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"The Potential of Apprenticeship"

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Bob is Executive Vice President of B & B Engineering, Houston, Texas, with special responsibilities for the development of insulations, coatings, and allied products. He is also responsible for the company's manufacturing and contracting operations and recently assumed the additional duties of Manager of Marketing on a nation wide basis.

He is presently Chairman of the Joint Apprenticeship Committee for the Houston area and was instrumental in initiating a workable apprenticeship training program in the Houston area which is being used as a guide for establishing similar programs in other parts of the country.

In addition, Bob is Chairman of SWICA's Apprenticeship Committee, Secretary-Treasurer of the Houston Insulation Contractors Association, and has served as SWICA's Convention Chairman and as Chairman of the Equal Employment Opportunity Committee.

His wife, Kathleen, is working toward her PhD at Rice University. They have one son.

Preface:

When contractors think of apprenticeship, they usually think in terms of training the men so they can get out and properly put on the insulation. Our limited experience with apprenticeship leads me to believe that a great deal more than this goal can be accomplished.

This article will, therefore, be concerned with not only the direct and obvious advantages of apprenticeship, but also those peripheral and less commonly considered benefits for the individual worker, the union and the contractor which normally are derived from an apprenticeship program.

Very few products, services and ideas spring spontaneously into being unless there is a pre-existing need for such a product, service or idea. While it has been recognized that there is a general need for trained personnel in our industry, the need has been stated most frequently in terms of eliminating the problem of inadequate manpower rather than increasing the productivity of the manpower available.

Predicating the need for training program within such a frame of reference indicates to me that contractors, and our industry in general, acknowledge that certain labor-management problems exist, but the extent to which these problems currently affect our industry and will affect it in the future is not widely understood.

To elucidate, consider that during the past five years, the use of pre-insulated piping and equipment has increased by one hundred percent, or more, each year. This piping and equipment is seldom handled by asbestos workers, and such projects rarely call for the services of an insulation contractor. In the past five years, the use of traditional insulating materials as a roof substrata has increased by over one thousand percent. These materials are seldom handled by asbestos workers, and once again, the insulation contractor's services are not called upon. These are but two examples of what technically would be called progress, but from the insulation contractors and insulators' viewpoint, represent an attrition of our area of operation. It is because we are living in an era of

advancing technology with its resulting sociological readjustments that the insulation contracting industry, both contractors and applicators, must adopt a plan to facilitate the orderly transferral of their services from what we would call the traditional areas of insulation to those more technologically sophisticated areas that are now being usurped by others.

Obviously, one portion of this plan must be the training of men in the use of new techniques and new materials if we are to retain the markets we now have and expand them when the products we market find acceptance in new areas of application. It might be helpful to investigate the history of our industry, the union with which we principally deal and that form of training which we call apprenticeship.

History of Apprenticeship:

Apprenticeship, in its primitive form, is the oldest known method of transferring craft or professional knowledge from one generation to the next. The earliest known record of apprenticeship is found in the Babylonian code of Hammurahi (formulated in 2100 B.C.). It is obvious that this code was not a new form of education even at that time. The crafts were then, and to a great extent continue to be, largely a family tradition. Fathers taught their sons the crafts and these sons taught their sons.

Apprenticeship flourished in ancient Greece and Rome. In each of these civilizations, apprenticeship and slavery went hand-in-hand in most crafts, and to a certain extent, in the more cerebral professions, such as theology, law and education. In most cases, the shop or business was owned by a free master craftsman who employed several assistant craftsmen or journeymen who might be either free or slave. As an assistant craftsman reached master craftsman's status or obtained his freedom, the shop owner would purchase as a replacement a young slave to be trained in the arts of the trade. This element of slavery was still strongly evident in the operating guilds formed over a thousand years after the demise of the Roman Empire. These guilds were, in essence, an association not too far removed from the local contractor associations in existence today. The owners of the various craft shops banded together to form a union of their own. The sole method of entry into this union was through the training program instituted in one of the various master craftsmen's shops. To gain entry into such a training program, the prospective apprentice, through his parents or on his own, was required to bind himself in servitude to the master craftsman for a period of seldom less than ten years. In return for his servitude, the apprentice acquired: (1) The opportunity to learn the trade to the extent his master felt him capable of learning; (2) his lodging and meals during his term of apprenticeship; and (3) a new suit of clothes or some equivalent token fee at the termination of his apprenticeship. Even though these terms may seem harsh by today's standards, it is obvious that the apprentice, at that time, felt he had acquired

considerable prestige by gaining entry into a recognized craft apprenticeship program.

In the Colonial days of our own country, it was common for men to bind themselves in servitude in order that they might have the opportunity to learn a craft. Quite probably, many of our own forebearers arrived in this country through some form of indenturement, an example of which is as follows:

"Know all men that I, Thomas Millard, with the Consent of Henry Wolcott of Windsor unto whose custody and care at whose charge I was brought over out of England into New England, do bond myself as an apprentice for eight years, to serve William Pynchon, and the said William will provide me with meat, drink and clothing fitting such an apprentice and at the end of his time one new suit and forty shillings in money: subscribed this 28 October 1640."

What it was like to be an apprentice in New England in Colonial days is reflected in this 1640 indenture. In return for services to his master for "eight yeeres", all this apprentice received as compensation was "meat, drink and clothing" and the knowledge and skills of his craft.

The apprenticeship agreement which is used today is the modern version of this type of indenturement.

The conditions which promoted this form of apprenticeship deviated substantially from those we find in industry today. Most of the crafts for which an apprenticeship program was developed required considerable skill and judgment which could be acquired only through diligent use of the tools and materials of the trade under the watchful eye of a journeyman or a master craftsman. The shops, for the most part, were small. The relations of the master craftsman and his apprentice approached the complexity of the "father-son" relationship in today's society.

Though some apprentices were undoubtedly mistreated, the majority were not. At any rate, the techniques, arts and mysteries of a craft had certainly never been codified or written down, and even had they been, most young men entering into a profession were unable to read. Each shop had its own secrets just as we in the insulating contracting business today sometimes feel we have, and the entire concept of formal education or schooling was geared to intellectual and theological speculations on weighty esoteric and other worldly questions.

The idea of trade schools had yet to be developed. This pastoral concept of man and his craft, and, indeed, the uncomplicated nature of society in general was shattered by the advent of the machine age.

Shops grew larger until they became industries with two separate and often antagonistic factions—the owners and the laborers. Pride in craftsmanship on the part of the owner gradually became replaced with pride in growth. The close bonds, mutual respect, and

camaraderie that had existed between the owner and those journeymen and apprentices who worked under him were replaced by a determination on the part of the owner to obtain the greatest possible production at the least possible cost from the workers who were employed not by the owner but the owner's company. The pride in a job well done was not effectively transmitted to the worker. The dictum of the hour was "to do it quickly." This was the industrial revolution. Machines were employed to hasten production, products were standardized to enable a machine to do an increasingly larger portion of the production; and the humanistic relation between a man and that which he produced and a man and his employer were lost in the clouds of smoke and steam that rose over the factories of Western Europe and the United States.

In this period, apprenticeship reached its lowest ebb. Programs which purported to be apprenticeship would indenture a person for several years of labor at a pre-set bare, sustenance wage. The purpose was not to teach a craft, but to find someone to tend the machines. The rural community swarmed into the cities in an attempt to find jobs rather than to learn a craft. The flow of people vastly outpaced the increase in industrialization. Wages were so low that an entire day's work might be required for a man to meet the requirements for "health and efficiency". These conditions forced many families to indenture man and wife and all children over seven to work twelve to sixteen hours a day. Even so, thousands roamed the streets of the new cities unemployed. Because of disparity between the number of workers and the number of jobs, no thought was given to the type of work a man might be required to do, the safety of such work, the work environment, or to the worker's state of health. The laborer was no longer considered a person, but rather one replaceable portion of the process of production. Industrial accidents and death were considered merely one of the costs of doing business. These conditions were widespread throughout the United States.

It has been reported that some workers disappeared in meat packing plants, having fallen into vats of tallow. Their remains, along with the tallow, were processed into bars of soap, candles, et cetera. This lack of concern gave industry an odious reputation among the workers which, until recently, it continued to bear. It was also during this time that journeymen and apprentices banded together to form unions which violently fought what they termed "the oppressions" of the owners. The confrontations which followed the formation of unions were far more violent than those disruptions prevalent in our society today.

The pendulum in the following years, as you are all aware, swung far in the opposite direction to the extent that unions prior to Taft-Hartley act, (1946) and to a certain extent, even today, had and have almost as much authority over the owners and the means of production as the owner had over the labor-

ers and the means of production in this unenlightened past.

We are now in the age of the computer, of a rapidly advancing technology. More has been learned in the past fifteen years about the world around us and how to utilize the forces, the physical and social resources of our environment than was learned and recorded in all history up to and including the years of the Korean war. It is estimated that man's area of knowledge will double every ten years for the rest of this century—which is to say, the body of knowledge which man must handle, assimilate and learn to use in the year 2,000 will be eight times the total knowledge available today. I think it is not unrealistic to assume that the new materials and techniques which must be brought forth by this vast increase in knowledge will revolutionize our industry. If we do not plan now some method of transmitting to our work force this knowledge which, hopefully, we contractors will gain, we will see our area of activities shrink and eventually vanish, as contractors in other fields and as workers from other unions learn new techniques and learn the most efficient utilization of new materials in the areas of temperature control. This field of education is one of the purposes of apprenticeship and journeyman training programs.

History of the Insulation Industry:

The insulation industry, if you look at it in the same time spectrum as we looked at apprenticeship, is still in its swaddling clothes. It is true that materials have been utilized as insulation since pre-history. When man put on his first skin he was insulating his body; when he put rocks around his first fire he was insulating the fire to preserve heat; when the first hut was constructed it was as much a method of capturing the heat of the fire as a method of protecting early man from the elements. But the first cognizant use of insulation did not occur until it became economically important for man to conserve heat efficiently, or until it became important that man protect himself from being burned during the transmission of heat, such as steam engines, et cetera.

So, you might say that the insulation industry was formed as a direct outgrowth of the steam age which began in 1776—the age of mechanization. It is an understatement to say the first insulations were crude. The temperatures and pressures involved in early steam engines were relatively low by modern standards. 300°F. and 50-pound pressure was a truly exotic environment in the early 1800's. Coal was cheap, water was plentiful; and the early steam engine was so notoriously inefficient that the loss of a few thousand BTU's between the boiler and the steam engine proper was a matter of little or no consequence. The first industrial use of insulation of which I am aware occurred with early steamships. This material was applied solely to prevent operating personnel from being badly burned and consisted of various materials; such

as old rugs, rags, waste wool, cattle hair and clay. Hairfelt was widely used, and one of the favorite binders was cattails.

In that day and time, it was considered more important to keep heat out of the engine room than in the pipes. Obviously, as steam power became more widespread and became more generally used in transportation and industry, the need for effective insulation materials became more obvious, and in the second half of the nineteenth century and in the early 1900's several insulation formulations were developed.

The first commercially produced insulation shapes, and, incidentally the first insulation to contain asbestos, were produced in 1866 by Robert Toope and were composed of asbestos fibers bound with sodium silicate.

The discovery of the heat insulating properties of magnesium carbonate occurred when Mr. Hiram Hanmore, who had been in the pipe covering business for many years, placed a block of magnesium carbonate which he was using to calm a sour stomach, on a hot stove, picked it up ten minutes later to discover it was still relatively cool and remarked: "This is going to revolutionize the pipe covering business." There is little doubt that Hanmore got the idea of its insulating qualities from the very light weight in proportion to the bulk of magnesium carbonate, and there is no doubt at all that his discovery did revolutionize the insulation business.

This material was initially mixed with chopped up, secondhand ship's rope. Due either to the shortage of ship's rope or the difficulty in chopping it up, waste silk was eventually substituted. The silk, in turn, was replaced by asbestos. The first patent for the manufacture of mineral wool was issued in 1877. This wool was manufactured from slag, a waste by-product of steel smelting and, alternately, from one particular type of limestone. The original companies involved in this particular type of mineral manufacturing were absorbed by Johns-Manville.

About 1927, it was discovered that the slags resulting from smelting non-ferrous metals were more stable and refractory in nature. These mineral wools were dark as opposed to the white, iron slag mineral wools. At this time, Eagle Picher, due to their past experience in the smelting of lead and zinc ores, looked to these waste materials as a source of income and started investigating the possibility of using their waste products to make mineral wool. By the end of 1930, Eagle Picher had in production almost the same full line of mineral wool products that are widely known today.

Though cork, in one form or another, had been used as an insulating material—chiefly as shoe-soles since Roman times, the discovery of the consolidation of cork particles into shaped forms by the addition of heat did not occur until approximately 1890. Even this

discovery was purely accidental, occurring when a girl using a tin cylinder to fill canvas bags with cork, allowed one of the cylinders to become clogged, dropped it into a dying fire and forgot about it. The next morning, the owner of the establishment, a Mr. John T. Smith, discovered the cylinder with the consolidated cork inside. Mr. Smith patented the process, which was utilized in the development of pipe covering for cold pipes. In 1904 the patent and plants involved in the manufacturing of this type of insulation were purchased by the Armstrong Cork Company.

The next real flurry of activity in the insulation industry occurred after the second World War with a large scale use of foamed boro-silicate glass. The technique for producing this material, originally developed in Czechoslovakia refined by Saint Gobain in France with further refinements by Pittsburgh Plate Glass and Pittsburgh Corning, resulted in today's product reaching commercial production in early 1951.

In 1946 the first commercial application of expanded polystyrene as a low temperature insulation was made. The basic techniques utilized in the production of rigid polyurethane foams were developed in 1946 to 1947. The development of superfine, light-weight glass fiber occurred in 1949. The introduction of both calcium silicate as a high temperature insulation and expanded silica, or perlite, as a high temperature insulation occurred in the early 1950's. With the exception of certain mirrored type insulations, which have not found wide acceptance in our industry, research since the mid-50's has been geared primarily toward the improvement of the performance of existing products.

It is, in a certain sense, unfortunate and ironic that we find ourselves on the verge of another quantum jump in the types of material which will be available for insulating purposes before we have truly mastered the techniques required to utilize efficiently materials developed fifteen to twenty-five years ago.

Asbestos Workers Union:

The most recently developed organization in our industry is the asbestos workers union. This union, a composite of ladders and pipe coverers was entitled, "Salamanders", when they associated with the Knights of Labor in the early 1900's. Without going into a history of this union, there are certain challenges, and even crises, which currently face the International Organization. As unions have become increasingly large and have combined into the vast, powerful organization which the AFL-CIO is today, union leadership has become increasingly impersonalized and union membership has become increasingly estranged.

The Heat and Frost Insulators and Asbestos Workers Union is among the smaller independent unions in the AFL-CIO. Costs of independent unions are immense. It is, in fact, quite possible that the general membership within the next ten years, if drastic revision in the size of the union is not undertaken, will

be unable to bear the expenses of continued independence. This could result in the merger of the Heat and Frost Insulators and Asbestos Workers into a larger union.

Potential candidates are the carpenters who already install nearly half of the commercial insulation produced in this country, the sheet metal workers who install another five to ten percent, or the roofers who five years from now may well install more insulation than the asbestos workers.

These facts make it appear that a large portion of the insulation industry may be slipping out of our hands. There is no question that we contractors can have labor agreements with every union which applies insulation. There is also no question in my mind that contractors who employ carpenters for woodwork, for construction, will have better relations with the carpenters union and will obtain higher quality men than any insulation contractor who might have a similar contract. I think it also likely that the sheet metal contractor who employs sheet metal workers to manufacture ducts will obtain more skilled craftsmen than the insulation contractor who also has a contract with the sheet metal workers. As insulation work is usurped by other crafts, it seems probable to me that insulation work will be absorbed by contractors whose chief source of manpower is derived from unions other than the Heat and Frost Insulators and Asbestos Workers.

The responsibility for this attrition in our area of work is only vaguely a concern of apprenticeship. The facts are that asbestos workers are more highly paid than their competitive union craftsmen and that their wages have tended to increase far faster than their productivity. The result has been a spiraling increase over the past fifteen years. To offset this spiraling application cost, mechanization has been introduced in some areas—an example of which is the spraying of urethane. This particular application has met formidable resistance from major insulation contractors and has met equal resistance on the part of the individual workers who either patently refused to become involved in the spraying of urethane or demand a premium wage for this type of work. Even had training programs been available, it is unlikely that many journeymen would have indicated any interest in learning the techniques of applying this material satisfactorily.

Contractors have spent considerable time determining why such a system might fail rather than attempting to develop techniques to assure that such a system would succeed. The result has been the emergence of new insulating contracting companies specializing in urethane spray applications, and the absorption by the painters' union and roofing contractors of a significant percentage of this work.

This is but one example of a field which has been exploited by others while we as an industry sat on our hands.

I have painted a rather bleak but unfortunately real-

istic picture. I feel, however, that apprenticeship offers us, at least, a part of the solution to the problem of regaining control of our industry.

There is method in my madness—in reviewing the past relations between employers and employees and in dragging up some of the problems I have mentioned. Too frequently, if an employer is asked what his labor problem is the only response is an unequivocal assertion on the part of the contractor that he has insufficient manpower to man a job properly. I am certain this is true, and apprenticeship can be a definite help in this area. But a problem of at least the same magnitude is that the men now employed are not motivated to take pride in their work, are not motivated to improve their productivity, and are not motivated to help the insulation contractor be competitive in the areas where he faces competition from other crafts and specialty contractors. This lack of motivation has at least two causes which apprenticeship can alter: One is a lack of education; the second is a lack of rapport between the contractor and the individual journeyman.

If the contractors do not have sufficient interest in their jobs and in the men working for them to ascertain that these men are properly trained to do the job to which they are assigned, to see to it that the workmen's health is protected properly, to establish channels through which workmen can ask questions, can voice grievances, and offer suggestions; if the workman can see no way in which his individual efforts to increase production and increase quality of workmanship will be noticed and acknowledged by management, if management habitually allows individual workers to violate or fail to live up to the agreements, it is not at all surprising that the worker will feel that the contractors have no interest in him personally and are interested only in completing a project. In brief, if the individual journeyman acts as if the contractor has purchased only eight hours a day of his time and none of his intelligence and his ability to produce, a great portion of this attitude is fostered by the insulation contractor.

It is important to remember that journeymen are human beings and respond just as you and I would. If we show an interest in the individual, praise his work when it is done well, reward him when he offers ideas which increase productivity, try to be fair in handling grievances, live up to our agreement obligations with regard to each individual, not just with the union, and insist that each individual journeyman live up to his agreement obligations to us, many of the problems we face will begin to take care of themselves. This change of attitude, like apprenticeship, bears fruit slowly.

Should we coerce and cajole the union into doubling its membership with men whose productivity is no better than the productivity that we see in the field today, the costs of application will not change and the opportunity we have of increasing our competitive advantage over other specialty contractors will have been lost.

An apprenticeship program is one area where management can take action not to gain control of a program, but to establish contact with employees which eventually will extend throughout the life of employer-employee relations. This is what an apprenticeship program can do for our industry:

1. **Increase unit productivity.** This is accomplished in three ways: (a) By giving the workmen a systematic, detailed knowledge of his trade and developing the requisite skills through diversified work experience, (b) by establishing the individual or personal contacts I mentioned; and (c) by providing the motivation for journeymen now in the field to update their skills and improve their productivity to match those of the apprentices who will graduate from this program.
2. **The creation of a skilled labor pool.** As candidates are selected for apprenticeship objectively on the basis of ability, and as education is standardized the quality of the labor force should become increasingly more uniform as the years go by. This particular facet can be speeded up if journeymen training programs are established concurrent with your apprenticeship programs which leads to:
3. **Predictability.** Most estimating systems of today are based on the average productivity of the work force in any given area at one particular time. There is always considerable doubt as to which men will be available for a job and, usually, if they are among the most productive and skilled you employ, then a quotation for this job will reflect this increased productivity. If there is some question, however, as to who will be available to run and perform the work, then a bid must take this nebulous factor into account and the quoted price will reflect this projected higher labor cost.

As you are well aware, factors such as these frequently determine who gets the work and depending upon the cost involved, the scope of work, or indeed whether a project is ever started if your bid is preliminary in nature. If contractors can rely on a predictable productivity, it is probable that pencils will be sharpened and within a given geographical area unit costs will decline which leads to:

4. **More contracts and an increase in our area of operation.** Every time a pipe is installed pre-insulated, a duct is internally lined, or a double-walled tank is installed in preference to a mass insulated tank, both the insulation contractor and the individual journeymen lose work, profits and wages. Such installations are generally based on economic factors. If apprenticeship can be utilized to lower overall insulation installation costs, engineers and designers will be compelled to take a second look at every project before adopting some system which effectively cuts us out of the picture.
5. **Management will have a voice in the labor market.**

As apprenticeship committees review and interview

applicants, management will have an opportunity to share in the decision of the choice of the kind of men that enter this specialized labor market. And, in truth, your future employees will be a reflection of your representatives' decisions on the Joint Apprenticeship Committee as to the quality of men you feel are necessary in this industry if we are to remain competitive throughout the next thirty years. All too often, labor demands stem from the lack of knowledge of economics and of the competitive forces in our area of the business.

It is my belief that every apprenticeship program we establish should include in its curriculum a course on economics which will help your employees budget and live within their wage scale and which will impose a realistic appraisal on the part of union members on the competitive and economic effects of every wage and fringe benefit increase which they might obtain through collective bargaining.

If such a program were effective, it is not unlikely that all productive workmen will insist that their fellow workmen produce efficiently or get off the job. I know this sounds fantastic, but it is a fact of life in England, much of Western Europe and Japan. This self-discipline leads to point 6, which is:

6. **Pride and workmanship.** Once the journeyman feels that he has a definite stake in the industry, that his productivity and his efforts will result in a better life for himself and his family, that his work must be competitive with other methods of temperature control, and that his individual production and that of his fellow workers is the prime determinant in the amount of work available and the amount of his annual pay, there will be something akin to a revolution in our industry from the standpoint of production.

The workman will and should feel that he is responsible for a large portion of the success or the failure of the insulation contracting industry and that his future success and benefits, or lack of same, are dependent upon what he and his fellow workers accomplish. Once this feeling of responsibility can be engendered and the individual can feel pride in his accomplishments and the successful carrying out of his responsibilities, if for no other reason than his increased interest in his work and his increased self-esteem, both the amount of work by each individual and the quality of that work will increase. I would hope, one day, that a man's value in the other workers' eyes and to the contractor would bear some relation to the quality of his work and his ability to be competitive with any other craft. These are some of the potential benefits of apprenticeship. And now on the problem of the responsibilities and obligations apprenticeship imposes upon all members of our industry, and some of my observations on how an apprenticeship program can be established.

Establishing and managing an apprenticeship program is a joint union-contractor association project which requires a great deal of time and a personal imposition on those involved in establishing this program.

The program itself offers both management and union increased authority and, correspondingly, increased responsibilities. It is this one point more than any other, the understanding of which is essential to the successful creation of any apprenticeship program. If I could point to any one characteristic which is responsible for the Houston program's immediate and rapid success, it is the fact that all members of the Apprenticeship Committee realized when they accepted the authority to establish and run this program that there were several serious responsibilities, the fulfillment of which would require hundreds of hours a year away from their families and jobs.

Management Authority and Responsibility:

So, entering into an apprenticeship program is not to be taken lightly. Briefly, the responsibilities and authorities are the following:

Management: That is, the contractors gain a voice in setting the qualifications they feel are necessary to perform successfully the work involved. In this way, the contractor has a equal say in not only the calibre of persons who will enter training and the trade, but actually to review the individuals and to determine who will enter the trade. Because this is done on an individual basis, it is inevitable that a great deal of personal involvement with the apprentices results. The contractor has a chance to get to know his men as they learn the craft and to try to convey to these men some of those values and ideas that he feels are important.

As curricula are developed, most contractors, I think, will find that there are vast areas of the contracting business where they have little or no knowledge. Since each member of the Committee is responsible for providing the apprentice with the well-rounded knowledge of the insulation application techniques, the individual contractor himself is forced to go to school. The result is, of course, a better rounded knowledge of all facets of our industry and the consequent increased ability to foresee both the problems and the unexploited potential of our industry. As a result of having to measure productivity and to compare one apprentice against another for evaluation purposes, the contractor will acquire a much more realistic picture of area manpower requirements.

If an apprenticeship committee recommends faster increased manpower, the chances of increasing the local membership will be substantially improved.

Union Authority and Responsibility:

The Union also gains advantages through an apprenticeship program. One of these is forcing the contractors to realize the difficulty of acquiring men capable of becoming skilled craftsmen. The second is the

opportunity to exercise objective criteria in the selection of men who are to enter the trade. This in itself gives the Union a third advantage by reducing the possibility of governmental or individual discrimination suits against the Union.

The fact that the qualifications for men coming into an apprenticeship program are generally high, and the fact that these men will be educated to a certain extent in economics, should eventually allow Union laborers and Union leadership to gain support for more responsible goals based on the trade and economic knowledge of the membership who have passed through an apprenticeship program.

If the apprenticeship program is successful, the result will be a skilled manpower pool which will, at last, give the Union the possibility of meeting its contractual obligations to provide contractors with skilled men as required, an obligation which few locals in this country can now fulfill and which, quite possibly, constitutes breach of contract on the part of the Union today.

This authority, enticing though it may be, carries with it responsibilities. Employers guarantee that they will exercise every effort to employ an apprentice in any job that they can logically be expected to fill. Each contractor contractually agrees to establish a systematic training program on his jobs which will provide apprentices in his employment with diversified on-the-job experience, and contractors are contractually obliged to adhere to Committee decisions and regulations—even if these decisions reverse company policy and the regulations cost him money. Obviously, the contractor must pay into the apprenticeship fund and, hopefully, each contractor will exercise every effort to cooperate with the apprenticeship committee and will dedicate some officer of the company to the responsibility of trying to improve his individual training procedures and recommending new ideas and new approaches to apprenticeship to the Committee.

The Union's responsibilities are just as broad, for the Union must exercise every effort to assure that apprentices are continuously employed even when work is slack and the contractual ratio is exceeded. The Union must sell the journeymen on the advantages to the Union and themselves of apprenticeship because journeyman cooperation in the field is essential if on-the-job training is to be effective.

The Union is solely responsible for seeing that those who successfully complete the apprenticeship program are taken into the Union Membership. Let me stress this is not a joint apprenticeship committee function, but a Union responsibility. It is the joint responsibility of the Union and the management to see that the individual journeymen, the individual contractors and the individual apprentices abide by the standards and regulations of the Joint Apprenticeship Committee.

Joint Apprenticeship Committee Authority and Responsibility:

The power, that is, the authority to accomplish all of these things, is vested in the Joint Apprenticeship Committee which is an independent power separate from the Union and the Contractors.

The second important reason for the success of the Houston program is that the committeemen from both the Union and the Contractors' Association have cut themselves free from their respective affiliations in every meeting of the Joint Apprenticeship Committee and have dedicated themselves to the well-being of the apprentices and the fulfillment of the apprenticeship standards. Many times, the actions of the Committee have caused serious problems both from outraged contractors and from furious independent journeymen. These problems are handled by the appropriate representative; Association members for contractor problems; Union members for Union problems.

It is almost inevitable that there will be loud protests from individual contractors and from individual Union members as they discover that the Joint Apprenticeship Committee has power, has an area of authority, and that the Committee intends to exercise this power in the best interests of the apprentices rather than in the best interest of either the Union or the Contractors. One thing results from this baptism of fire; the individual committeemen are drawn much closer together and the resulting increase in communications between Union officials and the Association spills over into other areas of mutual endeavor. This has resulted in the Houston area in the best overall Union-Association cooperation yet achieved.

If you develop the feeling in your committeemen that your apprenticeship program comes first, regardless of the consequence, you cannot help but have a successful program. Without this feeling, it may be difficult to establish a program.

Apprentice Authority and Responsibility:

In taking applications for the Houston program, we interviewed over 200 candidates and some of our observations concerning these candidates might be pertinent. These are some of the questions we asked after our interviews were completed:

1. Where does the typical applicant come from?

The largest source of applicants were relatives and friends of men already in the Union. Many of these men were working in the field on a "permit" system we have in Texas which is a right-to-work State. These men had built-in advantages, of course, for they had some trade experience; knew the nature of the work, and had decided that they liked the work.

The second largest source came through our solicitations through employment agencies and the local school board.

A third potential source of applicants which we

contacted, and which I must admit were relatively unsuccessful as we received only two applicants from this agency, is the E.E.O.C. and Houston's Outreach Program.

A fourth potential source is the Armed Forces. We would anticipate highly qualified, intelligent, well-disciplined applicants from this source, and we would heartily recommend investigation of this area.

2. The second question was asked is, "What motivates one of these men to become an insulator?" The most frequent reason was wages. It is no secret that the average journeyman makes in excess of \$10,000 a year. It is, therefore, not unreasonable to say that gaining entrance into this trade should be deemed a privilege, and if any apprentice isn't willing to devote himself to gaining entrance into the Asbestos Workers' trade, there are others who will take his place. The second and third reasons were the apprentice's desire to work outside and to work with his hands. The fourth reason is the relative lack of afterhour problems connected with the job.

We found that most of our candidates were earnest in their desire to learn and, generally speaking, were quite concerned about security and continuance of work. One attitude that I think is perhaps new with the generation of men we were interviewing is that almost every man felt if he did his job properly, he had an absolute right to a job. The apprentice feels that he has certain rights—among these is the right to be exposed to all facets of the trade; another is the right to some representation before our Committee; third, is the right to bring grievances before the Committee; fourth, is the right to know the rules and regulations of the Committee prior to entering the program or, if the rules are new, prior to their being in force; and fifth, to know the committeemen and to know his employer.

The Joint Apprenticeship Committee feels that these are legitimate requests. We also, however, have imposed certain responsibilities upon the apprentice and should he fail to live up to these responsibilities the apprentice faces immediate expulsion from the program. Among these are:

The apprentice must learn all that is presented to him. The apprentice must know and, without exception, comply with the rules and regulations of the Apprenticeship Committee. The apprentice must be productive on his job and in the classroom and must, without complaint, apply himself to whatever task his employer assigns to him. The apprentice must share the knowledge he gains with others and attempt to make the program a success not only for himself but for his classmates and for the industry—and finally, the apprentice must think, must ask questions when he doesn't understand and must offer suggestions when he feels he sees room for improvement.

I have mentioned the Houston program several times, and I hope you realize I do not think Houston has the only successful program in the industry, but rather it is the program with which I am most familiar.

Summary:

Apprenticeship can and should increase the productivity of every man working in the field, not only those in the apprenticeship program; provide a pool of competent insulation applicators to man adequately the average workload of a given area and promote the idea of "industry" and joint labor-management solutions to the problems our industry is compelled to solve.

I do not believe I am exaggerating when I state that if productivity is not increased, if new markets for new insulation materials are not exploited by the insulation contractors and the asbestos workers, and if competent, adequate manpower is not provided by the Union and as nearly as possibly continuously employed by the contractor, our sphere of activity will diminish and eventually atrophy into non-existence.

Apprenticeship is not the only approach to accomplish the above mentioned goals. It is, however, one method which has proven itself and of which we, as an industry, have not taken advantage.

Manpower mobility and homogeneity of knowledge

among craftsmen in different parts of the country are required if we, as contractors, are to enjoy continued success.

For these and many other reasons, it appears that apprenticeship should be approached first on a national basis with the establishment of certain basic standards, teaching aids and a well-defined criteria of that knowledge which must be acquired by an apprentice during his apprenticeship.

It is hoped that within the next year IDCNA and The International Association of Heat and Frost Insulators and Asbestos Workers will form a National Apprenticeship Committee capable of providing sorely needed guidance in the formation of new programs and the administration of existing programs to local apprenticeship committees.

The ideas and the help of each contractor, asbestos worker, and the directors of existing apprenticeship programs are urgently needed to assure that when your association and the International Union take the first step in establishing a National Committee, our movement will be in the direction of growth and increased cooperation which will be beneficial to both organizations.

In a future issue: "Procedures for Establishing an Apprenticeship Program."

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**Condensed Program
IDCNA 14th Annual Convention
Mt. Shadows Motel—Scottsdale, Arizona
November 1-5, 1969**

Saturday, November 1

IDCNA Board of Directors Meeting
IDCNA Budget Committee

Sunday, November 2

IDCNA Standing Committees Meeting
Suppliers and Associate Members' Meeting
AICWS Board of Directors Meeting
Workshop Discussion Leaders Meeting
Welcome Reception (6:00 p.m.)

Monday, November 3

General Session

NIXON'S LEGISLATIVE PROGRAM

The Honorable John J. Rhodes
Congressman (R) 1st District, Arizona

THE NATIONAL JOINT BOARD

William Cour
Chairman, National Joint Board for Settlement of Jurisdictional Disputes

"WHERE ARE WE NOW?"—A WORKSHOP

Moderator—Professor Ben A. Lindberg

AICWS Membership Luncheon

IDCNA Board of Directors Meeting

Western Skies Steak Fry

Western Show—"Guns for Hire"
Square Dancing

Tuesday, November 4

General Session

THE UNION TODAY

Albert Hutchinson
President, International Association of Heating & Frost Insulator and Asbestos Workers

"WHERE DO WE GO FROM HERE?"—A WORKSHOP

Moderator—Professor Ben A. Lindberg

Golf Tournament

President's Reception and Dinner-Dance

Special: Indian Ceremonial Dances

Wednesday, November 5

General Session

WHAT MAKES AN EMPLOYER-ASSOCIATION EFFECTIVE IN LABOR RELATIONS?—Panel Discussion

Moderator—K. M. McCaffree

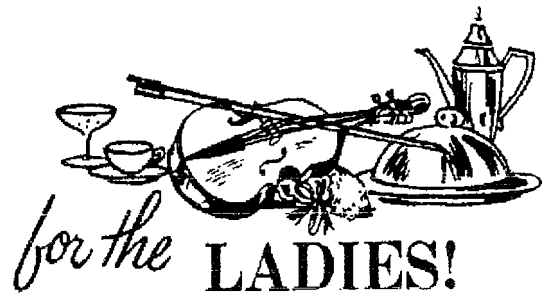
Report by Committees

Reception—Associates' Members Display Luncheon

"OUR CHANGING ENVIRONMENT"

Dr. C. J. Roberts

IDCNA Board of Directors Meeting



Sunday, November 2

Welcome Reception—6:00 p.m.

An opportunity to meet with the other "girls" and their beaux and to renew old friendships

Monday, November 3

Shopping Tour

You will be able to browse leisurely through some of the most unique shops in the world

Western Skies Steak Fry

The hospitality of the "Old West" will be in evidence this night. A grand feed, a real shoot-out, and square dancing will make this an evening to remember

Tuesday, November 4

Taliesin House

This world famous home was designed by architect Frank Lloyd Wright and attracts visitors from the four corners of the earth. A visit you can't miss.

Fashion Show

Some of the West's most beautiful fashions will be paraded before you—a mixture of color, styles, and designs that will thrill and delight you.

President's Reception and Dinner

This annual event will feature a colorful and exciting presentation of Indian Ceremonial Dances complete with authentic costumes. The beat of one of the Southwest's most popular orchestras will provide the music for your dancing.

Wednesday, November 5

Reception and Lunch

"Our Changing Environment" in the subject of a talk by Dr. C. J. Roberts. This presentation will surprise and awe you as Dr. Roberts explains how our lives will be affected by what is happening today.