

them by the Patent Office, in their official form, is more like a registration principally for the information of Patent Solicitors, and is not an advertising medium for drawing important or useful inventions to the notice of the public. Patentees of really useful inventions, desiring to give illustrations with an editorial notice in our pages, will be met in a very liberal spirit, and we trust that for the future our columns will be made the channel of giving more publicity to Canadian inventions, many of which are of a very high order of merit.

Having faithfully, we trust, fulfilled our part to our subscribers, it may not be out of place here to respectfully solicit an early settlement of all arrears at the close of the year. Thanking them also for past favours, and hoping for a continuance of their support, we beg to wish all of our readers a Happy New Year, and hope the tide of depression in business has reached its lowest line, and that the flow will now set on bearing prosperity and peace on its waves.

THE EDDYSTONE LIGHTHOUSE.

Not a little interest was awakened at the last meeting of the British Association, at Plymouth, by a very interesting paper on the Eddystone lighthouse, by Mr. Isaac Douglass, who surprised his hearers by announcing that Smeaton's great work was not destined to exist much longer. Owing to a very considerable tremor which occurred with each wave-stroke during heavy storms from the westward, fears had been entertained for the safety of the structure, particularly as sea-water had frequently been driven through the joints of the masonry. The upper part was strengthened in 1830 and 1865 with internal wrought-iron ties, extending from the lantern floor downwards to the solid portion of the tower. On the last occasion he found that the chief mischief arose from the upward stroke of the sea at the cornice, but repairs were affected, and further leakage prevented. The tower was still sound, but unfortunately the gneiss rock on which the lighthouse was built had been seriously undermined and weakened by the sea. This appeared to be chiefly due to the incessant straining of the laminated rock by the heavy sea-strokes on the tower. It had, therefore, been determined to erect another lighthouse of larger dimensions, for which a good foundation had been discovered about 120 feet off. The elevation of the light for a range of 19 nautical miles was very desirable, so that it might be extended more towards the Channel rock, and made to overlap the range of the neighboring Lizard lights to the westward. Unfortunately, the sea rose during stormy weather considerably above the top of the lantern, thus often eclipsing the light and altering its distinctive character. This was a matter of much greater importance in the present day than it was at the date of the erection of the structure, from the enormous increase in the number of shipping, and the additional lighthouses which had been established, each having a distinctive character. The power of a light in so important a position ought to be raised to the first-class; but the capacity of the present tower was insufficient for this as well as for the provisions of a first-class fog-signal. Telegraphic communication between rock lighthouses and light-vessels and the shore, for purpose of reporting casualties at sea, was very desirable, but the difficulties which presented themselves appeared at present too considerable to justify the necessary outlay for construction and maintenance. Four lightkeepers were attached to the Eddystone, three being constantly on the spot, and one on shore in rotation. They were relieved from Plymouth monthly by a steam vessel. The average annual cost of maintaining the lighthouse was about £585. In conclusion, he could not help expressing a hope that if Smeaton's noble structure had to be taken down, as doubtless it would be after the erection of the proposed new lighthouse, the nation would consider it as worthy of a site on English soil as Cleopatra's needle.

NEW BIRD.—Prof. O. C. Marsh announces a new genus and species of toothed bird, which he calls *Baptornis advenus*. He also describes a new fossil lizard, by far exceeding in magnitude any land animal hitherto discovered, which must have been fully 50 to 60 feet long. It was probably a herbivorous reptile. It comes from a bed on the eastern flank of the Rocky Mountains.

KILLING CATTLE BY DYNAMITE.

Mr. Thomas Johnson, of Dudley, England, has recently made experiments with the above. A small quantity, the size of a thimble, was placed on the foreheads of several animals and exploded in the ordinary way with a short piece of safety fuse and detonator, and the cattle were instantly killed, and only required bleeding. Lately other experiments were made at Mr. Bruton's, Red Hill, Dudley. The charges were exploded by electricity instead of the ordinary way, and by this means any number of animals may be instantly killed by the same current of electricity. Two large horses and one donkey, unfit for work, were drawn up in line about half a yard apart, the donkey being in the center. A small primer of dynamite, with an electric fuse attached, was placed on the forehead of each, and fastened by a piece of string under the jaw. The wires were then coupled up in circuit, and attached to the electric machine. Mr. Johnson turned the handle of the machine and discharged an electric current, which exploded the three charges simultaneously, the animals instantly falling dead without a struggle.—*Land and Water.*

DURABILITY OF TIMBER.

The durability of timber is almost incredible. The following are a few examples for illustration, selected for the *Railway Age*, from various sources, and vouched for by scientific men: The piles of a bridge built by Trajan, after having been driven more than 1600 years, were found to be petrified four inches, the rest of the wood being in its ordinary condition. The elm piles under the piers of the London Bridge have been in use more than 700 years, and are not yet materially decayed. Beneath the foundation of Savoy place, London, oak, elm, beech and chesnut piles and planks were found in a state of perfect preservation, after having been there for 650 years. While taking down the old walls of Tunbridge Castle, Kent, there was found in the middle of a thick stone wall a timber curb, which had been inclosed for 700 years. Some timber of an old bridge was discovered while digging for the foundations of a house at Ditton Park, Windsor, which ancient records incline us to believe were placed there prior to the year 1396. The durability of timber out of ground is even greater still. The roof of the basilica of St. Paul, at Rome, was framed in the year 816, and now, after more than 1000 years, it is still sound, and the original cypress wood doors of the same building, after being in use more than 600 years, were, when replaced by others of brass, perfectly free from rot or decay, the wood retaining its original odor. The timber dome of St. Mark, at Venice, is still good, though more than 850 years old.

PRESERVATION OF TELEGRAPH POLES.

Mr. Tiveyrat proposes to protect the portions of telegraph poles which are buried in the earth by sleeves of galvanized iron about 0.4 inch in thickness, covered with tar or red lead. The sleeves are imbedded in the wood of the post and extend somewhat above the ground. Tar is applied to the upper joint so that no water can enter between the sleeve and the wood, and the lower part of the former is bent over the bottom of the post and covered with an iron cap.

DANGER OF OVERSTRAINS.—The dangers of such sudden strain are not confined to failure of the heart upon the spot. Very commonly in those cases where apparently healthy old people are found dead in bed, there may be traced out a history of sudden effort made during the preceding day. The overstrain so put upon the heart does not manifest itself fully at the time, but during the sleep of the ensuing night. Even in cases of fatal syncope of the heart, preceding ruptures are found at times with a clot blocking the opening. These are extreme cases truly, but they demonstrate beyond doubt that serious injury may be inflicted upon the heart without instantaneous consequences. With elderly people sudden exertion during the day is undoubtedly one cause of failure of the heart's action during the night; so that the effort may really be only apparently made with impunity.

MENDING ALABASTER ORNAMENTS.—The *English Mechanic* commends the following as an excellent cement for this purpose: Get a dram of quick-lime, slake it with a little water, powder it very fine and sift it through a very fine lawn sieve. Mix this powder, while quite freshly prepared, with two table-spoonfuls of raw white of egg; work up very smooth with a spatula and apply to the surfaces to be joined, which must be held together with tape straps, &c., until the cement has set thoroughly.