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January 7 Construction in war, by Capt. W R Winslow, CE,  
Planning Branch, OASW

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DISCUSSION FOLLOWING LECTURE  
"CONSTRUCTION IN WAR"

by  
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The Army Industrial College  
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Colonel Jordan I would like to ask, Captain Winslow, about the Pittsburgh District. You said it was not a congested district. We know the load on Pittsburgh will be a tremendous one. We know, too, that Pittsburgh is short on power and they will unquestionably have to build power plants there. How much that load is going to be I am not in a position to say, but I would like very much to hear from you on that district, please.

A When I said Pittsburgh was not congested, I did not mean not congested concerning industry. I guess it is the most congested of all areas in the country industrially, but from the construction viewpoint the figures just do not show that. In the first place, the capacity of Pittsburgh for construction is enormous. They have some of the biggest construction facilities in the country there, and when you compare that capacity for construction with the load there doesn't seem to be any problem. We have quite a large construction project at the Westinghouse plant at Turtle Creek. I haven't my figures here but offhand I remember two very big projects. Also, there are a number of small ones. Adding them all up and comparing them to the load normally carried in Pittsburgh in 1932,

the construction industry there isn't going to be taxed at all.

Q. Would you enlarge a little on the relation between the War Department construction and the Navy Department construction, the correlation or coordination of the demand of the two departments?

A. When I was working up this study I made contact with Commander Potter of the Civil Engineer Corps of the Navy, who is doing similar work from the Navy's point of view, and it was apparent at once that there will be very little conflict with the Navy in most cases. The Navy construction is practically all confined to Navy Yards, and except in the case that I mentioned of Norfolk, where the Nansemond Ordnance Depot more or less conflicts with the Newport News Norfolk Navy Yard load, we do not seem to have any conflict. The Navy is not prepared to give us definite figures on their construction load as yet, and when we do get such figures, of course, we will get together and see if there is any conflict but at the present time the one I mentioned seems to be the only one. The list of critical districts that I made is subject to revision when we consider the Navy load superimposed on the Army load.

Q. A number of years ago a representative of the General Staff toured the country, explaining the, at that time, new mobilization plan, going into great length in a description of the construction side of it, which was, if I may use that expression, sort of a Bryanized idea of construction facilities for troops springing up over night, using real estate development, public building, etc.

Can you give us a picture of the present plan of command construction, because that has some bearing on it?

A I think so. The regulations still have that feature included in them. We want to change that regulation. Mobilization Regulation 4-2 says that they will use billeting wherever they can use public buildings and warehouses and armories, etc., and it sounds very fine, but when we came to actually working out the construction requirements it was discovered right away in each corps area that they could not make use of much of that. I remember one corps area wanted to use the Sears-Roebuck factory. The Sears-Roebuck factory is going to be doing more important things than housing troops in time of war. That was up in Kansas City, I believe. One corps area attempted to make use of some tobacco warehouses but when we found we had to add plumbing and heating, and other necessities, we came to the conclusion that we had almost reached the same problem we would have in constructing a new cantonment. We have noticed a tendency on the part of corps areas to lean away from already made construction and go to cantonment construction, and I would say that while it is still on the books that there will be a whole lot less of using already existing structures than was originally contemplated when the regulations were made.

Q. May I pursue that farther for just a minute. There would seem to be some change somewhere in that plan. For instance, the construction by the State of Pennsylvania of the new reservation was held up for a while. There was a question here in Washington

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as to the type of building, the contention being that the type planned by Pennsylvania was not in accordance with the War Department plans for war cantonments. I believe the result of that was, while the building material, which was concrete block, was approved, the floor plan had to comply with War Department specifications, so it would indicate that even somewhere in the War Department there is a going down of the cantonment system and, of course, that particular cantonment will house a division.

A. Yes, that is true, and, of course, those plans were made in each corps area. If you are interested in getting the actual figures, I can show them to you if you will come to my office. You may look through each corps area's construction program and see what buildings it proposes to use and what buildings it proposes to build new. It varies, as I say. In some corps areas they manage to find quite a bit of existing structure, in others it is practically all new. I cannot say offhand just what the extent is but it is all down in black and white and you can see it any time you want to.

Q. In this Class C construction in the congested areas, has any consideration been given to not doing the construction there but moving the facilities to some other not so congested areas?

A. Yes, we gave consideration to that. Of course, in the case of Class C construction such consideration is already given prior consideration by the Allocations Division. That is before the allocation is granted we have tried to get our factory somewhere else, tried to get it out of the congested area. In the case of some Class B

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construction - the gas mask factory at Edgewood - we did our best to find some way to get it away from Baltimore, which is in fact the most congested of all areas, but taking into consideration skilled labor and cross-hauls on materials and a half dozen other things, when it all wound up the gas mask factory is still at Edgewood. We are giving that consideration, but so many things come into it that we cannot just offhand say: "You cannot put anything more in Baltimore." We have to take into account all the varying factors, and in quite a number of cases we find that there are other factors which overbalance the construction congestion.

Q. You mentioned that the total war load is estimated at the present time at twenty-four hundred eighty million dollars for these three types of construction. Has there been any estimate made, or is it possible to make any estimate, of the construction which will be necessary for additional housing to take care of the labor that will be brought into these highly congested districts?

A I cannot say that such a study has been made for all areas. In the case of the Class B type construction project, such as the gas mask factory I just mentioned, that is very definitely included in the final contract - housing, dormitories, recreation rooms for, I think, six thousand women that are going to be brought in to make gas masks, but in the case where we have congested areas and expect to have an influx of labor I do not know how we could do it, and we haven't done it.

Q. In connection with housing, such as you spoke of at

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Westinghouse, it is unquestionable that you are going to have to bring additional labor in there. Besides Pittsburgh's going plants you are going to add additional plants, there is going to be more labor come in and you have got to provide housing for them. As you know, in the last war the Construction Division did build a lot of those housing projects.

A That is a good point. I do not know how we could do it except by including a factor of safety in our calculations, and we do have such a factor. I admit there is a big load there that will come up. It will have to be handled somehow but how we could do it specifically other than just by being a little generous in our calculations I do not know. We are generous and I think that should handle it.

Q. I have one other question. There has been some discussion among the various members of the Committee - a kind like one of General Johnson's dead cats - burn it up and not let it smell. At one time the Chief Engineer asked that the Construction Division be transferred to the Corps of Engineers. The Quartermaster General said, "Take it", but the Secretary said "Leave it where it is". Is there any study being made which would amplify the question of whether or not construction should be taken away from the Quartermaster Corps and put into the Corps of Engineers?

A. I do not know of any such study. I do not feel it is much of a problem. You have a perfectly adequate construction agency in the Quartermaster Department, I do not see why you want to switch

it over to somebody else. It functioned during the War and there is no reason why it could not function again. I will admit that there is confusion with regard to where construction in the field of operation in the Zone of the Interior leaves off. There is kind of a nebulous line in between there, and I do not know anybody who knows the answer. I talked to an officer from the General Staff a short time ago, and I think the answer is coming out pretty soon. As you know, the regulations state that the Corps of Engineers will do their construction in the field of operation. On the other hand, the National Defense Act doesn't say any such thing - it says all construction will be done by the Quartermaster. The thing has to be straightened out and no doubt it will be pretty soon. As for transferring the Construction Division to the Corps of Engineers, I do not see what you would want to do that for. Maybe it is important but I do not think so. You have a construction agency which will function, why bother with it? That is my answer to that.

Q. Well, this discussion came up from a purely organizational standpoint - all in one corps.

A. There probably are advantages both ways, but it is a little bit hard to change.

Q. One other point on that same line. Is it contemplated for a divorcement of the Construction Division in time of emergency from under the jurisdiction or direct control of the Quartermaster General?

A. No, it isn't. When I say that I am stepping on the

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Quartermaster's prerogative. It is up to him entirely because the Construction Division is now directly under his control, so if he wanted to divorce it it would have to come through him. As far as I know the plan calls for maintaining the Construction Division as part of the Quartermaster General's Office. What about that, Major Glendon?

Major Glendon: That is true. The plans do not provide for any divorcement at all.

Q. May I ask exactly what the differences in the present plan are as compared with the procedures that were utilized in the latter part of the last war for construction? I refer particularly to the investigation of the Graham Committee on war expenditures, where they spent a great deal of time ferreting out the defects of the system that was used in the last war, and they recommended that construction should be under the Corps of Engineers.

A. I am going to beg that question. I said at the outset that I was not going to take up the history of construction during the World War, that I was going to leave that for your Committee, and if you will permit me I am still going to leave that for your Committee. I think it will come out then. I have studied a lot about the World War experience. As for what you mention about the Graham Committee, I am not familiar with it and I hesitate to answer that. I think your Committee will answer it. If they were not going to, I am sure they will now.

Q. During the study of industrial mobilization, or the industrial war load, it was apparent that seventy-five per cent of

our trouble was due to the lack of transportation, and I was somewhat astonished at your answer to Colonel Hauser's question - that one to the unwillingness of various manufacturing plants and industry to give over their factories and establishments during war we are going to construct new factories, factories that we do not need. During the war in France there was very little new construction as a whole, and while we know that we do not permit billeting in this country, still it would seem that there is very little excuse due to pressure of the building industry for us to say that we have got to go into an enormous construction program on the outbreak of a war. I feel that in everything we do we should consider transportation first.

A. If I said that I did not mean to, and I am sure I misled you. We are making every effort we possibly can to find factories that can do the work and any construction that we have is because it has got to be. In other words, before we allow any new construction we survey outside for other avenues of obtaining the production we want. When I mentioned new construction, for example a gas mask factory (there isn't any gas mask industry now to amount to anything - a little for coal mines, etc.) that has to be started right from scratch and built new, but I did not intend to indicate that we are intending to leave any facilities unused and build excess facilities. If I gave that impression I made a mistake.

Colonel Kelton. I would like to hear from Colonel Lewis on the question of large cantonments and small cantonments from the

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point of view of training for Field Artillery. That is one point that comes up when you decide whether to use billeting of small units as compared with a large concentration camp where you have adequate training facilities.

Colonel Lewis: As the Marine Instructor says, I guess I am behind the egg ball. I haven't given this any thought, but as I remember looking over our plans for these firing centers it takes very large reservations for one of the key points of training for Field Artillery. When you accumulate a large reservation, which is rather difficult to obtain, you must train large numbers of troops. For safety reasons, it requires a reservation of certainly fifty thousand acres to give a satisfactory range - probably better to have one the size of Bragg, eighty thousand acres. That would mean we should have housing facilities for in the vicinity of three brigades. That is at least the size of a division cantonment. Other phases of Field Artillery training can be carried out at smaller reservations, but when you reach the firing stage, which must be done before a Field Artillery unit is ready for combat, you must assemble them in rather large units.

Q. What about this construction of facilities in the critical areas, such as around Cleveland, the New England States, and on the Seacoast? It seems to me Mr. Knudsen, of General Motors, spoke of the moving of Germany's out of the critical areas up into some valley west of Berlin. It looks to me like practically all of our really important munitions plants are located in rather critical

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areas. Has that been given any thought in your planning for this facility construction?

A. Yes, it has, of course. One answer to your question is that we have to go where industry is. You cannot simply do as they have in Germany and highhandedly tell industry to migrate, and so where it is a mere matter of an extension to an existing factory where we are going to use the management and the skilled labor and a lot of the machinery there is no alternative but to make the construction on the site of the already existing facility. Now as to command construction in the congested areas, that, I think, is being given some study by the Staff. At a conference at the War College a short while ago on the subject of construction, Colonel Baade, of the G-4 Section, mentioned that there was consideration being given by General Spalding to the idea that we might move a lot of our troops to various Southern very large cantonments. In other words, they would be assembled in the various corps areas and shipped out immediately. However, that is not included in my work and I do not know a thing about it except hearsay, which I am giving you. As far as the factories are concerned, where we build a new factory, as I said, we have attempted in all cases to get them out of the congested areas, when it comes to adding to some other factory we have no alternative but to leave it where it is. Concerning facilities, I think that is tomorrow's or Monday's lecture by Major Ritchie, and I think he will tell you more about the effort that is being made to get out of Zone One with our war load.

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Q. I should like to ask concerning the inspection angle of this construction program. You stated that this Class A, B, and C construction would be inspected by the particular service which was in charge of the construction. I wondered if the plans when they are completed, and I believe you said that many of them are still in a rather nebulous state, will cover that angle of it? That is, will they give the number of inspectors that are going to be needed for these various projects, the source of those inspectors, the training they will be given, and all those things?

A. They will if our office is doing what it is supposed to do. We are charged with the supervision of the preparation of these plans and a plan certainly isn't complete unless the additional personnel required is included therein. Of course, we will not approve the plan until such an item has been included. It is one of the last items to be taken up, though, because actual specifications and plans and bids and material all come ahead of the question of personnel but we will get to it eventually.

Q. I am not clear on how you are going to avoid competition between Class B and Class C?

A. Well, of course, as I said before, we want to get the regulations changed if we can. I think we will eventually, and place all construction in charge of the Quartermaster General, with an emergency clause very similar to the clause we have in Mobilization Regulation 4-4 with regard to supply, which allows the Corps Area Commander to do securing for health and comfort. If we get that,

of course, the item that you mentioned would not come up. There is no question about it, we have a dual authority there. There is confusion, but the answer I think I gave you was that we are not attempting to make any allocation now which would be upset by hasty action on the part of a Corps Area Commander on M-Day. It is proposed to throw it into the hands of a War Service Committee which will function as an adjunct to the War Resources Administrator and everybody has to bow to him, Corps Area Commander included. That is the answer under the existing regulations - the only one we could find. However, we hope to get the regulations changed.

Q. You spoke of the matter of congested areas, but I am still not quite clear on that point. The ordinary conception of a congested area is, of course, one where there are a great many facilities, a great many people working, and the transportation system is being strained. I think the speaker has something else in mind than my idea

A. Perhaps I should have dwelt on that a little more. In making the study, we took the construction load in 1928. That seemed logical - that was the peak year for construction. It may be that some of those facilities have been disbanded or discontinued or have gone bankrupt, but at the same time there have been a lot of advances in construction, so I feel that the capacity of the industry in all probability is about the same. At least for our purpose of study we have to consider that the capacity of the industry is about the same as it was five or six years ago, so I took 1928 and called

that the extreme capacity of the industry to construct. Then we compared our war load with the load in the area in 1928 and where it was close to, or greater than, the 1928 load we said. "There is a congested condition", where it was less than that, and substantially less, we said: "There is an area where there is no problem". Now, of course, from the standpoint of transportation it may be that we have run into congestion even in a non-congested construction district because of transportation congestion due to a lot of production facilities there. However, it was impossible to attempt to coordinate all those together so we looked at it purely from the point of view of construction, and considering that in 1928 the most construction was being done in the most congested areas, I think we have a pretty good figure.

Q. Then your real gauge on whether an area is congested or not is the comparison of the war load you expect to put on the construction capacity in that particular area?

A That is it exactly.

Q. But, of course, sometimes the construction industry is more or less moveable-----

A. It is moveable, but the handling facilities for lumber and gravel and the bulky materials are not moveable, and so I thought we would have to consider the industry as relatively fixed because of the facilities for handling building materials.

Q. Perhaps this is trespassing on Major Lyons' prerogative a little as Chairman of the Committee on the Construction Industry

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(I happen to have been a member of that Committee) but I do not think the difference of opinion between the Construction Division of the Office of The Assistant Secretary of War and the Committee is insurmountable on the matter of whether there is going to be a shortage or not because of the fact that the Committee study was really of the construction industry in time of peace. There was no study made really by the Committee of the war load or anything of that kind, and as I understood the thought of the Committee it was merely that they felt they should point to the fact that certain factors would tend to create a shortage. They did not want to soft pedal the matter so as to indicate that everything is lovely and no further study of it need be made, but there was no study made by the Committee of the actual war load. For that reason, any conclusion that was either made by the Committee or that you may have thought was made by the Committee really isn't quite so positive.

A. I am glad to know that.

Q. If I am not correct in that, I hope Major Lyons will correct me.

Colonel Kelton: Before we leave that question, I want to remind everybody that Problem No. 2 was a peace time study of the peace time organization and the capacity of the peace organization to handle peace time requirements, with only one paragraph at the end of the outline concerning the war time aspects, and we purposely minimized the time that was permitted on that last clause because we knew that we were going to bring it out in these future problems.

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I was hoping that somebody might bring up the question of why the Corps of Engineers does the construction in time of war. However, I think we might just as well leave something for my Committee on Construction in Time of War to discuss, so we will leave that until they can get on a platform.

Colonel Harris. I would like to make one or two comments: I can see that there is a question in the minds of some of the Class as to why new facilities are built instead of using existing facilities. Suppose that the war load is a hundred per cent and (guessing) forty per cent of that is command cantonment housing for the Army, its location is a matter of military priority and has to be new construction if you abandon the billeting idea. The remainder - I should say that at least two-thirds - of the procurement construction is in elements of commercial production that have no peace time activity. For example, take ammunition - there is no peace time activity in manufacturing or assembling of ammunition. I imagine that forty per cent of the total construction load will be in connection with building facilities that do not exist for ammunition and aircraft production. There are no T.N.T. factories except one in Wisconsin. There is no smokeless powder production facilities except at Indian Head, Picatinny Arsenal, a small Army plant at Kearney Point, and a small Dupont plant. We are going to require a million pounds of powder a day, the present production is probably in the neighborhood of twelve thousand pounds a day. There are no facilities so they will have to be expanded. In aircraft, we are going to require ten thousand airplanes the first

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year. I do not believe the existing aircraft industry could produce two hundred a month, so you can see that a lot of this construction is to amplify the economic situation.