

REMARKABLE GRAVESTONE AT FORRES, SCOTLAND.
 BY C. FIELD.

This little town of Forres, in the northeast of Scotland, is known to most people from its mention in "Macbeth," the opening scene of which play is set on "A blasted heath near Forres." Local tradition assigns a clump of trees on a moor, some miles to the westward, as being the spot where Macbeth and Banquo met the three "foul and midnight hags." But the real lion of the locality is the lofty runic pillar known as "Sueno's stone," with an ornamental cross on the one side and a complicated array of men, horses, and birds on the other, which is said to commemorate a battle fought between the Scots and the invading Danes in the year 1014. But although no story attaches to it, the stone here pictured, which is hidden away in a dark corner outside the little museum which the town boasts, is surely one of the most curious among the many quaint and grotesque tombstones which are scattered over the United Kingdom. It is said to have once stood in the churchyard, and is probably two or three hundred years old. It is remarkable that no indication is given as to whose memory it was first erected, unless the large capitals at the top are the initials of some unknown name. The carving is bold and somewhat original, though not of any artistic merit. The hour-glass, coffin, and skeleton are much more like what they are supposed to represent than is (it is to be hoped) the angel with the trumpet. Possibly the skull between two heads at the base of the stone is an allegorical representation of Death dividing husband and wife.

THE TORPEDO BOAT "VIPER" IN DRY DOCK.

It is no exaggeration to say that the remarkable little craft which forms the subject of our illustration is attracting more attention just now than any other vessel afloat. Much of this interest is of a popular nature, and is due to the sensational speeds which she has attained. The public appetite is always whetted by the performance of superlative physical results, and it seldom stops to ask whether these results have any permanent economic value; whether they will or will not further the world's material interests. Popularly considered, the "Viper" is unquestionably the sensation of the hour, for it stands to-day with an accepted official mean speed of 36.58 knots and a maximum speed of 37.1 knots an hour.

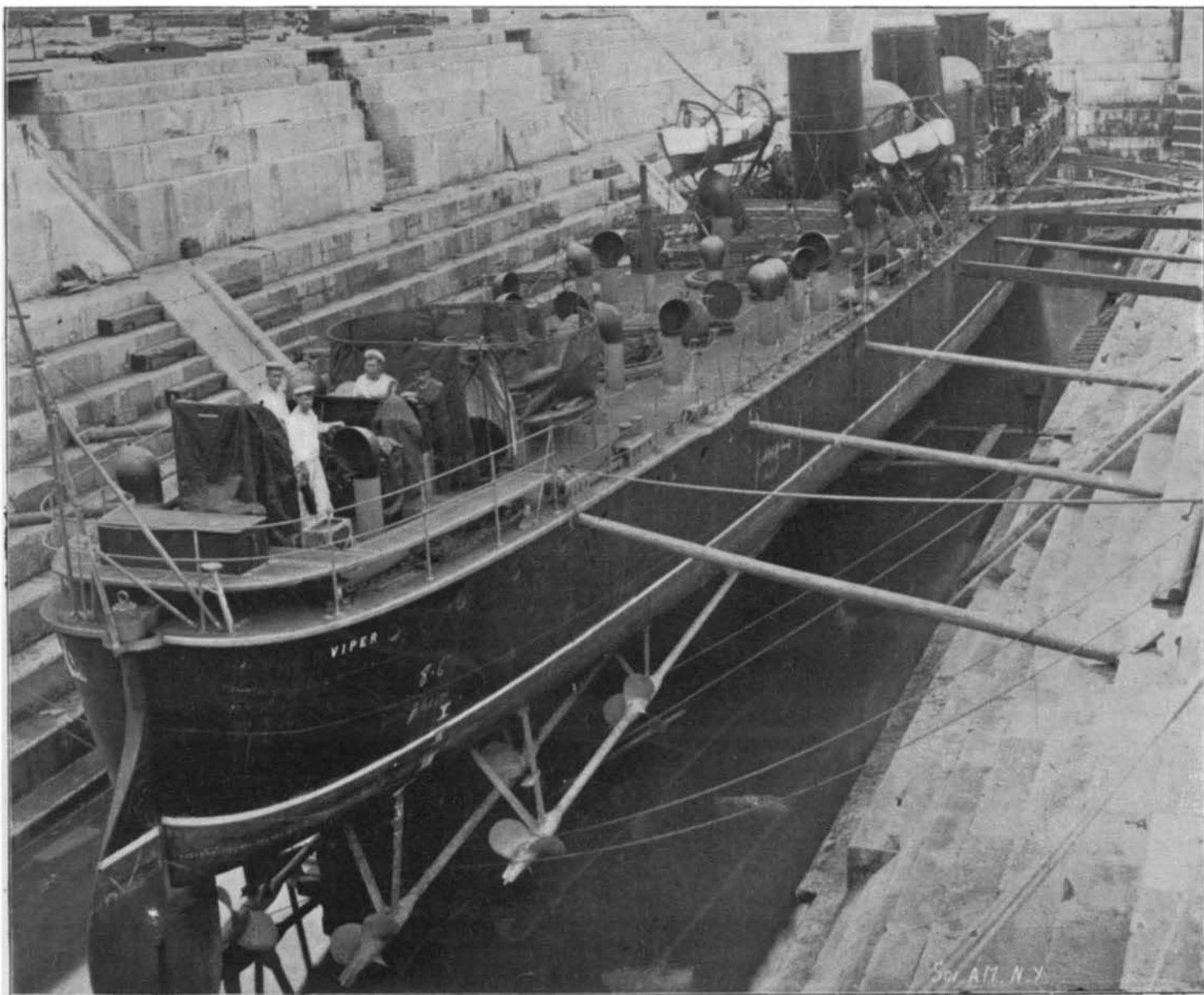
Of the question of the economic value of this performance, there may be, and probably is, a division of opinion, and we must wait until the full details of the trials are known, and until the vessel has been given a sufficiently extended trial in active service to establish its durability and all-round usefulness. Even then there will be found a large number of professional men who will doubt the utility of such a boat and such a speed under any circumstances. Personally, we are disposed to give every credit to Mr. Parsons for suggesting in the "Viper" what are the speed possibilities of the future for vessels of larger size and more pronounced utility. Mr. Parsons has recently stated that the application of the steam turbine to larger vessels has been fully considered, and he states that, as regards its adoption for warships, adequate experiments on large steam turbines have made it evident that with turbine machinery oc-

cupying less space than the present cramped-up reciprocating engines, considerable reductions in coal consumption at all speeds would result, consumptions which at some speeds would be quite unprecedented in warships, and analogous to the consumptions attained in the best mercantile marine engine."

Our illustration shows the methods adopted for utilizing the 12,000 horse power which was developed in the recent official trials of the "Viper." Four shafts are used, with two propellers on each shaft, the after


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propeller having a coarser pitch than the forward one. Each pair of shafts on either side is driven by a compound condensing turbine, the high-pressure driving the outer, and the low-pressure turbine the inner shafting. Forward of the low-pressure turbine, in each case, and on a common shaft, there is placed a smaller high-pressure turbine, which is used for driving the boat astern at a speed of 15 knots an hour; this arrangement being adopted to overcome the defect, inherent in the turbine, that it is incapable of being reversed. The "Viper," like its sister vessel the "Cobra," is 210 feet long, 21 feet beam, and 12 feet 9 inches moulded depth, with a displacement of 380 tons. It is of interest to note the rapid rise of power for increase of speed in the "Viper" as compared with other torpedo boats of approximately the same displacement; thus, the 30-


TORPEDO BOAT "VIPER" IN DRY DOCK, SHOWING ARRANGEMENT OF THE EIGHT PROPELLERS.

Length, 210 feet. Beam, 21 feet. Displacement, 380 tons. Horse Power, 12,800. Speed, 37.1 knots.

knot destroyers of the standard type generally steamed on their trials at a speed of 30 knots for an expenditure of from 6,000 to 6,500 horse power, whereas to drive the "Viper," which is only of about 50 tons greater displacement, at 37 knots required the development of 12,000 horse power.

The weights of the motive power equipment are as follows: Boiler room weights with water in boiler, 100½ tons; engine room weights with auxiliaries and water in condensers, 52¼ tons; while the weight of the propeller shafting and fittings is 7¾ tons. Although the turbo engines, in proportion to the horse power developed, are considerably lighter than engines of the same horse power of the reciprocating type, the total weight of the machinery is not as much less than that of the standard 30 and 32-knot torpedo boats as might be expected, the weight saved in the engines being somewhat offset by the increased size of the boilers and auxiliary machinery necessary to produce the great weight of steam required. In the official trial it was recorded that there was a total absence of vibration, even when the vessel was being driven at its highest speed, a feature which is of great value in a warship, since it enables the vessel to present a steady gun platform. Moreover, should the turbine be introduced into the merchant service, the absence of vibration alone would, with the majority of people, render the vessel thus fitted extremely popular; for it is certain that next to the rolling and pitching motion of the average passenger vessel, the feature which causes the most discomfort is the extreme vibration, which unfortunately seems to be inseparable from the high-speed steamer.

Test of an Emergency Ration.

A campaign is being conducted in Oklahoma Territory, and the men are subsisting entirely on emergency rations, the idea being to test the sustaining qualities of three different varieties. Twenty-five enlisted men comprise the force with which the experiments are being made. Each of the three rations now being tested is inclosed in tin, and is of convenient shape for carrying in the saddle bag or pocket. Each package contains food for one person for a day, and the contents are carefully divided into three equal portions. The first ration is composed of broken wheat which has been baked and evaporated meat. This combination is to be made into soup by simply pouring hot water over it. There are also three cakes of chocolate in this ration, besides pepper and salt. The condition of the men while testing this ration will be closely watched. They will be stripped and weighed night and morning, and a careful record kept of their temperature. The second ration is a combination of meat and bread-stuffs with tea instead of chocolate. The third ration is composed of meal made from peas, evaporated beef and bacon and a package of tea. When the new ration is adopted, it will be kept for distribution at every army post. Directions are given on the tins, and if necessary the rations may be eaten dry.

A WIRE fence weaving machine has been devised which enables a strong and serviceable fence to be constructed in position with rapidity and economy. The machine carries a number of spools of wire, and the weaving of the fence progresses rapidly.