

Industry Works With Education

H. A. TIEMANN

ONLY A DECADE AGO, a high fence erected by education's bigotry and industry's aloofness stood between education and industry. The population was generally classified into groups of men, women, and school teachers—the latter being of either sex, but "apart from this world." The educator always maintained that education was or should be "preparation for complete living." The businessman maintained that education was "missing the boat," that high-school and even college graduates could not write legibly or make accurate arithmetical calculations. Both were right to a degree, but the educator was not doing what was claimed for education, and the business leader was too busy to bother with education problems.

I once listened to a discussion between a school executive and a business executive in which the latter severely criticized the education system. The discussion sounded something like this: The school executive—"Do you ever make mistakes in your business?" The answer was, "Yes." School executive—"What do you do about it?"

"Why, we get together, analyze the problem, find a solution, and then carry it out."

The school executive said, "Then why don't we get together, analyze the difficulty you refer to, find a solution, and carry it out?"

"Well, that's the problem of the educator; business doesn't ask you to help solve the problems of industry."

That vocational training has its place in educational programs is the theme of this article by H. A. Tiemann, director of education, Public Service Company of Colorado, in Denver, who points out that education and industry must work together to insure a better understanding of each other's aims and ideals. Mr. Tiemann emphasizes that although great strides have been made in bringing about better relationships between education and industry, there are still too many "die-hards" who must be convinced that only through this cooperation can effective relations be built.

Said the school executive, "That's the trouble; you think of education as being something apart from business, yet you are not willing to help solve the problem that you know is affecting business adversely. You see, education is not something apart; it is an integral part of the business life of the community. To exist, it must serve. The only justification for an education program is that it affords a less costly and more effective method of imparting knowledge and doing ability than by learning through trial and error on the job. The very thing you are complaining of—high cost of learning on the job—can be eliminated if the school can provide experiences to suit the needs of your employees. We cannot do this until you are willing to sit in conference with us, help us to analyze the job, determine the training content of courses, and agree upon a plan of procedure."

To make a longer story short, this reasoning led to meeting in conference, agreeing upon a plan, and putting it into operation to the satisfaction of all concerned.

Our national vocational-education program was initiated by industry, business, agriculture, labor, and education leaders because they realized that education-industry cooperation was needed to increase production, improve distribution, and raise the standard of living. They emphasized that education—to aid in accomplishing these purposes—must be practical and democratic, affording equal opportunity for all to learn, each according to his best talents.

The education system is as specialized and departmentalized as any modern business or industry. Some educators decry the trend toward specialization in education, and some citizens charge that the education system is lagging behind our social and economic progress and that closer cooperation between education and business should prevail. Suppose we grant that both viewpoints are right in some degree. The fact remains that the public education system is "on the move" and making great progress in the direction of

meeting the needs of the citizens of this age.

Probably the best example of cooperation between educators and industrial and business leaders the world has ever witnessed occurred during the war period when our colleges turned to training military personnel, our high schools emphasized preflight training, and our vocational schools turned out millions of war-production workers and civilian personnel for military duty. Records show that the Vocational Training for War Production Worker Program trained 7,469,506 employees for war-production plants. Similarly, the Food Production War Training Program enrolled 4,188,522 trainees. This was done in approximately four years.

Production Requires Training

The productive miracles of our time would not have been possible without trained scientists, trained engineers, trained production workers, and trained office personnel. There is not the slightest doubt that the improvements in all lines of American economic endeavor have been greatly speeded up because of the American Vocational Education system. The necessities of this war gave great force to speeding up the process of cooperation between industry and education, of course, but each such force brings us nearer to the realization that education is a necessity to our way of life and not something apart from it.

Let those who question "selective education" review some of the recent economic accomplishments that have added so much to the comforts of modern living. The oft-referred to "narrowly trained" engineer, through his skill, made it possible for the farmer to use combines which cut a wide swath at tractor speed, covering twenty acres in a single day. They designed a corn husker that husks two rows at a time, a cultivator for the sugar-beet farmer that will thin and cultivate twenty acres per day, a machine that will dig, pick, and bag potatoes at the same time and at a fast rate of speed.

The principal use of welding in shipbuilding permitted this country to place this industry on a mass-production basis. The aircraft industry reduced the time of constructing a fighter plane from 157,000 man-hours to 7800 hours, and a large bomber from 200,000 to 13,000 man-hours. An electric principle regulates furnace temperatures, levels eleva-

tors, checks weight of materials, measures materials, controls machine speeds, and opens and closes doors. All this because we had a supply of educated and skilled workmen and because we had a vocational-training system that could quickly impart the skills to manufacture, service, operate, and manage the equipment that was needed or wanted to satisfy human desire. This American productive mind made our nation great. It gave us a civilization that today, in terms of material worth, is superior to that of any other nation in the world.

The Postwar Period

Now we come to a new social and economic period—the so-called postwar period. The "back to school" movement is on. War workers and veterans are retraining for peacetime occupations and are preparing for abundant living. This new age we are all anticipating—this age of plastics, television, light metals, solar homes, air travel, atomic energy, and many miracles—will require the same degree of cooperation between education and industry as was exemplified during the war period. This is recognized by progressive leaders everywhere.

At this writing, employer, labor leader, and educator are working together throughout the country to bring about better understanding of the relationship of one to the other. Industrial plants are being thrown open to visitors of school-age youth. School classes are visiting farms to see how our food is produced. Educators are meeting with industrial conference groups to gain a better understanding of the training needs of workers, and business executives are participating in education conferences to explain their needs. School courses are being modified to deal with current problems, and business houses are turning to the man who knows how to "put it over" for assistance in training salesmen and business executives. The contributions of the university scientist are not only recognized by industry, but are in demand. Each group has discovered that it can help the other. If this process continues, we may never again be faced with the problem of breaking down the fence between education and business. When we analyze the situation, we find that the fence has not only been broken down, but it has actually been removed. It is quite a contrast to the condition that existed in the '30s.

Examples of Cooperation

The National Association of Manufacturers is now engaged in a nationwide movement to encourage industry and business to throw its doors open to groups of teen-age youth and faculty groups. Shop visits are arranged by education-industry committees for junior and senior high-school students, designed to acquaint students with local industries and business methods for vocational guidance and for general education ends. Faculty members are invited on tours of industry so that school men and women may themselves discover the intricacies of the business world. Professors are amazed to discover that many machinists work in metal to degrees of accuracy of one ten-thousandth of an inch on heavy machinery in contrast to the fine work on a watch which will keep accurate time although the accuracy limits are only one one-thousandth of an inch or less. They are surprised to learn that many electricians are thoroughly acquainted with the principles of electronics and that some salesmen are experts in textile analysis and possess an unusual amount of knowledge about the products they sell.

Similarly, industrial executives are discovering that it is difficult to answer some of the technical questions raised by the school man and even by student visitors. They are finding that each knows more than the other suspected, and that they do speak the same language and strive for the same degree of perfection in their work. Thus, by the simple process of getting acquainted, prejudice is being pushed aside, and cooperation is rapidly taking its place. Will Rogers once said, "I never met a man I didn't like," and Charles Lamb, when asked if he would like to meet a certain individual, replied, "No, I hate that man." When his interviewer asked, "Why?", he replied, "Because I don't know him." The first and most important problem, then, is to get acquainted. Know something of the other fellow; know his business or occupation and the problems that he must overcome. Know the good he is doing, and you will soon be able to share in solving mutual problems.

cooperative apprentice-training

In the field of apprentice-training, advisory committees representing employer, labor, and education are establishing apprentice-training standards in the skilled trades. By pooling experience and reconciling viewpoints they

agree upon a plan of action. The training standards usually define apprenticeship, give the length of the training period, provide for rotation of work-experience on the job, and outline the related training to be offered by the cooperating vocational school. Certificates of completion of apprenticeship are awarded at the conclusion of the training program. Examples of this cooperative effort are to be found in the principal cities of all the states. Some groups of employers have worked out arrangements to share the cost of apprentice programs, and some employers pay the apprentice for school time. More needs to be done, but the method is established and is being successfully carried out.

cooperative part-time training

Cooperative training in both business and industrial fields is again on the increase. The "co-op" plan—two individuals assigned to a single job and alternating on the job and in school has long been successfully practiced in some communities. The plan functions best for youth sixteen to eighteen years of age employed in industry or business and for the training of engineers. It requires close cooperation between school and plant executives. This usually takes the form of a cooperative agreement between the participating agencies. The agreement specifies the particular plan of rotation between job and school—i.e., week about, month about, quarter, semester, or year about, whichever is most conducive to proper training; the number to be trained; the job experiences the employer will provide, and the related courses to be pursued in school.

This plan of education and training needs to be extended. The value of the "co-op" program has been proved, but the plan is unknown to many employers and to many educators. More publicity is needed, and educators in particular must give attention to rearranging school programs to allow the plan to function effectively.

Job Experience for In-School Youth

The diversified occupations program is another form of cooperative training. High-school people are placed in miscellaneous occupations and attend school on a part-time basis. Many high schools and vocational schools have operated the plan successfully. Under this plan a variety of business enter-

prises must cooperate with the school in giving part-time employment to in-school youth. The school in turn must arrange the schedule of classes to permit part-time employment for those enrolled in the program and must also modify the course of study and add subjects to its offerings that are related to the daily employment of the enrollees. During the depression years, many communities expanded this program to reach all unemployed youth. Such communities had no NYA problem because all the young people of employable age were engaged part-time in productive work and part-time in civic and vocational education.

Extending Education to Working Youth

Part-time education for employed youth, wherein the trainee receives a minimum of four hours per week for thirty-six weeks of the year in training that is related to his employment, will play an important role in replenishing the labor supply of skilled and semi-skilled workers. The supply of skilled mechanics is dangerously low at the present time. While apprentice-training for the skilled trades is a phase of part-time schooling, the average part-time school reaches a much larger group of working youth. Salesgirls from a department store pursue courses in customer relations, sales methods, legible writing, and change-making. Office-practice courses, trade courses, refresher general-education courses, and courses designed to improve the civic intelligence of working youth are also offered. The general purpose of all offerings may be classified into three divisions: occupational preparatory, occupational extensions, and civic and general-education courses. A part-time program cannot succeed without employer-educator cooperation. The employer must make school attendance possible for eligible youth, and the educator must see that the instruction is related to the employment or the employment desires of the trainee.

Adult Education Has a Place

The adult-education program, too, offers many possibilities for cooperative effort. Training in single skills where extreme shortages of workers exist can be accomplished in less time and at less cost through intensive vocational-training courses. Phases of the construction industry, bricklaying, plastering,

plumbing, welding, carpentry, house wiring, and painting can be successfully taught in short unit courses. Cooperative effort here would do much to speed up the housing-construction program, just as cooperation in training war workers accomplished the impossible during the war period when over eleven and one-half million war-production operators and food-production workers were trained in approximately four years by the vocational schools of the country.

Day Trade Courses Are Valuable

The importance of day trade courses for young people of high-school age should not be underestimated. Training takes time, and a two- or three-year course will do a more thorough job of imparting skills than can be done in short, intensive training courses in single skills offered in evening or part-time schools. A better method of pretraining apprentices and other young workers has not been devised. Industrial and labor leaders often are not aware of the value of such training. Discussion meetings are needed to bring the facts before them.

Training in Industry

Most progressive business organizations of sufficient size to justify a training program carry on company education activities within the plant or business. These activities range from executive and foremanship conferences to the training of new workers on the job. Often a company library is maintained for employees. Technical bulletins are prepared and distributed to employees, as are other directives of an educational nature. Special evening classes in public relations, technical subjects, and public speaking are sometimes offered. Usually a company-training program follows a discovered need for employee improvement or a request from the employees for such service.

Much duplication of effort can be avoided through closer cooperation between industry and education. Where a public-speaking class is maintained by a local school, the employees of a given company should be routed to such school for training. Where a sufficient number of company employees want some technical subject that is not offered by the local vocational school, a request from the industry for service should go to such school. In any mutual assistance program, such a re-

quest would be honored. Too often the school executive will say, "We are not equipped to offer the subject," or, "We have a long waiting list," and the effect is as discouraging to employer and employees as it is to a customer who wants to buy an article in a store and is told, "We do not have it." If he can't get the service, the employer will provide it. In a setup where good cooperation prevails, a way should be found for the school to provide the necessary training.

G. I.'s are returning to their jobs in large numbers. They want "on the job" training, apprentice training, supplemental subject courses, and vocational advisement. Some industries are avoiding the problem, some are setting up complete "on the job" training programs, and others are working with the local education authorities to work out supplemental training programs to be offered by the schools. The latter plan is most desirable and most acceptable to the trainees. The G. I. retraining program presents an excellent opportunity for cooperative effort. It is to be hoped that school and industrial executives will not overlook the opportunity to be of assistance to each other and to the returning servicemen who want and need the training.

All Hands Must Stand Ready

It is gratifying to note that the student of today no longer thinks of education as a

means to gain social standing alone. He asks, "What training will be of most value to me?" That vocational knowledge is part and parcel of the educational need of all citizens has been amply demonstrated. The war-production training program proved what can be accomplished in wartime. It is evident that cooperative effort for economic and social progress will continue in peacetime. Indeed, a democratic society cannot reach its full development until we decide that all hands must stand ready to cooperate to that end. There are forces at work to retard vocational training. Some employers believe they can get along without it. Labor is reluctant to permit unlimited training of apprentices. They reason in terms of a ratio of apprentices to mechanics instead of in terms of letting the best-trained apprentice get the journeyman job. The school executive, too, finds it easier to organize the traditional school curriculum and therefore "shies away" from the job of reorganizing his system to meet the current demands of society.

In a controlled or collectivist economy, limits and controls can be placed on business, education, religion, and the press.

If the system in which we believe is to prevail, we must constantly relate the education program to our social and economic progress, and we must have the cooperation of business and education in doing it.

Thank-You Note

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