

called—might be exhibited, and their qualities set forth. Such excitement prevailed on the occasion of this fair, and so vast were the crowds which assembled, that the authorities were forced to guard the gates and admit the multitude only in small contingents.

The interest exhibited does not excite our wonder when we remember the disastrous and widespread influence of the dreaded earthquake. Architects built handsome bridges only to have them overthrown. Tradesmen filled their shops with expensive wares and without a moment's notice they might be buried in a heap of ruins. The farmer retired at night the happy possessor of level meadows, and in the morning behold they had disappeared entirely or remained as rough and jagged hills. Nor is the influence of an earthquake confined to the land; on the contrary shocks at sea when near some thickly populated shore, have been known to produce terrific results. The effect of an earthquake at sea is to cause two sets of waves, one travelling in the rocky bed of the ocean and one through the water itself. The former (which travels more rapidly) is known as the land-wave, the latter being called the sea-wave. In 1755 the people of Lisbon were celebrating a festal day, when, to their horror, the earth commenced to tremble, walls tottered on their foundations and fell, destruction and death were everywhere rampant. The horror-stricken populace rushed madly from the doomed city and sought refuge on the huge piers which jutted into the harbor. They fled from the fell effects of the land-wave only to be received into the arms of the huge sea-wave, which, advancing more slowly but with greater fury, swept over the unfortunate multitude, dragging into its dark depths thousands of Lisbon's best citizens.

But to return to the Japanese fair. We note that the crude and simple instruments exhibited by the industrious citizens were the precursors of the elaborate and expensive modern seismographs. It is not within the limits of so short an article to examine the mechanism of a seismometer, nor can we enter into an account of the results obtained from their employment. Stated in general terms, however, we might say that a typical earthquake commences with a series of minute vibrations, whose presence can be with difficulty detected. These continue for about ten seconds and are followed by a shock of considerable range, and finally a series of irregular movements or small shocks which represent the dying throes of the earthquake. The duration of the whole phenomenon may take from three to six minutes. Instances are on record, however, which show that the vibrations may last for a considerable period of time—as, for example,