

# THE FIRST MILLION



Prepared by the  
NEW JERSEY STATE CHAMBER OF COMMERCE  
605 Broad Street  
Newark 2, New Jersey  
On the Occasion  
of the  
NATIONAL DINNER MEETING  
To honor  
"AMERICA'S STRATEGIC MILLION"  
And to pay tribute to the  
TRAINING WITHIN INDUSTRY SERVICE  
War Manpower Commission

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February 3, 1944

# Foreword

I know that I express the desire of thousands of industrial enterprises in commending the Training Within Industry Service of the War Manpower Commission for its outstanding contribution to our national war production effort.

On this occasion the Training Within Industry Service presents its certificate to the one millionth foreman who has successfully completed a TWI training program. We thus commemorate the work of the first million foremen trained through this service and for the vital part they are playing in the most stupendous industrial accomplishment of all time.

In recognition of the inestimable service of this government agency, I have the honor on behalf of the State Chambers of Commerce of our country to present "Industry's Award" to the Training Within Industry Service—the first recorded instance in which an appreciative industry decorates a government agency. This AWARD is made to the TWI Service because that agency, in the eyes of industry, has measured up to the following standards:

- (1) It is a service measurable in practical results
- (2) The service being rendered is timely and shorn of non-essentials.
- (3) The service is economical in proportion to results obtained
- (4) The personnel of the agency consists of people who intimately understand the practical problems of industry, and recognize the value of the established system of free enterprise.
- (5) It is a service which does not undertake to do for industry the things industry can do for itself.
- (6) It renders a service devoid of all other purposes except that for which it is constituted.

Therefore, in recognition of its great and invaluable service and because it has met these criteria, industry's highest award to government is presented to the Training Within Industry Service of the War Manpower Commission.

THOMAS ROY JONES, President  
New Jersey State Chamber of Commerce



# THE FIRST MILLION

## THE STORY OF THE TRAINING WITHIN INDUSTRY SERVICE

In America's stupendous war production accomplishment, a million foremen who have been trained through the Training Within Industry Service of the War Manpower Commission, are passing along their "know-how" to the rank and file of workers in their respective war industry plants.

These million foremen have played a strategic role in training more than 15,000,000 men and women workers in the war industries of the Nation.

The awarding of the millionth certificate to the millionth foreman thus marks a milestone in the greatest training achievement in American industrial history.

When it was apparent in 1940 that America was to become the "arsenal of democracy", it was recognized that maximum industrial production would be the major factor in World War II.

The first stages of industrial expansion absorbed the available supply of skilled workers. Thereafter, to increase production would require a vast amount of training because the supply of trained workers would unquestionably soon be a bottleneck.

Foreseeing the tremendous training task ahead, in June, 1940, the idea of creating a Training Within Industry Service in the National Defense Advisory Commission was suggested by Owen D. Young, Honorary Chairman, Board of Directors, General Electric Company. In August, 1940, Channing R. Dooley of Socony-Vacuum Oil Company, Inc., was appointed National Director, and J. Walter Dietz of Western Electric Company, Associate Director. Shortly thereafter, William Conover of the United States Steel Corporation and M. J. Kane of the American Telephone & Telegraph Company, were appointed Assistant Directors. These four men took the helm of this agency which was destined to render such vital service to industry. Later, Training Within Industry functioned successively as a part of the Office of Production Management, the War Production Board, and now the War Manpower Commission, but it has maintained identity and continuity of personnel and program.

During the period from September, 1940, to February, 1941, a field organization of 22 Districts was created, each with a District Director, an Advisory Committee of Management and Labor, a Headquarters Staff and Panel of Training Consultants, consisting of the outstanding industrial training executives of the District. In its early stages, Training Within Industry was conceived as a counseling service. Members of the Panel of Training Consultants surveyed war production plants and made recommendations as to training needs and programs.

It soon became apparent that the companies which needed training most were last to realize the need and take initiative in setting up programs, even after Training Consultants of Training Within Industry had made recommendations. Moreover, too few companies had persons within their organization with sufficient training experience to formulate and conduct practical training activities.

### — Job Instructor Training —

In May, 1941, Glenn Gardiner, Director of the New Jersey District, reported to National Headquarters that "even after a survey is made and our recommendations proposed, not one company out of twenty-five will be found capable of carrying out the recommendations without considerable follow-up assistance and selling of successive steps. All of our contacts and surveys lead us to the conclusion that there is one common training need, which will be found without exception in every company. This is the need for Job Instructor Training. More than 90% of the necessary training will have to be done on the job by the foremen, assistant foremen and key-men who have the know-how, and these key men must be relied upon to pass that know-how along to workers. In the light of these conclusions, most can be accomplished in the shortest period of time by providing a plan whereby effective assistance can be given to every war production company in the District in training its foremen and their assistants as job instructors."

District Director Gardiner then outlined a streamlined, intensive, Job Instructor Training Program which could be given to a group of ten foremen in ten hours. This program cast aside previous theories and practices and stripped the content to barest essentials. He appointed a Committee from the New Jersey Panel of Training Consultants to work with him on the details of the projected plan. On this Committee were:

- A. T. Garrett     · · Western Electric Company, Kearny, N. J.
- D. M. Heider     · · E. I. du Pont de Nemours & Co., Inc., Arlington, N. J.
- Arthur H. Myer     · District Representative, Training Within Industry

- W. R. Mullee - - American Hard Rubber Company, Butler, N. J.
- R. C. Oberdahn - - Calco Chemical Division, American Cyanamid Co.,  
Bound Brook, N. J.
- Howard Pardee - - Wallace & Tiernan, Inc., Belleville, N. J.
- J. H. Vertrees - - Rutgers University Extension Division,  
New Brunswick, N. J.
- Bartley Whiteside - - Wright Aeronautical Corporation, Paterson, N. J.
- Arthur Wrigley - - State Department of Vocational Education, Trenton, N. J.

The first meeting of this Committee was held June 9, 1941, at which details of content and procedure were discussed. Thereafter an experimental group was conducted under the leadership of Howard Pardee at the American Steel Castings Company, Newark, N. J.—the very first Job Instructor Training program of Training Within Industry.

Following this, Mr. Gardiner wrote the Session Plans covering the five two-hour sessions of Job Instructor Training. A supplementary Reference Manual was prepared jointly with Arthur Wrigley of the New Jersey State Department of Vocational Education.

The complete program in its final form was approved at a meeting on June 19th by the entire New Jersey panel of 36 Training Consultants and Management and Labor Advisors.

In order that this training might be done for war industries by practical men carefully trained to put on this ten-hour Job Instructor Training Program exactly as outlined, it became necessary to prepare War Production Trainers who could go into plants throughout the District at any hour of the day or night to suit shift conditions and provide training for industrial foremen and their assistants. For this purpose the first Trainer Institute was held in Newark during the week of June 21st, under the guidance of Glenn Gardiner, A. T. Garrett and R. C. Oberdahn. Practical men from industry, whose companies were willing to make their services available on a limited part-time basis, and others who could be called upon outside of their own working hours, were chosen to participate in this Institute. A second Institute was conducted in Elizabeth, N. J., for job instructors of the State Department of Vocational Education. Thus the pattern of Trainer Institutes had been established.

In order that Trainers might be supplied without cost to industry, arrangements had been made in Washington whereby funds from the United States Office of Education appropriation could be used to pay Trainers through the administration of the State Department of Vocational Education, under the Directorship of John McCarthy. President Robert C. Clothier of Rutgers University, New Brunswick, N. J., extended to the New Jersey Training Within Industry District the liberal assistance of the University Extension Division personnel and facilities.

The Job Instructor Training Program immediately caught fire. Companies throughout the District found that it fulfilled their most immediate training need. The first week of August, 1941—just two months after the first group had been conducted—the program was operating in 102 companies and more than 3000 foremen had completed Job Instructor Training in New Jersey. As a mark of recognition of their service to war production, foremen completing the ten-hour program were awarded the coveted Job Instructor Certificate.

The program “clicked” because it was practical, brief, dramatic and got immediate tangible results in shortened learning time, improved efficiency, better quality, lowered waste and improved safety. It was a program in which foremen “learned by doing” and it was accepted with approval by old-timers and younger supervisors alike.

Job Instructor Training utilizes the steps of good instruction which have proved fundamental throughout generations. In the first of the five two-hour sessions, the Trainer puts on an actual instructing demonstration. First, he portrays some of the shortcomings all too common in the everyday instructing tactics of foremen, and then demonstrates how the same job can be put over to a learner quickly and surely by the employment of Four Steps:

- Step I     . . . . . Preparation of the Learner
- Step II    . . . . . Presentation
- Step III   . . . . . Performance Try-out
- Step IV    . . . . . Follow-Up

Members of the group are coached in getting ready to instruct a learner on the job. They are shown how to break down the job and pick out the key-points, the “knacks” and the “tricks of the trade” which might make or break the job or make it easier or safer.

The remaining four sessions are devoted to practice—"learning by doing." Instruction demonstrations are given by each member of the group, using an actual job which he supervises. He teaches the job to other members of the group under the observation and coaching of the Trainer. Thus the program deals intimately with the very type of work performed in the plant.

— Job Instructor Training is Nationalized —

Keeping in close touch with developments in New Jersey throughout this pioneering period, the National Director, C. R. Dooley, invited Mr. Gardiner to present the New Jersey plan to a conference meeting of all District Directors held in Washington August 7 and 8, 1941. At this conference, Mr. Gardiner put his fellow District Directors through an abbreviated presentation of Job Instructor Training and explained how this program conformed to four basic requirements of effective training in this period of emergency.

1. The training program should be one of utter simplicity.
2. It must be prepared for presentation by intensive and carefully "blue-printed" procedure, utilizing a minimum of time.
3. It must be built on the principle of demonstration and practice of "learning by doing", rather than on theory.
4. The program should provide for "multipliers" to spread the training by coaching selected men as Trainers who, after being qualified in an Institute, go into industry and pass the program on to supervisors and their assistants in a uniform manner.

In presenting this program, Mr. Gardiner stressed that it was the first and most immediately needed unit, and would serve as a pattern for subsequent training units in the fields of Job Methods and Job Relations.

C. R. Dooley, the National Director, stated in a report issued following the August 7-8 Conference: "The Job Instructor Training Plan as operated in New Jersey was discussed in detail. Its basic objective is to train 'lead men' representing approximately one-tenth of industrial personnel to become better instructors and coaches to 'train on production.'

"It was the consensus of opinion that a similar approach should be made throughout all Districts. National Headquarters decided to make available the letters, instruction material and complete details of the New Jersey plan as soon as possible. Mr. Gardiner agreed to assist in the launching of the national program in adjoining districts and in setting up the nation-wide program."

Thereafter, C. R. Dooley, Walter Dietz, William Conover and M. J. Kane—the now famous “Four Horsemen” of Training Within Industry—proceeded to nationalize Job Instructor Training. They arranged for Mr. Gardiner, A. T. Garrett and Clifton Cox of the New Jersey District, to set up the program in Pittsburgh, Philadelphia, Baltimore, New York, Chicago, Cincinnati, Indianapolis, Detroit and New Haven. Late in October of 1941 a Master Institute was conducted by Mr. Gardiner, Mr. Garrett, Mr. Kane and Mr. Conover in Washington to qualify National Headquarters Staff men to carry the program to the remaining districts.

A plan for acquainting large numbers of war production executives with the Job Instructor Training program through demonstration meetings was initiated by Arthur H. Myer, of the New Jersey District. In varying forms, this plan was used throughout much of the country, not only to spread Job Instructor Training, but also to promote other TWI training programs which followed.

A new concept in the field of industrial training was definitely emerging on a national scale—a concept of training destined to influence the thinking of men in every industry, not only for the war period but for the period of re-conversion and peacetime production yet to come. The Job Instructor Training slogan—“if the learner hasn’t learned, the instructor hasn’t taught”—is now revolutionizing the sense of responsibility in the minds of the foremen for “putting over their know-how.”

By the time the Japs had made their sneak attack on Pearl Harbor on December 7, 1941, the energetic efforts of TWI’s National Headquarters Staff and the District Staffs throughout the country had already accomplished the holding of 82 Institutes, the qualifying of 40 Institute Conductors, the certification of 900 Trainers, the servicing of 752 war production plants employing over a million employees and the training of 15,757 foremen, assistant foremen and lead men.

#### — Job Methods Training —

In carrying forward the proposal which he had made at the conference of District Directors held in Washington August 7 and 8, 1941, Mr. Gardiner initiated work on the second training unit dealing with Job Methods by the appointment of Clifton Cox as Chairman of a Committee of Training Consultants composed of:

L. E. Cole	U. S. Metals Refining Company, Carteret, N. J.
A. T. Garrett	Western Electric Company, Kearny, N. J.

A. B. Hall	Johns-Manville Corporation, Manville, N. J.
D. M. Heider	E. I. du Pont de Nemours & Co., Inc., Arlington, N. J.
Walter Hoffman	RCA Victor Division, Harrison, N. J.
Elmer Kagemann	Bakelite Corporation, Bound Brook, N. J.
P. J. Lathrop	Bristol-Myers Company, Hillside, N. J.
E. H. MacNiece	Johnson and Johnson, New Brunswick, N. J.
W. R. Mullee	American Hard Rubber Co., Butler, N. J.
Frank Nickau	Apprenticeship Unit, WMC, Newark, N. J.
R. E. O'Donovan	Congoleum-Nairn Inc., Kearny, N. J.
Howard Pardee	Wallace & Tiernan, Inc., Belleville, N. J.

Mr. Gardiner laid down the following five requisites for a Job Methods Training program which would enable companies to turn out a maximum quantity of quality work with the manpower, machines and material available:

1. It must be a program by which a plant could be combed quickly to discover all the jobs on which possibilities of methods improvement existed.
2. It must be a training program which could be given to supervisors, foremen and their assistants, which would be of practical everyday use to them.
3. It must be a streamlined program which could be presented to a group of 10 or 12 men or women in a period of 10 hours.
4. It must be based upon sound methods engineering principles, but these principles must be reduced to the simplest possible form.
5. It must be a training program cut to the pattern of the already highly successful and popular Job Instructor Training program.

The Committee which had been appointed met on December 17th and rendered valuable assistance in improving the original draft of the Job Methods Training program.

On February 9th the first Job Methods Training group was held at the American Steel Castings Company, Newark, N. J.—at the same company, and with the same identical group of supervisors who composed the first Job Instructor Training group. A series of Job Methods experimental and developmental groups followed at the Flintkote Company, Rutherford, N. J., National

Union Radio Company, Newark, N. J., and Joseph Dixon Crucible Company, Jersey City, N. J. Based on the experience of these groups the Job Methods Training program was put in its final form by Clifton Cox, since which time only minor revisions have been made as to details and procedure.

In the first session of Job Methods Training a simple job is demonstrated, showing the "before" and "after" improvement. Just as in Job Instructor Training four basic steps are involved. These are:

- Step I . . . . . Break down the job, listing all details of the present method.
- Step II . . . . . Question Every Detail
- Step III . . . . . Develop the New Method
- Step IV . . . . . Apply the New Method

The first session makes clear the application of these four steps to the simple demonstration job. Thereafter, in the four succeeding sessions each member applies the four steps to one of his own jobs and demonstrates before the group the improvement he has effected. By applying the steps to their own jobs, it is obvious that the Job Methods Training program is intimately fitted to the work and operations performed in the company where it is carried on.

The first Institute for Job Methods Trainers was completed on March 28, 1942. When Trainers who participated went back to their own companies to put on the Job Methods Training program, the response was immediately favorable. The tangible and measurable results of this program appealed to industry.

— Job Methods Training Immediately Nationalized —

On May 21, 1942, Mr. Gardiner and Mr. Cox presented the Job Methods Training Plan to a meeting of TWI District Directors in Washington. National Director Dooley, his Washington Headquarters Staff, and the District Directors were unanimous in their decision to proceed immediately to nationalize the Job Methods Training program. Early in September a Master Job Methods Institute was conducted by Mr. Cox to prepare the men who would be responsible for carrying the Job Methods program to all the other Districts throughout the country. Three Washington Headquarters Representatives were appointed to conduct Master Institutes in each District, thereby creating the nucleus for the National Job Methods program expansion.

By the opening of 1943, the Job Methods program had taken its place on a national basis alongside of Job Instructor Training in America's war production.

— Job Relations Training —

In accordance with the original plan of the three programs proposed on August 7 and 8, 1941, J. Walter Dietz, Associate National Director, had meantime been working with a national committee for research and development of the Job Relations Training program. Prominent in the creation of this program were Assistant National Directors Michael Kane and William Conover, L. A. Gappa and Frances Kirkpatrick of the Washington staff, John Convery of Philadelphia, Winston Cooper of Detroit, Herbert Kessel of Indiana, and A. E. Lawrence, of Denver. After considerable work with experimental groups in a number of plants in various parts of the country, under Mr. Dietz's constant supervision, the Job Relations Training program took final form following the identical pattern of Job Instructor Training and Job Methods Training. The program consists of five two-hour sessions with the first session devoted to a demonstration of the handling of an actual job relations case problem. Four basic steps are developed which are designed to apply wherever and whenever a supervisor faces a human relations problem about which something must be done. These steps are:

- Step I . . . . . Get the Facts
- Step II . . . . . Weigh and Decide
- Step III . . . . . Take Action
- Step IV . . . . . Check Results

In the four remaining sessions of the Job Relations program actual cases brought in by each member of the group are handled so that all have ample opportunity for practice in applying these four steps to Job Relations problems. Here, as in Job Instructor Training and Job Methods Training, the Job Relations program adapts itself intimately to the particular plant and organization where the program is carried on because it deals primarily with the actual problems of the group members.

Mr. Dietz and his committee also incorporated in this program a practical presentation of such foundations of good relations as the following:

1. Let each worker know how he is getting along.
2. Give credit when due.
3. Tell people in advance about changes that will affect them.
4. Make the best use of each person's ability.
5. Treat people as individuals.

A Master Institute was held in Philadelphia opening January 25, 1943, under the leadership of John Convery. Participating were representatives of Boeing Aircraft, Wichita, Kansas; Western Electric Company, Baltimore, Maryland; E. I. du Pont de Nemours & Co., Inc., Wilmington, Delaware; and Armstrong Cork & Linoleum Company, Lancaster, Pa., as well as representatives from five TWI Districts. Washington Headquarters representatives thereafter expanded the Job Relations Training in all Districts throughout the country. Job Relations Training met the instant acclamation of industry because it answers the growing need of supervisors for the development of greater skill in handling and leading people.

— America's Strategic Million —

By the beginning of 1944, the Training Within Industry Service had brought its training to a million supervisors who directed the work of more than 15,000,000 "fighters on the production front." These supervisors constitute "America's strategic million." It has been the know-how of these million supervisors, passed on to the many millions of employees, that has made America truly the "arsenal of democracy."

America's production accomplishment is epitomized in the statement of Premier Josef Stalin at the Teheran Conference. "Without American production, the United Nations could never have won the war."

— TWI for the War Department —

It was but natural that the significant results accomplished by industry should attract the attention of such organizations as the ordnance plants of the United States. One of the first to recognize the applicability of the TWI programs was Picatinny Arsenal, in Dover, N. J. As far back as in March, 1942, the first Institutes were held at this Arsenal to process qualified members of their own personnel to conduct Job Instructor Training groups. At the completion of these Institutes on April 10, 1942, Colonel W. E. Larned, Commanding Officer of the Picatinny Arsenal, called a meeting of all top officers and chief civilian executives for a special session at which a streamlined demonstration of the program was put on by Mr. Gardiner, so that they might be fully informed as to how this training functioned. The Commanding Officer gave this program his personal endorsement and delegated to Lt. Col. J. H. White, Jr., Chief of Administration at the Arsenal, full authority to carry it through completely and thoroughly to reach approximately 1500 foremen, assistant foremen and gang bosses. The Arsenal also

requested that the Job Methods Training program be provided to them as soon as the basic Job Instructor Training was completed.

Accordingly, in March of 1943 Clifton Cox put a group of men—a number of them the same men who had acted throughout the past year as Job Instructor Training Trainers, through a Job Methods Training Institute. The results of Job Methods Training are best expressed in a brochure issued in October, 1943, giving the history of the Picatinny Arsenal from Revolutionary times to the present date:

“Picatinny made a notable contribution to the war effort, as a result of classes conducted in Job Methods Training. In one year, suggestions improving work methods resulted in a saving to Picatinny Arsenal of more than \$60,000 and since a majority of these suggestions were passed along to other government plants, it has been estimated that they have resulted in a saving to the government of \$30,000,000 for one year. This achievement was praised by Lt. Gen. Brehon Somervell, Chief of the Army Service Forces, and by Major Gen. L. H. Campbell, Jr., Chief of Ordnance in letters to the Commanding Officer and was also commented upon by General Somervell before a Congressional Committee investigating the conduct of the war, as an example of how well Army Ordnance was functioning.”

Following the example of Picatinny Arsenal, in April 1942, Colonel D. R. Hyde of the Office of the Chief of Ordnance called together the Ordnance Plant Executives in Washington for consideration of how the Picatinny plan could be effected nationally for all ordnance plants with the cooperation of TWI. Thus Job Instructor Training was introduced into ordnance plants, motor bases, Signal Corps laboratories, arsenals, proving grounds, Air Corps bases and Quartermaster Depots throughout the country. These activities led to a directive issued by Lt. Gen. Somervell on August 18, 1942, ordering all units in the Services of Supply of the War Department to make Job Instructor Training available to all their supervisors.

In response to this directive order, appreciation sessions for top commissioned personnel became at once the procedure for the Washington Headquarters and for the Service Commands throughout the country. At these appreciation sessions a brief, streamlined version of the programs was presented to officers of the following divisions: Assistant Chief of Staff for Personnel, Special Service and Military Personnel divisions; Assistant Chief of Staff for Material, Requirements, Resources, International Purchases, and Production divisions, Adjutant General's Office; Administrative Services; Office of Chief of Finance, Army Ex-

change Service and Office of Chief of Chaplains; Supply Services; Office of Chief of Chemical Warfare, Office of Quartermaster General, Office of Chief of Engineers, Office of Chief of Ordnance and the Transportation Service.

At the time of the directive, it was estimated that the Services of Supply would require supervisory training for more than 60,000 people. It was planned to complete Job Instructor Training by December 31, 1942, to be followed by Job Relations Training and Job Methods Training. The rapid expansion of the Services of Supply—later the Army Service Forces of the War Department, is bringing the figure to a much higher total. On December 19, 1942, Lt. Gen. Somervell issued a supplementary directive because it had become necessary to turn over the rapidly-growing training job to the War Department. Henceforth it was arranged for qualified representatives to attend Master Institutes conducted by TWI, where they receive training which enables them to train others to carry on this work throughout all establishments of the Service. Thus, in accordance with the basic conception of extending this training through “multipliers” the principles of the TWI programs are reaching the outposts of the world where the supplies and materials of war prepare the way for — and stand by — our fighting forces.

Other government agencies concluded that the TWI programs would be equally as effective in their divisions. The Civil Service Commission, Civil Aeronautics Administration, Federal Public Housing Authority, Federal Security Agency, General Accounting Office, Government Printing Office, Rural War Production Training, U. S. Forestry Service, Federal Committee on Apprenticeship, Unemployment Compensation Commission, the Bonneville Power Administration, and the Guayule Rubber Project of the U. S. Department of Agriculture, constitute a representative list.

#### — TWI Goes International —

The TWI Programs were spread also in another way. In January 1942, Job Instructor Training crossed the border into Canada. Noel R. Arthur, Industrial Training Supervisor for Defense Industries, Ltd., Montreal, Canada, visited the New Jersey District on January 22nd, to get a first-hand picture of the program and to be qualified to conduct the training in his plant. In February, H. F. Horton, Assistant Supervisor of Training of the Department of Labour, Ottawa, sat in on the Job Instructor Training series at the Verdun works of Defense Industries, Ltd., with the result that it was decided to make the program officially available throughout the Dominion.

On May 4, 1942, the Department of Labour of Canada, at the direction of the Minister of Labour, brought together in Montreal a carefully selected group of twelve men from the major war industries to participate in a Job Instructor Training Institute to prepare them as Institute Conductors. The Institute was conducted by Glenn Gardiner and Clifton Cox of the New Jersey District. In charge of the administration of the program in Canada were R. F. Thompson, Director of Training for the Department of Labour, and Fred Horton, the Assistant Director. The Session Plans and Manual were reproduced both in English and in French for use throughout the Dominion.

Job Methods Training and Job Relations Training were introduced into Canada in almost the same manner, through the initial participation of Defense Industries, Ltd.

In December 1942, the San Francisco District Office gave Job Instructor Training to six representatives of the California Arabian Standard Oil Company, which introduced the program in Dhahran, Saudi Arabia. The Job Instructor Training program material was translated into Arabic in order to give the training to the company's Saudi Arab personnel. Then in 1943, two other Standard Oil subsidiaries, Lago Oil Transport Company, Ltd., of Aruba, Curacao, NWI and the Creole Petroleum Corporation, of Caracas, Venezuela, were the medium for bringing Training Within Industry to South America.

Both the Pan American and United Air Lines have Job Instructor Training men covering their airways and there is scarcely a country these two companies do not touch. Job Instructor Training Trainers were sent abroad by Transcontinental Western Air Lines.

The Spanish translation of Job Instructor Training instructional material was made by Rodolfo Michels, Jr., for the Compania Bechtel, S.A., Cananea, Sonora, Mexico. In India, 100 people in Red Cross activities have had the training.

#### — TWI for Women in Industry —

From the very beginning, women were admitted on equal basis to participate in TWI programs. About 13% (127,590) of the million supervisors in the United States who have had TWI training are women, coming particularly from the fields of aircraft, precision instruments, textiles, radio, drugs, chemicals, rubber, ordnance and communications. A woman Trainer was included in the very first New Jersey Institute and the first all-women group of supervisors to have Job Instructor Training was assembled in November 1941 at the Weston Electrical Instrument Company, in Newark, N. J. In March of 1943 the first woman

Institute Conductor was certified in Waterbury, Connecticut. A Job Relations Training Institute, conducted at the Michigan Bell Telephone Company in November 1943, was the first all-women Institute with the responsibility of training 864 supervisors in Michigan Bell's Traffic Department. At a Job Relations Training Institute for aircraft companies in Los Angeles, a group of WAC officers became Trainers.

#### — Other Adaptations of TWI —

TWI's HOW TO INSTRUCT card has been written in the Braille code and is being used at the Maryland Workshop for the Blind where some 200 sightless men and women are working on war contracts. At the Chicago plant of the Campbell Soup Company, Job Instructor Training was given in sign language for deaf mute working leaders. Good results were secured from a Job Instructor Training program put on for a group of illiterate supervisors in a North Carolina cotton mill.

Bloomington, Illinois, claims the distinction of being the first city in the United States to go 100% Job Instructor Training where every plant with war contracts has gone "all out" on the program.

#### — Follow-Through —

The Training Within Industry Service came to appreciate that a training program in order to be effective, must grow into a practical operating program. To that end, follow-through programs for each of the three training programs, Job Instructor Training, Job Relations Training, and Job Methods Training were carefully prepared and thoroughly tested and are now supplied to industry.

#### — Program Development Training —

Similarly, it was revealed that not only must training programs be operating programs, but they should lead to expanded training activities within a company. For this purpose Program Development Training is provided. The major emphasis of this program is the identification of training needs and the planning of in-plant training to meet those needs. Full or part-time Training Directors, or those persons in war plants to whom has been delegated authority and responsibility for training, participate in an Institute which requires four days—three consecutive days and a clinic after a week's interval, at which the members bring in the individual training plans worked out for their companies.

## — Results of TWI Programs —

Today, a million supervisors, in steel mills, foundries, oil fields, shipyards, ordnance plants, mines, railroads, hospitals, aircraft plants, chemical laboratories and other war production plants and essential services have had the benefits of the three TWI supervisory programs.

Volumes of voluntary letters sent to Washington or to the various District Offices by industrial executives are a testimonial to this experience of "industry helping industry". Plants served by TWI report increased production and better supervision.

The time it takes to break in people on new jobs is substantially reduced—one-fourth of the plants report reductions in training time up to 25 per cent and three-fourths of them show evidence of reduction of more than 25 per cent.

Manpower savings up to 25 per cent are reported by two-thirds of the plants, and the other third credits supervisory training with savings of 26 to 90 per cent.

Scrap and waste are big items of loss of both materials and manpower. Five-sixths of the plants that have used TWI supervisory training programs have reduced this loss by figures ranging up to 25 per cent, while one-sixth have cut this leak over 25 per cent.

Costs have been decreased, quality has been improved and accidents have been reduced. It is reported that in some plants absenteeism has been halved as has turnover.

The cumulative results of these programs, however, can never be tabulated. Whatever statistics are compiled of TWI's contribution to World War II, they will not tell of the impact this new concept of industrial training has had on "the first million" foremen and in turn on the millions of men and women working with them in the production ranks.

The achievements of the Training Within Industry Service stand as a monument to industry, labor and government cooperation, partners working together shoulder to shoulder to out-produce enemies who would destroy America, and extinguish the torch of Freedom in the world.

# Training Within Industry Service

## WAR MANPOWER COMMISSION

Washington, D. C.



### HEADQUARTERS ORGANIZATION

C. R. Dooley, *Director*

M. J. Kane, *Assistant Director*

J. Walter Dietz, *Associate Director*

William Conover, *Assistant Director*

### LABOR CONSULTANTS

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### FIELD REPRESENTATIVE

Paul A. Mertz

### HEADQUARTERS REPRESENTATIVES

A. G. Blake

Herbert Kessel

John Calhoon

Glenn McNeilly

Winston Cooper

John Mollers

Clifton Cox

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## *District Directors and District Representatives*

DISTRICT	DISTRICT ORGANIZATION	ADDRESS
1	Harry H. Kerr, <i>District Director</i> H. K. Bragle, <i>District Representative</i>	Park Square Bldg. Boston, Mass.
2	A. E. Whitehill, <i>District Representative</i>	152 Temple Street New Haven, Conn.
3 & 4	Sterling Mudge, <i>District Director</i> R. E. Collin, <i>District Representative</i>	11 West 42nd Street New York, N. Y.
5	Glenn Gardiner, <i>District Director</i> Arthur H. Myer, <i>District Representative</i>	605 Broad Street Newark, New Jersey
6	H. W. Jones, <i>District Director</i> John Convery, <i>District Representative</i>	21 South 12th Street Philadelphia, Pa.
7	James H. Kahlert, <i>District Director</i> George Papin, <i>District Representative</i>	O'Sullivan Building Baltimore, Md.
8	George G. Arthur, <i>District Director</i> George Papin, <i>District Representative</i>	Raleigh Bldg. Raleigh, N. C.
9	A. S. Hotchkiss, <i>District Director</i> A. J. Speer, <i>District Representative</i>	Grand Theatre Bldg. Atlanta, Georgia

DISTRICT	DISTRICT ORGANIZATION	ADDRESS
10	Paul Mooney, <i>District Director</i>	Union Trust Bldg. Cincinnati, Ohio
11	C. S. Coler, <i>District Director</i>	Flannery Bldg. Pittsburgh, Pa.
12	Oscar Grothe, <i>District Director</i> L. O. Mellen, <i>District Representative</i>	Union Commerce Bldg. Cleveland, Ohio
13	H. M. Jenkins, <i>District Representative</i>	Penobscott Bldg. Detroit, Michigan
14	A. E. Sinclair, <i>District Director</i> W. T. Murphy, <i>District Representative</i>	Circle Tower Indianapolis, Ind.
15	M. E. Carlson, <i>District Representative</i>	Adams Franklin Bldg. Chicago, Ill.
16	E. L. Olrich, <i>District Director</i> J. H. Rothenberger, <i>District Representative</i>	Midland Park Bldg. Minneapolis, Minn.
17	C. T. Cardwell, <i>District Representative</i>	Shell Building St. Louis, Mo.
18	Tracy T. Word, <i>District Representative</i>	Gulf Building Houston, Texas
19	George M. Kirk, <i>District Director</i> A. E. Lawrence, <i>District Representative</i>	Equitable Building Denver, Colorado
20	Garner A. Beckett, <i>District Director</i> C. H. Fishburn, <i>District Representative</i>	West Pacific Bldg. Los Angeles, Calif.
21	Arthur W. Ford, <i>District Director</i> Aylwin Probert, <i>District Representative</i>	Newhall Building San Francisco, Calif.
22	Walter Williams, <i>District Director</i> L. H. Steele, <i>District Representative</i>	White Building Seattle, Washington
23	Walter Williams, <i>District Director</i> L. E. Hinman, <i>District Representative</i>	American Bank Bldg. Portland, Oregon