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**THE CONSTRUCTION OF A CONCRETE MASS AND BLOCK-
WORK QUAY WALL BY HELMET DIVERS IN OPEN WATER.**

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(To be read before General Section, April 29th, 1909.)

The quay wall, which is described in this paper, was built at Portland Harbour, England, in the years 1904-1906. It formed part of an extensive scheme of the British Admiralty to extend and increase the efficiency of the coaling facilities for the fleet at that port.

Portland Naval Harbour, since the completion of the enclosing breakwaters, having been made the headquarters of both the Channel Fleet and a destroyer flotilla, and also an important rendezvous during speed and gun trials, manoeuvres, etc., the existing coaling accommodation and storage proved inadequate for modern requirements. To meet this change, the work of which the wall herein described forms a part, was constructed.

The outstanding features of the scheme were a deep-water wharf backed by coal storage grounds equipped with railroad tracks, coal handling machinery, and fuel oil plant.

For obvious official reasons the writer proposes to limit his remarks and confine the scope of this article and illustrative drawings simply to the quay wall which formed the wharf frontage of the work.

This wall, as will be seen from the cross section shown on the accompanying drawing, is built of Portland cement concrete mass-work, faced with concrete blocks. The foundation of the wall up to 33½ feet below low water level of spring tides is built of mass-