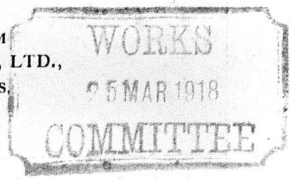
A REINFORCED CONCRETE BARGE.

By Mr. T. J. CLARK.

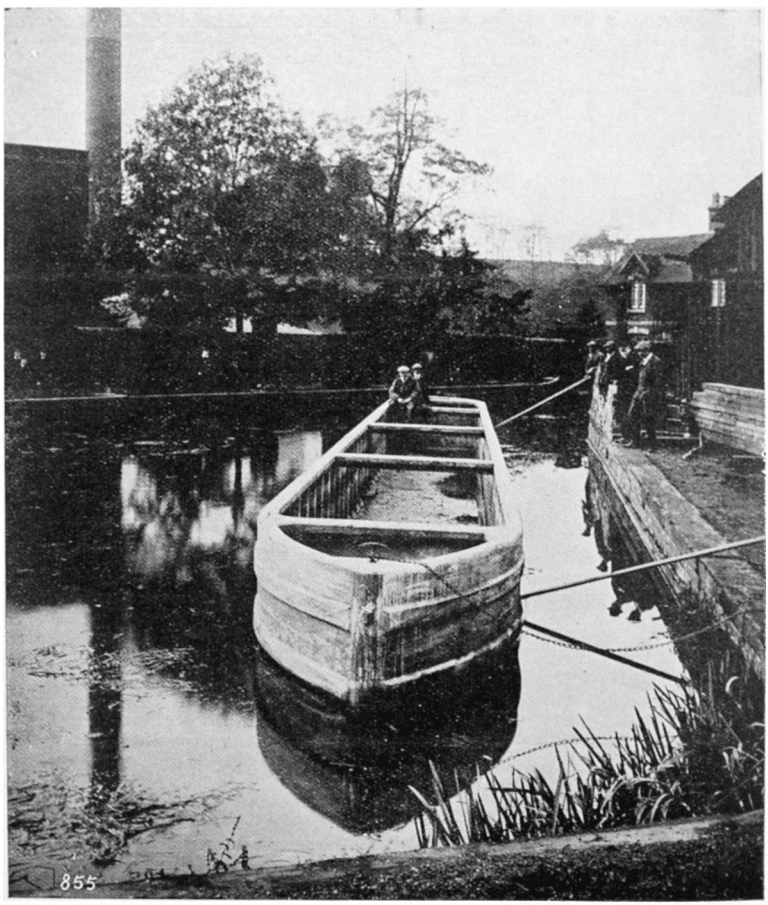
The rapid movement that is taking place in the shipbuilding world to-day towards the adoption of reinforced concrete as a constructional material, and the wide interest that is being aroused by the hints and rumours that appear in the public press, render doubly interesting any established facts which are allowed to be made known.—Editor of Constructional Engineering.



REPRINTED FROM "CONCRETE AND CONSTRUCTIONAL ENGINEERING,"
DECEMBER, 1917.

REINFORCED CONCRETE BARGE.

THE photographs shown here and on page four are, we believe, those of the first reinforced concrete barge that has been constructed in this country to be used entirely for commercial purposes. The barge is being employed in canal traffic in the Midlands and is what is known as a "monkey" barge as distinct from barges of a somewhat similar nature, only having cabin accommodation. These barges are confined to certain over-all demensions owing to the locks through which they have to pass. The one shown in the



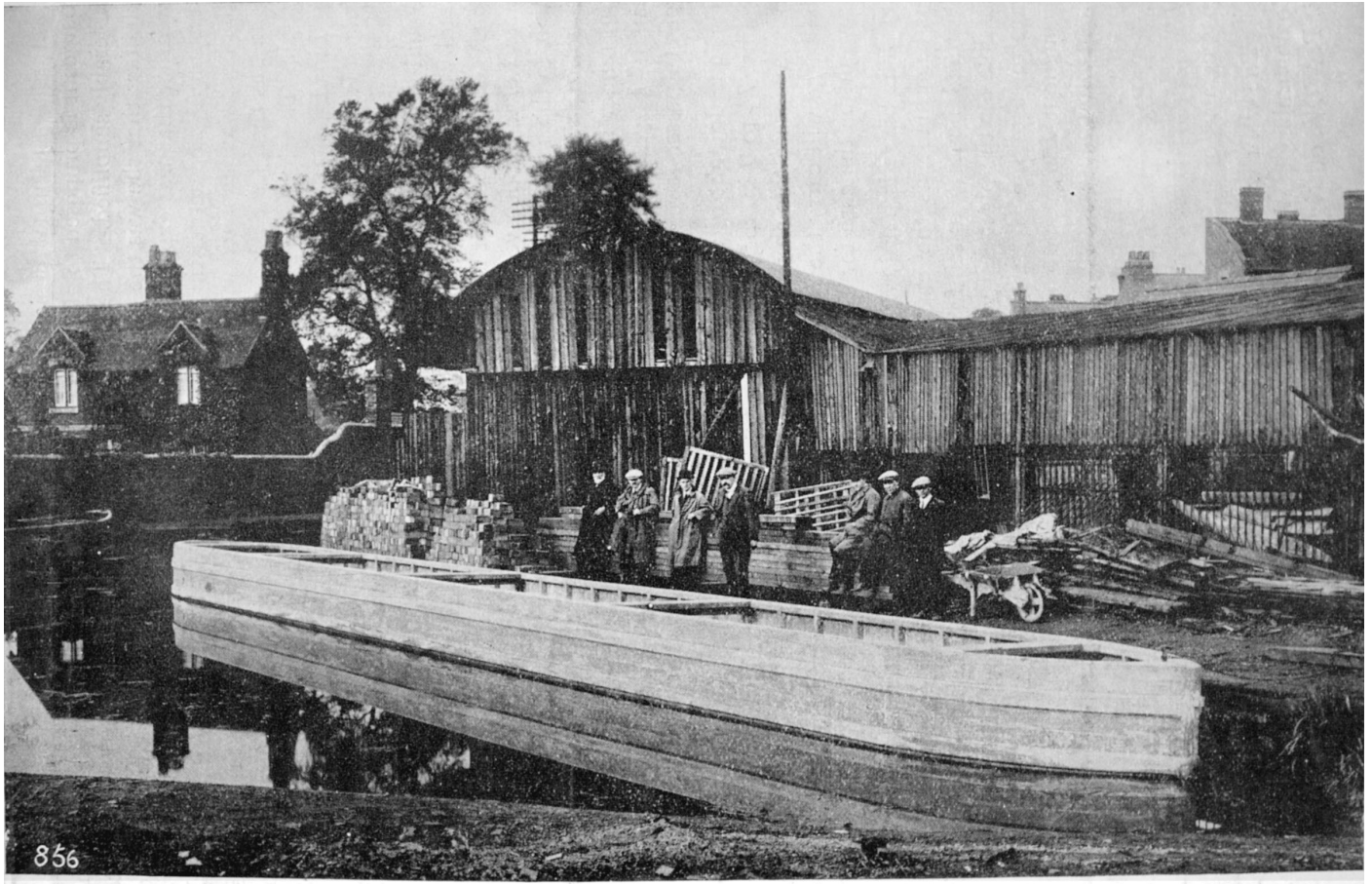
photographs is 70 ft. in length over all by 6 ft. 11 in. in width over the fenders by a total moulded depth of 4 ft. The approximate dead load that she will carry is about twenty-seven tons, though, of course, in measurement she will carry a very much greater cargo. In order to conform to the preconceived ideas of the canal "bargee"—who is very similar to his London

brethren—the usual design with frames was adopted, though in future barges it is proposed to alter the construction so that it may be very considerably simplified. The barge took about one month to construct owing to the fact that she was the first of her kind, and also owing to the very bad weather that was experienced during the latter end of the summer and early autumn. The actual time occupied in moulding was about six days, and the boat was launched within eight days after completion of the topsides. She was then kept for a further ten days before she took her first cargo of sand. The times between finishing and launching and between launching and loading are merely stated as facts. That they are unusually short will be recognised by everyone who is experienced in concrete construction. That they were possible is due to special circumstances. As a general rule, it would be safer to allow a much greater length of time in each case. The total weight of concrete and steel in the work amounted to about thirteen tons, and the cost of the barge has come out very much below that of either a steel or a wooden vessel at the present prices. Another barge is now being built to the same design, only with about 4 in. sheer, which is being put in at both the fore and after ends in order slightly to improve her appearance and render her lines more acceptable to the æsthetic tastes of the aforesaid canal "bargee." This second barge will probably be launched before this goes to press.

The draught of water of the unloaded boat amounted to about 14 in. as against 7½ to 9 in. for boats of a similar tonnage in either wood or steel; but to compensate this an extra moulded depth of 6 in. has been put in, so that the barge will carry the same dead load and be registered exactly the same as would be the case for a vessel of either wood or steel.

The barge is purely of reinforced concrete. No attempt at plastering has been made, as the engineer for this work does not consider that the plastered boat *is* a reinforced concrete one; neither, in his opinion, is it possible for the plastered vessel to stand the severe handling that these barges have to sustain in Midland canal traffic. The concrete is of a rich nature throughout, **the cement being of the very highest quality made,** and, when made into concrete giving crushing results at twenty-eight days of over 400 tons per sq. ft. The cement used throughout was manufactured by **Messrs. G. & T. Earle (1912), Ltd., of Hull.** The tensile strength of the concrete at twenty-eight days was in excess of the British Standard requirements for **neat** cement of the same period.

The work was carried out most satisfactorily by Mr. A. H. Guest, of Coalbournbrook Wharf, Stourbridge, and the whole was designed by Mr. E. P. Wells, of 94, Larkhall Rise, Clapham, London, S.W. 4.



A Reinforced Concrete Barge.