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EXECUTIVE SESSION

CONFIDENTIAL.

Copy for Senator Kilgore.

Tuesday, June 9, 1942.

Hearing Before the

Subcommittee

of the

Special Committee

to

Investigate the National-Defense Program

United States Senate

PRODUCTION OF TANK LIGHTERS.

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EXECUTIVE SESSION--CONFIDENTIAL

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PRODUCTION OF TANK LIGHTERS.

TUESDAY, JUNE 9, 1942.

United States Senate,

Subcommittee of the Special Committee to Investigate the National Defense Program,

Washington, D. C.

The subcommittee met at 10 o'clock a. m., pursuant to adjournment on yesterday, Monday, June 8, 1942, in room 315 Senate Office Building, Senator Harley M. Kilgore presiding.

Present: Senators Kilgore (chairman of the subcommittee), Mead, and Brewster.

Present also: Senator Ellender; and Hugh A. Fulton, Counsel to the Committee.

Senator Kilgore (chairman of the subcommittee). The subcommittee will please come to order. I believe that Commander Daggett had something that he wanted to get into the record at this time. Is that right, Commander?

Commander Daggett. Yes, sir.

TESTIMONY OF COMMANDER R. B. DAGGETT, U. S. NAVY--Resumed.

Mr. Fulton. Commander Daggett, you may proceed in your own words to give us the story up to and through the point of your tank lighter No. 1.

Commander Daggett. I reported to the Navy Department for this tour of duty in July, 1937 and, among my other duties, I was assigned in charge of the Small Boat Section in the then Bureau of Construction and Repair. That section at that time

was not handling any of this landing equipment. All the steps which had been taken in that direction prior to that date and at that time were handled by what we call our War Plans Section. It continued in that way until about January, 1939, and as I will attempt to bring out a little later, that is when I entered the picture of the landing boat program.

In searching the records since yesterday's meeting here I find that the history goes back quite a ways. We have a record showing that an artillery lighter was built about 1911 for Olongapo, Philippine Islands. Then, in 1913, the Philadelphia Navy Yard developed a wooden lighter,and a steel lighter in 1915. The first self-propelled lighter, which was designed as a 50-footer, was developed by the Navy Yard, Norfolk, in 1924, based upon a Bureau of Construction and Repair design. Next, there was a 40-footer built in 1927.

Senator Kilgore. What type of construction was the one that was built in 1924?

Commander Daggett. I am not clear on that, sir. Our records for those dates are either in the Archives or in our store-house in Virginia, and we were not able, in the time we had, to get all those records out to determine exactly how everything was.

However, we designed a 45-foot artillery lighter, which was not a self-propelled lighter, in 1928, which lighter was modified in 1935 and forms our present basis for our artillery lighter, which is a non-self-propelled lighter, not a tank lighter.

In 1937, as part of our war plans, the Bureau designed and had built at the Navy Yard, Norfolk, a 38-foot tank light-

er. This lighter was designed to carry a light weight Marine Corps tank weighing in the neighborhood of 6½ tons. It was a lighter which was of the same type of construction as the present Higgins lighter. It had wing compartments, and the essential feature in which it varied from the Higgins lighter was that the deck of the lighter was above the water line and not below it. It was self-bailing, in other words.

I might say that we had criticism of the 38-foot lighter. That lighter was of such narrow width, due to those wing tanks, that it was found in actual use that in lowering a tank into this lighter from a ship's boom the lighter would move with the waves, and in lowering the tank the tank would cock between the sides of the lighter and it had difficulty entering. So, upon the recommendation of the forces afloat, the people using the lighters, we attempted to correct that situation, and our War Plans Section went to a 40-foot lighter. They eliminated the wing tanks and had a double bottom. It was a self-bailing lighter with the tank cargo deck above the water line. That was also built at the Navy Yard, Norfolk.

Senator Kilgore. When was that?

Commander Daggett. That was in 1938, sir.

In January, 1939, I entered the landing boat picture. I went to Puerto Rico suddenly to witness some landing exercises that the Atlantic Fleet was conducting, and during those exercises the 38-foot lighter and the 40-foot lighter which I have just described were present. We have reports showing that they worked very satisfactorily. The 40-foot lighter, however, as I pointed out, did not have the wing tanks, and we feared that in case that lighter was hit by machine gun

bullets, we will say, they would enter the double bottom, and probably the lighter would capsize, due to this water entering; and although we had solved the difficulty of being able to lower a tank into it from the boom of a ship, at the same time it was vulnerable to bullets to protect its buoyancy.

That led us to the 45-foot lighter. I took over the landing boat equipment at this time, because it was considered that it had passed out of the stage of war plan development and should be handled by our regular Small Boat organization. We went to the 45-foot lighter in order to increase the displacement and be permitted to carry some special treatment steel all along the water line to keep machine gun bullets, or help to keep them, out of the double bottom. We ordered three such lighters built between 1939 and 1940, which were built at the Navy Yard, Norfolk.

The 40-foot lighter I have just described is really the prototype of all the Bureau lighter design work done in the meantime. The 40-foot lighter was simply a step-up, but based on the same principle. It was a self-bailing lighter, the cargo deck being above the water line. This 45-foot lighter was capable of carrying an Army light-weight tank weighing 15 tons, or a 155-millimeter gun, or two light Marine Corps tanks, at about 6½ tons each, or a 5-inch Navy gun or the mount for that gun; in other words, to carry the complete gun and mount you would have to make two trips. Each of them weighs 14½ tons.

This lighter was tested. We had no adverse reports as to its general design. We have records which will show that we had criticisms of the engineering plant, that the horse power

was not enough; the engines were not reliable; and minor things. But as regards the general design, stability, and such matters, the criticism was that the horse power was too low, but we had no other basic criticism given to us.

As a result of the testing we had done by the forces afloat with these three 45-foot lighters, and in view of the general situation, particularly in Europe, we started to build tank lighters in larger quantities, and in September, 1940, we ordered 32 of the 45-foot tank lighters from the Consolidated Steel Company on the West Coast; 12 of those lighters in October, 1940, from George Lawley & Son, Neponset, Massachusetts, and 38 of those lighters from American Car & Foundry Company, Wilmington, Delaware, in December, 1940. I might add that during this time the United States Army had ordered the same type of lighter from our plans and had given the American Car & Foundry Company an order also.

Mr. Fulton. Does that figure up to 96?

Commander Daggett. I do not know how many the Army ordered.

Mr. Fulton. The 96 that were referred to yesterday were all Navy orders?

Captain Rawlings. That is right, sir. The 32 was later increased by 14, making 46, making a total of 96 for the Navy.

Mr. Fulton. How many were ordered by the Army?

Commander Daggett. I do not know, sir. I only know this about it, that they apparently got their orders in before we did to the American Car and Foundry. About that time we started to go to Iceland and we had an emergency request for tank lighters for Iceland, and ours were not completed, and the Army permitted us to take the first eight of theirs, built

by the American Car & Foundry Company, for use in Iceland, and we replaced those eight for the Army as soon as our first eight were completed.

In February, 1941, --I do not know just where you want me to stop. I have the whole history here. I do not know whether you want me to stop at a certain point or not. I am now up to February, 1941.

Mr. Fulton. At least go through the Bureau Tank Lighter No. 1 and discuss it.

Commander Daggett. I am right up to that at the present moment.

Mr. Fulton. What was the date that you determined that you would give no more orders on this Bureau Type No. 1?

Commander Daggett. Which is Type No. 1?

Mr. Fulton. The one you have just been talking about.

Commander Daggett. The 45-footer?

Mr. Fulton. Yes.

Captain Rawlings. No. Mr. Fulton, I think, speaks of Model No. 1 as being those 96 that were ordered in the fall of 1940.

Mr. Fulton. Did they differ from the ones built in the Norfolk Navy Yard? Did they differ substantially enough so that you wanted a different lighter?

Commander Daggett. No. They were substantially the same as the ones which the Norfolk Navy Yard had just completed prior to that date.

Mr. Fulton. Then we would properly, I suppose, call that Bureau Tank Lighter No. 1?

Commander Daggett. I would like to bring out that at the time the award was made for those 96 lighters they were sub-

stantially the same as the 45-footers that Norfolk had developed and built the year before; but in February, 1941, we had a casualty with one of those 45-foot lighters.

Mr. Fulton. Under what circumstances?

Commander Daggett. The report shows that the lighter was being loaded alongside of a ship. I think it was down in the Caribbeans, or maybe the West Indies. They had quite a sea running. At the request of the Marine Corps we had put in fresh water facilities in the double bottom of the tank lighter. In other words, they wanted to make more general use of that tank lighter and, when they were not carrying tanks, to use that double bottom for carrying fresh water from ship to shore. We had piped it and put in manholes and one thing and another in the bottom of the tank lighter to permit doing that. It was understood by all that they were not to carry fresh water while they were carrying a deck load. However, at the time of this casualty those bottoms were not empty. Just how much water there was in them I do not know. However, the evidence brought out that there was some water in them.

Mr. Fulton. Why were they not able to determine how much water was in it? Was the lighter lost?

Commander Daggett. I will come to that. The free surface induced by having those partially filled double bottoms decreased the stability of the lighter. The lighter took a roll through the sea, the tank slid over to one side, another sea came over the combing, and the lighter capsized and turned upside down and the tank was dropped into 90 feet of water, but later salvaged and the lighter righted. We received a report of that, so we immediately took steps, with all those 96 lighters building, to correct that trouble.

Mr. Fulton. With respect to that, Commander Daggett, why was it not determined how much water there was in the double bottom? That would seem to be of prime importance.

Commander Daggett. The investigation was held by the people on the scene. It was down in the West Indies, and we did not know anything about it here until we received the report of that investigation, and we looked for that point, to determine how much water there was, but although there was some testimony showing there was some water, they did not state the amount. I cannot explain why they did not know, although I should imagine that possibly, due to the lighter capsizing and tipping upside down, they could not determine accurately what it was after they righted the lighter.

Mr. Fulton. You mean there were open petcocks?

Commander Daggett. I do not know.

Mr. Fulton. We would like to look at the report after the committee's session. We would like to have a number of these documents to look over, without taking your time now.

Senator Brewster. That was purely an operational difficulty?

Commander Daggett. Yes, sir.

Senator Brewster. Really a difficulty with the administration rather than with the lighter itself?

Commander Daggett. Yes, sir.

Rear Admiral Jones. You cannot guard against human failures, any way that I know of.

Senator Brewster. You say you took steps to correct this trouble?

Commander Daggett. Yes, sir. We ordered the Freeboard

of the combing increased on all lighters building and built, of that type, to keep the waves from coming over and causing difficulty.

Senator Ellender. I am just wondering why it was necessary to make that correction, since I understood you to say that this lighter was used at times to take fresh water from ship to shore. If the lighter was used solely for the purpose for which it was built, why was it necessary to make those changes?

Commander Daggett. Because we were trying to make it as fool-proof as possible, just for the reason that this happened, and it is always apt to happen again unless you try to make it as fool-proof as possible.

Senator Ellender. Are we to understand that if it had not been for the presence of the water that was inside the boat the tragedy which occurred would not have happened?

Commander Daggett. I would not say it would not have happened, but, in my opinion, it probably would not have happened.

Mr. Fulton. Was that the opinion of the Board which examined into the matter at the time?

Commander Daggett. I cannot recall without looking at the record, and it has been some time since I read it.

Mr. Fulton. Did you know that yesterday when you were testifying before this committee?

Commander Daggett. I knew we had such a report.

Mr. Fulton. And yet you did not refer to it?

Commander Daggett. As you recall, yesterday I arrived rather unexpectedly and I did not know what the nature of the

meeting was and I did not have all my thoughts and facts in order, so that I could not give a very chronological resume of our entire development. I knew there was such a report existing.

Mr. Fulton. You have been capable of testifying concerning it this morning.

Commander Daggett. I know that such a report exists. I might read a pertinent paragraph which has to do with the various comments (reading):

"In order to improve the tank lighters now under construction along the lines indicated as necessary the free-board will be increased, guys will be added for centering the tanks in loading, and an alteration will be made to the double bottom subdivision to reduce the effect of free surface in case these bottoms are not dry."

Mr. Fulton. With the exception of the latter point, what did the other points have to do with the water?

Commander Daggett. Not anything, except that the Board pointed out that, due to her list, water did slop up over, and the tank did slide. So we corrected those two things at the same time.

Mr. Fulton. Was the loss of life confined to one person or more? When you said "casualty" did you mean loss of life?

Commander Daggett. I did not mean a loss of life; no. So far as I know, no one was even injured.

Senator Kilgore. You lost the tank?

Commander Daggett. We lost the tank in 90 feet of water, and divers recovered it, and the tank lighter was uprighted, and I do not think any particular damage was done to the lighter.

Mr. Fulton. That was modified before you gave an order for the 96?

Commander Daggett. No. We had given the order for the 96, and this happened while those 96 were under construction, and we immediately ordered changes made before any of them were delivered.

Senator Kilgore. What was the last point you made there about the double bottom? Will you read that again?

Commander Daggett (reading): "and an alteration will be made to the double bottom subdivision to reduce the effect of free surface in case these bottoms are not dry."

Mr. Fulton. In other words, divide it into bulkheads?

Commander Daggett. To put in more subdivisions than we had, so it would not have as much free surface transversely.

That leads us to late in May, 1941.

Mr. Fulton. Before we get to May, 1941, have you now found all of the papers, whether in the nature of reports, communications, or Navy memoranda made from telephone or personal conferences, which in any way relate to the use of this original Bureau Tank Lighter No. 1?

Commander Daggett. We have used the time since yesterday to search all the files that we could get our hands on, and we have with us several of those files with markers in the pertinent places.

Mr. Fulton. Will you leave those for inspection by the committee, after the hearing?

Lieutenant Nash. Could we furnish you with copies?

Mr. Fulton. We would like to look over the entire files and would like to have them left here.

Lieutenant Nash. Some of them are confidential files.

We can make them available to one of your men, if you want to have him come down to the Navy Department, and we can have photostats made. Anything you want photostated we can have done within 24 hours.

Mr. Fulton. Do those files contain all of the papers?

Commander Daggett. Everything we could lay our hands on. Some of our files are over in Rosslyn, Virginia, and I believe some of them are in the Archives, and some of our plans are stored in the Navy Yard, due to crowded conditions in the Navy Department; and it is possible that there may be some files that we have not had an opportunity to inspect.

Mr. Fulton. The committee would like to have one of its investigators look at every file that remotely has anything to do with any communication regarding this matter.

Rear Admiral Jones. We would be very glad to extend the privilege to whoever you designate. We have certain routine and formalities which we have to go through with, with which I think you are familiar, in making those files available. But when you send your investigator down there, the complete files of the Navy Department are at his disposal.

Mr. Fulton. What are the formalities in question?

Rear Admiral Jones. In connection with some confidential publications and correspondence, without authority from the Secretary they cannot be removed from the Navy Department.

Mr. Fulton. It is not a question of being removed; it is a question of being examined. Is that the point?

Rear Admiral Jones. Yes.

Mr. Fulton. We have no desire to remove them.

Rear Admiral Jones. We will make available to you the full files of the Navy Department.

Lieutenant Nash. I have already sent to the Archives and to Rosslyn. We will not be able to make available those files in the Navy Yards. It will be utterly impossible to issue an order to every Navy Yard that might have had some correspondence on the lighters.

Mr. Fulton. We would like to know where the 96 lighters were sent, and we would like to have letters sent to the Navy yards or anywhere else that they were sent to asking for any information that they have on this Bureau Tank Lighter No. 1.

Rear Admiral Jones. We will be glad to do that. You of course realize that it will take a little time.

Mr. Fulton. Oh, yes. The bulk probably went to two or three places.

Rear Admiral Jones. A number of places; yes.

Mr. Fulton. It would be those places that I assume would be more apt to have a few records with respect to it.

Rear Admiral Jones. If you desire to send your investigators to those places, we can see that instructions are issued that they can examine the files there, too.

Mr. Fulton. That can probably be arranged.

Rear Admiral Jones. Yes, sir.

Commander Daggett. This is an executive session, is it not?

Senator Kilgore. Yes.

Commander Daggett. In that connection I might add that we have in the Southwest Pacific ten tank lighters and, from the best information I could get from the Bureau, of the 45-foot type. I have an extract from a letter which is not in our files, but in the Chief of Naval Operations' file. It is a secret letter from Admiral Shafroth, Commander of the South-

west Pacific Fleet to the Commander in Chief of the Fleet, dated 21 March, 1942 (reading):

"Our 45-foot tank lighter proved most valuable. They do not need a regular pier to land their load, and by utilizing sloping beaches or by blasting away the coral or otherwise making suitable approach, these lighters can be run practically to the beach, the draw lowered and the lighter unloaded."

Mr. Fulton. Is that the only reference in the letter to the tank lighter?

Commander Daggett. So far as I know. I have not seen the letter. This was furnished me by an officer. I asked him to search his files and to give me anything he could. He handed this to me very hurriedly this morning.

Mr. Fulton. If there is any other reference to the tank lighter, we would appreciate having it.

Commander Daggett. He told me that this was all there was.

Senator Brewster. You are not positive about the identification of that, are you?

Commander Daggett. I am positive to this extent, that our records show that there are down in the Southwest Pacific four of the ten that were built by George Lawley & Son, who only has built our 45-foot type. The other six were built by the Consolidated on the West Coast, and they have only built the 45-foot type.

Mr. Fulton. I was rather surprised, because, after all, the fact that you could run the lighters into the shore would not be information to the Navy Department, and I was wondering why there was not something more than that statement, which is,

of course, not new to the Navy.

Commander Daggett. I have not seen the letter, and I cannot say what is in the rest of the letter.

Mr. Fulton. Was there anything as to the nature of what they were transporting?

Commander Daggett. No, sir.

Mr. Fulton. Or the type of water through which they were transporting it?

Commander Daggett. No.

Senator Brewster. What is the date of that letter?

Commander Daggett. Twenty-one March, 1942.

In addition, we have 13 tank lighters in Iceland, so far as we know, at the present moment.

Mr. Fulton. One more question on that. Was that under combat conditions, where there was a necessity for sharp turns, or anything of that kind?

Commander Daggett. I do not know, sir.

We have 13 tank lighters in Iceland, according to our records at the present moment. Seven of these are the 45-foot Bureau type, and six are of the Higgins type. There have been numerous tank lighters sent back and forth to Iceland ever since July, 1941, and as the engines became disabled, or as one thing or another happened to them--they had such rough usage--they have been replaced on urgent request, because the tank lighter was such a valuable piece of equipment for what they were doing there.

Mr. Fulton. Before leaving Iceland: do you have a file on the Iceland matters?

Commander Daggett. I found I had no file on the Iceland

matters, other than the original reference to the statement I made previously, that we got the first eight tank lighters for Iceland from the Army's American Car and Foundry quota.

Mr. Fulton. Do you have any comparable data of any kind as to the performance factors of the two different types?

Commander Daggett. No. I attempted to find some and could not find any. There has been no reference made as to one feature being preferred over another or one type over another.

Mr. Fulton. Will you inform the committee at a later time as to who in Iceland, and what service and what branch of the service, is using these lighters, so that the committee can communicate and obtain comparable data?

Rear Admiral Jones. Admiral Kaufman was in charge of that. He is back in this country now. He is sea frontier commander down in the Gulf. We can get in touch with Admiral Kaufman by telephone following this meeting and find out from him any information he might have, and that might save time.

Mr. Fulton. That would be helpful. The committee would also like to know the particular officer who was in actual charge of using the boats. I assume the Admiral himself did not operate these boats, and we would like to have the names of the officers that used the boats.

Senator Brewster. There might have been some officers who came back with him who perhaps are familiar with it.

Rear Admiral Jones. Possibly. We can find that out.

Senator Brewster. There are Marines up there, are there not?

Rear Admiral Jones. Yes, sir, as well as the Navy.

The Navy, however, operated the boats and furnished the crews for the boats, from the best information that comes from the operating end.

Senator Brewster. They used them for a variety of purposes?

Rear Admiral Jones. General purposes.

Senator Brewster. I had a nephew up there, so I heard a little about the general operation. I gathered that there was quite a problem to get their landing parties ashore.

Rear Admiral Jones. That is correct.

Mr. Fulton. The Marine officers would probably be in position to help. We would like to have those names.

Senator Mead. The Admiral will be able to furnish all those names of the Marine officers and the officers who handled the ships, and you can call Admiral Kaufman and he can give you a list of those who had anything to do with the matter.

Rear Admiral Jones. We will attempt to get those names.

Commander Daggett. I mentioned the advance base use of tank lighters to bring out the point that a tank lighter has far more use than just landing tanks. We have been beseeched right along by the forces afloat to give them something that is all-purpose, in so far as we can do so, and we have pursued that thought in the development of the Bureau type.

As late as May 22, 1942, the Commander of the Amphibian Force, United States Atlantic Fleet, stated as follows, in paragraph 1-d (reading):

"It appears that unless deliveries are speeded up requirements of vessels in commission will not be met. It is believed that the cargo capacity and thereby the

efficiency of existing 50-foot lighters can be materially improved."

He of course must have had reference to the Higgins lighter, because that is the only 50-foot lighter which at that time was in service.

Mr. Fulton. The others had not yet been built?

Commander Daggett. No, sir.

Mr. Fulton. Am I correct in understanding that Bureau Type No. 2 had been built before that date?

Senator Brewster. The 47-foot lighter.

Commander Daggett. We have not taken delivery on the 47-foot lighter yet. I believe it is still at New Orleans, at the contractor's works.

Mr. Fulton. Because the Navy, after tests, determined that it was unsatisfactory?

Commander Daggett. No. We had a report that in a high-speed turn the lighter took what they considered an excessive heel, and I initiated a directive that the lighter be inclined at the Navy Yard, Norfolk, upon receipt there, and I expect that will probably be done to determine its exact stability, whenever they are able to ship it there.

Mr. Fulton. Why has it not been shipped?

Commander Daggett. I cannot answer that.

Mr. Fulton. Have you seen that lighter?

Commander Daggett. I have not; no, sir.

Mr. Fulton. Is it of Navy design?

Commander Daggett. It is.

Mr. Fulton. Is it so designed that it can be transported on trains?

Commander Daggett. I am not sure of that.

Mr. Fulton. How do you expect it to get to Norfolk?

Commander Daggett. Probably aboard ship. I do not handle shipments, and I do not know what arrangements are being made or might have been made to ship the lighters.

Senator Brewster. How long has it been ready?

Commander Daggett. I guess, probably four weeks. Mr. Higgins could probably tell you more accurately.

Mr. Fulton. What is the date, Mr. Higgins?

Mr. Higgins. I think the first tests were in early April.

Mr. Fulton. Why has it not been shipped to the Navy Yard?

Mr. Higgins. We can only ship when we are instructed to ship. We have had no instructions. The instructions would be given to the resident inspector; they would not come direct to us.

Mr. Fulton. Have you given such instructions, Captain Rawlings?

Captain Rawlings. Not to my knowledge, Mr. Fulton.

Mr. Higgins. I might mention that they asked a stability test made.

Mr. Fulton. Why has it been allowed to lie dormant for several months?

Captain Rawlings. I think it has been awaiting the availability of a ship on which to ship it, because it cannot be shipped by rail.

Mr. Fulton. What is the purpose of bring ing it to Norfolk? If it is a boat that is of a type useful for tanks I should think you would want the benefit of it right away.

Commander Daggett. It was designed for the light-weight

tank, not the medium tank; in other words, not the 30-ton tank. Since it has been built and the Navy is paying for it, we would like to have it shipped where we have such other equipment shipped, to our landing boat depot where we will have a stability test run on it as a further check on what has been reported as happening in New Orleans, and if we feel that it is not capable of carrying the load for which it was designed, we will either take steps to correct that condition in the lighter, or we will reduce the load, and they can use it for many other purposes for which tank lighters are used, other than carrying tanks.

Mr. Fulton. Then I understand, with respect to that tank lighter, that it was designed for a lesser capacity?

Commander Daggett. Oh, yes.

Mr. Fulton. Which was, say, the capacity of the prior 45-foot tank lighter?

Commander Daggett. The 45-foot and also the Higgins type, up until the present moment.

Mr. Fulton. In other words, the capacity of that lighter is less than the capacity of the Higgins 50-foot lighter for which orders for fifty were given in June of 1941?

Commander Daggett. The first fifty lighters for which Higgins was given orders --none of them were for a medium tank.

Mr. Fulton. Let us be certain on that. In the first place, Mr. Higgins, was the tank lighter that you constructed in May of 1941 a 50-foot lighter?

Mr. Higgins. A 45-foot lighter, to carry a 13½-ton tank.

Mr. Fulton. And the order for 50 which you received, which was confirmed in June, was for what size lighter?

Mr. Higgins. That is the one you are speaking of. In May, 1941, we first built one model of the tank carrier, and after its initial test a day or two after it was built, we were given an order for 50. They were to be 45-foot lighters, powered with Diesel engines which we obtained ourselves, to carry a 13½-ton tank.

I might mention here that during the course of completing the 50 units we made continuously improvements in cooperation with information we obtained from the Bureau of Ships and from the United States Marine Corps officers. There were a few major changes which we identified with Mark 28, Mark 32 or Mark 34, and there was a principal change identified by Mark 48 before we completed it. We built the last one to carry a 30-ton tank. We called that Mark L. We never asked for any change order or any increase in price, although the contract was taken at far below cost of construction, over and above the expense we went to, due to the work which was necessary.

Mr. Fulton. You increased the size without any compensation?

Mr. Higgins. Yes, sir; and we made various changes. I on several occasions went to Norfolk and observed the handling and the conditions under which they were being loaded, and I endeavored to improve it and fit it for its best use; and we wound up with the prototype of what we call the Mark L, "L" being the Roman letter for "50."

Mr. Fulton. And did you receive subsequent orders?

Mr. Higgins. Subsequent orders were for a 48-foot tank; and we offered the same quotation we had had for the 20, to

increase and furnish 30 or 32 tank carriers. We actually were awarded a contract for 48-feet. We undertook to make it a bigger tank carrier at no increase in price.

Commander Daggett. My record does not agree exactly with what Mr. Higgins said, although it is in substantial agreement. My record shows that late in May, 1941, we received an urgent request from the Marine Corps, and the Chief of Naval Operations, to produce as many tank lighters as humanly possible by 21 June, and have them in Norfolk, Virginia.

I called up Mr. Higgins on the telephone. I did not know of Mr. Higgins at that time as a steel man, other than that he had built some light gauge landing boats of steel for us in previous years as part of our experimental program, but I knew Mr. Higgins was a man of action and if anybody could do it he could probably do it. I called him and he cooperated to the fullest extent. He told me that he had a lighter somewhat of that description.

Mr. Fulton. He called you, or you called him?

Commander Daggett. I called him, and he told me that he had a lighter that he thought would meet our needs, with some modifications; that he had built it for some South American republic and, as I recall, they wanted to have him take his pay in merchandise of some sort, and he was not disposed to do that. He told me that he would make some quick modifications to it and have it ready sometime inside of a week, and if I would come down there he would put on a demonstration, and if I thought it was what we wanted, he would turn to and turn out as many as he could and have them in Norfolk by the 21st of June.

I went down there within a week, I believe, and witnessed his tests and considered that it was as satisfactory as he could possibly make it on such short notice.

Mr. Fulton. And compared with your 47-foot tank lighter?

Commander Daggett. That had not at that time entered the picture.

Mr. Fulton. As compared with your 45-foot lighter?

Commander Daggett. As compared with our 45-foot lighter. I did not want to have the people who had been given orders given any more, for the reason that theywere much slower on deliveries. I felt that in the time we had we did not have a chance of getting the lighters by that date.

Mr. Fulton. Let us see what you mean by that. You mean, there had been a failure on the part of the American Car and Foundry, Lawley & Sons, and Consolidated to be able to build your Bureau Type No. 1, and that you therefore were appealing to Mr. Higgins in order to obtain speed?

Commander Daggett. I would not say there was a failure on their part to build them, because they were in the process of building them, but we had the feeling that they had all they could do and could not help us out any in the three weeks we had to have them in.

Mr. Fulton. They definitely had reached their limitations?

Commander Daggett. I do not know that they had; but that was our feeling. We did not consult them in the matter at all.

Mr. Fulton. Their progress up to that time was such that you found it was not even worth while consulting them to find out whether they could build more of these lighters?

Commander Daggett. That was my feeling.

Mr. Fulton. And you felt that Mr. Higgins had the facilities to produce the lighters?

Commander Daggett. I called Mr. Higgins to see if he did have something and was willing to help us out, and, as I said, that was his reply. I went down there, witnessed his tests, and I had authority before I left Washington that if I was satisfied and would call back Washington on the telephone from Mr. Higgins' plant, our Bureau of Supplies and Accounts, which is the Navy contracting agency, they would authorize Mr. Higgins to proceed to build 50 such lighters immediately.

Mr. Fulton. What was your opinion, after witnessing the test, as to the comparable operation of the Higgins tank lighter with the Bureau Type No. 1?

Commander Daggett. I considered them on a par. I had no definite thought one way or the other.

Mr. Fulton. Did you consult with anyone else in order to reach that conclusion?

Commander Daggett. I do not recall that I did.

Mr. Fulton. Did you put the Higgins lighter through the identical tests that the Bureau lighter had been put through?

Commander Daggett. Mr. Higgins, as I said, was working in a great hurry. He had worked several nights and had everybody working at full tilt to get this ready and, as I recall, it was sometime in the middle of the afternoon that he finally had his last welding done so that we could take it out, and we immediately took it down the bayou where he was building it, on Lake Pontchartrain, and we ran it and put it up on the beach there and figured it would do the job that we had been asked to have it ready for by the 21st of June.

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Mr. Fulton. With no more tests than that?

Captain Rawlings. With no more tests than that, I ordered it.

Mr. Fulton. Your subsequent tests with respect to them have developed what as compared to the performance of the 96 type?

Rear Admiral Jones. As a sequel to this particular job, I have some correspondence on that subject that I should like to present to the committee and read into the record, if it is agreeable. It pertains to our recognition of the cooperation of Higgins Industries, and Mr. Higgins particularly, in representing them, on this particular job that Commander Daggett has just detailed.

Mr. Fulton. Certainly.

Rear Admiral Jones. This is a letter from the Board of Inspection and Survey, Washington, dated July 19, 1941, and written to the Chief of Naval Operations.

"Subject: Higgins Industries Inc., New Orleans, La. - National Defense efforts; Recommendation for recognition of.

"1. During a recent visit to New Orleans to conduct the trials of a motor torpedo boat designed and built by the Higgins Industries Inc., the President and Members of the Board of Inspection and Survey made an inspection of the entire plant of that Company. The quiet efficiency of the workmen was most impressive to all of us and it indicates a higher morale to an extent that makes it difficult to appreciate that this Company has constructed several hundred motor boats for this and foreign governments while the construction of the plant was still in progress. Only just now is the plant about to reach a state of completion.

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"2. A recently constructed 45-foot tank carrier was most impressive as were the 36-foot landing boats with and without ramps. Both of these units are unique in design features not to be found in any other boats inspected by this Board. This originality of design combined with the high morale of the workmen represents a splendid contribution to the Nation Defense effort.

"3. As an example of an "all out" effort by the Higgins Company, I wish to mention that there were recently constructed and delivered at Norfolk, Virginia, nine 45-foot steel tank carriers and twenty-six 36-foot landing boats with ramps. This delivery of thirty-five boats for the Navy was accomplished in thirteen working days after the order for their construction was given.

"4. This accomplishment is believed to be worthy of special recognition and it is accordingly recommended that the Chief of Naval Operations urge the Secretary to address a suitable letter of appreciation to the Higgins Industries, Inc.

"(Sgd.) J. W. Wilcox Jr."

The letter of August 5, 1941, reads as follows:

"My dear Mr. Higgins:

"As a result of an important task to be performed by the Navy, it was necessary to obtain 45' steel tank lighters as quickly as possible.

"On June 7, 1941, you were called by telephone and authorized to proceed with the manufacture of forty-nine steel tank landing boats in general similar to the experimental ramp-type boat approved by a board of officers at New Orleans on the previous evening.

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You were informed that the first nine boats were urgently needed at Norfolk by June 23. On June 21 the nine boats left New Orleans in a special train with a crew from your organization going along to instruct Navy personnel in the correct operation of the boats, and to make sure that they were in first class operating condition when placed in the water. The production of these boats in fourteen days involved continuous and unceasing effort by everyone connected therewith, and in particular the supervisory organization, headed by your sons, worked without stint or thought of rest for long stretches in order to keep the work moving.

"Difficulties in arranging shipment had to be surmounted, such as, arranging with railroads to raise certain overhead bridge clearances, strengthen others, et cetera, and all this also called for untiring energy, ingenuity and efficiency.

"As a result of the efforts exerted by you and your splendid cooperation, the assigned task given to the Navy was made possible.

"Accordingly, the Secretary takes this occasion to commend you for your zeal, efficiency, and splendid cooperation with the Navy.

"Sincerely yours,

"(Stamped) Ralph A. Bard
"Acting Secretary of the Navy.

"Higgins Industries, Inc.,
"New Orleans,
"Louisiana."

04 That is also pertinent in connection with your query yesterday as to any recognition or commendation that has been given to Mr. Higgins.

I might add to that, from my personal viewpoint, that Mr. Higgins and his accomplishments are a by-word in the Navy Department; we often talk about them. I personally feel very strongly on that subject from every point of view as to his contribution to the national defense effort.

Mr. Fulton. Is your opinion, Admiral Jones, the same as Commander Daggett's with respect to the performance of the two types of lighters?

Rear Admiral Jones. I am not as personally familiar with all those details as I should like to be. There are just not enough hours in the day or days in the week to gather together the manifold detail of a job of this size, when you have the 20 or 30 billion dollars worth of work that we are handling.

Mr. Fulton. But, Admiral, in particular are you in agreement with Commander Daggett that the reason the Navy abandoned the three or four sources that you have referred to--Consolidated Steel, George Lawley, American Car & Foundry, and the Navy's own type of design of what Commander Daggett considers a successful lighter--was that those companies were unable--were so hopelessly unable--to increase their production facilities that it was not even worth discussing?

Rear Admiral Jones. My personal opinion is this, Mr. Fulton: that we had a man and a plant that we felt could do the job, and we gave him the job to do.

Mr. Fulton. But specifically I am trying to determine whether Commander Daggett was stating something that you agree with: that the reason, and the sole reason, was that of speed.

Rear Admiral Jones. The reason--the sole reason--in my opinion, was that Mr.Higgins could do this job that we had to do, we asked him to do it, and he did it.

Mr. Fulton. But this is my point: If you considered the Bureau lighter a successful design and there were people who were making the Bureau lighter, who had experience in it, unless those people had failed or were already so tied up with orders, considering their capacities, would you not have gone to those people and, at least, asked them whether they could increase their production?

Rear Admiral Jones. I do not know the reasons that led to the decision.

Mr. Fulton. My question relates to the abandonment of the successful Bureau type of lighter and the abandonment of successful contractors. That was not done lightly, was it?

Rear Admiral Jones. I gather from Captain Cochran that they were producing at the maximum rate at which they could produce at the time.

Captain Rawlings. I think everyone will agree that different plants have different capacities. In other words, we felt that Mr. Higgins' proposition offered the best prospect of getting the lighters on the date on which we needed them.

Mr. Fulton. You preferred to try an untried design without even so much as consulting the others?

Captain Rawlings. It was not an untried design. Commander Daggett himself stated that the decision was not reached until after he had visited New Orleans and witnessed a test of Mr. Higgins' lighter.

Mr. Fulton. But in that time you had not even made a request of these other companies.

o6 Captain Rawlings. Mr. Higgins, if I recall the situation correctly, had indicated that he would be able to build lighters of that character, and Commander Daggett called Mr. Higgins because of his feeling that he would be able to do the job, and he got a response from Mr. Higgins which made him feel that he was going in the right direction.

Mr. Fulton. Taking up specifically the case of the American Car & Foundry Company, what had it been producing in numbers and over what period?

Captain Rawlings. On that first one, I have not the actual delivery date of lighters that were then under contract with those companies.

Mr. Fulton. Were those companies at capacity production at that time?

Captain Rawlings. As far as I know, they were, sir. In other words, we had given them a job to do, and they were doing it at the maximum rate, at least, that we thought we could expect from them, and they, therefore, did not have the same opportunity of getting the lighters within the time we required them as did Mr. Higgins.

Mr. Fulton. Who, in any event, would have been responsible at that time for making that decision?

Captain Rawlings. The Chief of the Bureau, of course, sir.

Mr. Fulton. Under him who?

Captain Rawlings. Well, he would receive recommendations from several sources. He was largely influenced by Commander Daggett's report.

Mr. Fulton. Was it you, Commander Daggett, who was responsible for knowing the production rate and capacity of the American Car & Foundry, George Lawley & Sons Company, and

o7 Consolidated Steel?

Commander Daggett. I will not say I was responsible for knowing it.

Mr. Fulton. Did you know it at the time?

Commander Daggett. I will not answer yes or no to that, because I cannot recall.

Mr. Fulton. Did you, Captain Rawlings, know it at the time?

Captain Rawlings. At what time?

Mr. Fulton. Did you know the capacities and the rate of progress that those companies were making on that tank at that time?

Captain Rawlings. We had a report on their progress and status. We got the reports regularly, Mr. Fulton.

Mr. Fulton. You were convinced, with the progress they had at that time established, that they were not capable of increasing production?

Captain Rawlings. No, sir, I would not put it that way. We were convinced we had a greater promise of getting lighters in the time we needed them from Higgins than we would by adding to the load that had already been placed with the other contractors.

Mr. Fulton. There were 50 that you needed?

Captain Rawlings. 50 additional.

Commander Daggett.They wanted as many as they could get by the 21st of June.

Mr. Fulton. If that was the case, would it not be necessary for you to go to the other three and ask whether they could, at least in part, because you did not hope, did you, that Higgins could produce 50 lighters by the 21st of June?

o8 Rear Admiral Jones. We had constant pressure on those other manufacturers to produce at that time as rapidly as they could.

Mr. Fulton. So, you did believe they could not add any?

Rear Admiral Jones. That is correct.

Captain Rawlings. We were urging them to deliver as many as they could, but we did not have hopes of their being able to deliver as many as we could get if we went to Higgins.

Rear Admiral Jones. It was really an additional source of supply.

Mr. Fulton. They were all actively at that time manufacturing 96?

Captain Rawlings. That is right; they had contracts awarded previously.

Captain Cochran. I am Captain Cochran. I think I may be able to clear up some of these points that have come up.

Senator Kilgore (chairman of the subcommittee). Then, Captain, I had better swear you. Will you please rise?

Do you solemnly swear that the testimony you will give will be the truth, the whole truth, and nothing but the truth, so help you God?

Captain Cochran. I do.

Senator Kilgore. Before going into this, I want to ask a question. On those 96 lighters, was there a definite production schedule under the contract?

Captain Rawlings. Yes. In the case of the American Car & Foundry, they were required to deliver one by the 15th of July, 1941, and one additional a week thereafter.

Senator Kilgore. Were they up to schedule?

Captain Rawlings. The progress report we received did not

09 indicate that they were behind schedule. We still expected them to make delivery.

Mr. Fulton. Do you mean that at that time there had not been any delivery of Navy Bureau type No. 1?

Captain Rawlings. That is right.

Mr. Fulton. Not even one?

Captain Rawlings. According to my records.

Mr. Fulton. There had been no commercial delivery of the Bureau tank lighter No. 1?

Captain Rawlings. The contract was December 3, 1940, sir, and they had not at that time delivered, according to my records, any of the lighters.

Mr. Fulton. Not any of the three companies?

Captain Rawlings. Not any one of the three.

Senator Brewster. You turned to Mr. Higgins, then?

Captain Rawlings. Well, Senator Brewster, then were delivering their lighters in accordance with the contract.

Senator Brewster. I understand.

Captain Rawlings. They were newcomers to the field; they had not built any of the lighters before. We did not consider that their delivery schedules at that time were unreasonable under the circumstances.

Senator Brewster. The American Car & Foundry Company was doing a great deal of other work?

Captain Rawlings. Yes.

Senator Brewster. I was through their plant at Berwick. Was that where they built them?

Captain Rawlings. They built them at Wilmington.

Senator Brewster. I saw their tank plant at Berwick. But this was distinctly a side line with them? It must have been?

o10 Captain Rawlings. It was, of course, the first order they had ever received.

Commander Daggett. I might say that they were building some of these for the Army at the same time, and the Army's had precedence over ours. Ours were on the tail end. That was why we got the Army to send the first eight to Iceland, replacing them with ours later.

Senator Brewster. I did not know the Army got ahead of the Navy.

Commander Daggett. They did at that time.

Mr. Fulton. When were the Army tank carriers delivered?

Commander Daggett. I do not know.

Mr. Fulton. Under those circumstances, the question arises, first, Were those schedules that you had put into those original contracts the best schedules you thought those companies could reasonably be expected to meet?

Captain Rawlings. That was the schedule we thought they could be able to meet. We thought that schedule was not unreasonable, under the circumstances.

Mr. Fulton. But did you say you would not be able to find manufacturers who could do better than that?

Captain Rawlings. We went to the manufacturers which we thought offered the best promise, everything else considered.

Mr. Fulton. I understand that, but you thought there were no others, such as Mr. Higgins, who might be able to better that by a month or two?

Captain Rawlings. At that stage of the game it was the result of getting out schedules and asking for bids.

Mr. Fulton. Did you ask Higgins for a bid?

Captain Rawlings. At that time I do not think anybody considered Higgins Industries as being a steel fabricator or

oll builder of these particular boats.

Mr. Fulton. What during those seven months led you to believe that when you were asked to place a hurry-up order you should turn to Higgins?

Rear Admiral Jones. We had been in constant conversation with Mr. Higgins in the landing-boat program, and in our business relations it came out, represented, I imagine, by Mr. Higgins, that they could undertake such a job.

Mr. Fulton. He had not done that prior to December, 1940?

Rear Admiral Jones. When he first did that, I could not say.

Mr. Fulton. Mr. Higgins, did you have any communication with the Navy prior to December, 1940?

Mr. Higgins. Yes, sir, I filed with the Bureau of Supplies and Accounts and notified everybody in the Bureau repeatedly that we were specialists in the design and development of that type of boat. We had never been given an opportunity to bid on that type of boat. We were aware that they were having these boats built.

Captain Rawlings. I do not know whether a schedule was sent to Mr. Higgins or not.

Mr. Higgins. It was not.

Captain Rawlings. There is a bidders' list for this type of boat.

Mr. Fulton. Did you receive that?

Mr. Higgins. I never did.

Rear Admiral Jones. The first schedule we have a record of here this morning on these tank lighters that was sent to Mr. Higgins was in August, 1941.

Mr. Fulton. What date in August?

o12 Captain Rawlings. The schedule was mailed out on August 15.

Mr. Fulton. Did you receive the schedule mailed on August 15, Mr. Higgins?

Mr. Higgins. No, sir, we did not.

Rear Admiral Jones. I think that this would be an appropriate place to introduce this record which you asked for yesterday. It concerns schedule 500-3849, asking for bids on 131 47-foot tank lighters. It was mailed out on the 15th of August, 1941, to a list of bidders attached. There are 43 bidders, 29 on the East Coast and 14 on the West Coast. In that list there appears Higgins Industries, New Orleans, Louisiana. The opening was set for 9/3/41. Due to a request from additional bidders, the schedule was postponed one week to 9/10/41. Then, the number was reduced on the 20th of September to 6 with an option for 4. It was again postponed on 10/8/41 for changes in design.

On 8/20/41 Mr. Higgins, or Higgins Industries, deposited a check for $200 for plans and specifications, which were personally delivered to Miss Carol Mathis, Washington representative.

The award for the 10 was made to Higgins, who was low bidder, on the 27th of October, at a price of $24,440. The Government furnished the engines.

Senator Kilgore. That from which you are reading was on an order or a schedule for 131 lighters?

Rear Admiral Jones. That is correct.

Senator Kilgore. That is not the 96-lighter schedule?

Rear Admiral Jones. No, the 96 were previous to that.

Senator Kilgore. That was a previous schedule. All right.

013 Rear Admiral Jones. I would have to check the records of the Bureau of Supplies and Accounts--their so-called bidders' list--to find just the exact list that the previous schedule went to.

Mr. Fulton. My questions would relate first to this list.

Rear Admiral Jones. That, of course, is a secondary list.

Mr. Fulton. Do you have carbon copies of the letters that were mailed out?

Captain Rawlings. The Bureau of Supplies and Accounts has them.

Rear Admiral Jones. We can obtain that information from the Bureau of Supplies and Accounts.

Our procedure is this: We originate a schedule of the material that we want, or the equipment, whatever it is. We write the specifications, and we turn them over to our contracting officer, the Bureau of Supplies and Accounts. They undertake to maintain a list of qualified suppliers and purveyors of the particular type of equipment involved, and they mail that on the competitive system to all those on that list. We in connection with our work attempt to supply the Bureau of Supplies and Accounts with such additions to that list as they come up, in case we feel that they are qualified to do our work.

Mr. Fulton. You have done that in the case of Mr. Higgins?

Rear Admiral Jones. No, I think that Mr. Higgins probably made the request directly to the Bureau of Supplies and Accounts, which is the ordinary procedure for being placed on the bidders' list.

Mr. Fulton. But in accordance with what you have just stated, had you sent the name of Mr. Higgins to the Bureau of Supplies and Accounts?

o14 Rear Admiral Jones. I would not know whether we added his name to the Bureau of Supplies and Accounts list or whether his name was placed on the list at his request.

Mr. Fulton. I thought I heard you state that you undertook to furnish the Bureau with the names.

Rear Admiral Jones. On occasions, speaking of general policy, we supply the Bureau of Supplies and Accounts with additional names to their list whenever, in our opinion, they are qualified to supply the particular type of equipment involved.

Mr. Fulton. In view of the commendation that you have placed in the record, you are clear, are you not, that Higgins' name would have come within the classification to be so supplied?

Rear Admiral Jones. It certainly should have been in that classification.

Senator Brewster. I think, in view of what Mr. Higgins has said about his earlier types, it would be helpful if you could have the appropriate officer insert in the record when and under what circumstances Mr. Higgins' name first came onto the list.

Rear Admiral Jones. I will attempt to find that.

Mr. Fulton. That is a letter from the Bureau of Ships to the Bureau of Supplies and Accounts. Also, the information indicating the mailing of that list from the Bureau of Supplies and Accounts--that is, the list of specifications on August 15.

Rear Admiral Jones. Mostly, I might say, it is verbal or by telephone. If I think the name of a company should go on a certain list, I call up the proper division of the Bureau of Supplies and Accounts and ask that that name be placed on the

o15 list.

Senator Brewster. I believe one of your officers indicated that he could give that now.

Commander Daggett. Mr. Higgins stated it.

Senator Brewster. Well, I am sure it will be all right to have his version.

Mr. Higgins. It was in 1935. The Bureau of Supplies and Accounts issued a list identifying the various equipment concerns that considered themselves qualified to receive specifications on which to quote, and you check these different items.

At that time I came to Washington, and I interviewed various prople here. First I was in the Bureau of Supplies and Accounts, which was particular to see that our name was properly identified in the different capacities and specialties that we work in. Among those, of course, is equipment of this kind.

Of course, starting back in 1935, when Mussolini started his activities in Ethiopia, I foresaw a world war and anticipated the needs of my country. Repeatedly I had been to the Marine Corps and discussed these things with them and also with those of the Navy. At that time I met some officers, but it was not, I believe, until 1939 that I met Commander Daggett and until 1940 that I met Captain Cochran.

The only thing is that it just happened--and we were curious about it--that we were not offered the opportunity of cooperating with the Navy, of quoting, or of giving any of the talent we think we have or the capacities we know we have to them in connection with landing boats or tank carrier lighters.

Senator Brewster. When did you first receive a letter certifying you to bid on tank lighters?

Mr. Higgins. It was a telephone call.

o16 Senator Brewster. We understand about the telephone call of Commander Daggett, but I am asking you--

Mr. Higgins (interposing). When was the first communication?

Senator Brewster. Yes.

Mr. Higgins. I do not believe I received a letter at all. I first received a telephone call from General Moses, of the Marine Corps. I would say it must have been about May 20 or a day or two after May 20.

Senator Brewster. Prior to that time you had not at all been notified to bid on any of these lighters?

Mr. Higgins. I had not.

Senator Brewster. Although you had presented to the Department what you considered was information ample to qualify you?

Mr. Higgins. Yes.

Senator Brewster. But you had not been put on a list?

Mr. Higgins. That is correct.

Senator Brewster. You then had this episode?

Mr. Higgins. I had, however, been in touch with the Bureau of Ships of the Navy, and I had furnished them a list of boats.

Senator Brewster. But in May and June you went forward with the episode about which we have heard. Then, you appeared on this list of August 15, 1941?

Mr. Higgins. Yes.

Senator Brewster. Did you or did you not receive a letter inviting you to bid at that time?

Mr. Higgins. No, we did not. The first I heard that there was a matter of 131 boats was around the first part of June, and we had discussed--that is, by notice from the Bureau

o18 the mandatory orders as regards negotiations.

Senator Kilgore. Captain Rawlings, I want to ask a question or two on one point. Discussing those 96 ships or boats, the delivery schedule on them was that the first boat was to be delivered in six months from all three of those companies?

Captain Rawlings. No, sir. This progress report I have shows that the 31st of May, 1941, was approximately the time or date when Commander Daggett took this matter up with Higgins. The American Car & Foundry Company, which had a contract for 38, was awarded that contract on December 3, 1940, with a promised delivery schedule of one not later than the 15th of July, 1941, and one additional each week thereafter. That represented, in our opinion, a reasonable delivery schedule, and would have met, as far as we knew at that time, our delivery requirements. We had not received this urgent demand for the additional lighters before the 21st of June.

Senator Kilgore. What schedule did the others have approximately?

Captain Rawlings. The Consolidated Steel Corporation of Los Angeles, which had received an award for 32, promised deliveries of three by June 12, 1941, and three by June 23, 1941. Do you care to have me go through the list?

Senator Kilgore. No.

Captain Rawlings. The last of them were to be delivered in October, 1941.

Senator Kilgore. What was the delivery schedule on the 50 that were let to Higgins, of the Higgins' type boat?

Captain Rawlings. They were the 50 that Commander Daggett awarded to Mr. Higgins.

Senator Kilgore. What was the delivery schedule on them?

019 Captain Rawlings. I have not the record. As many as possible were to be delivered by the 21st of June. It turned out to be 9.

Senator Kilgore. What date was the contract awarded?

Commander Daggett. He started work immediately after my telephoning Washington from down there.

The schedule shows that the order for 50 was broken down into item 1, for the first 9, at a unit price of $28,500; then the next 25, called item 2, were at a unit price of $24,500; and the next item, item 3, was for 16, at a unit price of $23,000.

Senator Kilgore. What was the date on which you got the O.K.?

Commander Daggett. Item 1 to be shipped from New Orleans by rail not later than the 17th of June--in other words, that is 9.

Senator Kilgore. What date was he awarded that contract to build those boats?

Captain Rawlings. The 23rd of June, 1941.

Senator Kilgore. He was to deliver on what date?

Commander Daggett. On the 17th; in other words, he went ahead on telephone approval.

Senator Kilgore. When was he told to go ahead? When was he given the "go" sign?

Commander Daggett. I assume toward the end of May--the 30th of May--by telephone as a result of my call from New Orleans to Washington.

Senator Kilgore. He delivered 9 boats in how many days?

Commander Daggett. Nine days.

Senator Kilgore. Were those the Higgins type of boat?

o20 Commander Daggett. These were the Higgins type, which he had produced himself.

Senator Kilgore. For these others the minimum--the very minimum--would be around three months for the first delivery, and some seven months. Was that difference in time occasioned by difficulty of design, requiring more time to build the Bureau type of boats as compared with the simpler design of the Higgins type boat, or was it occasioned by factory facilities--a difference in factory facilities?

Captain Rawlings. Senator Kilgore, I think it was accounted for by the fact that neither of those had built or experimented with any of that type of boat. We started out with a new design.

Commander Daggett. I think the tie up was bulletproof steel that was to be fitted to them and which was hard to procure. I think that was responsible for quite a delay in the first of those lighters. We were so anxious to get those lighters by the 21st of June that I had authority not to bother about bulletproof steel.

Mr. Fulton. Why was there not sufficient bulletproof steel to manufacture one lighter prior to June?

Commander Daggett. Apparently it takes some time to manufacture it.

Rear Admiral Jones. Not only that, but we are using large quantities. We have had a critical shortage of bulletproof steel for our whole program.

Senator Kilgore. Have you had a critical shortage of all steel?

Rear Admiral Jones. We have had a critical shortage of all steel--of alloy steel, or high tensile steel, of S.T.S.--and I

o21 know personally that the American Car & Foundry Company was exerting pressure on us constantly to get them bulletproof steel; but at that time we were altering merchant ships, putting shelters in, using this steel, and that situation on this particular type of steel is just clearing itself now. It will probably be a couple of months more before it is clear.

Mr. Fulton. There was not enough for even one?

Rear Admiral Jones. It is a question of relative priority and relative need.

Mr. Fulton. But the relative priority was not, in the opinion of the Bureau of Ships, such that even one tank lighter should be built?

Rear Admiral Jones. At the time, as Captain Rawlings said, until this urgent demand for these 50 lighters came, we had no great pressure on us to turn out tank lighters. If we could have diverted steel from combative ships and the conversion of merchant ships to these tank lighters, that in itself would have represented a delay in the changing in guage and the thickness to the special shapes for this steel.

Mr. Fulton. I take it that it was concluded that you needed in addition to the 50 at least 131 more, or else you would not have contemplated asking for bids on 131 more?

Rear Admiral Jones. We needed those, but there was no urgent pressure on the Navy Department to get them out in any specific time at that time.

Mr. Fulton. What I have in mind is, How did that pressure become eased after the 21st of June, making it unnecessary then to consider how fast you got any more?

Rear Admiral Jones. At that time we were gearing our tank lighter production to the conversion of our combat load troop

o22 transports.

Mr. Fulton. It was concluded that you had been mistaken in thinking you needed a larger quantity?

Rear Admiral Jones. The operational end of the Navy decides when and where we need those, and they were not bringing any great pressure on us at that time for tank lighters other than to have comboat loaded transports equipped with tank lighters upon their completion of conversion.

Mr. Fulton. As I understood you yesterday, there had been 131 which the Navy wanted, and when Mr. Higgins said that they were no good, and he protested against the building of them--

Rear Admiral Jones. (Interposing) That is correct.

Mr. Fulton (continuing). --you concluded to build only six?

Rear Admiral Jones. That is correct.

Mr. Fulton. I thought you meant that you had changed from 131 to 6, later increasing it to 10, because of that. Am I now to understand that you changed because you concluded you did not need 131 tank lighters?

Rear Admiral Jones. We were not in urgent need of them at that time, and we could afford to delay the production of the tank lighters until this matter of designing a more satisfactory type of tank lighter was settled.

Mr. Fulton. With respect to this list of 43 that you considered satisfactory as tank lighter builders, is the committee to understand that those were considered by the Bureau of Ships as satisfactory tank lighter builders?

Rear Admiral Jones. No. They considered themselves satisfactory as tank lighter builders and had requested that when we obtained tank lighters, they be given an opportunity to bid.

023 Senator Brewster. You do not put anybody on just because he requests, do you?

Rear Admiral Jones. In the old days of competition we put practically anyone on the list who requested it. In case they were low bidders, and we were faced with the award of a contract to a particular company, and we had doubt of their ability to execute that contract, we would then make an inspection of their management, their financial condition, and their facilities to determine whether or not, in our opinion, they were satisfactory. But they went on the list at their own request. We did not screen the list at that time.

Mr. Fulton. My question relates to this: You were informed by the Chief of Naval Operations and the General of the Marine Corps that they had urgent need for as many of those 50 as could be built by the 21st of June. Which of those 43 companies, other than Higgins, did you go to to ask to build some or as much as one?

Rear Admiral Jones. As far as I know, none.

Mr. Fulton. Why not?

Rear Admiral Jones. Because we considered Mr. Higgins as capable of turning out the job.

Mr. Fulton. Fifty?

Rear Admiral Jones. The nine that we wanted. You mean for the balance of the fifty?

Mr. Fulton. I understood that you wanted as many of the fifty as you could get. Which one of these companies did you consider could have made so much as one; and if they could have made one, why did you not ask them to make one? Could you look over the list and pick out the ones you think could have helped?

The question really is, If this Bureau ship or any Bureau

024 designed ship was worth building and you had plans for it, and designs, and you wanted fifty in a hurry, why did you not go and have some one manufacturer make at least one before the 21st of June?

Rear Admiral Jones. Well, at this time practically all the companies, or at least these companies on this list, were fully engaged in other parts of the defense program.

Mr. Fulton. In other words, there was not one, is that it, to whom you could turn in the emergency?

Rear Admiral Jones. I do not know of any on that list that could have turned out the job in the same time Mr. Higgins turned it out.

Mr. Fulton. The next question is, After you reduced your contract request from 131 to 6, and if the Bureau type of boat was the one which you thought should be built, why did you not give contracts for the further building of them to such of those companies as could build tank lighters, either under a new contract or under an increase of the existing contracts with the three companies?

Rear Admiral Jones. Well, we had apparently the time available to clarify or attempt to clarify the design question as to which was the best tank lighter.

Mr. Fulton. That time, as it turned out, was the period from August, 1941, to a date, I believe, in April or May of this year?

Rear Admiral Jones. It has not ended yet, Mr. Fulton; it is still going on and will probably go on until the end of the war.

Mr. Fulton. In other words, the time between August and April was not of importance?

025 Captain Rawlings. May I clarify that and state why the order for 131 was reduced to 30?

Senator Brewster. It was reduced to 6.

Captain Rawlings. We received a request from the Chief of Naval Operations requesting that we not award 101 of those lighters until we had had a chance to test the Bureau type and the Higgins type to determine which of the two types would be best suited for the purpose, so the delay of the 101 was on that account.

Of course, Senator Brewster, we do not build any lighters unless they are built to the characteristics set forth by the operations people. They approve the characteristics to be embodied in the lighters. In fact, in most cases they go into details of design and the relative merits of the different types on paper.

Senator Brewster. It seemed a little unusual that they should intervene in the matter of design at this point, having told you what they wanted and said they wanted 131, and then tell you to wait until you knew which type was better.

Captain Rawlings. They wanted the larger type of lighter, which had not at that time been built.

Mr. Fulton. In other words, they did not want 131 boats?

Captain Rawlings. They asked us to defer awards on 101.

Mr. Fulton. I understand that, but my question was, They expressed the opinion that they did not want that number of boats?

Senator Brewster. That was not what he said.

Mr. Fulton. That is what I am asking him.

Captain Rawlings. That was not what I said, no, sir.

Mr. Fulton. What is the answer to the question I asked?

o26 Captain Rawlings. We did not make an award for the full 131 boats because Operations asked us to delay the award on 101 until the types had been further tested to determine which of the two types would meet their service requirements.

Mr. Fulton. I understand that, but my question relates particularly to whether you are aware of the reason that Naval Operations had. What was the reason why they did not need or want 131 tank lighters?

Captain Rawlings. The reason they wanted 131?

Senator Kilgore. No; the reason for asking you to defer awards of 131. Mr. Fulton is asking what the reason for that was.

Captain Rawlings. I will ask Captain Cochran to answer that; he was working with Operations.

Captain Cochran. I have been in quite intimately on the present problem, and I think I can clarify some of the questions.

At the end of May, 1941, as you may recall, there were urgent secret military operations organizing. The President had made up his mind that he had to be prepared to do things, and we were asked to have material ready; that these expeditions had to go. There was no question the material to go with them was the best, and the question was for them to have stuff to go.

One lot of these lighters was built on the West Coast. The expedition was to form on the East Coast. It was perfectly impossible to think of getting the material accelerated, shipped across country, and have it in Norfolk at the time it was required. The other companies that were building on the East Coast had gone ahead with their orderly schedule in the design, which included some special materials, as Commander Daggett has pointed out. We considered carefully the possibility of getting

027 accelerated deliveries from those contractors and decided it was not possible to accomplish what we needed in the time available.

Senator Brewster. Or any contribution?

Captain Cochran. I think that could be clearly stated. In other words, we were not able to get any deliveries from them which could be expected to come in because they were not at that time tuned up to be able to accelerate. Any company that has material on hand and has a force of men on hand can pick up and accelerate.

Mr. Fulton. They certainly had a force of men and tools.

Captain Cochran. Who?

Mr. Fulton. The American Car & Foundry Company.

Captain Cochran. They were not available for this sort of work. They were doing this sort of work at Wilmington, where they had a relatively small crew for this kind of work at the time.

That first expedition finally did not move as it was expected to move, and the pressure--some of it--came off. But by that time we had accumulated most of the fifty, which Mr. Higgins finished, and some had begun to come in. So, the immediate needs were cleared up.

Prior to all this trouble we had started the design of a modified Bureau lighter, one which we thought, as a result of experience and observation abroad, would satisfy the needs more satisfactorily.

Then the question came up of the award of the 131 lighters of both designs, the one which Mr. Higgins testified he developed as he went through his order, and the other type. Finally a decision was reached that it would be unwise to order all of the 131 of either type, so the decision was made to defer

o28 the awarding of 101 of them and make an award of 10 of one type and 20 of the other, in order that we could carry through a reasonable development in competition.

Mr. Fulton. But at the time the specifications for the 131 had been prepared, it was concluded not to ask for any of those of the Higgins type?

Captain Cochran. Yes. We felt that the improved Bureau type included characteristics which gave it greater general superiority.

Senator Brewster. Was it unusual for the Chief of Naval Operations to intervene in that manner?

Captain Cochran. No. Practically all we do is checked over by some member of the Chief of Naval Operations staff.

Rear Admiral Jones. He had a special board on this one problem of landing craft.

Commander Daggett. He has a permanent board.

Senator Brewster. They not only tell you what they want, but they check up to see whether what you are producing seems adapted to service conditions?

Rear Admiral Jones. That is correct.

Senator Brewster. Do they finally have to approve it before you act?

Rear Admiral Jones. They have finally to approve it before we act.

Senator Brewster. After you have prepared your designs?

Rear Admiral Jones. After we have prepapred our designs.

Senator Kilgore. They had approved, then, the 131 that were entirely of the Bureau type, in the first place, and then they changed their minds; is that right?

Captain Rawlings. May I read into the record a letter

029 which I think will clear this up?

Senator Kilgore. Yes.

Captain Rawlings. It is under date of September 25, 1941, and is from the Chief of Naval Operations to the Chief of the Bureau of Ships.

"Paragraph one of reference (b) stated it was desired that the Bureau of Ships award contracts for not more than 12 additional tank lighters pending the recommendation of the Department Continuing Board for the development of landing boats, after receipt of recommendations from the Forces Afloat.

"Although recommendations from the Forces Afloat have not yet been received in the Department, sufficient information is at hand to modify reference (b) to some extent. Referring to the recommendation contained in paragraph four or reference (c), it is desired that reference (b) be modified as follows:

"Bureau of Ships award contracts for ten 47-foot new Bureau type tank lighters and twenty 45-foot Higgins type tank lighters.

"After delivery, service tests, and comparison of 47-foot Bureau type tank lighters and 45-foot Higgins type tank lighters, decision will be made regarding the remaining 101 lighters to be acquired."

Senator Brewster. You said 10 Bureau type and 20 Higgins type in that letter?

Captain Rawlings. That is right.

"If the contracts for the 30 tank lighters to be acquired are awarded to one manufacturer, it is desired that he be required to furnish one Bureau type tank lighter for each two Higgins type lighters delivered"--

030 which was done; 10 and 20.

"It is desired that the Bureau of Ships make every effort to expedite delivery of a Bureau type lighter so that decision may be made on the remaining lighters."

That was why we did not award more than 30 of the 131 lighters.

Mr. Fulton. May I clarify the exact position of the Navy? Correct me if this is not an exact statement. As I understand it, the position now of all the officers who have testified is that the 96 Bureau type No. 1 lighters were entirely satisfactory; there was no question whatever as to them except for their capacity; and the only reason for asking Mr. Higgins to build any lighters before June 21 was that there was no manufacturer known to the Navy anywhere who could produce as much as one?

Captain Cochran. I think you have worded that very unfortunately, Mr. Fulton. It was not that we could not get even one. This was steel work. If you are familiar with steel construction, you know that building a single one of any type is the most expensive and most difficult procedure. When you once get templates made, you can build multiples of a type with a great deal of facility. Usually if you get a number of people each building one, it would be a most difficult procedure involved.

Mr. Fulton. Unless you characterize the action of the three manufacturers--Lawley, American Car & Foundry, and Consolidated Steel--as extremely incompetent, the statement you have made would indicate that they and not Higgins were the people who should have been seeking to expand, because they would have had all the advantages for expansion, and he would have had none; is that correct?

031 Captain Cochran. As I say, that situation was canvassed at the time the situation came up.

Mr. Fulton. You asked them, and they could not expand?

Captain Cochran. No. One of them was on the West Coast, and we needed delivery of the material on the East Coast.

Mr. Fulton. Was the material capable of being freighted by rail?

Captain Cochran. The problem of freighting it by rail was extremely difficult.

Mr. Fulton. It was not considered because of that?

Captain Cochran. That is correct.

Mr. Fulton. With respect to the American Car & Foundry Company, were they asked if they could increase by one or more?

Captain Cochran. I am not sure that they were actually asked, but the question of whether they might be was considered, and time was of the essence in this thing, and it was necessary to send one officer who was capable of going down--not the only officer, but the officer who was best qualified to go down--immediately to New Orleans, and he moved to New Orleans to check on the result of the discussion with Mr. Higgins, and that was Commander Daggett.

Mr. Fulton. Commander Daggett, did you telephone to the American Car & Foundry Company?

Commander Daggett. No.

Mr. Fulton. Did you write to them?

Commander Daggett. No, sir.

Mr. Fulton. Did you ever at that time ask them if they could have made one or more between then and the 17th of June?

Commander Daggett. No, sir.

Captain Cochran. No delivery had been made at that time.

032 They were not tooled up to make delivery within that time.

Mr. Fulton. Had you been to their plant at that time?

Commander Daggett. I have never been to their plant--not I.

Mr. Fulton. Do you mean that the Navy ruled out a company of the character of American Car & Foundry without looking at their facilities?

Rear Admiral Jones. We have had a number of people up at the Wilmington plant and yards, but that is a small operation, a subsidiary of the American Car & Foundry Company. I talked to the president of the company about the organization up there. Their management was unsatisfactory. I brought personal pressure on the management to make their management satisfactory. They moved new personnel in to the Wilmington plant from their main operations so that they could produce satisfactorily. We are doing that all the time.

Also, the Bureau of Ships, I think, has never supplied anything to the fleet that is entirely satisfactory and efficient in any line. When Mr. Higgins' lighter gets out with the fleet and our lighter gets out with the fleet, both of them will have defects.

Mr. Fulton. I was not aware that there were any defects in this Bureau type No. 1 or No. 2, from the Navy's statement.

Rear Admiral Jones. There are possibilities of improvements in that and possibilities of improvements in Mr. Higgins' lighter. I think Mr. Higgins would be one of the first ones to admit it.

The demands of this equipment in the fleet, as was stated before, are that it be capable of being used for a large number of purposes. In some of these operations they will find certain

033 defects in operation. Some things they will not test beyond their capabilities of doing things they want done. We are in a constant flux of improvement all the time.

Mr. Fulton. With respect to the American Car & Foundry Company, the committee is to understand that there had been a failure of its management?

Rear Admiral Jones. There was at one time.

Mr. Fulton. That in effect ruled it out of consideration for this increase?

Rear Admiral Jones. Although it was not specifically taken up with them, it was evidently our opinion at that time that on this urgent job they could not have turned out the product in the time we wanted it.

Mr. Fulton. Not even one?

Rear Admiral Jones. I would not say not even one.

Mr. Fulton. Why was not that checked? It was desirable to get as many as possible. Here was a company nearer Norfolk by far than Higgins, but, as I understand it, they were not even so much as telephoned and asked.

Rear Admiral Jones. Well, it was our judgment at that time that we would be better off to put this job with Mr. Higgins, and that is all that I can say.

Senator Brewster. Your judgment was vindicated by events?

Rear Admiral Jones. I feel so.

Captain Rawlings. We had an inspection made. I should like to have Lieutenant Commander DeKay give the results of his inspection in April, 1941, and to tell of his efforts to get lighters from the American Car & Foundry Company.

Lieutenant Commander DeKay. I first went to the American Car & Foundry Company in Wilmington. It is a rather large

034 plant that has a very small front. They were at that time finishing up some of the Army tank lighters, of which they had eight. I went there to expedite ours. They probably had about 120 men, and they were trying to build up their force but were having considerable difficulty, due to a great many other shipbuilding companies in the vicinity, in securing labor. Their management in New York also felt they were not building very fast and, as Admiral Jones said, they were trying to stir them up. The company itself apparently had good management at the top, but the weak spot was right at Wilmington.

They were considerably delayed in getting S.T.S. steel--bulletproof steel--for these tank lighters, due mostly to the fact that the bulletproof steel came from new mills and was being used in a great many other places.

Mr. Fulton. Did you also visit the Lawley yard?

Lieutenant Commander DeKay. I visited the Lawley yard also, yes, sir.

Mr. Fulton. Was the same thing found there?

Lieutenant Commander DeKay. No, sir. The Lawley yard was a much smaller yard physically, but they were also building a great many other things for the Navy. The Lawley contract was for only 12 lighters.

Mr. Fulton. In your opinion, they could not have built another lighter?

Lieutenant Commander DeKay. No, sir, I do not think they could have. I think one point ought to be brought out clearly, and that is that the lighter that Lawley and the American Car & Foundry had been building was completely different from the lighter that Higgins was building, a very much more complex and

035 difficult lighter to build. Higgins was given carte blanche in making his, as he made his to no known plan. He practically developed the lighter as he built it.

Mr. Fulton. Do you, Commander Daggett, agree with that, because, as I understand it, you said the lighters were equal in performance?

Commander Daggett. Bulletproof steel was one thing. Also, we had better fittings in it to take care of this prior order for the Marines. To get to the answer to your question, as regards the development of the Bureau 50-foot lighter against the Higgins 50-foot lighter, I am told that the bids that we have received are practically identical, as far as cost is concerned, with the builders.

Mr. Fulton. But was the Navy design one that was more difficult to build?

Commander Daggett. Oh, yes, at that time.

Rear Admiral Jones. In the case of Lawley, they were building 173-foot patrol craft. In the early days with Lawley we had a great deal of difficulty with their management, too. They needed strengthening, and they strengthened their management. Today Lawley is doing excellent work. It is one of our very efficient small yards. But in the early days they had to be led around by the hand, As I say, a very large number of these small yards that we got into this naval construction, on wartime construction, had hibernated for a period of 20 years, and we had a problem in reviving our ship construction in those small yards. It was a difficulty all over the country, and we had that difficulty with Lawley.

Mr. Fulton. Then, when the Higgins Company obtained bids for the 20 and the 10, there came a period, I assume, when the

036 American Car & Foundry, Lawley, and Consolidated Steel performed their contracts and ran out of tank lighter contracts entirely, did there not?

Captain Rawlings. Who ran out?

Mr. Fulton. The American Car & Foundry Company?

Captain Rawlings. Yes, they did.

Mr. Fulton. Did Lawley?

Captain Rawlings. Lawley is out of the business also, sir.

Mr. Fulton. What about Consolidated Steel?

Captain Rawlings. They are continuing and still have contracts, Mr. Fulton.

Mr. Fulton. What additional contract did they obtain after the first of June?

Captain Rawlings. Well, on February 10, 1942, they obtained a contract for 15. That is all up to date.

Mr. Fulton. Those are what we have been referring to as the Bureau type?

Captain Rawlings. No, they are the Higgins type that Consolidated are making.

Mr. Fulton. Did any of those yards make another one of those successful Bureau type No. 1 boats?

Commander Daggett. No. I have sent out an order for 25 of the Bureau 50-foot.

Mr. Fulton. The answer is "No"?

Commander Daggett. No. The answer to your question is "No."

Mr. Fulton. We allowed yards that were building these things to stop production entirely, even though they were out of a contract?

Captain Rawlings. Of that particular type.

037 Rear Admiral Jones. We have had other types working; that is, we are not idle.

Mr. Fulton. But as far as the tank lighter program is concerned, I take it that aside from the Higgins boat, referring to the order for 20 of his--

Captain Rawlings. And 10 of the Bureau's.

Mr. Fulton. There was no tank lighter program at all for anyone else during that period in the fall of last year?

Captain Rawlings. That is right.

Senator Brewster. Mr. Higgins asked sometime ago for permission to make a statement.

Senator Kilgore. We will hear you, Mr. Higgins.

Mr. Higgins. I should like to make a statement supplementing one I made yesterday, at which time I went into detail on what I did in Washington around the 28th of August, 1941, that being the time when the Navy had invited their bids. I arranged a conference with Admiral Robinson in his office at 3 p.m. August 28.

Captain Rawlings has read the directive from the Chief of Naval Operations, dated, I think he said, September 25, 1941, setting forth what was to be done. That was just a little short of 30 days after the conference in Admiral Robinson's office. I asked for an appointment, and it developed that there was a conference.

You were not here yesterday, Captain Cochran, but in the statement I made yesterday I recalled, to the best of my memory, the names of the officers who were present at that conference, and you were one of them. You recall, of course, the conversations that took place there. I can say that it was the sense of everyone there, and the determination, to proceed to obtain

038 bids for constructing 131 of a modified type of Bureau design tank carrier lighters having a length of 47 feet, which design was in fact a slight enlargement of some of the previous boats that have been referred to as Bureau type No. 1.

Senator Brewster. When you say it was the unanimous conclusion, you do not mean that you concurred in it?

Mr. Higgins. The officers present. I vigorously protested against it. I would like to add to what I said yesterday that prior to this meeting had on August 28 at 3 p. m. I talked to Commander Daggett repeatedly and pointed out to him my objections. I volunteered that if the Navy welcomed or permitted it, I would be pleased to point out what was wrong in the design in the underwater section, and other characteristics, in my opinion, of the Bureau type No. 1.

Particularly I pointed out to them one outstanding bad characteristic or element in the design of that, which was the continuation, in lay language, of the side of the boat that constituted locking in of the tunnels. That constituted a critical condition and added to the bad maneuverability of the boat and its crankiness. That was one of the things I pointed out. I did not know at that time that there were 96 of the previous ones built. I understood there were 50 coming along.

When the special train arrived in Norfolk on June 15, I was there, and on that day two tank carrying lighters arrived down the river, one towing the other. The engine had gone out on one. Those were two tank carrying lighters of the 45-foot Bureau type No. 1, built for the Army and transferred to the Navy. It was commented by someone there that they were ten and one-half months under construction. Incidentally, some of our mechanics helped to repair the engine.

039 Going back to August 28, after considerable discussion pro and con, and I might say rather vigorous objections to the Bureau design, Admiral Robinson was the one who interjected and pointed out the urgency of securing those 131 tank-bearing lighters. He mentioned that there would be large numbers of additional lighters required in a great hurry.

I said I would see to it that I was low bidder, which I was, and the records reveal by a considerably great degree, to build the Bureau type, and we told the officers there present that they would have no concern; I would build it honestly, meticulously, and in accordance with the design. I would make improvements if needed; but otherwise I would not change their lines. That was carried out.

Admiral Robinson concluded the affair by saying that his decision was that there should be five, as I recall; maybe it was six. Anyway, it was my impression that it was five. There were different amounts discussed, whether five or ten or one or two. I said it would be silly to build more than one. I would take the rap to build one. We tested that one ourselves. Each of these was regarded as a prototype of the Bureau design. We made them up and tested them under the same conditions, and to correct any defects of one or the other, a composite design could be made. I assured the Navy of full cooperation. I boasted a little about my experience and talent. I offered my services for practically nothing.

I said, "If you want to call it your design, you can call it your design; you can get the credit for it."

But it was very definitely understood and it was so stated by Admiral Robinson that this program would not proceed until it was determined which of the two or a composite of the two

040 would serve for the job. We were willing to extend ourselves to that effect.

I want to point out now, maybe in advance of these hearings, the fact that prior to our ability to get materials to produce either one--ours or theirs--our 50-foot or their 47-foot--orders were placed for a hundred of the 50-foot Bureau type No. 3. I also want to point out that after tests of the 47-foot Bureau type tank-carrying lighter were made at New Orleans, with representatives of the Bureau of Ships on board the lighter, not with the desired load of 13-1/2 ton tank, but with a light truck with a total weight of 7,800 pounds, and not at full rudder, and not at full speed, the boat was so self-evidently unstable that any further increase of speed or rudder action would have definitely turned her over.

I even proposed that I take the risk of salvage, but not be responsible for the restoration of equipment, if I be permitted to increase the rudder action or the speed.

I also went out and met representatives of the Bureau who came to New Orleans to make stabilization tests.

These are some pictures taken early in April. I want to bring out the point that after it must have been known to the Bureau, great numbers of the 50-foot tank carrier, their design, were placed with numerous yards--great numbers of them--after these tests were made.

Senator Mead. I want to clear up a point in my mind. It seems to me that Captain Rawlings in reading a letter brought out the fact that one of the bureaus of the Navy, the Bureau of Operations, suggested the awarding of contracts to more than one company or two companies to give an opportunity to construct these ships, so that the Navy would have the advantage of two

041 types and would be in a position to judge the advantages of either type. Just a moment before that I believe it was Captain Cochran who said that in the award of the 131 ships the Bureau of Ships felt that because of their characteristics the award be made for the one type of ship and that the other type of ship, of course, be excluded from consideration. There seems in the two statements to be a conflict. The bureau that operates the ships is calling for more than one type, so as to have the advantage of either type for their future guidance. The other is in the award of 131 ships, in which the Bureau of Ships held that no other type should be considered but that the contract should be confined to one type of ship. Why wasn't it a sort of helpful policy for the Bureau of Ships, at a time when they did not know or were not sure of the efficacy of this type of ship or its practicability, to award a contract for two different types within the order for 131?

Captain Cochran. In all operations of this sort complete interchangeability of equipment is extremely desirable.

Senator Mead. I know, but after you got through, then Captain Rawlings read a communication from the bureau that operates ships, and they pointed out that the two types would be of distinct advantage.

Captain Cochran. Only for test purposes; only to determine which should be the selected type, the type of which the rest of them were to be built.

Senator Mead. But at the time you awarded 131 it was not completely proved that the 131 ships were of the type that would be the standard type used in the Navy; you were still experimenting.

Captain Cochran. That is correct; but, as I say, the

042 military operation, the military situation, was fluctuating, as you recall, throughout this period, and the periods of urgency and of decreased urgency varied throughout the period. So long as there was time, it was desirable to develop. When pressure came on, then you had to move, and we have had a case of that in the very recent past.

Senator Mead. But it occurs to me that you could have developed quicker while this experimental stage was still with you and when you were not sure of this ship, to have tried several types of ships. You would have arrived at a more perfect ship and a more practical ship quicker, as pointed out in the letter which Captain Rawlings read.

Captain Cochran. That is true, Senator, except that the interval between the placing of contracts and the subsequent tests is quite long in vessels of this type under usual circumstances.

Senator Mead. But in view of the fact that your 131 order and perhaps previous orders were made for the Bureau type of ship, when you were not sure of your ship, and this statement by the Bureau of Operations coming later, which suggested two different types of ships, it seems to me that if the policy was then to continue to experiment with several types of ships, you would have had your answer before the situation that is developing here presented itself.

Captain Cochran. That is very true, Senator, but at the time the request for 131 was first discussed, they decided we needed them. Between that time and the time this letter of the 25th of September was prepared, some question had arisen, and it was decided that it was better not to order 131. So, the order was reduced.

043 Senator Mead. It seems to me that in every category the Navy of the United States should have an established ship of high merit, ready to be delivered in large volume, without delay. In other words, during the time you started experimenting with this tank lighter and began issuing orders to these companies, which your inspectors would know had not the facilities sufficient to meet the demand, it occurs to me that there should have been a period of experimentation with all those builders to the extent of their capacity to build, in order that the Navy might arrive, long before there was a demand or pressure or orders, at a type of ship that would answer the purpose.

Rear Admiral Jones. I think you are quite right. I do not think there is any question about it at all. During peacetime the first recognition that I can think of that we had in Congress on just this basic principle that you speak of was about six years before this emergency, on the small boats authorization, or patrol craft, which Congress finally approved, giving us a fund of--

Senator Brewster. Fifteen million dollars for experimental small boats.

Rear Admiral Jones. I think the Navy would have been more eminently fitted to have undertaken this emergency if throughout these twenty years of peace we had followed that in every line of endeavor, not only in small boats but in tank lighters and landing boats, and the like.

Mr. Fulton. May I ask if the Navy has been able to find for us one single test of this Bureau type No. 1, where the boat was run with the full load, at full speed, in rough water, and turned at right angles? Was there one?

Captain Cochran. While the gentlemen are looking that

044 information up, I should like to go back to your question, Senator Mead, about the desirability of having a thoroughly approved, developed type. We heartily agree with that, and there is nothing in the world, as designers, that we would prefer than to be able to do that. But, as Commander Daggett has pointed out, there was this problem. We started to attempt to solve the problem for a 6-1/2 ton very light Marine Corps tank. Before we had finished that, we had jumped into the new Army light tank, so-called, which started at 13-1/2 tons and is now up to over 16 tons. Before we had finished that, and last fall, the medium tank had appeared on the scene, and they decided that today nobody would desire to land that, and we switched then to the 6,000-pound tank.

Senator Mead. If you had split the order of 131 and given the Higgins Industries a portion of it, you would have the advantage of the boats they built at that time plus the boats that were not delivered by the companies you gave the entire order to.

Rear Admiral Jones. That is what we want to find out.

Captain Rawlings. The only excuse for not having done that was that we felt at that time that the Bureau type of design, although it had not been built and tested, offered the best promise.

Senator Mead. That should never be assumed until test proves the assumption.

Mr. Fulton. That is why I had asked if you had tested a boat which you had built under all conditions.

Captain Rawlings. Of the 45-foot size?

Mr. Fulton. I wanted to know if you had made a single test in rough water, at full speed, with full load, and making

045 a right angle turn.

Captain Rawlings. In the meantime, Mr. Fulton, on the other hand, that was offset by the fact that they had been in actual service.

Mr. Fulton. Had any of them in actual service been reported as having had any such test?

Senator Mead. If we continue that policy with reference to all sorts of ships, we are always going to be in turmoil. There will be delay and procrastination.

Captain Rawlings. There is no doubt about that, sir.

Senator Mead. So, if someone has developed a ship in the United States, and our inspectors tell us it is a fairly good ship, I think that shipbuilder ought to have the encouragement we would want a shipbuilder to have who has built the ship and designed it.

Mr. Higgins. May I say something in behalf of the Navy? You apparently may be given the impression that these three builders who had been awarded contracts, or those who were considered or had consideration for or had an opportunity to bid or to build, might have the talent to design such an unusual type of vessel. In behalf of the Navy, I can say that they did not. The Bureau--their own experimental work and their own attention to designing--and ourselves are the only two organizations qualified to even consider the designing of such types of vessels.

We have experimented with them, with relative results. We had been building that type of boat for commercial work. It was just a question of whose was the best. I believe I have many times stated to these officers here, regardless of the angle of controversy, that I would be glad to cooperate with them--guard

046 them against some things that I thought would be objectionable in the elements of design. I have had great experience, possibly more than they, with that type of boat, and I think that they should use my talents. But they were not overlooking any opportunity of having someone else contribute a worthwhile design, because nobody else was a specialist in such design.

Senator Mead. I recognize the fact that there are two outstanding designers of small ships, You are one; the other is the Bureau of Ships. However, with reference to the long list of firms that had been objecting, I do not suppose they had very much of a design division, but they depended on the Bureau of Ships for design.

Mr. Higgins. In an effort to contribute something constructive to this, I have a letter that we wrote to the Bureau of Ships. This was addressed particularly to the attention of Captain L. R. Cochran, a report of December 13, 1941. We felt that the quicker their type and our type could be constructed for tests, so that the program could proceed, it would be in the interest of the war effort. Accordingly, we wrote this:

"On the item of the special treatment steel plates which are to be used for the sides, bottom and the helmsman's shield, we do have some concern. It is necessary that we procure the special treatment steel, as stated in the contract specifications, from any one of the various Navy Yards.

"On November 22, we placed our order No. A-950 with the Norfolk Navy Yard, Norfolk, Virginia, covering these requirements and we are now in receipt of advice stating that this material is not available at that Yard."

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This is referring to the ten boats, Bureau type.

"We now have directives addressed to all of the Navy Yards, requesting advice as to whether they are in a position to furnish any or all of the plates, and until a reply is received from these inquiries, we are unable to know if we will be able to obtain the special treatment steel.

"This advice is being given with the thought and hope that through your efforts the following list of special treatment steel can be located and procured by us."

Then there is a list of the steel.

"Regarding the one Bureau designed lighter which we are rushing to completion, we have all materials available except, of course, the Government furnished engines and one-tenth of the steel, as set forth above. In the event the special treatment steel is not available for sometime, we do have enough commercial steel hull plates on hand for the completion of at least one tank lighter of the Bureau's design, and if the Bureau desires, in this manner, one hull could be built and made ready for test in a relatively short time, so that a decision can be reached as to the final design of tank lighter desired."

Mr. Fulton. You were told in the latter part of August that they were going to be asking for bids. When were those bids finally obtained, and when did you get that contract?

Mr. Higgins. That was brought out here by Captain Rawlings. On August 28 it was decided to cancel and withdraw the bids for the 131 Bureau type, and the new specifications

048 would be issued competitively and bid upon. Thereafter there came out specifications with drawings attached on the Bureau type lighter, and they invited bids for six of those. The specifications contained a clause or a proviso that the Bureau had the option of increasing the number by four to a total of ten. That was in October.

Mr. Fulton. Did you get sufficient priority for materials?

Mr. Higgins. We were granted an A1A, but that means devil take the hindmost.

Mr. Fulton. Your letter was in December. My interest is in this: if you could have built tank carrier lighters, if the materials grant were removed, in a week's time.

Mr. Higgins. We would still have to get the engines.

Mr. Fulton. When did you get engines for that Bureau type?

Mr. Higgins. They came in on February 24; and there is a lot of incidents there that might need elaboration or clarification. After the award, then the question of the type of engine came up. It was determined to be the 6-cylinder Gray Marine Diesel engine. Then it was in December, the latter part, I believe, the day before Christmas, I was called to Washington. Among other matters, the question came up of whether the engine we had brought to the Navy's attention--that is, the refinement of that standard Gray 6-cylinder Diesel, rated at 165 horsepower, had been discussed, and that Gray had developed some engine to develop 225 horsepower by opening up the breather ports and supercharging and lightening and changing the shape of the piston and changing the shape and characteristics of the jets.

The Navy had then determined that they thought it would be highly desirable to use that engine, the high speed, or prima

049 donna, or race horse engine, to do a truck horse job. I objected to that and told them that the power in the other was adequate; while more speed might be obtained for a short length of time, with higher speed and a more delicate engine, I did not think it was advisable that the fuel consumption be increased. The life of the engine would be materially reduced. For the small amount of speed, I did not think it was worth the change. But be that as it may, it caused a delay while these arguments went on. I believe there was also a question of the reduction of the ratio gear.

Then, we volunteered that we in conjunction with the Gray Marine Motor Company, for whom we act as factory branch and distributors in the South and in certain South American countries, would elect to undergo the expense of having this standard engine of the low speed type and high speed type, with different ratios of reduction in gears, in the boat for the comparative performance, and we then set up these engines. We had two of the engines ourselves on hand, used for commercial purposes. Gray shipped us two on February 24. At that time the Gray people sent two of their gasoline engine specialists and mechanics down, and our men with them went through the various experimental work on our 50-foot tank lighter with those engines to determine the characteristics and which was suitable to do the job best.

I hope that all this is constructive. We do not want to continue as the casus belli. We hope it is going to accomplish some good. Since I have to leave here today, there are other things I want to do, and I want to add just a few things to the record.

Senator Kilgore. We would like to recess for a little

050 while and resume at two o'clock this afternoon. We are not going to have a session of the Senate today. In that way, I think we can finish today.

Mr. Higgins. I should like to put in the record extracts from a couple of letters I have.

Senator Kilgore. Could you be here this afternoon?

Mr. Higgins. Yes, sir, I will be.

Senator Kilgore. Why not wait until after the recess, and you can put them into the record at two o'clock.

We will come back to this same room and go ahead, and I hope that we can complete our work today.

Senator Mead, do you have any questions?

Senator Mead. If Mr. Higgins is going to be here this afternoon, I should like to ask him some questions with respect to the effectiveness of his small submarine chasers. I would like to have him prepare to tell us what he knows about their adaptability.

Senator Kilgore. All right.

Rear Admiral Jones. Will the same staff meet in here this afternoon?

Senator Kilgore. It might be advisable. We would like to get the thing finished.

We will recess until two o'clock, when we will meet in this same room.

(At 12:40 o'clock p. m. a recess was taken until 2 o'clock p. m. of the same date.)

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Truman Com.

AFTERNOON SESSION

The hearing was resumed at 2 o'clock p. m., at the expiration of the recess.

Senator Brewster (presiding). I think we will go right ahead in the absence of Senator Kilgore. I think he will be here shortly.

TESTIMONY OF COMMANDER R. B. DAGGETT, U. S. NAVY--Resumed.

Mr. Fulton. In order to expedite the matter, I take it that it is the unanimous opinion of the Naval officers that the test was successful, with some exceptions, and we will just leave it at that.

Commander Daggett. I believe that what I have stated is in the record. Our troubles with it were more with the machinery plant, lack of horse power, and as to the reliability of the engine.

Rear Admiral Jones. Under service conditions.

Mr. Fulton. Do you have one of these 96 at the Norfolk Navy base?

Commander Daggett. Not to my knowledge. There may be, but I doubt it.

Mr. Fulton. Are there any on the sea coast of the United States?

Commander Daggett. I can find out.

Mr. Fulton. If there is one, can you run a test of that, without lashing the tank, through rough water, with 90 degree turns?

Rear Admiral Jones. We will be very pleased to run a test. I would not say, without lashing the tank. The design

2w contemplates lashing the tank. Whether or not that is a good or a bad feature of the design is beside the point; but we could not, with the tank lighter as designed, run it without lashing or securing the tank on the deck.

Mr. Fulton. The committee will probably be in Norfolk on another matter within a period of about a week or ten days or so, and if there is a lighter there, and there is reasonably rough water at the time, the committee would like to observe the performance of the lighter under full speed and full load.

Rear Admiral Jones. We will be very pleased to see if that can be arranged. If we have the equipment I can assure you that we will be pleased to do that.

Mr. Fulton. In the meantime we would like to find out whether there is any report on a test that has been run.

Commander Daggett. I have here a letter dated April 2, 1941, from the Atlantic Fleet. I will not bother to read the whole letter, but the last paragraph makes a recapitulation of what the writer has said in the letter, and he names six items that he suggests we do something about in the 45-foot tank lighter (reading):

"1. More powerful anchor winches.

"2. More spare anchors.

"3. Devise means to trip anchor.

"4. More powerful ramp lifting motors.

"5. Find means for manual operation of ramp.

"6. More powerful and more rugged engines."

I feel that that sums up as well as can be summed up the main complaints we have had with respect to that lighter.

Mr. Fulton. What are the other complaints?

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Commander Daggett. There are always minor things: someone wants a drain-hole put here, or a piece of canvas put across something to keep some spray off, and things of that nature.

Mr. Fulton. Then, going to the Bureau Type No. 2, which is one that Mr. Higgins built in his contract of ten, are we correct in understanding that it was completed and it failed in the New Orleans test?

Commander Daggett. Of the ten 47-foot lighters, the one that is completed? I would like to qualify my answer in this way. In the interval between the time we awarded contract for constructing that tank lighter and the present--as a matter of fact, we awarded that to him in October, 1941, according to my notes. After October, 1941, probably in about November, 1941, the next month, it was definitely determined that we would no longer build any tank lighters except for the 30-ton tank capacity. So that, regardless of whether this particular tank lighter is a failure in itself, we would not have built any more, anyway, because it was of too small capacity; it was designed with too small capacity, it having been decided that we would only use the larger type in the future.

Mr. Fulton. My particular question related to whether or not it was definite that it was a failure in its test.

Commander Daggett. The only adverse report I can remember is this turning trial. It may be a failure in that respect at the moment, but, after all, after we get delivery of it and are able to experiment with it we may be able to rectify that condition and make a very satisfactory lighter of it.

Mr. Fulton. Wherein is it superior to the one that

4w failed on the 26th of May, Bureau Type No. 3, which failed at Norfolk?

Commander Daggett. Wherein is it superior?

Mr. Fulton. Wherein is the 47-foot lighter superior to the one that failed?

Commander Daggett. It is not superior.

Mr. Fulton. Would not the admitted failure of the subsequent model carry with it the admitted failure of the original model?

Commander Daggett. I have not admitted that the lighter failed.

Mr. Fulton. Perhaps you have not, but Admiral Jones has concurred in an Army report which said categorically that it failed. In other words, you do not consider it superior to the one we were talking about yesterday, concerning which we had an Army report?

Commander Daggett. I do not think it can be considered at the same time, for the reason that it is a different capacity lighter.

Mr. Fulton. Was the prototype of the subsequently designed lighter equal to it or superior?

Commander Daggett. You mean, was the 47-foot lighter equal or superior to the 50-foot lighter?

Mr. Fulton. Yes.

Commander Daggett. It was inefficient from the start, because we knew it would not carry the load.

Mr. Fulton. Aside from load, was it superior in design? In other words, was the subsequent tank/lighter inferior in design?

Senator Brewster. I think he said it was the prototype,

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really.

Commander Daggett. All of our lighters have been prototypes of the original 40-foot lighter which we started in 1938, and we have kept on that same basic trend.

Senator Brewster. The testimony was not entirely clear this morning, but I understand that the lighter has been lying around, according to Mr. Higgins, for two or three months without anything being done, apparently.

Commander Daggett. As I said this morning, Senator, it was my understanding that we had ordered it shipped to Norfolk whenever shipping is available to take it.

Senator Brewster. You have not verified that, have you?

Commander Daggett. I have not; no, sir. Upon arrival there it was to be inclined at the Norfolk Navy Yard, that is, given an inclining test to see what the metacentric height is, and we might have to arbitrarily reduce the load it can carry in service.

Senator Brewster. If you do contemplate seriously the development of that particular lighter I think the more quickly it can be tried out the better, so that we can determine that. We saw them when we were at New Orleans; and if it is proposed to conduct further trials, the more quickly that is done the better.

Mr. Fulton. It was stated, though, Senator, that they concluded away back in October or November not to build any more of those lighters.

Senator Brewster. I know; but they were going to go to the 30-ton tank. But there may well be a development of conditions where you will want a smaller type, and possibly

6w you would still want to utilize this design.

Commander Daggett. The hoisting weight is the critical thing between the 50-foot lighter and the 47-foot lighter. As to capacity, I do not think there is a difference of more than one or two tons. It is well within the limit we set for it. The 50-foot lighter would be the one we would continue with, if we continue at all, for the reason that it does have greater capacity.

Rear Admiral Jones. I think, Senator, that I can probably clear this up in just a few words. First, the Bureau of Ships will continue its experimental work and its research towards the development of a more satisfactory type of tank lighter in an attempt to give to the forces afloat the best equipment that we can obtain. At the present time there is no question in our minds but what the Higgins lighter is the most satisfactory type available. In the work we have done towards the development of the lighter it has offered certain advantages. If we can, by experimentation and research, obtain those characteristics without the defects that we find on tests, we will hope to do it. We will carry out that research and experiment as rapidly as circumstances will permit; and until that time, until we are sure in our minds that we have a lighter that is equal to or superior, we will continue to build,as the demand occurs, a lighter which is more satisfactory.

Senator Brewster. Which is at the present time the Higgins lighter?

Rear Admiral Jones. That is correct, sir.

Mr. Fulton. With respect to that policy, why was not

7w that adopted before you let contracts for 1100 of the 50-foot Bureau type of which I understand none were at that time built?

Rear Admiral Jones. The situation was not as clear at that time as it is today, principally as a result of the test in May at Hampton Roads. We did take immediate steps to rectify that error and to build the best type of lighter that we knew of.

Mr. Fulton. But the difficulty seems to be this, that in the fall of 1941 it was considered that you did not really need 131 lighters, and some time between then and the time when these contracts were negotiated it apparently was suddenly necessary to have lighters, and you entered into a contract for 1100 tank-carrying lighters, and I was wondering how that occurred.

Rear Admiral Jones. I thought Captain Cochran had made that clear this morning, in that the 131 were for a special operation that was immediate, and that special operation was canceled; it never occurred.

Mr. Fulton. When did the emergency arise where it was determined that you needed 1,100?

Rear Admiral Jones. That was at a conference at the White House on April 4, the first week in April of this year.

Mr. Fulton. Between that earlier date in August or September and the first week in April, is the committee to understand that the Naval Operations Bureau did not favor building any large number of tank lighters?

Commander Daggett. We ordered a large number.

Rear Admiral Jones. We ordered a number for the transports, to fulfill their needs on completion.

Mr. Fulton. Of the Higgins type?

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Rear Admiral Jones. Yes.

Lieutenant Nash. In December, 1941, we awarded the remainder of the 131.

Commander Daggett. We ordered 37 in January, 1942. We ordered some built at Newport News shops and at Consolidated Steel in February, 1942. In the meantime we had developed the Bureau 50-foot design and ordered 25 built by Robinson, Inc., of Ipswich, Massachusetts, as a sample order, to put in service to see how they worked.

Mr. Fulton. Could you not build one quickly in the Navy Yard? Is not that where the first one was built?

Commander Daggett. The first one was built at W. A. Robinson, Inc., Ipswich, Massachusetts.

Mr. Fulton. When was it completed?

Commander Daggett. I will bring that point out, and I think I will make it clear. In the meantime, in December, 1941, we ordered 150 50-foot tank lighters.

Mr. Fulton. Of the Bureau type?

Commander Daggett. Of the Higgins type, lend-lease, from Mr. Higgins. That brings the amount we had under order at that time to 10 47-footers.

Mr. Fulton. One of them had been canceled?

Commander Daggett. Ten 47-footers. The 45-footers really turned out to be 48-footers.

Mr. Higgins. They turned out to be 50-footers.

Commander Daggett. Continuing, in March, 1942, we awarded 20 50-footers to the American Boiler Works, of the Higgins type. These are all of the Higgins type that I am going to mention now. In March, 1942, 50 of the Higgins type to

9w Gunderson. In April, 1942, we awarded 80 of the Higgins type to Soule. Also in April, 1942, 20 of the Higgins type to the Brewer Tank and Pipe Company. Also in April, 1942, 50 of the Higgins type to the Moore Equipment Company.

Mr. Fulton. Up to that point there had been no new orders of the Bureau type?

Commander Daggett. No, sir. In April, 1942, we ordered 27 of the Higgins type from the Judson Pacific Company. In April, 1942, 40 of the Higgins type to Trageser, and also in April, 1942, 15 of the Higgins type from the United Boat Company.

Mr. Fulton. That aggregates how many?

Commander Daggett. I have not totaled that, sir.

Mr. Fulton. We can do that subsequently. These were ordered up to but not after the White House conference?

Commander Daggett. I cannot say. Those April ones were undoubtedly about the same time.

Mr. Fulton. Here is what I was trying to figure out. After the White House conference there was a determination to get a total of something over 1100 lighters?

Commander Daggett. There was a White House conference, which I did not attend, but word came to me personally on April 4, 1942, which was Saturday at noon, that we had to build a large number of Bureau lighters and have deliveries of a considerable portion of the total number by September, 1942.

Mr. Fulton. The question I had in mind was, Was it determined to make the additional considerable number that you have referred to of the Bureau type or of the Higgins type?

Commander Daggett. I will develop that. We did not know immediately what type to order, because we did not know the

10w duty to which they intended to put them. So we made inquiries, and it was determined, I believe, from the Joint Staff--is it all right to speak confidentially?

Mr. Fulton. We do not want to have geographic locations.

Commander Daggett. Instead of being a ship-to-shore operation, which had prior to that time been our basis for tank lighter design, this was a shore-to-shore operation, requiring a considerably longer radius of action, steaming radius. After ascertaining what the duty was to be, Captain Cochran, I believe, was instrumental in making the decision that we should build the Bureau type.

Mr. Fulton. For what reason?

Captain Cochran. The chief reason was that landing tanks was only a small part of the project in sight. I cannot give you the numbers. The Army could of course give them to you; but in modern war the heavy unit is but a small percentage of the total amount of traffic that has to be provided for. The motor transport, as the Army calls it, has an enormous number of wheeled vehicles to support; and the deck type lighter has considerably more room and could handle a considerably larger volume of wheeled vehicles, not so heavy in individual weight, but with a greater platform extent, than could the well type lighter. The big problem was the need to have a more versatile lighter, and that was the basis on which the decision was made.

Mr. Fulton. What is the weight of these other wheeled vehicles?

Captain Cochran. It varies over quite a wide range.

Mr. Fulton. What is the range?

11w Commander Daggett. None of them will exceed the weight of the medium tank as a single load.

Mr. Fulton. I know that. But I understand that the Higgins ramp type 36-foot boat can carry a half-ton truck.

Captain Cochran. It runs up to 6 or 7 ton trucks.

Mr. Fulton. How many could you carry on the Bureau type lighter?

Captain Cochran. Only one.

Commander Daggett. Two of the largest Army trucks.

Mr. Fulton. You could carry two 7-ton trucks, and the Higgins lighter could carry one?

Captain Cochran. That is about it.

Mr. Higgins. May I remind the Captain that we changed the design, so that the largest vehicle they contemplate carrying in any carrier could easily be accommodated on our tank carrier without lashing.

Captain Cochran. That is true. The width of the well was increased to meet the wheel width of these large Army trucks.

Mr. Higgins. And the width of the body.

Captain Cochran. You mean, the whole beam of the lighter.

In the fall of 1941 quite a careful survey was made of the various varieties of wheeled vehicles which might have to be handled, and as a result of that the plan was modified to improve larger single units. The Army has a tremendous variety of wheeled vehicles.

Mr. Fulton. I was specifically trying to get the type of Army vehicles the number of which would be greater than carried in the Bureau type lighter, which was, as I take it, the controlling point. Which type was it?/ Was it 7-ton

12w trucks?

Captain Cochran. I cannot answer you specifically; but the deck area in one of the lighters--

Mr. Fulton (interposing). That would be rather meaningless to me at this time. Could you later prepare for us a statement showing exactly what type of vehicles the Army wanted to transport in these lighters which could better be carried in the Bureau type than in the Higgins type, and state the relative importance which the Army attached to these particular vehicles being carried by these tank lighters? That can be done at your leisure, and I think it would cover that point.

Captain Cochran. That is a very difficult question to prepare an answer for.

Mr. Fulton. Was not a study made by somebody in the Navy before ordering over a thousand?

Captain Cochran. The well in one of the lighters is 32 feet long by about 9 feet 3 wide.

Mr. Fulton. But that is not my question.

Captain Cochran. Let me finish the comparison, please. The well in the other one is about 44 feet long by 9 feet 6. The bottom of the well in the well type Higgins lighter is 9 feet 3, and the top of the well is about 10 feet.

Mr. Fulton. Was there not a study made, and can we not have a copy of that study, which showed the exact functional importance attached to those dimensional differences?

Captain Cochran. No such study was made.

Mr. Fulton. Will you prepare one to show us the importance of it?

Captain Cochran. It is impossible for us to do so without consultation with the Army.

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Mr. Fulton. And that was not done at that time?

Captain Cochran. No.

Mr. Fulton. In other words, this functional study was never made, so far as your knowledge goes?

Captain Cochran. That is correct.

Mr. Fulton. Was there any other determining factor that led you to accept the Bureau 3 type in preference to the Higgins type?

Captain Cochran. The deck area, which includes the capacity to carry stores of all sorts, personnel, and so on; and these boats are used in that way. The British type, which has seen a great deal of service--you have seen photographs of it in the Commando raids--is a similar deck type.

Another factor which of course was a thing which we concerned ourselves with very materially, was the fact that the Bureau type was a self-bailing lighter. In other words, the cargo was carried above the water line, whereas in the Higgins type the deck of the lighter is below the water line; that is, the cargo deck.

Mr. Fulton. That is a factor that Admiral Jones referred to before.

Captain Cochran. If water is shipped you would depend on pumps to clear it, and it has actually provided for five 150-gallon pumps to keep it clear. Of course we all prefer to have that done automatically.

Mr. Fulton. Do you have pumps in your Bureau type design?

Captain Cochran. The Bureau type has pumps for that purpose in the engine room, which is below the water line; but the well itself is self-bailing. In other words, it has bail-

14w ing ports in the after end through which the water drains off by gravity, so that it clears itself of water. It is the same principle that is used in many yachts--the open cockpit, the deck above water, with scuppers through which seas drain, so that you are not dependent on pumps or any mechanical device which is subject to derangement.

Mr. Fulton. Was there too much water to take care of?

Captain Cochran. One of the difficulties which developed in the test on the 25th of May was that the hatches over the engines--they were put in there for servicing the engines, for removing them if necessary--were not watertight, so that a good deal of water got into the engine room itself, and it did not bail itself and had to be pumped overboard.

Mr. Fulton. That boat was built in the Philadelphia Navy Yard, was it not?

Captain Cochran. Yes.

Mr. Fulton. What was wrong with the building of it? Didn't they follow the design?

Captain Cochran. Yes; they had followed the design; and we had expected that a gutter which was provided around the edges would carry away the water which collected, but that proved not to be the case.

Mr. Fulton. That was not a defect in the building, but a defect in the design itself?

Captain Cochran. That is correct.

There was one other difficulty in that test on the 25th of May which may or may not have been a contributing factor. We did not feel that the situation warranted our doing it over again. That is, the lighter at that time was loaded on

15w almost exactly an even keel. All of these lighters, in order to permit discharge of wheeled vehicles, have a depression in the deck. The deck is rounded over, reverse sheer, and that did pick up water, and then of course the freeing ports, which are located aft, could not work effectively.

Mr. Fulton. You mean that the careful loading of the tank in the exact middle turned out to be a mistake, or what?

Captain Cochran. Yes.

Mr. Fulton. Where should it have been loaded?

Captain Cochran. It should have been loaded somewhat farther aft. But that was one of the things that led us to feel that the design was not as satisfactory as we hoped it would be. In other words, we did not want to have a lighter that had to be loaded in an exact position in order to be satisfactory; and that was brought out in the report which led to the change in type.

There is one further point which we have not discussed so far, and that is that in the deck type lighter the tank itself is located high enough so that guns can be brought to bear and used in the approach, which of course is of value. How much weight should be given to it is of course another difficult question, and that would depend upon the development of the military operation. You have seen in the Bureau type lighter that the deck is fairly high. The lighter is intended to carry a tank which has a very much lighter gun. As a matter of fact, all the tanks have guns of several sizes. A medium tank, of which we are speaking, has a 75, a 37 and a couple of 30 millimeter guns.

Mr. Fulton. Have you tested any lighters from the stand-

16w point of tank fire?

Captain Cochran. Not to my knowledge.

Mr. Fulton. The tank lighters were supposed to be built because of the pressing need for obtaining tank lighters?

Captain Cochran. The need was such that we worked over the week end.

Mr. Higgins. In testing our tank lighters we used machine guns; we could not get ammunition for the larger guns, and we used machine guns.

Mr. Fulton. Would the larger guns be in position to be brought to bear?

Mr. Higgins. Yes; the same firing conditions.

Mr. Fulton. Would it be your position that the lighter would be capable of sustaining the impact of the gun?

Mr. Higgins. There is no reaction.

Mr. Fulton. Would you agree on that?

Captain Cochran. I think that is correct.

Senator Brewster. You mean, the tank is so heavy?

Captain Cochran. Yes.

Mr. Higgins. The whole thing is absorbed in the construction of the tank itself.

Mr. Fulton. Will you tell us whether or not in your opinion you could fire a tank gun from the Higgins lighter?

Captain Cochran. The ramp of the Higgins lighter masks the tank gun from dead ahead, so it can be fired on the side, but not dead ahead.

Senator Brewster. You cannot shoot it straight ahead?

Captain Cochran. No, sir. The ramp stands up forward.

Mr. Higgins. On our 13½-ton tank the elevation of the

17w gun is such that the result is as the Captain has said.

Senator Brewster. On the 30-ton, you can fire right over it?

Mr. Higgins. Yes, sir.

Captain Cochran. Here (exhibiting) is a picture of the original 45-footer.

Senator Brewster. Mr. Higgins said that with the 28-ton tank or the medium tank you could shoot over the top.

Captain Cochran. The 37-millimeter gun and the 30-millimeter gun in the upper turret, I believe, can. I do not believe the 75-millimeter gun can.

Senator Brewster. That is lower down?

Captain Cochran. Yes.

Mr. Fulton. With respect to those 1100 lighters, who received contracts for those?

Commander Daggett. I would like to point out that on April 4, when we had to make this decision as to what type to build the 1100 lighters, we were not certain that the Higgins type, for this larger load, was going to prove entirely satisfactory, any more than we were of our own.

Mr. Fulton. Why not? You had it built, did you not?

Commander Daggett. The Higgins lighter, you see, was built on an order for 20, as has been brought out before.

Mr. Higgins. You have reports on where we tested with 68,000 pounds of weight.

Commander Daggett. We have a letter as late as April 11 from Higgins Industries, of which I have a copy in my hand, which refers to the way we handled the contract for the twenty lighters. In other words, when he bid, he bid on the 48-foot

18w lighter, or the small tank size, and when he sent in his bid he sent in an alternate proposal that he was willing to build a 50-foot size carrier, to carry a medium tank, for the same price, and we accepted that offer, and he was given the contract to build the large ones, but the specifications on which he had bid all had the test requirements of the smaller size tank lighter, and as a result of that, when they got ready to test their lighters down there, of this large size, on April 11, 1942, this letter came from Higgins in which he wanted to point out that although they had said that the lighter would carry this increased load it was not right to test it with that load--

Mr. Higgins (interposing). Speed. Read the letter, will you, please?

Mr. Fulton. Put the letter in the record and we can read it at a later time, specifying the parts which you think are important, but not leaving out any part that would qualify the meaning.

Commander Daggett. The letter says that they wish to go on record that the 50-foot tank lighters will not be as seaworthy, operating in rough water conditions and through heavy breakers with a load of 60,000 pounds, as they will be with a load of 27,000 pounds required by the specifications.

Mr. Fulton. That goes without saying.

Commander Daggett. And the letter says also (reading):

"Further, we are of the opinion that the 20 tank lighters which are furnished under this contract are to be tested with a load of 20,000 pounds as required under the paragraph entitled 'Speed' on page 7 of the specifications."

19w That is the basic point I wanted to bring out, that there was some apprehension in Higgins' mind as to just what was going to happen there.

Mr. Higgins. It was the speed.

Mr. Fulton. Just a minute.

Commander Daggett. We did not know how it was going to work out; and as Captain Cochran has pointed out, we had these very definite and fundamental considerations which we thought were governing, and so we made a decision to award the 1100 of the Bureau's 50-foot design, of which the W. A. Robinson Company was already building 25--

Mr. Fulton (interposing). As I understood it--but not having the language before me I probably may have misunderstood--it seems to me they were saying they wanted to test it under both conditions.

Commander Daggett. They asked to be permitted to test it under the 27,000 pounds.

Mr. Fulton. They asked for acceptance, first?

Commander Daggett. Yes, sir. But there was no penalty in the contract as regards those features.

Mr. Fulton. Was one of these tank lighters available on April 11?

Commander Daggett. I do not know. I do not think so, from that letter. That is dated April 11.

Mr. Fulton. Was one available, Mr. Higgins?

Mr. Higgins. There was one. The engines were installed, I believe, in the latter part of February. After that date we tested the boat with 68,000 pounds.

Senator Brewster. You state in your letter that it had

20w already been tried with a 60,000 pound load. So you evidently had tried it at that time.

Mr. Higgins. Yes, sir.

Mr. Fulton. You were basing your reliance on a theory, and you had an opportunity to test this lighter, and you attached little importance to this?

Commander Daggett. We did not pay any attention to that. That did not come in until later.

Mr. Fulton. If you had paid any attention to the factors involved there, you could have easily determined them by the test?

Commander Daggett. If that had been the boat that was required for the job we had in mind we most certainly would have, since the lighter was that far along.

Mr. Fulton. So the matter you have been referring to is in the nature of an afterthought?

Commander Daggett. No; it came in after we made that decision. I just wanted to introduce that to show that there was some apprehension in the minds of the builder as to just how it would act in a surf, a heavy sea.

Mr. Fulton. An apprehension, however, which á subsequent test proved--

Commander Daggett (interposing). The subsequent test proved all right.

Mr. Fulton. Did you have any of the Bureau Type 2 built in April?

Mr. Higgins. Yes, sir; you have photographs of it there.

Mr. Fulton. Why should not Bureau Type 2 have been tested in April before ordering 1100 of Bureau Type 3?

21w

Mr. Higgins. We were testing them comparatively at New Orleans.

Mr. Fulton. Commander Daggett, why should not you have tested it?

Commander Daggett. The sequence of facts was as follows: On April 4 we were told to build a large quantity--

Mr. Fulton (interposing). And that was Bureau Type No. 2?

Mr. Higgins. That letter is dated the 11th. I think I heard the Commander say it refers to tests already made. I will see if we have any others here in our files.

Mr. Fulton. Would you furnish us with the date on which Bureau Type No. 2, the 47-foot lighter, was available for testing?

Commander Daggett. The 47-foot lighter does not enter into this question.

Mr. Fulton. But the 47-foot lighter had not then been tested. It is the prototype lighter. I wondered if they tested the prototype which was available before they ordered the 50-foot lighter.

Lieutenant Nash. I think the 47-footer was not completed until May.

Mr. Higgins. The Bureau's tank carrying lighter was complete and could have been tested in March except for the ramp controlling mechanism. It would not have interfered at all with the testing of the boat, because the ramp could have been located any place, but the mechanism had been redesigned and the manufacturer was delayed in furnishing the mechanism. But the boat itself was complete in the latter part of March, and it had been tested at the same time that this letter dated

22w the 11th was written.

Mr. Fulton. The question is, Why did you not run comprehensive tests?

Mr. Higgins. I can determine the date if Captain Rawlings will tell me the date he was in New Orleans.

Captain Cochran. Here is a memorandum which shows that the first of the 47-footers was launched and had its first builder's test on the 28th of April.

Rear Admiral Jones. That was called for by the specifications.

Mr. Fulton. That was why you did not test it?

Commander Daggett. The 45-foot lighter was the prototype of the 50-foot lighter, so we had only stepped up 5 feet.

Mr. Fulton. There has not yet been a reference to a Navy test in a rough sea with that 45-foot lighter.

Commander Daggett. The 45-foot lighter has been in service for well over a year. It has been used by the forces afloat. I do not know just how they have used it, but I know they have used it in Iceland and in the South Pacific and many other places where they are using tank lighters.

Mr. Fulton. But in no case are you able to say that it was subjected to a test comparable to that of May 25?

Commander Daggett. No, sir.

Mr. Fulton. Why wasn't it?

Commander Daggett. Because when you have anything in service that has been in service for the number of months that that lighter had been, our experience is that in that length of time, particularly in these times, if there had been any serious deficiency in the lighter it would have been brought out and we would have known about it.

23w

Senator Brewster. Admiral, would you not feel that in view of the May 25 test of those boats that were supposed to carry these tanks and were designed for that, it ought to be determined whether or not they are suitable, rather than to have it a matter of what might happen?

Rear Admiral Jones. They carried out landing operations in tests which, to my mind, would give a service test; and if they were unsatisfactory to meet service conditions they would have reported them as being defective. We seem to have had no reports to that effect.

Senator Brewster. I thought the Navy always gave the most extreme tests that a thing would be likely to meet, so as to be sure that it would not fail in an emergency.

Rear Admiral Jones. That is quite true. The specifications call for a certain running and turning trial of these lighters, particularly the first ones built at Consolidated. They were all carried out without any reports as to their failure to meet the tests.

Mr. Fulton. But you did not inaugurate any Bureau tests to determine it?

Rear Admiral Jones. Only as called for in the specifications in connection with production, plus putting them into service.

Mr. Fulton. But you have made no attempt to determine what would be the case where it would fail?

Rear Admiral Jones. So far as I know, the only two specific tests that have been carried out are the test of the Bureau type of Higgins which was carried out in conformity with the specifications, and in which we have had reported

24w

the defects encountered, and this test that we made on the 25th of May which supplemented smooth water tests at Philadelphia, which were successful, and then supplemented that with a rough water test which was unsuccessful at Hampton Roads.

Mr. Fulton. Have you given, by reason of the May 25 test, any orders to have these 45-foot boats tested so that the services can be warned of the point where they might fail, since they are the original boat that was designed?

Rear Admiral Jones. Now that this question is raised, we will certainly carry out extensive tests and either discard this design in its entirety or continue our research and try to develop a more satisfactory lighter.

Mr. Fulton. On the basis of the test of the 50-foot lighter would it not have been in order that until you had a test you warn the services using the 45-foot lighter of the inadequacies of the 50-foot lighter in rough water? Or are they fully aware of it?

Rear Admiral Jones. We have had no report from the forces afloat that would indicate that they have had any test excepting this one that was mentioned.

Mr. Fulton. But it would indicate, would it not, that that type of lighter, being only a prototype of the existing one, if it should meet heavy weather conditions where it had to turn at right angles, it would not be able to make it? And in the interest of saving life should you not notify them of the failure of the Bureau type 3 lighter?

Rear Admiral Jones. If we find out, as a result of our investigation, that this lighter is defective to the extent

25w

that it is likely to capsize in heavy weather, we would certainly notify the services.

Mr. Fulton. You have found that out as to Bureau Type 3, have you not?

Rear Admiral Jones. We have not found it out yet. Some people think it might capsize in heavy weather; others that it would not. In any event, there is a limitation to all of this amphibious equipment. For instance, go to the landing boats for a moment. Up to maybe a five-foot sea our landing boat of the Higgins design is excellent. If you get beyond a five-foot sea, it might or might not be successful. In fact, in one of our landing operations on the West Coast, on one of those islands off California, San Clemente Island, they got an 8-foot sea, and the boat completely turned over. There are limitations as to use of almost any equipment. In about what size sea the Bureau Type lighter would be satisfactory, and in about what type sea the Higgins lighter would be satisfactory we do not know.

Mr. Fulton. I take it, then, that you do not even now know the limitations of the 45-foot lighter?

Rear Admiral Jones. No; definitely not.

Mr. Higgins. May I make a statement, please?

Senator Kilgore. Yes.

Mr. Higgins. I want to ask if the Bureau of Ships has received a report from the forces afloat on landing exercises held off Jacksonville, North Carolina, on Little River, on August 3, 4, 5 and 6, 1941.

Senator Kilgore. Can you tell us whether you received that report?

26w

Rear Admiral Jones. As to landing boats?

Mr. Higgins. Yes; what we will call No. 2 type, and with various types of landing craft, the crocodile or ramp type as well as the conventional type.

Senator Kilgore. Does the Bureau have that report or not? Are you familiar with that?

Commander Daggett. If there has been such a report sent in, undoubtedly we have it. I do not recall having seen it.

Rear Admiral Jones. I am not personally familiar with it.

Mr. Higgins. I understand there was a comprehensive report made. I was invited to witness those tests in landing exercises, during the course of which unfortunately most of the Bureau Type landing craft broached to on the beach and were by various means extricated from such position.

Rear Admiral Jones. That is quite true. Up to the present time the Higgins type of landing boat is the only one that has proved satisfactory. My only point was not to condemn the Higgins landing boat; it was merely to show that there are limitations in both personnel and equipment.

Mr. Higgins. The point I was making was that there had been opportunities for actual comparative tests, and certainly over those four days and nights there were many, many opportunities of observing the characteristics of the boats coming in. It happens that I have had from the forces afloat the complete report of that occurrence; and on the Pacific Coast they continue the use of the stern anchor, which we have continuously objected to the use of. On the Atlantic Coast they have some time since abandoned its use. That particular instance occurred when they dropped the stern anchor, which

27w

is a suicidal operation in landing exercises with our boat. The boat became afoul of the anchor line and came into a position where it was unstable because of the effect upon the propeller shaft. It was no indication of the boat's ability to take 5, 8 or even greater waves than that.

Mr. Fulton. Are you familiar with the report that he has referred to?

Commander Daggett. I do not recall ever having seen it.

Mr. Fulton. The report of the Pacific failure?

Commander Daggett. I saw a report of a Pacific failure in which a landing boat was landed in surf some 8 feet, I believe it was, and it picked the boat up in the air and, I think, crushed a couple of men underneath it. At least one man was killed.

Mr. Fulton. In that report was there any reference to a stern anchor?

Commander Daggett. I have notseen the report recently; I cannot recall.

Mr. Fulton. In other words, you are not able to say whether Mr. Higgins' report is correct or incorrect?

Mr. Higgins. I have a letter from the survivor.

Mr. Fulton. We will be glad to have anything that you have.

Rear Admiral Jones. We will admit that the human element is a big factor in all of these operations.

Mr. Fulton. I understood from the recent statement, Admiral, that you did not consider the 45-foot boat satisfactory.

Rear Admiral Jones. At the present stage of development

28w we have had nothing from the services to indicate that they are not fulfilling their mission.

Mr. Fulton. I cannot quite see that my question has been answered. My question is this: How can the 50-foot boat be considered to have failed and the 45-foot boat to have succeeded unless there was some defect in design that did not exist in the 45-foot boat and which was incorporated into the 50-foot boat? I have heard no reference to such detail.

Rear Admiral Jones. It only failed in one respect.

Mr. Fulton. Inability to handle it in deep water?

Rear Admiral Jones. Of the two types of lighters the Higgins type is a much more satisfactory type under certain conditions.

Mr. Fulton. And that applies both to the 45 and 50-foot boats?

Rear Admiral Jones. Yes, sir.

Mr. Fulton. At the present time you have contracts out for some 1100 of the Bureau Type boats. Some of those were to be built in Navy yards; is that correct?

Captain Rawlings. That is correct. A hundred and thirty in the Navy Yard, Boston; 75 in the Navy Yard, Charleston. That has been changed now to the point that 25 additional go to the Navy Yard, Boston.

Senator Kilgore. A hundred and fifty-five?

Captain Rawlings. Let me go over my figures again. Charleston Navy Yard is building 75; the Norfolk Navy Yard is building 50. The Boston Navy Yard is building 150. Those are the totals that are in the Navy Yards.

Mr. Fulton. And the Philadelphia Navy Yard built one?

Captain Rawlings. Yes, an experimental one.

29w Mr. Fulton. Does that mean, then, that there is a total of 376 out of the 1100 that were to be built in Navy yards?

Captain Rawlings. That is right, sir.

Mr. Fulton. Would the building of those in the Navy yards in any way conflict with any work that could be profitably done in the Navy yards?

Captain Rawlings. No. As a matter of fact, I think most of the yards were very glad to do it, because they were not able to get materials to continue with their regular work.

Mr. Fulton. They could get the materials for those boats?

Captain Rawlings. Yes, due to the high priority assigned to our program.

Mr. Fulton. There were no small boats that could perhaps have been used in connection with coping with the submarine menace that could properly have been built in the Navy yards?

Captain Rawlings. We have not received any directive to build any boats. It would not be my function, sir.

Mr. Fulton. The private yards hold what contracts?

Captain Rawlings. The Bethlehem Steel Company, their Harlan yard at Wilmington, Delaware, has now 400.

Mr. Fulton. What others?

Captain Rawlings. The Walsh-Steers Company, Long Island City, 250. The Brewer Dry Dock Company, which has a repair yard in the New York harbor, 125. The Dryer Company of Long Island City, New York, 25. W. A. Robinson, Inc., at Ipswich, Massachusetts, to whom an award had previously been made, was given 25 more.

Senator Kilgore. How much does that make the total?

Captain Rawlings. The total should come to 1100, sir.

30w Senator Kilgore. Eight hundred and twenty-five plus 376 would be 1,201.

Captain Rawlings. Then I have given you a wrong figure. Charleston Navy Yard, 75--

Commander Daggett. Take 100 off Norfolk.

Captain Rawlings. No; I only gave Norfolk 50.

Charleston Navy Yard, 75; Norfolk, 50; Boston Navy Yard, 150.

Mr. Fulton. That is 276.

Captain Rawlings. I think that is where you made the mistake, sir. My figures do not include the one at Philadelphia, sir.

To complete the story, of that total of 1100, one thousand were changed to the Higgins type of lighter; 100 were continued of the Bureau type. That was done in order to provide lighters of some type as early as possible for training purposes only, for the personnel to man these boats and to make some use of the materials which had already been partially fabricated for the construction of the original design which would otherwise be lost.

Mr. Fulton. If that is so, why were not the original three in the contract for 10 Bureau type that Higgins had completed, instead of being canceled.

Captain Rawlings. I do not know that we have ever received a report from Mr. Higgins indicating the exact status of those three lighters, although I do know, myself, that they were partially fabricated.

Mr. Higgins. There was a shortage of bullet-proof steel.

Captain Rawlings. That material will be salvaged, as Mr. Higgins pointed out yesterday.

31w Mr. Fulton. Do you know the cost of the one experimental lighter built in Philadelphia?

Commander Daggett. I talked to the manager of the Philadelphia Navy Yard about that as much as two weeks ago, and he said that any cost that he might give on that would not be at all indicative of what to expect for the others. They wanted to build that lighter for experience, as they were assigned the job of building, and they wanted the experience of building that lighter, and they considered doing it with material that they could pick up around the yard. They used material which was of a little heavier gauge in certain places than the design called for. All the plating they used was galvanized material, because they had nothing else. When Robinson's first lighter was completed it was built strictly in accordance with plans, and there was some 4,000 pounds difference in weight. That is attributable to the fact that Philadelphia had to use whatever they could find around the yard.

Mr. Fulton. That, of course, would come in the breakdown, but it would not affect the question.

Commander Daggett. He said he had to build that lighter in such a rush, testing out various methods of construction to determine the best way, and he had done certain things and then found out that he ought to do it in some other way to facilitate construction. It was purely experimental, and his costs would not reflect what we could expect to be reasonable costs from other people.

Mr. Fulton. What was the cost?

Commander Daggett. I do not know that.

32w

Mr. Fulton. In other words, he did not reply to your question?

Commander Daggett. I gave you the reply that he gave me.

Mr. Fulton. We would like to have the cost and the number of man-hours expended and the types of materials.

Commander Daggett. We can ask Philadelphia for that.

Mr. Fulton. And why the costs would not reflect the regular costs.

Captain Rawlings. I think you are familiar enough with cost accounting, Mr. Fulton, to know that when a job is done under rush conditions it is not possible to give the exact cost. Philadelphia will have to take such costs as they have and make some estimate as to the balance.

Mr. Fulton. I assume they can give us the number of man-hours they have expended.

Captain Rawlings. I have here an estimate as to the man-hours work on the lighter, sir.

Mr. Fulton. Is that an estimate or an analysis?

Captain Rawlings. It is an estimate broken down by the various trades employed in the building of the lighter.

Mr. Fulton. It is an estimate rather than an analysis?

Captain Rawlings. 3,117 man hours.

Mr. Fulton. Can you give us their actual cost?

Captain Rawlings. We will attempt to get it, as Commander Daggett says.

Mr. Fulton. What is the cost in the Navy yards for the tank lighters that are to be built there?

Captain Rawlings. We have not received the estimates from all of the yards, Mr. Fulton. The program was undertaken

33w under such conditions that cost was not one of the main considerations. We were told to get this program going immediately and to complete the building of these lighters by the first of September.

Mr. Fulton. Irrespective of cost?

Captain Rawlings. Irrespective of cost. In fact, we were given authority to do the job without regard to the effect on any other part of the national defense effort. We were given a double-A priority rating. On the basis of the prices we are paying to private companies my guess would be that the yards' cost will be between $18,000 and $20,000.

Mr. Fulton. You mean, on the basis of private yards' cost, or are you calculating it?

Captain Rawlings. It runs around $25,000, exclusive of government-furnished material.

Mr. Fulton. And you have a $3,000 differential to cover?

Captain Rawlings. Yes, sir. That generally checks out fairly closely.

Mr. Fulton. Would that include any factors other than what you might call the actual cost as distinguished from overhead items?

Captain Rawlings. That would include items of overhead that are comparable with private yards' overheads.

Mr. Fulton. You know nothing in connection with any Navy program that will in any way be interfered with?

Captain Rawlings. Yes; I know of several things. The matter of steel is the first item. We have a AA priority, and the rolling capacity in these mills to produce the lighters on the date required, regardless of what delays there

34w would be on other types of jobs for which steel is required--

Mr. Fulton. But, irrespective of the matter of material?

Captain Rawlings. I do not think that in any of the yards there will be any delay on account of this particular program. They have expressed a very strong desire to get the work, and some have indicated that it has been a life saver for them. I speak now particularly of Norfolk and Charleston.

Mr. Fulton. With respect to the Bethlehem Steel Company, what tank lighters have they built?

Captain Rawlings. They had not built any before. The way we hit upon that particular yard was that we gave the job to the Philadelphia Navy Yard. We told the Philadelphia Navy Yard that in order to be sure we did not interfere with work at the yard we wanted them to subcontract as much of the work as it was possible for them to do, so long as the yard itself could be assured of getting the lighters on the date we required them. In other words, we put the responsibility of getting the lighters on the yard, either through their own efforts in the yard or through subcontracts. They investigated very thoroughly the possibilities of subcontracting, and they recommended to the Bureau, and it was approved, that the old Bethlehem Steel Company plant at Wilmington was ideally located and set up to do the job with a minimum increase in facilities; that the plant in conjunction with Bethlehem's fabricating capacity, which would be used, would make it possible for them, in their opinion, to turn out the job with the least amount of interference with our program.

Mr. Fulton. What was it being used for at the time?

Captain Rawlings. It was not being used for any purpose, sir. Of course Bethlehem Steel is an organization that has

35w many plants throughout the country; and the fact that they were not using this particular plant was a measure of their ability to do the job.

Mr. Fulton. Did they have any personnel at the time?

Captain Rawlings. No, sir. There was no one but watch-keepers there. I had one of our people inspect the plant.

Commander Daggett. I looked at the plant before they were given the contract. They had a machine shop working on propeller shafting for some of the Maritime Commission's "Ugly Ducklings." They had one of the other small shops doing a small manufacturing job. They were taking a lot of bits. It was a manufacturing shop in a way. They had two large shops, one of which I believe had nine tracks, and the other had eight tracks in it. They were absolutely empty.

Mr. Fulton. Is that the plant which is on the main line of the Pennsylvania Railroad?

Commander Daggett. Yes, sir.

Mr. Fulton. You had every confidence in the ability of that plant to do this work?

Commander Daggett. Yes, sir.

Captain Rawlings. We have since asked the Philadelphia Navy Yard what progress was being made and we have had reports indicating that they will meet their promises. They expect to deliver 45 in January, 115 in August, 160 by the first of September, 110 in September, and 100 in October.

Mr. Fulton. Where will they get the engines?

Captain Rawlings. The engines in this program are the Gray Marine Diesel engines.

Mr. Fulton. Do they have adequate capacity?

36w

Captain Rawlings. They have had to expand their production in order to meet this demand. Also we will use other types of engines in the landing boat program as a whole.

Rear Admiral Jones. I might say that due to the very high priority of this program, and its being a joint Army and Navy venture, this Gray Marine Diesel engine is the same engine that they use in tanks, and the Army has agreed that in order to effectuate this program they will give up tank engine production for this program; and that is the reason we can get them in the numbers we have.

Mr. Fulton. It is not to be in the 30-ton tank, is it?

Rear Admiral Jones. Yes, sir.

Mr. Fulton. I thought it had a light engine.

Rear Admiral Jones. We were getting to the point where we did not have transportation. We had more tanks than we had transportation.

Captain Rawlings. The Walsh-Steers Company had been doing a rather large job for the Bureau of Yards and Docks, and had on the site welding equipment and weight-handling equipment. The need for it was just about to disappear. So we investigated Walsh-Steers and determined that that company was a source of existing facilities.

Mr. Fulton. Where are they located?

Captain Rawlings. In Long Island City, New York, sir.

Mr. Fulton. When will they make delivery?

Captain Rawlings. We expect the first five of the lighters from them in June; 50 in July; 95 in August and 150 total by the first of September.

Mr. Fulton. What about the Brewer Dry Dock Company?

Captain Rawlings. The Brewer Dry Dock people have a re-

37w

pair yard in New York harbor. They came into the picture when we changed types, and we found it desirable to switch some of the lighters from the Navy Yard, Norfolk, to Brewer's Dry Dock and other locations. New York Harbor was faced with a very serious reduction in labor employed in the harbor, and this was an effort on our part to relieve that situation, as well as to place it where existing facilities permitted construction. I have heard that there are 5,000 men in New York Harbor now in repair yards.

Rear Admiral Jones. And they expect 10,000 or 12,000.

Captain Rawlings. That has been brought about by the long turn-around of the ships that would ordinarily have been in for repairs.

Mr. Fulton. How about the Dryer Company?

Captain Rawlings. The same general situation. They expect to deliver one in June, 5 in July and 5 in August. They are relatively a small outfit. They have never built any of this type.

The Robinson Company had an order for 25 of the Bureau type; that is, 25 of the Bureau 50-foot type.

Commander Daggett. They were the ones that had the original 50-foot order.

Mr. Fulton. How many of that lot have they built and delivered?

Lieutenant Nash. As of June 1 they built two, my note shows, and Commander DeKay says they finished them during May.

Mr. Fulton. Were they found acceptable?

Captain Rawlings. This was a 50-foot tank lighter.

38w

Mr. Fulton. Yes; but I mean, was it a good job of tank lighter building?

Captain Rawlings. I am sorry. I did not understand the question. I think that is correct.

Mr. Fulton. With that exception there is not on the present list any manufacturer who has ever built one?

Captain Rawlings. That is correct, sir, with the exception of the yards. I do not know whether Boston ever built one or not.

In placing these contracts we were influenced largely by our opinion as to who could expect to produce the most in a short time, and I would like to class the American Car and Foundry Company as being one of the outstanding builders in that category.

Mr. Fulton. How many have you allocated to Higgins?

Captain Rawlings. Higgins was not allocated any, simply for this reason, that they had outstanding at the time these awards were given 180 lighters which had not been completed, and 250 which we were then negotiating for.

Mr. Fulton. What time is it that you refer to--April 4?

Captain Rawlings. The early part of April, sir. We had definitely in mind and were negotiating and had received a request from the British for 250, under lend-lease, which we proposed to give to Mr. Higgins and which we later did.

Mr. Fulton. How many of them? Did you say 150?

Captain Rawlings. There are 180, of which 37 had been completed by the first of June.

Mr. Fulton. Of the 47-foot type?

Captain Rawlings. Yes, sir. There were 20 of the Higgins

39w type.

Mr. Fulton. Then there was a prior order of 50?

Captain Rawlings. That 50 had been completed.

Mr. Fulton. I am trying to figure the entire quantity. On April 4 Mr. Higgins had what other orders?

Captain Rawlings. He had the original 10 Bureau type order, plus 20 of the Higgins type, plus 150 that we had ordered for the British.

Mr. Fulton. When was that order placed?

Captain Rawlings. January 24.

Mr. Fulton. Now you are contemplating giving him 250 more for the British?

Captain Rawlings. We were actually negotiating with Mr. Higgins. I had definitely decided to give him 250 of the Higgins design which had been requested by the British, under lend-lease. That made the total at that date outstanding with Mr. Higgins of 430.

Mr. Fulton. A total to be built by him, of all types, of 471?

Captain Rawlings. There were orders on hand of which deliveries had not been made.

Mr. Fulton. When did he actually receive the order?

Captain Rawlings. May 29.

Mr. Fulton. You mean that on the 4th of April you contemplated giving him 250, and you delayed until the 29th of May to give him the order?

Captain Rawlings. I think we had already received a request from the British for the 250 lighters. The original request that came in from the British specified the lighters

40w

to be of the Higgins type. That request was before we made the contract to cancel, and it was changed to a request of 250 of the Bureau design.

Mr. Fulton. At the Bureau's suggestion?

Captain Rawlings. I do not know who suggested it. Anyway, they did it, with a knowledge of what the Bureau design was, because they specified that.

Mr. Fulton. And that accounted for the delay?

Captain Rawlings. In part, sir. I am not sure of my facts now. I think that the British, before we placed the order for the Bureau design, requested us to hold up action on the award of the contract for the Bureau design until the results of the test of the first lighter were reported.

Mr. Fulton. But in the meantime did you give Higgins any orders for what you knew were going to be required?

Captain Rawlings. We had not given him the order, but we were not very much concerned about it, since he already had a contract for 180 which had not been delivered.

Mr. Fulton. I have always noted that contractors have stated to the committee, at any rate, that they are unable to proceed until they get an order.

Captain Rawlings. I had a rather long conference last Saturday with Mr. Higgins, and it does appear from his own statement, and I have no reason to believe otherwise, that there will be some drop in his production between the time that he will deliver the 180 and get going on the 250, due to the lateness of the award of the 250.

I would like to have you confirm that, Mr. Higgins.

Mr. Higgins. Yes; we will have to shut down for a while.

41w

Captain Rawlings. They will at least have to reduce their force for a while.

However, there was another factor that delayed the award to Mr. Higgins a small amount. It was not the most material item. That was our effort to come to an agreement with Mr. Higgins on a price. I resolved that difficulty as soon as I discovered it. My people had been trying to get an agreement on price, and as soon as I found out I got hold of him myself personally and the award was then made promptly.

Mr. Fulton. I do not quite understand that, in view of the statement that after April 4 price was of so little consequence.

Captain Rawlings. We are talking about two different things. One is the 1100 with AA priority, and the other is 250 lighters for lend-lease, for the British, for which we do not have AA priority. The urgency in the two cases is not comparable. The British have told us they were perfectly willing to have the lighters go to Mr. Higgins to tail on behind his 180.

Mr. Fulton. How do the prices compare in these private yards? Are they identical?

Captain Rawlings. The price of the 1100, sir?

Mr. Fulton. First, give us Mr. Higgins' price on the 250.

Captain Rawlings. Mr. Higgins quoted a price of $27,990, but he agreed with me on a price of $25,000, which is about the average price we are paying for that type of work.

Senator Kilgore. Does he furnish his own engines?

42w

Captain Rawlings. No, sir. The government is to furnish the engines.

Mr. Fulton. Now, the price of the Bethlehem Steel Company?

Captain Rawlings. They had never built any before; it was an entirely new job to them. It was thrust on them to get started immediately. They were in no position to quote a fixed price. They did not know what the lighter looked like. It is a cost-plus-fee contract.

Mr. Fulton. How much is the fee?

Captain Rawlings. The fee is $700 on a $100 estimate, with an opportunity to earn a bonus.

Mr. Fulton. What is the estimated cost?

Captain Rawlings. $700 with the opportunity to earn a $400 bonus.

Mr. Fulton. What is the estimated cost of the lighter?

Captain Rawlings. I think it is $20,000.

Commander Daggett. The Government to furnish the material.

Mr. Fulton. Would that be a comparable figure with the $25,000?

Captain Rawlings. Yes, sir. It was on the basis of a cost of approximately $20,000.

Mr. Fulton. In other words, they would do it for 80 percent of the Higgins price?

Captain Rawlings. That was the estimate on which the fee was based. The fee was something less than 6 percent. It is about 3 percent, with the opportunity to earn another 2½ percent.

Mr. Fulton. What was Walsh-Steers' price?

43w

Captain Rawlings. The contract was given to them under the same terms.

Mr. Fulton. Again, cost-plus?

Captain Rawlings. Yes.

Mr. Fulton. The same estimated cost?

Captain Rawlings. Yes, sir.

Mr. Fulton. The Brewer Dry Dock Company?

Captain Rawlings. The same terms.

Rear Admiral Jones. The same fee.

Mr. Fulton. They are all cost-plus?

Captain Rawlings. Yes, except the Navy yards, of course.

Mr. Fulton. Has Mr. Higgins been offered a cost-plus contract?

Captain Rawlings. He has never wanted one. He has always been perfectly willing to take contracts on a fixed-price basis, which is our preference.

Mr. Fulton. But these other companies were not?

Captain Rawlings. They were not willing to, because of their unfamiliarity with the work and the short time in which they were permitted to get started, and their inability to make the estimates. As a matter of fact, Mr. Fulton, we did not urge them on the fixed-price basis. We felt, ourselves, that the way to get this thing really going, to get it going quickly, was to offer them a fee per lighter, which is what we did, and gave them all the same opportunity.

Senator Brewster. Mr. Higgins, why do you feel that you would rather contract on a fixed price? If you make any profit we are going to take it away from you.

Mr. Higgins. After all, we are at war. We have various

44w

contracts on fixed prices.

Captain Rawlings. Mr. Higgins has never indicated to me that he desired such a contract.

Mr. Higgins. It would be almost impossible unless we did everything on a cost-plus basis.

Mr. Fulton. I take it there was no contract for these 250 lighters until May 29. Was any statement ever made to the White House or to any representatives of the President that there was a contract?

Captain Rawlings. Not by me, Mr. Fulton.

Mr. Fulton. Do you know of any, Admiral Jones?

Rear Admiral Jones. No, sir.

Mr. Fulton. Were you present at any conference which discussed the matter of the contract which the Higgins Company had, at the White House, with Mr. Hopkins or General Somervel or anyone else?

Rear Admiral Jones. No, sir. I have been in lots of conferences with General Somervel, and I have been in a lot of conferences on this amphibious program, but I know of no mention or discussion of contracts with Higgins.

Mr. Fulton. Either on landing boats or anything else?

Rear Admiral Jones. Not personally. We work with General Somervel's office. They tell us the numbers they want and when they want them, and we work with their operating personnel to make sure that what we are going to supply them will fulfill their need, and they leave the rest of the problem to us. I have never had any indication as to how we were to do the job or where we were to do it.

Mr. Fulton. One question further: Has there ever been

45w any suggestion or any belief in the Bureau of Ships that Mr. Higgins had failed in his deliveries or his scheduled deliveries on tank lighters?

Captain Rawlings. Mr. Higgins I think will agree that he has not been able, for one reason or another, to deliver the tank lighters as we had hoped and as he had hoped he would be able to do it. He has had his troubles in connection with getting materials and other things.

Mr. Fulton. What troubles in particular were they?

Captain Rawlings. I think one of Mr. Higgins' difficulties was that the tank lighters were waiting for a time possibly on the completion of his plant in which he was going to construct them. We had an officer at New Orleans on the first of April and he reported that the plant still had not had power connected in his tank lighter plant.

Mr. Fulton. What did that hold up?

Captain Rawlings. Mr. Higgins would probably be able to tell you.

Mr. Fulton. Does the Navy know of anything that it held up?

Captain Rawlings. I think Mr. Higgins had some difficulty in getting steel.

Mr. Fulton. I am talking about the completion of the plant. What, specifically, does the Navy say was held up?

Captain Rawlings. There was a feeling on the part of the Bureau that that possibly was one of the factors which accounted for Mr. Higgins' delay in the delivery of the 180 tank lighters.

Mr. Fulton. But, specifically, is there any indication of any tank lighter that he had materials for that he could

46w not construct by reason of plant limitation? If so, will you tell us what it is?

Captain Rawlings. It was some time during the latter part of March--I think it was March--that we sent an officer down to New Orleans because we had received a report that Mr. Higgins had had difficulties with steel. We were unable to find out definitely just what those difficulties were, or what the steel was that was holding him up. That officer visited the plant down there and said that Mr. Higgins had received steel plating particularly, and other steel except shapes, but that even after the steel had been received it was not possible for the lighters to go ahead in construction, due to the fact that his plant had not been completed in the sense that there was no power connected up to the first of April.

I would like to read from that officer's report (reading):

"The new tank lighter plant was just finished at the end of March. There was no power in the plant until the end of March."

I mean electrical power for running machinery.

"Higgins could not have done any work on the 150 tank lighters until April, even if the material had been available."

I do not concur entirely in that statement, in the sense that Mr. Higgins had already improved his plant to build tank lighters--

Mr. Higgins (interposing). What date was that?

Captain Rawlings. This report came to us as of the 9th of April, 1942.

Mr. Higgins. And the statement is that we were not able

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to build until April?

Captain Rawlings. That was his statement.

Mr. Higgins. You were there in March and you saw about twenty of them, including the Bureau tank carrier which was finished while you were there.

Captain Rawlings. I did not see it, to be frank with you. If you remember correctly, I did not get to your tank lighter plant, so I did not see it; but I do recall your having told me that they were in various stages of completion.

As I said before, the fact remains that Mr. Higgins had demonstrated his ability to build lighters, so it is possible that he could have gone ahead.

Mr. Fulton. In your opinion, was anything held up by reason of the failure of the plant?

Captain Rawlings. I think it is a perfectly true statement that/if Mr. Higgins had had the plant at the beginning, when he got the contract, we would have gotten our lighters built sooner than we otherwise would. The steel was delivered, Mr. Fulton, as early as February--February, March and April.

Mr. Fulton. All except shapes?

Captain Rawlings. There were some shapes that were not even delivered until last week, I think, such as channels. He did make substitution himself. He had the channels made locally.

Mr. Higgins. Would you mind reading the telegram we sent to you under date of May 6?

Captain Rawlings. I do not have it here, Mr. Higgins.

Mr. Higgins. I have a copy of it here.

48w

Mr. Fulton. As I understand it, he made some shapes himself?

Captain Rawlings. Because he could not get the channels.

Mr. Fulton. You mean that he made them in his machine shop?

Captain Rawlings. In his fabricating plant. He did that because he could not get deliveries on the shapes.

Mr. Fulton. Was he compensated for the extra expense?

Captain Rawlings. He never made any demand for any extra compensation. If he had made such a demand we would certainly have considered it.

Mr. Fulton. Certainly his costs would have been considerably higher than rolling mill costs?

Captain Rawlings. Certainly there was some increase.

Mr. Fulton. You know, as a matter of operation, that there would be some increase in cost?

Captain Rawlings. There is no question about that, Mr. Fulton. Whether Mr. Higgins felt that he had enough profit in the contract to offset it or not, I do not know. He did not make any request for extra compensation.

Mr. Fulton. You mean he was so ingenious in his methods of operation that you feel that if he had had the plant he would have used it, even though he did not have these shapes?

Captain Rawlings. I say this, that I think Mr. Higgins would have made better deliveries on his tank lighter order had he had all the plant completed in all respects when he received the award, rather than to have to complete it along with the lighters. That is no complaint. As a matter of fact,

49w I think he was ingenious, as you said a moment ago.

Mr. Higgins. Had we had shapes, steel, and engines and everything, we would have made good.

Mr. Fulton. In respect to this letter which the committee received, which brings in a subject which the committee had not referred to in its letter of May 18, reference is made to engines on tank lighters. Have you read that letter, Captain Rawlings? It is the Navy's letter of June 3 to this committee, and I am talking about the last three sentences.

Captain Rawlings. I do not think that the engines delayed the delivery of the tank lighters.

Mr. Fulton. What was the purpose of putting in those sentences, indicating by inference, at least, that there had been a failure on the part of the Higgins Industries for that reason?

Captain Rawlings. We did not intend any such implication. We simply made the statement to show that idle engines, due to inability to complete boats, was something that happened everywhere. I will tell you why. It had been stated that we had idle engines at the Chris-Craft plant. We simply made the statement that not only do we have idle engines at the Chris-Craft plant, but everywhere else, including Higgins.

Mr. Fulton. But it was not in any sense intended to infer that he could possibly have used those engines?

Captain Rawlings. I think he could possibly have used his engines had the boats been ready for them.

Mr. Fulton. But from what you have told us there was no expectancy that he would be able to build them.

Captain Rawlings. When we awarded the contract we ex-

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pected him to get the lighters completed.

Mr. Fulton. Had he in any sense failed in his endeavor to make these tank lighters, in that the delays were due to causes beyond his control?

Captain Rawlings. I have not said that. The only thing that I said was that I thought that what had possibly delayed the completion of those tank lighters was the fact that he had to construct a plant in which to build them and that the plant had not been completed at the time he r eceived the contract, and therefore the construction of the lighters did not go at the rate it otherwise would have gone.

Mr. Fulton. I think you said he did not have the shapes, anyhow, and could not have constructed them except by the adoption of substitution methods.

Captain Rawlings. He did make the substitution. I do not think that substitution delayed the construction of the lighters.

Mr. Fulton. With respect to that statement in the letter, when you say those engines were delivered, do you mean actually delivered?

Captain Rawlings. Yes, sir.

Mr. Fulton. Delivered and not shipped?

Captain Rawlings. Well, I will have to ask the man who handles that.

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Mr. Fulton. They were referred to in the letter to the committee as delivered.

Lieutenant Commander Boaz. The transit time from Detroit to New Orleans is ten days. Shipments made earlier in the month are assumed to arrive in the same month.

Mr. Fulton. Mr. Higgins, did you receive 37 Gray engines during the month of February for installation in tank lighters?

Captain Rawlings. While we are waiting for Mr. Higgins, this statement was made coming from the inspector at New Orleans as to what had been received.

Mr. Fulton. What had been shipped?

Mr. Rawlings. No, sir, what had been received. That may be at some variance with what Mr. Higgins has.

Mr. Higgins. We received in February two engines for the Bureau tank carrier lighter.

Mr. Fulton. Well, did you receive any other engines in February?

Mr. Higgins. Evidently the shipment of those first two engines; then there were 18 others, with enough parts that we could not use for our order of 20, because we were supplying the engines for the 20. Four engines were expedited in order to make comparison of the Bureau type boat with our type of boat.

Mr. Fulton. The figures you gave me in response to my request are as read: only four engines in February?

Mr. Higgins. That is correct. Only two of those engines were Government-supplied.

Mr. Fulton. I think we can put those dates in the record, so that the Navy can at a later time reconcile the figures between yourself and themselves. The figures given by you to

o2 us are quite completely different from the figures contained in the Navy letters. The next delivery of engines was on March 5.

Captain Rawlings. How many in March?

Mr. Fulton. Two on March 7. The total for the month of February would be four. The total for the month of March, 26. Then, there was an increase in April. Forty of those motors were for the contract for ten tank lighters. Seven had been canceled, so those motors being in the yard would not in any sense indicate that there was a failure to produce tank lighters to use them.

Captain Rawlings. Mr. Higgins stated that we had released our engines for the ten for his boats.

Mr. Fulton. But after you had got the engines in the yard for these tank lighters, the order for which you had canceled, even though you released them, you could hardly have expected that instantaneously they would have been installed in the tank lighters.

Senator Kilgore. Well, let us go ahead with question and answer on this thing.

Mr. Fulton. Captain Rawlings, on that point, you did not expect that by releasing the engines there would be any implications that they should immediately be incorporated into lighters for which no orders had been granted? In other words, a lighter could not have been produced immediately even if the engines had been available?

Captain Rawlings. I had no intention of saying that.

Mr. Fulton. In including those engines in the list you furnished to the committee, might it not have been important to make reference to that cancellation if you in any way intended that idle engines were included?

03 Captain Rawlings. Mr. Fulton, as I said before, we simply made the statement in the letter to indicate that there were engines at the plant which were not installed in boats. It was not intended to imply that Mr. Higgins had failed in doing his job by that at all. We simply made it to show that there were also other cases where there were idle engines, including the Higgins plant. That is all we intended. We had not intended to imply in any way that this was a failure on Higgins' part to get the lighters built. In other words, the fact that the engines were there was not proof that the lighters were delayed.

Mr. Fulton. With respect to the number of lighters, why did you put into the statement that only a certain number of lighters had been delivered, unless you intended thereby to indicate failure to utilize engines?

Captain Rawlings. No, sir, that was not intended; it was just to show the idle engines; that is all.

Mr. Fulton. With respect to the number of lighters, is it true that only 19 lighters had been delivered?

Captain Rawlings. No, sir. I called New Orleans myself yesterday afternoon to verify the conflicting figure situation, and I think Mr. Higgins, Jr., and I finally got agreements.

The call I received yesterday indicated that the deliveries had been effected as follows prior to June 1, 1942: one of the Bureau type--that is, the one original 47-foot; 20 of the second order for 20; and 16 had been completed of the 150; making a total of 37 that had been completed by the first of June, of which 26 have been shipped.

Mr. Fulton. That compares with 19, which is what you informed the committee.

Captain Rawlings. That, Mr. Fulton, I am frank to admit,

04 was in error. In other words, I had about three sets of figures, and wherever I went for a set of figures, I got a different one. They all came from New Orleans. I think our inspector down there was confused--completion versus shipments versus acceptances. So, I personally called yesterday to get the final figure. I think Mr. Higgins will confirm my figures.

Mr. Higgins. Taking them in the order, and not considering those virtually complete, in construction, and not put in the order.

Captain Rawlings. We gave you the best information we had; it later developed it was not accurate.

Mr. Fulton. It turned out to be 50% accurate.

Captain Rawlings. Well, we are not infallible. There were still more engines there than there were boats completed.

Mr. Fulton. But I mean that almost every sentence contains a substantial important variation from the fact.

Captain Rawlings. Well, they were not at variance with the facts as we knew them at the time we wrote the letter.

Mr. Fulton. You said delivery when you meant shipment?

Captain Rawlings. No, sir, we do not mean shipments when we say deliveries.

Mr. Fulton. I thought that was understood.

Rear Admiral Jones. The letter was made out with the best information we had at the time. We beg leave to correct it.

Mr. Fulton. Are there other statements in the letter that have been checked?

Captain Rawlings. There are other statements that may be misunderstood.

Mr. Fulton. Since Senator Mead was particularly inter-

05 ested in going into Mr. Higgins' views with respect to some torpedo boats, perhaps he should do that before we go into the 36-foot ramp lighters.

Senator Brewster. I wonder how much the executive committee planned here. I think we have all put in quite a little time. Did you contemplate taking up the other small type boats?

Mr. Fulton. I did.

Senator Brewster. I think we ought to get at this, because I think the Admiral and the Bureau staff have quite a lot of responsibilities in the conduct of this war. I think that we should, as rapidly as possible, move on.

Mr. Higgins. There is just one thing to be made clear, and that is that for the quantity of orders we have on hand, on the production line, we do require 40 engines. That is a sufficient number of engines for 20 boats of that type. That is the minimum number with which we can maintain production. With any less than that, it will be a hardship and will delay our production.

Senator Brewster. In other words, you must have 40 on hand?

Mr. Higgins. Yes, sir. When you have 40 engines there on hand, they are in process of being installed.

Senator Brewster. You must have in the plant, shall we say, 40 engines all the time in order to keep your production line moving and in order to install engines at the correct time in the production?

Mr. Higgins. That is correct.

Mr. Fulton. One further question. It has been developed here that by reason of the delay in the 250 contract there will be what you would term a stopping of production. But now that

o6 you have a 250 contract are you in a position to continue? Aside from that stopping which you had by reason of the delay, are you in a position to continue to produce tank lighters at maximum capacity?

Mr. Higgins. We will run out of material. We have sufficient on hand. I think we terminate the present contracts in--

Mr. Fulton. When will you terminate the contract for 250?

Mr. Higgins. We are not advancing. We made an arrangement last Saturday with Captain Rawlings to get steel to reduce the life of the order.

Senator Kilgore. In other words, the lease-lend program does not have the priority that the other program has; therefore the other orders get the first priority on steel, while lease-lend takes anything that might be left?

Captain Rawlings. The steel is allocated by the W.P.B. in any case. I told Mr. Higgins I would undertake to obtain from the W.P.B. an allocation of steel, so as to permit him to avoid having any interference with his work or reducing it to a minimum.

Senator Kilgore. I am just wondering, in order to get this program completed in time, if these lend-lease lighters are just the same as the other lighters being built, whether it would not be just as advantageous to group his program along with the other program under a double A priority up to the first of September.

Captain Rawlings. That is what we agreed to--that we would press his just as if it was a double A. We have gone further: we have obtained British permission to use these lighters for high priority work and to give them theirs later

o7 on.

Mr. Fulton. Will the 1,100 when completed finish all the lighters required?

Captain Rawlings. My answer would be that they are all the lighters for which we have directives to date.

Mr. Fulton. But by the first of September will the necessity for lighters, if you have that many, disappear, so that you would contemplate shutting down all lighter production?

Captain Rawlings. I do not know what the future will bring forth. At our conference the other day with Higgins, I agreed that I would make an effort to determine from the operation forces what additional requirements they had, so as to enable me to feed another contract to Mr. Higgins before the limiting dates which he agreed he had to have.

Mr. Fulton. But you are not in possession of the information now?

Captain Rawlings. I talked to Admiral Farmer myself yesterday, and he has agreed to look into the matter immediately and give me an answer in two or three days. Naturally, the tank lighter program is an active program.

Mr. Fulton. We would like to know when you call for bids.

Captain Rawlings. We do not call for bids any longer. The last contract we gave Mr. Higgins was not on the bid basis; it was negotiated.

Mr. Fulton. There is no question in your mind or in the minds of the other officers present that he should be given other orders to keep going?

Captain Rawlings. We have done that right along.

Mr. Fulton. Is there any question as to how many months he should be given in order to plan ahead?

Captain Rawlings. What we give, Mr. Fulton, is based on

o8 the needs and on what can be done. We do not determine the needs; we get a directive to build so many lighters.

Mr. Fulton. But the need is relatively different in amount. You expect in the immediate future an unlimited number?

Captain Rawlings. I do not know enough about that, sir, to speak with authority.

Rear Admiral Jones. Some authorities think we have too many on order now.

Captain Rawlings. That is outside our bailiwick.

Senator Brewster. I know that Mr. Fulton did not intend to convey the implication that this committee was concerned with giving business to Mr. Higgins, although that would be a rather fair inference from a recent question. I know that Mr. Higgins is entirely ready to get his business on his merits. Our whole questioning is directed to whether or not personalities have entered into this matter, and I think that if nothing else comes out of the sessions of these two days which have been very beneficial to everybody concerned, it will assure us that perhaps it would be better to be more polite to one another on every side and not have to go through this thing again. It is most distressing to Senator Kilgore and myself. There is a good deal to indicate that at some point Mr. Higgins' rather strong personality may not have been as good in selling itself to the Navy as might be desirable.

But I think we are all big enough to know that a war is on, and we are trying to get together. Whether or not we have advanced the war effort in the last two days may be open to question. I hope we will not have to come back again. There have been a number of angles to this thing that do not reflect so much credit on the operation. There have been many

09 inadvertencies and a number of unfortunate occurrences. That is the only reason I think we feel justified in spending the time we have.

Rear Admiral Jones. I agree with that, Senator. This is one of a very large number of similar problems that we have, one that we are going to be faced with more and more in the future as we fulfill the needs of the programs in the different classes of this entire program.

It is our desire very definitely from a production point of view that when we get someone into production who is doing a good job, we want to keep him in production and keep him moving as long as we need the type of material he is producing. We are constantly faced with this hand-to-mouth existence of getting a directive for a very limited number, say 400 boats. Then the boatbuilder begins to run out of work, and just about the time he stops and begins laying off men, we get another directive for 800 more. That concerns us, and I know it concerns the committee very definitely. We are fighting it all the time. We are in agreement with you, and we are doing all we can to obviate that difficulty.

Senator Brewster. You want to use all the resources of the country for the best purposes for which they are adapted?

Rear Admiral Jones. That is correct, sir.

Captain Rawlings. I think I should mention in this connection, Senator Brewster, that we had a conference--I had a four-hour conference--with Mr. Higgins last Saturday, at which time each of us did his best, I am sure, to resolve our difficulties and to find out what should best be done for him and for us in the future.

Senator Brewster. That is very gratifying.

o10 Captain Rawlings. It was very beneficial, and I think that Mr. Higgins will concede that the conference was worthwhile and that we both left it very well satisfied.

Is that right, Mr. Higgins?

Mr. Higgins. Yes, sir.

Captain Rawlings. I should hate to have anyone get the impression that anything we have done has been done because of any personal feeling toward Mr. Higgins. I think I speak for the entire Bureau, certainly I speak for myself, when I say that that has never entered the picture; we have always tried to be just as fair and square as we could be.

Senator Brewster. I do not think we should require of the Navy more virtue than is possessed by anyone else. We all know that we are human and we all, to some extent, permit personal considerations to enter unconsciously, if not consciously.

We spent a day with Mr. Higgins down at New Orleans. We became somewhat acquainted with him. I think we can easily see how he is not always the greatest diplomat. I am not attributing all the responsibility to the Navy. We have all got to submerge these things. Probably Mr. Higgins, as have all of us, has acquired experience of value.

Senator Kilgore. I just want to say one thing before we go further, gentlemen. There is one thing we all like to discuss. Frequently past Congresses have been condemned for not appropriating enough money. Of course, I myself have not been a member of past Congresses, but a past Congress is somewhat like the lighters being discussed. Nobody anticipated trying to run a 30-ton tank. The War Department did not contemplate the 30-ton tank. Congress felt the same way. Then, when it is

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all over, we find that hindsight is so much superior to foresight that we go back and try to cuss the other fellow for his lack of foresight, but sometimes our hindsight stands in the way.

Senator Mead. Admiral, I am very much interested in the efficacy of the small boats for convoy purposes and for use as submarine chasers. Of course, everybody realizes that the American people are startled over the losses resulting from the submarine menace. We are going to suffer very severely because of that in the Northeastern States. Perhaps this winter in Senator Brewster's state and in my state we will not have enough petroleum products to keep our people warm and to keep our industries going. So, we are very much interested. We are severely rationed now.

I was wondering if there are any small boats approved by the Navy that are now being manufactured for convoy of cargo ships, either convoys accompanying the cargo ships or convoys housed on the cargo ships. Are there any small convoy boats that the Navy is making use of for that purpose?

Rear Admiral Jones. If I understand your question correctly, the smallest boat or vessel that we are now building for anti-submarine work is the 110-foot submarine chaser. We feel that its characteristics are about the minimum necessary to carry the gear and the apparatus essential for efficient operation.

We are, however, utilizing smaller vessels temporarily, in spite of their not being fully effective--converted yachts, and whatnot; and how effective smaller vessels would be if built particularly for that purpose is a matter that should not be answered by the Bureau of Ships. I might have personal opinions on it, but not being in the operating end of the Navy, my personal opinion or the opinions of the officers represented

o12 here should not be given great weight, because that is outside of our training, outside of our purview, and outside of our responsibility. So, if the committee desires to be informed on that particular phase of the matter, it should obtain its information, I would suggest, from the operating force.

Senator Mead. You would not have the problem of designing this type of ship?

Rear Admiral Jones. We would have the problem of designing the type of ship, but we would be given the characteristics with which to proceed--such major characteristics as regards speed, sea-keeping qualities, radio to be carried, the number of depth charges, the type of ordnance, the amount of rate-hour equipment, sounding gear, and the various other items of apparatus that go into this type of craft. From that we would determine a design and submit it to the operating force, having a discussion probably with the general board and the operational officers on the Commander in Chief's staff to determine whether or not our design, made from these supplied characteristics, would meet the conditions of the service.

Senator Mead. The presence of this submarine menace that has to a degree, at least, closed up our ports would not be sufficient, so far as your particular service or department is concerned, to have you initiate action? It would have to be initiated by some other branch of the service?

Rear Admiral Jones. Operated by the Commander in Chief.

Senator Ellender. If you will permit me to interrupt at this point, I should like to say that three or four days ago the Naval Affairs Committee had a meeting to pass upon a few bills. Admiral Van Keuren was testifying. As I understood him, he said there was a bill pending before the House Naval Affairs

013 Committee providing for equipment of these smaller boats to enable them to fight the submarine menace. Do you know anything about that?

Rear Admiral Jones. Yes, sir, I know about that.

Senator Mead. What sized boats were they?

Rear Admiral Jones. Those are ships of the 110-foot, 173-foot, and 135-foot type. They follow the type we are planning now, although they could encompass any other type that the Chief of Naval Operations or the Commander in Chief might want to build under that authority. For instance, they could encompass the motor torpedo boat, and the motor torpedo boat is the only one we are building now or that is being adapted for limited use in anti-submarine work. They carry depth charges.

Senator Mead. Is that the boat referred to as the P.T.?

Rear Admiral Jones. P.T.

Senator Mead. How long is that?

Rear Admiral Jones. That is 78 to 80 feet. I think Mr. Higgins' type is 78 feet, and the type that Elco is building is 80 feet.

Senator Mead. Senator Ellender, you referred to a bill that has been submitted or introduced by the House Naval Affairs Committee?

Senator Ellender. Right.

Senator Mead. That does not offer any relief, so far as the present submarine menace is concerned, for quite some time?

Senator Ellender. At that same hearing Admiral Van Keuren testified, as I recall, that these 110-footers would be built beginning, I think, this month at the rate of 30 per month.

Rear Admiral Jones. We are now turning out, and have been

014 for three months, a little better than an average of one patrol craft a day of the 110-foot and 173-foot types--the two together. In addition to that, we are building quite a large number of what we call the YMS, a 135-foot mine-sweeping craft, which is quite a good sea boat. That is being adapted now for dual purpose use to tide us over this emergency. They are going to be fitted with depth charges and put on anti-submarine patrol. While they are rather low in speed--around 14 or 15 knots--and are not fully effective, they are, in my opinion, better than not having anything at all.

Senator Brewster. What is the speed you want?

Rear Admiral Jones. We want something with more than the submarine--in excess of 20 knots.

Senator Kilgore. I noticed some wooden boats being built down on the Gulf. They were 110-foot boats. Are you building some of those boats of wood?

Rear Admiral Jones. Yes, sir. The 110-foot boats are wood, and the 135-foot boats are wood.

Senator Ellender. Admiral Jones, are you looking into the feasibility of building these 78-footers and 80-footers as submarine chasers rather than as torpedo boats; in other words, making them torpedo boats minus the torpedoes?

Rear Admiral Jones. They carry two torpedoes and depth charges. Ordinarily they will carry four torpedoes.

Captain Rawlings. I think the committee would be interested in knowing how many submarine chasers we have coming along. We have particularly two anti-submarine types--two main types--the 173-foot steel and the 110-foot wood.

We had completed 76 up to the first of May. We expect to build in June 34, in July 37, in August 39, in September 43, in

o15 October 47, in November 49, and in December 42. That will give you some indication of what the program is.

Senator Kilgore. Those are steel boats?

Captain Rawlings. The 173-foot is steel, and the 110-foot is wood. This is a combination of the two. It is an average of 13 of the steel and 15 of the wood per month.

Senator Mead. Is that in addition to the boats you have talked about, that would come under this legislation?

Senator Ellender. Oh, yes; these are in process of building.

Rear Admiral Jones. I should like to add one or two other points. Perhaps our limit today in productive capacity of boats suitable for this duty is the engine situation, the gear, and other material and equipment. We recently made a recommendation--this week or last week, as a matter of fact--to the Commander in Chief that we could complete 25 more boats of the 173-foot type provided we were allowed to make direct-connected engines instead of engines through gear. That drops two knots off their top speed. It drops about one knot off their average service speed. That permission has been granted, due to the urgency of the problem in getting these boats out, which we fully realize, and although that sacrifice makes the boats less efficient, it is better to have them out.

There is another thing connected with this submarine warfare and the characteristics of the ships that is very important, and that is an improperly equipped boat drops off very rapidly in the efficiency of the patrol. Unless they have sound gear, rate-hour equipment, radio, and all equipment that goes along with it, they cannot operate efficiently and will just be burning up the miles in the ocean.

o16 One drawback of the shallow draft boat in submarine patrol work is light draft. The sound gear cannot get real results. I am not saying that it would be poor policy on the part of the Navy Department to build 30 of the 80-foot boats that could be produced rapidly. That is up to the Commander in Chief.

Senator Mead. What do you know about boats smaller than the 110-foot boats? We have received some correspondence and a great deal of literature bearing upon the feasibility of the 36-foot boats, that could be housed on board ships. Such boats, we are told, would carry depth bombs, torpedoes, and such detectional devices as are necessary to locate submarines.

Rear Admiral Jones. That has been proposed and discussed quite a number of times. All that I can say is that the Bureau of Ships has not received any directive to build any boats utilizing that plan; and it is out of my province and out of the province of the Bureau of Ships to say whether it should be or should not be done.

(Rear Admiral Jones then made a further statement which at his request and by direction of the Chairman was not recorded. The following then occurred:)

Senator Mead. I should like to learn from Mr. Higgins whether he has made any investigation of this problem and if he has produced any boats for lend-lease or any other countries, along the lines that we are now talking about, anti-submarine boats and boats of small size.

Mr. Higgins. Senator, in World War I I was concerned with 110-footers. I was interested in them to the extent of expediting material for their construction. They were intricate. I followed their use.

The internal combustion engine in those days was nowhere

017 the highly developed piece of mechanism that it is today. It was disappointing in its anticipated speed; yet the performance of those boats and their accomplishments were quite remarkable.

It fell to my lot to make contact and establish friendship with rather remarkable men. One of them was the general marine superintendent of a large company engaged in building submarines. He was an Englishman. There was also an associate of his, or a brother officer. They by their profession, and being retired naval officers, were still interested, and frequently have come to New Orleans. From them and from others whom I could contact I have wanted to pull everything that I could. It fell to my lot to acquire some ideas, though I do not pose as a technician. I have been tied up with small boats from boyhood days. Back a considerable number of years, back in 1922, and progressively increasing, I have done a lot of experimental work for the different Government departments. The United States Engineer Corps used to consider that I was its experimental laboratory or guinea pig. If it had some idea, we would work it out together. I would like to feel that I am still a good experimental small boat laboratory for the Navy. I have tried to be that.

We have done many, many different things in building boats, and there has been no question of price or even of contract. We may have been officious and built things without order, but our intent was good.

Then, in connection with the Engineers, we have worked out listening devices, sound recording devices, fathometers, and other instruments.

I forget the name of another very eminent doctor, an electrical engineer. They had a device, and we were the ones who

o18 designed the boats for them and installed that, undertook the operation of it, and worked out various problems in connection with their engineers.

Particularly did we cooperate with the Gulf Research Corporation. The head of that corporation is a foremost physicist, one of the principals of the inventors' school. He has some connection with the Government. I forget his name.

Then, for another man we designed a boat, went out with it, and stumbled on the fact that under certain conditions, with remarkable accuracy, they could detect inert masses of metal.

Then again, in a commercial way, with large operators all over the Southern States and in Central and South America, we established quite a sizable business in radio telephone communicating devices.

All of these things more or less tie up together. So, in presuming to say anything before such a group, it should be understood that I have been fooling with boats since I was knee-high to a grasshopper. I do not like calm water. Unless there is storm and strife and tough going, I have no interest in boating. I am kind of nervous that way. If there is a storm, I like to go out and test the characteristics of the boat in the storm.

Some of you gentlemen may remember possibly a classmate of yours, now called Judge Humphries. He also liked storms and wind blows. He used to come down. He was a commander in World War I and had a good record except for certain eccentricities, and then he resigned; but he was a good commander anyway. He and I have done a lot of work together in rough water conditions, testing small boats.

o19 Many people by habit and by precedent get convictions, particularly if they are mainly concerned with large vessels. They think seaworthiness is inherent in size and overlook the thing or the point that it may be proportionate.

Some people forget that the first vessel built in the United States was made by Columbus in 1496 or 1497, a vessel 50 feet in length, which had a remarkable series of voyages. The Santa Maria, the Nina, and the Pinta were seaworthy enough to discover these two hemispheres. It is surprising that the small boat can stand it. We equip our large ships with small boats--life boats and whale boats. They go down to the sea and fish in these small boats.

I think the records of the Navy Bureau of Ships itself will disclose that this particular Eureka landing boat has peculiar characteristics of stability and seaworthiness. I have been furnished by the forces afloat a curious memorandum, that I know is filed in the Bureau of Ships. I do not know the name of the destroyer, but in heavy weather the well and davits carried away, and two Eureka boats were lost alongside. One, in the squall, turned upside down; the other was hit sideways and was then abandoned. On account of weather conditions, they were counted as being lost. Later they were discovered in a weird manner. They had beached themselves on a beach inaccessible from the sea. How they got there was quite a problem, and the engineers had quite a problem in extricating them from the beach.

We know those things have happened. We have tested these boats.

A prototype of these boats was used by some estimable gentlemen who were trying to evade a law that they thought was

o20 not quite proper and restricted their liberty. I know of the exploits of those men, or rather what they did with those small boats. I also know--and you gentlemen can't condemn me for it--that people came to me and wanted a boat to make such and such a speed to carry so many sacks of Irish potatoes, but which curiously enough happened to have the same weight as a sack of whiskey. A large number of those boats were built. None of them were ever caught at sea. None of them were ever lost. So, I know some things.

I could tell you a very amazing story which would take here too much time, but a certain 31-foot boat with some very ferocious looking gentlemen docked and left without registering a by your leave. I called their attention to the fact after they paid the last amount due that there was a storm warning, a hurricane warning. Later on they happened to pay me a visit and bring me a love token, something it is very hard to get in the States, and they told me they had passed through that hurricane with their 31-foot boat. They had reserve tanks in there that I thought were full of fresh water, but I found out it was for more valuable liquid.

They passed through this terrific hurricane, and they were in sight of a United Fruit Company steamer that had turned over. They were not making such awful water. They had a little difficulty with six Chinamen they had there. So, they told me two passengers and everybody else on that United Fruit Company steamer were lost. I think there was a total of 39 vessels lost in that hurricane. There was not one rum runner. I did not build them as rum runners. I just built the boats, and they used them for that purpose afterward. But internally I think that we had our losses.

021 We have tested these 37-foot boats. They have practical elements of stability in them, for reasons I won't go into now.

With these sinkings at our back door and with the loss of people close to us and close to our friends, it is unfortunately a matter for great concern. I went up to the Marine Hospital, and I saw these sailors who go to sea without protection, with four inch guns that cannot be deflected under 2200 yards, and that fires the conventionally known projectiles that bounce and ricochet. I have seen great marksmen attempt to get some degree of accuracy with even one 30-caliber machine gun. I have seen excellent marksmen, big, strong men, look foolish trying to hit a target with a machine gun. I know the advantage a submarine has and the low silhouette it forms. The small cargo vessel, with 3- or 4-inch naval guns, is helpless there against the submarine with the advantage it has.

But I have seen the striking power and the terrific concentration of fire of the 50-caliber machine gun, and in them we are considerably ahead of any other nation. I have seen 3/4-inch bulletproof steel have the hell pounded out of it.

Here recently we had the spectacle of a Coast Guard boat being chased right into the mouth of the Mississippi River--absolutely right up into the mouth--and having to run for it. Fortunately she could make more knots than the sub, so she wasn't hit. Talk about the sub being brazen enough to come into the mouth of the river! I think what happened was rather humiliating. It is not hurting our ships that affects us; it is the killing and drowning of these boys, blowing those boys from our front door, 108 miles from where we have all these boats. That is what gripes us.

We have also, by talking to these rescued men, ascertained

o22 that they are given no time to get off the innumerable types of launching gear, and practically all of them were dumped out of their life boats either while being lowered away or while in contact with the water. One fellow had his hand mashed off because he was trying to unfasten a rope. The falls would be released or would not be released there. The vessel had no time to reverse momentum. There they were lost.

So, it concerned us to device release mechanism that would instantaneously release the boat regardless of the point of suspension on the falls, whether two, three, or four points. So, when the boat hits the water from a vessel that is still under way, and there is terrific drag, so that under normal conditions a lot of release devices are necessary, they are still released from the fall regardless of the drag. The pull of the boat as against the speed of the vessel causes it to be accomplished.

Then, again, I can see how these 36-foot boats, being of low overboard, would make excellent craft to come alongside these struggling ships, particularly if they had a looping rope for these men who were almost spent. Again, that boat, having two 50-caliber mounts, which could be trained on a target, might cause considerable damage to a submarine if she came to the surface.

Senator Brewster. Have you made these boats for any foreign powers for such a purpose?

Mr. Higgins. I built 19 for the United States Navy.

Senator Brewster. How large were they?

Mr. Higgins. The first two were what we call the offshore model.

Senator Brewster. How long are they?

Mr. Higgins. 36 feet, 10-1/2 inches long.

Senator Brewster. How long ago were they built?

023 Mr. Higgins. We got the order on December 13, I believe it was, and those two boats were shipped that same morning. At 20 minutes after 10 on the morning of December 13 we got the order, and at 1:30 that same day, or the morning of the next day, they went, I believe it was, to San Francisco or San Diego by passenger train.

Senator Brewster. What were they designed for?

Mr. Higgins. We called them submarine destroyers.

Senator Brewster. Do you know about them, Admiral?

Mr. Higgins. They were ordered by the Marines.

Rear Admiral Jones. Those are what we call picket boats.

Senator Mead. What striking power or attacking power do they carry?

Mr. Higgins. These boats were heavily equipped. We designed these depth charge racks. These boats carry four. You can carry six or eight. I visualize these boats, not with this manual mount for the machine gun, which is for a 30-caliber machine gun. We would like to make them to take care of these twin 50-caliber machine guns and then equip them with quick-releasing mechanism.

Senator Brewster. Do you know of any experience we have had with them?

Mr. Higgins. Only rumors, gossip, and hearsay.

Senator Brewster. Does the Navy have any record of the use of these boats in anti-submarine warfare?

Rear Admiral Jones. We are building a certain number of what we call harbor picket boats for use in guarding entrances to harbors, not for sea patrol.

Mr. Higgins. I think I am reaching the conclusion. I visualize four of these boats on every ship that leaves any

o24 port. They would be equipped with 50-caliber guns, and there would be two boats to a side, two forward and two aft, doing away with the life boats, being operated by two men or three. These boats would be within the limits of the capacities of derricks and davits on the vessels. They weigh a little over five tons. The speed of these boats with engines that are obtainable is 27 miles an hour with the Hall-Scott, or approximately 24 or 25 knots with the Gray Diesel--about 22 miles or roughly 20 knots with the Gray Marine Diesel engine. These boats can go out to sea. They can break over it. Even though they are small boats, they are most practical. They have what we term safe riding action. The pronounced thing about the boat is its pronounced buoyancy. It rights itself and takes itself over the sea very quickly. They might be rough riding, but in unreasonable weather you would not put them off a vessel.

I would say there is no advantage in devising a listening device. There is no sound detector that will work on this length of boat. However, in seismographic work and geophysical work it has been found that with a minimum of 52 feet there are certain types of listening devices that will get more or less favorable reactions--not so good as if you had a larger vessel, of course; but there could be radio phone connection between these boats and the ships. With four of these to each vessel, one or two of these boats could continuously patrol or circle a convoy. They could be equipped with smoke-making generators, for whatever benefit that might be for protection from submarines, and by direction of the mother ship that was equipped with sound detecting devices, they could make up a very beautiful pattern. Since the speed is that of a submarine,

025 they could align themselves ahead of the sub and start dropping their charges over the side without having to use the Y gun. If the submarine should appear on the surface, these boats offer such a low silhouette target that they could not be seen. I think the submarine would be more vulnerable than the boat. If the submarine came to the surface, the concentration of machine-gun fire from the boat to the submarine would make an end of the submarine.

These things can be turned out. I can build 24 of these a day. They can go on ships, and they will give those ships a great measure of protection.

Senator Brewster. Have you ever presented this idea to the Operations Division of the Navy?

Mr. Higgins. I will ask Captain Cochran about that. Not Operations. Yes, I have attempted to. Yes. I know a lengthy letter is tedious to read, and everybody has multiple duties to attend to, and we know that a letter is passed along with perfunctory but very nice introductory appreciation. I know that the group of drawings have been to the Admiral. He might have led his class in mechanical drawing. He does not care to worry over it. Neither do I. So, I have some young men down there who can convey on a drawing, isometrically, so that you can see them at a glance, the mechanical things that present themselves voluminously to anybody who is concerned. I might say that no attention was given. Frequently it is because some clever officers, who have so many duties, have not time to go into them, or else I am here at a time when no hearing is given.

Senator Brewster. I think the experience around the coasts of England has been rather successful. They have found

026 the answer, and we should be able to adapt that system here.

Mr. Higgins. All my English friends--everybody who comes to me--are strong on this. They have improvised this Commando. That is what the English are using, without the cabin. They even pitch the depth charges off by hand.

Senator Kilgore. Is that the same as the Commando boat?

Mr. Higgins. It is exactly the same hull, sir.

Rear Admiral Jones. We are building 2,500 for this same operation.

Mr. Higgins. Sometime ago I developed a design that would be highly reproducible. The forms were built up in sections at two or three different plants, the material to be in turn centralized by us and shipped to places along the coast where there are people competent in the use of hammer and hatchet; you would not have to have finished carpenters. It is something that can be built in quantities. It is practicable and successful, a four or five year boat that would serve a good purpose, with no fancy doodads on it.

Here is a picture of the hull, 56 feet 9 inches. I built a number of these for the United States Government. That boat will stand up in any sea. Certainly it will be a better boat than any Queen Mary or cruiser. She is a stable boat, and I am quite confident, her whole characteristics being more of the displacement type of hull, she would be quite satisfactory for listening devices. It might serve either as a convoy or maybe as a mother ship for these smaller boats, or for our inland waters or for our harbors, and for cruising from 80 to 100 miles offshore. It is a boat that can be built readily and cheaply.

These other vessels, as will be explained later on by

027 Admiral Jones, will take their place. But what are we going to do in the meantime? I think these boats are worthy of som consideration. If there is any cooperation wanted, we will give full cooperation, not that we are looking for any business We are not looking for any business for tank lighters. We have no profit motive.

Senator Mead. How long is this boat you are talking about now?

Mr. Higgins. 57 feet. To have it come within the range of power plants--I am talking about boats now--you have got to have all the available engines. I have certain makes of engines in mind.

We developed another type of boat, a 52-1/2-foot boat, or 52 feet 9 inches, I believe it is. I believe, Senator, that I gave you a couple of drawings. That is a highly reproducible boat. We will develop and give all the designs of it to the Bureau of Ships. If they take it and like it, they are welcome to have it. We will let other people build it. We will build the first one and test it cooperatively and then suggest that they have one centralized agency or more get them out, ship forms and have everything all made up, so that there will be accuracy in the assembly. Let the different plants have jigs and molds, and have the superintendents go out to these plants. Then, these boats can be built in great quantity. They can build new types which we have developed, which the Bureau of Ships has given us an order for; types we have developed, which we call the cross-drive, the cross drive making it possible to tie into one transmission, to one shaft, to one propeller as many as five engines--one, two, four, or five--and you can get different power or different cruising speeds with any one of the

o28 multiple engines. You can cool the engines with contained fresh water, which is desirable where you are using the automotive type engine, or you can have this engine.

Since I have been in Washington, I have been given an order for the first eight. We have built the first two. Members of the Bureau of Ships have driven the craft that this engine is in, and they are very much impressed with it. This engine is highly producible. In a matter of 60 days we can get up to a production of 100 engines a day. We are not ready to give it our blessing. The first two will be ready in 10 days. We are going to put it through the most arduous breakdown test, to see what bugs are in it. It is designed at present for gasoline. It could be designed for Diesel, or it could be designed for ersatz.

The thing that I believe should be sponsored is the protecting of transports or ships on any coast and all coasts with something besides a naval gun mounted in a manner in most cases where it is ineffectual. As for the machine guns we have, on mechanical or manual mounts, we might just as well give the boys a bunch of firecrackers and let them throw them up into the air and make a big noise, because that is all they ever do. If they ever hit anything, it will be a miracle.

So, I think this small boat could be built quickly.

Senator Mead. One is a 36-foot boat, and one is 57 feet?

Mr. Higgins. Either 52 or 57. With the 57-footer, on account of certain characteristics, you go into the problem of obtainable engines.

Senator Mead. You can turn these boats out in quantities, but you have not told us what they are made of.

Mr. Higgins. They are made of wood.

Senator Mead. You believe that these two types of ships,

029 used as you have just explained, would appreciably reduce the submarine damage?

Mr. Higgins. I want to agree with Admiral Jones completely, except I say it is going to take time. The ships they have are certainly better for the purpose than these. This is just an expedient. It may be a very good expedient; people might be surprised.

Senator Mead. The difference is that you can turn these out now?

Mr. Higgins. That is it.

Senator Kilgore. I noticed some destroyers down at Orange, launched and tied up at the dock. Isn't there any way of stepping up the production of gears and turbines?

Rear Admiral Jones. The situation is getting better. Our problem in ship construction now is not the shipyards but the industrial plants. Some of the companies producing our turbines and our gears are doing a topnotch job. They are ahead of deliveries. It has been quite a headache in clearing these bottlenecks or critical situations one at a time. For instance, we took the turbines out of Allis-Chalmers and manufactured them at the Charleston Navy Yard and the Boston Navy Yard. We are constantly shifting these things around to better the over-all situation. We no more than get settled and think everything is fine when we come down to the office feeling good, and in the middle of the morning a new program, like this production of 280 ATL, which is a 1700-ton ship in 7 months, hits in, and with it come 300 giant Y craft. That just cuts across the whole program. It cuts across my gear production, engine production, forging production, crankshaft production. Everything has to be resolved and reoriented to have the minimum effect. It is all delaying and upsets the

030 I can make the same remark about Mr. Higgins' small boat. You cannot be in production of any kind or of anything in the present market and not delay something that you are doing.

Senator Brewster. How effectively has the program worked out in the allocation of plants as between the Army, the Navy, the Maritime, the Lend-Lease, and so forth?

Rear Admiral Jones. On the whole, pretty well; but the Maritime and the Navy have worked out quite good. We usually stay in our own houses pretty well and do not cut across each other's path very much. The Coast Guard ship construction, of course, all clears through us now, so that does not cut across.

The point we have cut across more than anything else is in the forging industry, particularly on the 4 engine bombers, with the very large program in die-block forgings. We will make an expansion and an extension, and then orders will come into that forging plant with a higher priority than the bombing program carried for a long time, and we will have to put up another forging plant somewhere else, because we have to get our own. That is a continual delaying process.

On our turbines themselves, I think we are getting along quite well. We are not doing so well in gears. It takes a year and a half to build a hobbing machine to build destroyer or cruiser gears. Ordinarily we can build them in as little as six to nine months, but that is a long time.

Senator Kilgore. To build a set of these gears?

Rear Admiral Jones. To build a hobbing machine to hob the gears; and then we have to use hobbing machines to build hobbing machines.

Senator Brewster. You do not know whether to stop building the machines and make the gears, or which way to do it?

031 Rear Admiral Jones. That is the difficulty. In spite of that, our combat ship schedule is away ahead of our most optimistic expectation. We are anywhere from, I think, a year to a year and a half ahead of time.

Senator Brewster. Are you continuing on schedule with the battleships under construction?

(There was then a discussion which at the request of Rear Admiral Jones and by direction of the Chairman was not recorded. The following then occurred:)

Senator Kilgore. Have you any further questions, Mr. Fulton?

Mr. Fulton. None that we need a hearing on, but I should like to arrange with Captain Rawlings and Lieutenant Nash to get some information on the 36-foot ramp lighter.

Captain Rawlings. We will be glad to furnish it.

Mr. Fulton. I think we can take care of that with a minimum of your time.

Senator Brewster. We appreciate your coming up here, gentlemen.

Senator Kilgore. I wish to add my word of thanks for your coming here.

We will adjourn until 10:30 tomorrow morning, when we will meet in the same room.

(At 5:15 o'clock p. m. an adjournment was taken until Wednesday, June 10, 1942, at 10:30 o'clock a.m.)

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APPENDIX.

032

RESTRICTED

MAILING LIST FOR 47-Ft.
TANK LIGHTERS

August, 1941

East Coast Bidders

Luders, Stamford, Conn.
Consolidated Shipbuilding Corp., N. Y.
J. H. Mathis Co., Camden, N. J.
Geo. Lawley, Neponset, Mass.
Sullivan D. D. & Repair Co., Brooklyn, N. Y.
Higgins Industries, New Orleans, La.
Merrill Stevens D.D. & Rep. Co., Jacksonville, Fla.
Koppers Co., Bartlett Hayward Div., Baltimore, Md.
American Car & Foundry, Wilmington, Del.
Levingston Shipbldg. Co., Orange, Texas.
Gibbs Gas Engine Co., Jacksonville, Fla.
J. K. Welding Co., Inc., Brooklyn, N. Y.
DeKom Shipbldg. Corp., Brooklyn, N. Y. 29
Penn-Jersey Corp., Camden, N. J.
Lancaster Iron Works, Lancaster, Pa.
Charleston Shipbldg. & D.D. Co., Charleston, S. C.
Savannah Machinery & Foundry Co., Savannah, Ga.
Ingalls Shipbldg. Corp., Birmingham, Ala.
Penn Shipyards, Beaumont, Texas.
Platzer Boat Works, Houston, Texas.
Marietta Mfg. Co., Pt. Pleasant, West Va.
Nashville Bridge Co., Nashville, Tenn.
Jeffersonville Boat & Mach. Co., Jeffersonville, Ind.
American Shipbldg. Co., Cleveland, Ohio.
Defoe Boat & Motor Works, Bay City, Mich.
Leathem Smith Coal & Shipbldg. Co., Sturgeon Bay, Wisconsin.
Lake Superior Shipbldg. Co., Superior WMC.
Texas Shipbldg Corp., San Antonia, Texas.
HON Shipbuilding & Repair Co., S. Norwalk, Conn.

West Coast Bidders

Lake Washington Shipyds., Houghton, Wash.
Pacific Coast Eng. Co., Oakland, Cal.
S.W.Welding & Mfg. Co., Alhambra, Cal.
Consolidated Steel Corp., Los Angeles, Cal.
Pacific Car & Foundry, Seattle, Wash.
Willamette Iron & Steel, Portland, Ore.
Basalt D.D. & Repair Co., Napa, Cal.
Pacific D.D. & Repair Co., Oakland, Cal.
Dravo Corp., Stockton, Calif. 14
General Eng. & D.D., Alameda, Cal.
Albina Eng. & Mach. Works, Portland, Ore.
Commercial Iron Works, Portland, Ore.
Associated Shipbuilders, Seattle, Wash.
Winslow Marine Railway & Ship Co., Seattle, Wash.

Total 43