of freighters of several thousand tons carrying capacity. Whether the admiralty will build large freighters will not be decided until at least some of the present contracts have been successfully completed; then the cost, time of construction and general satisfaction given by the barges will be reviewed, and the further policy of the admiralty in regard to concrete ships will be based upon the results obtained and also upon the success attained in the meantime by the American government in the construction of the larger vessels, some of which will no doubt be launched at an early date.

The only specifications given out by the admiralty in regard to these barges were that they should be 170 ft. long, 33 ft. broad, 18 ft. deep, with a draught of not more than 14 ft. when loaded, and a carrying capacity of from 1,000 to 1,100 tons. The entire design to fulfil these conditions was left to the individual designers, with the result that the six designs which are being used vary considerably. The quantity of steel being used by the

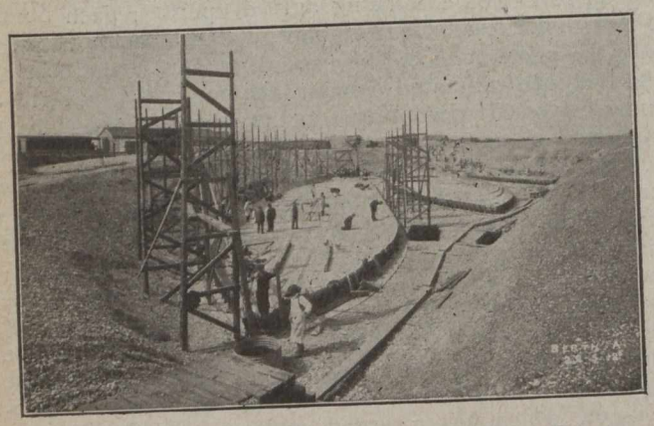

Fig. 2—Building Bottom Forms for Three Barges

various designers varies from 85 tons per barge all the way up to 129 tons. The average quantity used is approximately 100 tons.

Some designs stipulate bars throughout as the reinforcing, while others use much more expanded metal than bars. Fig. 1 shows one of the boats in which most of the reinforcing is expanded metal. The ends of sheets of expanded metal can be seen sticking out between the forms for the ballast tanks.

The mix used for this boat, as for most of the others being constructed, is 1 : 1⅛ : 2¼. The concrete is mixed much drier than is the general practice in Canada. Each barge contains about 400 cu. yds. of concrete. Gravel, washed and graded and crushed where necessary, is being largely used as aggregate. Quite a few of the firms, however, are using crushed whinstone, and at least one or two of them are using crushed granite, although this material is not popular on account of the added weight which it gives to the boat.

The average weight of these barges, not loaded, is 1,800 tons. Some of them are self-propelled, but most of them are not, as they will be towed across the channel. All of them are for use in English Channel traffic. The equipment on each of the towed barges costs about $35,000, including pumps, boilers, anchors, life-boats, ventilators, derricks and other loading and unloading devices, etc. The equipment of the self-propelled barges, of course, costs considerably more. All of the equipment is being built in England.

The tugs are launched from slipways; but the flat-bottomed barges are floated, not launched. Fig. 2 is a view of one of the building basins in Southern England. The bottom form work for three barges can be seen in place. The basin is dug out alongside a river bank, leaving a wall of earth (on the right-hand side of the photograph) between the basin and the river. When the three boats are finished, a 40-ft. channel will be cut through this wall, so that the boats will float and can then be towed through the channel to the river. After the boats are out of the basin, sheet piling will be driven across the channel and the basin again unwatered.

The bottom form work is built so that it will not float with the ships. After the basin was excavated, timber posts were sunk, embedded in concrete. Transverse battens were then nailed to the tops of these posts and the timber flooring, or form work, was laid longitudinally across the battens. Several small trap doors, about 2 ft. x 3 ft., are arranged in the bottom form in such manner that they can be lowered by levers after the barge is built, thus allowing the water to come up through the trap doors and relieving the upward pressure on the form work, also helping to float the barge from the form work. The basin is from 8 ft. to 9 ft. lower than high water in the river, but the bank surrounding the particular basin shown in Fig. 2 is very solid and no difficulty has been experienced from infiltration. The depth of the river just beyond the bank is about 25 ft. at high water.

COST OF THAWING SERVICES WITH ELECTRICITY

DURING the past winter the Baltimore County Water & Electric Co., of Baltimore County, Maryland, thawed 332 services with electric outfits at an average cost of $10.97 per service. Three trucks were employed in this work. One truck carried the thawing equipment, consisting of thawing transformer, switches and instruments. Accompanying this truck were two linemen and one groundman from the electric company that furnished the current. The driver was an employee of the water company. Two other trucks were in service, one of them carrying the reels of wires and the other carrying the digging tools, connecting up stocks and dies for putting in short pieces if the meters were burst or damaged by the plumbers trying to thaw them. The foreman in charge of main extensions and the foreman in charge of services were employed with the thawing outfit. The total cost to the water company of thawing the 332 services was $3,641, distributed as follows:—

	Total.	Per service.
Water company labor, 4,553¼ hours at 29.4 cents	$1,339	$ 4.03
Water company trucks, 1,405½ hours at $1	1,405	4.24
Current, linemen, etc.	897	2.70
Total	$3,641	$10.97

The water company employees were paid by the month. The figure given in the table is the average rate of wage per hour. It was necessary to excavate for some of the services. The actual cost for the excavation was $1.50 per lineal foot.

"Coal is everything to us," says Mr. Lloyd George. "Coal is the most terrible of enemies and it is the most potent of friends."