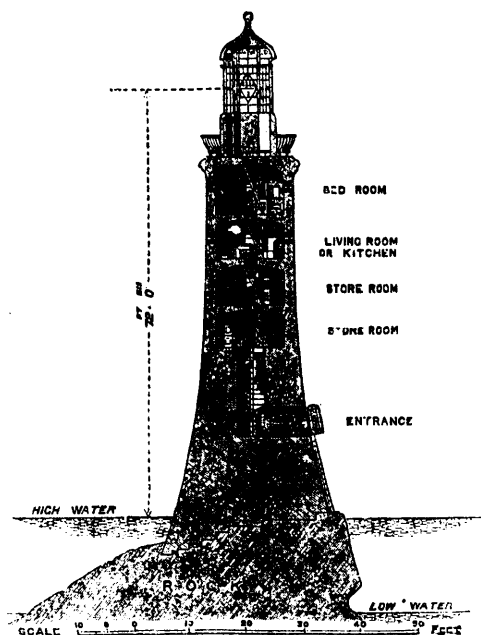


SECTION OF THE NEW TOWER.



SECTION OF THE OLD TOWER.

the exception of seven courses, in the lower part of the tower, from Aberdeen. A solid cylinder of granite, $44\frac{1}{2}$ ft. in diameter, was first built up from the rock to the height of $2\frac{1}{2}$ ft. above high water. From this, as a base, the tower springs, leaving a terrace, $4\frac{1}{2}$ ft. wide, all round.

Experience and observation satisfied Mr. Douglass that the shape of Smeaton's tower, of which so much had been said, was not the best that could be designed, and that, by allowing the waves to run up readily toward the summit this shape had the effect of throwing the main stress of the water upon the upper part of the tower, where it acted with enormous leverage to weaken the base. He has, therefore, placed the curved portion of the tower upon a base with vertical sides, which will not have the same tendency to produce an upward run of the waves, and has also laid the foundation in a manner somewhat different from that which Smeaton had employed. The tower is built of granite blocks, some of them 6 feet 6 inches deep, 2 feet thick, and 3 feet 10 inches on their outer circumference, and they are all without a flaw. Throughout the whole tower every stone is dovetailed, by projections and grooves, into those above, below and on either side of it; and the interstices between the blocks have been filled up with Portland cement, which blends the whole into a mass, the joints of which are as hard as the granite itself.

The Eddystone rocks, which are of gneissic formation, consist of three reefs, the western, southern, and northern, with odd rocks dotted about irregularly. The old tower—Smeaton's, now in course of demolition—stands upon the northern extremity of the western reef. The new tower, just completed, stands at the northern extremity of the southern reef, the middle of the three. The whole group of rocks occupies nearly a square mile at low water, and stands a little to the north of a direct line between the Start Point in Devon and Lizard Point in Cornwall, being about forty miles from the former and thirty from the latter. The distance between the two towers, from center to center, is only 127 feet. The height of the focal plane of the light in the old house was 72 feet above high water, and was visible thirteen miles, while that in the new house is 133 feet, and is visible seventeen and a half miles.

On Thursday, May 18, 1882, the new lighthouse was set in operation by His Royal Highness the Duke of Edinburgh, as Master of the Trinity House Corporation, who have the charge of all lighthouses round the British coasts.

Engineering, Civil & Mechanical.

INAUGURATION OF THE NEW EDDYSTONE LIGHTHOUSE.

The first Eddystone Lighthouse was built by Henry Winstanley, in 1696. It was constructed of wood and stone, and was carried away, together with the architect and keepers, by a violent storm in November, 1703. A second, of similar construction, was built in 1708, by John Rudyard, a silk mercer, of London, and this was burnt down in 1755. The famous building by Smeaton succeeded this, and stood for over a century on the famous reef. In 1877 it was discovered that the foundation had been undermined by the waves, and that, although the tower itself was sound, the portion of the reef upon which it rested had become insecure. The construction of a new lighthouse had therefore become imperatively necessary; and its cornerstone was laid by the Duke of Edinburgh, August 19, 1879.

The new tower is from designs by Mr. James N. Douglass, chief engineer to the Trinity Board. The building has been entirely carried out under the personal superintendence of Mr. Thomas Edmond, the resident engineer, with Mr. W. T. Douglass as his assistant. It is entirely of granite from the De Lant quarries at Wadebridge, near Padstow, in Cornwall, with