Jan. 11, 1939 From Munich to Lima; by Col. C A Seoane, SC

This lecture is not available

736

THE ARMY INDUSTRIAL COLLEGE
Washington, D. C.

Course 1938-1939

CONSTRUCTION IN WAR

Arthur C. Tozzer,
Vice President, Turner Construction Company,
New York, N. Y.

January 12, 1939.

AIC 134 (1/17/39) 12 ar

CONSTRUCTIO IN WAR

The present state of world affairs and the necessity for preparedness as expressed by the President in his recent messages to Congress makes more important than ever a better knowledge of the Construction Industry, which will play an important part in any program of defense.

In each of the past two years I have addressed the College, my first subject was "The Construction Industry", and last year I spoke on "Construction Problems Incident to War Emergency". This talk today, while titled "Construction in War", is really supplemental to the others.

It would seem well to again define the Construction Industry in its broadest definition, the Construction Industry encompasses everything from the original source of materials to production, fabrication and transportation, and involves the problems of finance, design, labor, management and finally the assembling of all these elements into a finished structure.

This definition brings out the ramifications which must be considered when studying the functioning of this Industry.

Experience always is a great teacher so that it will be well first to consider -

A. A Brief Review of the Functioning of the Construction Industry During the World War

The World War construction program furnished the only real test as to capacity to perform that the industry has ever experienced and prior to that time very little was known concerning the scope of the industry or the number of units operating in it. This situation is well known to all who had experience in arranging for the construction needs of the Government during the prosecution of that war. It was the utter lack of information and knowledge concerning the Construction Industry which gave rise to formation of the Associated General Contractors of America in 1919. Later, during the I.R.A. period, the A.G.C. took aggressive leadership so that now this Association has accumulated a considerable volume of information regarding the processes of the industry, the number of units operating within it, some knowledge of the capacity of these various units and a large store of

data concerning its problems. This knowledge is available to the Government.

Though the War Industries Board had general charge of the emergency program in regard to the functioning of all industries during the War, each Federal Department had its own Bureaus or Divisions dealing with Construction matters. The Division set up in the War Department found it necessary, as one of its first duties, to establish a sliding fee type of contract which would be equitable and fit emergency needs. On the whole this type of contract proved satisfactory.

Labor, in World War days, was unionized only in the Building Trades in the larger centers. The supply of workmen on the whole was ample although in highly active localities a shortage of skilled mechanics did develop in some lines From personal experience as Director of Construction of the Army Supply Base in Brooklyn, a $27,000,000 project, our labor problems as such were nothing compared with what we may meet today on a very much smaller operation.

The furnishing of materials for these war contracts did present some major difficulties. If it had not been for the judicious use of "priorities" in the production of raw products, plant fabrication and transportation, it is certain the program would have been very seriously delayed.

Wisely, the award of a general contract was generally made to one construction company for an entire project. If the contractor selected proved capable and experienced, he was able to relieve the officer in charge of much detail work of planning and organization. It is a general builders duty on any operation to coordinate and schedule the operation in its entirety, thus the selection of a general contractor capable of doing this was most essential. The selection of the proper concern, as can well be imagined, was one of the awarding officers most difficult duties, and during this period, with very limited information regarding contractors available, it was especially so It developed in some cases that while a construction company had a "name", it had little or no organization immediately at hand to properly and promptly study and handle a specific operation as it should be, which necessitated the employment of new outside directing executives and assistants. This proved expensive in time and money.

The great number and size of war contracts threw such a sudden and additional financial load on the contractors that it was quickly evident that prompt payment by the Government for labor and materials contracted for was essential. If

contractors had only been paid monthly, less reserve, as is generally the method on private work, the whole war program would have been seriously menaced.

From one who was very closely connected with World War construction problems as operated in a number of Governmental Departments, I will say that the past certainly has taught us a great deal, and very much of what we have learned is applicable for use in the future.

Now that we have touched briefly on the past, let us look to the present and future status of Construction.

B. A Resume of the Present Status of the Construction Industry.

1. Construction Facilities Employed.

Most of the construction facilities, by which is meant construction firms, are only fairly well occupied and excepting a relatively few they are far below their capacity according to past standards. Private construction is slow in starting while public work of all kinds is on the increase and if the preparedness program goes ahead this class of work will be further extended. The total volume of 1938 contracts awarded is estimated at 3½ to 4 billion dollars, while the capacity of the entire industry at present is easily ten billion dollars volume per year.

2 Present Labor Situation

It is to be anticipated that the present public program as it gets further under way and private construction revives will develop shortages in certain trades of mechanics due to the fact that few new mechanics have been trained during the last ten years and others have passed on or have entered other lines of employment. Labor unionization is still on the increase and the controversy between the C I.O and the A F. of L. continues to cause some delays and interruption to work, principally because some lines of materials are produced by workers affiliated with the C I.O., and in some areas certain A F. of L craft unions refuse to handle such materials. Also, in some instances, where a contractor has been engaged to construct a project for an industrial plant which has been organized by the C I.O , the contractor has encountered difficulty in bringing in his own forces because such workers are A.F of L. affiliates. The Building and Constructio trades have very few C.I O. members at present.

Personally, I believe that before this dual union fight becomes a serious menace to production, peace between the Labor groups or government intervention will take place. In case of emergency certainly interruptions of this kind will not be tolerated.

The operation and enforcement of the Wagner Labor Relations Act on the site of construction projects has not really had a tryout Except in a very few instances, the Labor Relations Board has not attempted to take jurisdiction and in these few instances the questions involved are rather minor and apparently were straightened out without resort to formal hearing or prosecution. This does not mean, however, that difficulties because of this act may not be in store but rather that the Labor Relations Board was occupied with other matters involving larger groups of employees.

The Fair Labor Standards Act of 1938, commonly referred to as the Wage and Hour Law, went into effect in October. This law, at the present time, is causing considerable confusion in the construction industry, due to the fact that it is not known definitely whether construction operations at the site are embraced within the terms of the act, that is, whether or not they can be construed as being in Interstate Commerce. The Administrator has issued Interpretative Bulletins indicating his belief that certain classes of construction are within the act, particularly reconstruction and maintenance operations on any project which may be used in connection with the production of goods or the movement of goods in Interstate Commerce However, the Administrator has continually pointed out that he is not authorized to interpret the act officially except for the purpose of guiding his own administrative forces and has stated that his interpretations are subject to change by court decisions. Therefore, until such court decisions have been handed down or Congress has taken steps to clarify the act, this confusion is bound to continue

For the great bulk of construction workers, the minimum wage as fixed by the law and the maximum hours established, cause no particular hardship because most construction workers are paid far over the minimum wage and the hours worked are usually fixed by union contracts and are less than the maximum fixed by the act. However, there are many salaried employees receiving good salaries whose hours are very irregular due to the nature of construction and their situation is still uncertain.

The regulations of the Administrator also require the keeping of detailed records as to the time worked each day by each employee and the amount paid for time worked for the first 44 hours and the amount paid for work in addition to 44 hours, as the law stipulates that time worked in excess of 44 hours must be paid at the rate of time and a half.

In addition to the violation penalties as set up in the act, every employee is given the right to bring an action against the employer for the difference between the wages actually paid and those required by the act, and for unpaid overtime compensation, and, if successful, the employer is liable to the amount claimed, plus an equal additional amount as punitive damages, and the employer is also liable for the cost of the action plus reasonable attorneys' fees. There is no time limitation as to when such suits may be brought.

It can be seen, therefore, that this new law has complicated the labor problem and it still remains to be determined whether or not this Industry is under the act.

Jurisdictional disputes, that is disputes between two or more craft unions as to which should perform a given part of the work, still remain a major problem. Several years ago, the Building and Construction Trades Department of the A. F. of L. established a plan for the settlement of such disputes, providing that pending settlement of the dispute the work should go on without interruption, and that provided the question could not be settled locally it would be submitted to the President of the Building and Construction Trades Department. His decision of the particular question on the particular job would be adhered to, pending final decision, on appeal of the Arbitrator who is permanently employed by the Department under the plan, the Arbitrator's decision to be final and binding on all work of the same nature in the future. Unfortunately, this plan has not proved successful for the reason that few disputes were submitted to the Arbitrator for such handling. Just recently the services of the Arbitrator were terminated and at the present time this position is vacant, so that the plan which is still officially in effect has become a dead issue.

These disputes in no wise involve the employer except that they delay the progress of the work and cause financial losses both to the Owner and the Builder. As the contractor is not a direct party to the dispute, he is not in a position to attempt to settle it. Various employer groups are insisting that labor find a prompt solution of this most important curse and are recommending creation of a board of review with em-

ployer representation for this purpose, similar to a plan which existed previous to the present set-up. Labor, although cognizant of the seriousness of internal strife to their own organization, does not seem to be able to cope with the question of jurisdictional disputes. If Labor with the aid of employers cannot find a solution to this problem, the Government will be forced to step in.

3. Materials Required and Availability Thereof.

At the present time, the construction industry is getting into a period of accelerated activity due primarily to the stimulant of the P.W A Program, under which approximately a billion and a half dollar program has been placed under contract within the last three or four months.

Industrial construction, as well as commercial, although badly lagging, is increasing somewhat in volume due partly, I believe, to the amendment of the tax laws by the last session of Congress which modified the tax on profits used for capital improvements.

In the field of housing, there is an increase due greatly to the Federal encouragement, given in one way or another, to home construction, notably the program of the United States Housing Administration which is at last getting under way and the F.H A. Program continues to be a stimulant to ordinary residential construction, with the Administration giving evidence of an intention to accelerate further this program.

The present outlook in the construction industry is, therefore, considerably better than it has been for some time, although it cannot now be expected that the construction volume for 1939 will come close to equalling the volume of the years in the late twenties.

There is no present indication that any shortage of materials is to be expected. While many sources of raw materials have been closed down since the depth of the depression, there still remains an adequate supply for any program now in anticipation, and it is to be expected that additional sources could be tapped without much difficulty or delay.

4. Management.

The management facilities of the construction industry at the present time are not as great as they were ten years ago

many firms have passed out of existence due to the depression and others have been forced out by reason of operations of W.P.A. In going into the Construction Business, this encroachment by W.P.A. has especially affected small municipal contractors, much of whose market has been taken from them. However, most of the larger firms have managed to survive although their management personnel has been reduced in proportion to the volume of work available. It can be stated, however, that these management facilities can in many cases be readily expanded by existing firms as increase in business warrants However, only those firms which have maintained their position in the industry during the slump are in a position to act promptly and efficiently in an emergency.

5 Finances.

The finances of construction companies obviously have suffered during the period of depression. Most firms for a time kept larger forces on their payrolls than was justified by the amount of business on hand, necessarily eating into the available capital, but this period of excess organization is now over. Competition for the limited amount of work has been so severe that the desire for work has resulted often in unsound bidding with the result that the job showed a loss instead of a profit. This cut-throat competition has greatly affected the financial position of many contractors and has been especially fatal among sub-contractors.

Even in cases where a particular project may have proved profitable, under the undistributed profits tax provisions of the Revenue Act of 1936 it was impossible to rebuild working capital except at a heavy penalty Likewise, the banking structure has seen vast changes and it is necessary for most all construction organizations to reform their lines of credit and generally these lines of credit are now curtailed as compared with the situation previous to the depression. This condition accounts in a way for the fact that on many of the larger Federal projects a number of firms have pooled their resources and have taken the projects as joint ventures

6. Transportation

No present difficulties have been encountered with respect to transportation We all know that the railroads are in bad shape financially but up to the present, at least, they have been able to satisfy the physical needs of this industry.

The highway transportation facilities ha e been increased and an increasingly larger percentage of construction materials are moving over the highways Therefore, from present prospects and unless there should be a complete breakdown in the railroad structure, it is not anticipated that important difficulties will be encountered in connection with any program now in view, either of an emergency nature or in preparation for the meeting of an emergency.

C A Statement of Expected Problems During the Transition Period from Peace to War.

Obviously, the magnitude of these problems will depend almost entirely upon the extent to which the construction industry is commandeered in event of war. On the presumption that the entire industry would be materially affected, the first problem is to know which classes of projects, both public and private, underway at the time, are to be permitted to continue and to receive priority classification, and which must be suspended or curtailed as being non-essential to the emergency.

It must be considered that a contract is a binding obligation between the Owner and the Contractor The contractor in turn has binding obligations with others with whom it is necessary for him to deal, either subcontractors or furnishers of equipment and materials. If a going project is deemed essential and should have a priority rating, it is necessary that all concerned have this information at the earliest possible date, so that the Owner and Contractor may know the status of their work and also that the contractor may be placed in a position of authority in informing those who are performing for him. If, on the other hand, the project is determined as non-essential, then a plan must be worked out whereby appropriate notice may be given to all affected parties and, by means of some form of official action, the contract obligations may be suspended or curtailed without undue loss to the parties involved. Also, sufficient latitude should be provided so that the work in progress can be adequately protected so that the portion already performed on such projects will not be unduly damaged or ruined through such suspension.

It would also seem necessary that the status quo of the industry should be preserved for a limited period during transition, otherwise it can be anticipated that a most chaotic condition would result, such as the leaving of projects

by employees, the failure to continue to supply materials and equipment, etc. This transition period offers probably the most critical phase of the whole problem and to minimize undesirable conditions, an infinite amount of planning, coordination and cooperation will be required. I am certain that the construction industry will give every cooperation. Speaking for the general contractors, as represented by The Associated General Contractors of America, I know that through this organization they are giving every possible cooperation that has been either requested or suggested.

D A Projection of the Construction Industry Into War Conditions As of the Near Future.

1. Construction Facilities to be Employed.

Construction organization must, of necessity, be flexible from the stardpoint of the size of management facilities. As has already been pointed out, many construction organizations are no more and others have reduced their organizations materially. However, it is not anticipated that any great difficulty would be encountered in recruiting these forces to meet any needs. With respect to equipment because of the low volume years since 1930, construction organizations generally have not carried the stock of equipment or replaced old equipment with new to the same degree as heretofore. On the other hand, new equipment is much more efficient and designed for increased capacity. In case of a vast emergency construction program, it is probable that a considerable amount of older equipment would have to be utilized.

2 Labor

Without a doubt, the greatest problem which must be met in the event of war would be the handling of labor. Labor legislation placed on the statute books within the last six years has given labor an independence not heretofore experienced. Full opportunity has not yet been had to digest the effect of all these measures. We do know, however, that it was the evident object of this legislation to grant greater latitudes to labor and, conversely, to curtail the rights of management in connection with labor, and the law is certainly working in this way. Most important, these laws do not contain provisions for their suspension in case of an emergency. The ability of construction to produce in an emergency will be measured primarily by man-power and the expeditious use of this available man-power.

Through Governmental encouragement and official stimulation by labor organizations, the hours of work have been steadily reduced, wages have been increased and penalty overtime rates placed in effect for work outside of certain stipulated hours. In a major emergency where available man-power is going to be the controlling factor, it is highly essential that it be possible to work this labor to the very best advantage, regardless of the unions which may be involved. It is most essential, therefore, that the full cooperation of organized labor be obtained in order that regulations which labor might deem necessary to its purposes during peace time will not stand as a handicap to production during war.

3. Materials Required and Availability Thereof.

The adequacy of materials and their availability in the event of war will depend primarily upon the location of the construction contemplated as necessary to such an emergency.

If the construction activity is distributed generally throughout the United States, no great difficulty is anticipated, as such a condition would make possible the utilization of local materials and supplies, as well as those coming from more distant points. However, if construction is concentrated in a few areas, the proposition will become more complicated by reason of the transportation problems involved.

Priorities in regard to supply of materials should, of course, be established as conditions warrant.

4. Management

In order that a given project, regardless of its magnitude, may be properly coordinated, it is highly essential that a single construction organization be in complete charge of such management. The firm assigned to a given project should be fully familiar with the type of work at hand, should have past experience on a project of the scope and size of that to which it is assigned and have broad information and contacts with the available suppliers of materials and necessary equipment. Smaller constiuction firms can be used to excellent advantage for different parts of the work but their efforts should be coordinated through a single head and all supplies, materials, etc should be handled and scheduled through it.

Laws enacted in the last five and six years have complicated the problems of management materially and the matter of mandatory record keeping is no longer a minor item. The national Social Security Law and the State Unemployment Compensation Laws, the Fair Labor Standards Act of 1938, the various sales and use tax laws enacted by the separate states, all require an infinite amount of detailed record keeping, and these records are subject to investigation for varying periods in the future. In addition to these, there are a great many reports which must be made periodically and in some instances reports for each individual employee must be kept. This situation is an important consideration as it must be fully contemplated in connection with the contractual arrangement to be made between the Owner and the Contractors, and it should be recognized that what heretofore might have seemed to be an unjustifiable number of clerical employees and accountants are now obviously essential if the contractor is to comply fully with the provisions and regulations pertaining to these enactments.

5. Finances

As already pointed out it has been necessary to make important changes in the financial structure of construction firms, as well as all others. There are still a substantial number of construction firms that are well financed which could reasonably be expected to handle a large emergency construction program but in all contract awards current financial rating must be given consideration However, lines of credit are not as easy to establish or expand as once was the case. It should therefore be contemplated in connection with emergency contracts that the contractor be reimbursed in full as soon as possible for expenditures made. The accounting procedure should be simplified and someone at the site should be authorized to pass finally upon the sufficiency of the evidence as to such expense presented by the contractor and be empowered to make reimbursement promptly without the necessity for approval to come from Washington.

6 Transportation

Based upon the experiences of the last war, transportation problems again become most important in the prosecution of an emergency program. Here again priorities must be established and full coordination must exist all along the lines. Consideration must be given to the fact that the railroads are in a precarious position and have added but little to their facil-

ities for a considerable period of time. Fortunately, since the last war, highway transport facilities have been greatly increased and will, without a doubt, prove of greatest advantage in an emergency. However, it must be anticipated that trucking facilities, that is, the hauling units themselves, would have to be increased in number very rapidly if the full possibilities of highway transportation were to be realized.

While I have endeavored today to touch the high points of the Construction Industry in passing from peace to war conditions, I have not referred to the importance of coordination and cooperation between various Government departments dealing with this Industry. Neither have I discussed in any detail the type of contract, method of selection of contractors and subcontractors, preparation of plans and specifications involving the question of selection of outside architects and engineers, accountancy methods, supervision and inspection, etc. Most of these subjects which are essential in a broad study of the Construction Industry incident to war I covered in my address last year, to which I would refer you, as really this talk, as I stated in opening, is supplemental to that.

Many points I know are in your minds, and with Colonel Miles' permission I am going to ask you to fire questions at me which either Mr Foreman, Assistant Managing Director of A.G.C., or I will answer to the best of our ability.

Carbon furnished 143
Mr. Tozzer 2/27/39

Discussion Following Lecture by
Mr A C Tozzer
Vice President, Turner Construction Company
January 12, 1939

Q Last year you spoke about the self control of industry. During the construction of the C C C. camps, due to the fact that time was an element, in each locality the Government went into the prices of material immediately went up. Do you suppose that the industry itself could control those prices in the next emergency, provided everything else was settled?

A I can cite the emergency of the hurricane up in New England, which is fairly recent. In New London, which was hit as hard as any city, we were called in there by two or three concerns for whom we had done business, and we went up there as soon as we could We found such materials as lumber for roofing had soared to a terrific height, but even before we got there the mayor had those prices down He didn't use marshal law and he didn't use his governmental office to do it, it was just by mere publicity of a proclamation. Those prices went down to the retail price where they were before the hurricane. Of course everybody was sold out in two days or less. In other words, it was popular opinion that kept those prices down. If the thing goes throughout the country I think the Government has to do something, with the aid of the various manufacturing industries and suppliers of material, to clamp down a base which will have to be maintained. You can, of course, establish it by enactment of Congress or law, but that takes a good while. You will find that public opinion goes a long way on a thing

like that. It cured the situation up in New England and that was critical up there because, as you know, New London was absolutely cut off from the world, roofs were off houses and people had no place to live, and I think that that, together with a proclamation of some sort, will put industry on its guard and it will have to protect itself. Of course it would be contemplated what should be set up beforehand, not the schedule,but the method of approach would all be part of the study which is presumably being made over these years to meet an emergency.

Q Do I understand that in the event of war you would be unwilling to take large construction jobs except upon a cost-plus basis?

A. What other basis could you take them on? You want to give us a contract Well, what is it? I don't know.

Q I am assuming that you have your specifications.

A. If you have your plans and specifications, I don't call that -- that may be emergency work but that work can be let out on a contract basis.

Q. Fixed price?

A. The Government has to stand back of that contractor to guarantee that his prices that he is paying for his material are not going to be jacked way up and that someone else who thinks his job is a little more important and has a priority will get his material on the first job away from the second fellow so that the second man might not be able to perform. He might have his labor taken to a job which is considered more important. In the World War we had contracts directly with the Government, we had them with the Navy Department I can think of one

specifically, but that contract wasn't half as important to the Navy as getting some material out of a plant which was a private industry That private industry got a priority ahead of direct work for the Navy Department. So when you ask us, "Can you take a contract", I say that we can take it if we can be guaranteed uninterrupted and fair service on the procurement of material and the price we have to pay for it If it can be regulated so prices can be fixed and you can guarantee them, well and good But it is very difficult to do that in an emergency because everybody's job is the most important, and therefore I mention priorities repeatedly, and priorities are the only thing which keep the importance of jobs in line.

Q. Assuming that this is a Government job and you are going to get priority, you are faced then with two elements, possible increase in the price of labor and material, is that it?

A. Not only that increase in the price of labor and material, but the difficulty of procuring labor or material. The major portion of your work, as I see it, will be along the Atlantic seaboard That is a concentrated area, which I referred to, where material will be at a handicap Suppose you are in a place where there are three or four other operations and you want a lot of material The local material has already been ordered up by the prior jobs or by jobs which have a first priority on them. Then you come along and have to bring your material in from the outside That costs more and it is also likely to delay the operation It is a very difficult thing, in my mind, to think of awarding much on a contract basis after you are in the real emergency, because you are

just absolutely at the mercy of everybody else However, when the emergency is here the picture is absolutely different

Q Since this question of contracts has arisen, I would like to say a word in favor of the cost plus contract. When the war broke out I was with a good-sized construction company We were doing considerable work for the Eastern Manufacturing Company, a paper concern, and we were doing it strictly on a cost plus basis. I think that even in peace time the cost plus basis is a good way to handle a construction to get away from cut-throat competition You bring a construction organization into the picture and you pay for the organization's expert knowledge and experience, and provided you handle it rightly I think it is still the most efficient way to do, and it is the only way to handle war-time construction I was wondering what your idea was on that

A I agree with it in general only I want to say that anybody who has been through the mill at all knows they should not use the term "cost plus " The term "cost plus" queered the entire program There was hardly a project for the War Department that amounted to much that wasn't investigated, and the cost plus element was most criticised. Therefore, call it a fixed fee. A fixed fee is a certain amount of money for so much work, but there is not much incentive to a little fellow down the line to be extravagant and buy his material regardless of cost because the cost plus immediately thinks that if he pays ten dollars more for it per unit he will get a little more profit and in the fee that is all absorbed in the buying picture I think the thing which ought to be done is to

keep to the fee type of contract if possible rather than the cost plus. I think you will run up against terrific criticism from the standpoint of the public and the standpoint of the politician that there is wastefulness, and we can sell today a fee contract as we are selling right along, but if we mention the word "cost plus" it just doesn't go.

Q. I am talking about the principle. You make an estimate of what the job is going to cost and that estimate is the basis, the superintendent's estimate or somebody else's, as to what that is going to cost. Maybe you give him a bonus for coming under that figure, maybe penalties if too high. The main trouble during the war was the Government lacked that long range planning. Some were getting time and a half or double time on Sunday and then were laid off Monday or Tuesday, and you weren't getting the job done any faster. You had contractors bidding against each other. If you have the proper long range plan your material prices ought to be reasonably fixed.

A If you have competitive bidding you are also up against the proposition of a contractor bidding on something on which he may not be experienced enough to bid intelligently and he is likely to be so low in funds that he can't carry through the contract It becomes a losing venture for him The greatest trouble with a lot of these Government contracts, and private the same way, is that they will get a range of bidders and give it to the low fellow, and the low fellow just folds up He hasn't the capacity or financial backing to carry through his contract So although it is on the statute books, Government state work doesn't

have to be awarded to the lowest bidder if you have sufficient other reasons. There are very few times on account of the criticism which arises, but in an emergency, as I said, you don't have the information, very often, in sufficient shape to even bid on because they want the thing tomorrow. They want the job done the next day In other words, the emergency is on top of you.

I want to touch on one thing which I didn't touch on only briefly before, - the question of the supply of labor, and the attitude of the A. F of L. The construction industry doesn't deal with the C.I.O , except perhaps in a few isolated cases throughout the west or south, but the A.F. of L. for years has been the body we have dealt with. Of course during the next war, at least in all the popular centers the men will have to be unionized There is no question about that, and is the union going to take anybody in overnight whether or not skilled and therefore very poor efficiency, or should they, with the emergency as one of the reasons for the dropping off in number of memberships, do something about the filling up of the ranks for the depletions which have occurred due to people going to other industries, death, infirmities, etc.

This chart which I have used a good deal is one I made up on the study of apprentices in New York City. We have had the feeling for the last three years that the construction industry in certain places might not be able to meet the demands put upon it as far as man power is concerned unless new men are brought into the various crafts. We have had very slack times, to be sure Before the depression started we had a

very elaborate scene there of apprenticeship training A boy got experience out on the job and then he went to night school to tie up with the Board of Education for vocational work and arrangement with the associations and individuals for the boy to get work on the outside. This chart shows the situation. This is disputed I will tell you frankly, by the labor leaders in New York, that it is not correct, but nobody has been able to produce anything more accurate.This starts with 1926 and the years are along here. This is the volume of business, the volume of contracts, the volume of building permits issued by the Building Department (some may not start but that is a small factor). Here is a billion dollars in 1926 It goes down to 900,000,000 dollars in 1927, and then look where it went to In 1932 it went down to about 8 percent of the peak This line (indicating) represents the supply of available mechanics, and on the assumption that there was plenty in the peak years which, by and larger, there were, there was a 5 percent decline beginning with 1930 and through 1936. That 5 percent was determined -- the unions refused to give us figures as to their memberships because they had so many men in arrears during the slump that they didn't know whether they were members or not, they lost track of them -- but checking up with the total membership of the A. F. of L and the figures given in the national report of the Bureau of Statistics, Department of Labor, we come to 5 percent per annum decline over a period of six years Then that was increased to 8 percent due to the fact that everybody was getting a little older and more in proportion were dropping out When this chart was originally made in 1936 of course the projection of this permits issued line was just the thing. We didn't know what the future had, but thought it

was going to continue to go up. I had the whole industry upset by the fact that we were going to be out of mechanics in 1938, last year we were going to have a shortage. Even with the World's Fair we haven't had a shortage, and the permits go off flat.

Where these two lines -- three years before that time we ought to be training more men because a mechanic takes about three years of apprenticeship training. It shows that now we are going to have a serious shortage in 1940. We thought it could take care of itself for the next year, that is, in New York. The country by and large may be very much interested We are now very much interested in trying to get the unions and the public at large, the contractors, the unions, and the public interested in apprenticeship training, but it is pretty hard to work up enthusiasm for apprentices when only 40 percent of the men today, they say, are working. Yet looking ahead and at an emergency program that is a very critical thing. I didn't stress it much this year in the paper because it is so open to question, but if these charts are right and if history repeats itself, as we expect it will, there will be some shortages in some lines. I bring that out because you hear a good deal about apprentices and the Federal encouragement of training.

Q. Mr Tozzer, I think it would be of interest to hear how, from this contract end, industry handles big construction projects. For instance, in some recent large projects, does the interested concern draw up all the plans and go out and get bids? How do they do it?

A. I think that is pretty well covered in a good many ways but briefly today on a large operation it is this. Of course today in Government work the Procurement Division or somebody else draws up the plans and specifications and goes out for cut-throat competition You know what happens. You had an illustration down here in the addition to the Bureau of Printing and Engraving That building was very seriously delayed The contractor took advantage of the fact that one little corner within one part of the site wasn't clear for him long before he got there to tackle it, but he used that as a reason why he couldn't prosecute the job. He stopped and instituted proceedings and collected a goodly sum for damages. That is one way of doing the job. I think a lot of concerns would have gone ahead and done the best they could. But where you let work on a contract basis where plans are supposedly complete there isn't much to be said about that, that is just the management of the job.

I can cite one, for instance, up at Bendix,New Jersey. The Bendix Aviation Corp., which was a subsidiary of General Motors, we built a new plant for in the Jersey Meadows, beyond the hills, but still meadows, and over there we had just some preliminary plans They showed the sizes of columns, pipes, something about foundations, etc. They hadn't settled anything about the internal arrangement of offices, the types of floors they wanted in the various rooms. There we made an estimate based on a skeleton specification, an approximate estimate of what we believed that job should cost, and on that we determined the fee for our services, and if we saved so much we got part of the savings, if we overran beyond a certain amount part of it came out of our fee. We guaranteed within limits As

the work proceeded plans were perfected and we bought all the material and put it in as speedily as we could and got the job done Briefly, that is that type of contract.

Q. In general, the practice in industry is not to try to do a big job on competition but select a certain contractor and then negotiate with him?

A I would say good practice was that.

Q I believe what the construction industry can do for us in war is largely dependent on its position before the war in peace We are all interested in a good healthy construction industry. I wonder if on your chart you would be kind enough to project that first line ahead a year or so and tell us what you think the prospects for the industry are and just what is going to happen to it in the immediate future.

A That isn't an embarrassing question Everybody else has done the same thing, and nobody has been right. I don't know how to answer your question It is just -- are we going to have more pump priming propositions, and what is the White House going to do? What is the Federal program? It depends on the attitude of the administration I am not talking politics at all, but is industry going to be left alone so they have confidence to go ahead with private ventures or are they going to be slapped down with more taxes, or are they going to be persecuted from the labor standpoint? They don't know where they are at. There is more confidence today than there was but that same uncertainty We have thought we were going to turn that darned corner, but it is nothing in the world but a round column now.

As they used to say down here in the N.R A ,it is one big revolving door and the first thing you know you are out in the street again. I don't know who is going to answer your question. We have all had whacks at it but nobody's guess is any good. There are a lot of men making predictions, but where do they get? It is just a question of stabilization of the mind a good deal as far as present business is concerned, not speaking of these government emergency programs and this government spending, but the government can't always go on spending. If I could answer that I wouldn't be here today. I would have a real job.

Q. I think you have answered it pretty well The same condition still prevails and no one knows.

Q. Mr. Tozzer, last year when you were here you told us some of the difficulties the contractors were having with labor, a sort of a racket whereby labor unions could tie up a contract and embarrass the contractor. Could you report any progress in the settlement of that kind of trouble over the year?

A. I don't recall just what you mean The rackets today, I would say, on the whole are not as extensive as they were. The racket on scalping of wages where they are definitely established now by schedule has been corrected to a great extent by unions. In other words, there is not as much paying below the scale as there was although I do think there is a good deal of it. Just to cite on that, it was found at the World's Fair that certain carpenters were taking less than the scale, and the difference between what they were paid and the scale went toward the purchase of a lot

on a lake front in Maine. That was a brand new way of getting around the laws I call that a racket.

Q. Wouldn't this problem be taken care of in the next emergency? For instance, in peace construction on Government reservations we had the trouble of the plumber and the steamfitters, the electricians, not knowing how far to put it into the War Department. In cases like that the construction quartermaster can tell him to do it and it is done Wouldn't that be the case in time of war?

A. In time of war you can't fool with those darn things at all. There has to be a means established and the means established are already set up if they will agree to them, that there will be no cessation of work, that it will be continued until the thing can be heard in a proper way, adjudicated for the future jobs and for the balance of that job But as it is now -- here is this Naval reservation at Carderock Admiral Morrell said to me, "If those fellows won't operate that, we will send out some marines " That gave them a little scare for a few moments But labor is in the saddle, it has a friend, more than one in this town that is back of them, and then they also are thinking, "Well, if we make too much of a rumpus and stir things up maybe the C.I.O. will walk in and get something, or vice versa, and it is a terrible situation. But in an emergency there has to be almost marshal law in this question of jurisdictional disputes. It can be done, there is no question about it. But your bluff was thrown by the Navy and I carried it down the line, it did help, but I don't think anybody would have been disturbed if they had watched the marines fiddle around. They wouldn't get far.

Q. Mr Tozzer, some economists think that industry is entitled to a profit only as a reward for the risk it assumes Now in an emergency if the entire risk is assumed by the Government would industry be satisfied to produce at actual cost of production?

A. First, what is actual cost? Does actual cost embrace the salaries, overhead expenses of the company? I think if you look over the last few years you will find that the construction business has been doing business at less than that, so that I think that is just a commonsense question, that nobody should make too much money but nobody should suffer When you see the terrific waste which if proper planning and proper supervision is made can be saved, that is where the"nigger" is in the woodpile. Nobody wants to get rich I know mighty well that during the World War we had organizations tied up on Federal work that could have been out on private contracts which were for the production of war materials and made more money than we could have by tying up our doing something else. You don't get rich on war experience. We lost money because you don't get paid. No officer got anything I couldn't even get a salary increase or an increase in title because I was down on original list at so much and had a certain title. If that had been changed the contract would have been nullified. So they tie you down, perfectly justifiable, but I think that anybody is entitled to a fair profit Profit, as it works out on a contract, isn't profit in the final analysis of the company's annual report because there is overhead expense, etc., which has to be paid out of this mythical, so-called profit. You can discuss economics, of course, until doomsday.

Colonel Miles· I think we have kept Mr Tozzer on his feet too long. Mr Forman, would you care to say anything?

Mr. Forman: I don't know that there is anything much that I can add One of the first questions about the size of the fee. It seems to me that that is something that has to be studied from the angle of where you are going to stop measuring your costs. That proposition of setting up a schedule of fees has been under consideration by the Judge Advocate General's Office and Major Fenn and a few others for a good many years, and we have been in continual contact with them. Before you can start talking about the fee you have to know just exactly what that covers and what it does not cover. One of the points which we took issue on was the matter of equipment, to provide for renting the contractors' equipment They have a clause whereby when they pay you up to the value of that equipment the title passes to the Government. We don't think that is all of the cost by a long shot. First of all, that contractor has an investment there Secondly, while the title is his he pays taxes on that piece of equipment Furthermore, when you rent that piece of equipment from him he is required at his own expense to keep it in operating condition, or are the job repairs to be part of the cost of the job All those things have to be decided definitely. Otherwise, you can't say whether the fee at 6 percent or 8 or 10 percent is adequate or whether it isn't. It is a very difficult proposition but I think that one that should be settled before the contract is put into use