ELECTRIC TIME-BALL.

CHAPTER LIII.

Utility of Electric Time-Balls for Correction of Chronometers—Nelson's Monument and Time-Ball.

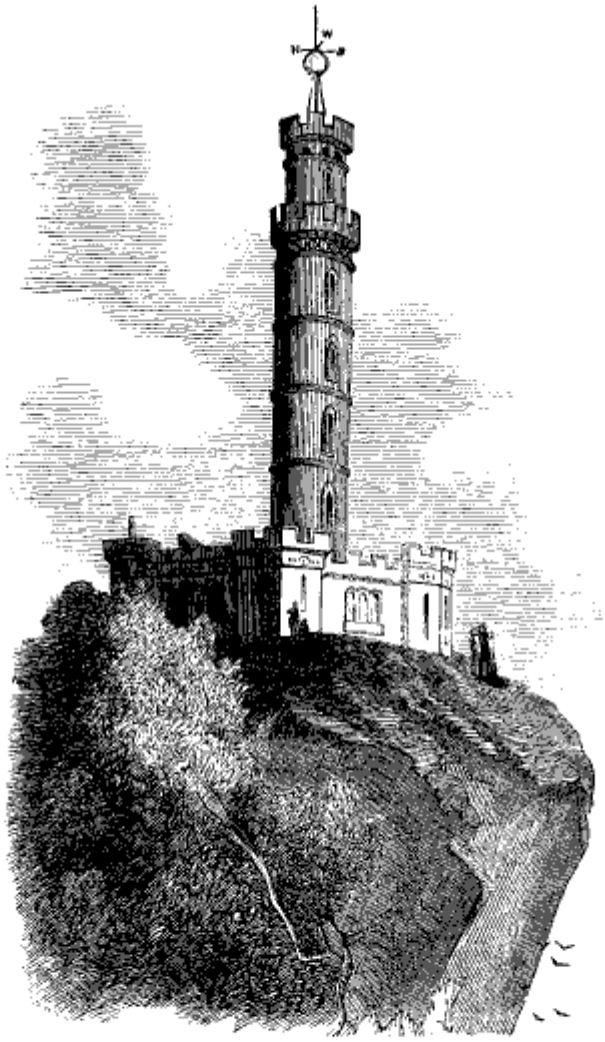
UTILITY OF ELECTRIC TIME-BALLS.

In America, we have a National Observatory, and though it has had but a few years' existence, its fame has spread throughout the civilized world, and added new lustre to our glory; but we have no time-balls in our maritime cities, to indicate the hour and the movement of the pendulum at Washington, in our National Observatory.

In England, at an early day in the history of electric telegraphing, the science was employed as an auxiliary at the Greenwich Observatory, in the determination of longitude, the movements of the stars and other heavenly bodies, and for the diffusion of chronometer time throughout the country. The astronomer royal, in concert with the electric telegraph companies, announces an hour of each day, by the fall of electric time-balls from elevated positions, in different parts of the country. The moment the ball at Greenwich falls, those in other cities fall. There is one of these balls on the Strand, near Charing Cross, in London, and it serves a good purpose in the correction of chronometers, whether in the hands of the mariner, the merchant, or the manufacturer. Persons can regulate their own timepieces, without the aid of the watchmaker. Besides this arrangement for giving correct time, I noticed at Greenwich, an electric clock, in connection with the leading telegraph office in London, by wires; signals are transmitted from the observatory to Lothbury, the telegraph office, every hour of the day. The same signals are made at the office on the Strand before mentioned, and they are also sent to Dover, Tunbridge, Deal, and other places. At specific times

the hour is sent from the observatory to different parts of the country.

Correct longitudes have been taken simultaneously at Cambridge, Edinburg, and Brussels, by electric wires, communicating each with the other, and enabling the operators to communicate, as though assembled together. Greenwich, Brussels, and Paris observatories are placed in connection, through the submarine cables running across the channel, from Dover to Calais, and to Ostend.



Nelson's Monument and Time-Ball.

NELSON'S MONUMENT AND TIME-BALL.

On my first visit to Edinburgh, Scotland, in 1855, I was much gratified in visiting its ancient monuments, and the relics of by-gone centuries. There was nothing, however, that gave me more pleasure, than a visit to Calton-Hill, and viewing the scenery, spread out before me, from the top of the Nelson Monument. The great deeds of the intrepid Nelson, whose heroic fame, stands brilliant in the annals of Old England, served to make the spot sacred, on which the monument stood—elevated high above the city. While at the top of the monument, surveying the wide-spread scenery around me, embracing within my view the ancient castle, King Arthur's seat, Holyrood, the old city of Edinburgh, the surrounding bays and distant hills, I saw the time-ball descend. It was above me, and it appeared to be of immense dimensions. It was exactly 1 o'clock, P. M. It seemed to come down rapid, but noiseless. I looked at it in silence, and a thousand thoughts rushed upon me in rapid succession. It reminded me of the fleeting moments passing, never again to return, and that how soon, we frail mortals, would fall before the all-devouring scythe of Time! Besides these reflections, it gave me new powers in the appreciation of the electric telegraph, which to me has, from its commencement, been an enchanting theme. It was the electric time-ball, indicating the second, and the most minute division of time!

The following from the *Scotsman*, further describes this new stride in the sciences of the present century, viz.:

"If the public look to the monument, at five minutes before 1 o'clock, P. M., Greenwich time (now Edinburgh time also), they will see the ball raised half-mast high; at two minutes before, full mast high, or in contact with the cross-bars; and, at 1 o'clock, exact to a tenth of a second, it will fall—the instant to be observed being the commencement of the fall, as shown by the formation of a line of light between the ball and the bars. Those who, on the monument, have witnessed the fall of the ball, describe the effect as extremely interesting. The huge mass is first of all seen rushing downward with terrific velocity, as if likely to carry all before it; when, suddenly, at about three fourths down, it is brought, by some invisible agent, almost to a stand-still; and then, with two or three slight movements up and down, it rests on its bed-block as quietly as if nothing had happened."

On my visit to the top of Nelson's monument, I was accompanied by my family; and I took much pains in describing the

particulars of the wide-spread scenery around me, to my son, then seven years of age, so that he might have them indelibly fixed in his memory. Three years subsequently, I asked him to tell me something that he had seen in Scotland, expecting, at the same time, that he would refer to the ancient castle, containing the great sword of state and the iron-framed crown of Bruce, or to Nelson's monument and the electric time-ball. He promptly responded, that it was the place where the boys played "leap-frog!" He had seen the boys thus playing at the foot of Nelson's monument.