

justly assume a horizontal prolongation of such ducts as supply active craters, or grooves which facilitate the passage of gases along certain lines. The products of combustion must have the means of reaching their definite and permanent outlets. When any of these are found to act in concert, the conviction of their having a subterranean connection cannot be escaped. That acute and systematic observer,

Charles Darwin, long ago made such a declaration, and facts to sustain it have since accumulated.

When the gases rising from the molten interior lake seek egress, they force their way in a broad sheet through the space between its surface and the under side of the incumbent shell, and the enormous tension cannot fail to tell upon the inelastic crust. As a rule, the volume of these fluids



WELLS CAUSED BY EARTHQUAKES.

seems insufficient to produce a serious tremor unless steam be added to them by an influx of water. Even then, the vibration they cause before reaching the escape-valve is, even in extreme cases, relatively very slight. The most terrible earthquake does not compare, when measured by the body upon the surface of which it acts, with the twitch of a horse's skin in shaking off a fly. It is imperceptible to the eye of those who experience it in an open

plain. Men and the lower animals are seldom overthrown by the movement of the soil. Their injuries are due to falling of walls, and less frequently to the sudden opening of crevices in the soil. These disruptions, a few feet across, dwindle to an infinitely small dislocation as they sink toward the centre of disturbance. Usually, the shocks last but a few moments, room for expansion into sea or air having been found by the im-