

been in the habit, during trifling shocks, of crawling to a certain doorway, was this time crushed to pieces.

I have not attempted to give any detailed description of the appearance of Concepcion, for I feel that it is quite impossible to convey the mingled feelings which I experienced. Several of the officers visited it before me, but their strongest language failed to give a just idea of the scene of desolation. It is a bitter and humiliating thing to see works which have cost man so much time and labor overthrown in one minute; yet compassion for the inhabitants was almost instantly banished by the surprise in seeing a state of things produced in a moment of time which one was accustomed to attribute to a succession of ages. In my opinion, we have scarcely beheld, since leaving England, any sight so deeply interesting.

In almost every severe earthquake, the neighboring waters of the sea are said to have been greatly agitated. The disturbance seems generally, as in the case of Concepcion, to have been of two kinds: first, at the instant of the shock, the water swells high up on the beach with a gentle motion, and then as quietly retreats; secondly, some time afterward, the whole body of the sea retires from the coast, and then returns in waves of overwhelming force. The first movement seems to be an immediate consequence of the earthquake affecting differently a fluid and a solid, so that their respective levels are slightly deranged: but the second case is a far more important phenomenon. During most earthquakes, and especially during those on the west coast of America, it is certain that the first great movement of the waters has been a retirement. Some authors have attempted to explain this by supposing that the water retains its level, while the land oscillates upward; but surely the water close to the land, even on a rather steep coast, would partake of the motion of the bottom: moreover, as urged by Mr. Lyell, similar movements of the sea have occurred at islands far distant from the chief line of disturbance, as was the case with Juan Fernandez during this earthquake, and with Ma-