

# The Democratic Sentinel

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## LONE ROCK OF THE SEA

### THE FAMOUS BEACON AT EDYSTONE ROCK.

A Lighthouse Which Has Had Several Predecessors, One Having Been Swept Away with Its Builder—Valiant Assailed by Terrible Storms.

Guides the Mariner.

Of all lighthouses the most familiar is the noble structure which proudly rears its head above the dangerous Eddystone rock, on the English coast. The earliest intimation of a lighthouse on the Eddystone dates back as far as 1664, when the proposal was made by Sir John Coryton and Henry Brunker, but nothing further transpired regarding the scheme. The first lighthouse was built by Henry Winstanley, who began his difficult task in 1696 and completed it four years later. The structure was of wood, and Winstanley soon discovered that it was not strong enough to withstand the terrible storm which roll in from the Atlantic. Accordingly he remodeled and strengthened it considerably, and it being intimated to the architect that the lighthouse would certainly be overthrown, he replied that he should only wish to be there in the greatest storm that blew, in order to see its effect upon the structure. His wish was gratified, for a dreadful tempest raged in 1703, while he and

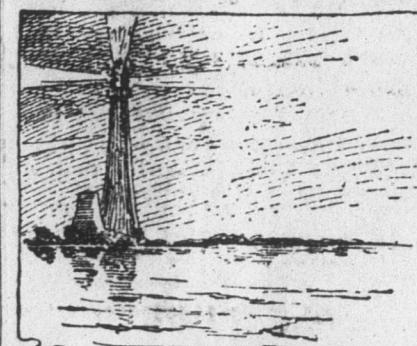


A PERILOUS LANDING.

his workmen and lightkeepers were in the building, which carried away the lighthouse and its inmates, and all perished in the sea, the only sign remaining being the larger iron irons whereby the work was fixed to the rock. It is regarded by the Strand Magazine as very remarkable that at the same time this catastrophe happened the model lighthouse at Winstanley's residence in Essex fell down and was broken to pieces.

Other Structures Blown Away.

It being absolutely necessary, as navigation increased, that a guiding light should be maintained upon this reef, so fraught with danger to mariners, it was decided to construct a second lighthouse, and in 1706 John Rudyerd (a common laborer's son, who rose to the position of a silk mercer on Ludgate Hill) commenced to build, one of wood upon a stone and timber foundation, the general design—a cone-shaped column—being much more appropriate. With the third Eddystone lighthouse is associated the more familiar name of John Smeaton, who in 1759 completed the tower entirely of stone, which was considered at the time as one of the wonders of the world. The



THE EDDYSTONE LIGHTHOUSE—A CALM EVENING.

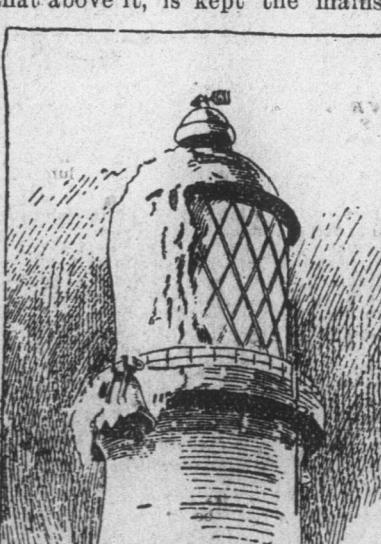
ness, and our party includes the principal light-keeper, an assistant keeper, two skilled mechanics for lighthouse repairs, and three or four visitors who are curious to inspect the lonely sea home for which we are bound. When stores are taken in and everybody is on board, the signal is given, and off we start in a southerly direction.

Making a Perilous Landing.

When the tug arrived close to the rock anchor was cast and a couple of lines were thrown on board from those on the reef. With these the tug was made fast bow on to the lighthouse, and then a strong rope is let down from a crane on the tower and made fast on the visiting boat. Each of those desiring to land grasps this line, puts his foot in a loop attached thereto and is then hoisted to the landing stage, experiencing meanwhile the thrilling sensation of hanging on a rope in mid-air, jerking and swaying over the boiling surf, with the salt spray dashing in his face. From the landing stage the entrance is approached by a ladder formed by a series of gun metal rungs let into the stonework. After our recent exertion we make for the kitchen and enjoy a plain, substantial meal, followed by a smoke and a chat; then, assisted by Tom Cuttide (third lightkeeper), I make a detour of the building. Under foot is the water tank, capable of holding 3,500 gallons. The walls are nine feet thick at this point and the gun metal doors weigh a ton, thus massively constructed in order to withstand the shock of heavy seas.

The Light and Living Rooms.

Thence, by a flight of sixteen steep iron steps (a similar flight connects each room), we proceed to the next compartment, where, as well as in that above it, is kept the mainstay



tower was built of masonry (the true granite), found in the neighborhood of Plymouth, and the first block was laid on a Sunday in June, 1757, the exact date being deeply incised in the stone itself, and after four years' labor upon the rock, hindered by numerous obstacles and dangers, the lighthouse was satisfactorily completed without any loss of life or limb. Every stone was ingeniously dovetailed to its neighbor, and so substantial was the whole structure that the most violent storms had no effect upon it, although the waves would frequently encircle the tower like a sheet, raising at times to double its height and totally hiding it from view.

Plan of the Present Lighthouse.

The present Eddystone lighthouse, opened in 1822, was completed in three and a half years, and is founded on the actual body of the reef at a distance of forty yards from its predecessor. Sir James Douglass greatly improved upon Smeaton's design in adopting a cylindrical base instead of the curved shaft commencing at the foundation—this base not only preventing the heavy seas from breaking upon the structure, but affording a convenient landing platform. Operations in connection with the Douglass lighthouse were begun in July, 1828, the men during the early stage being compelled to work below the

level of low water, and about twelve months later the foundation stone was laid by the Duke of Edinburgh, who, two years later, also placed in position the top stone of the tower. The stones are of granite, dove-tailed together, and up to a height of twenty-five feet above high-water level the tower is solid, with the exception of a large water tank let into it. From the same level to the center of the lantern is 130 feet, that is, nearly double the height of Smeaton's tower. It contains nine compartments, as compared with four in Smeaton's, and all the rooms have domed ceilings, their height from floor to apex being 9 feet 9 inches, and the diameter 14 feet,

the boat by means of a sliding crane working through a port hole over either door, as well as for landing and embarking in rough weather. Then comes the kitchen or living room, where the small party of three cook and eat their meals and enjoy their leisure moments.

Still ascending, we reach the low lightroom, devoted mainly to an apparatus for giving a white, fixed, subsidiary light. The eighth compartment is the bedroom, having five berths, two above and three below, with curtains, and below are cupboards for clothes; the two speaking tubes fixed on the wall are connected with the lantern and low lightroom respectively, so that the keeper on night duty can easily communicate with his sleeping mates should an accident happen and assistance be required. Considerable space is devoted to the two pressure pumps for supplying oil to the lamps by means of weighted rams, which, being first raised by a pumping lever, descend gradually into the oil, forcing it up the pipes into the lamps. The chief work performed in the service room is at night, when the light is going and the keeper is on duty.

Intense Lights for Soggy Weather.

Surmounting the last flight of stairs, we enter the most interesting compartment of all, namely, the lantern. It is 16 feet high, 14 feet in diameter and cylindrical in form. The framings are made of steel, covered externally with gun metal, and there is a very careful arrangement for thorough ventilation, having regard to the great heat thrown off by the lamps. The lighting apparatus is the outcome of many costly experiments in optical science. The lamp is known as a Douglass improved six-wick burner—that is, one having six tubes of wicks of varying sizes, the larger encircling the smaller, which, when burning, produce a solid flame equal to that of the intensity of 722 standard sperm candles. Two such burners are fitted, one above the other, within the revolving drums, so that in bad weather flashes of enormous intensity are sent forth, the combined illuminating power being equivalent to 250,000 candles.

The glass apparatus by which the effect of each burner is augmented and economized, consists of two two-sided drums, each six feet in height and each side or panel of which is formed by a central lens or bull's eye and surrounded by concentric rings of larger bull's eyes, so that the same effect is obtained as though a portion of one huge lens were employed.

The two bull's eyes of adjoining panels are brought close together, much resembling two eyes squinting; and on the rotation of the drums, with the inside central light burning, each bull's eye and its surrounding rings carry round a concentrated beam of light, which becomes visible to the outside observer as soon as the focus of the bull's eye falls upon him. A very short interval occurs between the flash of the first bull's eye and that of the second, and after two such flashes nearly half a minute elapses before another pair of squinting eyes comes round and discharges the two flashes; and thus is obtained the distinctive light of the Eddystone. The two drums are superimposed, with a lamp in each, so that in foggy weather, when both act together, a double lighting power is procurable.

The monotonous round of duties carried on day by day so far away from their fellow men invariably induces, after the first month, acute depression of spirits, the attack lasting from twelve to twenty-four hours, and, work being temporarily impossible, the sufferer remains in his berth until the sickness moderates, his mates filling his duties meanwhile. Every month (weather permitting) a relieving vessel goes out to the lighthouse, taking the man who has had his month ashore and returning with the keeper who has completed his three months, but it frequently happens that the weather upsets their calculations, when communication by signal alone can be effected. In fine weather each man is on duty four hours and eight hours off, but when the atmosphere is thick there is double duty to perform, two men being on watch at the same time.

At dusk the lamp is lighted, so I accompany the keeper into the interior of the glass drum, and observe how, with a spring grip, he raises the lamp chimney and ignites the wicks; but, being still daylight, the illumination is not brilliant, although it increases in brightness as night comes on. The next proceeding is to wind up the gear which rotates the drums, and, as the weight to be lifted is equal to a ton, and the operation lasts about an hour, it is somewhat fatiguing.

On a fine summer's day it is delightfully quiet in the lantern; but there are times, as the fury of the tempest beats upon the massive tower and the blinding flash of lightning permeates every apartment, when the men in their solitude cannot fail to be impressed by the mighty power and majesty of nature's forces. It was a terrible experience, ever to be remembered by the lightkeepers, when, on the night of the blizzard in March, 1891, the lantern was partly imbedded in snow, entirely obscuring the light on one side and effectively blocking up the exit. The storm was of such severity that nothing could be done to clear away the obstruction till the next morning, when the tempest had abated.

A Dainty Little Buttercup.

A dainty and fascinating little creature monopolized much of the attention of the occupants of the reviewing stand near the Worth monument on Decoration Day. It was a human buttercup—a little girl not more than five years old attired from top to toe in the golden hues of the buttercup. Her little frock of silken texture glistened in the sunlight like a real dew laden buttercup. Her tiny shoes were golden in color, and on the spritely curly head was a jaunty little hat of yellow covered all over with buttercups. A sweet and roguish face peeped from beneath the hat, and the restless activity and continuous prattle of the child gave some of the occupants of the stand more pleasure than did the procession. —New York Times.

The Heat of the Sun.

How hot is the sun? That is a question that astronomers and physiologists have been trying for years to solve, and they are not yet satisfied that they know the true answer. In fact, it may be said, they are certain they do not know it, although they are able to report progress, from time to time, in the direction of the truth.

The most recent trustworthy investigation is that of M. De Chateller, who fixes the effective temperature of the sun at 12,600 degrees Fahrenheit. It may, he thinks, be either hotter or colder than that figure indicates, to

the extent of 1,800 degrees either way.

Small Island.

The smallest sea island on record is nine feet across.

## TREADING WATER.

Something that Anybody Can Do Without Any Previous Practice.

The easiest position that a man, a woman, or a child can assume in water is to float perpendicularly, says Harper's Young People. Any person, without any previous practice, can tread water, and so keep afloat for a long time. He should keep his hands below the surface of the water, his lungs inflated, and his feet moving up and down as in walking. Let the "man overboard" throw his hands and arms out of the water, let him raise an outcry whereby the air is expelled from the lungs, and he will sink to the bottom. The trouble is that nine out of ten lose their presence of mind when they are in water out of their depth for the first time. Instead of struggling and floundering about, they would do a little walking there would not be the slightest danger of drowning right away.

Anyone can tread water in the first attempt. No preliminary teaching is necessary. Treading the water is simply walking into the water out of one's depth, with or without the aid of one's hands. The operation is not unlike running upstairs, and, if anything, easier. Truly any man, any woman, any child who can walk upstairs can walk in the water, and remember, on the first attempt, without any previous instruction or practice.

Hence I say that persons really ignorant of the art of swimming are perfectly safe in water out of their depth. Very often you hear people exclaim: "Ugh, if this boat were to upset I'd drown, of course. I can't swim you know."

Yes, but you can tread water. Most of us attach a wrong significance to the word "swim." Why should we mean one thing when a man swims and another or different thing when a dog swims? The dog cannot "swim" as a man swims, but any man can swim "dog fashion" instantly and for the first time. The animal has no advantage in any way in water over man, and yet the man drowns while the animal "swims."

The glass apparatus by which the effect of each burner is augmented and economized, consists of two two-sided drums, each six feet in height and each side or panel of which is formed by a central lens or bull's eye and surrounded by concentric rings of larger bull's eyes, so that the same effect is obtained as though a portion of one huge lens were employed.

The two bull's eyes of adjoining panels are brought close together, much resembling two eyes squinting; and on the rotation of the drums, with the inside central light burning, each bull's eye and its surrounding rings carry round a concentrated beam of light, which becomes visible to the outside observer as soon as the focus of the bull's eye falls upon him. A very short interval occurs between the flash of the first bull's eye and that of the second, and after two such flashes nearly half a minute elapses before another pair of squinting eyes comes round and discharges the two flashes; and thus is obtained the distinctive light of the Eddystone. The two drums are superimposed, with a lamp in each, so that in foggy weather, when both act together, a double lighting power is procurable.

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