write such a denial into Federal law. Meany noted, however, that discrimination in apprenticeship is only part of total job discrimination. He urged enactment of a national Fair Employment Practices Act with full powers of enforcement.

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[1] John F. Henning is Under Secretary of Labor. As Manpower Administrator of the U.S. Department of Labor, he also serves as Chairman of the 15-member Advisory Committee on Equal Opportunity in Apprenticeship and Training. Formerly he served as Director of the California Department of Industrial Relations and chief labor advisor to Governor Brown. Previously he was with the California AFL–CIO.

But the immediate question is—what can be realized in the absence of a national FEP law?

In July 1961, then Secretary of Labor Arthur Goldberg announced the Department of Labor would thereafter require the inclusion of a specific nondiscrimination statement in all apprenticeship standards of firms handling Government contracts. He further declared a similar provision would be required in the registration of any new apprenticeship program regardless of its relationship to Federal works.

Labor Department action did not die with the Goldberg pronouncement. The following achievements merit attention:

I. Within the past year, the Bureau of Apprenticeship and Training assigned four minority consultants to the task of opening opportunities to Negroes and other minority peoples. Now located in Washington, New York, Chicago, and San Francisco, they counsel with employers, point apprenticeship committees and unions on a regional basis to encourage acceptance of qualified minority applicants. Additionally, they advise minority groups on apprenticeship fundamentals and admission processes.

II. Secretary of Labor W. Willard Wirtz on February 27, 1963, announced the appointment of a national Advisory Committee on Equal Opportunity in Apprenticeship and Training. The commmittee consists of 15 members: 4 from management, 4 from labor, 5 from minority organizations, and 2 from the public.

The Advisory Committee held its first meeting in Washington on May 14 under the chairmanship of the Under Secretary of Labor. The committee developed a five-point action program:

1. Establishment of BAT apprenticeship information centers in key cities that fall under exclusive Federal jurisdiction.

2. The fostering of apprenticeship information centers through State apprenticeship councils in the States that have such organizations.

3. The creation of research programs to measure the present depth of minority participation in apprenticeship programs.

4. The implementation of present antidiscrimination provisions in apprenticeship programs registed with the U.S. Department of Labor.

5. The consideration of preapprenticeship programs for the training of young workers not qualified for admission to apprenticeship programs.

III. The Department of Labor, in cooperation with the District of Columbia Apprenticeship Council, the District of Columbia Commissioners and school authorities, the U.S. Employment Service, labor and management, opened its first Apprenticeship Information Center on June 17 in the Nation's Capital.

The Information Center, which the Department proposes to extend throughout the Nation, offers young apprenticeship applicants personal and group counseling, aptitude testing, information on educational requirements, and related data pertaining to District apprenticeship programs. It also offers an orderly system of referral to joint apprenticeship committees and serves as a point of contact for unions, employers, and minority groups.

The values of the Information Center are intended for all young Americans, whatever their race, color, creed, or national origin. But the Center should be of particular value to Negroes and other minorities from whom the knowledge of admission procedures and requirements often has been withheld.

IV. Secretary of Labor Wirtz issued a directive to all joint apprenticeship committees of the District of Columbia June 5, 1963, on the discrimination crisis in the District jurisdiction. The Secretary listed the following requirements for programs hoping to enjoy Federal registration rights:

1. If apprentices are not selected by a merit system alone, selections must be made in a manner that demonstrates equality of opportunity.

2. Waiting lists which reflect previous discriminatory practices must be subjected to whatever action is necessary to offset such discrimination.

V. President Kennedy on June 4, 1963, directed the Secretary of Labor to require that "admission of young workers to apprenticeship programs be on a completely nondiscriminatory basis."

VI. Following Secretary Wirtz' order of June 11, 1963, the Bureau of Apprenticeship began a 50-city check of Negro apprenticeship participation in Federal construction projects.

The varied activities here cited indicate the commitment of the Kennedy administration to equality of opportunity in apprenticeship.

The President held a national conference with 300 labor officials at the White House, June 13, in which he called for the end of job discrimination at every

level of union jurisdiction. This was one of a number of conferences on civil rights held with businessmen, educators, clergymen, and lawyers.

However, the President noted that genuine equality of opportunity could be meaningful only in a full employment economy.

National morality and the times will permit nothing less than full job equality, but without full employment this means sharing job scarcity regardless of race, color, creed, or national origin. Job equality must mean sharing the bounty, not the scarcity of national life. But apprenticeship at its fullest would hardly have the capacity to solve youth unemployment. The problem is beyond that.

During the calendar year 1962, teenage unemployment averaged 13 percent against an overall national figure of 5.6 percent. During 1962 the average teenage unemployment total was 816,000 workers.

Between 1957 and 1962 the total number of registered apprentices in training averaged 150,000.

Apprentices in training today average only 3 percent of the 5,077,000 teenage workers in the U.S. labor force. Of the teenage total, 3,017,000 are male.

The apprenticeship solution assumes even less promise when pictured against a 50-percent mortality rate. The consistent national experience suggests that only one-half of those now in training will know journeyman status.

The proportionate place of apprenticeship must also be seen in the perspective of the awesome burdens the American economy will confront in the 1960's.

The U.S. Department of Labor tells that the economy must provide 34.5 million new jobs in the 1960's to match the demands of population growth and technological change.

The labor force will realize a net increase of 12.5 million through population expansion. This involves an increase of 26 million young workers. Death and the retirement of older workers will determine the 12.5 million net figure.

The technological impact will be greater. The Labor Department estimates the annual rate of productivity increase will be about 3 percent throughout the 1960's. This means the output per man-hour will jump about 3 percent each year. The job displacement statistics become frightening when the 3-percent productivity rate is applied to an annual average employment figure of 74 million workers. For the 1960's this means the economy must provide 2.2 million new jobs each year to care for technological progress. The decade's demand will be 22 million jobs.

The statistics are germane because apprenticeship, unlike vocational education, always has been a job-related training system. Unless employers determine to hire apprentices there is no apprenticeship system. Further, unions relate the number of admitted apprentices to the number of employed journeymen.

Given full employment, apprenticeship could come to its greatness.

But at this hour, the immediate crisis of apprenticeship discrimination plagues the national conscience and cries for action.

The Kennedy administration reforms must succeed. There is hope and precedent in the experience of California.

Four years ago Gov. Edmund G. Brown named apprenticeship bigotry a special evil and called for remedies. Adoption of an FEP law in 1959 helped greatly but was not quite enough. The subtleties of apprenticeship bias often escape FEP enforcement.

California's plan has won national praise. It features (1) statewide and local committees on apprenticeship opportunities for members of minority groups; (2) local apprentice information centers for making vital data available to high school students and graduates.

The statewide opportunities committee was founded in 1960. It is comprised, like the national advisory committee, of labor, management, and minority group representatives and includes government spokesmen.

The California committee last year developed two precedent-smashing surveys of the depth of discrimination.

The initial study approached the ethnic identity of the more than 20,000 apprentices receiving training in California. The second involved an ethnic sampling of journeymen who completed their apprentice training in 1955.

The first survey, based on a one-third return of questionnaires, revealed the startling evidence that there were 283 American Indians participating in California apprenticeship programs as against 150 Negroes. Mexican-Americans numbered 521, Japanese-Americans 31, and Chinese-Americans 18.

The findings suggest that Negroes number just a bit more than 2 percent of California's apprentices. In the Federal census of 1960, Negroes formed 5.8 percent of the total State population and 4.7 percent of the State's male labor force.

The State committee data on minority representation among journeymen certified in 1955 also are revealing.

A one-fourth return of inquiries pegged Negro participation at 1.5 percent.

The journeymen survey indicates the rewarding nature of skilled employment. Seventy-two percent of the graduate apprentices were earning $7,000 or more a year, while 52.4 percent were earning over $8,000 per annum. Only 11.2 percent were earning less than $6,000 per year.

Ninety percent were enjoying full employment on a yearly basis.

Both surveys confirm the skilled labor problem of the Negro. But the totals do not necessarily prove discrimination. For example, in certain survey areas Negroes had rarely, if ever, applied for apprenticeship admission. The failure could represent either resignation to bias or the absence of training qualifications.

Traditionally, Negroes have been the particular victims of hasty and frequently indifferent counseling in the high school systems. In California's soaring school population, a senior student is fortunate if he receives 1 hour of personal counseling in his final year. This obtains for any student whatever his race or skin. The national practice is scarcely different.

Each year thousands of young Americans emerge from the secondary schools without any sense of occupational direction. Adequate high school counseling would be of particular benefit to the children of Negro families recently removed from the agrarian South. These young people suffer the same lack of skilled labor tradition as did most of the 19th century European immigrants who poured into America searching for freedom and opportunity.

But where immigrant Europeans could seek manual labor in coal and steel and maritime employment, today's young Negro faces a labor market in which there is little future for the unskilled.

Not only because of discrimination but also because of lack of skills, Negro unemployment is consistently twice the overall national average. In the calendar year 1962 the rate of unemployment among Negroes was 11 percent against a national average of 5.6 percent. Negroes represent 11 percent of all American workers but represent 22 percent of all unemployed.

As indicated earlier, economic growth is the first requisite of full employment in the 1960's, the full employment that will give job opportunity to all Americans.

Economic growth, however, will not find employment for the unskilled.

America needs an active labor market policy to accompany the fiscal and monetary policies of growth. An active labor market policy would directly answer the training needs of the U.S. labor force. The rate of unemployment among unskilled workers in the calendar year 1962 was 12 percent against the national average of 5.6 percent.

An active labor market policy also would end racial and ethnic discrimination in employment.

But it would do more than that. It would also achieve these ambitions:

1. An updated labor market information service for workers and employers.
2. An employment service warning system for impending technological changes and other changes causing serious job displacement.
3. An effective informational service for career guidance and counseling.
4. An educational system, vocational as well as academic, which would answer current and upcoming manpower needs.
5. An expanded apprenticeship training program.
6. An improved system of job placement services.
7. A program for aiding the mobility of workers.

In summary, it is obvious that Negro discrimination in apprenticeship has its unique and general features. The Negro suffers because of his skin. But he suffers also because he often is an unskilled workers in an economy which has limited place for the unskilled. Finally, he suffers because he is a worker in a society which has not yet found the way to full enployment.

The issue of racial discrimination is not peculiar to apprenticeship. It will be found everywhere, including the banking, insurance, and newspaper worlds. It will be found in the professions and the religions of America. Indeed, discrimination is often strongest in sectors of nonunion employment.

American labor must persist in its efforts to realize full employment and the abolition of the last measure of job discrimination. The efforts must reach to the State councils, local councils, and local unions.

The matter is moral. For more than 100 years labor has served as the social conscience of the Nation. Unpurchased and unafraid, it has led the everlasting struggle to attain a society in which bread, security, and freedom shall be the right of all Americans whatever their racial, religious or ethnic identity.

Labor holds priceless credentials of sacrifice and struggle. It must use these credentials now as mortal conflict shakes the Nation. The honor and duty of leadership rest with the trade union movement.

# FEDERAL ORDERS CONCERNING EQUAL OPPORTUNITY IN APPRENTICESHIP

U.S. DEPARTMENT OF LABOR,
OFFICE OF THE SECRETARY,
*Washington, February 27, 1963.*

Secretary's Order No. 7–63.

Subject: Advisory Committee on Equal Opportunity in Apprenticeship and Training.

1. *Purpose.*—This order establishes the Advisory Committee on Equal Opportunity in Apprenticeship and Training. It is issued pursuant to the act of March 4, 1913 (5 U.S.C. 611, 37 Stat. 736), Reorganization Plan No. 6 of 1950 (15 F.R. 3174; 64 Stat. 1263; 5 U.S.C. 133z, note); R.S. 161 (5 U.S.C. 22); and the act of August 16, 1937 (29 U.S.C. 50; 50 Stat. 664).

2. *Directives affected.*—The Committee shall be established pursuant to procedures contained in Secretary's Order No. 19–62. All other orders, instructions, and memorandums are superseded to the extent that they are inconsistent herewith.

3. *Background and policy.*—The Department of Labor is charged, among other things, with the promotion of the welfare of the wage earners of the United States and advancement of their opportunities for profitable employment. The Department is delegated responsibility for increasing and improving employment opportunities and for developing programs designed to meet current and future skilled manpower needs.

It is the policy of the Department of Labor to encourage employers to foster and promote equal opportunities in employment and training in apprenticeable occupations and others requiring substantial knowledge and skill for all, regardless of race, color, creed, or national origin, and to encourage labor organizations to cooperate with employers in such employment by creating a climate of acceptance of all such qualified individuals in the work places and in the unions.

4. *Establishment and function of advisory committee.*—(*a*) Establishment.—There is hereby established the Advisory Committee on Equal Opportunity in Apprenticeship and Training.

(*b*) Function.—The Committee shall advise the Department of Labor with respect to the development, review, and promotion of more effective programs and policies for establishing and maintaining equal opportunities in apprenticeable and other occupations requiring substantial skill and substantial knowledge. It shall recommend actions for implementing the policies of the Department of Labor in the specific area of skilled manpower development on a nondiscriminatory basis.

5. *Composition of Committee.*—The Committee shall be composed of not more than 15 members, who shall be appointed by the Secretary from among persons representative of employers, labor, education, minority groups, and the public. Representatives of other Government agencies and nongovernmental groups, and individuals, shall be consulted as may be deemed necessary and appropriate. The Chairman of the Committee shall be the Manpower Administrator of the Department of Labor.

6. *Technical and other services.*—The Bureau of Apprenticeship and Training shall provide secretarial, technical, and other services to this Committee. Other bureaus and offices of the Department of Labor, upon request of the Chairman, shall provide such assistance as may be necessary and appropriate.

7. *Effective date.*—This order is effective immediately.

W. WILLARD WIRTZ,
*Secretary of Labor.*

[News release, U.S. Department of Labor, Feb. 27, 1963]

## HENNING ANNOUNCES ESTABLISHMENT OF NEW ADVISORY BODY ON EQUAL OPPORTUNITY IN APPRENTICESHIP AND TRAINING

Under Secretary of Labor John F. Henning said today that the establishment of a high-level national committee to be known as the Advisory Committee for Equal Opportunity in Apprenticeship and Training has been approved by Secretary of Labor W. Willard Wirtz.

The Committee will be composed of outstanding representatives of labor, management, education, minority groups, and the public. Under Secretary Henning, in his capacity as Manpower Administrator of the Department of Labor, will serve as Chairman of the body. The order establishing the Committee assigns to it responsibility for advising the Department of Labor with respect to the development, review, and promotion of more effective programs and policies in the broad area of equal opportunity in both apprenticeable and other occupations requiring high skill levels.

Henning made the annuoncement in remarks addressed to the District of Columbia Conference on Equal Employment Opportunity.

The Under Secretary also announced that the Department of Labor's Bureau of Apprenticeship and Training is assuming direct supervision over the apprenticeship staff of the District of Columbia, a move calculated to provide a more effective Federal role in the development of equal employment opportunity practices in the Nation's Capital. Previously, the District of Columbia staff had reported to a regional office outside the Washington area.

In concert with the advice of the newly created National Advisory Committee, Henning said, the Department of Labor expects to move ahead promptly with the establishment on a demonstration basis of an apprenticeship information center in Washington. He said that the Department envisioned such a center as the joint undertaking of the Bureau of Apprenticeship and Training, the Employment Service, the District of Columbia Apprenticeship Council, and the area schools, employers, and unions. "Such a demonstration project," the Under Secretary concluded, "could not only prove invaluable in determining apprenticeship opportunities in the District and counseling the city's young people regarding them, but could also serve as a much-needed model for other cities across the country."

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[News release, U.S. Department of Labor, Apr. 4, 1963]

## SECRETARY WIRTZ NAMES MEMBERS OF ADVISORY COMMITTEE ON EQUAL OPPORTUNITY IN APPRENTICESHIP AND TRAINING

Members of the 15-man Advisory Committee on Equal Opportunity in Apprenticeship and Training were named today by Secretary of Labor W. Willard Wirtz.

The national committee of outstanding representatives of labor, management, education, minority groups, and the general public will advise the Department of Labor on development, review, and promotion of more effective programs and policies in the broad area of equal opportunity in both apprenticeable and other occupations requiring high skill levels.

Under Secretary John F. Henning, in his capacity as Manpower Administrator of the Department, will serve as chairman of the committee.

One of the first matters the committee will consider is the establishment, on a demonstration basis, of an apprenticeship information center in the Nation's Capital. "This demonstration project," Under Secretary Henning said, "could aid in determining apprenticeship opportunities in the District and counseling the city's young people regarding them. In addition, it could also serve as a model for cities throughout the country."

Management representatives appointed to the committee are Charles Patterson, vice president, Ford Motor Co.; Joseph Eichler, building contractor in Palo Alto, Calif.; William Dunn, executive director, Associated General Contractors. Another management representative will be named soon.

From labor are Joseph Corcoran, director of education, United Association of Journeymen & Apprentices of the Plumbing & Pipe Fitting Industry; A. J. Rohan, secretary-treasurer, International Printing Pressmen's & Assistants' Union of North America; Al Burch, assistant director, research and education, International Union of Operating Engineers; and Alec Bauer, grand lodge representative, International Association of Machinists.

Representatives from minority groups are the Reverend Walter Janer, Nativity Mission Center, New York City; Emanuel Muravchik, director, Jewish Labor Committee, New York City; Chester Lewis, national board member, National Association for the Advancement of Colored People; John Welch, dean, School of Mechanical Industries, Tuskegee Institute; and Mrs. Dolores Huerta, California legislative representative, Stockton, Calif.

Stanford Brookshire, mayor, Charlotte, N.C., and Agnes E. Meyer, of Washington, D.C., will serve on the committee as representatives of the general public.

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U.S. DEPARTMENT OF LABOR,
OFFICE OF THE MANPOWER ADMINISTRATOR,
*Washington, November 12, 1963.*

Manpower Administration Order No. 12.
Subject: Policy for establishing and operating apprenticeship information centers.

1. *Purpose.*—To announce policies for establishing apprenticeship information centers in selected Employment Service offices and to outline the responsibilities of the Bureau of Appenticeship and Training and the Bureau of Employment Security regarding their respective functions in establishing and operating such centers.

2. *Background.*—There is a demonstrated need for providing a central and easily accessible source of information, guidance and counseling concerning apprenticeship opportunities, requirements and enrollment in labor market areas where apprenticeable trades are located. The absence of such information contributes in part to the inability or potential applicants, particularly those from minority groups, to learn about apprenticeship in the skilled trades. It also restricts industry's selection of qualified applicants to a narrow segment of the community, ignoring those outside this segment who are equally qualified. The effect of this contributes to discrimination in the hiring of apprentices.

The National Apprenticeship Act, Public Law 308, and Manpower Development and Training Act, Public Law 87–415, provide generally for the training of apprentices and preapprenticeship training. A cooperative activity of the principal Department of Labor bureaus concerned to give a specialized service to applicants and industry is essential to utilize the maximum manpower potential in the community and to equalize employment opportunity for apprentices without regard to race, creed, or national origin.

3. *General policy and guidelines for apprenticeship information centers.*

(*a*) Information centers will be established in appropriate labor market areas, particularly in areas where there are substantial minority groups in the work force.

(*b*) The centers shall secure, maintain, and publicize an up-to-date compilation of apprenticeship information and make it available to high school students, public school guidance departments, the minority community, labor unions, employer associations, employers, and the general public.

(*c*) The centers shall place emphasis on developing cooperation with employers, unions, and minority groups, in order that these parties take action commensurate with the significant value of apprenticeship in relation to the national manpower situation.

(*d*) The centers shall examine the qualifications of applicants by interviewing, counseling, and testing, and refer only those qualified to available apprenticeship openings.

(*e*) Centers shall be operated as separate entities within the organizational structure of employment sevice local offices and each one shall be prominently identified as "Apprenticeship Information Center," so as not to be confused with any other employment service function within which or near which it is located.

4. *Location of apprenticeship information centers*

The location of apprenticeship information centers shall be determined by the Bureau of Employment Security after consultation with the Bureau of Apprenticeship and Training and the Office of Manpower, Automation, and Training.

5. *Operation of apprenticeship information centers*

(*a*) *The Bureau of Apprenticeship and Training.*—The Bureau of Apprenticeship and Training shall take the initiative in stimulating local interest and securing community support from labor, management, civic, education, and minority groups, and in publicizing the goals and attainments of the centers. The

Bureau shall also secure and provide current and essential apprenticeship information, including local apprentice requirements, to the centers.

(*b*) *Bureau of Employment Security.*—The Bureau of Employment Security shall inform the State employment security agencies regarding the objectives and operation of apprenticeship information centers and enlist the cooperation of the State agencies in establishing and administering centers in selected labor market areas, particularly those with substantial minority groups represented in the work force. Where necessary, the Bureau shall make financial arrangements to enable the State to participate without diminishing existing services in the Employment Service offices selected to operate information centers.

6. *Agency coordinating group*

To provide maximum cooperation in the operation of apprenticeship information centers by the Government agencies concerned, an agency coordinating group shall be established for each center. The coordinating group shall consist of the designated representatives in each location of the Bureau of Apprenticeship and Training, the State employment service, the State apprenticeship agency, where appropriate, the public schools, and the minority advisers of the Bureau of Apprenticeship and Training and the Employment Service. The formation and continuing operation of this group shall be the responsibility of the local BAT field representative. This representative shall also provide the group with essential information obtained from management, labor and the minority community, which will aid in guiding local operating practices.

7. *Apprenticeship Information Center Advisory Committee*

To assure the fullest community participation in the successful operation of each Center, an Apprenticeship Information Center Advisory Committee shall be established. Proposed committee members, representing management, labor, minority and civic organizations shall be recommended by the Agency Coordinating Group and appointed by the appropriate civic authorities where possible. Members of the Agency Coordinating Group should attend all meetings of the Advisory Committee as consultants from their respective agencies. This committee shall advise the Director of the Center and the Agency Coordinating Group regarding: (1) the reactions of various community groups to the activity of the center; (2) the opportunities and outlook for apprenticeship in the area; and (3) possible modifications or improvements in the conduct of the center. The committee shall, in its own right, (1) promote apprenticeship opportunities for minorities and others; (2) augment the efforts of the Apprenticeship Information Center in advising and counseling minorities and others concerning apprenticeship; (3) provide apprenticeship information to the Director of the Apprenticeship Information Center for use with appropriate persons or groups; and (4) help resolve particularly difficult or resistant cases, acting either individually or in concert with other committee members, by discussing the problem with parties involved.

JOHN F. HENNING, *Manpower Administrator.*

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## TITLE 29—LABOR

### SUBTITLE A—OFFICE OF THE SECRETARY OF LABOR

### PART 30—NONDISCRIMINATION IN APPRENTICESHIP AND TRAINING

On October 23, 1963, notice of the substance of proposed rules regarding equality of opportunity in apprenticeship and training was published in the Federal Register (28 F.R. 11313). Interested persons were given 15 days in which to submit written statements of data, views, and arguments concerning the proposal. Having considered all relevant material submitted, I have decided to, and do hereby establish a new 29 CFR Part 30, effective January 17, 1964, to read as follows:

Sec.

30.1 Scope and purpose.
30.2 Definitions.
30.3 Equal opportunity standards.
30.4 Selection of apprentices.

30.5 Necessary action on prior application lists.
30.6 Nondiscriminatory operation.
30.7 Formal nondiscrimination provisions.
30.8 New registrations.
30.9 Program reviews.
30.10 Review by Regional Director.
30.11 Review by Administrator.
30.12 Complaint procedure.
30.13 Adjustments in schedules for program review or complaint processing.
30.14 Reinstatement of program registration.
30.15 Quota system barred.
30.16 State agencies.

AUTHORITY: §§ 30.1 to 30.16 issued under 50 Stat. 665, R.S. 161; 29 U.S.C. 50, 5 U.S.C. 22.

### § 30.1 Scope and purpose.

This part sets forth policies and procedures to promote equality of opportunity in apprenticeship and training programs registered with the Bureau of Apprenticeship and Training. These policies apply to the selection of apprentices, to waiting lists, and to employment during apprenticeship, and the procedures established provide for review of apprenticeship programs, for processing complaints, for deregistering noncomplying programs and for registering new programs. Provision is also made for cooperative relationships with appropriate State agencies. The purpose of this part is to promote equality of opportunity and to prevent discrimination based on race, creed, color or national origin in all phases of apprenticeship.

### § 30.2 Definitions.

(a) "Bureau" means the Bureau of Apprenticeship and Training.

(b) "Administrator", "Regional Director", and "field representative" mean the Administrator, the Regional Directors and the field representatives of the Bureau.

(c) "Program" means an apprenticeship program registered with the Bureau.

(d) "Employer" means any person or organization employing an apprentice whether or not the apprentice is indentured to such person or organization or or to some other person or organization.

(e) "Program sponsor" means any person or organization operating an apprenticeship program, irrespective of whether such person or organization is an employer.

### § 30.3 Equal opportunity standards.

Each apprenticeship program registered with the Bureau shall operate on the basis of the following standards:

(a) The selection of apprentices on the basis of qualifications alone, in accordance with objective standards which permit review after full and fair opportunity for application, unless the selections otherwise made would themselves demonstrate that there is equality of opportunity.

(b) The taking of whatever steps are necessary, in acting upon application lists developed prior to this time, to remove the effects of previous practices under which discriminatory patterns of employment may have resulted.

(c) Nondiscrimination in all phases of apprenticeship and employment during apprenticeship after selections are made.

### § 30.4 Selection of apprentices.

Apprentices may be selected by any of the methods prescribed in paragraphs (a), (b) or (c) of this section.

(a) *Selection on the basis of qualifications alone.* (1) (i) Selection "on the basis of qualifications alone" means that apprentices are chosen from those applicants meeting the minimum qualifications for the trade or craft solely on the basis of their qualifications compared to those of other applicants. Examples of standards by which comparative qualifications may be determined are fair aptitude tests, school displomas, age requirements, occupationally essential physical requirements, fair interviews, school grades and previous work experience. Under this test, both actual selection for and entry into apprenticeship must be on the basis of comparative qualifications alone. It is not enough for a program sponsor to establish a lengthy list on the basis of minimum qualifications standards and then select apprentices from the list on a basis other than comparative qualifications, such as on the basis of time of application.

(ii) Where the number of applicants meeting the minimum qualifications requirements is greater than the number of job openings, "qualifications alone"

means (*a*) that the applicants are ranked on the basis of criteria which measure comparative qualifications (e.g., fair aptitude tests, etc.) and are selected on the basis of the ranking, or (*b*) that without ranking each individual, criteria which measure comparative qualifications are used to identify the "best qualified" in a total number not in excess of the total number of apprentice openings and the order of selection for employment from within the "best qualified" group is determined through any nondiscriminatory system.

(2) "Objective standards" means that qualifications and eligibility must be determined by specific requirements so that questions of discrimination in selection can be fairly adjudicated. It does not mean that all programs must have identical standards for selection. Requirements must be established and disseminated publicly prior to selection. (See § 30.4(a)(4).)

(3) To "permit review" adequate records of the selection process must be kept and made available to the Bureau upon request. These must include a brief summary of each interview and the conclusions on each of the specific factors, e.g., motivation, ambition, willingness to accept direction, which are part of the total judgment. Such records must be retained for at least two years.

(4) "After full and fair opportunity for application" means, with respect to application lists developed prior to January 17, 1964, that in the development of the list the program sponsor had publicly disseminated information about the availability of apprenticeship opportunities and had allowed a substantial period of time for applicants to apply. After January 17, 1964, "After full and fair opportunity for application" means that the program sponsor, prior to time of selection and at least once annually, except in years when no selections are made, has allowed a substantial period of time for new applicants to apply and former applicants to reapply for apprenticeship, has publicly disseminated full information about the availability of apprenticeship opportunities, and has ranked the new applicants thus received along with previous applicants on the basis of their comparative qualifications. After January 17, 1964, such information shall be posted at the normal place of application for apprenticeship and disseminated to the local employment service and the local schools, except that where selection is made exclusively from a restricted pool (see § 30.4(c)), information need not be disseminated to the local employment service and the local schools.

(b) Selections demonstrating equality of opportunity.

(1) Apprentices may be selected in any manner in which the selections themselves demonstrate equality of opportunity.

(2) Apprentices may also be selected in accordance with any plan which assures equality of opportunity and which is acceptable to the Administrator.

(c) Selection from existing employees. Where apprentices are selected from a restricted pool, e.g., from present employees, admissions to the pool as well as selection for apprenticeship must be on a nondiscriminatory basis after January 17, 1964. Selections from the pools may be made on the basis of seniority of employment.

**§ 30.5 Necessary action on prior application lists.**

Where program sponsors have or adopt a selection system based on qualifications alone as specified in § 30.4(a), the standard stated in § 30.3(b) does not require any action with regard to "application lists developed prior to this time" beyond that required by § 30.4(a). Where program sponsors do not have a selection system based on qualifications alone, the standard stated in § 30.3(b) requires that "application lists developed prior to this time" be opened to the extent necessary to provide current opportunities for selection of qualified members of racial and ethnic minority groups.

**§ 30.6 Nondiscriminatory operation.**

There must be no discrimination in apprenticeship or employment during apprenticeship after selections have been made, including but not limited to job assignment, promotion, layoff or termination, rates of pay or other forms of compensation or conditions of work. All apprentices employed shall be subject to the same job performance requirements.

**§ 30.7 Formal nondiscrimination provisions.**

(a) *Formal provision required.* Except as provided in § 30.7(b), each program registered with the Bureau must contain in its formal apprenticeship standards or in its underlying collective bargaining agreement a formal nondiscrimination provision which is consistent with the standards in § 30.3. The

Bureau suggests the following language as appropriate for adoption by program sponsors desiring to select apprentices on the basis of qualifications alone: "Selection of apprentices under the program shall be made from qualified applicants on the basis of qualifications alone and without regard to race, creed, color, national origin, sex, or occupationally irrelevant physical requirements in accordance with objective standards which permit review, after full and fair opportunity for application; and this program shall be operated on a completely nondiscriminatory basis."

(b) *Previously registered programs.* Programs registered prior to January 17, 1964, which contain the following provision or generally equivalent language are not required to revise such language in order to comply with paragraph (a): "Selection of apprentices under this program shall be made from qualified applicant without regard to race, creed, color, national origin or physical handicaps; women shall not be barred from apprenticeships for which they qualify."

(c) *Equal opportunity standards applicable.* Irrespective of the form of the formal nondiscrimination clause adopted or in use, all federally registered programs are required to operate in accordance with the equal opportunity standards in § 30.3 as interpreted in this part.

**§ 30.8 New registrations.**

Any program sponsor seeking federal registration of a program after January 17, 1964, must select apprentices on the basis of qualifications alone in accordance with objective standards which permit review after full and fair opportunity for application and must adopt a nondiscrimination clause in the form suggested in § 30.7(a) or its equivalent. In addition to the formal provision requirement, the submission to the Bureau must include a concise statement of the selection procedure and of the selection standards which the program sponsor proposes to apply.

**§ 30.9 Program reviews.**

The Bureau shall conduct a systematic field review of existing federally registered programs, inform program sponsors of the equal opportunity standards, encourage their adoption, and take appropriate action regarding programs which do not adopt and operate in accordance with the standards. Each program field review shall involve the following steps:

(a) Notification to the program sponsor of the equal opportunity standards and the taking of all appropriate action to urge their voluntary acceptance.

(b) Maintenance of a file on the program field review: The file shall accompany the report forwarded by the field representative.

(c) Determination of racial and ethnic composition of the program: Where the composition of the program demonstrates that there is equality of opportunity no further field review will be made. A file shall be maintained regarding such programs, which will contain the information which indicates that equal opportunity is being provided. This file shall be forwarded through supervisory channels to the Administrator for review.

(d) Use of the following checklist where further field review is required:

(1) The formal program language requirement. Does the program contain a formal nondiscrimination clause consistent with the equal opportunity standards in § 30.3? (Programs already containing language generally equivalent to that required by Bureau Circular 62–5 are not required to adopt new written provisions. See § 30.7.)

(2) Selection of apprentices:

(i) Selection on the basis of qualifications alone: Does the program select apprentices on the basis of qualifications alone in accordance with objective standards which permit review after full and fair opportunity for application? (See § 30.4(a), and is the application list composed entirely of applicants selected and ranked solely on the basis of qualifications alone in accordance with objective standards that permit review after full and fair opportunity for application? (See §§ 30.4(a)(4) and 30.5.)

(ii) Alternative selection plan: If the program does not select apprentices on the basis of qualifications alone, has the program adopted an alternative equal opportunity plan for selecting apprentices which assures equality of opportunity and which is acceptable to the Administrator? Does the program operate in accordance with such plan? Field representatives should submit through channels to the Administrator for approval alternative selection plans which appear to assure equal opportunity. A copy of the approved plan should be included in the case file.

(3) Program operation: Is there any discrimination in apprenticeship or employment during apprenticeship, including but not limited to job assignment, promotion, demotion, layoff, or termination, rates of pay or other forms of compensation or conditions of work? (See § 30.6.)

(e) Where the program sponsor has not adopted or is not operating in accordance with the equal opportunity standards in § 30.3, the field representative shall notify the program sponsor in writing (even in group programs where it is an individual employer who is deficient) and indicate possible methods of providing equal opportunity in accordance with this document. For a reasonable time, not to exceed 30 days from the time the program sponsor is notified of the lack of equal opportunity, the field representative shall make every reasonable effort to encourage corrective action, recording the facts and information in the case report. This effort to obtain corrective action shall include an opportunity for any body designated by the program sponsor or industry group for reviewing complaints of discrimination to resolve the issue.

**§ 30.10 Review by Regional Director.**

(a) *Forwarding of file.* At the close of the field review for programs found to be in conformity, or at the close of the time allowed for voluntary corrective action for programs found not to be in conformity, the field representative shall forward the case file with his recommendations through supervisory channels to the Regional Director for review.

(b) *Conformity findings.* The Regional Director shall review findings of conformity or achievement of corrective action on a spot check basis in sufficient proportion to assure himself that the Bureau's equal opportunity policy is being properly carried out. Where upon review the Regional Director does not concur in the findings of the field representative, he may order further investigation or such other action as may be necessary and appropriate.

(c) *Nonconformity findings.* Upon receipt of any finding of nonconformity by a field representative, the Regional Director shall notify the program sponsor in writing that such a finding has been made, of the facts on which the finding is based, and that the program will be deregistered unless the finding is set aside or appropriate corrective action taken. The program sponsor shall have 15 days from the date of receipt of the notification within which to file a written request for a hearing with the Regional Director.

(1) *Hearing not requested.* If the program sponsor does not request a hearing within 15 days, the Regional Director shall review the case. Where, upon review, the Regional Director concurs in the finding of noncompliance and failure to achieve satisfactory corrective action, he shall so notify the program sponsor and the complainant, if any, and shall forward the case file to the Administrator, stating his concurrence and his recommendations, if any. Where, upon review, the Regional Director does not concur in the findings of the field representative, he may order further investigation or such other action as may be necessary and appropriate.

(2) *Hearing procedure.* If the program sponsor within 15 days of receipt of the notice files a written request, the program sponsor shall be accorded a hearing before a hearing officer designated by the Under Secretary of Labor. The hearing shall be informally conducted. Every party shall have the right to counsel and a fair opportunity to present its case or defense, including a right of cross-examination. The hearing officer shall prepare a decision on the basis of the record before him, setting forth findings and conclusions on the question of noncompliance and recommendations, if any. Copies of the decision shall be furnished to the program sponsor, and the complainant, if any. The decision shall be final except that any program sponsor as to whom the decision is adverse may file exceptions with the Administrator within 15 days of its receipt. If exceptions are filed and if there is a complainant, a copy of the exceptions filed shall be furnished to him and he shall be given 15 days in which to file a reply with the Administrator. A copy of such reply shall be furnished to the program sponsor.

**§ 30.11 Review by Administrator.**

(a) *Voluntary corrective action.* Upon receipt of the Regional Director's concurrence in the finding of the field representative or of a decision of a hearing officer that a program is not in conformity, the Administrator shall so inform any private organization designated by the industry in question to assist in achieving equal opportunity and shall allow the organization a reasonable time, normally not to exceed 20 days, to achieve voluntary corrective action.

(b) *Final determination.* Following the receipt of exceptions and replies to be filed or the expiration of the time for action provided for in paragraph (a) of this section, the Administrator shall render a final decision in writing based on the file or the record as the case may be. If the decision is that the program is in nonconformity and that satisfactory action to achieve conformity has not been taken, the program shall be deregistered. The Administrator shall notify the Regional Director, the program sponsor, the complainant, if any, and any private organizations of the type described in paragraph (a) of this section. In each case in which deregistration is ordered the Administrator will make public notice of the order and will notify the President's Committee on Equal Employment Opportunity and the Solicitor of Labor.

**§ 30.12 Complaint procedure.**

(a) *Filing.* Any applicant or apprentice who believes that he has been discriminated against on the basis of race, creed, color, or national origin with regard to apprenticeship or that the equal opportunity standards have not been followed in his case may file a complaint with the Bureau or any field representative. The complaint shall be in writing and shall be signed by the complainant. It must include the name, address and the telephone number of the person allegedly discriminated against, the program sponsor involved and brief description of the circumstances of the alleged discrimination or failure to follow equal opportunity standards. Complaints received by the Bureau Headquarters Office will be transmitted to the field for processing. The complaint must be filed not later than 180 days from the date of the alleged discrimination or specified failure to follow equal opportunity standards; and in the case of complaints filed directly with private review bodies designated by program sponsors to review such complaints, any referral of such complaint by the complainant to the Bureau or any field representative must occur within the time limitation stated above or 30 days from the final decision of such body, whichever is later. The time may be extended by the Administrator for good cause shown. Local program sponsors should be immediately encouraged to establish, either individually or in an industry group, fair, speedy, and effective procedures for reviewing complaints of discrimination.

(b) *Processing of complaints.* Upon receipt of any complaint the field representative shall:

(1) Prepare and maintain a complete case file for each complaint received. It shall contain the original complaint, reports of investigations and visits, and correspondence with the employer, the program sponsor, and others regarding all phases of the case in chronological order, including recommendations made and final disposition of the case. This file shall be forwarded to the Regional Director for review upon local disposition of each complaint. A separate local office correspondence and reports file shall be maintained for essential internal records and correspondence regarding each case.

(2) When the program sponsor or an industry group has designated a body for reviewing complaints of discrimination, the field representative, upon receiving a complaint, shall establish a case file and direct the complainant to file his complaint with the representative of the review body. He shall give the complainant the name and address of this representative.

(3) No later than 60 days following the filing of a complaint with the review body by the complainant the field representative shall obtain reports from the complainant and the review body of the disposition of the complaint. If the complaint has been satisfactorily adjusted and there is no other indication of failure to apply equal opportunity standards, the case shall be closed and the parties appropriately informed.

(4) When a complaint has not been resolved through local review procedures within 60 days, where no local review procedure exists or where despite satisfactory resolution of the complaint, there is evidence that the equal opportunity practices of the program are not in accordance with these rules, the field representative shall notify the program sponsor of the complaint or such evidence, solicit a response from the program sponsor and conduct whatever other investigation is necessary to determine the facts, including where necessary, interrogation of the complainant, the employer and the other involved persons. The pertinent facts shall be recorded.

(5) Where the program is not operating in accordance with the equal opportunity standards, the field representative shall notify the program sponsor (even in group programs where it is an individual employer who is deficient) and indicate possible methods of providing equal opportunity in accordance with these

regulations. For a reasonable time, not to exceed 15 days from the time the program sponsor is notified of the lack of equal opportunity, the field representative shall make every reasonable effort to encourage corrective action, recording the facts and information in the case report.

(6) From this point on, complaints shall be processed procedurally in the same manner as program reviews. (See §§ 30.10–11.)

**§ 30.13 Adjustments in schedule for program review or complaint processing.**

If, in the judgment of the Administrator, a particular situation warrants and requires special processing and either expedited or extended determination, he shall take the steps necessary to permit such determination if he finds that no person or party affected by such determination will be prejudiced by such special processing.

**§ 30.14 Reinstatement of program registration.**

Any program deregistered pursuant to these regulations may be reinstated upon presentation of adequate evidence to the Administrator that the program has established and is operating under a selection system based on qualification alone and is in compliance with § 30.3(c).

**§ 30.15 Quota system barred.**

Nothing contained in this part shall be construed to require any program sponsor or employer to select or employ apprentices in the proportion which their race, color, religion, or national origin bears to the total population.

**§ 30.16 State agencies.**

(a)(1) Regional Directors shall encourage State Apprenticeship Council (SAC) States to adopt and implement the equal opportunity standards set forth in § 30.3 and to adopt effective procedures to implement the standards including program reviews, the processing of complaints, deregistration of noncomplying programs, and the consultation and cooperation with private organizations designated by the industry in question to assist in achieving equal opportunity in apprenticeship. Regional Directors shall submit the State equal opportunity programs to the Administrator for determination of their consistency with such equal opportunity standards.

(2) Where State programs are determined to be consistent with such equal opportunity standards, Regional Directors shall work out with SAC States a division of responsibilities between Federal and State personnel for carrying out the procedures adopted to implement the policy.

(3) When the Administrator determines that a State program is not consistent with such standards, he shall notify the Secretary of Labor that a question exists as to whether the Federal Government should continue to recognize, for Federal purposes, programs registered by the State agency.

(b) Regional Directors shall request that SAC State agencies notify them of any State deregistration. Regional Directors shall then notify the Administrator who will in turn notify the President's Committee on Equal Opportunity and the Solicitor of Labor.

(c) Regional Directors shall consult with State officials regarding methods of cooperation with State fair employment practices commissions and shall report the results of such consultations to the Administrator with recommendations for coordination of activities and for a division of responsibilities where appropriate.

Signed at Washington, D.C., this thirteenth of December 1963.

W. WILLARD WIRTZ,
*Secretary of Labor.*

# FIFTH CONVENTION REPORT OF THE EXECUTIVE COUNCIL OF THE AFL–CIO

## APPRENTICESHIP

The national need for skilled manpower and the increasing national concern for ending all racial barriers have combined to center attention upon apprenticeship training.

Organized labor has long warned that apprenticeship training was falling far short of the need. Technological changes in industry are rapidly creating a growing demand for skilled workers and a shrinking demand for unskilled workers. There have been and there still are too few registered apprentices to meet the demands of the labor market.

Government and employers have shown too little evidence of awareness of the importance of the apprenticeship programs. Unions must continue their efforts to extend and improve the training of skilled workers.

Much of the public concern with apprenticeship programs has been concerned with opening up job opportunities for Negroes and members of other minority groups. The AFL–CIO has repeatedly expressed its opposition to racial discrimination in apprenticeship and vocational education programs. It is a welcome development that concerted action by unions, employers, and Government is rapidly putting an end to racial discrimination in those few apprenticeship programs where it has existed until now.

Much remains to be done. The skilled work of the future will need some of our most able people. There is need for a great national effort on the part of labor, the schools, the employers, and the Government to attract able young people, whatever their color, into the apprenticeship programs. To attract them, apprenticeship must be realistically related to the skilled manpower needs of modern technology.

## EQUAL OPPORTUNITY IN APPRENTICESHIP TRAINING

There has been a lack of proper public understanding of apprenticeship training and the public's picture of it has often failed to reflect true facts. Yet, on one fact there has been general agreement—too few minority group youth are in apprenticeship programs in all parts of the country.

There are several causes of this lack of adequate participation of minority groups in such training. These include:

1. Too few apprenticeship openings. There are less than 160,000 in the whole country. California has the largest number of any State—22,000. According to Charles Hanna, chief of the California State Division of Apprenticeship, 100,000 youths should be training in apprenticeship alone and additional thousands in other types of on-the-job training in California.

2. The high level of unemployment, indeed the failure to approach a full employment economy, inhibits the expansion of apprenticeship opportunities.

3. Practices of racial discrimination by some of those who decide who is to be admitted to an apprenticeship program.

4. The failure of minority group youth to apply for apprenticeship openings which do exist. This failure is often the result of feeling that it is useless to apply; or of the lack of information about where, when, and how to apply. Sometimes it is due to poor counseling. Sometimes to lack of motivation and encouragement.

5. The failure of some minority group applicants to qualify when they do apply. Lack of qualification has at times been a pretext for discrimination. But all too often the fact is that deprived of opportunities for schooling, willing youngsters are not adequately qualified. Most apprenticeship programs require a high school education.

Because the rate of unemployment is more than twice as high among nonwhites, as among whites, and because the rate of unemployment is twice as high among unskilled as among skilled workers, and because our economy is and will be

in need of more skilled workers, special attention is called for to expand apprenticeship programs, insure equal opportunities regardless of race, creed, or color in these programs and develop programs to stimulate the motivation of minority group youth and provide the information necessary for them to obtain the qualifications and then enable them to know where and how to make application to apprenticeship and other skill training programs.

The AFL–CIO has given special emphasis in its work to enlist trade union initiative in taking steps to insure equal opportunity in apprenticeship programs regardless of race, creed, color, or national origin, and in encouraging affirmative actions by unions to raise the level of minority group participation in such programs.

The California State AFL–CIO has pioneered in this effort. Working in close cooperation with intergroup relations organizations in the State, the California Labor Federation pressed for the establishment by the State of California of a statewide committee on equal opportunity in apprenticeship and training for minority groups.

This committee, appointed by Governor Brown, adopted a program which included these objectives: promotion of apprenticeship and of employment of more apprentices by employers, increase in the number of minority youth in apprenticeship programs, and the elimination of any discrimination which may exist, and arrangements to bring within ready reach of all young people, including minority youths, information on apprenticeship opportunities, on qualifications required for such training, on placement, and on procedures to be followed in applying.

Among the specific projects of the California committee was the setting up of local apprenticeship information centers, a series of surveys of minority group participation in apprenticeship programs, and the setting up of nondiscrimination standards and their implementation.

This comprehensive California approach has received national attention, and its features adopted in other State and local programs.

On February 27, 1963, Secretary of Labor Wirtz announced the appointment of a National Advisory Committee on Equal Opportunity in Apprenticeship. Under the chairmanship of Under Secretary of Labor Henning, the Advisory Committee adopted a far-reaching four-point program to further nondiscrimination in apprenticeship training. These included fostering of apprenticeship information centers through State joint apprenticeship councils, implementation of antidiscrimination provisions in the programs registered with the U.S. Department of Labor, research programs to measure the extent of minority participation in apprenticeship, and consideration of preapprenticeship training programs for young workers presently not qualified for admission to apprenticeship.

Information centers have already been set up in Washington, D.C., in New York City and in several cities in California. Work toward the establishment of such a center is underway in Chicago, with the cooperation of the building and construction trades council in that city. In Philadelphia, the building trades council and the city's human relations commission endorsed a proposal to set up an apprenticeship information center.

There are a number of examples of affirmative action by local unions to insure participation by minority group youth in the joint apprenticeship programs in which these unions participate. Here are a few instances of such action:

Local No. 3 of IBEW in New York City—as part of the shorter workweek agreement, won in its last negotiations with the contractors in New York City—agreed that the joint apprenticeship commitee indenture 1,000 additional apprentices.

In securing this extraordinary large number of apprentices, Local No. 3 made special efforts to see that Negro and Puerto Rican youths were aware of the opportunities and informed that they would have equal opportunity to be indentured. As a result, between 100 and 200 of the newly indentured apprentices are Negro and Puerto Rican.

On a smaller scale, IBEW, Local No. 24 in Baltimore, in order to insure that qualified Negro youngsters would have a chance to enter electrical apprentice programs in that city, sent representatives to vocational high schools and provided senior students with information on the qualifications and procedures for making application to the joint apprenticeship programs. As a result, four Negro youngsters have been enrolled in the electrical apprenticeship program in Baltimore and two have already satisfactorily finished the first year's training.

On April 1, 1963, the IAM Tool & Die Makers in Chicago started a preapprenticeship class. This class includes many Negro workers.

The Subcommittee on Apprenticeship and Skill Training of the President's Committee on Equal Employment Opportunity, under the chairmanship of President Meany, made an important proposal, since adopted by the U.S. Bureau of Apprenticeship, to appoint in its regional offices full-time specialists to work on problems of discrimination in training.

Soon after Secretary Schnitzler took over the chairmanship of this subcommittee in 1962, plans were developed to convene a National Conference on Apprenticeship, under the joint auspices of the President's Committee and the U.S. Bureau of Apprenticeship.

### Where Labor Stands

"* * * there is general agreement that the demand for skilled workers will grow very rapidly in the next decade, while the opportunities for unskilled workers will continue to shrink.

"Therefore our interest—and the national interest—must look to an across-the-board increase in apprenticeship training.

"* * * In order to insure—as we must and we should—full opportunity for Negroes and other minorities to enter these skilled trades, we must have full opportunity for all candidates.

"Let me put it this way: We are opposed to the exclusion of any candidate for apprenticeship on grounds of race, creed, color, or national origin. We are also opposed to the selection of any candidate on those grounds. We want a place for every qualified candidate, on an open and equal basis. We believe this bill, with the improvements I have suggested, will help toward that end; and I repeat, we endorse it.

"* * * The problem demands much more than a piecemeal approach. It demands vigorous action to stimulate employment; it demands a strong, enforceable fair employment practices law * * *.

"The legislative branch of our Government has lagged far behind the executive and judicial branches in recognizing the imperative need for wiping out segregation and discrimination. It is our hope that the present bll represents only a first step in redressing the balance."—*AFL–CIO President George Meany, testifying before a House Education and Labor subcommittee on a bill to promote equal opportunity in apprenticeship programs, August 21, 1961.*

# IV. APPRENTICESHIP PRACTICES ABROAD

## A. APPRENTICESHIP AND YOUTH EMPLOYMENT IN WESTERN EUROPE: AN ECONOMIC STUDY

(By James R. Wason, Analyst in Labor Economics, Economics Division, Library of Congress Legislative Reference Service, December 12, 1963)

### Preface

This study attempts to outline and evaluate, using such data as are available, the apprenticeship training programs of three selected countries of Western Europe. The countries are Great Britain, France, and West Germany.

In each country an attempt is made to determine the size of the apprenticeship group in relation to the total group of young entrants to the labor force and to the labor force as a whole. Particular attention is given to the employment of young workers and to unemployment among young people. The apprenticeship programs are evaluated in terms of the industries and occupations for which training is being given, in comparison with alternative training methods. An effort was made to evaluate the economic aspects of apprenticeship. Data, however, proved very scanty.

A similar attempt is made for the United States, for comparative purposes.

For the purpose of this study apprenticeship may be defined as follows:

> Apprenticeship constitutes a contractual relationship between an employer—or a group of employers—and a young man or woman. The principal purpose of this contractual relationship is that, during a period specified in advance, the apprentice should learn all the knowledge and skill required in a particular trade or occupation. The value of any production or other work carried out by the apprentice during this period of learning is an incidental byproduct in the training process.

Apprenticeship, in practice, however, is not, in all countries, so clearly only a part of the educational process. Apprentices earn as well as learn, and the employer stands in a dual relationship of supervisor and teacher. Apprenticeship is training on the job and, as such, is a part of both the educational system and the economic system.

To the extent necessary, background information on the apprenticeship and training programs of each country is included. No attempt, however, is made to discuss fully the educational aspects of the programs or to evaluate these aspects. The focus is on youth employment and the economic aspects of apprenticeship. A few comments are included in the introduction of some of the things to be particularly noted in reading the report.

## I. Introduction

Some observers have felt that the countries of Western Europe are better able to place their young people in useful employment through the vocational training systems in use there than we have been in the United States. In particular, it has been said that they make a greater and more effective use of training on-the-job or apprenticeship.

To explore this matter, a study of both youth employment and apprenticeship in three major Western European countries—Great Britain, the Federal Republic of Germany, and France—has been made. A study was also made of the employment and training situation in the United States, for comparison purposes.

It is not possible to directly attribute the success of the countries of Western Europe in placing their young people in employment to their vocational training methods. There is, currently, vitrually no unemployment in Western Europe. There would be a shortage of young entrants to the labor force in these countries even if unemployment were higher than it is, because of fewer children being born in depression and war years.

In recent years Western European industrialized countries have found it difficult to find sufficient young people to replace those leaving their labor forces due to death and retirement. They have been largely unable to add to their labor forces the additional workers which their expanding economies have demanded. They have been compelled to meet this demand by importing foreign labor from surplus areas like southern Italy, Spain, and Turkey.

This is not to say, however, that the practices of these countries cannot teach us anything about the possibilities of improving our own vocational training programs. For in each country the study showed a substantially greater consciousness of the need for all elements of society to work together to assist young people to find their place in the world of work. One of the major findings of the study was that the training and placement of young people was something on which all elements of society—the government, central and local; employers; trade unions; trade associations; school authorities; professional experts; private training organizations; and the family—have united, with each playing an independent role, but all working toward a common end. In general, these countries made certain that by the time a young person reached 18 to 21 years of age he (or she) was trained and able to support himself in employment for which he has been prepared by his education. Oftentimes, in the process of learning his trade through apprenticeship the young person also found an employer and a job.

### A. Young People in the Labor Force of Western European Countries

The study was confined to Great Britain, France, and West Germany. However, the situation found with respect to the numbers of young people and their availability for training and employment is not substantially different in practically all industralized countries of Western Europe.

Comparative data for the three European countries and the United States are shown in table 1. In Great Britain there are less than

three times as many young males under 15 as there are men over 65. In France the proportion is 3 to 1. In Germany it is 2½ to 1. In all three countries the proportion of young girls to older women is less than 2 to 1.

TABLE 1.—*Selected demographic and labor force characteristics, selected countries of Western Europe and the United States, 1950–60*

[In thousands]

| | Great Britain | | France | | Germany, Federal Republic | | United States | |
|---|---|---|---|---|---|---|---|---|
| | 1950 | 1960 | 1954 | 1960 | 1957 | 1960 | 1950 | 1960 |
| Total population | 50,616 | 52,539 | 42,951 | 45,542 | 51,477 | 53,405 | 151,683 | 180,693 |
| Males | 24,575 | 25,423 | 20,677 | 22,120 | 24,166 | 25,190 | 75,530 | 89,352 |
| Under 15 | 5,770 | 6,255 | 5,273 | 6,085 | 5,596 | 5,940 | 20,755 | 28,878 |
| 65 and over | 2,271 | 2,377 | 1,911 | 1,941 | 2,219 | 2,315 | 5,807 | 7,078 |
| Females | 26,041 | 27,116 | 22,274 | 23,422 | 27,311 | 28,215 | 76,153 | 91,341 |
| Under 15 | 5,536 | 5,959 | 5,084 | 5,870 | 5,339 | 5,645 | 20,008 | 27,724 |
| 65 and over | 3,160 | 3,764 | 3,050 | 3,338 | 3,020 | 3,350 | 6,480 | 8,652 |
| Civilian labor force | 22,829 | 24,492 | 18,880 | 18,975 | 24,900 | 25,245 | 63,099 | 70,612 |
| Males | 15,396 | 16,128 | (1) | (1) | 15,710 | 15,830 | 44,442 | 47,025 |
| Females | 7,433 | 8,364 | (1) | (1) | 9,190 | 9,415 | 18,657 | 23,587 |
| Unemployed | 290 | 319 | 330 | 225 | 665 | 240 | 3,351 | 3,931 |
| Males | 212 | 232 | 188 | (1) | 465 | 160 | 2,278 | 2,541 |
| Females | 78 | 87 | 142 | (1) | 220 | 80 | 1,073 | 1,390 |

[1] Not available.

Source: OECD: "Manpower Statistics, 1950–60."

In the United States the proportion for males is 4 young boys for each older man and nearly 3½ young girls for each older woman. This is a rough measure of the comparative problems of placement. The problem is much greater in the United States. We have far more young people to place in jobs.

In Great Britain the civilian labor force (table 1) is roughly 47 percent of the total population. In France it is 42 percent; in Western Germany, 51 percent. This means there are, relatively speaking, a large number of jobs in these countries in proportion to the number of people.

In the United States the civilian labor force is only 38 percent of the total population. Here there are relatively few jobs in proportion to the number of people. Even the French situation is not as close to our own as it appears. They count their labor force by methods which makes it smaller on a comparative basis than the other countries considered here.

Finally, there is very little unemployment in Great Britain, and in Western Germany and France practically none (table 1 and further data in body of report). This cannot but reduce the problem of placement of the young inexperienced worker and increase the willingness of employers to train them. How else can they hope to obtain skilled workers? In many cases, if they do not offer opportunities to receive training they cannot secure any workers.

### B. APPRENTICESHIP IN WESTERN EUROPEAN COUNTRIES

If one were to select the one significant fact which emerges from this study of Western European apprenticeship practice, it would be that it reflects an approach to vocational education which is quite different from our own. It is not terminal education. Our vocational training pours young people into a pool; theirs places them on a ladder. This comes out perhaps most clearly in the British experience, which is closest to our own and which is a step beyond our situation in that the British are actively improving their apprenticeship training system.

Critics of the European method of separating pupils at age 10 or 11 into groups, some destined for higher education, some eliminated from such consideration, do not fully appreciate this fact. An apprentice in France or Germany by the age 18 is full trained, ready to enter employment as a skilled worker, and to be self-supporting. He is then only at the beginning of his career. He has still to acquire experience before he is paid the full rate of a skilled worker. He has also the possibility of further study, further qualifications as a master craftsman, which will open to him careers as an independent businessman, teacher of vocational subjects, or higher technical training, equivalent to graduation in the United States from a technical institute or college of engineering.

On the other hand, those unable to profit by further training may stop at any point along the way, fully prepared to enter the employment market at that level. The choice is entirely that of the individual. This system produces a minimum of failures and provides a maximum of flexibility, allowing it to take care of the "late bloomer," the many young people who are not academically inclined, and those who make mistakes in their initial selection of a career. It produces a maximum number of graduates and a minimum number of dropouts.

In comparison, the American system, which still aims at training for a vocational career by methods developed to prepare pupils for a higher academic education, seems inflexible and wasteful. Apprenticeship in the United States has been allowed to atrophy. It survives for the most part in those industries where it helps management and labor to control the job market. It has only tenuous connections with the educational system.

Our formal vocational education programs are most successful in those areas where they are least needed—agriculture and home economics. Elsewhere they are largely nonexistent or obsolescent, as in that area where they have been in the past most successful—training for white-collar office jobs. Neither the ahademic emphasis of our system nor the obsolescent and inadequate opportunities for vocational training which exist offer to many students any incentive to remain in school; they drop out as soon as the minimum age for school leaving is reached. And they drop into a growing pool of the unskilled and unemployed.

The second matter which seems of value to note in this study of apprenticeship is the combination of centralized control and delegated, decentralized responsibility one finds in the European training programs. This makes it possible to combine uniform national standards of training with the utmost flexibility in its conduct. France, for example provides practically uniform training in the same skill in both public and private facilities and both on the job

and in training schools. The principle is that there should be many roads to the attainment of skill which a student may follow, but all should lead to the same place.

One method used by the French and Germans to accomplish this is to provide for a standard syllabus of training for each trade. More may be taught, but this minimum program is required of all apprentices. When the training is completed, regardless of where it is obtained, a uniform examination is given apprentices in each trade. A standard certificate of accomplishment is issued to each apprentice or trainee. Each person being trained is also required to obtain certain supplemental training, taking both courses connected with his trade and those providing general education, so that he completes his apprenticeship as an educated man as well as a skilled worker.

On the other hand, the governments do not themselves draw up the syllabuses, or outline the examinations, or specify where the supplemental training is to be obtained. The responsibility is delegated to the trade itself, both to draft standards and to see that they are observed in training. The trade also is responsible for the conduct of the examinations. Supplemental courses may be taken in any approved school, public or private.

The government exercises overall control and coordination of this program. It acts when the results of the examinations show up weak spots. It reviews the training syllabuses and programs and sees that the trade bodies keep them up to date. It approves changes the trades recommend.

The whole training program in these countries is a nationwide, cooperative effort by all the elements of society concerned. Each group has its role and performs it. To a far greater degree than in the United States, foreign governments delegate powers in the training field to nongovernmental bodies to exercise, reserving the job of overviewing the results and giving formal approval to actions taken in exercise of that power. In particular, effective use is made by public authorities of the know-how and ability which exists in industry itself. (Here the word is used in the corporate sense it is used abroad to include all elements of the trade, labor, management, and the self-employed.)

Thirdly, an observation on the economics of the vocational training problem. Apprenticeship training, or any training for skill, suffers two disabilities from an economic point of view. First investments in any sort of education do not directly pay off for the individual making them, except when he makes them in himself or in a member of his family. Education, which benefits all, must be paid for by all. This is the economic rationale behind public education.

Vocational education suffers an additional disability. It is not only difficult to assure a profit from investing in it, but by not investing in training, the individual businessman stands a good chance of gaining from the investments made by others. The British, in particular, were found to complain that the progressive firms which set up training schools and incurred substantial costs in training skilled workers, saw their graduates hired away from them by firms which refused to take any responsibility for training.

There are various ways in which this condition may be met. The most direct method is that used by the French. They impose a tax, taxe d'apprentissage, on all businesses, whether they employ skilled

labor or not. The tax is a uniform percentage (four-tenths of 1 percent) of the payroll of the firm for the previous year. It is thus directly proportional to the total quantity and quality of labor used by the firm. Firms which do not employ labor have no tax to pay.

This tax is used to administer and operate the vocational training facilities of the French Government. It is also used to subsidize all other types of vocational training. This may be done directly, by paying a subsidy. It may also be done under a provision of the law permitting a direct offset of the tax due against all expenses the firm incurs in training, whether it performs the training itself or contracts with others to perform or have performed.

This mechanism permits the utmost flexibility and variation in the French training system. A mechanic may learn his trade as an apprentice in a owner-operated shop, receiving subsidies from the state to pay for his expenses while in training. His family also receives an allowance during this time if he is under 17 years of age. He may learn the same trade in a small factory and receive similar benefits. In addition, the expenses of providing a supervisor for apprentices there may be borne by the Government. He may learn the mechanics' trade in a training school operated by a large manufacturer, where the cost is entirely offset against the tax due on the factory payroll. Or he may go to a Government-operated technical training college and learn to be a mechanic. While there his family may be further assisted by an additional allowance to help pay his living expenses if he must live away from home.

In each case the apprentice or student is subsidized by the state and is taught from a standard syllabus. He will obviously acquire differing experience and his supplemental training may differ, but when he finishes his 3 years of training, he will be given and be expected to pass essentially the same examination. (There will be some slight differences between the examination given mechanics who train in a one-man or artisan shop, and those trained in the other facilities.)

Thus the economic problem of financing training need not result, even if the national tax method is used, in any centralized control over vocational training. The role of the Government is to set standards which are minimum uniform standards. The rest is largely left up to each trade and each area, even each school and firm, to handle, with performance guaranteed by (1) the requirement to meet standards for tax offset and (2) the overall control from measuring the quality of training against uniform national testing standards in each trade.

One final observation may be made. For such system of vocational training as are found abroad to work there must be a desire on the part of employers to have trained, skilled workers. Employers must demand skill training.

There must be a willingness on the part of the young people to undergo training as a part of their schooling. Most European apprentices receive only training allowances or very low wages (one-tenth of the journeyman's rate, for instance). Young people must wish to learn skills.

There must be a desire on the part of the parents to have their sons and daughters trained for skilled work. They must be willing to at least partially support them during training. Parents must wish to have their children receive vocational training.

And finally, the public must respect skill training as a form of higher education, coequal with any other form. The Europeans train young people not only to be skilled mechanics and toolmakers, but also to be skilled hairdressers, pastry cooks, waiters, salesclerks, shipping clerks, domestic servants, and farm equipment operators. Unless there is demand for skills, so that they may be sold in the market, there is no point in training young people in their skills. As long as American consumers, for example, will trade in a shop where the clerks do not know anything about the merchandise they sell, or how to make out a sales order properly, or even the prices of the merchandise they are trying to sell, we do not value skill training in salesclerks and cannot expect it to be supplied to us. It is on the demand side that we in the United States must start if we are to set up a comprehensive vocational training system and to strengthen our apprenticeship practice. The supply may then be forthcoming, given effective demand. The problem seems basically a lack of demand.

## II. Great Britain

### A. YOUNG PEOPLE IN THE LABOR FORCE

#### *1. Demographic and social factors*

In evaluating the importance of young workers to the labor force of Great Britain it should be kept in mind that throughout the 1930's and during the succeeding years of the war the birth rate was relatively low. For that reason, the population of working age and the labor force have increased relatively slowly. In 1961 the population of working age was only 3 percent larger than it had been in 1952 and the number of employees had increased by only 8 percent (table 1).

These figures in themselves would suggest a sellers' market for labor. Indeed, during most of the period since the war, Great Britain, in common with most of the countries of Western Europe, has suffered from a shortage of labor, especially of skilled labor. The depressed period of the 1930's and the war period had severely curtailed training opportunities, which now had to be made up under conditions of demand such that it was a relatively costly process.

Also since the war, Great Britain, like other countries, has had a sharp increase in the number of births. This was particularly true right after the war. As a result not only are the number of young people reaching 15, the school-leaving age, larger each year than before the war, but a "bulge" has developed in the total, which reached its peak in 1962 (table 2). In that year over 900,000 boys and girls reached the age of 15. The 1956 figure had been 613,000. The projected figures for the 1960's are, after 1963, all in the 700,000's.

The "bulge" has resulted in a substantially increased number of young people entering employment recently (table 3). From a low point of 482,000 in 1956, the number has increased to an apparent peak of 657,000 in 1962. The figure in 1961 had been 587,000. These figures reflect the very large numbers of births in 1946 and 1947.

These recent increases have not, however, made up for the substantially smaller additions to the labor force in the early 1950's. The small number of additions to the labor force in those years reflected both the birth-deficit years of the 1930's and 1940's, and also the rather substantial amount of outmigration from Britain which took place in the early 1950's. There were fewer boys and girls in the work force in 1956 than there had been in 1952 (table 1).

Despite many substantisl improvements in their educational system since the war, the British do not, in fact, have a comprehensive, universal secondary school system. Only 4 out of every 10 children continue in school after 15, the age at which they are legally permitted to leave. Only 2 children in 10 have not entered employment by the age of 18.

As in most other countries there is in Great Britain a tremendous interest in improving the quality of the labor force as well as its size. Since 1947 the school-leaving age has been raised to 15 from 14. Despite the large number leaving school at 15, the proportion remaining to complete 11 or 12 years of education is increasing.

Thus in 1952 nearly 68,000 boys and girls entered employment at age 16, rather than 15; 21,000 entered at age 17. The corresponding figures in 1962 were 94,000 and 31,000 (table 3).

The increase, although encouraging, is slow. The proportion of the labor-force entrants 15 years of age in 1952 was 83 percent. In 1962 it was only 81 percent. There is a widespread desire in Great Britain for a speeding up of the reforms in education projected by the Education Act of 1944. As soon as staffing and accommodation make it possible the school-leaving age is to be raised to 16. Such a change is unlikely, however, before 1968.

*2. Number and occupations of young workers*

(*a*) *Males.*—In June of 1962 about 10 percent of the male workers in Great Britain, some 2.8 million youths, were under 20 years of age (tables 6 and 7). This is a smaller proportion than that of all workers under 20, for at this age a larger proportion of young workers are females. This results from military service and advanced schooling being more common among boys.

Young male workers are concentrated in manufacturing, construction, and the distribution trades (wholesaling and retailing). In 1962 over 70 percent of the boys under 18 and 65 percent of those 18 and 19 years of age were employed in these industry groups (table 4).

However, young male employees are not especially favored for employment in manufacturing. Boys under 20 made up 10 percent of the work force in Great Britain, but only 9 percent of that in manufacturing (table 5). In 1962 the branches of manufacturing having relatively high proportions of young male workers were: timber and furniture, 16 percent; clothing and footwear, 14 percent; metal goods, 12 percent; and shipbuilding, leather and leather goods, and paper, printing, and publishing, 11 percent.

Outside of manufacturing high proportions of young males were employed in agriculture (15 percent), construction (12 percent), the distributive trades (16 percent), and miscellaneous services (14 percent). This last category includes such businesses as catering, hotels, and garages and filling stations, which employ large numbers of young male workers.

(*b*) *Females.*—As noted, the proportion of young female workers is greater in Great Britain than of young male workers. The total number of female workers of all ages is, of course, substantially less, but for young entrants into employment, as table 3 shows, there is little difference in actual numbers.

In June 1962, 17 percent of the females employed were under 20 years of age (table 5). There were more girls under 18 employed than

there were boys, 792,000 against 776,000 (table 4). In most of the industry groups this same relationship existed for employees up to age 20.

However, the actual distribution of numbers of employees by industry groups is substantially different. Some industries employ few women of any age—construction and mining, for instance (table 4). Other industries have substantial numbers of young women, but relatively few older ones, reflecting the growth of clerical job opportunities for women in recent years. Construction and insurance, banking, and finance are examples.

*3. Unemployment among the young*

The comparative scarcity of young workers in Great Britain in recent years is undoubtedly the most important reason for the low rates of unemployment among young workers (table 7). The number of young male workers reaching age 15 in 1955 was only 318,000. It has been estimated that 292,000 male workers were lost to the labor force that year due to death, retirement, disability, and other causes. Such a small increase, which is typical of many recent years, makes almost no allowance for growth of the labor force to meet the needs of an expanding economy.

However, the number of young workers unemployed does vary with the cyclical trends of the British economy. Between 1957 and 1958, unemployment among boys and girls under 18 nearly doubled (table 7). In June 1963, 32,871 boys and girls were unemployed, the largest number in recent years. These boys and girls were about 7 percent of the total of unemployed workers. In June 1956, a low point in recent unemployment, the 8,335 boys and girls out of work were only about 4 percent of the total. These figures reflect not only the relatively high level of unemployment generally in Great Britain in the last year or two, but also an at least temporary inability to absorb the increased number of young workers entering the labor force as a result of the "bulge" in school-leavers (table 8).

This trend is perhaps made clearer by considering the trends in unemployment of boys and girls separately. In 1952 the number of unemployed people under 18 was over 20,000 at midyear. Of these, 6,700 were boys and 13,400 were girls, roughly twice as many girls as boys (table 7). Unemployment at the time was generally relatively high (table 8).

The next peak of unemployment was reached in 1958. Some 18,000 young people were unemployed that year, about 10,000 boys and 8,000 girls. In June 1962 unemployment among workers under 18 reached nearly 22,000 and in June of 1963 nearly 33,000, as noted. In each of these last 2 years unemployment among boys was substantially higher than among girls; about 4,600 more boys in 1962 and about 5,800 more in 1963 (table 6).

*4. Wages of young workers*

In Great Britain both negotiated wage scales and wages fixed by wage boards provide a lower scale of wages for young male employees, usually including all those under 21 years of age, than for adult workers. This lower scale may be for apprentices or for learners or merely for any employee under 21 years of age, whether or not the position held requires any training. Thus, a 17-year-old apprentice

in the sawmilling industry is paid 50 percent of the craftsman's rate, and a 17-year-old laborer in the industry is also paid 50 percent of the adult laborer's rate.

A correspondingly lower scale is provided for girls, but the lower rate is more frequently applied only to those under age 18. However, in some cases, clerks and shop assistants, for instance, maximum rates may not be paid until the employee reaches 22 years of age or even older.

Thus the earnings of young workers are distinctly lower as a group than those of older workers, usually from 40 to 60 percent of the amount paid adults (tables 9 and 10).

*5. Protective labor legislation applying to young workers*

British "factories legislation" limits the hours that women and young people under 18 years of age may work. The law requires all children to attend school until they are 15 years of age. The wages of young workers are regulated in some industries by statutory wage councils and agricultural wage boards, but in general are set through negotiation between employers' organizations and the trade unions.

Children under 16 are limited to 44 hours per week. They may not be employed on overtime work. The maximum daily hours of all females and young men under 18 are 9 in factories working on a 6-day week and 10 in factories on a 5-day week. Weekly hours are limited to 48. Work before 7 a.m. or after 8 p.m. is prohibited; for those under 16, the latest finishing time is 6 p.m. Saturday work ends at 1 p.m. in general.

However, overtime is permitted up to 6 hours per week and 100 hours per year for those 16 and over. Night work is allowed on a shift basis in continuous process industries. Evening work is permitted for women on a part-time basis. In certain food processing and service industries a further relaxation of restrictions on overtime is permitted in seasonal work.

## B. APPRENTICES AND OTHER TRAINEES

*1. Training programs and education*

Apprentice training on the job is still the only important source of skilled labor in Great Britain. Formal vocational training by state or private schools is found in the professions and in some technical occupations, but it is not provided generally.

Education in England and Wales starts at 5. Children attend infant school for 2 years, until 7, then a junior school for 4 years. At 11 children are selected by examination for the type of secondary schooling they appear qualified by ability to receive. Those capable of continuing their education beyond the secondary level go to grammar, grammar-technical, or comprehensive schools, where they may continue their studies until age 18, in preparation for higher education at a university or technical college.

Rather less than one-quarter of all students attend these schools. The others go to secondary modern schools where they receive a broad general education. A majority of these students leave school and go to work at the legal school-leaving age of 15. Increasing numbers do continue in school, many sitting for their general certificate of education (ordinary), after reaching age 16, and enter the work force at age 16 or 17 (table 3).

There is only a limited amount of formal vocational training offered other than apprenticeship programs. Like apprenticeship, such vocational training is considered the responsibility of the employer. The Ministry of Labour has attempted to determine the extent of formal training extending for at least a year, which is found in many industries. Data, collected for the first time in 1961, shows such formal "learner" programs to have from 75,000 to 80,000 boys and girls enrolled (table 11).

*2. Number of apprentices and other trainees*

(*a*) *Trends in apprenticeship.*—In 1962, 121,495 boys and 21,265 girls entered employment as apprentices to a skilled craft. (In collecting data on apprentices all training programs extending for 3 or more years are considered by the Ministry of Labour to be apprenticeship programs, even if they do not satisfy the legal formalities of indenture, etc.) This was about 36 percent of the boys entering employment, but less than 7 percent of the girls (table 13).

Despite the efforts made to increase the proportion of apprentices and other workers entering training in industry, the proportion of such workers is little different at present than 10 years ago. The proportion of young people entering apprenticeship in 1952 was 20.6 percent; in 1962 it was 21.7 percent. Those entering professional training were 1.2 percent of the total of young people in each year.

The proportion entering employment without prospects of receiving substantial training on the job leading to the acquiring of a skill diminished from 58.2 percent in 1952 to 55.2 percent in 1962. More than half the improvement in this respect was the 1.9 percentage points increase in clerical employment. As noted above, apprenticeship has been provided for only 1.1 percentage more of youthful workers, in 1962 as compared with 1952 (table 12).

In 1961, the Ministry of Labour began to collect data on the number of young employees who entered employment where they could receive formal training lasting at least a year. Such trainees numbered nearly 79,000 in that year and 76,500 in 1962; about 13 and 12 percent of the entrants into employment in those years, respectively.

It should be noted that the 1962 showing was not wholly representative of trend, it being a relatively depressed year for employment. As the tables show, in such years there is a noticeable falling off in opportunities for training on the job.

Apprenticeship in Great Britain is primarily a source of job training for boys (table 13). Each year something over one-third of the boys entering employment start apprenticeship training. In 1962 this was 121,500 out of 336,000 boys.

Girls find few opportunities for such training, with not more than 15,000 to 20,000 apprenticeship openings in any year, almost all of them in hairdressing. In professional training, however, the number of openings for girls approaches that for boys, and is in proportion to the relative numbers of boys and girls entering employment.

In other ways the opportunities for girls to receive on-the-job training remain less favorable than those for boys. The figures for "other training lasting at least 1 year" showed about 15 percent of the boys in 1961 and 13 percent in 1962 receiving such training. This is to be compared with the 11.5 percent and 10 percent for girls in these years.

If to the numbers entering "other" jobs which do not provide training, one adds young people entering clerical employment one

finds that nearly half the boys (45.3 percent, 1961; 49.3 percent, 1962) and over four-fifths of the girls (80.1 percent, 1961; 82.3 percent, 1962) entered jobs in these years where no training was provided. Taking both sexes together, from three-fifths to two-thirds of the job entrants in Great Britain today start employment in jobs where no substantial amount of training is needed or provided.

(*b*) *Distribution by industry.*—In 1962 about half of the boys entering apprenticeship were indentured to construction firms or to firms in the engineering, shipbuilding, and vehicle industries. As noted, two-thirds of the girls entered the hairdressing and manicure trade (table 15).

The various industries hiring apprentices show sharply diverse trends. Here, however, one enters upon an area where without an understanding of the other factors involved, especially of the impact of economic conditions on the particular industry, it is difficult to correctly interpret the statistical data. Also here the reluctance of British trade unions to add to the number of skilled workers becomes a factor influencing trends.

Thus while the total number of apprentices is about 30,000 more annually now than in 1959, the entire gain has come outside the manufacturing field, in construction and miscellaneous services for the most part. A few manufacturing industries show increases, but these are balanced by declines. In some industries these are very noticeable, for example, clothing and footwear. As a result, the number of boys apprenticed in manufacturing shows an increase which is roughly balanced by the decrease in apprenticeship opportunities for girls (table 15).

This overall trend is in line with the general shift in job opportunities out of production into services, a trend to be noted in Great Britain as well as elsewhere.

## C. APPRENTICESHIP PROGRAMS

### *1. Background*

As has been noted, the responsibility for job training in Great Britain rests with each industry. Not only is such training decentralized, but there are no general statutory requirements or standards under which the individual programs are developed.

Today's apprenticeship system in Great Britain originated in the years after the repeal of the Elizabethan Statute of Artificers in 1814. The introduction of machinery reduced the number and extent of skilled jobs. Gradually apprenticeship, which had been the common method of entry into most jobs, because most jobs required a degree of skill, became confined to a comparatively small number of occupations. In these trades the regulations, which were enforced either by custom or trade union agreement, were designed to control entry to the trade and thus to protect the skilled workers from the competition for jobs from outsiders.

The development of large-scale industry and increased mechanization produced a corresponding demand for semiskilled labor. Such labor was recruited from among school leavers, who were employed at low wages for a year or two and then replaced as soon as they began to demand higher wages. Thus, both the present day apprenticeship system and a major obstacle to its effective implementation, the com-

petition of unskilled employment at immediate, relatively high wages, have a common origin.

Even during the 1920's when the British economy was plagued by chronic unemployment, the demand for cheap juvenile labor continued. By that time the apprenticeship system was confined to a few occupations, found mainly in the engineering and allied industries, shipbuilding, building, woodworking, and printing.

By this time also there had grown up in industries such as textiles, boots and shoes, and papermaking the practive of taking on a boy for specific period of years and affording him an opportunity to learn a branch of a trade or a particular process. Such learners were usually trained for a period less than that required for apprenticeship.

The practice of "upgrading" was well established in many industries by this time, having become quite general during World War I, when neither the time nor the skilled men able to train were available. By this process a laborer would work with a skilled man, learning parts of the job and might, when occasion offered, perform skilled work. Such employees might eventually become accepted as skilled workers without having received any formal training.

Some indication of the situation with respect to apprenticeship is a finding of a study in 1925–26 that in the selected major industries studied only 20 percent of the employees under 21 were apprenticed. This failure to provide education in needed skills was accentuated during the war of 1939–45. Skills were diluted and training concentrated to meet the needs of war production. In turn, the opportunities for employment in well-paid, repetitive jobs, rather than opportunities for training attracted young workers.

Concern over the question of developing a policy for the recruitment and training of young people after the war led to inquiries which resulted in a report of December 1945 by the Joint Consultative Committee, representing industry and labor. This report, which was accepted by the Ministry of Labour, had as a major recommendation that each major industry should be encouraged to establish a national joint apprenticeship and training council. Such councils should both formulate standards for training and operate apprenticeship plans. Since that time about 120 plans have been negotiated.

As noted above, in the immediate postwar years, the British labor market was short of both skilled workers and young persons. Little difficulty was experienced placing young people in jobs. After 1955 when the size of the coming "bulge" became clear, need was felt to review these arrangements for the training of young workers, in the light of this expected increase in their number and the need to insure an adequate supply of trained workers. A subcommittee (Carr Committee) of the National Joint Advisory Council, made up of representatives of the British Employers' Confederation, the Trades Union Congress, and the nationalized industries, was appointed for this purpose in 1956.

The report of the Carr Committee, entitled "Training for Skill," was made in February 1958. The recommendations of the Committee included strengthening the existing programs, especially along the lines of improving cooperation between industries, obtaining better statistical information about the number of apprentices, and making better estimates of future needs. One result was the establishment in July of 1958 of the Industrial Training Council to accomplish these purposes.

Since then various efforts to improve the programs have been made. Beginning in 1960, the Government, itself, experimented with a plan to train apprentices for the first 12 months of their apprenticeship in Government training centers. Most recently, in December 1962, the Government presented proposals in the Parliament (Cmnd. 1892) that the Ministry of Labour be given statutory powers to set up boards to be responsible for all aspects of training in individual industries. Such boards would have power to impose a levy upon firms in the industries to finance training, with power to grant rebates to firms providing industrial training of an approved quality. In part, this was a borrowing from the French practice.

*2. Training programs*

(*a*) *Duration.*—A common criticism of the British apprenticeship schemes is that almost all of them last for at least 5 years, generally from age 16 to age 21, regardless of the actual time necessary to master the skills taught. However, some plans allow a reduction in the time for youths who have completed related schooling. Thus the plan for the building industry provides for a reduction up to 2 years where boys have, before entry, completed a full-time educational course in building.

In the electrical supply industry the apprenticeship period is 5 to 6 years. In printing and bookbinding, where the unions have placed substantial emphasis on the length of the training period as a means of job control, the period is 6 years.

Outside the manufacturing field there is greater variation. Commercial apprenticeships, where the training is for potential candidates for promotion to executive posts, are for a period of 5 years. In the hotel and catering industry, apprentice cooks serve from 3 to 5 years; waiters and waitresses, normally for three. In the agricultural and horticultural fields the training period for apprentices is for 3 years.

All agreements terminate at age 21, when it is assumed an apprentice is a skilled worker. He then becomes entitled to receive the full adult rate for the job.

(*b*) *Nature of training.*—Apprenticeship training by definition is on-the-job training. The apprenticeship and training councils in the various industries have usually worked out the nature of the training to be received by each apprentice during each 3- or 6-month period of his apprenticeship. This is designed to assure an all-around training, with progressive rotation of assignments in all parts of the shop or trade giving the training. The general administration of the training program is commonly in the hands of the personnel departments or other top administrative people of the firms. Some large plants have training officers.

The actual training is done by a skilled workman, to whom the apprentice is assigned by the foreman. Such workmen are commonly selected for their ability to provide training and their willingness to assume the responsibility. The apprentice works with the skilled workman and is shown how to use tools and performs work under his supervision, being taught by demonstration, verbal instruction, and

performing the operations under observation and then alongside the instructor.

It is this phase of the apprenticeship program which has received much criticism. The British system makes little or no provision for training of instructors of apprentices. As a result, the training received is most uneven in quality and often is quite inadequate. Another difficulty is that with the increased use of incentive pay the burden of training on workmen is substantial, resulting in a loss of piecework earnings. Often some adjustment is made by management such as paying instructors an allowance for training. This, of course, adds to the cost to the firm of apprenticeship.

(*c*) *Related training and formal education.*—Almost all training plans contain a provision for "day release," that is, permission for apprentices up to 18 years of age to attend classes at a local technical college for 1 day per week, without loss of pay. Such instruction is provided by the Government, without cost to the apprentice. In addition, most plans require or encourage the attendance by the apprentice at evening classes one or two evenings per week. Tuition is usually paid by the employer for both day and evening study.

Some agreements, such as that in printing, recommend day release, but do not require it be made a condition of apprenticeship. However, in practice, no sanctions are applied against firms who do not provide for day release. It has been estimated that not more than 30 percent of apprentices are actually allowed to attend day classes with pay.

In addition, studies show that, even when day release is given, employers pay little attention to the training being obtained at the technical colleges by their apprentices. Few apprentices complete such formal training and receive certificates. On-the-job training and formal training of apprentices are not coordinated

As noted, the building industry provides for the reduction in the length of the period of training on the job for apprentices who remain in school and complete a full-time course in building. This is a common clause in many apprenticeship agreements. This meets the common objection that, by insisting on apprenticeship beginning at age 15 young persons are encouraged to leave school and go to work. However, not all schemes permit entry at ages above 16.

(*d*) *Completion of training examinations.*—While no firm data exist, there is apparently a relatively small number of apprentices who do not complete their 5 years of training. In Great Britain an appenticeship contract requires that the apprentice be kept on the payroll and receive training for the requisite period. This is unlike the practice in the United States, where apprentices may be and are often laid off if there is no work for them to perform.

An additional reason for the small number of apprentices leaving training was, until recently, the deferment of national service in the armed forces until training was completed. The last men were called up for national service in 1960.

Unlike many countries, Great Britain makes no provision for examination of apprentices. When the 5-year period of training is completed the apprentice automatically is considered a skilled worker.

In addition to no supervision over his actual training, there is no attempt to evaluate what he has learned or the degree to which he is in fact a skilled worker. In some industries, however, he may be required to work 1 or 2 additional years at less than the full rate for adult workers.

*3. Supervision of programs*

Mention has been made of the Industrial Training Council, set up in 1958. Among other things, this Council has set up study programs and made recommendations for improved standards of apprentice training. This has been done through its Training Advisory Service. Using trained development officers, recruited from industry, this group has the following main functions:

1. To conduct short exploratory surveys, either for firms or industries, to determine the level of training needed for various occupations involved;
2. To make more detailed investigations, resulting in recommendation for training programs or the actual outlining of such programs;
3. Assistance on specific problems such as the selection of apprentices;
4. A full consultative service over a longer period of time on recruitment, selection, preparation of training manuals, etc.

The Government will provide a grant-in-aid on a matching basis for the financing of this program until March 1964. The program is in part self-financed from the fees charged companies making use of the service.

In addition to this advisory service, the Government began in 1960 an experiment in actual training. It was limited to some 300 apprentices who would receive their first 12 months of apprenticeship training in full-time study at Government training centers. A similar program was also launched by the Ministry of Education which recommended to local education authorities to cooperate with industry by also providing full-time courses for first-year apprentices in technical colleges. By mid-1962 some 55 local education authorities had acted to do this and had enrolled over 3,000 students.

Boys in these programs are apprenticed before starting training to employers who participate. The employers pay the boys' wages during the year of training. The courses given include both practical and theoretical work.

These programs were begun to persuade small employers to take on more apprentices and to demonstrate the value of full-time training during the early years of apprenticeship. It was also designed to relieve the employer of the responsibility of training during the time when the apprentice requires a maximum of training and provides a minimum of productive labor.

*4. Training of instructors*

This is one of the weakest aspects of the British program. One of the services offered by the Training Advisory Service of the Industrial Training Council has been a 2-week residential course for instructors at

centers in various parts of the country. The Ministry of Labor also conducts a 10-hour training within industry job instruction course and a 2-week full-time course for industrial instructors in industrial teaching techniques.

In general, however, as noted above, little interest is taken in the quality of instruction or in the teaching ability of the workmen to whom apprentices are assigned.

### D. UNIONS AND APPRENTICESHIP PROGRAMS

The apprenticeship programs in operation in Britain today are almost all set up jointly, after negotiation between employers' associations and the trade unions. The general nature of the programs has been noted already. Most programs contain clauses which give the unions in the industry the right to control the number of apprentices being trained in relation to the number of adult skilled workers employed.

Such clauses are a safeguard against the conditions which existed in the 1920's and 1930's. They are not generally enforced today and have not been enforced during the postwar period of expanding employment and general shortage of skilled labor.

Exceptions to this attitude must be noted for the printing industry, where the unions have seldom relaxed their rules and for shipbuilding, where the intake of apprentices to such occupations as welding has been rigidly controlled.

Probably of greater importance in restricting the intake of apprentices has been the insistence of the unions that the length of the training program should not be reduced. Unions have also in some cases opposed admitting apprentices to training at ages above 16, making difficult the obtaining of additional formal education by young people before entry into employment.

### E. EARNINGS AND ALLOWANCES OF APPRENTICES

The rates paid apprentices are negotiated between industry and the trade unions. Legal minimum wages are found only in unorganized industries, where wages councils or agricultural wages boards have been set up. Collective agreements in Great Britain are not civil contracts and are not in themselves enforceable at law. However, if an employer does not observe the terms of an agreement to which he is a party, under the Terms and Conditions of Employment Act, 1959, complaints of such nonobservance may be referred to the Industrial Court by the Ministry of Labour. This would include failure to observe the provisions of such agreements with respect to the payment of apprentices. In general, the unions police apprentice rates just as they do any other contract provision.

As has been noted, earnings of young workers in Great Britain average between 40 and 60 percent the rates of adults (tables 9 and 10). In recent years the trend in rates of manual workers, the group containing most apprentices, has been for rates to increase more

rapidly for male workers under 21 years of age than for adult male workers. As table 16 shows, between 1956 and 1963 average weekly earnings of men rose by 37 percent while those of youths and boys rose by 44 percent. The wages of girls under 18, however, rose less rapidly than those of adult women.

The scales of rates for apprentices are set industry by industry through collective bargaining or by Government decree. A common rate for 15-year-old apprentices is 25 percent of the skilled rate. After that, however, there is great variation. The rate for a 20-year-old apprentice in engineering is 62½ percent of the journeyman's rate; in the manufacture of pottery it is 90 percent; in building it is 87½ percent. Boys in shipbuilding start at age 16 at a weekly rate of 70s. 11d. At age 20 they receive 151s. 8d. In motor vehicle repair they receive 66s. in London at 16, 162s. 5d. at 20. The first industry about doubles the rate; the second pays two and one-half times as much (table 17).

It is only reasonable to expect such variations. Rates are set in accordance with the conditions and customs of the individual industries, not according to any general principles.

### F. ECONOMIC FACTORS IN APPRENTICESHIP

Several students of apprenticeship in Great Britain have stated that the training of a young worker by an employer for a period of 5 years results in a net loss. There are, however, no firm data to substantiate or contradict this. One estimate by a qualified observed and representative employer in building construction was that the loss during the 5-year period amounts to the equivalent of $450. Due to factors peculiar to the industry, this would likely be higher than in other industries. It is, for example, less possible to make regular use of an apprentice who is able to perform skilled work in construction than in other industries. Construction is both seasonal and irregular in its incidence.

The loss from training apprentices comes in the first 2 or 3 years of their employment. Even though the wages paid are relatively small in these years, there is the additional expense of day release and tuition to be met by the employer. The amount paid out is not recouped in the last year or two of apprenticeship when the apprentice may well contribute a net gain to the employer over employing another worker, but not sufficient of a gain to offset the previous loss.

It would appear that an expansion of the time spent in school before beginning training on the job would probably reduce the cost of apprenticeship substantially, even though the employer continued to pay the apprentice his wages. If, in addition to this means of shortening the period of apprenticeship greater efficiency were introduced into training by better facilities and better trained instructors, both further reductions in the length of the training period and more effective use of apprentices to perform productive work would appear possible.

TABLE 1.—*Great Britain: Population and labor force, 1952–62*

[In thousands]

| Item | 1952 | 1956 | 1959 | 1960 | 1961 | 1962 |
|---|---|---|---|---|---|---|
| Total population [1] | 50,737 | 51,430 | 52,157 | 52,539 | 52,925 | (2) |
| Resident working-age population [3] | 39,282 | 39,576 | 40,044 | 40,325 | 40,593 | (2) |
| Number of employees [4] | 20,800 | 21,700 | 21,870 | 22,220 | 22,490 | 22,800 |
| Men (18 and over) | 13,014 | 13,422 | 13,546 | 13,633 | 13,773 | 13,904 |
| Boys (under 18) | 686 | 678 | 684 | 737 | 737 | 776 |
| Women (18 and over) | 6,405 | 6,916 | 6,949 | 7,108 | 7,230 | 7,328 |
| Girls (under 18) | 695 | 684 | 691 | 742 | 750 | 792 |

[1] Midyear estimates. Includes armed forces overseas.
[2] Not available.
[3] Persons 15 years of age and over.
[4] Employed and unemployed.

Source: Great Britain, Central Statistical Office, Annual Abstract of Statistics, 1962; Ministry of Labour Gazette, February 1963.

TABLE 2.—*Great Britain: Number of boys and girls reaching the age of 15, 1956–71*

[In thousands]

| | Boys | Girls | Total | Percent increase over 1956 |
|---|---|---|---|---|
| Year: | | | | |
| 1956 | 312 | 301 | 613 | ---------- |
| 1957 | 347 | 333 | 680 | 11 |
| 1958 | 364 | 348 | 712 | 16 |
| 1959 | 397 | 379 | 776 | 27 |
| 1960 | 358 | 344 | 702 | 13 |
| 1961 | 438 | 419 | 857 | 40 |
| 1962 | 475 | 454 | 929 | 52 |
| 1963 | 420 | 402 | 822 | 34 |
| 1964 | 398 | 380 | 778 | 27 |
| 1965 | 381 | 363 | 744 | 21 |
| 1966 | 373 | 357 | 730 | 19 |
| 1967 | 371 | 355 | 726 | 19 |
| 1968 | 380 | 361 | 741 | 21 |
| 1969 | 376 | 358 | 734 | 20 |
| 1970 | 376 | 358 | 734 | 20 |
| 1971 | 393 | 373 | 766 | 25 |

Source: Great Britain: Ministry of Labour and National Service, "Training for Skill," report by a subcommittee of the National Joint Advisory Council, 1958.

TABLE 3.—*Great Britain: Young people entering employment by age of entry, 1952–62*

| Year and item | Total | Age at entry into employment | | |
|---|---|---|---|---|
| | | 15 | 16 | 17 |
| 1952 Total | 522,909 | 434,266 | 67,832 | 20,811 |
| Boys | 266,853 | 222,936 | 35,159 | 8,758 |
| Girls | 256,056 | 211,330 | 32,673 | 12,053 |
| 1953 Total | 550,927 | 458,557 | 70,745 | 21,625 |
| Boys | 280,519 | 234,427 | 36,870 | 9,222 |
| Girls | 270,408 | 224,130 | 33,875 | 12,403 |
| 1954 Total | 505,070 | 413,500 | 70,237 | 21,333 |
| Boys | 258,442 | 211,977 | 37,262 | 9,203 |
| Girls | 246,628 | 201,523 | 32,975 | 12,130 |
| 1955 Total | 507,745 | 416,625 | 69,845 | 21,275 |
| Boys | 259,620 | 214,053 | 36,420 | 9,147 |
| Girls | 248,125 | 202,572 | 33,425 | 12,128 |
| 1956 Total | 482,443 | 395,445 | 66,728 | 20,270 |
| Boys | 246,949 | 202,687 | 35,408 | 8,854 |
| Girls | 235,494 | 192,758 | 31,320 | 11,416 |
| 1957 Total | 504,379 | 418,955 | 65,090 | 20,334 |
| Boys | 260,328 | 216,168 | 34,718 | 9,442 |
| Girls | 244,051 | 202,787 | 30,372 | 10,892 |
| 1958 Total | 523,566 | 429,354 | 73,085 | 21,127 |
| Boys | 269,805 | 220,611 | 39,198 | 9,996 |
| Girls | 253,761 | 208,743 | 33,887 | 11,131 |
| 1959 Total | 571,514 | 459,749 | 85,176 | 26,589 |
| Boys | 293,996 | 235,943 | 45,195 | 12,858 |
| Girls | 277,518 | 223,806 | 39,981 | 13,731 |
| 1960 Total | 547,827 | 423,902 | 94,061 | 29,864 |
| Boys | 286,311 | 219,845 | 51,430 | 15,036 |
| Girls | 261,516 | 204,057 | 42,631 | 14,828 |
| 1961 Total | 587,458 | 465,000 | 90,856 | 31,602 |
| Boys | 302,525 | 237,885 | 49,022 | 15,618 |
| Girls | 284,933 | 227,115 | 41,834 | 15,984 |
| 1962 Total | 657,273 | 531,902 | 94,422 | 30,949 |
| Boys | 335,951 | 269,983 | 50,704 | 15,264 |
| Girls | 321,322 | 261,919 | 43,718 | 15,685 |

Source: Great Britain: Ministry of Labour, Ministry of Labour Gazette, 1953–63, passim.

TABLE 4.—*Great Britian: Estimated numbers of employees in Great Britian, June 1962, by industry and age*

[Thousands]

| Industry group | Both sexes | | | | Males | | | | Females | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total | Under 18 | 18 and 19 | 20 and over | Total | Under 18 | 18 and 19 | 20 and over | Total | Under 18 | 18 and 19 | 20 and over |
| Agriculture, forestry, fishing | 576 | 49 | 36 | 491 | 486 | 42 | 31 | 413 | 90 | 7 | 5 | 78 |
| Mining and quarrying | 718 | 29 | 20 | 669 | 695 | 27 | 18 | 650 | 23 | 2 | 2 | 19 |
| Food, drink, and tobacco | 827 | 61 | 46 | 720 | 470 | 26 | 19 | 425 | 357 | 35 | 27 | 295 |
| Chemicals and allied industries | 523 | 23 | 25 | 475 | 380 | 9 | 12 | 359 | 143 | 14 | 13 | 116 |
| Metal manufacture | 604 | 28 | 25 | 551 | 530 | 21 | 19 | 490 | 74 | 7 | 6 | 61 |
| Engineering and electrical goods | 2,176 | 135 | 123 | 1,918 | 1,599 | 83 | 72 | 1,444 | 577 | 52 | 51 | 474 |
| Shipbuilding and marine engineering | 246 | 14 | 14 | 218 | 234 | 13 | 13 | 208 | 12 | 1 | 1 | 10 |
| Vehicles | 882 | 35 | 31 | 816 | 764 | 25 | 22 | 717 | 118 | 10 | 9 | 99 |
| Metal goods, not elsewhere classified | 558 | 40 | 33 | 485 | 366 | 25 | 19 | 322 | 192 | 15 | 14 | 163 |
| Textiles | 809 | 69 | 45 | 695 | 374 | 21 | 14 | 339 | 435 | 48 | 31 | 356 |
| Leather, leather goods, and fur | 63 | 6 | 3 | 54 | 37 | 3 | 1 | 33 | 26 | 3 | 2 | 21 |
| Clothing and footwear | 567 | 81 | 44 | 442 | 151 | 13 | 8 | 130 | 416 | 68 | 36 | 312 |
| Bricks, pottery, glass, cement, etc | 353 | 22 | 14 | 317 | 270 | 14 | 10 | 246 | 83 | 8 | 4 | 71 |
| Timber, furniture, etc | 289 | 28 | 18 | 243 | 231 | 22 | 14 | 195 | 58 | 6 | 4 | 48 |
| Paper, printing, and publishing | 626 | 57 | 39 | 530 | 406 | 25 | 18 | 363 | 220 | 32 | 21 | 167 |
| Other manufacturing industries | 309 | 12 | 16 | 272 | 187 | 8 | 8 | 171 | 122 | 13 | 8 | 101 |
| All manufacturing industries | 8,832 | 620 | 476 | 7,736 | 5,999 | 308 | 249 | 5,442 | 2,833 | 312 | 227 | 2,294 |
| Construction | 1,566 | 108 | 91 | 1,367 | 1,486 | 100 | 82 | 1,304 | 80 | 8 | 9 | 63 |
| Gas, electricity, and water | 390 | 10 | 14 | 366 | 344 | 7 | 10 | 327 | 46 | 3 | 4 | 39 |
| Transport and communication | 1,669 | 60 | 65 | 1,544 | 1,407 | 37 | 44 | 1,326 | 262 | 23 | 21 | 218 |
| Distributive trades | 2,911 | 395 | 208 | 2,308 | 1,384 | 141 | 87 | 1,156 | 1,527 | 254 | 121 | 1,152 |
| Insurance, banking, and finance | 581 | 48 | 56 | 477 | 324 | 11 | 16 | 297 | 257 | 37 | 40 | 180 |
| Professional and scientific services | 2,156 | 59 | 91 | 2,006 | 729 | 17 | 26 | 686 | 1,427 | 42 | 65 | 1,320 |
| Miscellaneous services | 2,088 | 159 | 123 | 1,806 | 885 | 71 | 54 | 760 | 1,203 | 88 | 69 | 1,046 |
| Public administration | 1,311 | 31 | 45 | 1,235 | 939 | 15 | 26 | 898 | 372 | 16 | 19 | 337 |
| Total | 22,800 | 1,568 | 1,225 | 20,007 | 14,680 | 776 | 643 | 13,261 | 8,120 | 792 | 582 | 6,746 |

Source: Great Britain, Ministry of Labour, Ministry of Labour Gazette, June 1963.

TABLE 5.—*Great Britain: Estimated number of employees each midyear, 1952–62*

[Thousands]

| Year | Both sexes | | | Males | | | Females | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total | Under 18 | 18 and over | Total | Under 18 | 18 and over | Total | Under 18 | 18 and over |
| 1952 | 20,800 | 1,381 | 19,419 | 13,700 | 686 | 13,014 | 7,100 | 695 | 6,405 |
| 1953 | 20,880 | 1,376 | 19,504 | 13,720 | 684 | 13.036 | 7,160 | 692 | 6,468 |
| 1954 | 21,190 | 1,403 | 19,787 | 13,840 | 698 | 13,142 | 7,350 | 705 | 6,645 |
| 1955 | 21,460 | 1,396 | 20,064 | 13,960 | 692 | 13,268 | 7,500 | 704 | 6,796 |
| 1956 | 21,700 | 1,362 | 20,338 | 14,100 | 678 | 13,422 | 7,600 | 684 | 6,916 |
| 1957 | 21,850 | 1,329 | 20,521 | 14,200 | 663 | 13,537 | 7,650 | 666 | 6,984 |
| 1958 | 21,820 | 1,326 | 20,494 | 14,220 | 660 | 13,560 | 7,600 | 666 | 6,934 |
| 1959 | 21,870 | 1,375 | 20,495 | 14,230 | 684 | 13,546 | 7,640 | 691 | 6,949 |
| 1960 | 22,220 | 1,479 | 20,741 | 14,370 | 737 | 13,633 | 7,850 | 742 | 7,108 |
| 1961 | 22,490 | 1,487 | 21,003 | 14,510 | 737 | 13,773 | 7,980 | 750 | 7,230 |
| 1962 | 22,800 | 1,568 | 21,232 | 14,680 | 776 | 13,904 | 8,120 | 792 | 7,328 |

Source: Great Britain, Ministry of Labour, Ministry of Labour Gazette, February 1963.

TABLE 6.—*Great Britain: Unemployment by age groups, mid-June, 1952–63*

| Year | Total | Males | | | Females | | |
|---|---|---|---|---|---|---|---|
| | | All ages | Boys under 18 | Men 18 and over | All ages | Girls under 18 | Women 18 and over |
| 1952 | 440,054 | 223,082 | 6,720 | 216,362 | 216,362 | 13,409 | 203,563 |
| 1953 | 297,742 | 193,552 | 5,034 | 188,518 | 104,190 | 5,261 | 98,929 |
| 1954 | 239,521 | 156,032 | 4,829 | 151,203 | 83,489 | 4,835 | 78,654 |
| 1955 | 210,543 | 130,334 | 4,313 | 126,021 | 80,209 | 4,700 | 75,509 |
| 1956 | 222,577 | 146,206 | 4,078 | 142,128 | 76,371 | 4,257 | 72,114 |
| 1957 | 264,723 | 182,246 | 5,317 | 176,929 | 82,477 | 4,017 | 78,460 |
| 1958 | 429,257 | 297,836 | 9,919 | 287,917 | 131,421 | 8,299 | 123,122 |
| 1959 | 413,311 | 299,205 | 10,493 | 288,712 | 114,106 | 5,880 | 108,226 |
| 1960 | 305,127 | 220,104 | 7,446 | 212,658 | 85,023 | 4,280 | 80,743 |
| 1961 | 265,912 | 193,195 | 5,665 | 187,530 | 72,717 | 4,009 | 68,708 |
| 1962 | 397,183 | 294,743 | 13,290 | 281,453 | 102,440 | 8,680 | 93,760 |
| 1963 | 479,713 | 359,892 | 19,322 | 340,570 | 119,821 | 13,549 | 106,272 |

Source: Great Britain, Ministry of Labour, Ministry of Labour Gazette, July issues, 1952–63.

TABLE 7.—*Great Britain: Estimated proportion of young workers unemployed each midyear, 1952–62*

| Year | Both sexes | | | Males | | | Females | | |
|---|---|---|---|---|---|---|---|---|---|
| | Number of employees under 18 | Number of employees under 18 unemployed | Percent unemployed | Number of employees under 18 | Number of employees under 18 unemployed | Percent unemployed | Number of employees under 18 | Number of employees under 18 unemployed | Percent unemployed |
| 1952 | 1,381,000 | 20,129 | 1.5 | 686,000 | 6,720 | 1.0 | 695,000 | 13,409 | 1.9 |
| 1953 | 1,376,000 | 10,295 | .7 | 684,000 | 5,034 | .7 | 692,000 | 5,261 | .8 |
| 1954 | 1,403,000 | 9,664 | .7 | 698,000 | 4,829 | .7 | 705,000 | 4,835 | .7 |
| 1955 | 1,396,000 | 9,013 | .6 | 692,000 | 4,313 | .6 | 704,000 | 4,700 | .7 |
| 1956 | 1,362,000 | 8,335 | .6 | 678,000 | 4,078 | .6 | 684,000 | 4,257 | .6 |
| 1957 | 1,329,000 | 9,334 | .7 | 663,000 | 5,317 | .8 | 666,000 | 4,017 | .6 |
| 1958 | 1,326,000 | 18,218 | 1.4 | 660,000 | 9,919 | 1.5 | 666,000 | 8,299 | 1.2 |
| 1959 | 1,375,000 | 16,373 | 1.2 | 684,000 | 10,493 | 1.5 | 691,000 | 5,880 | .9 |
| 1960 | 1,479,000 | 11,726 | .8 | 737,000 | 7,446 | 1.0 | 742,000 | 4,280 | .6 |
| 1961 | 1,487,000 | 9,674 | .7 | 737,000 | 5,665 | .8 | 750,000 | 4,009 | .5 |
| 1962 | 1,568,000 | 21,970 | 1.3 | 776,000 | 13,290 | 1.7 | 792,000 | 8,680 | 1.1 |
| 1963 | (1) | 32,871 | (1) | (1) | 19,322 | (1) | (1) | 13,549 | (1) |

[1] Not available.

Source: Tables 5 and 6.

TABLE 8.—*Great Britain: Percentage rate of unemployment, by sex, mid-June, 1952–63*

| Year | All employees | Males | Females | Year | All employees | Males | Females |
|---|---|---|---|---|---|---|---|
| 1952 | 2.1 | 1.6 | 3.0 | 1958 | 2.0 | 2.1 | 1.7 |
| 1953 | 1.4 | 1.4 | 1.5 | 1959 | 1.9 | 2.1 | 1.5 |
| 1945 | 1.1 | 1.1 | 1.2 | 1960 | 1.4 | 1.5 | 1.1 |
| 1955 | 1.0 | .9 | 1.1 | 1961 | 1.2 | 1.3 | .9 |
| 1956 | 1.0 | 1.0 | 1.0 | 1962 | 1.8 | 2.0 | 1.3 |
| 1957 | 1.2 | 1.3 | 1.1 | 1963 | 2.1 | 2.5 | 1.5 |

Source: Great Britain: Ministry of Labour, Ministry of Labour Gazette, July issues, 1952–63.

TABLE 9.—*Great Britain: Average weekly earnings of manual workers, by industry, by age groups, April 1963*

| Industry group | Men (21 years and over) | | Youth and boys (under 21 years) | | Women [1] (18 years and over) | | Girls (under 18 years) | |
|---|---|---|---|---|---|---|---|---|
| | *s.* | *d.* | *s.* | *d.* | *s.* | *d.* | *s.* | *d.* |
| Food, drink, and tobacco | 310 | 7 | 150 | 2 | 160 | 7 | 111 | 8 |
| Chemicals and allied industries | 335 | 8 | 162 | 2 | 159 | 4 | 106 | 3 |
| Metal manufacture | 340 | 10 | 158 | 11 | 162 | 8 | 106 | 7 |
| Engineering and electrical goods | 325 | 4 | 134 | 9 | 172 | 10 | 105 | 0 |
| Shipbuilding and marine engineering | 316 | 6 | 132 | 4 | 157 | 9 | ---- | |
| Vehicles | 385 | 6 | 151 | 10 | 195 | 2 | 117 | 11 |
| Metal goods, n.e.s | 323 | 2 | 142 | 11 | 156 | 10 | 100 | 11 |
| Textiles | 293 | 10 | 148 | 0 | 159 | 10 | 112 | 10 |
| Leather, leather goods and fur | 287 | 3 | 139 | 3 | 154 | 0 | 97 | 6 |
| Clothing and footwear | 286 | 6 | 141 | 2 | 156 | 11 | 101 | 4 |
| Bricks, pottery, glass, cement, etc | 326 | 5 | 164 | 0 | 154 | 9 | 101 | 11 |
| Timber, furniture, etc | 301 | 10 | 137 | 0 | 175 | 6 | 103 | 3 |
| Paper, printing, and publishing | 377 | 5 | 156 | 3 | 173 | 11 | 104 | 2 |
| Other manufacturing industries | 330 | 6 | 156 | 7 | 158 | 7 | 107 | 4 |
| All manufacturing industries | 332 | 4 | 145 | 1 | 163 | 5 | 105 | 8 |
| Mining and quarrying (except coal) | 319 | 0 | 183 | 1 | 166 | 7 | ---- | |
| Construction | 320 | 8 | 146 | 0 | 151 | 9 | ---- | |
| Gas, electricity, and water | 313 | 0 | 164 | 0 | 182 | 1 | ---- | |
| Transport and communication | 322 | 3 | 171 | 10 | 224 | 10 | 96 | 7 |
| Miscellaneous services | 281 | 3 | 122 | 0 | 145 | 4 | 95 | 3 |
| Public administration | 255 | 11 | 149 | 3 | 173 | 9 | 110 | 5 |
| All industries | 323 | 1 | 144 | 9 | 163 | 9 | 105 | 2 |

[1] Excludes part-time employees.

Source: Great Britain: Ministry of Labour, "Ministry of Labour Gazette," August 1963.

TABLE 10.—*Great Britain: average hourly earnings of manual workers, by industry, by age groups, April 1963*

| Industry group | Men (21 years and over) | Youth and boys (under 21 years) | Women [1] (18 years and over) | Girls (under 18 years) |
|---|---|---|---|---|
| | *d.*[2] | *d.*[2] | *d.*[2] | *d.*[2] |
| Food, drink, and tobacco | 78.0 | 41.0 | 47.8 | 32.6 |
| Chemicals and allied industries | 86.4 | 45.9 | 47.8 | 31.7 |
| Metal manufacture | 90.1 | 45.8 | 50.1 | 32.1 |
| Engineering and electrical goods | 84.9 | 38.0 | 51.6 | 31.5 |
| Shipbuilding and marine engineering | 82.4 | 38.1 | 46.7 | ---- |
| Vehicles | 102.8 | 43.6 | 58.1 | 34.5 |
| Metal goods, n.e.s | 83.8 | 40.3 | 48.1 | 29.8 |
| Textiles | 75.8 | 40.9 | 48.7 | 33.3 |
| Leather, leather goods, and fur | 74.3 | 38.5 | 47.1 | 28.5 |
| Clothing and footwear | 80.0 | 40.7 | 49.3 | 30.5 |
| Bricks, pottery, glass, cement, etc | 80.4 | 45.1 | 48.2 | 30.6 |
| Timber, furniture, etc | 80.3 | 38.4 | 54.3 | 30.4 |
| Paper, printing, and publishing | 98.9 | 44.1 | 52.6 | 31.1 |
| Other manufacturing industries | 84.4 | 43.0 | 48.1 | 32.0 |
| All manufacturing industries | 86.5 | 40.9 | 49.8 | 31.5 |
| Mining and quarrying (except coal) | 74.6 | 47.7 | 49.2 | ---- |
| Construction | 78.7 | 38.8 | 46.3 | ---- |
| Gas, electricity, and water | 77.6 | 44.3 | 57.5 | ---- |
| Transport and communication | 78.0 | 45.6 | 62.0 | 28.6 |
| Miscellaneous services | 73.1 | 33.3 | 43.1 | 28.0 |
| Public administration | 68.4 | 41.7 | 51.2 | 31.5 |
| All industries | 82.7 | 40.1 | 49.7 | 31.3 |

[1] Excludes part-time employees.
[2] d.=pence.

Source: Great Britain's Ministry of Labour, Ministry of Labour Gazette, August 1963.

TABLE 11.—*Great Britain: Young persons [1] entering employment, by sex, 1952–62*

| Year | Total | | Apprenticeship to skilled craft | | Employment leading to recognized professional occupations | | Entering clerical employment | | Entering other employment | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls |
| 1952 | 266,853 | 256,056 | 93,024 | 14,989 | 3,179 | 2,988 | 24,052 | 80,325 | 146,598 | 157,754 |
| 1953 | 280,519 | 270,408 | 94,432 | 16,450 | 3,106 | 2,679 | 24,631 | 83,485 | 158,350 | 167,794 |
| 1954 | 258,442 | 246,628 | 88,310 | 14,874 | 3,199 | 2,579 | 22,636 | 79,113 | 144,297 | 150,062 |
| 1955 | 259,620 | 248,125 | 96,711 | 15,614 | 3,207 | 2,663 | 21,659 | 83,366 | 138,043 | 146,482 |
| 1956 | 246,949 | 235,494 | 93,213 | 15,901 | 3,103 | 2,557 | 19,762 | 81,720 | 130,871 | 135,316 |
| 1957 | 260,328 | 244,051 | 95,184 | 16,851 | 2,744 | 2,406 | 21,326 | 85,357 | 141,074 | 139,437 |
| 1958 | 269,805 | 253,761 | 93,212 | 17,352 | 2,967 | 2,651 | 23,797 | 88,892 | 149,829 | 144,866 |
| 1959 | 293,996 | 277,518 | 98,701 | 20,631 | 3,644 | 3,099 | 28,423 | 98,475 | 163,228 | 155,313 |
| 1960 | 286,311 | 261,516 | 103,004 | 91,951 | 4,270 | 3,105 | 30,406 | 99,786 | 148,631 | 138,674 |
| 1961 | 302,525 | 284,933 | 114,729 | 20,547 | 4,694 | 3,330 | 28,475 | 107,263 | 154,627 | 153,793 |
| 1962 | 335,925 | 321,348 | 121,495 | 21,265 | 4,264 | 3,508 | 30,195 | 113,495 | 179,971 | 183,080 |

[1] Those 15, 16, and 17 years of age.

Source: Great Britain: Ministry of Labour, Statistics on Incomes, Prices, Employment, and Production, No. 4, March 1963.

TABLE 12.—*Great Britain: Young persons [1] entering employment by type of employment, 1952–62*

["Number" columns in thousands]

| Year | Total | | Apprenticeship to skilled craft | | Employment leading to recognized professional qualifications | | Entering clerical employment | | Employment with training, lasting at least a year, not covered in previous columns | | Entering other employment | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent |
| 1952 | 523.0 | 100 | 108.0 | 20.6 | 6.2 | 1.2 | 104.4 | 20.0 | (2) | ------ | 304.4 | 58.2 |
| 1953 | 550.9 | 100 | 110.9 | 20.1 | 5.8 | 1.1 | 108.1 | 19.6 | (2) | ------ | 326.2 | 59.2 |
| 1954 | 505.0 | 100 | 103.2 | 20.4 | 5.8 | 1.1 | 101.7 | 20.1 | (2) | ------ | 294.4 | 58.3 |
| 1955 | 507.7 | 100 | 112.3 | 22.1 | 5.9 | 1.2 | 105.0 | 20.7 | (2) | ------ | 284.5 | 56.0 |
| 1956 | 482.4 | 100 | 109.1 | 22.6 | 5.7 | 1.2 | 101.5 | 21.0 | (2) | ------ | 266.2 | 55.2 |
| 1957 | 504.4 | 100 | 112.1 | 22.2 | 5.1 | 1.0 | 106.7 | 21.2 | (2) | ------ | 280.5 | 55.6 |
| 1958 | 523.6 | 100 | 110.6 | 21.1 | 5.7 | 1.1 | 112.7 | 21.5 | (2) | ------ | 294.7 | 56.3 |
| 1959 | 571.5 | 100 | 119.3 | 20.9 | 6.7 | 1.2 | 126.9 | 22.2 | (2) | ------ | 318.5 | 55.7 |
| 1960 | 547.8 | 100 | 123.0 | 22.5 | 7.4 | 1.3 | 130.2 | 23.8 | (2) | ------ | 287.3 | 52.4 |
| 1961 | 587.4 | 100 | 135.2 | 23.0 | 8.0 | 1.4 | 135.7 | 23.1 | 78.8 | 13.4 | [3] 308.4 | 52.5 |
| 1962 | 657.3 | 100 | 142.8 | 21.7 | 7.8 | 1.2 | 143.7 | 21.9 | 76.5 | 11.6 | [3] 363.1 | 55.2 |

[1] Those 15, 16, and 17 years of age.
[2] Not available.
[3] Includes persons in column headed "Employment with training, etc."

Source: Same as table 4.

TABLE 13.—*Great Britain: Young persons [1] entering employment, by type of employment, by sex, 1952–62*

| Year | Total | | Apprenticeship to skilled craft | | Employment leading to recognized professional qualifications | | Entering clerical employment | | Entering other employment | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent |
| Boys: | | | | | | | | | | |
| 1952 | 266,853 | 100 | 93,024 | 34.9 | 3,179 | 1.2 | 24,052 | 9.0 | 146,598 | 54.9 |
| 1956 | 246,949 | 100 | 93,213 | 37.7 | 3,103 | 1.3 | 19,762 | 8.0 | 130,871 | 53.0 |
| 1959 | 293,996 | 100 | 98,701 | 33.6 | 3,644 | 1.2 | 28,423 | 9.7 | 163,228 | 55.5 |
| 1960 | 286,311 | 100 | 103,004 | 36.0 | 4,270 | 1.5 | 30,406 | 10.6 | 148,631 | 51.9 |
| 1961 | 302,525 | 100 | 114,729 | 37.9 | 4,694 | 1.6 | 28,475 | 9.4 | 154,627 | 51.1 |
| 1962 | 335,925 | 100 | 121,495 | 36.2 | 4,264 | 1.3 | 30,195 | 9.0 | 179,971 | 53.6 |
| Girls: | | | | | | | | | | |
| 1952 | 256,056 | 100 | 14,989 | 5.9 | 2,988 | 1.2 | 80,325 | 31.4 | 157,754 | 61.6 |
| 1956 | 235,494 | 100 | 15,901 | 6.8 | 2,557 | 1.1 | 81,720 | 34.7 | 135,316 | 57.5 |
| 1959 | 277,518 | 100 | 20,631 | 7.4 | 3,099 | 1.1 | 98,475 | 35.5 | 155,313 | 56.0 |
| 1960 | 261,516 | 100 | 19,951 | 7.6 | 3,105 | 1.2 | 99,786 | 38.2 | 138,674 | 53.0 |
| 1961 | 284,933 | 100 | 20,547 | 7.2 | 3,330 | 1.2 | 107,263 | 37.6 | 153,793 | 54.0 |
| 1962 | 321,348 | 100 | 21,265 | 6.6 | 3,508 | 1.1 | 113,495 | 35.3 | 183,080 | 57.0 |

[1] Those 15, 16, and 17 years of age.

Source: Computed from table 4.

TABLE 14.—*Great Britain: Young people entering employment by type of employment entered and age of entry, 1962*

[Thousands]

| Class of employment entered | Age at entry into employment | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Both sexes | | | Boys | | | Girls | | |
| | 15 | 16 | 17 | 15 | 16 | 17 | 15 | 16 | 17 |
| Apprenticeship or learnership to skilled crafts (including preapprenticeship training in employment) | 113.7 | 23.7 | 5.4 | 95.7 | 21.4 | 4.4 | 18.0 | 2.3 | 1.0 |
| Employment leading to recognized professional qualifications | 1.6 | 3.3 | 2.9 | .7 | 1.9 | 1.7 | .9 | 1.4 | 1.2 |
| Clerical employment | 87.1 | 42.0 | 14.6 | 13.2 | 12.1 | 4.9 | 73.9 | 29.9 | 9.7 |
| Employment with training, lasting at least a year not covered by items above | 66.5 | 7.4 | 2.6 | 38.1 | 4.9 | 1.5 | 28.4 | 2.5 | 1.1 |
| Other employment | 263.0 | 18.0 | 5.5 | 122.3 | 10.4 | 2.8 | 140.7 | 7.6 | 2.7 |
| Total | 531.9 | 94.4 | 31.0 | 270.0 | 50.7 | 15.3 | 261.9 | 43.7 | 15.7 |

Source: Great Britain: Ministry of Labour, Ministry of Labour Gazette, May, 1963.

TABLE 15.—*Great Britain: Apprentices, distribution by industry of numbers entering employment, 1958–62*

| Industry group | Total number apprenticed | | | | Number of boys apprenticed | | | | Number of girls apprenticed | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1962 | 1961 | 1960 | 1959 | 1962 | 1961 | 1960 | 1959 | 1962 | 1961 | 1960 | 1959 |
| Agriculture, forestry, fishing | 1,868 | 1,624 | 1,527 | 1,592 | 1,760 | 1,519 | 1,408 | 1,473 | 108 | 105 | 119 | 119 |
| Mining and quarrying | 2,235 | 1,941 | 1,394 | 1,221 | 2,227 | 1,934 | 1,378 | 1,215 | 8 | 7 | 16 | 6 |
| Manufacturing | 51,387 | 55,458 | 53,168 | 51,116 | 49,116 | 52,605 | 48,452 | 45,596 | 2,281 | 2,853 | 4,716 | 5,520 |
| Food, drink, and tobacco | 1,344 | 1,194 | 1,097 | 1,661 | 1,117 | 1,011 | 880 | 1,269 | 227 | 183 | 217 | 392 |
| Chemicals and allied industries | 1,168 | 1,353 | 1,342 | 1,145 | 1,113 | 1,280 | 1,247 | 1,047 | 55 | 73 | 95 | 98 |
| Metal manufacture | 3,402 | 4,351 | 3,843 | 3,360 | 3,371 | 4,317 | 3,803 | 3,327 | 31 | 34 | 40 | 33 |
| Engineering and electrical goods | 19,917 | 21,282 | 19,378 | 17,859 | 19,778 | 21,148 | 19,169 | 17,644 | 139 | 134 | 209 | 215 |
| Shipbuilding and marine engineering | 3,483 | 3,235 | 2,985 | 2,969 | 3,455 | 3,211 | 2,954 | 2,933 | 28 | 24 | 31 | 36 |
| Vehicles | 5,154 | 6,100 | 5,568 | 5,329 | 5,133 | 6,064 | 5,489 | 5,271 | 21 | 36 | 79 | 58 |
| Metal goods, not elsewhere classified | 4,548 | 4,809 | 4,441 | 3,792 | 4,526 | 4,769 | 4,392 | 3,746 | 32 | 40 | 49 | 46 |
| Textiles | 1,516 | 1,594 | 1,735 | 1,745 | 1,179 | 1,197 | 1,199 | 1,165 | 337 | 397 | 536 | 580 |
| Leather, leather goods, and fur | 191 | 194 | 191 | 312 | 167 | 157 | 151 | 213 | 24 | 37 | 40 | 99 |
| Clothing and footwear | 1,641 | 1,852 | 3,433 | 4,146 | 792 | 734 | 991 | 1,038 | 849 | 1,118 | 2,442 | 3,108 |
| Bricks, pottery, glass, cement | 996 | 1,034 | 834 | 862 | 982 | 1,019 | 814 | 840 | 14 | 15 | 20 | 22 |
| Timber, furniture, etc | 2,906 | 2,779 | 3,003 | 3,477 | 2,860 | 2,735 | 2,925 | 3,360 | 46 | 44 | 78 | 117 |
| Paper, printing and publishing | 4,413 | 4,968 | 4,643 | 3,842 | 3,960 | 4,286 | 3,792 | 3,176 | 453 | 682 | 851 | 666 |
| Other manufacturing industries | 708 | 713 | 675 | 617 | 683 | 677 | 646 | 567 | 25 | 36 | 29 | 50 |
| Construction | 31,518 | 26,202 | 22,418 | 22,046 | 31,473 | 26,163 | 22,321 | 21,966 | 45 | 39 | 97 | 80 |
| Gas, electricity, and water | 2,946 | 2,376 | 1,814 | 1,587 | 2,920 | 2,363 | 1,787 | 1,565 | 26 | 13 | 27 | 22 |
| Transportation and communication | 3,285 | 3,190 | 2,954 | 2,442 | 3,185 | 3,008 | 2,634 | 2,210 | 100 | 182 | 320 | 232 |
| Distributive trades | 10,509 | 8,955 | 8,831 | 9,270 | 8,495 | 7,104 | 6,817 | 7,050 | 2,014 | 1,851 | 2,014 | 2,220 |
| Insurance, banking, and finance | 495 | 564 | 708 | 562 | 445 | 517 | 617 | 478 | 50 | 47 | 91 | 84 |
| Professional and scientific services | 3,016 | 2,958 | 3,460 | 3,464 | 1,599 | 1,545 | 1,811 | 1,634 | 1,417 | 1,413 | 1,649 | 1,830 |
| Miscellaneous services | 29,983 | 27,032 | 22,462 | 21,979 | 15,009 | 13,195 | 11,781 | 11,660 | 14,974 | 13,837 | 10,681 | 10,319 |
| Catering, hotels, etc | 1,383 | (1) | 1,058 | (1) | 1,210 | (1) | 892 | (1) | 173 | (1) | 166 | (1) |
| Motor repairers, distributors, garages, and filling stations | 10,549 | 9,559 | 8,396 | (1) | 10,492 | 9,471 | 8,311 | (1) | 57 | 88 | 85 | (1) |
| Hairdressing and manicure | 16,204 | 14,832 | 11,396 | (1) | 1,977 | 1,618 | 1,344 | (1) | 14,227 | 13,214 | 10,052 | (1) |
| Public administration | 5,508 | 4,976 | 4,213 | 4,153 | 5,288 | 4,776 | 3,992 | 3,953 | 220 | 200 | 221 | 199 |
| Total | 142,760 | 135,276 | 122,551 | 119,332 | 121,517 | 114,729 | 103,004 | 98,701 | 21,243 | 20,547 | 19,547 | 20,631 |

[1] Not available.

Source: Great Britain: Ministry of Labour, Ministry of Labour Gazette, 1960–63, passim.

TABLE 16.—*Great Britain: Trend in average weekly earnings of manual workers, by age groups, 1956–62*

(Percentage increase since April 1956)

| Date | All workers | Men (21 years and over) | Youths and boys (under 21 years) | Women [1] (18 years and over) | Girls (under 18 years) |
|---|---|---|---|---|---|
| 1956: October | 2 | 1 | 2 | 3 | 4 |
| 1957: | | | | | |
| April | 3 | 3 | 4 | 5 | 7 |
| October | 7 | 7 | 8 | 8 | 9 |
| 1958: | | | | | |
| April | 8 | 8 | 9 | 10 | 9 |
| October | 10 | 9 | 11 | 12 | 11 |
| 1959: | | | | | |
| April | 12 | 12 | 13 | 14 | 11 |
| October | 16 | 15 | 17 | 17 | 15 |
| 1960: | | | | | |
| April | 20 | 20 | 22 | 21 | 18 |
| October | 23 | 23 | 29 | 24 | 23 |
| 1961: | | | | | |
| April | 28 | 28 | 35 | 27 | 27 |
| October | 30 | 30 | 37 | 29 | 30 |
| 1962: | | | | | |
| April | 33 | 33 | 41 | 31 | 33 |
| October | 34 | 35 | 41 | 34 | 32 |
| 1963: April | 37 | 37 | 44 | 37 | 34 |

[1] Excludes part-time employees.

Source: Great Britain: Ministry of Labour, Ministry of Labour Gazette, August 1963.

TABLE 17.—*Great Britain: Wages paid apprentices, weekly rates, selected industries, 1962*

| Industry and sex | Age of apprentice | | | | | |
|---|---|---|---|---|---|---|
| | 15 | 16 | 17 | 18 | 19 | 20 |
| | Rates given as proportion of adult skilled worker's rate (percent) | | | | | |
| Engineering, males | ---------- | 27½ | 32½ | 45 | 52½ | 62½ |
| Building, males | 25 | 33⅓ | 50 | 62½ | 75 | 87½ |
| Electricity supply, males | 25 | 33⅓ | 40 | 50 | 66⅔ | 75 |
| Pottery manufacture, males | ---------- | 50 | 60 | 70 | 80 | 90 |
| Sawmilling, males | ---------- | 40 | 50 | 65 | 75 | 85 |
| Wooden box, packing case, and wooden container manufacture, males | ---------- | 40 | 50 | 60 | 70 | 85 |
| Printing, males | 25 | 30 | 40 | 55 | 65 | 75 |
| | Rates given as amounts of money | | | | | |
| | *s. d.* | *s. d.* | *s. d.* | *s. d.* | *s. d.* | *s. d.* |
| Agriculture, males | 61 6 | 74 0 | 89 6 | 108 0 | 130 0 | 156 0 |
| Baking, males | 87 6 | 105 0 | 122 6 | 145 3 | 164 6 | 183 9 |
| Baking, males, ½ year | 94 6 | 112 0 | 131 3 | 154 0 | 173 3 | 196 0 |
| Baking, females | 85 9 | 94 6 | 99 9 | 112 0 | 124 3 | 134 9 |
| Baking, females, ½ year | 87 6 | 96 3 | 103 3 | 119 0 | 129 6 | 141 9 |
| Shipbuilding, males | ---------- | 70 11 | 84 4½ | 112 10 | 132 3½ | 151 8 |
| Hairdressing, males and females: | | | | | | |
| London | 44 6 | 60 6 | 78 6 | ---------- | ---------- | ---------- |
| London, ½ year | 49 6 | 66 0 | 84 0 | ---------- | ---------- | ---------- |
| Provincial areas | 39 0 | 55 0 | 73 6 | ---------- | ---------- | ---------- |
| Provincial areas, ½ year | 44 6 | 60 6 | 78 6 | ---------- | ---------- | ---------- |
| Motor vehicle retail and repairing trade, males: | | | | | | |
| London | 50 9 | 66 0 | 86 3 | 106 7 | 131 11 | 162 5 |
| Provinces | 49 11 | 64 10 | 84 10 | 104 9 | 129 8 | 159 7 |
| Motor vehicle retail and repairing trade, females: | | | | | | |
| London | 57 7 | 77 11 | 91 4 | 111 7 | 127 0 | 131 10 |
| Provinces | 55 9 | 76 1 | 88 7 | 108 10 | 123 4 | 128 2 |

Source: Great Britain: Ministry of Labour, "Time Rates of Wages and Hours of Work, Apr. 1, 1962."

## III. Germany

### A. YOUNG PEOPLE IN THE LABOR FORCE

*1. Demographic and social factors*

The war seriously distorted the structure of the labor force in the Federal Republic of Germany. In the years immediately after the war there was substantial unemployment and a tremendous problem of vocational rehabilitation, involving millions of displacees and war prisoners. In addition, the war had disrupted the training of many of the older young people who were of working age in these war years.

The problem of providing training for these groups continued down into the early 1950's. As late as 1953 the unemployment rate was over 7 percent (table 5). In addition, in 1953, 1954, and 1955 there was a larger than usual number of school leavers, a legacy of the high-level property of Germany during the early successful years of the war, 1939, 1940, and 1941.

Among other aspects of the German economic miracle, the already strong and effective system of vocational training was strengthened to cope with the problems arising from the war. In doing that, a system was created which has proven more than adequate to take care of the since-decreased number of school leavers. Beginning about 1957 this falling off in numbers of youth to be trained was notable. The number has continued to fall. Only after 1966 can the number of school leavers be expected to again increase, and only after 1976 will the number of young people 15 to 19 years of age equal the number in even 1959 (table 2).

The usual school-leaving age in Germany is 14, although in some Länder where 9 rather than 8 years of elementary education is provided, young people may remain in school until 15 years of age. There is much sentiment in Germany favoring increasing the school-leaving age to 15 throughout the Federal Republic.

The effect of the war on the numbers of young people is reflected in the shortage of young people in the labor force. The number of people 15 to 20 years of age in the labor force was almost the same in 1960 as in 1950 (table 3). Over the decade, however, the total size of the labor force rose by 3½ million. The age group 15 to 20 was 12.8 percent of the labor force in 1950 and only 11 percent in 1960. Over this same period the next highest age group, those 20 to 24, increased by over a million workers. This gives some idea of the magnitude of the current situation. The vocational training authorities' major problem is finding enough young people to fill existing training vacancies.

*2. Number and occupation of young workers*

(*a*) *Males.*—In 1960 there were 1.5 million young men under 20 years of age in the German labor force, of whom some 787,000 were in training as apprentices or trainees.

Although Germany is a highly industrialized country, it still has a predominantly peasant agriculture, with only about one-seventh of the agricultural employees being wage or salary workers. It also has a substantial number of small manufacturing, commercial, and service businesses with large numbers of young family workers employed. Thus in 1960 only about 3 percent of the wage earners

employed in manufacturing were under 24 years of age, whereas over 6 percent of the self-employed in manufacturing and over 17 percent of the family workers were under 24.

(*b*) *Females.*—There were nearly as many females under 20 years of age in the labor force in 1960 as there were males, 1.4 million, compared with 1.5 million. Only about 437,000 of these young women were apprentices or trainees.

There are about as many females as males employed in the service trades, and substantially more females employed in commerce and agriculture. In manufacturing, construction, transportation and mining, there were substantially fewer females, as might be expected.

*3. Unemployment among the young*

While separate data by age groups are not available, apparently the young worker in Germany is not subject to substantial unemployment any more than are workers of other ages. Unemployment in Germany is currently (August 1963) only about 96,000 total, or less than one-half of 1 percent.

*4. Wages of young workers*

As will be further discussed below, apprentices in Germany are not paid wages, but receive allowances, which are substantially less than wages paid in the industry.

It should also be noted that even after completing training apprentices may not receive full journeyman's wages until they have worked a year or two and acquired experience (table 9).

*5. Protective labor legislation applying to young workers*

Under the Young Persons (Protection of Employment) Act of 1960 all workers up to 18 years of age may work not over 8 hours a day. Those under 16 may not work more than 40 hours a week, and those 16 to 18 not over 44 hours a week.

Overtime is permitted, except for young people employed in underground mining operations, but is limited to 1 hour a day and 3 a week. Overtime worked by apprentices must be compensated by at least 1 percent of the monthly training allowance, but not less than DM0.60 (15 cents), for each hour worked. The overtime allowance for Sunday work is double the ordinary overtime rate.

Work on Sundays or between the hours of 8 p.m. and 6 a.m. ordinarily is prohibited, however. Certain exceptions are made for some workers, but only when over 16 years of age. Work at piece rates or on assembly lines is prohibited for young workers.

## B. APPRENTICES AND OTHER TRAINEES

*1. Training programs and education*

Currently there are some 700,000 boys and girls leaving school in Germany each year. Some 420,000 of these are placed in positions to receive occupational training. Annual training vacancies each year amount to 570,000. The problem is, then, as noted above, to find enough young people to accept the training opportunities, not, as in the United States, to find the opportunities for training.

Education and training in the Federal Republic of Germany are administered by the states (Lander). There is no Federal Ministry of Education, although some education principles have a national

application. Elementary education begins at 6 years of age. At about the age of 10, children who are going on to secondary education enter either the nonclassical secondary school (Realschule) or the grammar school (Gymnasium). The great majority of children continue in elementary school until age 14, leave school and go to work or start their vocational training.

Children after 14 are required by law to attend a vocational training school (Berufsschule) for 8 hours each week until they reach the age of 18 years, or until the end of their period of apprenticeship or training. Employers are required to release apprentices or trainees for 1 day each week for this purpose and must pay them for the time spent in school.

Instruction in training schools is divided between vocational training, occupying about 60 percent of the work and general education, about 40 percent. Opportunities are also provided for voluntary attendance at training classes at night. Many students take advantage of such opportunities.

*2. Apprentices and other trainees*

(*a*) *Trends in apprenticeship.*—As noted, despite a substantial growth in the total labor force, the number of young people in Germany has not increased in proportion. Indeed there were fewer young people under 20 in the labor force in 1960 than in 1950, 2,974,000 against 3,017,000. Nevertheless, while the labor force has increased in size by only 15 percent, the number of young people receiving vocational training on the job has risen by nearly 23 percent. Most of the increase, however, has been among girls. There were 729,000 boys in training in 1950 and 766,000 in 1961, but girls increased from 242,000 to 431,000 during this period (table 6).

The trend is also toward enrollment in the training vacancies offering higher skills. Enrollments for semiskilled training fell among males and grew only slowly among females during the decade. Male apprentices, however, increased by some 5 percent. Female apprentices nearly doubled in number (table 6).

(*b*) *Distribution by industry.*—Apprenticeship in Germany is found in most industries and trades, including not only handicraft trades and industry, but also agriculture, transportation, commerce, and domestic service.

In manufacturing there are over 300 skilled trades with over 200,000 apprentices and over 100 semiskilled trades, with over 20,000 trainees. Commerce has even larger numbers of apprentices, about 450,000 learning one or another of 30-odd skilled occupations. Commerce also has over 20,000 trainees in 5 semiskilled categories. The handicrafts number more than 100 trades, with over 450,000 apprentices, and 15 semiskilled occupations, having about 25,000 trainees.

Apprentices in certain industries like metalworking and electrical manufacture and in commercial occupations have increased in number rapidly, despite the decreasing number of young people available to be trained. Apprentices in obsolescent trades have fallen correspondingly sharply.

Thus male apprentices learning to be automobile mechanics doubled between 1950 and 1961, electricians increased from 23,000 to 40,000,

draftsmen from 3,000 to nearly 11,000. But male shoemaker's apprentices fell from 14,000 to about 1,500, wheelwrights from 6,400 to 127.

Among female apprentices, the trend was almost entirely out of traditional trades, like dressmaking, into clerical work. There were 42,000 dressmaker's apprentices in 1950, only 18,500 in 1961. Female commercial apprentices increased from 105,000 to 228,000 over the same period.

## C. APPRENTICESHIP PROGRAMS

### *1. Background*

The apprenticeship system in Germany is based on the principle that it is the primary responsibility of employers to provide both training facilities and training. The position of the state is to provide for overall supervision. The basic law governing apprenticeships is still the Industrial Regulations Code of 1869, as amended in 1898 and 1908. Handicraft apprenticeships are governed by a new law, the law on the regulation of handicrafts of 1953.

The education and training of apprentices is administered locally by the governments of the Länder, under the supervision of the Federal Ministry of Economic Affairs. The actual administration of apprenticeship schemes is in the hands of two corporate bodies under public law. Apprenticeship training in large-scale industry is under the chambers of industry and commerce (Industrie-und Handelskammer). In the craft trades it is under the chambers of handicrafts or artisan trades (Handwerkskammer). Germany makes this fundamental distinction between the traditional handicraft trades and industry, as do most countries of the European Continent.

These chambers somewhat resemble trade associations in the United States, but are clothed with greater authority and backed up by the Government. There are some 45 chambers of handicrafts and over 80 chambers of industry and commerce. Each industrial or commercial enterprise is a member of its appropriate chamber. The chambers of handicrafts are made up of two-thirds representatives of employers and one-third representatives of journeymen. Chambers of industry and commerce are composed entirely of representatives of employers.

Regulations concerning all matters relating to training are formulated and drawn up in both types of chambers by committees which have been established in each chamber for the purpose. These committees are composed of equal numbers of employers and workers. Technical advice on such matters as defining the jobs in each trade, the type and duration of training, and the requirements of trade examinations, is also sought from trade unions and educational authorities. Any training proposals by such committees must be approved by the Ministry of Economic Affairs. Regulations made by the chambers of handicrafts have the force of law. Those issued by chambers of industry and commerce are not legally enforcible, but are, nonetheless, generally accepted.

### *2. Training programs*

(*a*) *Duration.*—The length of training in Germany has been standardized to a remarkable degree. Most ordinary skilled trades have an apprenticeship of 3 years; highly skilled trades, one of 3½ or 4 years. Most semiskilled trainee jobs require 2 years of training; a few require only a year and a half.

There appears to be a general acceptance of the 3-year period for the skilled trades, although not complete agreement as to which trades should be classified as skilled. There is less acceptance of the classification of semiskilled trades. In practice, it appears that young workers are rarely required to continue in semiskilled training for the full 2-year period. The skills are often such that they can be acquired in a few months or even weeks. As soon as proficiency is attained the worker ceases to be considered a trainee and receives regular wages.

It should be noted that the list of semiskilled trades, which was initially much shorter than the list of skilled trades, has been materially reduced in recent years.

(*b*) *Nature of training.*—Apprentices serve a probationary period of not less than 1 month and not more than 3 during which time either party may terminate the arrangement. A medical examination is required before the apprentice begins work and another is given at the end of the first year of the apprenticeship. A written contract is normally entered into within 4 weeks of the beginning of apprenticeship in industry and commerce; in the handicraft trades this is mandatory. The contract is signed by the employer and by the apprentice and his parent or legal guardian. The contract is then registered with the chamber of the industry or craft concerned.

The contract states the obligations of each party. The employer undertakes to provide training in the trade, as laid down by the chamber for the industry or craft and approved by the Federal Minister for Economic Affairs. The apprentice binds himself to follow the practical training, to attend the appropriate classes in the vocational training school, and to undergo the intermediate and final apprenticeship examinations.

The responsibility for training rests almost entirely with the employer. Except for the 1 day per week spent in the vocational training school, the apprentices perform practical work in the establishment. This permits them to become familiar with conditions in the industry and to acquire their basic knowledge under conditions similar to those under which they will later be employed as skilled workers.

The larger establishments set up special training workshops (Lehrwerkstätten) for training apprentices. The smaller establishments set aside "training corners" or training benches. The workshops average a capacity of about 60, but run up in size to those capable of training 400 or more apprentices. Most of the workshops are found in the metalworking trades, also where the greatest number of apprentices are being trained, but workshops are also found in the woodworking, clothing, and textile industries. Training corners can accommodate 8 to 10 apprentices, while 1 or 2 can work at a training bench.

The problem of providing well-rounded training in the smaller establishments has been met by the establishment of central training workshops. There are several thousand of these joint training schools. The Government provides financial assistance to such schools.

The course of training to be received is prescribed for each occupation within a vocational framework—Berufsbild. This framework defines the skills required for each trade, outlines the teaching methods to be followed, prescribes the tests to be taken at various stages of the

training and the records to be kept by employer and apprentice. The framework provides for a standard syllabus of training.

Apprentices are required in most trades to maintain "workbooks" in which they write up, usually twice a month, notes on what they have been taught. Employers are required as a part of their contract to examine this record and to add their own evaluation to it. Officials of the chamber for the industry may also examine these "workbooks."

The practice in the smaller firms is for the apprentice to work with a skilled worker, who is responsible for teaching him the necessary skills. A firm large enough to have an "apprentice corner" usually assigns one worker to do nothing but supervise and instruct the apprentices. The amount of productive work produced by apprentices varies with the firm, but the entire emphasis in the German apprenticeship system is on the training aspects of the program, with production secondary and incidental. In the large firms, having training workshops, the apprentice spends his entire training period in the workshop.

(*c*) *Related training and formal education.*—The provision of vocational training is not only a part of apprenticeship training in Germany, but a part of the required schooling of all young persons between the ages of 14 and 18. Attendance for a minimum of 8 hours per week is compulsory under the compulsory school attendance law of 1938. Apprentices are expected to attend for a longer period, up to 12 hours a week. In practice, the shortage of schools has made it difficult to satisfy even the 8-hour requirement.

The vocational training given is intended to do more than provide a theoretical basis for the practical training of the apprentice. It is recognized that the rapid pace of the economy will require the skilled worker to adapt the training he receives to the changing needs of industry during the next 20 or 30 years. A broadly based education is essential if the necessary mental agility and flexibility is to be obtained during training.

The vocational training schools thus have a dual objective:

1. To supplement the practical vocational training with theoretical knowledge;
2. To introduce young people to the higher economic, social, and cultural relationships.

Data for 1957 show some 1.4 million apprentices and trainees attending part-time vocational schools, together with some 700,000 others, usually either unskilled workers or young people employed in family enterprises. In that year there were 541 mixed or general part-time vocational schools, 373 industrial and handicrafts schools, 198 commercial schools, 120 domestic schools, and 118 mining schools.

Coupled with the scarcity of school space, which limits the time young people may attend school, is the problem of location of schools. The need to provide a general education severely limits the amount of specifically professional training given in the chosen field of the apprentice. In an area where only one or two industries are present it is possible usually to provide the needed courses of study. A common curriculum of technical studies is quite possible if all the apprentices are, for instance, employed in an electronics factory. But in the artisan trades, where only a few apprentices to each trade are found in each area, the problem is much more difficult. What kind of a common body of theoretic knowledge would one provide for a hair-

dresser, a cook, and a plumber? The provision of schools specializing in providing training for young people in particular trades is a partial solution. The cost in time and money in traveling long distances to attend classes at such specialized schools, however, is substantial.

(*d*) *Completion of training—Examinations.*—Compulsory intermediate and final examinations are given each apprentice on completion of his or her training. The examinations are held twice a year, in the spring and the fall. The apprentice must pass three tests—practical, written, and oral. The examinations are conducted with a good deal of ceremony. The local chambers of the chambers and industry and commerce and the chambers of handicrafts appoint examining commissions to conduct the examinations. Apprentices are tested at their own firm or, in the case of small firms, at a common center.

The examining commission generally consists of two members of management, not connected with the firms whose apprentices are being examined, an experienced journeyman, and a teacher from the vocational training school. Such commissions have responsibility for the conduct of the examinations. The tests themselves, both the practical tests and the written ones in each trade, are the same throughout Germany and the standards by which the proficiency of each apprentice is measured and the classification of the apprentices by grades are likewise standardized nationally. The tests are extremely thorough and may last for 3 full days.

About 90 percent of the apprentices pass the examinations on the first try. A second attempt may be made in 6 months if the apprentice fails the first time. While those failing the tests are usually able to find employment under present conditions, they cannot claim to be skilled workers or, in the case of handicraft workers, set themselves up in business on their own account.

Successful candidates receive a skilled workers' certificate (Facharbeiterbrief) from chambers of industry and commerce and a journeyman's certificate (Gesellenbrief) from chambers of handicrafts. Such certificates enable the worker after about 2 years' experience to receive the skilled worker's rate of pay. At age 24 workers, after further evening study, may qualify for foreman, if employed in industry or commerce, or obtain a master's certificate (Meisterbrief) in the artisan trades. Only those with master's certificates are permitted to carry on a trade and take on apprentices themselves.

Trainee programs do not require an examination for completion.

*3. Supervision of programs*

The ultimate sanction that the terms of the apprentice training programs are carried out lies in the obligation of the apprentice to take and pass a final examination. Any failures on either his or his employer's part show up there. A firm with too high a proportion of failures will not be allowed to take further apprentices.

Under the principle of delegated authority, which is very common in Germany, the Ministry of Labor, and the Ministry of Economics, who are responsible for most aspects of youth employment, delegate most of their authority to the chambers of industry and commerce and the chambers of handicrafts. Similarly vocational guidance and placement of young people is delegated to the Federal Office of Placement and Unemployment Insurance. The latter is also not a part of the government service but a self-governing body under the con-

trol of a council, appointed jointly by employers and trade unions. These bodies place, exercise control over, and supervise the training of apprentices, directly or through local bodies.

Both the Federal Government and the chambers send inspectors to visit establishments to see that apprentice training is properly carried out in accordance with the syllabus laid down for the particular industry. Where training is found not to be up to standard, the chambers may transfer an apprentice to another establishment for training. The chambers must also decide initially whether a firm is able to provide the training required by the regulations of the industry, and if it does not approve the firm for training, it may not take on apprentices. An inspector may also decline to approve further applications for employment of apprentices when he finds the training given is unsatisfactory.

*4. Training and training programs of instructors*

Instructors in handicraft industries must be able to teach not only the trade itself but also business management, as it is assumed many apprentices will eventually set up their own businesses. Such instructors must have not only at least 5 years' experience as a journeyman but must also have passed the masters' test, which requires not only theoretical and practical knowledge of the trade, but also tests their ability to teach.

Standards of a similar nature do not now exist in industry but are being extended there also. At present the practice is to place the single apprentice in the charge of a skilled workman for training. Several apprentices may be placed under a skilled workman whose duties will be exclusively those of teaching the apprentices. In cases when factory training schools are set up, it would be staffed with training instructors.

## D. UNIONS AND APPRENTICESHIP PROGRAMS

As noted the unions are represented on the commissions which set up the trade specifications for each occupation. It is at this point that the attitude of the union representatives can be of great importance. If the union attitude is to preserve the existing conditions and oppose changes in schedules of training in the name of craft tradition, then the training given apprentices can easily become obsolete.

This has not happened in Germany because the modern trade union movement, the German Confederation of Trades Unions (DGB, Deutscher Gewerkschaftsbund), is made up of only 16 industrial unions, each responsible for a group of related industries. Thus in any firm all workers belong to the same union. As no union has a vested interest in any one particular craft, but as many occupations fall predominantly into the jurisdiction of a particular union, the unions have a maximum of interest in keeping the training in each trade in line with technological developments and pose a minimum objection to necessary changes, even being willing to accept the de-skilling of occupations where necessary.

As this institutional flexibility is coupled with the common acceptance among German trade unions of the principle of codetermination, it can be seen that the part played by the trade unions in setting standards for vocational training is to protect the rights of the workers within a context of the general needs of the industry and the economy as a whole.

### E. EARNINGS AND ALLOWANCES OF APPRENTICES

Apprentices in Germany receive no wages, but are paid an educational allowance (Erziehungsbehilfe). This is intended only to assist the parents of the apprentice with his maintenance. These allowances were either fixed by law, as in the handicraft trades, or negotiated or stipulated by the chamber for the industrial or commercial trades.

A typical allowance may be considered to be the following which represents the monthly allowances for the engineering industry:

| Year of training | Age of entry into apprenticeship | | |
|---|---|---|---|
| | Under 16 years | Over 16 and under 18 years | 18 years |
| 1st year | $22.55 | $25.06 | $31.33 |
| 2d year | 27.58 | 31.33 | 33.95 |
| 3d year | 31.46 | 36.34 | 41.37 |

Such allowances represent amounts substantially less than the wages a young person could earn if he or she entered employment not requiring training. That training is held in great esteem by parents and workers in general is clear from the fact that there is no lack of school leavers desiring to be placed. The investment in education which this training represents is apparently considered to yield a worthwhile return.

It cannot be said that direct economic considerations alone are important. Great social prestige attaches to the "qualified man" in life and the holder of a credential or certificate is given high esteem. There are also other practical considerations. Seniority as a principle in determining sequence of layoffs is not customarily followed in German industry. Instead, the unqualified worker without a certificate is the first to go.

### F. ECONOMIC FACTORS IN APPRENTICESHIP

Where the wages of apprentices are low the possibility of their exploitation as cheap child labor exists. However, this does not appear to be generally the situation in Germany.

In the metal industry and other large-scale industries, despite the low direct cost of apprentices, the costs of providing training facilities and personnel are very heavy. The curriculum which must be covered is so extensive that any attempt to divert the training time to productive work would quickly show up in failures to pass the examinations, or when the apprentices' "workbooks" were checked.

In some of the artisan trades and in some small-scale industries it is less certain that part of the willingness to take apprentices does not reflect a desire to secure cheap labor in a labor-short market. This is especially true in the construction industry. Here formal training is concentrated at training centers where apprentices attend for a period of 6 weeks annually. At other times they are a part of the work force of the builder. While this may well have both economic and educational reason in its favor, it also makes exploitation a possibility.

Whatever the individual differences, the sum total of this program shows up as a tremendous nationwide joint effort of organized labor, organized management, and the various levels of government to work in cooperation to provide practical training to assure, among all who can profit by it, a start in life as a skilled worker, knowing a trade and able, to the extent job opportunities exist, to be self-supporting at age 18.

TABLE 1.—*Germany, Federal Republic, population and labor force, 1950–60*

[Thousands]

| Item | 1950 | 1956 | 1957 | 1959 | 1960 |
|---|---|---|---|---|---|
| Total population | 47,696 | 50,595 | 50,669 | 52,940 | 53,662 |
| Economically active population | 22,074 | 25,279 | 24,277 | 25,201 | 25,504 |
| Males, under 20 | 1,610 | (1) | (1) | 1,706 | 1,547 |
| Males, 20 and over | 12,515 | (1) | (1) | 14,239 | 14,567 |
| Females, under 20 | 1,407 | (1) | (1) | 1,555 | 1,427 |
| Females, 20 and over | 6,542 | (1) | (1) | 7,701 | 7,963 |

[1] Not available.

Source: International Labour Office: "Year Book of Labour Statistics, 1953–62."

TABLE 2.—*Germany, Federal Republic, projections of population by age and sex, 1956–76*

[Thousands]

| Item | Estimates | | Projections | | | |
|---|---|---|---|---|---|---|
| | Jan. 1, 1956 | Jan. 1, 1959 | Jan. 1, 1961 | Jan. 1, 1966 | Jan. 1, 1971 | Jan. 1, 1976 |
| Population, all ages: | | | | | | |
| Males | 23,664 | 24,685 | 24,997 | 25,739 | 26,350 | 26,842 |
| Females | 26,841 | 27,808 | 28,094 | 28,709 | 29,113 | 29,317 |
| Age 0 to 9 years | 7,196 | 7,874 | 8,073 | 8,589 | 8,606 | 8,420 |
| Males | 3,670 | 4,039 | 4,144 | 4,417 | 4,429 | 4,335 |
| Females | 3,526 | 3,835 | 3,929 | 4,172 | 4,177 | 4,085 |
| Age 10 to 14 years | 3,533 | 3,319 | 3,579 | 3,812 | 4,217 | 4,327 |
| Males | 1,793 | 1,693 | 1,831 | 1,953 | 2,165 | 2,225 |
| Females | 1,740 | 1,626 | 1,748 | 1,859 | 2,052 | 2,102 |
| Age 15 to 19 years | 4,509 | 4,357 | 3,638 | 3,566 | 3,799 | 4,202 |
| Males | 2,290 | 2,221 | 1,851 | 1,822 | 1,943 | 2,154 |
| Females | 2,219 | 2,136 | 1,787 | 1,744 | 1,856 | 2,048 |
| Age 20 to 24 years | 3,671 | 4,286 | 4,629 | 3,618 | 3,546 | 3,778 |
| Males | 1,874 | 2,179 | 2,356 | 1,836 | 1,807 | 1,928 |
| Females | 1,797 | 2,107 | 2,273 | 1,782 | 1,739 | 1,850 |
| Age 25 and over | 31,595 | 32,655 | 33,172 | 34,863 | 35,295 | 35,402 |
| Males | 14,037 | 14,552 | 14,815 | 15,711 | 16,006 | 16,170 |
| Females | 17,558 | 18,103 | 18,357 | 19,152 | 19,289 | 19,232 |

Source: OECD: "Demographic Trends 1956–76 in Western Europe and in the United States."

TABLE 3.—*Germany, Federal Republic, labor force by age groups and sex, 1950 and 1960*

[Thousands]

| Age group | Labor force, 1960 | | | Labor force, 1950 | | |
|---|---|---|---|---|---|---|
| | Total | Males | Females | Total | Males | Females |
| All ages | 25,593 | 16,124 | 9,469 | 22,074 | 14,125 | 7,949 |
| Under 15 | 168 | 90 | 78 | 206 | 117 | 89 |
| 15 to 20 | 2,818 | 1,453 | 1,365 | 2,820 | 1,498 | 1,322 |
| 20 to 25 | 3,946 | 2,211 | 1,735 | 2,926 | 1,656 | 1,270 |
| 25 to 30 | 2,750 | 1,815 | 935 | 2,456 | 1,436 | 1,020 |
| 30 to 35 | 2,641 | 1,815 | 826 | 1,584 | 1,014 | 570 |
| 35 to 40 | 2,484 | 1,545 | 939 | 2,258 | 1,517 | 741 |
| 40 to 45 | 1,759 | 1,090 | 669 | 2,440 | 1,692 | 748 |
| 45 to 50 | 2,343 | 1,496 | 847 | 2,395 | 1,704 | 692 |
| 50 to 55 | 2,451 | 1,638 | 813 | 1,907 | 1,327 | 580 |
| 55 to 60 | 2,127 | 1,500 | 627 | 1,368 | 943 | 425 |
| 60 to 65 | 1,298 | 943 | 355 | 944 | 687 | 257 |
| 65 and over | 808 | 529 | 209 | 769 | 533 | 236 |

Source: Germany, Federal Republic, "Statistisches Jahrbuch fur die Bundesrepublik Deutschland, 1962."

TABLE 4.—*Germany, Federal Republic, distribution by age of labor force by class of worker and major industrial group, 1960*

[Percent]

| Age and group | Self-employed | Family workers | Civil servants | Salaried employees | Wage earners |
|---|---|---|---|---|---|
| Agriculture and forestry: | | | | | |
| Under 24 | 8.8 | 15.5 | ---------- | 3.1 | 9.3 |
| 24, under 45 | 10.8 | 24.4 | ---------- | 5.0 | 12.8 |
| 45, under 49 | 5.2 | 8.6 | 46.9 | 44.3 | 30.3 |
| 49, under 70 | 37.7 | 32.3 | 50.0 | 35.9 | 34.2 |
| 70 and over | 37.5 | 19.2 | 3.1 | 11.8 | 13.4 |
| Manufacturing: | | | | | |
| Under 24 | 3.3 | 17.4 | 2.4 | 2.4 | 3.3 |
| 24, under 45 | 12.1 | 24.1 | 7.1 | 33.6 | 37.7 |
| 45, under 49 | 24.0 | 17.6 | 61.9 | 51.3 | 49.8 |
| 49, under 70 | 46.1 | 30.7 | 23.8 | 12.0 | 8.8 |
| 70 and over | 11.4 | 10.1 | 4.8 | .7 | .3 |
| Trade and commerce, banking and insurance: | | | | | |
| Under 24 | 7.0 | 16.6 | 2.8 | 3.0 | 8.5 |
| 24, under 45 | 7.6 | 25.4 | 3.9 | 16.1 | 15.6 |
| 45, under 49 | 17.4 | 17.9 | 80.2 | 66.0 | 58.4 |
| 49, under 70 | 52.9 | 30.8 | 12.5 | 13.6 | 15.5 |
| 70 and over | 15.2 | 9.3 | .6 | 1.3 | 2.0 |
| Public employment: | | | | | |
| Under 24 | 10.5 | 15.8 | 3.1 | 3.9 | 11.0 |
| 24, under 45 | 11.7 | 21.9 | 11.5 | 12.0 | 17.3 |
| 45, under 49 | 15.7 | 14.3 | 63.0 | 63.2 | 49.7 |
| 49, under 70 | 39.3 | 25.3 | 19.6 | 18.5 | 19.5 |
| 70 and over | 22.9 | 22.7 | 2.8 | 2.4 | 2.5 |

Source: Germany, Federal Republic, "Statistisches Jahrbuch fur die Bundesrepublik Deutschland, 1962."

TABLE 5.—*Germany, Federal Republic, distribution of employment by major industry groups, 1960*

[Thousands]

| Industry group | Total | | | Wage and salaried employees | | |
|---|---|---|---|---|---|---|
| | Males | Females | Both | Males | Females | Both |
| Total | 16,124 | 9,469 | 25,593 | 13,143 | 6,655 | 19,798 |
| Agriculture, forestry, hunting, and fishing | 1,623 | 1,914 | 3,537 | 338 | 190 | 528 |
| Mining and quarrying | 783 | 35 | 818 | 773 | 33 | 806 |
| Manufacturing | 6,306 | 2,971 | 9,277 | 5,758 | 2,700 | 8,457 |
| Construction | 2,024 | 118 | 2,142 | 1,816 | 87 | 1,903 |
| Electricity, gas, water, and sanitary services | 170 | 20 | 190 | 170 | 20 | 190 |
| Commerce | 1,615 | 1,804 | 3,419 | 1,094 | 1,349 | 2,443 |
| Transport, storage, and communication | 1,223 | 226 | 1,449 | 1,147 | 209 | 1,356 |
| Services | 2,320 | 2,309 | 4,629 | 1,987 | 1,996 | 3,983 |
| Other, including unemployed | 60 | 72 | 132 | 60 | 71 | 132 |

Source: International Labor Office, "Year Book of Labour Statistics, 1962."

TABLE 6.—*Germany, Federal Republic: Unemployment,*[1] *1950–63*

[In thousands]

| Date | Number | Percent | Date | Number | Percent |
|---|---|---|---|---|---|
| 1950 | 1,580 | 10.2 | 1961 | 161 | 0.8 |
| 1953 | 1,259 | 7.5 | 1962 | 142 | .7 |
| 1955 | 928 | 5.1 | 1963: | | |
| 1957 | 662 | 3.4 | June | 103 | .5 |
| 1959 | 480 | 2.4 | August | 96 | (2) |
| 1960 | 237 | 1.2 | | | |

[1] Employment office statistics, registered unemployed.
[2] Not available.

Source: International Labour Office: Year Book of Labour Statistics, 1957, 1962. International Labour Review, Statistical Supplement, October 1963.

TABLE 7.—*Germany, Federal Republic, apprentices and trainees in training, by sex, Dec. 31, 1950–61* [1]

| Item | 1950 | 1952 | 1954 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 |
|---|---|---|---|---|---|---|---|---|---|
| Apprentices | 934,023 | 1,085,646 | 1,266,295 | 1,398,684 | 1,352,889 | 1,322,348 | 1,262,155 | 1,184,039 | 1,158,028 |
| Males | 723,097 | 818,803 | 930,149 | 985,210 | 934,894 | 896,789 | 837,370 | 782,103 | 761,432 |
| Females | 210,926 | 266,843 | 336,146 | 413,474 | 417,995 | 425,559 | 424,785 | 401,936 | 396,596 |
| Trainees | 36,903 | 50,783 | 62,835 | 59,456 | 53,456 | 48,719 | 43,029 | 39,734 | 38,596 |
| Males | 5,961 | 8,713 | 10,009 | 10,186 | 8,405 | 7,448 | 5,921 | 4,943 | 4,441 |
| Females | 30,942 | 42,070 | 52,826 | 49,270 | 45,051 | 41,271 | 37,108 | 34,791 | 34,155 |
| Both | 970,926 | 1,136,429 | 1,329,130 | 1,458,140 | 1,406,345 | 1,371,067 | 1,305,184 | 1,223,773 | 1,196,624 |
| Males | 729,058 | 827,516 | 940,158 | 995,396 | 943,299 | 904,237 | 843,291 | 787,046 | 765,873 |
| Females | 241,868 | 308,913 | 388,972 | 462,744 | 463,046 | 466,830 | 461,893 | 436,727 | 430,751 |

[1] Does not include the Saar before 1958; excludes West Berlin.

Source: Germany, Federal Republic, Bundesministerium fur Arbeit und Sozial Ordnung Statistik-Lehrlinge und Anlernlinge in der Bundesrepublik Deutschland, 1950/51, bis 1961/62, Arbeits- und Sozial, statistische Mitteilungen, Heft, 12/1962.

TABLE 8–1.—*Germany, Federal Republic, occupations of male apprentices, 1950–61*

| Occupation | 1950 | 1952 | 1954 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 |
|---|---|---|---|---|---|---|---|---|---|
| All occupations | 723,097 | 818,803 | 930,149 | 985,210 | 934,894 | 896,789 | 837,370 | 782,103 | 761,439 |
| Agriculture, animal husbandry, horticulture | 22,720 | 23,457 | 28,932 | 27,518 | 25,574 | 24,398 | 23,154 | 22,287 | 21,862 |
| Farmer | 10,877 | 12,716 | 17,697 | 17,886 | 17,198 | 17,004 | 16,555 | 16,392 | 16,563 |
| Gardener | 10,177 | 8,813 | 9,100 | 7,762 | 6,782 | 6,002 | 5,333 | 4,776 | 4,362 |
| Fishing | 115 | 117 | 87 | 81 | 82 | 82 | 91 | 68 | 66 |
| Mining | 15,600 | 26,036 | 34,113 | 30,289 | 24,481 | 21,127 | 15,634 | 9,874 | 6,398 |
| Coal miner | 15,569 | 25,569 | 34,072 | 30,237 | 24,452 | 21,097 | 15,629 | 9,870 | 6,396 |
| Stone, ceramics, glass | 6,160 | 7,552 | 8,463 | 7,177 | 6,060 | 4,891 | 4,065 | 3,223 | 2,670 |
| Construction | 122,625 | 130,627 | 146,130 | 154,217 | 129,324 | 107,502 | 89,610 | 78,878 | 72,703 |
| Bricklayer | 59,192 | 62,902 | 74,368 | 83,118 | 68,571 | 63,551 | 41,142 | 34,605 | 31,467 |
| Carpenter | 17,916 | 14,602 | 13,023 | 11,595 | 9,653 | 7,831 | 6,158 | 5,180 | 4,731 |
| Painter | 30,517 | 35,594 | 37,632 | 36,808 | 31,195 | 28,700 | 26,830 | 24,750 | 22,750 |
| Metal and metal working | 18,096 | 26,602 | 28,313 | 33,482 | 33,414 | 30,136 | 24,841 | 21,540 | 20,577 |
| Molder | 5,475 | 7,660 | 6,547 | 6,579 | 5,971 | 4,714 | 3,195 | 2,196 | 1,711 |
| Lathe operator | 9,444 | 13,715 | 15,276 | 18,937 | 19,922 | 18,677 | 15,943 | 14,477 | 14,571 |
| Blacksmith and mechanic trades | 186,626 | 224,990 | 268,428 | 299,395 | 301,145 | 301,866 | 281,134 | 255,801 | 248,138 |
| Blacksmith | 15,056 | 15,197 | 16,514 | 15,084 | 13,349 | 12,082 | 10,277 | 8,239 | 6,673 |
| Toolmaker | 11,983 | 15,722 | 18,638 | 21,811 | 22,841 | 23,325 | 22,016 | 20,838 | 21,749 |
| Shop mechanics | 8,807 | 11,590 | 13,300 | 16,766 | 16,805 | 16,695 | 15,038 | 13,208 | 12,838 |
| Machinist | 32,306 | 41,569 | 46,402 | 52,640 | 54,624 | 54,824 | 50,497 | 45,129 | 44,594 |
| Plumber | 14,266 | 19,771 | 18,487 | 23,576 | 20,981 | 19,699 | 17,540 | 14,647 | 12,026 |
| Mechanic | 6,669 | 9,222 | 10,768 | 11,872 | 12,260 | 12,254 | 11,267 | 10,317 | 10,670 |
| Automotive mechanic | 26,026 | 30,272 | 35,920 | 42,178 | 45,721 | 49,220 | 50,556 | 51,774 | 54,627 |
| Electrical trades | 40,960 | 43,918 | 54,529 | 67,482 | 71,690 | 77,268 | 79,440 | 80,849 | 87,250 |
| Electrician | 23,465 | 25,167 | 31,388 | 37,878 | 38,036 | 40,558 | 41,199 | 40,083 | 40,364 |
| Heavy current electrician | 6,050 | 6,304 | 7,826 | 10,916 | 11,930 | 12,904 | 12,561 | 12,519 | 14,201 |
| Chemical works | 698 | 1,071 | 1,493 | 1,576 | 1,537 | 1,484 | 1,466 | 1,321 | 1,087 |
| Plastics | 34 | 53 | 79 | 141 | 146 | 166 | 159 | 168 | 199 |
| Woodworking trades | 80,366 | 71,213 | 62,264 | 49,964 | 39,920 | 33,536 | 28,704 | 24,130 | 20,720 |
| Joiner | 56,925 | 52,291 | 46,253 | 37,014 | 28,928 | 23,958 | 20,480 | 17,202 | 14,641 |
| Wheelwright | 6,412 | 3,562 | 2,375 | 1,105 | 837 | 490 | 375 | 202 | 127 |
| Paper and paper products | 1,890 | 1,894 | 2,168 | 2,425 | 2,214 | 2,221 | 2,084 | 1,916 | 1,678 |
| Photography and printing | 11,253 | 11,653 | 13,822 | 16,305 | 16,258 | 16,646 | 16,728 | 17,236 | 18,108 |
| Typesetter | 5,147 | 5,278 | 5,975 | 6,878 | 6,785 | 7,044 | 7,084 | 7,367 | 7,641 |
| Pressman | 2,976 | 3,102 | 3,923 | 4,542 | 4,540 | 4,732 | 4,670 | 4,715 | 4,900 |
| Textiles, textile products and gloves | 25,172 | 25,309 | 21,377 | 18,261 | 14,326 | 12,157 | 9,413 | 7,133 | 5,287 |
| Tailor | 15,938 | 13,055 | 7,434 | 3,257 | 2,231 | 1,746 | 1,367 | 1,052 | 352 |
| Upholsterer and decorator | 5,275 | 6,012 | 6,308 | 7,353 | 5,759 | 5,297 | 4,478 | 3,478 | 2,517 |
| Leather and fur trades | 23,300 | 15,323 | 12,496 | 6,545 | 5,389 | 4,282 | 3,986 | 3,336 | 2,993 |
| Saddler | 6,349 | 5,349 | 4,720 | 1,628 | 1,440 | 856 | 700 | 465 | 482 |
| Shoemaker | 13,909 | 7,077 | 4,917 | 2,616 | 2,075 | 1,878 | 1,928 | 1,709 | 1,472 |

Source: Same as table 7.

TABLE 8–1.—*Germany, Federal Republic, occupation of male apprentices, 1950–61*—Continued

| Occupation | 1950 | 1952 | 1954 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 |
|---|---|---|---|---|---|---|---|---|---|
| Food and specialties | 55,548 | 67,758 | 74,815 | 66,443 | 57,688 | 53,186 | 49,606 | 44,677 | 40,608 |
| Baker | 28,578 | 29,908 | 31,837 | 26,047 | 20,918 | 18,329 | 16,362 | 14,064 | 12,246 |
| Butcher | 14,409 | 22,663 | 25,479 | 22,290 | 19,183 | 17,584 | 16,364 | 14,397 | 12,793 |
| Technical specializations | 4,942 | 7,752 | 10,120 | 15,273 | 16,214 | 16,396 | 16,116 | 17,562 | 19,866 |
| Draughtsman | 2,878 | 4,563 | 5,828 | 8,862 | 9,589 | 9,539 | 9,036 | 9,906 | 10,554 |
| Machine operation | 202 | 416 | 560 | 799 | 787 | 754 | 671 | 636 | 600 |
| Commercial trades | 65,778 | 81,154 | 100,273 | 117,079 | 116,817 | 117,250 | 118,600 | 120,618 | 118,366 |
| Retail storekeeper | 26,704 | 31,349 | 35,289 | 39,379 | 38,425 | 38,403 | 38,891 | 38,764 | 35,922 |
| Wholesale and export trade | 26,528 | 32,757 | 38,527 | 44,424 | 44,435 | 44,145 | 44,174 | 43,738 | 41,977 |
| Banker | 5,367 | 6,547 | 8,763 | 10,991 | 10,876 | 10,664 | 11,090 | 13,129 | 15,715 |
| Transportation | 5,169 | 11,201 | 13,450 | 14,735 | 16,148 | 17,100 | 16,739 | 13,977 | 12,963 |
| Restaurants | 1,519 | 1,959 | 2,848 | 3,501 | 3,773 | 3,740 | 3,652 | 3,372 | 3,208 |
| Domestic science | 7 | 6 | 5 | 11 | 25 | 18 | 12 | 11 | 32 |
| Drycleaning | 1,255 | 1,926 | 2,737 | 2,939 | 2,707 | 2,507 | 2,424 | 2,167 | 2,104 |
| Barbering | 7,324 | 5,880 | 6,988 | 7,079 | 6,551 | 6,223 | 6,140 | 6,026 | 5,695 |
| Clerical work | 24,396 | 28,612 | 32,425 | 38,319 | 38,301 | 37,317 | 38,379 | 40,673 | 43,416 |
| Arts | 1,342 | 2,323 | 3,233 | 4,169 | 4,323 | 4,536 | 4,522 | 4,624 | 4,832 |

TABLE 8–2.—*Germany, Federal Republic, occupations of female apprentices, 1950–61*

| Occupation | 1950 | 1952 | 1954 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 |
|---|---|---|---|---|---|---|---|---|---|
| All occupations | 210,926 | 266,843 | 336,146 | 413,474 | 417,995 | 425,559 | 424,785 | 401,936 | 396,596 |
| Agriculture, animal husbandry, horticulture | 2,249 | 2,643 | 3,133 | 3,966 | 4,000 | 4,179 | 3,756 | 3,246 | 2,897 |
| Stone, ceramics, and glass | 186 | 177 | 205 | 248 | 279 | 279 | 292 | 279 | 283 |
| Construction | 77 | 63 | 98 | 148 | 175 | 202 | 153 | 142 | 136 |
| Metal and metalworking | 194 | 311 | 489 | 413 | 303 | 255 | 204 | 182 | 143 |
| Blacksmith and mechanic trades | 600 | 703 | 974 | 1,345 | 1,603 | 1,808 | 1,990 | 1,926 | 2,189 |
| Electrical trades | 15 | 14 | 24 | 43 | 47 | 47 | 42 | 42 | 34 |
| Chemical works | 26 | 3 | 4 | 6 | 10 | 69 | 13 | 13 | 12 |
| Woodworking trades | 92 | 91 | 116 | 185 | 238 | 246 | 247 | 269 | .299 |
| Paper and paper products | 236 | 172 | 193 | 195 | 220 | 220 | 248 | 246 | 227 |
| Photography and printing | 802 | 872 | 1,194 | 1,397 | 1,425 | 1,516 | 1,563 | 1,662 | 1,754 |
| Textiles, textile products, and gloves | 59,061 | 51,442 | 46,787 | 39,596 | 36,199 | 34,498 | 32,093 | 28,214 | 26,122 |
| Dressmaker | 42,132 | 34,285 | 29,003 | 23,460 | 21,675 | 21,094 | 20,819 | 19,250 | 18,538 |
| Leather and fur trades | 344 | 328 | 417 | 329 | 340 | 304 | 309 | 286 | 243 |
| Food and specialties | 1,028 | 1,485 | 2,388 | 3,238 | 3,363 | 3,453 | 3,132 | 2,760 | 2,374 |
| Warehousing | 13 | 4 | 4 | 13 | 16 | 13 | 11 | 10 | 5 |
| Technical specializations | 937 | 1,375 | 1,996 | 3,653 | 4,858 | 5,538 | 5,968 | 6,814 | 8,503 |
| Commercial trades | 104,902 | 152,871 | 202,932 | 261,704 | 264,809 | 269,931 | 259,992 | 239,461 | 227,929 |
| Retail storekeeper | 85,369 | 125,009 | 161,379 | 191,785 | 189,816 | 191,878 | 182,844 | 163,113 | 151,843 |
| Wholesale and export trade | 13,844 | 19,393 | 24,586 | 32,165 | 33,885 | 35,409 | 35,499 | 35,033 | 35,609 |
| Restaurants | 280 | 392 | 593 | 717 | 710 | 643 | 635 | 614 | 430 |
| Domestic service | 6,112 | 8,210 | 12,180 | 13,893 | 13,555 | 13,083 | 12,257 | 11,561 | 11,277 |
| Drycleaning | 587 | 896 | 1,183 | 1,199 | 953 | 694 | 560 | 402 | 291 |
| Hairdressing | 12,363 | 16,075 | 24,554 | 33,505 | 35,114 | 38,157 | 41,450 | 43,697 | 47,936 |
| Clerical work | 20,676 | 28,466 | 36,101 | 46,529 | 48,169 | 48,350 | 57,638 | 57,580 | 60,619 |
| Arts | 146 | 247 | 578 | 1,151 | 1,603 | 2,072 | 2,229 | 2,526 | 2,893 |

Source: Same as table 7.

TABLE 8–3.—*Germany, Federal Republic, occupations of male trainees, 1950–61*

| Occupation | 1950 | 1952 | 1954 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 |
|---|---|---|---|---|---|---|---|---|---|
| All occupations | 5,961 | 8,713 | 10,009 | 10,186 | 8,405 | 7,448 | 5,921 | 4,943 | 4,441 |
| Mining | 4 | 3 | 21 | 27 | 31 | 24 | 26 | 25 | 11 |
| Stone, ceramics, glass | 314 | 428 | 416 | 304 | 188 | 142 | 117 | 61 | 45 |
| Construction | 90 | 63 | 139 | 96 | 61 | 55 | 50 | 30 | 24 |
| Metal and metalworking | 1,113 | 1,869 | 1,834 | 2,133 | 1,404 | 1,199 | 893 | 744 | 690 |
| Blacksmith and mechanical trades | 369 | 572 | 678 | 724 | 635 | 588 | 366 | 268 | 236 |
| Electrical trades | 98 | 126 | 139 | 110 | 98 | 84 | 85 | 91 | 58 |
| Chemical works | 459 | 913 | 1,003 | 1,361 | 1,555 | 1,536 | 1,407 | 1,595 | 1,486 |
| Woodworking trades | 111 | 106 | 99 | 78 | 51 | 37 | 35 | 18 | 5 |
| Paper and paper products | 197 | 324 | 377 | 598 | 526 | 509 | 432 | 339 | 314 |
| Photography and printing | 135 | 191 | 289 | 303 | 263 | 302 | 335 | 282 | 244 |
| Textiles, textile products, and gloves | 2,095 | 2,740 | 3,753 | 3,192 | 2,462 | 1,961 | 1,352 | 832 | 825 |
| Leather and fur trades | 513 | 557 | 549 | 502 | 459 | 428 | 336 | 229 | 158 |
| Food and specialties | 165 | 64 | 63 | 71 | 55 | 38 | 27 | 19 | 16 |
| Warehousing | 213 | 402 | 574 | 584 | 503 | 445 | 376 | 327 | 255 |
| Technical specializations | 4 | 13 | 5 | 37 | 37 | 40 | 20 | 16 | 24 |
| Machine operation | 8 | 8 | 2 | 3 | 6 | 1 | ---- | ---- | ---- |
| Commercial trades | 46 | 284 | 11 | ---- | ---- | 1 | 3 | 2 | 2 |
| Transportation | 6 | 22 | 23 | 16 | 11 | 9 | 2 | 2 | 2 |
| Drycleaning | 13 | 10 | 9 | ---- | ---- | ---- | ---- | 1 | 1 |
| Clerical work | 8 | 18 | 25 | 47 | 60 | 49 | 59 | 62 | 45 |

Source: Same as table 7.

TABLE 8–4.—*Germany, Federal Republic, occupations of female trainees, 1950–61*

| Occupation | 1950 | 1952 | 1954 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 |
|---|---|---|---|---|---|---|---|---|---|
| All occupations | 30,942 | 42,070 | 52,826 | 49,270 | 45,051 | 41,271 | 37,108 | 34,791 | 34,155 |
| Stone, ceramics, glass | 13 | 24 | 52 | 2 | | 2 | 1 | 2 | 1 |
| Metal and metalworking | 40 | 60 | 62 | 43 | 26 | 18 | 20 | 10 | 26 |
| Blacksmithing and mechanical trades | 248 | 285 | 287 | 158 | 122 | 86 | 64 | 41 | 28 |
| Electrical trades | 30 | 33 | 24 | 40 | 28 | 32 | 18 | 11 | 34 |
| Chemical works | 89 | 112 | 130 | 206 | 283 | 339 | 384 | 492 | 515 |
| Woodworking trades | 1 | 4 | 3 | 2 | 1 | | | | |
| Paper and paper products | 268 | 89 | 152 | 133 | 116 | 95 | 71 | 50 | 25 |
| Photography and printing | 708 | 1,205 | 2,066 | 2,831 | 2,963 | 3,135 | 2,991 | 2,823 | 2,708 |
| Textiles, textile products, and gloves | 9,120 | 11,404 | 14,472 | 16,715 | 13,825 | 11,840 | 9,601 | 8,495 | 8,559 |
| Leather and fur trades | 1,553 | 2,388 | 2,743 | 2,550 | 2,200 | 1,945 | 1,487 | 1,047 | 800 |
| Food and specialties | 700 | 54 | | 1 | 2 | 2 | 3 | 1 | |
| Warehousing | 46 | 66 | 101 | 138 | 110 | 85 | 75 | 59 | 76 |
| Technical specializations | 93 | 195 | 355 | 977 | 1,116 | 992 | 894 | 973 | 1,357 |
| Commercial trades | 8,445 | 12,005 | 14,180 | 2,134 | 1,252 | 964 | 931 | 515 | 398 |
| Drycleaning | 188 | 393 | 340 | 182 | 186 | 171 | 149 | 113 | 88 |
| Clerical work | 9,400 | 13,753 | 17,859 | 23,158 | 22,812 | 21,563 | 20,419 | 20,159 | 19,540 |

Source: Same as table 7.

TABLE 9.—*Germany, Federal Republic: Average hourly earnings of skilled workers, selected occupations, November 1961*

[Pfennigs, 100 pfennigs = 22.7 cents]

| Class of worker | Experienced journeymen | Young journeymen | Other workers |
|---|---|---|---|
| Male workers: | | | |
| All trades | 313.1 | 245.0 | 263.2 |
| Automotive repair | 306.1 | 234.8 | 250.3 |
| Locksmith | 318.9 | 244.3 | 271.6 |
| Cabinetmaking | 306.4 | 234.5 | 254.6 |
| Men's tailoring | 245.7 | 181.3 | 185.5 |
| Baking | 302.1 | 238.0 | 236.8 |
| Meat cutting | 328.4 | 256.1 | 236.2 |
| Plumbing | 328.5 | 257.9 | 272.2 |
| Electrical work | 310.3 | 241.0 | 260.1 |
| Painting and decorating | 319.5 | 260.7 | 317.6 |
| Women workers: | | | |
| Men's tailoring | 202.1 | 158.6 | 173.8 |
| Ladies' tailoring | 186.3 | 139.7 | 161.1 |

Source: Germany, Statistisches Bundesamt, Statistiches Jahrbuch fur die Bundesrepublik Deutschland, 1962.

# IV. FRANCE

## A. YOUNG PEOPLE IN THE LABOR FORCE

### *1. Demographic and social factors*

There were substantially more young people under 20 years of age in the French labor force in 1962 than in 1954. Over this period the total labor force increased by some 760,000; 425,000 of these were under 20 years of age. The number of adult workers increased by less than 2 percent; the number of young workers by 28 percent (table 1).

Actually these figures substantially understate the importance of young people in the French labor force. The French in making their count of labor force participants exclude apprentices in full-time training schools, where a substantial portion of French workers are trained. Such apprentices are counted as part of the labor force in countries like Germany where training is given, for the most part, on the job.

Like other countries of Europe, France's population structure was distorted by depression and war. It labor force was larger in 1946 than it was in 1962. Young people in the age for vocational training or higher education, 15 through 19, numbered fewer in 1959 than in 1956 and about the same in 1961. Since that time a sharp upward increase has begun, which will bring the total in that age group over 4 million by 1966

The legal age for leaving school in France is 16 years, but at 14 young people may enter apprenticeship or other vocational training. This is a consequence of the traditional use of vocational training schools to train skilled workers in France. Those not attending school full time must attend part time. However, even so, no more than one-third of the number of skilled worker trainees receive training in such schools.

The existence of such a school system providing vocational education has been one reason for the success of the French in placing young people in jobs. However, it must be recognized that under the conditions of relatively full employment which have generally characterized the French economy since World War II and the relative

shortage of labor in France, the problem, as in other countries of Europe, has been to find young people to train and place, not to find job opportunities. There were fewer young men and women under 20 in the labor force of France in each year since at least 1954 than there were in 1946. There were fewer people in the prime years for training and employment, 15 through 34 years of age, in 1961 than in 1956, 12.2 million against 12.3 million.

*2. Number and occupation of young workers*

(*a*) *Males.*—In 1959 there were some 990,000 young men under 20 in the French labor force, of whom about 450,000 were receiving vocational training (tables 1, 6).

Although France is traditionally a country with large numbers of small, family-operated farms, shops, and other businesses, nevertheless in 1957 two-thirds of its labor force were wage and salary workers. In the category of "agriculture, forestry, hunting, and fishing" there were in 1954 1.9 million farmers, 2.1 million farm family workers, and only 1.2 million wage and salary workers. In manufacturing there were 564,000 employers and self-employed and 110,000 family workers. In commerce there were 910,000 employers and self-employed and 287,000 family workers. Thus while by no means all boys and girls receiving vocational training will enter employment (many will be employed in family businesses) the number being trained for skilled work in industrial employment is a very substantial part of the available labor supply.

(*b*) *Females.*—There are substantially fewer young females in the French labor force than males. In 1962 the difference was over 300,000 (table 1). However, very substantially fewer girls than boys received vocational training, less than half in 1958–59 (table 6).

Wage and salary workers are better than 2 to 1 of the male sex. Only in commerce and the service trades do the numbers of females employed approach those of the males, 2.1 to 2.6 million (table 4). There are 1.4 million women employed in manufacturing in France, against 3.1 million men.

Greater detail on youth employment is not available.

*3. Unemployment among the young*

As in other countries of Europe since the war, unemployment in France is low. Although it shows a greater recent fluctuation than some other countries (Germany, for instance) it has been 1 percent or less in most recent years (table 5). As noted, unemployment among the young has not been a problem, especially with the relatively small numbers of young people entering the labor market each year.

*4. Wages of young workers*

As in Germany, apprentices in France, whether in private industry or in public training facilities, do not receive wages, but are paid allowances. These allowances vary with the financial circumstances of the individual and to a degree with the circumstances of training. Family allowances are also paid to the families of apprenctices under the age of 17 years.

Separate wage data for young workers are not available.

*5. Protective labor legislation applying to young workers*

As noted, young people either remain in school until 16 years of age or enter some sort of formal vocational training at 14. Young workers

may not work over 40 hours a week between the ages of 14 and 16; between 16 and 18 they may work up to 4 hours of overtime beyond 40 hours. Nightwork is prohibited up to age 18.

Students in vocational schools, whether public or private, usually enjoy the same holidays and vacations as students at other schools. Apprenticeship agreements provide that apprentices under 18 are entitled to 2 days of vacation for every month of apprenticeship served and those between 18 and 21 to 1½ days for every month of service.

Collective-bargaining agreements contain provisions for remuneration, hours of work, and leave for apprentices as well as other workers. Typical apprentice provisions for leave would include 1 or 2 months of paid vacation annually and additional paid leave of a week or 10 days at both Christmas and Easter.

### B. APPRENTICES AND OTHER TRAINEES

#### *1. Training programs and education*

Education in France is centralized under control of the Government. Schools not operated by the government are subject to its supervision and usually receive its support.

French education was reformed by an ordnance and a decree of January 1959 making attendance at either state or private school compulsory for all children up to the age of 16 years. There are three levels of education—junior, senior, and advanced. Children attend infant schools from 3 to 6 and primary school from 6 to 11. There are two types of schools at the senior level, those giving a general education, classical and modern lycees and general secondary schools (collège d'enseignement général), and those giving a general and a vocational education, technical lycees, and technical training schools (collège d'enseignement technique). Students attend schools at the senior level from age 11 to 18 or 20 years.

Before a young person who has reached the school-leaving age can obtain work in an industrial or commercial establishment he must present a certificate that he has received vocational guidance. The law of 1959 introduced a requirement that all pupils at age 11 should enter upon observation classes for a period of 2 years. During these 2 years the pupils' aptitudes are observed in the course of their daily schoolwork. Parents are given advice about their children's aptitudes and as the observation period advances the emphasis of the children's studies are shifted according to their future prospects for education. Each class has a guidance council to enable both students and parents to make the best possible choice among the educational facilities available to the students.

At age 14 those pupils who are found unable to benefit from further academic training have four opportunities to obtain vocational training. If they wish they may continue for 2 years in further classes at the junior level, receiving further general education, together with vocational training. In rural areas the emphasis of such training is on agriculture. In other areas the training received prepared the pupil for employment as a semiskilled rather than a skilled worker. Or they may enter upon one of the three apprenticeship or other training programs described below for a period of 3 years, preparing them to enter upon work as a skilled worker by the time they reach 18 years of age.

*2. Number of apprentices and other trainees*

(*a*) *Trends in apprenticeship.*—Despite the fact that the number of teenagers available for training in France has not increased in recent years, due to the reduced birthrate during the war, the number of young people receiving apprentice or other vocational training has risen substantially. In the school year 1954–55 a total of 555,000 were receiving training; by 1958–59 this had risen to 662,000 (table 6). Less complete figures, omitting any estimate of the number of apprentices not enrolled in regular schools, shows an increase among students receiving formal vocational training from 353,000 in 1957–58 to 384,000 in 1960–61 (table 7). The increase was greater among boys than girls (by 100 percent among boys from 1951 to 1958 and only 67 percent among girls).

(*b*) *Distribution by industry.*—Vocational training and apprenticeship is found in most skilled occupations in France. As in most European countries a distinction is made between training for artisan or handicraft trades and training for industrial occupations. In France the line distinguishing one from the other is firms having less than five employees in addition to members of the family. Thus the same occupation may be learned in either an artisan trade or in an industrial firm. There are literally hundreds of apprenticeable occupations. There is a corresponding wide distribution of vocational trainees and apprentices among occupations.

As table 7 shows, the expected trend away from the traditional skilled occupations and toward the mechanical and service trades is found in France as elsewhere. However, the trend is not as marked. In some areas of employment it would appear that the effect of formal training facilities makes for a slower adjustment. For example, the number of women receiving training in the clothing trades has remained very high. Nevertheless, the number of girls being trained for office work has grown rapidly as has the number receiving training in the commercial trades. Among males, training in the construction trades has shown a steady growth, but training for mechanics and electricians has increased rapidly and substantially. In particular, the increase in the number in training in the mechanical trades by nearly one-third between only 1957 and 1960 is most impressive.

Among apprentices to the artisan trades, the data (table 8) show a greater emphasis on the traditional crafts, as might be expected. However, some indication of the still relatively preindustrial nature of some sectors of the French economy is seen in the fact that as recently as 1960 over 1,000 cartwrights were receiving apprentice training. The already noted fact that the same trade may be learned in France through apprenticeship on the job or in a vocational school is given meaning in the substantial numbers of young people in the same occupational groups in both tables 7 and 8.

## C. APPRENTICESHIP PROGRAMS

*1. Background*

Apprenticeship training in France is a part of a centralized vocational training program. Like most countries of continental Europe a distinction is made between training for industry or commerce and training for the handicraft trades (l'artisinat).

The handicraft trades are governed by Chambres des Métiers, which are public bodies to which all masters and journeymen in each trade are required to belong. The chambres are instituted by order of the Ministry of Labor and the Directorate of Technical Education. Their duties are far wider than the handling of apprenticeship and include everything which might concern the welfare of the trade. However, one of their most important functions is to supervise apprenticeship training and to conduct examination of those completing training.

Training standards and courses are formulated by a tripartite Commission Nationale Consultative de L'Artisanat, which is also responsible for determining the trades for which apprenticeship is appropriate.

In industry and commerce there are 24 committees, made up of representatives of employers, workers, and the administration. These Commissions Nationales Professionnelles Consultatives provide advice on the problems of each group of industries for which they are representative. The Government representatives on the committees are usually teachers at state vocational training schools. Special subcommittees are set up by the national committees to draft vocational education plans and to advise on the syllabuses and examinations for each type of skill. The work of the committees is coordinated by a National Vocational Council. Within each département of France liaison is effected by means of a tripartite technical education committee.

At the top all vocational education facilities in France are administered by the Directorate of Technical and Vocational Education in the Ministry of Education, a body established by a decree of July 1920. This body either conducts state education or supervises private schools, factory schools, and schools and courses run by employers' or workers' organization. The directorate also allocates grants to the various training organizations.

Vocational education in France has been financed since 1925 by a tax on all industrial and commercial enterprises of four-tenths of 1 percent of their total payroll of the preceding year. This tax must be paid by all firms, whether or not they employ skilled workers. However, this tax may be offset, in whole or in part, by claiming exemption for vocational training provided or paid for by the firm. Among the costs which may be offset are the expenses of conducting technical courses; the salaries of technical instructors for apprentices, at the rate of 1 instructor for each 10 apprentices, provided the instructor devotes all his time to providing such training; the wages paid apprentices while attending courses related to their trade; and the wages of apprentices during the first 10 months of their apprenticeship period, provided they are receiving systematic training of either a practical or theoretic nature.

It is also possible, if permission is obtained, for an industry to set up a central organization to conduct training for firms in the industry and to pay the apprenticeship tax or a portion of it directly to such organization. This allows the pooling of training facilities by firms too small to provide their own facilities.

A major responsibility of the Directorate of Technical and Vocational Training is to assess the standards and practices of these various training groups and the training activities of firms to determine the

allocations of sums to them and the validity of claimed offsets for the taxe d'apprentissage.

*2. Training programs*

(*a*) *Duration.*—While there are minor variations, to a remarkable degree skilled worker training in France, whether through apprenticeship with the small artisan firms, in industry or commerce, or at a state or privately operated vocational training school, is of a uniform duration, requiring 3 years to complete. There is a greater emphasis in France than in some other countries on providing a general education to workers receiving vocational training and to providing the necessary theoretical courses underlying the skilled training. For this reason the uniform length of the training period may be explained as allowing for a balance between (1) general education, (2) practical training, and (3) theoretic training. The more theory which needs to be taught the less time for practical work and, in general, the less need for it. However, the major reason for the French setting a uniform period of 3 years appears to be that the whole process is a three-part, not a two-part educational program. In particular, up through age 16, the emphasis on general education, rather than either practical or theoretic vocational training is very substantial.

(*b*) *Nature of training.*—In reaching age 14 all young people who are not continuing an academic course of training or continuing in the general education program until they reach 16 may enter upon one of the three following training programs:

*1. Apprenticeship to an artisan trade*

Only qualified holders of the masters' certificate of the Chambres des Métiers are allowed to take apprentices. Such apprentices are trained on the job, but take supplementary training in the theoretic aspects of their trade. As only small firms are eligible to take apprentices under this program, the apprentice usually learns on the job directly from a master of his trade.

*2. Apprenticeship to an industrial or commercial firm*

Such apprentices are employed under a contract for the 3 years. The provisions of these contracts are specified in the basic law governing apprenticeship (act of July 1919, as amended in March 1928). This provides that the contract, in writing, must be entered into between the parent or guardian of the apprentice and the person or organization responsible for the training. They agree on the one hand to work for the specified 3-year period and on the other to provide methodical and comprehensive training. Any customs or regulations peculiar to the trade must be included in the contract. The contract must specifically provide that the apprentice may not perform any productive work, except that strictly related to his training.

Apprenticeship contracts must also specify that the apprentice will not receive wages, but an allowance. These allowances are fixed by law, but employers and unions may negotiate special apprenticeship scales. Families of apprentices receive family allowances up until the age of 17 years. The amount of such allowances depends on the amount of the allowance paid the apprentice. The agreement must also provide that apprentices under 18 receive holidays and vacations.

The first 2 months of any apprenticeship contract are a period of probation, during which the contract may be easily terminated by

either party. After that contracts may only be terminated on certain specified grounds. Contracts of apprenticeship are enforcible at law and damages may be collected for noncompliance. When training is not provided as agreed, the state may penalize the employer by limiting his authority to take apprentices or suspend it entirely.

In very large firms training of apprentices is conducted entirely in factory apprenticeship schools organized and run on the same lines as the state-run technical training schools. A broad basic training is succeeded by specialization in the particular trade. Typically the first year may include no more than half the time of the 45-hour week spent in workshop training, with the amount increased to three-quarters in the second and third years.

In smaller firms there is less thoroughness in covering the curriculum of training specified by the chambre of the industry. Some firms appoint special apprentice masters or set up factory workshops. Others have the apprentice work under the supervision of a skilled workman. In some small plants the apprentice is given little attention and picks up what he is able to by performing the work assigned. Here apprenticeship may degenerate into cheap labor on the one hand and a means of assuring the receipt of a family allowance on the other. The policing of training by the industry representatives, found in the artisan firms, is not as effective in industry, due to the very large number of firms with from, say, 10 to 20 employees.

*3. Training in a state technical training school*

These schools were set up during the 1930's to provide industrial training. The breakdown of apprentice training as a means of providing a supply of skilled labor, initiated by the growth of large-scale industry, had been furthered by the depression. France had large numbers of young people who were unemployed and who lacked an industrial training or experience. The technical training schools were set up to provide a disciplined occupation for these young, untrained, unemployed people.

These centers proved extremely useful in the quite different problem of the disorganized unemployment situation after the war. There was then no lack of jobs, but, for different reasons, a lack of training opportunities. Employers lacked workers to devote to training purposes. The training centers, set up in depression, proved most useful in the rapidly expanding economy after the war.

These centers were originally called centres d'apprentissage but were renamed colléges d'enseignement technique in 1959. There are between 800 and 900 of them at present, with nearly 200,000 students, about one-third of whom were girls. These training centers are located throughout the country. Each college has an advisory council composed of representatives of employers and unions in the area together with regional representatives of the Ministry of Education. This device serves to keep the training center in close touch with industrial developments in the area from which it draws its student body and where they may expect to find employment on graduation.

(c) *Related training and formal education.*—While the related training of apprentices is not required by law and there is no requirement for release of apprentices from employment to attend classes, such attendance is encouraged by various means and is fairly common.

With artisan apprentices there is an obligation in the contract for them to attend classes. There is also a strong inducement on the part of their parents to see that they do so, because family allowances are payable only for those young people who can show that they are, in fact, attending classes.

One feature of French apprenticeship training is the handling of the problem of apprentices employed in firms in isolated areas. There correspondence courses have been used. These courses are provided either by the trade association, particularly in the building trades, or by the Technical Directorate of the Ministry of Education. To make certain that maximum benefit is obtained and that registration is not simply to obtain the family allowance, the lessons are sent to the employer, rather than the apprentice, and the firm must employ an engineer or technician with the responsibility to explain the lessons to the apprentices.

Training in factory training schools and in state technical training schools is a mixture of training in theory, in general education, and in practical education, as has already been noted. In general, the factory schools place a greater emphasis on the practical and have greater ability to keep the training up to date and in line with the changes in the occupation. On the other hand, training in the state schools is broader, being aimed at making it possible for the student after graduation to work in any firm in the industry. Schools run by particular firms tend to prepare their students more directly for work in the firm itself.

Larger firms may provide all training in the factory school. Smaller firms provide only practical training. Theoretical courses, which include the study of French, mathematics, draftsmanship, health and legislation, as well as technical courses in the subject matter of the occupation, are given apprentices by the public schools, usually at the school nearest to the factory or firm.

(*d*) *Completion of training—examinations.*—Artisan apprentices must take an examination on completing their apprenticeship. The examination is based on national standards, but is conducted by the local authorities in the trade. The examination consists of written questions, an oral examination, and practical tests. Those successfully completing the examinations receive a certificate (Examen du Fin de d'Apprentissage Artisinat-EFA) which is evidence of their technical qualification as a skilled worker.

Industrial apprentices, whether attending a works school or not, and graduates of a collège d'enseignment technique both take the same examination. The content and standards to be met are established by the Technical Directorate, with the advice of the appropriate Commission d'Aptitude Professionnel. Those successful in the examination are awarded a Certificat d'Aptitude Professionnel.

In each case the young worker now may enter the regular labor force. Artisan apprentices may, after 2 further years of work, be examined for a higher qualification, le patronat. This further training is intended primarily for those going into business for themselves and includes not only further training in manual skills but also in the conduct of a business, marketing, etc. Industrial apprentices may also continue study by attending cours de perfectionnement and after a minimum of 2 further years of experience and training obtain a

brevet professionnel, essential for further advancement in industrial employment.

*3. Supervision of programs*

The centralized nature of the French educational system itself, plus the need to supervise and approve the training facilities for tax offset or subsidy purposes, assures that the facilities for vocational training are established in accordance with the requirements of each trade or industry, and that the detailed regulations and curriculum requirements of the Ministry of Education are met.

The actual inspection of training is done at the département level, either by representatives of the Ministry of Education (for training schools) or by voluntary technical education advisers. These advisers are appointed on the recommendation of employers' and workers' organizations to represent groups of trades and to be responsible for liaison between the authorities and the trades which they represent. These advisers make a check on the uses to which the apprenticeship levy is being put and generally supervise the running of vocational courses, give examinations, and the like.

As in the German program, the final check is afforded by the failure or success of the apprentice to qualify for the certificate when examined on completing training.

*4. Training and training programs for instructors*

As much of the French training system is one of formal education, the instructors usually must initially meet the qualifications of teachers. In addition a practical knowledge of the trade is required.

In the factory schools it is customary to have instructors refresh their knowledge and keep up with changing practices by periodically returning to work in the factory. The Ministry of Education provides refresher courses to its instructors, to enable them to keep up with technological developments in the trade or industry.

## D. UNIONS AND APPRENTICESHIP PROGRAMS

The French labor movement is not unified and does not have a common approach to apprenticeship questions. A great many collective bargaining agreements contain provisions reaffirming or strengthening the protection afforded by law to apprentices. This would include such provisions as defining apprenticeable skills, prescribing the form and registration of apprenticeship contracts, specifying the training to be given, restricting the amount and kind of work the apprentice can perform to that connected with his training, assuring that apprentices are given time off to attend classes, assuring that medical examinations are given apprentices, and providing for holidays and vacations for apprentices.

The French unions do not attempt to secure high wages (allowances) for apprentices. The wages paid are usually set by collective agreement, but are seldom more than half of the legal minimum wage for a regular worker. If they are more than half, the parents of the apprentice are not entitled to receive a family allowance for him, so there is ordinarily no incentive to seek higher wages. The family usually gains more by receiving the allowance. It should be kept in mind that an apprentice in France is usually a minor less than 17 years of age. As soon as he completes his apprenticeship, union

agreements require that he be paid the regular rate for young workers in his trade.

Some of the more progressive trade unions favor greater use of state schools, rather than regular apprenticeship alone, and in particular, rather than schools run by factories or other firms. They accept the fact that the quality of factory school training is high, but claim that it is also too narrow, training workers only for employment in the particular enterprise. This limits the freedom of the adult worker to seek work anywhere in the trade. The unions, however, also tend to agree with the viewpoint of many industrialists that the training afforded by the state technical training schools is too general and not sufficiently practical.

One of these union groups, Force Ouvrière, has put forth a plan to meet these objections. They would have workers trained for 2 years in a collège d'enseignement technique and for the third year on the job. However, during the third year the person being trained would be considered a student, not a worker. He would be under the supervision of his teachers at the college and would receive his allowance from the state, not from the firm. This plan would meet an objection that graduates of such collèges require a period of at least 6 months to adjust to factory work after graduation and would make them fully useful employees immediately after graduation.

The unions in the building trades have a considerably different plan for their apprentices. They would have them spend the first 2 years on the job but provide for vastly improved integration of classwork in theory into the training. During the third year, the apprentice would spend his entire time at a collège before taking his examination.

### E. EARNINGS AND ALLOWANCES OF APPRENTICES

As already noted, apprentices receive no wages, but only an allowance which is fixed usually by collective agreement. This may not be more than half the legal minimum wage, if the family of the apprentice is to receive a family allowance on his behalf.

Students at apprentice training centers are also paid an allowance which is varied with the personal and family circumstances of the student. For example, many training centers outside of the areas of France where the students are able to commute provide facilities for board and lodging. These facilities must be paid for and, if the economic circumstances of the family justify it, assistance will be given in meeting such expenses.

Examples of the allowances fixed by collective bargaining are as follows:

In a large metalworking firm with a 4-year training program apprentices receive one-tenth the rate of skilled workers during the first year; one-seventh the second year; one-sixth the third; and two-fifths the fourth. On completing training they receive as young craftsmen one-half the skilled workers' rate.

Apprentices with a firm of precision equipment makers receive a monthly study grant of about $5.60 the first year, increased to $11.20 by the third year, plus bonuses for each year and a bonus on completing the examination. Apprentices are usually employed by the firm after completion of apprenticeship and are then given an additional year of training.

### F. ECONOMIC FACTORS IN APPRENTICESHIP

The French system of training for skill meets with considerable success the problem of allocating the costs of training among those who will benefit by it—the apprentice, his family, and the firms who will hire the skilled worker. The taxe d'apprentissage pays most of the costs of all kinds of training, either directly, when used by the Government to operate training schools or courses, or indirectly, when offset against training costs incurred by the firm. By imposing the tax uniformly on all firms and permitting offsets for training performed or otherwise provided for, the cost of training skilled workers falls with fair uniformity throughout an industry.

As far as the apprentice is concerned, he is considered a student, not a worker. The work he performs is distinctly secondary to his training. The allowances he receives are to support him as a student, not to pay him as a worker. They are varied with his living expenses and needs.

Likewise the family receives an allowance to assist in supporting the student while in training or apprenticeship. This is paid on a basis of need.

It should be noted that under the French law an industry may apply for and receive permission to impose an additional tax on its member firms to provide additional funds to finance training in that industry. Thus the building industry collects an additional three-tenths of 1 percent of the annual payroll of its member firms which it uses to set up and operate schools to meet the needs of an industry with the special training problems it possesses.

Nongovernmental training schools receive not only state funds but also funds from local governments and from trade unions and trade associations.

While some exploitation of young workers in training as apprentices probably exists, it is not apparently a major factor. Among small employers the surveillance of fellow members of the trade, who are also competitors, would make this difficult. The requirement of a common, uniform examination on completion of training is a strong pressure for providing a reasonable adherence to the training syllabus.

In fact, as in other countries of Europe, one of the major problems in France is to find enough training opportunities, not to prevent the exploitation of young persons on the job. Large firms with separate training workshops, where obviously little production work can be performed, particularly with the presence of unions jealous to require observance of its contractual agreement, provide most of the training vacancies among industrial firms. The smaller and medium-sized shops, which might be thought, particularly in view of prevailing shortages of labor in France, likely to attempt such exploitation, are, on the contrary, not providing any substantial number of training opportunities. This despite the need for skilled workers, the increasing numbers of young people requiring training opportunities, and the shortage of training vacancies in the State-operated training institutions.

As in other countries of Western Europe, training appears in France to be not a business at which firms find it easy to show a profit.

TABLE 1.—*France: Population and labor force, 1946–62*

[In thousands]

| Item | 1946 | 1954 | 1958 | 1960 | 1962 [1] |
|---|---|---|---|---|---|
| Total population | 39,830 | 42,763 | 44,328 | 45,355 | 46,219 |
| Economically active population | 20,520 | 19,494 | 19,712 | 19,949 | 20,257 |
| Males: | | | | | |
| Under 20 | 1,343 | 887 | 988 | 991 | 1,138 |
| 20 and over | 11,325 | 11,961 | 12,120 | 12,325 | 12,418 |
| Females: | | | | | |
| Under 20 | 1,044 | 618 | 697 | 692 | 792 |
| 20 and over | 6,809 | 6,028 | 5,907 | 5,941 | 5,909 |

[1] Provisional.

Source: International Labor Office: "Year Book of Labour Statistics, 1956–62." France: Institut National De La Statistique et des Etudes Economiques, "Annuaire Statistique De La France, 1962."

TABLE 2.—*France: Projections of population by age and sex, 1956–76*

[In thousands]

| Item | Estimates | | Projections | | | |
|---|---|---|---|---|---|---|
| | Jan. 1, 1956 | Jan. 1, 1960 | Jan. 1, 1961 | Jan. 1, 1966 | Jan. 1, 1971 | Jan. 1, 1976 |
| Population, all ages | 43,442 | 45,354 | 45,590 | 46,570 | 47,636 | 48,991 |
| Males | 20,950 | 22,017 | 22,149 | 22,710 | 23,317 | 24,063 |
| Females | 22,492 | 23,337 | 23,441 | 23,860 | 24,319 | 24,928 |
| Age 0 to 9 years | 7,954 | 7,958 | 7,916 | 7,757 | 7,723 | 8,269 |
| Males | 4,051 | 4,051 | 4,030 | 3,954 | 3,940 | 4,219 |
| Females | 3,903 | 3,907 | 3,886 | 3,803 | 3,783 | 4,050 |
| Age 10 to 14 years | 2,768 | 3,895 | 4,116 | 3,921 | 3,959 | 3,762 |
| Males | 1,410 | 1,982 | 2,094 | 1,994 | 2,015 | 1,918 |
| Females | 1,358 | 1,913 | 2,022 | 1,927 | 1,944 | 1,844 |
| Age 15 to 19 years | 2,803 | 2,736 | 2,811 | 4,103 | 3,908 | 3,947 |
| Males | 1,419 | 1,394 | 1,431 | 2,086 | 1,986 | 2,007 |
| Females | 1,384 | 1,342 | 1,380 | 2,017 | 1,922 | 1,940 |
| Age 20 to 24 years | 3,110 | 2,981 | 2,889 | 2,796 | 4,082 | 3,887 |
| Males | 1,589 | 1,533 | 1,482 | 1,421 | 2.072 | 1,972 |
| Females | 1,521 | 1,448 | 1,407 | 1.375 | 2.010 | 1,915 |
| Age 25 to 29 years | 3,189 | 3,274 | 3,206 | 2,869 | 2,776 | 4,053 |
| Males | 1,619 | 1,695 | 1,660 | 1,469 | 1,408 | 2,053 |
| Females | 1,570 | 1,579 | 1,546 | 1,400 | 1,368 | 2,000 |
| Age 30 to 34 years | 3,216 | 3,236 | 3,256 | 3,178 | 2,844 | 2,752 |
| Males | 1,608 | 1,653 | 1,669 | 1,642 | 1,453 | 1,393 |
| Females | 1,608 | 1,583 | 1,587 | 1,536 | 1,391 | 1,359 |
| Age 35 to 39 years | 2,091 | 3,289 | 3,247 | 3,219 | 3,140 | 2,810 |
| Males | 1,039 | 1,648 | 1,630 | 1,646 | 1,619 | 1,432 |
| Females | 1,052 | 1,641 | 1,617 | 1,573 | 1,521 | 1,378 |
| Age 40 to 44 years | 2,727 | 1,808 | 2,102 | 3,194 | 3,166 | 3,089 |
| Males | 1,349 | 896 | 1,045 | 1,598 | 1,613 | 1,587 |
| Females | 1,378 | 912 | 1,057 | 1,596 | 1,553 | 1,502 |
| Age 45 to 49 years | 2,992 | 2,930 | 2,702 | 2,051 | 3,114 | 3,086 |
| Males | 1,478 | 1,447 | 1,332 | 1,013 | 1,547 | 1,562 |
| Females | 1,514 | 1,483 | 1,370 | 1,038 | 1,367 | 1,524 |
| Age 50 and over | 12,592 | 13,250 | 13,347 | 13,486 | 12,924 | 13,335 |
| Males | 5,388 | 5,720 | 5,777 | 5,890 | 5,664 | 5,919 |
| Females | 7,204 | 7,530 | 7,570 | 7,596 | 7,260 | 7,416 |

Source: OECD: "Demographic Trends 1956–76 in Western Europe and in the United States."

TABLE 3.—*France: Labor force by age groups and sex*

[Thousands]

| Age group | 1954 | | | 1960 | | | 1962 [1] | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total | Males | Females | Total | Males | Females | Total | Males | Females |
| All ages | 19,460 | 12,812 | 6,648 | 19,949 | 13,316 | 6,633 | 20,257 | 13,556 | 6,701 |
| Under 15 | 113 | 71 | 42 | 121 | 77 | 44 | 166 | 105 | 61 |
| 15 to 19 | 1,691 | 980 | 711 | 1,562 | 914 | 648 | 1,764 | 1,033 | 731 |
| 20 to 24 | 2,334 | 1,478 | 856 | 2,213 | 1,419 | 794 | 2,099 | 1,351 | 748 |
| 25 to 29 | 2,200 | 1,550 | 650 | 2,295 | 1,642 | 653 | 2,241 | 1,609 | 632 |
| 30 to 34 | 2,055 | 1,471 | 584 | 2,211 | 1,604 | 607 | 2,259 | 1,647 | 612 |
| 35 to 39 | 1,343 | 946 | 397 | 2,249 | 1,595 | 654 | 2,218 | 1,580 | 638 |
| 40 to 44 | 2,114 | 1,440 | 674 | 1,276 | 867 | 409 | 1,742 | 1,187 | 555 |
| 45 to 49 | 2,140 | 1,427 | 713 | 2,078 | 1,383 | 695 | 1,733 | 1,151 | 582 |
| 50 to 54 | 2,010 | 1,334 | 676 | 2,029 | 1,343 | 686 | 1,998 | 1,322 | 676 |
| 55 to 59 | 1,441 | 877 | 564 | 1,698 | 1,098 | 600 | 1,708 | 1,104 | 604 |
| 60 to 64 | 982 | 581 | 401 | 1,144 | 711 | 433 | 1,226 | 785 | 441 |
| 65 and over | 1,037 | 657 | 380 | 1,073 | 663 | 410 | 1,103 | 682 | 421 |

[1] Provisional.

Source: France: Institut National de la Statistique et des Études Économiques, 1957–62.

TABLE 4.—*France: Distribution of employment by major industry groups, 1957*

[Thousands]

| Industry group | Total | | | Wages and salaried employees | | |
|---|---|---|---|---|---|---|
| | Males | Females | Both | Males | Females | Both |
| Total | 12,986 | 6,610 | 19,596 | 9,020 | 3,926 | 12,946 |
| Agriculture, forestry, hunting, and fishing | 3,272 | 1,767 | 5,039 | 976 | 172 | 1,148 |
| Mining and quarrying | 384 | 14 | 398 | 379 | 14 | 393 |
| Manufacturing | 3,550 | 1,628 | 5,178 | 3,071 | 1,431 | 4,502 |
| Construction | 1,385 | 61 | 1,446 | 1,145 | 48 | 1,193 |
| Electricity, gas, water, and sanitary services | 121 | 16 | 137 | 121 | 16 | 137 |
| Commerce and services | 3,378 | 2,868 | 6,246 | 2,552 | 2,074 | 4,626 |
| Transport, storage, and communication | 824 | 178 | 1,002 | 776 | 171 | 947 |
| Unemployed | 72 | 78 | 150 | 72 | 78 | 150 |

Source: International Labour Office, Year Book of Labour Statistics, 1962.

TABLE 5.—*France: Unemployment, 1950–63*

[Thousands]

| *Date* | *Number* | *Date* | *Number* |
|---|---|---|---|
| 1950 | 153 | 1960 | 131 |
| 1953 | 180 | 1961 | 112 |
| 1955 | 160 | 1962 | 101 |
| 1957 | 81 | 1963 (August) | 78 |
| 1959 | 140 | | |

Source: International Labour Office: Yearbook of Labour Statistics, 1957, 1962; International Labour Review, Statistical Supplement, October 1963.

TABLE 6.—*France: Vocational training—Enrollment by types of training and sex, 1951–59*

| School year and sex | Vocational training centers | Vocational training courses | Apprentices | General vocational education | Technical training schools and sections | National vocational schools | Total |
|---|---|---|---|---|---|---|---|
| 1951–52, both sexes | 145.9 | 73.1 | (1) | 23.3 | 94.9 | 12.8 | 350.0 |
| Boys | 90.3 | 52.1 | | 9.0 | 59.3 | 9.8 | 220.5 |
| Girls | 55.6 | 21.0 | | 14.3 | 35.6 | 3.0 | 129.5 |
| 1952–53, both sexes | 153.3 | 106.3 | (1) | 25.0 | 89.7 | 13.0 | 387.3 |
| Boys | 93.8 | 77.6 | | 9.4 | 55.6 | 9.8 | 246.2 |
| Girls | 59.5 | 28.7 | | 15.6 | 34.1 | 3.2 | 141.1 |
| 1953–54, both sexes | 158.9 | 136.2 | (1) | 26.6 | 96.7 | 13.7 | 432.1 |
| Boys | 97.6 | 98.4 | | 9.7 | 59.2 | 10.3 | 275.2 |
| Girls | 61.3 | 37.8 | | 16.9 | 37.5 | 3.4 | 156.9 |
| 1954–55, both sexes | 163.8 | 129.5 | 115.7 | 28.0 | 103.1 | 14.5 | 554.6 |
| Boys | 100.9 | 88.9 | 100.7 | 10.5 | 63.3 | 11.0 | 375.3 |
| Girls | 62.9 | 40.6 | 15.0 | 17.5 | 39.8 | 3.5 | 179.3 |
| 1955–56, both sexes | 167.7 | 132.0 | 116.6 | 26.7 | 107.4 | 14.9 | 565.3 |
| Boys | 103.3 | 90.2 | 102.1 | 10.4 | 66.6 | 11.2 | 383.8 |
| Girls | 64.4 | 41.8 | 14.5 | 16.3 | 40.8 | 3.7 | 181.5 |
| 1956–57, both sexes | 172.3 | 110.0 | 132.0 | 27.0 | 111.0 | 15.1 | 567.4 |
| Boys | 106.5 | 72.6 | 112.0 | 10.5 | 70.5 | 11.8 | 383.9 |
| Girls | 65.8 | 37.4 | 20.0 | 16.5 | 40.5 | 3.3 | 183.5 |
| 1957–58, both sexes | 178.6 | 143.5 | 137.8 | 28.9 | 120.5 | 16.5 | 625.8 |
| Boys | 111.0 | 92.8 | 117.3 | 10.6 | 77.3 | 12.9 | 421.9 |
| Girls | 67.6 | 50.7 | 20.5 | 18.3 | 43.2 | 3.6 | 203.9 |
| 1958–59, both sexes | 190.2 | 142.5 | 141.9 | 38.2 | 130.9 | 17.9 | 661.6 |
| Boys | 118.4 | 95.4 | 120.2 | 13.0 | 84.0 | 13.9 | 444.9 |
| Girls | 71.8 | 47.1 | 21.7 | 25.2 | 46.9 | 4.0 | 216.7 |

[1] Not available.

Source: France: Institut National de la Statistique et des Études Économiques, Annuaire Statistique de la France, Retrospectif, Édition 1961.

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TABLE 7.—*France: Distribution of vocational training students by occupation, 1957–61*

| Occupational group | 1957–58 | | 1958–59 | | 1959–60 | | 1960–61 | |
|---|---|---|---|---|---|---|---|---|
| | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls |
| Total | 218,796 | 134,161 | 237,290 | 149,846 | 251,966 | 160,020 | 241,397 | 142,240 |
| Masonry [1] | 8,262 | ------- | 8,992 | ------- | 9,967 | ------- | 11,016 | ------- |
| Painting and decoration | 2,581 | 134 | 2,866 | 113 | 3,124 | 19 | 3,249 | 7 |
| Ironworking | 7,922 | ------- | 8,427 | ------- | 8,851 | ------- | 9,286 | ------- |
| Copper and tinsmiths | 8,594 | ------- | 9,284 | ------- | 10,407 | ------- | 11,057 | ------- |
| Mechanics | 70,592 | 76 | 81,047 | 78 | 88,908 | 44 | 89,761 | 19 |
| Factory mechanics | 8,328 | 3 | 8,693 | ------- | 8,811 | 1 | 9,544 | 1 |
| Electricians | 13,965 | 286 | 15,136 | 337 | 16,470 | 420 | 16,020 | 137 |
| Glassworkers | 551 | 129 | 535 | 90 | 575 | 86 | 508 | 85 |
| Printing | 1,280 | 7 | 1,997 | 4 | 1,047 | 3 | 896 | 3 |
| Pharmacy | 418 | 701 | 681 | 743 | 1,009 | 989 | 790 | 916 |
| Food specialties | 164 | ------- | 226 | 1 | 147 | ------- | 188 | ------- |
| Baking | 996 | ------- | 985 | ------- | 881 | ------- | 890 | ------- |
| Meat cutting | 951 | ------- | 880 | 1 | 902 | 1 | 1,485 | 1 |
| Clothing trades | 455 | 41,399 | 470 | 42,214 | 439 | 43,316 | 372 | 42,098 |
| Cabinetmaking | 15,939 | ------- | 16,645 | ------- | 17,014 | ------- | 16,704 | ------- |
| Engineering | 1,936 | 653 | 3,313 | 1,072 | 4,892 | 1,339 | 5,821 | 1,466 |
| Office work | 14,946 | 62,113 | 15,882 | 73,345 | 16,585 | 79,971 | 14,449 | 64,120 |
| Commercial trades | 806 | 4,341 | 777 | 4,893 | 662 | 5,227 | 726 | 5,992 |
| Personal services | 401 | 1,269 | 409 | 1,334 | 436 | 1,293 | 511 | 1,386 |
| Public housekeping | ------- | 2,227 | ------- | 2,947 | ------- | 3,108 | ------- | 3,540 |

[1] Trades as listed usually include related trades.

Source: France: Institut National de la Statistique et des Études Économiques, Annuaire Statistique de la France, 1959–62.

TABLE 8.—*France: Occupational distribution by sex of artisan apprentices, 1959–60*

| Occupational group | Boys | Girls | Total | Occupational group | Boys | Girls | Total |
|---|---|---|---|---|---|---|---|
| Total | 123,505 | 21,496 | 145,001 | Pharmacy | 3 | 7 | 10 |
| | | | | Food specialties | 31 | 4 | 35 |
| Masonry [1] | 9,497 | ------- | 9,497 | Baking | 17,666 | 17 | 17,683 |
| Plumbing | 6,881 | ------- | 6,881 | Meat cutting | 16,779 | 101 | 16,880 |
| Painting, decoration | 7,823 | 31 | 7,854 | Clothing trades | 615 | 8,740 | 9,355 |
| Iron working | 5,340 | ------- | 5,340 | Carpentry | 1,074 | ------- | 1,074 |
| Copper and tinsmiths | 2,437 | 1 | 2,438 | Cabinetmaking | 11,206 | 3 | 11,209 |
| Mechanics | 19,631 | 4 | 19,635 | Cartwright | 1,133 | ------- | 1,133 |
| Factory mechanics | 768 | ------- | 768 | Engineering | 17 | 1 | 18 |
| Electricians | 8,158 | 5 | 8,163 | Office work | 51 | ------- | 51 |
| Glassworkers | 141 | 8 | 149 | Commercial trades | 3 | 117 | 120 |
| Photography | 689 | 309 | 998 | Personal services | 3,036 | 10,169 | 13,205 |
| Printing | 1,371 | ------- | 1,371 | | | | |

[1] Trades as listed usually include related trades.

Source: France: Ministère de L'Éducation Nationale, Direction de L'Enseignement Technique, "Statistiques de Formation Professionnelle" (Année Scolaire, 1959–60).

## V. UNITED STATES

### A. YOUNG PEOPLE IN THE LABOR FORCE

#### *1. Demographic and social factors*

Unlike some countries of Western Europe, the working population of the United States has grown rapidly since the end of World War II. The number in the noninstitutional population of working age was 15 percent greater in 1962 than in 1952 and the civilian labor force was 14 percent larger (table 1).

Despite the relatively high level of production in the United States and the growth of the gross national product, the demand for labor over the period has been, except for periods like that of the Korean war, relatively slack. However, there has been a persistent demand for

some classes of skilled labor and an increasing demand for highly skilled and professional labor. The demand for semiskilled and unskilled labor has fallen.

Like most countries of the West, births in the United States have been at a relatively high level since the war. As a result, beginning this year, a sharply increased number of young people reached the age of 16. In 1962 the estimated number was 2.7 million. In 1953 it was 3.8 million. It will drop to around 3.5 million in the next 3 years and then continue to rise, reaching 4 million in 1970 or 1971 (tables 2, 3).

Employment of teenage youth has increased more rapidly than the population of labor force age, rising by 27 percent between 1953 and 1962 (table 4). However, the gain has been substantially among the young people enrolled in school and working, for the most part, only a partial week. The number of young people enrolled in school who were working doubled betweem 1952 and 1962; the number of young people in the labor force who were not enrolled in school increased by only 11 percent (tables 4, 5).

Although there is no uniform school-leaving age in the United States, entrance into many occupations is restricted to those 16 years of age or over by Federal law and, in many jurisdictions, by State or local child labor laws. Thus between 1953 and 1962 the number of employed young people 14 to 17 years of age, not enrolled in school, actually declined from 720,000 to 461,000. A sharp trend toward both increased school attendance and part-time employment is apparent in the data (tables 4, 5).

*2. Number and occupations of young workers*

(*a*) *Males.*—Nearly 6 workers in 10 under 20 years of age in the United States are males. In 1962 7.5 percent of the male workers in the civilian labor force were under 20 years of age (table 6).

Although a substantial number of young male workers under 18 are employed in agriculture (table 7–B), both the young men who work while continuing their studies and those who leave or complete school usually (from two-thirds to three-quarters) find work in nonagricultural industries. On an occupational basis, some 30 percent of young male workers not in school are employed as "operatives and kindred workers," a category which includes most apprentices. About 12 percent of young males enrolled in school fall in this category. In October 1962 some 1.5 million males 14 to 24 years of age were employed in occupations falling within this category (table 8–B).

Over half of the young male workers enrolled in school are employed in wholesale and retail trade or in the service and finance industries. Among those not so enrolled, a roughly equal proportion are employed in manufacturing and wholesale and retail trade (table 7–B).

(*b*) *Females.*—About 4 workers in 10 under 20 years of age are females. Nearly 11 percent of the female workers in the civilian labor force in 1962 were under 20 years of age (table 6), a substantially larger proportion than of boys this age.

Young girls who attend school and work are employed in various service trades, notably in private households (commonly as babysitters) and in education and finance. Such work occupies about 60 percent of the employed girl students, with another 24 percent employed in wholesale and retail trade (table 7–C). Girls out of school are also employed in these occupations, but in smaller proportions, with an increased proportion employed in manufacturing.

*3. Unemployment among the young*

Unemployment among workers under 20 years of age is two to three times higher in the United States than among workers in general. In 1962 the overall unemployment rate was 5.6 percent; for 16 and 17 year olds it was 16.2 percent; for those 18 and 19 it was 13.6 percent. Unemployment among females is generally higher than among males, but among young workers the reverse is true for some age groups (table 10). In 1962 unemployment averaged over 800,000 among workers under 20. In 1961 it had averaged over 900,000.

*4. Wages of young workers*

General statistical data on the wage rates and earnings of young workers are not available. Table 11 presents some data from the Bureau of the Census on income distribution which permits a comparison of the income of persons 14 to 19 years of age with incomes in general and trend data since 1953.

These data show quite clearly that young workers in the United States are part-time, part-year employees, with few opportunities for regular employment, even if not attending school (table 11). Such job opportunities as they possess appear to be decreasing. Average income of young workers shows little change over the period since 1953, but does reflect cyclical influences.

The earnings of full-time workers do reflect increases in most recent years. Young female workers employed full time consistently earn higher wages on an annual basis than young full-time male workers.

*5. Protective labor legislation applying to young workers*

Although there is no general law limiting the hours of young workers in the United States, the combination of the restriction in the Fair Labor Standards Act limiting employment during school hours to those at least 16 years of age, a similar restriction in many State laws and State maximum hours laws, which set varying standards but commonly apply them to all employees under 16, have made employment during school hours under 16 years of age uncommon, outside the generally exempted fields such as agriculture, domestic service, and retail trade. Outside school hours and during summer vacation employment from 14 years up is not uncommon, but relatively few children are employed, except in agriculture, at less than 14 years of age, even during summer vacations. A study in 1957 showed an estimated 1.8 million workers 10 to 13 years of age employed in July, 1 million of them on farms.

Hazardous occupations orders, which commonly apply to manufacturing occupations only, have been issued under the Fair Labor Standards Act and various State laws. These prohibit the employment of young workers under 18 years of age. Such orders usually contain exemptions for apprentices.

Minimum wage laws, Federal and State, usually set the same rates for young workers as for others. Under the Fair Labor Standards Act the minimum wage now required is not less than $1.25 an hour for employees engaged in commerce or the production of goods for commerce. Newly covered employees, under the 1961 amendments, must receive not less than $1 an hour.

The act provides for the payment of lower rates to learners and apprentices. In practice, except in a few instances, such lower rates are not paid. Apprentice rates, which are seldom less than 40 percent of the journeyman's rate, would usually be more than the mini-

mum wage required by law. In recent years the Wage and Hour and Public Contracts Divisions of the U.S. Department of Labor have issued only between 300 and 500 apprenticeship certificates each year.

## B. APPRENTICES AND OTHER TRAINEES

### *1. Training programs and education*

Although specific vocational education programs have received financial support from the Federal Government since the passage of the Smith-Hughes Act in 1917, there are no general Federal standards for vocational education as is true for education in general, nor were such standards included in the recently considered legislation to strengthen and improve the quality of vocational education and extend its opportunities. The limits of Federal assistance to date have been reached when funds are made available to finance vocational education programs, including the building of educational facilities and the financing of research.

Vocational training is given not only by public schools but also by private schools, in industry, by labor unions, and by the armed services. In addition to the $250 million per year of local, State, and Federal funds provided for teachers of the nearly 4 million students in the federally supported vocational education programs, an estimated additional $200 million is spent by the States and local school districts to train 2 million or more young people annually in office occupations, a program of training for which Federal funds are not made available. Of the half billion dollars estimated to be spent for public vocational education in fiscal year 1963 only $79 million was appropriated by the Federal Government.

Estimates are that currently about 2 million young people enter the labor force each year in the United States; a figure which will reach 3 million before 1970. About 26 million young workers will enter the labor force between 1960 and 1970. Largely from this group must come the estimated 5 million skilled craftsmen who will be needed by 1970. In addition there will be a need for an additional 2 million service workers by 1970, including workers trained to serve as cooks, waitresses, barbers, policemen, firemen, beauticians, and practical nurses, among other occupations.

In 1960–61 the public federally assisted vocational program was serving only about 13 percent of the people in the age group 15 to 19 years and only 2 percent of the out-of-school population, 20 to 64 years of age. Two-thirds of the enrollment that year was in the agricultural and home economics programs (table 12).

Workers in the United States obtain skill usually not through formal training programs but by informal training and experience on the job. An estimate by the research staff of the National Manpower Council of the means by which replacement needs for skilled workers in trades having apprentices are met each year gives the following results:

| | *Percent* |
|---|---|
| Proportion receiving formal training | 32 9/10 – 38 9/10 |
| Apprentices, registered: | |
| Completing training | 12 – 16 |
| Leaving without completing | 6 – 8 |
| Apprentices, not registered | 14 |
| Vocational school graduates | 4/10 |
| Immigrants, trained abroad | 4 |
| Proportion not receiving formal training | 57 6/10 – 63 6/10 |
| Total | 100 |

Thus formal training methods provide less than four-tenths of the workers filling skilled jobs. Almost all of the formally trained enter such jobs from apprenticeship programs. However, over six-tenths of the total secure skilled jobs without ever having been enrolled in apprenticeship or any other formal training program. Their skills are acquired through work experience with only incidental training.

*2. Number of apprentices and other trainees*

(*a*) *Trends in apprenticeship.*—Accurate data giving the number of apprentices being trained in the United States do not exist. The Bureau of Apprenticeship and Training has data on the number of registered apprentices under approved programs (table 13). There are substantial numbers of apprentices, however, in unregistered programs. Some idea of the extent of these may be obtained from the following comparison:

| Year | Registered apprentices in training, Dec. 31 | Registered apprentices enrolled in special extension classes | Total apprentices enrolled in special extension classes |
|---|---|---|---|
| 1954 | 158,675 | 100,450 | 121,460 |
| 1958 | 177,695 | 115,500 | 146,766 |
| 1961 | 155,649 | 109,659 | 132,027 |

If one makes the not unwarranted assumption that the number of unregistered apprentices not attending special extension classes was in proportion to those attending, the total number of apprentices in the United States in 1961 was probably between 190,000 and 200,000, of whom 156,000 were registered. The number completing training was about 35,000, as in most recent years.

(*d*) *Distribution by industry.*—Of the 159,000 apprentices who were registered and in training at the end of 1962, 103,000 or about two-thirds were in the construction trades. In the metalworking trades there were 23,538 registered apprentices, about 15 percent of the total. The printing trades had 12,768, or about 8 percent. The remaining 19,264 were scattered through many other occupations and industries. Two of these, which apparently have rather substantial numbers of apprentices, are barber and beauty shops and auto repair shops.

There are no data on the distribution by occupation or industry of young workers in training. The possible 200,000 apprentices are obviously a small part of the estimated 6 million vocational trainees in programs supported by the Federal, State, or local governments.

The data in the census of population on the number of apprentices by industry cannot be reconciled with the data cited above. The census figures show a figure roughly half as large as the BAT reports. Comparing totals by major occupational groups gives the following:

| | Construction | Metalworking | Printing |
|---|---|---|---|
| Bureau of Apprenticeship and Training total (1962) | 103,046 | 23,538 | 12,768 |
| Census total (1960) | 27,173 | 22,761 | 11,000 |

One explanation of the difference could be that the BAT figures are for registrations, while the census figures report employment in a given week.

The census data show a few interesting things about the relations of occupations and industry. Apprentices to construction trades are usually employed in the construction industry with one exception. About a third of the apprentice electricians are not employed in construction but in manufacturing, transportation, or other industries (table 15). About one-third of the apprentices in the printing trades are employed by newspapers and two-thirds by other printers or publishers. This is in rough proportion to the distribution of craftsmen between these two industry branches.

The census lists but 2,413 female apprentices. Most of these are in two industries, printing (bindery workers), and barber and beauty shops.

## C. APPRENTICESHIP PROGRAMS

### *1. Background*

Apprenticeship programs in the United States are almost entirely voluntary, either conducted by firms or by agreement between firms and trade unions. The function of government, State and Federal, is limited to encouraging the development of such programs and in providing research and other technical assistance in establishing such programs.

The basic Federal statute under which apprenticeship standards are established and assistance provided is the Fitzgerald Act of 1937. The Bureau of Apprenticeship and Training of the U.S. Department of Labor has been established to carry out its functions. The Bureau is advised as to policies by the Federal Committee on Apprenticeship. In addition, 29 States, the District of Columbia, and Puerto Rico have statutes. The standards established under State and Federal laws are not mandatory and the functions of the governmental agencies in this field are primarily promotional. No direct financial aid is provided by the Federal Government.

One effect of the Fitzgerald Act has been to generally restrict occupations considered to be apprenticeable to those so considered by the Federal Committee on Apprenticeship. These include occupations customarily learned in a practicable way through 2 or more years' training and work experience on the job and that are clearly identified and commonly recognized throughout industry. Occupations considered not to be apprenticeable include (1) selling, retailing, or similar occupations in the distributive field, (2) managerial occupations, (3) clerical occupations, (4) professional and semiprofessional occupations and (5) agricultural occupations. In some States, however, occupations not considered apprenticeable under the Federal standards are so considered by the State apprenticeship body. The U.S. Department of Labor, however, limits certificates permitting the employment of apprentices at rates less than those set by the Fair Labor Standards Act to apprentices in occupations coming within the scope of these Federal standards.

Some 180,000 plants and other establishments participate in training programs serviced by the Bureau of Apprenticeship and Training. Some 1,200 new apprenticeship programs are initiated yearly and some 1,500 training programs for journeymen and others.

The Federal Committee on Apprenticeship has recommended that an effective apprenticeship program should contain provisions for the following:

1. The starting age of an apprentice as not less than 16 years.
2. An established schedule of work processes in which the apprentice will receive instruction and experience on the job.
3. Organized instruction to provide the apprentice with knowledge in technical subjects related to his trade with 144 hours annually normally considered necessary.
4. A progressively increasing schedule of wages.
5. Proper supervision of on-the-job experience with adequate facilities to train apprentices.
6. Periodic evaluation of the apprentice's progress both in job performance and related knowledge, and the maintenance of appropriate records.
7. Employee-employer cooperation.
8. Recognition for successful completions.
9. Selection of men and women for apprenticeship without regard to race, creed, color, national origin or physical handicap.

*2. Training programs*

(*a*) *Duration.*—The general ages for apprentices in the United States are from 16 to 24 years, although there is nothing to prevent apprentices entering training at older ages.

As table 16 shows, over 30 percent of the apprentices were 25 years of age or older; nearly 2,000 of them 45 years or more. Some apprentices enter training at less than 16, but this is seldom done. Apprentices entering at 16 enter usually without having completed high school. Again, while there is no law preventing it, most programs encourage and some require a high school graduation. This is seldom possible to obtain under 17 or 18 years of age.

Training under apprenticeship programs can be for any number of years from 2 up. The usual number is 4 or 5. Some representative durations of programs are as follows:

| | *Years* |
|---|---|
| Construction trades: | |
| Carpenters | 4 |
| Electricians | 4 |
| Painters | 3 |
| Plumbers, pipefitters | 4–5 |
| Sheet-metal workers | 3–4 |
| Metalworking trades: | |
| Machinists | 4 |
| Toolmakers, diemakers | 4–5 |
| Printing trades: | |
| Compositors | 5–6 |
| Lithographers | 4–5 |
| Pressmen | 4–5 |

(*b*) *Nature of training.*—The formulation of the programs of training is left to the firms or the joint labor-management committees to work out. In most cases the general standards are contained in the particular union contract. However, in some cases national standards have been worked out, in accordance with the national fundamentals of apprenticeship standards mentioned above. At present such standards are to be found in bricklaying, carpentry, cement masonry, asphalt, and composition trade, auto glass installation workers, draftsmen, electrical contracting, glaziers and glassworkers, painting, decor-

ating and paperhanging, photoengravers, plastering, stained glass, and the sheet-metal industry. Standards for machinist and tool and die maker have also been developed which apply in St. Louis, Mo., and its vicinity.

Training is usually laid out in terms of so many hours spent in work of a certain character. Provision is made for the progressive development of skills by the apprentice and for covering all branches of the trade during his training. Recommendations are usually made for recording the progress of the apprentice and for the submission of records to the joint committee. There is, however, no real checkup by any responsible national authority on the extent to which training is actually received. Thus the quality of training cannot but vary greatly from groups of apprentices in one firm to those in another. In many trades there are no general standards and few or no joint committees.

(*c*) *Related training and formal education.*—Although a high school education is becoming increasingly a requirement for admission to an apprenticeship program, it is not universally required. Inasmuch as 16 years still remains the recommended age for entrance, this must obviously be so.

The standards set up call fairly uniformly for at least the recommended 144 hours of related training. Such training is provided almost always in evening classes at vocational schools. Some apprentices are paid for attending this training and some are not.

The related training commonly includes courses in mathematics, science, and blueprint reading. Also, to a surprising degree, training in such matters as safety practices, use of tools, and trade procedures are taught in night school, rather than on the job.

(*d*) *Completion of training—examinations.*—Apprentices may be required to keep records of the training received. The joint committees usually review the reports on training received from the firms. They also examine the apprentices themselves, either periodically, to assure that training is proceeding properly and that the apprentice is being paid the agreed rate, or at the end of the apprentice period.

It is customary to award apprentices a certificate on completion of their training. These certificates are requested by the committee from the State apprenticeship agency in the jurisdictions having such agencies and are supplied by the Bureau of Apprenticeship and Training in other jurisdictions.

*3. Supervision of programs*

The nature of the work of the Bureau of Apprenticeship and Training has been mentioned and the advisory and promotional nature of its authority brought out.

Many programs operate without any supervision other than that provided by the firm. Where joint apprenticeship committees exist supervision is usually provided by the union, particularly over admission to the programs and the provision of adjustments in the time required in training allowed for previous experience or training.

In Wisconsin, apprenticeship is considered a part of the educational system of the State. The State assumes responsibility for setting and maintaining training standards. It sees that apprentices receive the

quality of training that is specified in their indentures. However, this is an exception among American programs.

*4. Training of instructors*

Some attention has been given to the problem of training instructors. The Plumber's Union and the electrical industry have taken a considerable interest in instructors' training. Several conventions on training have been held by the plumbers at which instructors attended. The net result is only to make clear that a serious problem exists. Journeymen often lack both the incentive and the ability to teach. Little has been done to provide any comprehensive program to train instructors. This is underlined by recollection of the very basic training program which had to be conducted during World War II to enable foremen to provide the simple training needed to induct workers into their place in a program of job dilution.

There is no reason to suppose that, as long as informal training methods are the accepted method of acquiring job skills in American industry, any serious attention will be paid to the training of instructors. Most training takes place without their use.

## D. UNIONS AND APPRENTICESHIP PROGRAMS

Unions have given more attention to apprenticeship programs than have any other group in the United States. The interest of the unions is in maintaining standards of wages and the quality of work in the trade and, more remotely, of controlling the number of skilled workers in the trade. While the latter might appear to be of more primary importance, in fact, the problem has not been to keep employers from hiring apprentices, but to encourage them to do so. With only a few exceptions, like some of the printing trades and the diesinkers, actual restrictions of the numbers of apprentices by unions have been rare. On the contrary, unions have often taken the lead in encouraging employers to set up apprentice programs, to assure a flow of properly qualified workers into the trade, and to provide some means of controlling the flow.

Employers, on the contrary, have more frequently not favored apprenticeship but rather upgrading or the other informal means by which workers secure skills without any direct, obvious cost to the employer.

This union sponsorship is particularly the case in the construction trades, where programs which exist are generally joint programs of unions and management. In the metal trades, on the other hand, relatively few programs are union sponsored and many are unregistered programs, handled entirely by the company.

## E. EARNINGS AND ALLOWANCES OF APPRENTICES

There is nothing in the Fitzgerald Act which requires any particular wage be paid apprentices, nor do the Bureau of Apprenticeship and Training standards go beyond recommending a progressively increasing schedule of wages. The same is true, in general, of State laws.

The Fair Labor Standards Act, which would apply to most apprentices, makes a special provision for the employment of apprentices at rates below the legal minimum wage. Certificates are issued for this purpose.

The regulations of the Department of Labor require that if such certificates are to be issued the apprenticeship program in question must provide that the wages of the apprentice average 50 percent of the journeyman's rate over the period of apprenticeship. The certificates are issued to each apprentice.

Although there is little information available, the usual requirement is for apprentices to start at 40 or 50 percent of the journeyman's rate. Their wages are increased by 5 percent or more of the rate for each 6 months of their apprenticeship period. Inasmuch as journeymen's rates usually run over $2 an hour, there is little demand for certificates to employ apprentices at less than the minimum wage. Most of the demand which exists comes from programs in nonunion shops. The number of certificates issued has ranged between 300 and 500 in each of the last 7 years. The number issued in fiscal 1963, 479, was the highest during this period, reflecting the new, higher rates and the extension of the act into some newly covered employments.

As noted, apprentices are paid from 40 percent of the journeyman's rate, initially, up to 80 percent or more of that rate.

Table 17 shows the information contained in the census of population about the earnings of over 80,000 apprentices for the year 1959. About a quarter of them earned less than $2,000. Forty percent earned $4,000 or more. Median earnings were about $3,500 or nearly $70 a week.

Perhaps the most significant thing to be noted in this table is that only about half of the apprentices were reported as working a full year.

### F. ECONOMIC FACTORS IN APPRENTICESHIP

The comparatively unimportant role played by apprenticeship in the United States suggests that employers do not generally consider that they benefit from it. The evidence is that there is, in general, a far greater demand for opportunities to obtain apprenticeship training than there are available openings.

On the other hand, in areas such as the construction industry, where well worked out joint programs have been established, the general willingness of both management and labor to sponsor such training suggests that it is a lack of foresight and understanding of the needs of industry for an adequate supply of skilled workers, rather than immediate economic factors, which has limited the role of apprenticeship in American vocational training programs.

However, the fact that management seems willing to accept and make use of the products of the informal upgrading systems through which most skilled workers obtain their skill suggests that it is unlikely that economic demand factors will in the foreseeable future alter the present practice. Faced with the choice between paying for expensive labor and paying the cost of the investment necessary to substitute machines for manual skills, American management has usually chosen to substitute machines for men, wherever possible.

TABLE 1.—*United States: Population and labor force*

[In thousands]

| Item | 1952 | 1957 | 1959 | 1960 | 1961 | 1962 |
|---|---|---|---|---|---|---|
| Total population | 157,553 | 168,903 | 177,830 | 180,676 | 183,742 | 186,591 |
| Noninstitutional population of working age [1] | 113,270 | 118,734 | 123,366 | 125,368 | 127,852 | 130,081 |
| Civilian labor force [2] | 62,966 | 67,946 | 69,394 | 70,612 | 71,603 | 71,854 |
| Male: | | | | | | |
| 18 and over | 41,768 | 44,070 | 44,680 | 45,098 | 45,443 | 45,423 |
| Under 18 | 1,686 | 1,812 | 1,882 | 1,927 | 1,935 | 1,957 |
| Female: | | | | | | |
| 18 and over | 18,563 | 21,016 | 21,718 | 22,435 | 23,032 | 23,272 |
| Under 18 | 950 | 1,048 | 1,114 | 1,152 | 1,193 | 1,202 |

[1] Persons 14 years of age and over.
[2] Employed and unemployed, annual averages.

Source: United States: Bureau of the Census, "Current Population Reports," P–57; Bureau of Labor Statistics, "Employment and Earnings" (1959 on).

TABLE 2.—*United States: Average annual number of persons reaching selected ages, by sex: 1955 to 1975*

[In thousands]

| Period | Total | | Males | | Females | |
|---|---|---|---|---|---|---|
| | 14 years | 18 years | 14 years | 18 years | 14 years | 18 years |
| 1955–60 | 2,748 | 2,366 | 1,399 | 1,201 | 1,349 | 1,165 |
| 1960–65 | 3,222 | 3,198 | 1,644 | 1,628 | 1,578 | 1,570 |
| 1965–70 | 3,864 | 3,793 | 1,970 | 1,935 | 1,894 | 1,858 |
| 1970–75 | 4,180 | 3,980 | 2,132 | 2,028 | 2,048 | 1,952 |

Source: Bureau of the Census: Illustrative projections of the population of the United States, by age and sex, 1960 to 1880. (Current Population Reports Series P–25, No. 187, Nov. 10, 1958.)

TABLE 3.—*United States: Estimated population 16 years old, July 1, 1960 to July 1, 1975*

[In thousands]

| Year: | *Number* | Year—Continued | *Number* |
|---|---|---|---|
| 1960 | 2,801 | 1968 | 3,693 |
| 1961 | 2,758 | 1969 | 3,784 |
| 1962 | 2,716 | 1970 | 3,876 |
| 1963 | 3,764 | 1971 | 3,946 |
| 1964 | 3,501 | 1972 | 3,986 |
| 1965 | 3,516 | 1973 | 4,122 |
| 1966 | 3,516 | 1974 | 4,124 |
| 1967 | 3,605 | 1975 | 4,110 |

Source: United States: Congress of the United States, House of Representatives, 88th Cong., 1st sess. Rept. No. 199, Youth Employment Act.

TABLE 4.—*United States: Employed persons 14 to 24 years old, school enrollment, October 1953–62*

[In thousands]

| Year and item | Total employed | | | | Employed enrolled in school | | | | Employed not enrolled in school | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total, 14 to 24 years | 14 to 27 years | 18 and 19 years | 20 to 24 years | Total, 14 to 24 years | 14 to 17 years | 18 and 19 years | 20 to 24 years | Total, 14 to 24 years | 14 to 17 years | 18 and 19 years | 20 to 24 years |
| 1953 total | 9,320 | 2,002 | 2,171 | 5,148 | 1,821 | 1,282 | 290 | 250 | 7,499 | 720 | 1,881 | 4,898 |
| Males | 5,212 | 1,256 | 1,172 | 2,783 | 1,179 | 815 | 201 | 163 | 4,033 | 441 | 971 | 2,620 |
| Females | 4,111 | 746 | 998 | 2,366 | 644 | 467 | 89 | 87 | 3,467 | 279 | 909 | 2,279 |
| 1954 total | 9,276 | 2,086 | 2,062 | 5,128 | 2,206 | 1,537 | 308 | 361 | 7,070 | 549 | 1,754 | 4,767 |
| Males | 5,098 | 1,307 | 1,079 | 2,712 | 1,396 | 964 | 187 | 245 | 3,702 | 343 | 892 | 2,467 |
| Females | 4,178 | 779 | 983 | 2,416 | 810 | 573 | 121 | 116 | 3,368 | 206 | 862 | 2,300 |
| 1955 total | 10,201 | 2,345 | 2,280 | 5,576 | 2,553 | 1,719 | 421 | 413 | 7,648 | 626 | 1,859 | 5,163 |
| Males | 5,838 | 1,480 | 1,205 | 3,153 | 1,700 | 1,124 | 297 | 279 | 4,138 | 356 | 908 | 2,874 |
| Females | 4,363 | 865 | 1,075 | 2,423 | 853 | 595 | 124 | 134 | 3,510 | 270 | 951 | 2,289 |
| 1956 total | 10,447 | 2,479 | 2,195 | 5,775 | 2,854 | 1,864 | 457 | 535 | 7,593 | 615 | 1,738 | 5,240 |
| Males | 5,927 | 1,491 | 1,144 | 3,291 | 1,792 | 1,131 | 299 | 362 | 4,135 | 360 | 845 | 2,930 |
| Females | 4,520 | 988 | 1,051 | 2,483 | 1,062 | 733 | 158 | 173 | 3,458 | 255 | 893 | 2,310 |
| 1957 total | 10,382 | 2,465 | 2,213 | 5,704 | 2,983 | 1,952 | 436 | 595 | 7,399 | 513 | 1,777 | 5,109 |
| Males | 6,004 | 1,506 | 1,119 | 3,379 | 1,869 | 1,202 | 275 | 392 | 4,135 | 304 | 844 | 2,987 |
| Females | 4,378 | 959 | 1,094 | 2,325 | 1,114 | 750 | 161 | 203 | 3,264 | 209 | 933 | 2,122 |
| 1958 total | 10,254 | 2,373 | 2,095 | 5,786 | 2,886 | 1,848 | 479 | 559 | 7,368 | 525 | 1,616 | 5,227 |
| Males | 5,939 | 1,474 | 1,052 | 3,413 | 1,866 | 1,171 | 281 | 414 | 4,073 | 303 | 771 | 2,999 |
| Females | 4,315 | 899 | 1,043 | 2,373 | 1,020 | 677 | 198 | 145 | 3,295 | 222 | 845 | 2,228 |
| 1959 total | 10,847 | 2,557 | 2,175 | 6,115 | 3,145 | 2,068 | 484 | 593 | 7,702 | 489 | 1,691 | 5,522 |
| Males | 6,416 | 1,527 | 1,164 | 3,725 | 1,971 | 1,250 | 299 | 422 | 4,445 | 277 | 865 | 3,303 |
| Females | 4,431 | 1,030 | 1,011 | 2,390 | 1,174 | 818 | 185 | 171 | 3,257 | 212 | 826 | 2,219 |
| 1960 total | 11,167 | 2,610 | 2,349 | 6,208 | 3,150 | 2,061 | 529 | 560 | 8,017 | 549 | 1,820 | 5,648 |
| Males | 6,610 | 1,590 | 1,230 | 3,790 | 2,006 | 1,278 | 332 | 396 | 4,604 | 312 | 898 | 3,394 |
| Females | 4,557 | 1,020 | 1,119 | 2,418 | 1,144 | 783 | 197 | 164 | 3,413 | 237 | 922 | 2,254 |
| 1961 total | 11,454 | 2,531 | 2,507 | 6,416 | 3,255 | 2,042 | 559 | 654 | 8,199 | 489 | 1,948 | 5,762 |
| Males | 6,685 | 1,487 | 1,288 | 3,910 | 2,025 | 1,211 | 343 | 471 | 4,660 | 276 | 945 | 3,439 |
| Females | 4,769 | 1,044 | 1,219 | 2,506 | 1,230 | 831 | 216 | 183 | 3,539 | 213 | 1,003 | 2,323 |
| 1962 total | 11,837 | 2,638 | 2,481 | 6,718 | 3,562 | 2,187 | 563 | 812 | 8,275 | 451 | 1,918 | 5,906 |
| Males | 6,898 | 1,575 | 1,309 | 4,014 | 2,282 | 1,317 | 382 | 583 | 4,616 | 258 | 927 | 3,431 |
| Females | 4,939 | 1,063 | 1,172 | 2,704 | 1,280 | 870 | 181 | 229 | 3,659 | 193 | 991 | 2,475 |

NOTE.—Because of rounding, sums of individual items may not equal totals.

Source: United States: Bureau of the Census: Current Population Reports, Labor Force; Employment of Students and Other Young Persons (Series P–50); Bureau of Labor Statistics, Special Labor Force Reports, Employment of School Age Youth.

TABLE 5.—*United States: Hours of work of persons 14 to 24 years of age in non-agricultural industries at work during survey week, 1959–62*

| Year and distribution by hours worked | Enrolled in school | | | | Not enrolled in school | | | |
|---|---|---|---|---|---|---|---|---|
| | Total, 14 to 24 years | 14 to 17 years | 18 and 19 years | 20 to 24 years | Total, 14 to 24 years | 14 to 17 years | 18 and 19 years | 20 to 24 years |
| 1959 | | | | | | | | |
| Total: | | | | | | | | |
| Number (thousands) | 2,637 | 1,650 | 436 | 551 | 6,858 | 373 | 1,495 | 4,990 |
| Percent | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Part time (1 to 34 hours) | 84.0 | 96.5 | 80.5 | 49.0 | 17.4 | 40.5 | 20.0 | 14.9 |
| Full time (35 hours and over) | 16.0 | 3.5 | 19.5 | 51.0 | 82.6 | 59.5 | 80.0 | 85.1 |
| Average hours | 17 | 11 | 20 | 30 | 40 | 35 | 39 | 41 |
| 1960 | | | | | | | | |
| Total: | | | | | | | | |
| Number (thousands) | 2,551 | 1,526 | 486 | 539 | 7,072 | 404 | 1,568 | 5,100 |
| Percent | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Part time (1 to 34 hours) | 84.5 | 96.9 | 76.0 | 56.2 | 15.6 | 30.2 | 18.0 | 13.6 |
| Full time (35 hours and over) | 15.5 | 3.1 | 24.0 | 43.8 | 84.4 | 69.8 | 82.0 | 86.4 |
| Average hours | 17 | 11 | 21 | 21 | 40 | 34 | 39 | 40 |
| 1961 | | | | | | | | |
| Total: | | | | | | | | |
| Number (thousands) | 2,678 | 1,565 | 485 | 628 | 7,245 | 344 | 1,719 | 5,182 |
| Percent | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Part time (1 to 34 hours) | 84.4 | 97.2 | 80.9 | 55.5 | 15.9 | 34.1 | 16.2 | 14.6 |
| Full time (35 hours and over) | 15.6 | 2.8 | 20.0 | 44.5 | 84.1 | 65.9 | 83.8 | 85.4 |
| Average hours | 16 | 10 | 20 | 28 | 40 | 34 | 39 | 40 |
| 1962 | | | | | | | | |
| Total: | | | | | | | | |
| Number (thousands) | 3,052 | 1,756 | 510 | 786 | 7,468 | 347 | 1,686 | 5,435 |
| Percent | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Part time (1 to 34 hours) | 82.6 | 97.8 | 76.0 | 52.5 | 18.0 | 38.1 | 21.0 | 15.8 |
| Full time (35 hours and over) | 17.4 | 2.2 | 24.0 | 47.5 | 82.0 | 61.9 | 79.0 | 84.2 |
| Average hours | 16 | 10 | 20 | 28 | 40 | 34 | 38 | 40 |

Source: U.S. Bureau of Labor Statistics: "Employment of School Age Youth," October 1962 (Special Labor Force Reports Nos. 6, 16, 22, 34).

TABLE 6.—*United States: Civilian labor force, by age and sex, 1959–62*

[Thousands of persons 14 years of age and over]

| Period and sex | All age groups | 14 and 15 years | 16 and 17 years | 18 and 19 years | 14 to 19 years | |
|---|---|---|---|---|---|---|
| | | | | | Total | As percent of all age groups |
| Both sexes: | | | | | | |
| Total in civilian labor force: | | | | | | |
| Number: | | | | | | |
| 1959 | 69,394 | 1,025 | 1,971 | 2,521 | 5,517 | 8.0 |
| 1960 | 70,612 | 984 | 2,095 | 2,746 | 5,825 | 8.2 |
| 1961 | 71,603 | 1,144 | 1,984 | 2,951 | 6,079 | 8.5 |
| 1962 | 71,854 | 1,240 | 1,919 | 2,997 | 6,156 | 8.6 |
| Percent of civilian noninstitutional population: | | | | | | |
| 1959 | 57.4 | 18.7 | 36.9 | 58.9 | ---------- | ---------- |
| 1960 | 57.5 | 17.5 | 37.6 | 59.5 | ---------- | ---------- |
| 1961 | 57.2 | 17.6 | 36.3 | 58.4 | ---------- | ---------- |
| 1962 | 56.5 | 17.5 | 34.9 | 58.2 | ---------- | ---------- |
| Male: | | | | | | |
| Total in civilian labor force: | | | | | | |
| Number: | | | | | | |
| 1959 | 46,562 | 676 | 1,206 | 1,390 | 2,372 | 7.0 |
| 1960 | 47,025 | 637 | 1,290 | 1,496 | 3,423 | 7.3 |
| 1961 | 47,378 | 725 | 1,210 | 1,583 | 3,518 | 7.4 |
| 1962 | 47,380 | 780 | 1,177 | 1,592 | 3,549 | 7.5 |
| Percent of civilian noninstitutional population: | | | | | | |
| 1959 | 80.9 | 24.3 | 45.0 | 70.5 | ---------- | ---------- |
| 1960 | 80.4 | 22.3 | 46.0 | 69.3 | ---------- | ---------- |
| 1961 | 79.5 | 21.8 | 44.1 | 66.8 | ---------- | ---------- |
| 1962 | 78.4 | 21.6 | 42.6 | 66.7 | ---------- | ---------- |
| Females: | | | | | | |
| Total in civilian labor force: | | | | | | |
| Number: | | | | | | |
| 1959 | 22,832 | 349 | 765 | 1,131 | 2,245 | 9.8 |
| 1960 | 23,587 | 347 | 805 | 1,250 | 2,402 | 10.2 |
| 1961 | 24,225 | 419 | 774 | 1,368 | 2,561 | 10.6 |
| 1962 | 24,474 | 460 | 742 | 1,405 | 2,607 | 10.7 |
| Percent of civilian noninstitutional population: | | | | | | |
| 1959 | 36.1 | 12.9 | 28.8 | 48.9 | ---------- | ---------- |
| 1960 | 36.7 | 12.6 | 29.1 | 50.9 | ---------- | ---------- |
| 1961 | 36.9 | 13.1 | 28.5 | 51.0 | ---------- | ---------- |
| 1962 | 36.6 | 13.2 | 27.1 | 50.8 | ---------- | ---------- |

Source: U.S. Bureau of Labor Statistics, "Employment and Earnings," September 1963.

TABLE 7–A.—*United States: Major industry of employed persons 14 to 24 years old, by fall school enrollment and age, October 1962, both sexes*

[Percent distribution]

| Major industry group | Enrolled in school | | | | Not enrolled in school | | | |
|---|---|---|---|---|---|---|---|---|
| | Total, 14 to 24 years | 14 to 17 years | 18 and 19 years | 20 to 24 years | Total, 14 to 24 years | 14 to 17 years | 18 and 19 years | 20 to 24 years |
| BOTH SEXES | | | | | | | | |
| Total: | | | | | | | | |
| Number (thousands) | 3,562 | 2,187 | 563 | 812 | 8,275 | 451 | 1,918 | 5,906 |
| Percent | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Agriculture | 13.0 | 18.5 | 8.0 | 1.7 | 7.9 | 22.6 | 10.8 | 5.8 |
| Wage and salary workers | 6.1 | 8.6 | 3.9 | 1.1 | 4.9 | 15.7 | 6.8 | 3.4 |
| Self-employed and unpaid family workers | 6.9 | 9.9 | 4.1 | .6 | 3.0 | 6.9 | 4.0 | 2.4 |
| Nonagricultural industries | 87.0 | 81.5 | 92.0 | 98.3 | 92.1 | 77.4 | 89.2 | 94.2 |
| Wage and salary workers | 83.3 | 76.2 | 90.2 | 97.5 | 89.7 | 75.6 | 88.2 | 91.2 |
| Forestry, fisheries, and mining | .1 | ------- | .4 | ------- | .7 | .4 | .5 | .7 |
| Construction | 2.0 | .6 | 3.0 | 4.9 | 6.1 | 4.4 | 5.2 | 6.5 |
| Manufacturing | 12.3 | 10.2 | 14.0 | 17.0 | 28.0 | 18.2 | 25.8 | 29.5 |
| Durable goods | 3.3 | .3 | 7.3 | 8.6 | 14.9 | 6.7 | 13.1 | 16.1 |
| Nondurable goods | 9.0 | 9.8 | 6.7 | 8.4 | 13.1 | 11.5 | 12.7 | 13.4 |
| Transportation and public utilities | 1.4 | .5 | 2.1 | 3.1 | 5.6 | 4.0 | 4.8 | 6.0 |
| Wholesale and retail trade | 27.6 | 27.3 | 37.7 | 21.2 | 20.0 | 23.1 | 22.6 | 18.9 |
| Service and finance | 38.6 | 37.5 | 32.0 | 46.2 | 26.9 | 24.4 | 27.5 | 26.9 |
| Private households | 18.1 | 27.1 | 6.9 | 1.7 | 2.9 | 8.4 | 3.7 | 2.3 |
| Educational services | 8.3 | 1.7 | 11.4 | 23.6 | 3.9 | .2 | 1.7 | 4.9 |
| Other services and finance | 12.2 | 8.6 | 13.7 | 20.8 | 20.1 | 15.7 | 22.1 | 19.7 |
| Public administration | 1.4 | .1 | 1.1 | 5.2 | 2.4 | 1.1 | 1.8 | 2.7 |
| Self-employed and unpaid family workers | 3.7 | 5.3 | 1.8 | .7 | 2.5 | 1.8 | 1.0 | 3.0 |

Source: U.S. Bureau of Labor Statistics: Special Labor Force Report No. 34, "Employment of School Age Youth," October 1962.

TABLE 7–B.—*United States: Major industry of employed persons 14 to 24 years old, by fall school enrollment and age, October 1962, males*

[Percent distribution]

| Major industry group | Enrolled in school | | | | Not enrolled in school | | | |
|---|---|---|---|---|---|---|---|---|
| | Total, 14 to 24 years | 14 to 17 years | 18 and 19 years | 20 to 24 years | Total, 14 to 24 years | 14 to 17 years | 18 and 19 years | 20 to 24 years |
| MALES | | | | | | | | |
| Total: | | | | | | | | |
| Number (thousands) | 2,282 | 1,317 | 382 | 583 | 4,616 | 258 | 927 | 3,431 |
| Percent | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Agriculture | 15.4 | 22.6 | 10.5 | 2.4 | 11.4 | 33.3 | 18.3 | 7.8 |
| Wage and salary workers | 7.0 | 9.9 | 5.0 | 1.5 | 7.2 | 22.1 | 12.5 | 4.6 |
| Self-employed and unpaid family workers | 8.5 | 12.7 | 5.5 | .9 | 4.2 | 11.2 | 5.8 | 3.2 |
| Nonagricultural industries | 84.6 | 77.4 | 89.5 | 97.6 | 88.6 | 66.7 | 81.7 | 92.2 |
| Wage and salary workers | 79.4 | 69.6 | 86.9 | 96.6 | 86.1 | 64.3 | 91.0 | 89.2 |
| Forestry, fisheries, and mining | .1 | -------- | .5 | -------- | 1.0 | .8 | 1.0 | 1.0 |
| Construction | 3.0 | .8 | 4.4 | 6.9 | 10.5 | 7.0 | 9.7 | 10.9 |
| Manufacturing | 17.0 | 16.0 | 17.8 | 18.7 | 33.5 | 17.8 | 32.5 | 35.0 |
| Durable goods | 4.2 | .4 | 10.2 | 8.9 | 19.5 | 8.9 | 18.9 | 20.5 |
| Nondurable goods | 12.8 | 15.6 | 7.6 | 9.8 | 14.0 | 8.9 | 13.6 | 14.5 |
| Transportation and public utilities | 1.9 | .9 | 2.1 | 3.9 | 5.4 | 4.3 | 3.2 | 6.1 |
| Wholesale and retail trade | 29.6 | 30.5 | 37.2 | 22.5 | 20.7 | 20.5 | 22.0 | 20.4 |
| Service and finance | 26.4 | 21.4 | 24.3 | 39.1 | 13.2 | 13.2 | 11.8 | 13.6 |
| Private households | 7.0 | 10.6 | 3.4 | 1.0 | .5 | 1.2 | .5 | .4 |
| Educational services | 6.8 | 1.2 | 7.3 | 19.0 | 1.6 | .4 | .9 | 2.0 |
| Other services and finance | 12.7 | 9.6 | 13.6 | 19.0 | 11.1 | 11.6 | 10.4 | 11.2 |
| Public administration | 1.5 | -------- | .5 | 5.5 | 1.8 | .8 | .9 | 2.2 |
| Self-employed and unpaid family workers | 5.2 | 7.7 | 2.6 | 1.0 | 2.5 | 2.3 | .6 | 3.0 |

Source: U.S. Bureau of Labor Statistics: Special Labor Force Report, No. 34, "Employment of School Age Youth," October 1962.

TABLE 7–C.—*United States: Major industry of employed persons 14 to 24 years old, by fall school enrollment and age, October 1962, females*

[Percent distribution]

| Major industry group | Enrolled in school | | | | Not enrolled in school | | | |
|---|---|---|---|---|---|---|---|---|
| | Total, 14 to 24 years | 14 to 17 years | 18 and 19 years | 20 to 24 years | Total, 14 to 24 years | 14 to 17 years | 18 and 19 years | 20 to 24 years |
| FEMALES | | | | | | | | |
| Total: Number (thousands) | 1,280 | 870 | 181 | 229 | 3,659 | 193 | 919 | 2,475 |
| Percent | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Agriculture | 8.7 | 12.2 | 2.8 | ------- | 3.4 | 8.3 | 3.7 | 2.9 |
| Wage and salary workers | 4.6 | 6.4 | 1.7 | ------- | 1.9 | 7.3 | 1.4 | 1.7 |
| Self-employed and unpaid family workers | 4.1 | 5.7 | 1.1 | ------- | 1.5 | 1.0 | 2.3 | 1.2 |
| Nonagricultural industries | 91.3 | 87.8 | 97.2 | 100.0 | 96.6 | 91.7. | 96.3 | 97.0 |
| Wage and salary workers | 90.2 | 86.2 | 97.2 | 100.0 | 94.1 | 90.7 | 94.9 | 94.1 |
| Forestry, fisheries, and mining | ------- | ------- | ------- | ------- | .2 | ------- | ------- | .3 |
| Construction | .2 | .2 | ------- | ------- | .6 | 1.0 | .9 | .4 |
| Manufacturing | 4.1 | 1.4 | 6.1 | 12.7 | 21.0 | 18.7 | 19.6 | 21.8 |
| Durable goods | 1.7 | .2 | 1.1 | 7.9 | 9.1 | 3.6 | 7.8 | 10.0 |
| Nondurable goods | 2.3 | 1.1 | 5.0 | 4.8 | 12.0 | 15.0 | 11.8 | 11.8 |
| Transportation and public utilities | .5 | ------- | 2.2 | .9 | 5.9 | 3.6 | 6.3 | 5.9 |
| Wholesale and retail trade | 24.0 | 22.5 | 38.7 | 17.9 | 19.1 | 26.4 | 23.2 | 16.8 |
| Service and finance | 60.3 | 61.8 | 48.1 | 64.2 | 44.3 | 39.4 | 42.2 | 45.5 |
| Private households | 38.0 | 52.1 | 14.4 | 3.5 | 6.1 | 18.1 | 6.7 | 4.9 |
| Educational services | 10.9 | 2.5 | 19.9 | 35.4 | 6.8. | ------- | 2.4 | 9.0 |
| Other services and finance | 11.4 | 7.2 | 13.8 | 25.3 | 31.4 | 21.2 | 33.1 | 31.5 |
| Public administration | 1.2 | .2 | 2.2 | 4.4 | 3.1 | 1.6 | 2.7 | 3.3 |
| Self-employed and unpaid family workers | 1.1 | 1.6 | ------- | ------- | 2.4 | 1.0 | 1.4 | 2.9 |

Source: U.S. Bureau of Labor Statistics: Special Labor Force Report No. 34, "Employment of School Age Youth," October, 1962.

TABLE 8–A.—*United States: Major occupational group of employed persons 14 to 24 years old, by fall school enrollment and age, October 1962, both sexes*

| Major occupation group | Enrolled in school | | | | Not enrolled in school | | | |
|---|---|---|---|---|---|---|---|---|
| | Total, 14 to 24 years | 14 to 17 years | 18 and 19 years | 20 to 24 years | Total, 14 to 24 years | 14 to 17 years | 18 and 19 years | 20 to 24 years |
| BOTH SEXES | | | | | | | | |
| Total: Number (thousands) | 3,562 | 2,187 | 563 | 812 | 8,275 | 451 | 1,918 | 5,906 |
| Percent | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Professional, technical, and kindred workers | 9.1 | 1.5 | 7.7 | 31.1 | 8.5 | 1.3 | 2.0 | 11.1 |
| Farmers and farm managers | .3 | .2 | .9 | .2 | 1.0 | ------- | .9 | 1.1 |
| Managers, officials, and proprietors, except farm | 1.0 | .1 | .4 | 3.9 | 3.1 | 1.3 | 1.1 | 3.8 |
| Clerical and kindred workers | 13.2 | 6.5 | 25.0 | 23.5 | 25.7 | 17.0 | 29.9 | 25.0 |
| Sales workers | 15.8 | 19.3 | 13.7 | 7.7 | 4.7 | 4.4 | 6.2 | 4.2 |
| Craftsmen, foremen, and kindred workers | 2.0 | .8 | 2.3 | 4.9 | 8.1 | 1.7 | 4.7 | 9.7 |
| Operatives and kindred workers | 7.9 | 5.9 | 13.5 | 9.5 | 23.4 | 19.6 | 23.2 | 23.8 |
| Private household workers | 14.4 | 21.8 | 4.5 | 1.0 | 2.7 | 7.9 | 3.4 | 2.1 |
| Service workers, except private household | 12.6 | 13.5 | 13.0 | 9.8 | 9.5 | 13.5 | 10.3 | 8.9 |
| Farm laborers and foremen | 12.2 | 17.6 | 6.6 | 1.3 | 6.0 | 21.0 | 9.0 | 3.9 |
| Laborers, except farm and mine | 11.5 | 12.8 | 12.5 | 7.1 | 7.3 | 12.2 | 9.2 | 6.3 |

Source: U.S. Bureau of Labor Statistics: Special Labor Force Report No. 34, "Employment of School Age Youth," October 1962.

TABLE 8–B.—*United States: Major occupational group of employed persons 14 to 24 years old, by fall school enrollment and age, October 1962, males*

| Major occupational group | Enrolled in school | | | | Not enrolled in school | | | |
|---|---|---|---|---|---|---|---|---|
| | Total, 14 to 24 years | 14 to 17 years | 18 and 19 years | 20 to 24 years | Total, 14 to 24 years | 14 to 17 years | 18 and 19 years | 20 to 24 years |
| MALES | | | | | | | | |
| Total: | | | | | | | | |
| Number (thousands) | 2,282 | 1,317 | 382 | 583 | 4,616 | 258 | 927 | 3,431 |
| Percent | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Professional, technical, and kindred workers | 9.3 | 0.9 | 7.8 | 29.6 | 6.4 | 0.8 | 1.5 | 8.2 |
| Farmers and farm managers | .5 | .3 | 1.3 | .3 | 1.7 | -------- | 1.5 | 1.9 |
| Managers, officials, and proprietors, except farm | 1.3 | .1 | .5 | 4.4 | 4.7 | .8 | 1.4 | 5.9 |
| Clerical and kindred workers | 10.2 | 4.8 | 20.3 | 16.1 | 9.2 | 5.3 | 8.2 | 9.8 |
| Sales workers | 18.4 | 24.6 | 10.9 | 8.9 | 4.9 | 3.0 | 5.8 | 4.8 |
| Craftsmen, foremen, and kindred workers | 3.0 | 1.4 | 2.9 | 6.8 | 14.0 | 2.3 | 8.8 | 16.4 |
| Operatives and kindred workers | 11.7 | 9.4 | 18.7 | 12.3 | 31.4 | 23.6 | 33.9 | 31.3 |
| Private household workers | .7 | 1.3 | -------- | -------- | .1 | -------- | .2 | .1 |
| Service workers, except private household | 13.2 | 15.0 | 11.4 | 10.1 | 6.4 | 12.5 | 5.6 | 6.2 |
| Farm laborers and foremen | 14.0 | 21.0 | 18.1 | 1.9 | 8.2 | 30.4 | 15.0 | 4.6 |
| Laborers, except farm and mine | 17.7 | 21.1 | 18.2 | 9.6 | 12.9 | 21.3 | 18.1 | 10.8 |

Source: U.S. Bureau of Labor Statistics: Special Labor Force Report No. 34, "Employment of School Age Youth," October 1962.

TABLE 8–C.—*United States: Major occupational group of employed persons 14 to 24 years old, by fall school enrollment and age, October 1962, females*

| Major occupation group | Enrolled in school | | | | Not enrolled in school | | | |
|---|---|---|---|---|---|---|---|---|
| | Total, 14 to 24 years | 14 to 17 years | 18 and 19 years | 20 to 24 years | Total, 14 to 24 years | 14 to 17 years | 18 and 19 years | 20 to 24 years |
| FEMALES | | | | | | | | |
| Total: | | | | | | | | |
| Number (thousands) | 1,280 | 870 | 181 | 229 | 3,659 | 193 | 991 | 2,475 |
| Percent | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Professional, technical, and kindred workers | 8.8 | 2.4 | 7.4 | 34.8 | 11.0 | 2.1 | 2.4 | 15.0 |
| Farmers and farm managers | -------- | -------- | -------- | -------- | .1 | -------- | .4 | -------- |
| Managers, officials, and proprietors, except farm | .5 | -------- | -------- | 2.6 | 1.0 | 2.1 | .7 | 1.0 |
| Clerical and kindred workers | 18.4 | 9.0 | 35.2 | 42.1 | 46.6 | 32.8 | 51.3 | 45.9 |
| Sales workers | 11.3 | 11.3 | 19.9 | 4.7 | 4.4 | 6.2 | 6.6 | 3.4 |
| Craftsmen, foremen, and kindred workers | .2 | -------- | 1.1 | -------- | .6 | 1.0 | .7 | .5 |
| Operatives and kindred workers | 1.3 | .8 | 2.3 | 2.6 | 13.3 | 14.4 | 12.8 | 13.4 |
| Private household workers | 38.7 | 52.8 | 14.2 | 3.4 | 6.1 | 18.4 | 6.6 | 4.9 |
| Service workers, except private household | 11.5 | 11.1 | 16.5 | 9.0 | 13.4 | 14.9 | 14.9 | 12.7 |
| Farm laborers and foremen | 8.9 | 12.3 | 3.4 | -------- | 3.3 | 8.2 | 3.1 | 3.0 |
| Laborers, except farm and mine | .4 | .3 | -------- | .9 | .2 | -------- | .4 | .1 |

Source: U.S. Bureau of Labor Statistics: Special Labor Force Report No. 34, "Employment of School Age Youth," October 1962.

TABLE 9.—*United States: Employed persons, by industry group, age, and sex, 1962*

[Percent]

| Industry group | Both sexes | Males | | | Females | | |
|---|---|---|---|---|---|---|---|
| | | All ages | 14 to 19 years | 20 years and over | All ages | 14 to 19 years | 20 years and over |
| Forestry, fisheries, and mining | 100 | 92.7 | 2.2 | 90.5 | 7.3 | 0.1 | 7.2 |
| Construction | 100 | 95.4 | 3.6 | 91.8 | 4.6 | .2 | 4.4 |
| Manufacturing | 100 | 74.8 | 3.6 | 71.2 | 25.2 | 1.5 | 23.7 |
| Durable goods | 100 | 82.0 | 2.4 | 79.6 | 18.0 | 1.0 | 17.0 |
| Nondurable goods | 100 | 65.7 | 5.0 | 60.7 | 34.3 | 2.1 | 32.2 |
| Transportation and public utilities | 100 | 82.5 | 1.6 | 80.9 | 17.5 | 1.7 | 15.8 |
| Railroads and railway express | 100 | 95.1 | .8 | 94.3 | 4.9 | .1 | 4.8 |
| Other transportation | 100 | 88.9 | 2.3 | 86.6 | 11.1 | .9 | 10.2 |
| Communication and other public utilities | 100 | 70.3 | 1.3 | 69.0 | 29.7 | 3.2 | 26.5 |
| Wholesale and retail trade | 100 | 62.4 | 7.6 | 55.8 | 37.6 | 4.2 | 33.4 |
| Wholesale | 100 | 80.0 | 3.0 | 77.0 | 20.0 | 1.4 | 18.6 |
| Retail | 100 | 58.2 | 8.7 | 49.5 | 41.8 | 4.9 | 36.9 |
| Service and finance | 100 | 43.7 | 3.1 | 40.6 | 56.3 | 6.3 | 50.0 |
| Finance, insurance, and real estate | 100 | 54.5 | 1.5 | 53.0 | 45.5 | 6.3 | 39.2 |
| Business and repair | 100 | 79.1 | 5.0 | 74.1 | 20.9 | 1.6 | 19.3 |
| Private household | 100 | 12.7 | 6.5 | 6.2 | 87.3 | 21.9 | 65.4 |
| Personal services, except private household | 100 | 42.2 | 3.6 | 39.6 | 57.8 | 4.0 | 53.8 |
| Entertainment | 100 | 69.2 | 15.9 | 53.3 | 30.8 | 6.0 | 24.8 |
| Educational services | 100 | 38.1 | 1.5 | 36.6 | 61.9 | 2.4 | 59.5 |
| Other professional services | 100 | 42.2 | 1.2 | 41.0 | 57.8 | 3.7 | 54.1 |
| Public administration | 100 | 72.9 | .8 | 72.1 | 27.1 | 1.2 | 25.9 |

Source: U.S. Bureau of Labor Statistics, "Employment and Earnings," September 1963.

TABLE 10.—*United States: Unemployed persons, by age and sex, 1959–63*

[Thousands, 14 years of age and over]

| Year and number | All age groups | | | 14 and 15 years | | | 16 and 17 years | | | 18 and 19 years | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Both sexes | Male | Female | Both sexes | Male | Female | Both sexes | Male | Female | Both sexes | Male | Female |
| 1959: | | | | | | | | | | | | |
| Number unemployed | 3,813 | 2,473 | 1,340 | 73 | 53 | 20 | 301 | 191 | 110 | 353 | 207 | 146 |
| Percent | 5.5 | 5.3 | 5.9 | 7.1 | 7.8 | 5.7 | 15.3 | 15.8 | 14.4 | 14.0 | 14.9 | 12.9 |
| 1960: | | | | | | | | | | | | |
| Number unemployed | 3,931 | 2,541 | 1,390 | 80 | 55 | 24 | 325 | 200 | 124 | 387 | 225 | 162 |
| Percent | 5.6 | 5.4 | 5.9 | 8.1 | 8.6 | 6.9 | 15.5 | 15.5 | 15.4 | 14.1 | 15.0 | 13.0 |
| 1961: | | | | | | | | | | | | |
| Number unemployed | 4,806 | 3,060 | 1,747 | 93 | 63 | 30 | 363 | 221 | 142 | 465 | 258 | 207 |
| Percent | 6.7 | 6.5 | 7.2 | 8.1 | 8.7 | 7.2 | 18.3 | 18.3 | 18.3 | 15.8 | 16.3 | 15.1 |
| 1962: | | | | | | | | | | | | |
| Number unemployed | 4,007 | 2,488 | 1,519 | 96 | 65 | 31 | 311 | 187 | 124 | 409 | 220 | 189 |
| Percent | 5.6 | 5.3 | 6.2 | 7.7 | 8.3 | 6.7 | 16.2 | 15.9 | 16.8 | 13.6 | 13.8 | 13.5 |

Source: U.S. Bureau of Labor Statistics, "Employment and Earnings," 1963.

TABLE 11.—*United States: Distribution of persons 14 years of age and over by total money income, by sex, 1953, 1959–62*

| Money income and sex | 1953 | | | | 1959 | | | | 1960 | | | | 1961 | | | | 1962 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total | | 14 to 19 years | | Total | | 14 to 19 years | | Total | | 14 to 19 years | | Total | | 14 to 19 years | | Total | | 14 to 19 years | |
| | Male | Female | Male | Female | Male | Female | Male | Female | Male | Female | Male | Female | Male | Female | Male | Female | Male | Female | Male | Female |
| Number of persons (thousands) | 54,416 | 58,975 | 6,307 | 6,480 | 59,394 | 64,042 | 7,724 | 7,860 | 60,359 | 65,282 | 8,296 | 8,410 | 61,098 | 66,420 | 8,645 | 8,854 | 62,190 | 67,629 | 8,977 | 9,221 |
| Number of persons with income (thousands) | 49,667 | 27,379 | 3,091 | 2,350 | 54,285 | 34,380 | 3,875 | 3,204 | 55,172 | 36,526 | 4,339 | 3,656 | 55,839 | 38,076 | 4,533 | 3,857 | 56,624 | 38,988 | 4,560 | 3,815 |
| Income recipients: | | | | | | | | | | | | | | | | | | | | |
| Percent of those with— | | | | | | | | | | | | | | | | | | | | |
| Income | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Loss | 1.1 | .4 | .1 | .1 | | | | | | | | | | | | | | | | |
| $1 to $499 | 8.7 | 26.3 | 55.4 | 57.2 | 8.7 | 26.3 | 60.9 | 65.8 | 8.9 | 25.4 | 60.7 | 64.5 | 9.0 | 25.2 | 62.6 | 67.0 | 8.4 | 23.9 | 62.4 | 65.0 |
| $500 to $999 | 8.3 | 19.5 | 19.4 | 21.1 | 7.5 | 18.9 | 19.8 | 14.9 | 7.3 | 19.0 | 19.9 | 14.8 | 6.8 | 18.7 | 18.5 | 14.0 | 6.3 | 17.9 | 18.5 | 14.0 |
| $1,000 to $1,499 | 6.4 | 11.3 | 8.3 | 9.3 | 6.3 | 10.9 | 6.4 | 7.1 | 6.5 | 10.7 | 7.5 | 8.4 | 6.6 | 10.9 | 8.0 | 6.9 | 6.6 | 12.0 | 8.2 | 7.0 |
| $1,500 to $1,999 | 6.0 | 10.1 | 4.9 | 5.2 | 5.4 | 8.1 | 4.3 | 4.9 | 4.8 | 7.7 | 4.2 | 4.0 | 4.7 | 8.1 | 3.5 | 4.2 | 5.1 | 7.8 | 3.2 | 3.3 |
| $2,000 to $2,499 | 7.6 | 10.7 | 5.2 | 4.6 | 5.6 | 8.0 | 3.8 | 2.8 | 5.7 | 8.0 | 3.1 | 3.4 | 5.5 | 7.5 | 2.8 | 2.5 | 5.3 | 7.8 | 2.2 | 3.4 |
| $2,500 to $2,999 | 7.4 | 7.4 | 3.1 | 1.3 | 4.8 | 6.0 | 2.2 | 1.9 | 4.6 | 6.0 | 1.8 | 2.6 | 4.4 | 5.7 | 1.2 | 2.4 | 4.3 | 5.6 | 2.0 | 3.1 |
| $3,000 to $3,499 | 10.1 | 6.5 | 2.1 | 1.1 | 6.3 | 6.3 | 1.3 | 1.3 | 5.8 | 6.3 | 1.4 | 1.5 | 5.6 | 6.0 | 1.5 | 1.8 | 5.4 | 6.1 | 1.4 | 1.6 |
| $3,500 to $3,999 | 9.2 | 3.4 | 1.1 | ------- | 5.5 | 4.8 | .5 | .8 | 5.3 | 4.8 | .5 | .5 | 5.0 | 4.4 | .5 | .7 | 4.5 | 4.7 | .7 | 1.7 |
| $4,000 to $4,499 | 8.7 | 1.7 | .2 | ------- | 7.1 | 3.8 | .6 | .3 | 6.5 | 4.1 | .4 | ------- | 5.9 | 3.9 | .3 | .2 | 5.4 | 4.2 | .4 | .5 |
| $4,500 to $4,999 | 6.1 | .6 | .2 | ------- | 6.2 | 2.1 | .1 | ------- | 5.5 | 2.6 | .2 | .1 | 5.3 | 2.9 | .1 | .1 | 5.2 | 2.6 | .3 | .3 |
| $5,000 to $5,999 | 9.5 | 1.0 | ------ | ------- | 12.7 | 2.6 | .1 | ------- | 12.7 | 3.1 | .2 | .3 | 12.2 | 3.4 | .1 | .1 | 12.3 | 3.9 | .4 | .2 |
| $6,000 to $6,999 | 4.3 | .3 | ------ | ------- | 8.5 | 1.1 | ------ | ------- | 8.9 | 1.2 | ------ | ------- | 8.9 | 1.5 | .1 | ------- | 9.0 | 1.6 | .2 | ------- |
| $7,000 to $9,999 | 4.2 | .2 | ------ | ------- | 10.0 | .7 | .1 | .1 | 11.3 | .9 | .1 | ------- | 12.5 | 1.2 | ------ | .1 | 13.2 | 1.4 | .2 | ------- |
| $10,000 to $14,999 | 1.5 | .2 | ------ | ------- | 3.7 | .3 | ------ | ------- | 4.1 | .2 | ------ | ------- | 4.8 | .3 | ------ | ------- | 5.5 | .3 | ------ | .1 |
| $15,000 to $24,999 | .5 | .1 | ------ | ------- | 1.2 | ------- | ------ | ------- | 1.4 | ------- | ------ | ------- | 1.9 | .1 | ------ | ------- | 1.8 | .1 | ------ | ------- |
| $25,000 and over | .3 | .1 | ------ | ------- | .5 | .1 | ------ | ------- | .6 | ------- | ------ | ------- | .8 | .1 | ------ | ------- | .6 | .1 | ------ | ------- |
| Median income for persons with income | $3,223 | $1,168 | $450 | $436 | $3,996 | $1,222 | $411 | $380 | $4,081 | $1,262 | $412 | $388 | $4,189 | $1,279 | $399 | $373 | $4,372 | $1,342 | $401 | $385 |
| Year-round full-time workers | ------ | ------- | ------ | ------- | ------ | ------- | ------ | ------- | ------ | ------- | ------ | ------- | ------ | ------- | ------ | ------- | ------ | ------- | ------ | ------- |
| Percent of all income recipients | (1) | (1) | (1) | (1) | 58.5 | 27.4 | 9.0 | 7.1 | 58.3 | 28.3 | 7.4 | 8.5 | 57.5 | 27.5 | 5.9 | 6.2 | 58.3 | 27.9 | 6.8 | 7.4 |
| Median income | (1) | (1) | (1) | (1) | $5,242 | $3,205 | $1,740 | $2,350 | $5,435 | $3,296 | $1,974 | $2,450 | $5,663 | $3,342 | $1,938 | $2,293 | $5,826 | $3,458 | $2,146 | $2,733 |

[1] Not available.

Source: U.S. Bureau of the Census, "Income of Families and Persons in the United States" (series P–60, Nos. 16, 35, 37, 39, 40).

TABLE 12.—*United States: Vocational educational enrollment by programs of vocational education, 1960–61*

| Item | Total enrollment [1] | Agricultural education | Trade and industrial education | Home economics education | Distributive education |
|---|---|---|---|---|---|
| Number: | | | | | |
| Total enrollment | 3,597,382 | 794,234 | 930,485 | 1,573,149 | 299,514 |
| In-school youth | 1,712,322 | 456,221 | 263,171 | 950,506 | 42,424 |
| Out-of-school youth | 1,885,060 | 338,013 | 667,314 | 622,643 | 257,090 |
| Percent: | | | | | |
| Total enrollment | 100 | 22 | 26 | 44 | 8 |
| In-school youth | 100 | 27 | 15 | 56 | 2 |
| Out-of-school youth | 100 | 18 | 35 | 33 | 14 |

[1] Under Smith-Hughes and George-Barden title I and II.

Source: U.S. Office of Education, "Education for a Changing World of Work, Report of the Panel of Consultants on Vocational Education," 1963.

TABLE 13.—*United States: Registered apprentices in training, new registrations, completion, and cancellations, 1941–62*

| Year | Number in training on Jan. 1 | New registrations [1] | Completions | Cancellation [2] |
|---|---|---|---|---|
| 1941 | 18,300 | 14,177 | 1,289 | 5,051 |
| 1942 | 26,137 | 20,701 | 2,011 | 4,683 |
| 1943 | 40,144 | 11,661 | 1,715 | 6,975 |
| 1944 | 43,115 | 7,775 | 2,122 | 8,197 |
| 1945 | 40,571 | 23,040 | 1,568 | 5,078 |
| 1946 | 56,965 | 84,730 | 2,042 | 8,436 |
| 1947 | 131,217 | 94,238 | 7,311 | 25,190 |
| 1948 | 192,954 | 85,918 | 13,375 | 35,117 |
| 1949 | 230,380 | 66,745 | 25,045 | 41,257 |
| 1950 | 230,823 | 60,186 | 38,533 | 49,747 |
| 1951 | 202,729 | 63,881 | 38,754 | 56,845 |
| 1952 | 171,011 | 63,055 | 32,752 | 42,782 |
| 1953 | 158,732 | 73,198 | 28,378 | 43,094 |
| 1954 | 160,258 | 58,970 | 27,176 | 33,377 |
| 1955 | 158,675 | 66,747 | 24,445 | 26,255 |
| 1956 | 174,722 | 72,869 | 26,508 | 32,946 |
| 1957 | 188,137 | 58,463 | 29,760 | 31,149 |
| 1958 | 185,691 | 50,134 | 29,824 | 28,306 |
| 1959 | 177,695 | 63,679 | 35,741 | 39,628 |
| 1960 | 166,005 | 58,129 | 30,920 | 32,086 |
| 1961 | 161,128 | 48,889 | 28,282 | 26,086 |
| 1962 | 155,649 | 55,321 | 25,918 | 26,434 |
| 1963 | 158,616 | ---------- | ---------- | ---------- |

[1] Includes reinstatements.
[2] Includes suspensions.

Source: U.S. Bureau of Apprenticeship and Training, Division of Resear

TABLE 14–A.—*United States: Registered apprentices by occupation, construction trades, 1962*

| Occupation | Active at beginning of period | Apprentice actions for period [1] | | | Active at end of period |
|---|---|---|---|---|---|
| | | New registrations | Completions | Cancellations [2] | |
| Brick, stone, and tile | 8,751 | 2,419 | 1,527 | 1,036 | 8,607 |
| Carpenters | 21,857 | 9,108 | 2,986 | 5,906 | 22,073 |
| Cement masons | 1,274 | 712 | 327 | 181 | 1,478 |
| Electricians | 18,572 | 6,951 | 3,279 | 2,712 | 19,532 |
| Glaziers | 980 | 377 | 202 | 132 | 1,023 |
| Lathers | 1,552 | 795 | 387 | 242 | 1,718 |
| Painters | 5,300 | 2,453 | 790 | 1,366 | 5,597 |
| Plasterers | 1,595 | 383 | 290 | 281 | 1,407 |
| Plumbers, pipefitters | 20,435 | 5,746 | 3,409 | 2,315 | 20,457 |
| Roofers | 2,054 | 1,128 | 228 | 695 | 2,259 |
| Sheet metal workers | 9,940 | 3,514 | 1,749 | 1,806 | 9,899 |
| Structural iron workers | 4,744 | 2,018 | 896 | 971 | 4,895 |
| Not classified above | 3,656 | 1,431 | 407 | 579 | 4,101 |
| Total | 100,710 | 37,035 | 16,477 | 18,222 | 103,046 |

[1] Totals do not include Washington and only actions for 1st 6 months for Nevada and Puerto Rico.
[2] Includes suspensions.

Source: U.S. Bureau of Apprenticeship and Training, Division of Research.

TABLE 14–B.—*United States: Registered apprentices by occupation, metalworking trades, 1962*

| Occupation | Active at beginning of period | Apprentice actions for period [1] | | | Active at end of period |
|---|---|---|---|---|---|
| | | New registrations | Completions | Cancellations [1] | |
| Boilermakers | 588 | 171 | 59 | 72 | 628 |
| Engravers | 45 | 11 | 7 | 4 | 45 |
| Machinists | 7,260 | 2,806 | 1,011 | 953 | 8,102 |
| Molders and coremakers | 552 | 190 | 83 | 93 | 566 |
| Patternmakers | 768 | 231 | 195 | 105 | 699 |
| Toolmakers, diemakers | 6,930 | 2,820 | 1,339 | 955 | 7,456 |
| Not classified above | 6,065 | 2,140 | 917 | 1,246 | 6,042 |
| Total | 22,208 | 8,369 | 3,611 | 3,428 | 23,538 |

[1] See table 14–A.

Source: U.S. Bureau of Apprenticeship and Training, Division of Research.

TABLE 14–C.—*United States: Registered apprentices by occupation, printing trades, 1962*

| Occupation | Active at beginning of period | Apprentice actions for period [1] | | | Active at end of period |
|---|---|---|---|---|---|
| | | New registrations | Completions | Cancellations [1] | |
| Bookbinders | 930 | 420 | 246 | 63 | 1,041 |
| Compositors | 5,040 | 1,097 | 869 | 281 | 4,987 |
| Electrotypers, stereotypers | 965 | 166 | 129 | 97 | 905 |
| Lithographers | 1,470 | 456 | 223 | 111 | 1,592 |
| Mailers | 230 | 20 | 22 | 8 | 220 |
| Photoengravers | 826 | 113 | 176 | 45 | 718 |
| Pressmen | 3,100 | 963 | 611 | 317 | 3,135 |
| Not classified above | 231 | 32 | 10 | 83 | 170 |
| Total | 12,792 | 3,267 | 2,286 | 1,005 | 12,768 |

[1] See table 14–A.

Source: U.S. Bureau of Apprenticeship and Training, Division of Research.

TABLE 15.—*United States: Distribution of male apprentices by industry group, 1960*

| Industry group | Auto mechanics | Bricklayers and masons | Carpenters | Electricians | Machinists and toolmakers | Mechanics except auto | Plumbers and pipefitters | Building trades, n.e.c. | Metalworking trades, n.e.c. | Printing trades | Other specified trades | Trade not specified | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total, all industries | 1,479 | 2,693 | 5,765 | 8,293 | 13,960 | 3,440 | 8,242 | 2,180 | 5,361 | 11,000 | 7,753 | 9,189 | 79,373 |
| Agriculture, forestry, and fisheries | | | | | | | | | | | | 39 | 39 |
| Mining | | | 21 | 79 | 121 | 39 | 21 | 20 | | | | | 301 |
| Construction | | 2,431 | 5,200 | 5,192 | 82 | 221 | 6,563 | 1,894 | 1,354 | 62 | 260 | 1,078 | 24,337 |
| Manufacturing | 61 | 201 | 201 | 1,609 | 12,257 | 1,079 | 925 | 83 | 2,891 | 10,755 | 2,546 | 4,888 | 37,496 |
| Durable goods | 41 | 181 | 181 | 1,391 | 11,712 | 819 | 701 | 62 | 2,667 | 211 | 1,655 | 4,037 | 23,658 |
| Primary metal | | 141 | 20 | 320 | 1,182 | 99 | 241 | 20 | 461 | 27 | 300 | 525 | 3,336 |
| Fabricated metal | | | | 121 | 1,436 | 59 | 59 | 42 | 1,036 | 20 | 40 | 607 | 3,420 |
| Machinery | | 20 | | 283 | 6,150 | 260 | 60 | | 322 | 40 | 221 | 1,109 | 8,485 |
| Transportation equipment | 41 | 20 | 100 | 565 | 2,178 | 321 | 280 | | 648 | 19 | 81 | 1,111 | 5,364 |
| Professional and photographic equipment and watches | | | | 20 | 181 | | 41 | | | | 102 | 181 | 525 |
| Miscellaneous | | | | | 182 | | | | 140 | 64 | 284 | 243 | 913 |
| Nondurable goods | 20 | 20 | 20 | 218 | 545 | 260 | 224 | 21 | 224 | 10,544 | 891 | 851 | 13,838 |
| Newspaper publishing and printing | | | | 20 | 80 | | | | 61 | 3,257 | | 40 | 3,458 |
| Printing, publishing, and allied industries, except newspapers | | | | 20 | 19 | | 40 | 21 | 61 | 6,784 | 40 | 80 | 7,065 |
| Transportation, communication and other public utilities | 20 | | 61 | 701 | 938 | 1,125 | 224 | 20 | 568 | | 1,609 | 1,083 | 6,349 |
| Wholesale and retail trade | 561 | 61 | 182 | 123 | 40 | 432 | 286 | 61 | 202 | 20 | 2,343 | 743 | 5,054 |
| Finance, insurance, and real estate | | | | | | | | | | | | 101 | 101 |
| Business and repair services | 855 | | | 223 | 102 | 366 | | 61 | 185 | 60 | 223 | 448 | 2,523 |
| Personal services | | | | | | | | | 20 | | 712 | 81 | 813 |
| Entertainment and recreation services | | | 19 | | | 21 | | 20 | | 20 | | 20 | 100 |
| Professional and related services | | | 61 | 143 | 40 | 20 | 61 | | | 41 | 20 | 326 | 712 |
| Public administration | | | | 202 | 281 | 137 | 81 | | 61 | 21 | 20 | 326 | 1,165 |

Source: U.S. Bureau of the Census: U.S. Census of Population 1960, Occupation by Industry (Final Report PC(2)-7C).

TABLE 16.—*United States: Age of male apprentices, 1960*

| | Total 14 years old and over | 14 to 17 | 18 and 19 | 20 to 24 | 25 to 29 | 30 to 34 | 35 to 44 | 45 and over | Median age |
|---|---|---|---|---|---|---|---|---|---|
| Apprentices: | | | | | | | | | |
| Number | 80,316 | 5,117 | 14,796 | 35,508 | 15,545 | 4,364 | 3,211 | 1,775 | 22.9 |
| Percent | 100.0 | 6.4 | 18.4 | 44.4 | 19.4 | 5.4 | 4.0 | 2.2 | ---- |

Source: U.S. Bureau of the Census, U.S. Census of Population 1960, United States Summary, Detailed Characteristics (PC(1)1DU.S.).

TABLE 17.—*United States: Earnings of male apprentices, 1959*

| | Total persons with earnings | $1 to $999 to or less | $1,000 to $1,199 | $2,000 to $2,999 | $3,000 to $3,999 | $4,000 to $4,999 | $5,000 to $5,999 | $6,000 to $6,999 | $7,000 and over | Median earnings | Percent worked 50 to 52 weeks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Apprentices: | | | | | | | | | | | |
| Number | 82,245 | 10,297 | 10,380 | 12,177 | 17,030 | 17,070 | 9,676 | 3,636 | 1,979 | $3,486 | 52.3 |
| Percent | 100.0 | 12.5 | 12.6 | 14.8 | 20.7 | 20.8 | 11.8 | 4.4 | 2.4 | ---- | ---- |

Source: U.S. Bureau of the Census, U.S. Census of Population, 1960, United States Summary, Detailed Characteristics (PC(1)1DU.S.).

## BIBLIOGRAPHICAL NOTE

Information on apprenticeship in any country is scanty; it is a preliterate training method with which the educational writers do not feel at home. And, as in the United States, to the degree the Government has responsibility for its handling, the responsibility tends to be divided between agencies concerned with labor matters and agencies in the field of education. Neither pays much attention to it.

Statistical data used come from official sources, usually the national statistical agencies, sometimes the departments or other bodies having training responsibilities. Data from international agencies were used when available, to make comparisons more certain. Each statistical table is identified as to source.

Information in the text comes from various sources. For the United States and Great Britain these were mostly official reports. In particular, the present concern of the British with improving their own apprenticeship system has resulted in a relatively substantial amount of current material being available.

In the continent less use was made of official sources, largely due to considerations of time, lacking both to produce the materials and have them translated. Here the concern of the British paid additional dividends in the forms of (1) an excellent series of articles on vocational training in various continental countries, which appeared in various monthly issues of the Ministry of Labour Gazette in late 1962 and early 1963 and (2) in a book by Lady Gertrude Williams which appeared early this year and contained a detailed survey, country by country, of the present vocational training situation in countries of the continent ("Apprenticeship in Europe: the Lesson for Britain," London: Chapman & Hall, 1963). To these two sources the sections on the Federal Republic of Germany and on France owe most of such merit as they may possess. Certainly, without them the report could not have been prepared in the time which was available.

## B. OTHER APPRENTICESHIP PROMOTION MEASURES IN FOREIGN COUNTRIES

Some form of public encouragement to apprenticeship and on-the-job training appears to be general practice in most of the industrial and industrializing nations of the world. Practices in a number of countries have been brought to the attention of the Subcommittee on Employment and Manpower by Mr. Paul M. Zane of the Bureau of Apprenticeship and Training and are briefly summarized **here.**

### 1. GREAT BRITAIN

Legislative developments in Great Britain subsequent to the completion of the legislative reference study above are worthy of note. As stated by Mr. Wason in the above report, British officials have been disturbed at the level of apprentice training, high as it is by U.S. standards and the length of apprentice programs.

Recognizing the first year of apprenticeship as costly because of low productivity and need for supervision, a program of Government training centers was begun in 1960 to promote full-time training during the first year. At present the program is operative in only four trades: engineering, radio and electronics servicing, electrical trades and sheet metal work. Apprentices are indentured in the usual way, receiving a weekly wage from the employer but spending full time at the Government training center. The Government pays all other costs including board and room if necessary. At the end of the year's training, the apprentices return to their employers to complete their apprenticeship in the normal way.

The Minister of Labour presented an industrial training bill to Parliament in 1962. When the bill failed to pass, a white paper was issued in 1963 which contended that (1) few industries had developed any means of insuring that the number of trained people needed would be supplied; (2) there was no way of assuring that all employers would undertake "their share" of the training responsibility; (33) there was little control of the quality of training; (4) there had been few attempts to examine in a critical but constructive way methods and customs of training which had been in operation for generations.

Fewer boys entered apprenticeships in 1963 than in previous years. The industrial training bill was reintroduced in 1963 and passed the House of Commons in January 1964. It is now being considered by the House of Lords. If passed, the Minister of Labour would appoint a Central Training Council of labor, management, and educational representatives to advise him. He would also be authorized to appoint industrial training boards in each industry consisting of labor, management, and educators. The industrial training boards would be authorized to (1) provide or secure provision of such training courses and facilities as may be necessary for training in the

industry; (2) make recommendations with regard to the nature, length, and standards of training in the industry; (3) approve training courses; (4) apply tests and undertake research; and (5) make grants or loans to persons providing courses approved by the board; and (6) impose levies upon employers in the industry for support of training through orders issued by the Minister of Labour pursuant to proposals submitted by the boards.

Comments of the Minister of Labour relative to the bill are worthy of note:

> Boys are left rather like timber in a yard to weather over a long period. After 4 or 5 years' exposure to work in the industry they become transmuted into seasoned craftsmen. It may not be possible to accelerate the seasoning process for timber, but * * * sure that modern systematic methods of training can turn a boy into a craftsman in a shorter period than at present * * *.
>
> Important though craft skills are and will remain in the future, the craftsman today has to be more than a man with experience and manual dexterity. He has to have a good fundamental understanding of the processes that he is employing; and this calls for time and attention to his technical education * * *.

### 2. ITALY [1]

Italy passed an apprenticeship act in 1955. Those who wish to become apprentices must register at the local office of the Ministry of Labour. Employers with few exceptions must obtain their apprentices from this register. Factories with less than 10 employees can nominate the apprentices they wish to employ, those with more than 10 employees can nominate up to 25 percent, but all must be chosen from the register in either case. The only exceptions are artisan firms where work is done primarily by an owner-craftsman or his family. Even in this case the Ministry of Labour must be notified within 10 days of engaging an apprentice.

Apprenticeship may commence any time between 14 and 20. Theoretical courses of related instruction are standardized along lines laid down by the Ministry of Labour in cooperation with the Ministries of Education, Industry, and Commerce, and Agriculture. At the completion of his training the apprentice is examined and his name is added to a list of qualified skilled workers kept by the Ministry of Labour.

The Italian Government provides two forms of financial assistance for encouragement of apprenticeship—one to employers and another to parents of the apprentice. Social security contributions form a very considerable addition to the wage bill of Italian firms. In the case of apprentices, the Government relieves firms of the major part of this contribution by paying the contribution into the insurance fund itself. Family allowances which are a significant addition to parents' weekly incomes continue to be paid throughout the period of training as long as the apprentice is a minor.

Italy's serious unemployment and other economic difficulties have prevented the Apprenticeship Act from having much impact.

### 3. NETHERLANDS [2]

In Holland, any firm which undertakes the training of skilled workers receives 60 guilder a year for each apprentice in training and an

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[1] Gertrude Williams, "Apprenticeship in Europe," London, Chapman & Hall, 1963, pp. 107–129.

[2] Loc. cit., pp. 48–78.

additional 20 guilder for each one who passes the final examination. In addition, apprenticeship is undertaken in workshops organized by industry associations but subsidized by the state.

Holland also has a training program for the unemployed between ages of 18 and 50. Training is provided for those with obsolete skills, those without skills, and those whose skills need updating. The first 6 to 15 months of the training, depending on the occupation, takes place in a Government training workshop. The remainder takes place in an industrial concern where the trainee works on production but under special conditions. The Government workshops provide training only for the building and metal trades where labor shortages exist. During the workshop portion of the training period, the trainees receive 80 percent of the unskilled laborer's wage in the trade for which he is qualifying. During the latter portion of the training the employing firm receives from the Government an allowance calculated to compensate for the lower productivity of the inexperienced worker.

The general quality of education and training in Holland is adjudged to be low, however.

### 4. SWEDEN [3]

The traditional type of craft apprenticeship ended in Sweden with the formal abolition of the guild system in the mid-19th century. Nothing was put in its place and until recently Sweden had no systematic vocational training of any kind. In 1939 the Employers Confederation (SAF) and the Confederation of Trade Unions (LA) appointed a Joint Vocational Training Committee to supervise training within industry. In 1944, SAF and LA concluded apprenticeship agreements which led to the formation of the Labor Market Joint Vocational Training Council to help industries remodel and improve their training facilities for apprentices.

Swedish vocational training is supported and maintained by industry, the local authorities, and the state. With the exception of higher technical schools and the School of Arts, Crafts, and Design in Stockholm, the state neither initiates nor directly provides any form of training. However, practiaclly all forms of vocational training, whether on-the-job or through institutions, receive financial support from state funds.

Apprenticeship in the traditional sense is used mostly in older crafts which depend primarily on handtools—tailors and dressmakers, shoe repairers, small builders, etc. These firms receive a subsidy from the state for every apprentice they train, provided they are willing to subject themselves to inspection by the Royal Vocational Training Board. This subsidy is spread over 3 years of training, more being paid in the first year when the apprentice is of less use to the firm and less in the 2 succeeding years. In addition, if the employer is prepared to release the apprentice during working hours to attend the vocational training school for 100 hours a year without loss of pay, he receives an extra subsidy spread over the 3 years.

The subsidy is restricted to a list of 900 employers who train workers for occupations in which there is a known demand for skilled labor. The list is drawn up after consultation with the National Labor Market Board.

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[3] Loc. cit., pp. 145–158.

At present, the training of only about 4,000 apprentices is financed in this way. Instead, more emphasis in the postwar period has been placed on institutional training. Recently the trend has been to a half and half type of development. Most training occurs through the over 600 municipal vocational training schools where courses include both practical and theoretical training. Most of these courses last for 2 years. The pupils then go into industry for a further year of practical experience as trainees before they qualify for the full adult skilled rate. The pupils receive a small allowance during their time in school. The allowance is only about one-fourth to one-third of what a boy of similar age could earn elsewhere, but since the differential between skilled and semiskilled rates of pay in Sweden is about 30 percent, the 2-year training period is considered a good investment.

Recently many industrial enterprises have gone into partnership with the vocational schools. The firm provides 34 hours a week of practical instruction and the school provides theoretical training for the remaining 8 hours. Of the present 140,000 pupils registered in the municipal vocational schools, only 40,000 are full time. The remainder are being trained under the partnership arrangement. A few schools of highly specialized nature such as the graphic arts and watchmakers schools are run by private, nonprofit organizations. The largest firms provide their own works schools, usually providing 3 years' training in which the first year is spent entirely in a separate apprentice school, though generally on productive work, and the remainder in the factory.

### 5. AUSTRALIA [4]

Australia has a special system of "country apprenticeships" in the electrical and engineering trades. It is designed to provide more apprenticeship openings in these trades for boys living in rural areas in order to slow down the drift of youth to the cities and meet the needs of tradesmen in the country. An incentive allowance of £3 per week (approximately $7.50) is paid to country employees for each first-year apprentice employed in addition to the employer's nominal apprenticeship intake.

A subsistence allowance is paid to apprentices in country areas who have to live away from home. The allowance is paid during the first year of a 4-year apprenticeship and the first 2 years of a 5-year apprenticeship.

### 6. BRAZIL AND COLOMBIA [5]

A shortage of skilled labor has been a serious impediment to economic development in the Latin American countries. To remedy this situation, a number of them have established vocational training programs. One of the first programs to be undertaken, the Brazilian National Industrial Apprenticeship Service—Servicao Nacional de Aprendizagem Industrial (SENAI)—was initiated in the early 1940's. Other countries have followed the lead of Brazil. In 1957, the Colombian Government organized the National Apprenticeship Service (Servicio Nacional de Aprendizaje). The program of Brazil focuses on industrial training; that of Colombia is directed toward the

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[4] The Employer's Review, Sydney, vol. 35, No. 3, August 1963, p. 49.
[5] Bureau of Labor Statistics, "Labor Developments Abroad," December 1963.

training of workers in the three areas of commerce, agriculture, and industry.

In Brazil, formal vocational training was introduced in industry in 1942. The expansion of the industrial work force—from about 780,000 workers in 1940 to approximately 1,250,000 in 1950—highlighted the need to develop training programs for unskilled workers.

Although vocational training is part of the national educational system and also is offered by many firms, the most active training program for workers in industrial trades is that of the SENAI. The SENAI is administered partly by the Government and partly by the National Confederation of Industry, which encompasses all employer federations. It is financed by a 1-percent tax on the total payroll of enterprises with more than 10 employees and an additional 0.2-percent tax on the payroll of enterprises with more than 500 workers. If a particular enterprise maintains its own apprenticeship program, the tax is reduced to one-fifth of the stated amounts.

By law, 5 percent of a firm's industrial skilled work force are to be apprentices registered with the SENAI. The provision is applicable to firms with at least 10 workers in the specific skilled trades. The apprentices, who receive one-half of the minimum wage, work a half day and attend classes for a half day. In addition, a number of nonapprentices must be enrolled in SENAI vocational classes, the exact number to be determined by the SENAI.

The various types of vocational programs offered reflect the needs of the particular region and locale. For young people there are four types of courses: (*a*) Compulsory courses for apprentices between the ages of 14 and 18 in the skilled trades; (*b*) accelerated 5-month evening courses for youths (over 16 years old) with no vocational training; (*c*) prevocational training for workers' sons aged 12 to 14 years who have completed the 5 years required primary schooling; and (*d*) vocational courses for nonapprenticed children 14 to 18 years of age.

The São Paulo region, with its rapid industrialization and its lack of skilled labor, has been particularly active in promoting the vocational training programs of the SENAI. In this region, 38 schools have been established, offering 318 courses. During 1962 the program registered a total of 11,489 students as compared with 10,914 in the preceding year. Certificates of apprenticeship and certificates of tradesmanship were given to 2,770, compared with 2,421 the year before. In other courses, 2,334 diplomas were awarded, an increase of 29 percent over the 1,810 granted the previous year. In addition, a total of 25,905 workers benefited from on-the-job training programs, 33 percent more workers than in 1961.

Although real progress has been made by the São Paulo division of the SENAI in training skilled workers, many are still without the vocational skills needed in an industrial society. Moreover, the municipality of São Paulo has been subject to an influx of untrained rural people, a trend which is reflected in a 190-percent increase in its population between 1940 and 1960. In 1962, the SENAI estimated that four-fifths of the nation's industrial labor force were still untrained—an indication of the magnitude of the future task.

The Government of Colombia established the basis for a Servicio National de Aprendizaje (SENA) in 1957. At that time, it was decided to offer both industrial training and vocational courses in the

commercial and agricultural sectors as an aid toward balanced economic growth.

Responsibility for the management of the SENA rests with a National Council made up of representatives of the Government, the Roman Catholic Church, employer organizations in commerce, agriculture, and industry, and the trade union confederation with the largest number of affiliated unions. The SENA is financed by a 1-percent tax on firms with a capital of Col$100,000 (U.S. equivalent, $14,500) or more and a work force of at least 20 permanent workers.

Despite the fact that the plan did not get underway until 1959, significant progress has been made at the end of 3 years. By 1962, 56,606 workers had been graduated from apprenticeship courses, vocational training programs, and courses for adult workers and supervisors, 24,752 in industry, 26,457 in commerce and public services, and 5,397 in agriculture and cattle raising. An additional 18,270 were receiving vocational training in the first part of 1963.

The SENA is operating 23 centers; 10 of these are industrial, 9 are commercial, and 4 are agricultural. Three agricultural centers, one industrial center, and one commercial center, are under construction. Nineteen additional centers are planned: three industrial, one commercial, six agricultural, and nine specialized centers. Each will offer courses in one of the following: textiles, casting, naval carpentry, mining, garmentmaking, graphic arts, maintenance of agricultural machinery, food processing, and pharmacy.

### 7. PERU [6]

The Chamber of Deputies has passed a bill, now under consideration by the Senate, creating an apprenticeship training program modeled after those in Brazil and Colombia, to be called SENATI—Servicio Nacional de Aprendizaje y Trabajo Industrial (National Industrial Apprenticeship and Labor Service).

The initiative for this program came from the Sociedad Nacional de Industrias (National Society of Industries), and reflects awareness on the part of the country's leading industrialists of the importance of developing skilled manpower to keep pace with Peru's industrial and economic growth, as contemplated under the ley de promocion industrial (industrial development law) passed in 1959.

The bill originated in the Ministry of Development and Public Works. The SENATI directorate will consist of six representatives designated by industry, three technicians from the Ministry of Development, three from the Ministry of Education, and three from the Employment Service of the Ministry of Labor. It is noteworthy that there will also be a representative from the Confederacion de Trabajodores de Peru (CTP)—Peruvian Confederation of Workers.

The agency will be financed through a contribution of 1 percent of total wages from industrial companies employing an average of 15 or more workers. Companies with their own industrial training program will pay only 20 percent of the standard contribution. Of the total contribution, 80 percent will be applied in the region of origin, so that the centers will presumably be created in the regions of greatest industrial importance. The remaining 20 percent will be applied to administrative expenses.

[6] Bureau of Labor Statistics, "Labor Developments Abroad," March 1962.

The SENATI will complement existing vocational and industrial training schools such as those set up by the ILO, the Ministry of Education, a few private corporations, and trade unions, and those projected by the U.S. Agency for International Development.

### 8. VENEZUELA [7]

A law passed in 1959 establishing INCE (Instituto Nacional Cooperative de Educacion)—National Institute of Educational Cooperation, aims to provide a broad program of skill training and apprenticeship for both the employed and the unemployed.

The law requires employers to provide training for 1 person between the ages of 14 and 18 for every 20 employees. The training may be on the employers' own premises, or at special training centers to be established by INCE. In 1961, INCE's first year of operation, there was almost no emphasis on the initiation of apprenticeship programs, although INCE intends to give this considerable emphasis in the future.

The Institute is financed by taxes paid by employers (1 percent of payrolls), employee (0.5 percent of their annual share of company profits), and the Government, which contributes 20 percent of these amounts. Part of the employers' own training expenses may be offset against their tax.

The lack of trained manpower is one of the most serious problems facing businessmen in Venezuela today. During the Perez Jimenez administration, foreign technicians were imported. Many businessmen, recognizing that this was not a practicable longrun solution, instituted training programs both on the job and after working hours. The response among workers has been enthusiastic.

Training programs, particularly in the larger industrial concerns, range from relative simple on-the-job training in operating various machines and in production techniques, to more elaborate programs which combine classroom study with on-the-job experience in the different operations of a firm, for new employees who are graduates of 4-year vocational high schools, of regular 4-year high schools, and of 6-year technical schools, as well as older employees with demonstrated abilities and basic educational qualifications. In some firms, these formal training programs may run as long as 4 years.

### 9. JAPAN [8]

In Japan the Prefectural Government is authorized to grant subsidies to groups of employers who organize jointly to provide vocational training within industry. The training provided must be in conformity with standards prescribed by the Ministry of Labor Ordinance. In addition, the Prefectural Government and the Labor Welfare Projects Corporation can render the following kinds of assistance to employers providing recognized vocational training:

(1) Allow the use of facilities of Government vocational training centers.

(2) Loan instructors from Government vocational training centers.

(3) Furnish textbooks, teaching materials, and other data necessary for vocational training.

(4) Provide other needed conveniences.

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[7] Bureau of Labor Statistics, "Labor Developments Abroad," May 1963.
[8] Japanese Ministry of Labor, "Japan Labor Legislation," 1959.

### 10. INDIA [9]

Legislation enabling the Government of India to regulate apprentice training and compel employers to establish apprentice training programs was signed by the President on December 12, 1961. The law will become effective in 6 to 8 months, after the Government has had an opportunity to prepare the necessary regulations and standards.

The new legislation was introduced after the voluntary measures of a national apprentice scheme failed to provide an adequate number of apprentices to meet the requirements set by the Government for the second 5-year plan.

Industrial training institutes set up under the auspices of the Ministry of Labor and Employment will continue as the major organized program for providing the various craft skills required for India's industrial development. The present 167 industrial training centers, with an annual capacity of 42,000 trainees, will be increased by the end of the third 5-year plan to 318 centers with an annual capacity of 100,000 trainees.

While the Apprentice Act will foster training opportunities apart from those offered by the training institutes, it is the desire of the Government to utilize apprentice programs to supplement institutional training. One of the main reasons for introducing compulsory legislation was the lack of opportunities available under the voluntary apprenticeship program to provide on-the-job training and experience to graduates of the industrial training institutes.

The act sets forth broad policy for apprenticeship training and leaves the determination of application, standards, and regulation in the hands of the Central and State Governments, primarily in consultation with the National Council for Training in Vocational Trades and the Central and State apprenticeship councils. The Apprenticeship Councils will include Government, employer, and labor representatives. Implementation of the act will be the responsibility of the Central Apprenticeship Adviser and the State Apprenticeship Advisers.

The act empowers the Central Government to determine the ratio of apprentices to skilled workers in each designated trade. Apprenticeship advisers who will be appointed to implement the act may require an employer to engage apprentices within the ratio determined by the Central Government for any designated trade in his establishment.

Two categories of apprentices are established by the act: (1) Those who have had approved institutional training and will receive only short-term practical training with a modified amount of related classroom instruction as necessary; (2) new apprentices who will undergo basic training, practical training, and related instruction.

The cost of in-plant training for apprentices who have completed institutional training will be assumed by the employer. However, the Government will finance, in part, the training of new apprentices; establishments employing fewer than 500 workers will receive from the Government one-half of recurring costs, including stipends, of providing practical training for new apprentices, and the Government will provide the basic training for apprentices in such firms. The educational facilities of existing industrial training centers will be used.

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[9] Bureau of Labor Statistics, "Labor Developments Abroad," March 1962.

Firms with over 500 workers will be expected to finance all costs of training and must impart basic training in an area or building apart from the regular workspace. Government loans will be available to this category of establishment to finance extra facilities. Related training will be provided by the Government, although employers will be expected to provide facilities as necessary. The training standards, syllabuses, and a minimum amount of stipend to be paid to apprentices will be established by the Government, generally in consultation with apprenticeship councils. The apprentices will not be regarded as workers, and will not be covered by labor laws, except where such laws relate to safety, health, and workmen's compensation, nor will they receive any payment from the employer other than the prescribed stipend.

Upon completion of training, the apprentice is not obligated to work for the employer who provided the training, nor is the employer required to hire the apprentice.

### 11. PAKISTAN [10]

Pakistan, rather than subsidizing apprenticeship, charges its apprenticing employers a fee for services rendered but on a "quantity discount" basis.

The Pakistan Government established a National Directorate of Apprenticeship Training at Karachi. The directorate then organized a series of related instruction courses at Karachi, Landhi, and Hyderabad. In 1957 there were enrolled only 25 apprentices sponsored by 6 firms. In 1960, enrollment had risen to 200 apprentices sponsored by 25 firms.

Employers sponsoring less than 10 apprentices pay to the National Directorate a training fee of PRs20 per apprentice per month. For employers sponsoring 10 or more apprentices on a single course, the fee is reduced to PRs15 per apprentice per month.

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[10] Government of Pakistan, "National Directorate of Apprenticeship Training, Related Instruction Courses for Industrial Apprentices," Karachi, September 1960.

# V. PROMOTING APPRENTICESHIP AND ON-THE-JOB TRAINING IN THE UNITED STATES

The inadequate role of apprenticeship in the skill development efforts of the American economy is demonstrated by international comparison, the declining trends in apprenticeship, and the training backgrounds of present craftsmen. The first two evidences have been supplied in earlier sections of this compilation. Data on the training backgrounds of present craftsmen is sketchy but indicative.

One study quoted by Mr. Wason in section III found that only one of each three craftsmen in apprenticeable occupations had received any formal training for his craft. Only one in seven or eight had completed a registered apprenticeship. The 1964 Manpower Report of the President supplies the information that only 40 percent of all craftsmen, foremen, and kindred workers had learned their skills through any formal training program whether apprenticeship, school, or armed services training.

*Ways in which craftsmen in the civilian labor force 22 to 64 years old learned their current job, by occupation, April 1963*

[Percent distribution]

| Current (or last) occupation | Total in occupation [1] | Ways in which occupation was learned | | | | |
|---|---|---|---|---|---|---|
| | | Formal [2] | On the job [3] | Casual [4] | No training needed | Not specified |
| Craftsmen, foremen, and kindred workers | 100.0 | 40.6 | 64.8 | 47.5 | 1.8 | 0.8 |
| Bakers | 100.0 | 21.6 | 56.8 | 46.8 | 1.8 | 1.8 |
| Compositors and typesetters | 100.0 | 73.3 | 65.7 | 25.7 | ------- | ------- |
| Construction craftsmen | 100.0 | 39.4 | 54.8 | 57.2 | 1.7 | .9 |
| Brickmasons, stonemasons, and tile setters | 100.0 | 44.7 | 56.6 | 53.5 | 2.5 | ------- |
| Carpenters | 100.0 | 31.1 | 48.7 | 67.8 | 2.8 | .6 |
| Electricians | 100.0 | 72.9 | 71.2 | 33.4 | ------- | ------- |
| Excavating, grading, and road machinery operators | 100.0 | 11.2 | 47.0 | 72.2 | 2.2 | 1.0 |
| Painters | 100.0 | 27.8 | 46.9 | 58.7 | 1.9 | .5 |
| Plumbers and pipefitters | 100.0 | 55.0 | 66.6 | 39.1 | .7 | 2.6 |
| Tinsmiths, coppersmiths, and sheet metal workers | 100.0 | 70.9 | 58.1 | 44.4 | ------- | 1.7 |
| Other construction craftsmen | 100.0 | 34.1 | 59.1 | 68.8 | 1.1 | 2.3 |
| Cranemen, derrickmen, and hoistmen | 100.0 | 17.5 | 60.0 | 49.2 | 1.7 | 1.7 |
| Foremen (n.e.c.) | 100.0 | 32.7 | 83.7 | 36.4 | .6 | .8 |
| Manufacturing | 100.0 | 32.6 | 85.9 | 33.8 | ------- | 1.3 |
| Durable goods | 100.0 | 33.2 | 87.8 | 38.1 | ------- | 1.4 |
| Nondurable goods | 100.0 | 31.8 | 82.8 | 27.0 | ------- | 1.1 |
| All other industries | 100.0 | 33.0 | 79.6 | 41.4 | 1.8 | ------- |
| Linemen and servicemen, telegraph, telephone, and power | 100.0 | 55.0 | 94.7 | 30.7 | 2.5 | ------- |
| Machinists | 100.0 | 56.1 | 70.9 | 36.6 | ------- | .5 |
| Mechanics and repairmen | 100.0 | 43.4 | 60.0 | 52.4 | 2.5 | .5 |
| Airplane | 100.0 | 72.6 | 84.1 | 31.9 | ------- | ------- |
| Auto | 100.0 | 40.5 | 48.1 | 61.9 | 1.4 | 1.0 |
| Radio and television | 100.0 | 86.3 | 49.0 | 30.4 | ------- | ------- |
| All other | 100.0 | 38.7 | 65.7 | 50.7 | 3.6 | .3 |
| Stationary engineers | 100.0 | 39.5 | 73.7 | 33.5 | 4.2 | 1.8 |
| Toolmakers, and die makers and setters | 100.0 | 64.6 | 55.2 | 32.6 | 4.4 | ------- |
| All other craftsmen and kindred workers | 100.0 | 34.2 | 69.7 | 41.3 | 1.4 | 1.4 |

[1] Since some persons indicated more than 1 way of learning their job, the sum will exceed 100 percent.

[2] Includes school, apprenticeship, and the Armed Forces.

[3] Includes those learning on the job from supervisors or other persons, those who had been enrolled in company training courses, and those who were promoted to their current occupations. Since on-the-job training overlaps other ways of learning, many workers may have reported casual learning or apprenticeship programs which occurred during employment, as on the job.

[4] Includes mainly those who learned from a relative or friend or who just "picked up" their occupation.

Source: 1964 Manpower Report of the President, p. 258.

At issue is not the need for increased numbers of craftsmen but the need for higher quality craftsmen. Frequent dire predictions of past years that shortages of craftsmen were imminent because apprenticeship was not training enough craftsmen to replace those who were leaving the labor force, let alone meet expansion needs have proven false. If employers had a job to do, they always somehow found enough bodies to do it. The quality of the bodies is another matter but an important one to those concerned with development and use of manpower resources.

The building trades unions in particular have been critical of an oft-quoted 1959 Labor Department study stating that apprenticeship in the construction crafts would supply only 10 percent of the craftsmen needed by 1970.[1] In this case, the projections of construction employment during the first third of the decade proved excessive. Because of the tendency to ascribe too little productivity increase to the construction industry and for other technical reasons, manpower needs for the rest of the decade also appear to be overestimated.

However, this begs the important question. Of these presently employed and those who will be employed by 1970, how many are or will be adequately trained? As long as major percentages of those employed in skilled crafts "pick up the trade" in a haphazard manner in lieu of consistent formal training, the amount of apprenticeship is deficient. At present levels of training, such a high percentage of apprentices are promoted to supervisory or other managerial positions within relatively brief periods of time that one is tempted to classify apprenticeship as "supervisory training."

For instance, a recent survey at Ford Motor Co. of graduates of the company apprentice program estimated that "33.7 percent of the apprentice graduates were in salaried positions. Of this number, 51 were analysts, 37 coordinators, 252 designers, 299 engineers, * * * 454 supervisors, 31 technicians, and 14 training specialists * * *." One was a vice president.[2]

In Federal naval installations, most of the blue-collar supervisory staff, in many instances as many as 75–85 percent, consists of workers who completed apprenticeship. In an Oklahoma City machine shop employing some 250 production workers, the 6 foremen and the general superintendent are all apprentice graduates. This in itself is an important apprenticeship contribution when it is noted that the number of foremen in American industry increased 39 percent—from 846,000 to 1,175,000—between 1950 and 1960.

The limited use of apprenticeship and on-the-job training relative to its potential is a justifiable public policy concern. Federal, State, and local government has for many years supported vocational education as a means of supplying skilled manpower to the economy and Federal support has been recently augmented. With the Manpower Development and Training Act the Federal Government has taken an additional important step in accepting further responsibility for encouragement of training and retraining of manpower.

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[1] "U.S. Department of Labor. Manpower Requirements and Training Needs in Construction Occupations, 1960–70" (1959).

[2] Paul Malboeny, manager, administration department, industrial relations staff. Ford Motor Co., at proceedings, 15th Annual Southern States Apprenticeship Conference, July 25–27, 1963.

Institutional and on-the-job types of skill training each have their own advantages. Training on the job utilizes the employer's establishment and equipment, saving public investment in educational plant and the constant race to stay abreast of the latest technological developments. The employer's supervisors and skilled work force are relied upon as instructors. The trainee receives employment and income while training as well as work experience of a kind which cannot be duplicated in the schools. Public investment in institutional skill training is far from its optimum but apprenticeship and on-the-job training has lagged even further.

The conclusion that more apprenticeship and on-the-job training is needed does not imply advocacy of all existing apprenticeship practices. Much more study needs to be given to methods of instruction, the appropriate mix of on-the-job training and related institutional instruction, the appropriate apprenticeship period by craft and similar matters. The desirability of increasing the amount of formalized on-the-job training for a wide range of related skills which is the essence of apprenticeship is clear. Obstacles to greater reliance on apprenticeship and means for its promotion must therefore be considered. The following comments are preliminary ones which indicate areas for further exploration rather than definitive answers.

## OBSTACLES TO APPRENTICESHIP

A number of commonly accepted explanations for the small use of apprenticeship in the United States can be quickly put aside: The union-established apprentice-journeyman ratio, discriminatory apprentice selection, and a general bias against manual occupations. As data in section II has already shown, for no craft does the apprentice-journeymen ratio approach that allowable under union-management agreements. Since there is no shortage of acceptable applicants for the available apprenticeship opportunities, discriminatory acceptance practices influence who is chosen but not how many. Greater popularity of craft occupations would increase the pool from which apprentices are chosen but not the number of apprentices. A larger role for apprenticeship depends upon increasing the number of apprentice openings rather than the number of applications. It is also doubtful that the length of apprenticeship is a deterrent since the apprentice wage differs little from the journeyman rate during the final years.

The major shortcoming of the apprenticeship method of skill training lies in the fact that the future supply of apprentice-trained craftsmen depends upon present employment opportunities. The high negative correlation between the unemployment rate and the number of new apprentices received attention in section II. Journeymen craftsmen are prone to look upon apprentices as competitors, particularly when unemployment is high. In casual employment industries where job turnover is high and where apprenticeship is common, the journeyman is likely to consider the labor supply excessive whenever he cannot be referred immediately to a new job upon completion of the old. Employers also feel no pressure to provide apprentice training when unemployment is high. Though one would expect the apprentice dropout rate to rise with the level of unemployment, the opposite appears to be the case. The apprentice, upon

being laid off from his apprenticed occupation, might be expected to move to other employment. However, the shortage of alternative employment opportunities appears to encourage continuation of apprenticeship.

Unemployment aside, the employer can be expected to undertake apprenticeship when he finds that apprenticeship pays. Here the payoff may be quite different between the individual employer and the industry. The individual employer has no assurance that the apprentice will remain in his employ once journeyman status is attained. The payoff must, therefore, come during the apprenticeship period. Since the industry is likely to be dependent upon a common pool of skills, provision of skilled journeymen might be profitable from an industry viewpoint even if apprentice wages exceeded the productivity of apprentices. Industry as contrasted to individual employer involvement in apprenticeship is reflected in an increase in the number of apprentices. One study has shown that in areas where apprentice training was supervised by a joint apprenticeship committee consisting of labor and management industry representatives, the number of apprentices per journeyman was twice as high as in areas where no joint apprenticeship committee existed.[3]

The experience has been even more favorable where an apprenticeship coordinator was employed jointly by labor and management to promote and coordinate training activities in an industry in a local area. Similarly, the number of apprentices per journeymen tends to increase, the higher the level in a union's hierarchy at which apprenticeship interest is focused. In other words, the national union's interest in the supply of qualified craftsmen is less parochial than that of the local union.

No valid studies are available which compare the costs of apprenticeship with the productivity of apprentices. It is usually argued that the apprentice's wage exceeds his productivity during the first year but that the situation is reversed thereafter. The costliness of the first year can be reduced by providing preapprentice training in a high school or vocational school to bring the apprentice on the job with beginning skills. But why are not employers anxious to profit from the final 3 years or so of apprentice training? Probably because the full costs of apprenticeship training are not reflected in the apprentice wage. Involved, also, are the administrative and supervisory burdens of assuming the responsibility for training and directing work in such a manner as to provide it. Thus, the provision of an apprentice coordinator encourages training in three ways. The coordinator assumes much of what would otherwise be managerial responsibilities. The employer's contributions to the coordinator's salary is a fixed cost unaffected by his own hiring or nonhiring of apprentices. The coordinator also assumes the responsibility of shifting apprentices among employers to assure diversified training and relatively steady employment.

## PUBLIC RESPONSIBILITY IN APPRENTICESHIP

Despite the development of joint apprenticeship committees and the employment of training coordinators (primarily in the construction

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[3] A. Harvey Belitsky, "Apprenticeship and Training in Carpentry Construction," U.S. Department of Labor, Bureau of Apprenticeship and Training, Bulletin T–153, June 1962, p. 14.

industry), the number of apprentices in the United States has followed a downward trend since 1950. Actually, it was the peak apprenticeship years of 1947–50 which were the break with the past rather than subsequent years. Only 18,300 apprentices were in training in 1941, the last prewar year. The number of apprentices rose to above 40,000 by 1945 then zoomed to 230,000 in 1950. The reason is easy to find: The GI bill underwrote substantial portions of the costs of apprenticeship, increasing its attractiveness to the employer. This experience, reinforcing that of European and other foreign countries, justifies further exploration of the desirability and methods of providing more positive public encouragement for apprenticeship.

The efforts of the Federal Bureau of Apprenticeship and Training and of State apprenticeship agencies are completely promotional and provide no positive support. Portions of the costs of apprenticeship and on-the-job training are directly underwritten by only three public programs in this country.

Defense contractors are entitled under Armed Services Procurement Regulations to reimbursement for training and educational costs.[4]

This provision has been widely used to provide supervisory, managerial, and professional training but few defense contractors have become involved in training skilled craftsmen for apprenticeable trades. A task force on apprenticeship in defense contracts appointed as a subcommittee by the Federal Committee on Apprenticeship has been negotiating with the Defense Department for more positive action to encourage apprentice training among defense contractors. Results thus far have been disappointing. In addition, efforts are needed to encourage further employment of apprentices by Government agencies directly employing apprenticable crafts and other Government contractors in addition to those on defense work.

The Manpower Development and Training Act can also be used to provide some encouragement for apprenticeship as well as on-the-job

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[4] Armed Services Procurement Regulation 15–205.44 Training and Educational Costs.

(*a*) Costs of preparation and maintenance of a program of instruction at noncollege level, designed to increase the vocational effectiveness of bona fide employees, including training materials, textbooks, salaries or wages of trainees (excluding overtime compensation which might arise therefrom), and—

(i) salaries of the director of training and staff when the training program is conducted by the contractor; or

(ii) tuition and fees when the training is in an institution not operated by the contractor;

are allowable.

(*b*) Costs of part-time education, at an undergraduate or postgraduate college level, related to the job requirements of bona fide employees, including only—

(i) training materials;

(ii) textbooks;

(iii) fees charged by the educational institution;

(iv) tuition charged by the educational institution, or in lieu of tuition, instructors' salaries and the related share of indirect cost of the educational institution to the extent that the sum thereof is not in excess of the tuition which would have been paid to the participating educational institution; and

(v) straight-time compensation of each employee for time spent attending classes during working hours not in excess of 156 hours per year where circumstances do not permit the operation of classes or attendance at classes after regular working hours;

are allowable.

(*c*) Costs of tuition, fees, training materials, and textbooks (but not subsistence, salary, or any other emoluments), in connection with full-time scientific and engineering education at a postgraduate (but not undergraduate) college level related to the job requirements of bona fide employees for a total period not to exceed 1 school year for each employee so trained, are allowable. In unusual cases where required by military technology, the period may be extended.

(*d*) Maintenance expense and normal depreciation or fair rental on facilities owned or leased by the contractor for training purposes are allowable to the extent set forth in 15–205.20, 15–205.9, and 15–205.34, respectively.

(*e*) Grants to educational or training institutions, including the donation of facilities or other properties, scholarships, or fellowships, are considered contributions and are unallowable.

training. However, financial assistance to apprenticeship under the Manpower Development and Training Act is limited primarily to paying costs of related instruction and can provide little direct financial support of the costs of apprentice training.

The Bureau of Indian Affairs conducts the only program in the United States where on-the-job training by private employees on non-Government work is directly subsidized by public funds. Under its Indian industrial development program, the Bureau can pay to employers willing to locate in Indian labor areas, one-half of the legal minimum wage for each trainee during the period when on-the-job training is being supplied.

Methods for encouraging private employers to undertake more apprenticeship and on-the-job training merit serious study. The international experience documented in section IV is instructive. The article, by Gerald J. Robinson, below suggests another alternative—a 7-percent tax credit for investment in manpower as an analog to the existing 7 percent tax credit for investment in capital equipment. Senator Winston L. Prouty and Senator Len B. Jordan recommend such a program in their minority views in this subcommittee's recent report.[5] The majority report recommends consideration of this among other alternatives and expresses the conviction that some more positive encouragement to apprenticeship and on-the-job training than now exists must be undertaken.

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[5] "Toward Full Employment: Proposals for a Comprehensive Employment and Manpower Policy in the United States," a report prepared by the Subcommittee on Employment and Manpower of the Senate Committee on Labor and Public Welfare, 88th Congress, 2d sess., 1964, p. 120.

# UNEMPLOYMENT AND TAXES—TAX CREDIT AS A SELECTIVE ECONOMIC STIMULANT

(By Gerald J. Robinson)

A proper objective and responsibility for the American people is the maintenance of full employment. In a civilization which values efficiency, justice, and humanitarian ideals, nothing less can long be tolerated. But the workers' ancient nightmare of job-destroying machinery is becoming a reality in the latter half of the 20th century. The full implications of automation are now becoming discernible. The president of a company manufacturing automation equipment has recently estimated that automation is eliminating more than 40,000 jobs a week, a figure higher than the Labor Department's own estimates. Yet in many areas of our technological economy there is not a shortage of jobs but a shortage of people to fill them. This combination of circumstances points clearly to one of the solutions to unemployment: worker retraining. A substantial part of the net decrease in employment could be offset if workers displaced by automation could be educated and trained in the new technology.

How can this be done? Retraining is a costly process and, disturbed as our corporate managers may be about the problem, they cannot freely devote corporate resources to retraining. This is a problem of national welfare for which the whole Nation is responsible. Yet there can be little double that industry itself is the best qualified to carry out the retraining job. It knows its own needs, has the essential know-how and has many of the facilities needed. Once again, this combination of circumstances points clearly to the solution: a liberal tax credit to industry for worker retraining. Using the tax credit as a stimulant places the financial burden for retraining where it fairly belongs—on the entire Nation. The credit also has the virtue of allowing industry to do the retraining itself. Thus it is twice blessed, by equity and by efficiency.

There is ample precedent for use of the tax system to bring about desirable economic and social conditions. Hardly any individual deduction or credit is enacted without economic or social objectives. But the most compelling precedent for the retraining credit is the 7-percent credit for investment in new equipment enacted in 1962. This credit was enacted largely because American plants were not being modernized quickly enough to meet vigorous foreign competition. The credit is designed to reduce tax by 7 percent of the amount invested in qualified machinery, thereby increasing industry's incentive to modernize. It could hardly be argued that a similar credit to reduce unemployment is less desirable. On the contrary, there are powerful economic and social reasons for a retraining credit. From the economic point of view increased employment will bring greater purchasing power and increased gross national product. It will also reduce the need for unemployment compensation as well as public and private

payments to support the indigent and their dependents. While initially producing some tax revenue loss, the longer term stimulative effects would ultimately increase Treasury receipts. Moreover, placing displaced workers back on the payroll will make them taxpaying citizens again, thus preserving a revenue source which might otherwise be lost forever. From the social point of view the benefits are ample. As obsolete skills are replaced with productive skills the widespread indignity of joblessness would be reduced. Racial tensions will be eased. Poverty will be reduced and with it the delinquency and squalor which fester in our slums. And from a moral point of view it is apparent that we could not be true to our humanitarian ideals if we did not try to improve obsolete workers as much or more than obsolete machines.

Whether the credit would be an effective device to induce management to undertake dynamic retraining programs would depend on numerous factors. The size of the credit would be critical. Without suggesting any figure it is clear that it would have to be substantial. It might be argued that a credit will not induce a company to do something it didn't intend to do in any event. But this same argument could have been advanced against the investment credit. Experience with the investment credit seems to have been favorable: while not conclusive it is noteworthy that investment in new machinery has advanced significantly since the credit became available. Perhaps the answer to the incentive question is that the credit acts as a nudge to the undecided. If it is not a sufficient inducement in itself further inducements can be considered. For example, to encourage the retention of workers where displacement is imminent or after displacement and retraining, an additional deduction for wages could be temporarily permitted for certain workers. Canada's new tax incentive program allowing a deduction of 150 percent of increased research expenditures has spurred research and development in that country. A similar transitional spur to employment in the United States may be warranted. While business spends to make money, not to save taxes, the enactment of a temporary tax differential favoring labor over machines may keep the advance of automation at a more orderly pace by allowing more after tax profits to be made by employing certain displaced workers rather than machines.

Widespread agreement on the need for full employment can be assumed. However, the community of views rapidly vanishes when the techniques for achieving this desirable state are explored. The diversity of views is primarily based on different economic philosophies, most generally reflecting differing economic affiliations. Granted the pressing danger of increasing structural unemployment, a solution which does the least violence to the main armed camps—laissez-faire versus planned economy—has, as a practical political matter, the greatest promise of becoming reality.

Employing a tax credit to encourage worker retraining and retention has some remarkable practical political attractions. For those who believe the best government is the government which governs least, it has the attribute of getting Washington out of the retraining business by putting the job in the hands of industry. There is respectable opinion that industry can do both a better and more efficient job than government. On the other hand, those who favor increased Federal

economic planning may derive a large measure of satisfaction from witnessing the Federal tax system actively used to create fuller employment. Moving from the battle of philosophies to the war of pressure groups the prospect is also bright: industry generally cannot be expected to chafe at a tax reduction which increases profits and labor would doubtless hesitate to bewail a measure calculated to increase employment.

Of course, objections to the proposal will be raised. At the congressional hearings on the investment tax credit numerous reasoned and not-so-well-reasoned complaints were made. Among the latter group the standard lament over government incursions into the realm of business was heard. Of course the power to tax is the power to destroy. But the converse of this antique truism is also true: the power to tax is the power to create. Creation or destruction depends not upon the tool but the use to which it is put. This fact cannot be hidden by slogans and thus it may be expected that a preponderance of power group opinion would favor the measure. Moreover, the reaction of the general public also should be favorable: a sense of fair play and justice would certainly require at least as favorable treatment for investment in human assets as the treatment accorded to investment in machines.

Perhaps the most ambitious action taken so far to combat unemployment is the Manpower Development and Training Act which provides Federal funds to States for retraining. It has been a disappointment. Very few States have passed enabling legislation and the necessity for States to match Federal funds in the future does not augur well for the program in view of the pressing financial problems of most States. A tax credit is a more efficient device for getting the job done. It will cost the Nation less because industry will use its own existing facilities eliminating the need for expensive expansion of State facilities. Administration of the program will also be greatly simplified; instead of creating a large agency in Washington to establish and supervise training standards the job will be done by business itself under the observant eye of an existing corps of revenue agents.

Other measures have been urged to aid in alleviation of the problem, but the suggested cures seem as bad as the disease. A shorter workweek has been suggested—but roundly criticized as tantamount to an inflationary wage increase making it harder for American goods to compete in domestic and world markets. Massive public works programs, increased Government employment, lower interest rates and various other proposals have been made. Like the shorter workwork, each of these proposals involves serious drawbacks. While these broad measures may initially promote employment, they do long-range economic damage in other areas. On the other hand, use of our tax system to combat structural unemployment provides a highly specific approach which can be solely addressed to the automation-unemployment problem without other adverse long-range effects. The rifle versus shotgun analogy is apt here—the credit remedy targets directly on the problem; other remedies scatter undesirable side effects. The ability of the tax credit to focus on a single problem is one of its unique features as an economic planning device.

Of course, the enactment of this proposal would be only a partial solution. The basic need is more jobs. The existence of more job op-

portunities depends to a large extent on greater demand for the goods our economy produces, particularly goods with a high labor content. The pending tax bill providing for across-the-board tax cuts is a move in the right direction, but its emphasis is wrong. The value of the tax cut would be greatly increased if more of the tax reduction were provided for lower income taxpayers, who would spend the additional income, rather than to higher income taxpayers who would be more likely to save or invest it. Our national need at this juncture is for more consumption; with existing overcapacity there seems little justification to stimulate investment. But even a tax cut for low-income groups is also only a partial solution. As the true proportions of the automation problem become visible it is becoming apparent that attack on many fronts is essential, requiring the joint strength of industry, labor, and Government. The tax credit is only one of many ideas which must be explored.

In view of the nationwide scope and urgency of the unemployment problem it is reasonable to expect that the excess costs of employing certain workers should be borne by society in general. Certainly any tax credit remedy can be criticized. But unless the threat of automation is overcome political pressure may build to impair or destroy the advance of technology, and with it some of man's best hopes for abundance and betterment. In the absence of effective countermeasures there is danger that labor unions eventually will be forced to sponsor featherbedding as a nationwide industrial institution. Or, perhaps worse, grave unemployment may build sentiment to compel the Government to institute massive aid comparable to the farm program. These dismal alternatives should be avoided and they can be by vigorous action now. Automation is neither a blessing nor a curse. It is merely another economic fact of life which we, with good sense and ingenuity, can shape to serve our general welfare.

## CONCLUSION

Any proposal of this type requires careful study to assay its validity. Perhaps the most critical areas for investigation are administrative difficulties, whether the credit would in fact induce industry to retrain and reemploy, how much incentive is needed, and what effect it would have on industrial efficiency. Study should also be directed at determining how much unemployment results from workers' geographical immobility. If this is an important factor, consideration should be given to extending the credit to worker relocation costs. Investigating these problems requires extensive research. In view of the great potential benefits we should get on with the task.

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