though it is hoped that an increase in the time may be successfully made at some future day. There is needed a better understanding of the laws which underlie atmospheric changes, so that empirical generalizations may give way to scientific deductions.

EARTHQUAKES IN THE UNITED STATES AND CANADA.

"Some say, the earth
Was feverous, and did shake."
SHAKSPEARE.

THE part of the earth's surface occupied by the United States is not generally regarded as much affected by earthquakes. As compared with some other localities, this is true; yet records show that moderate earthquakes are not so infrequent here as is usually supposed.

In the twelve years from 1872 to 1883 inclusive, three hundred and sixty-four earthquakes have been recorded as occurring in Canada and the United States, not including Alaska. Their geographical distribution may be expressed in this way. Suppose the country divided into three districts, — one extending from the Pacific Ocean eastward, to include Idaho, Utah, and Arizona, which may be called the Pacific slope; the second extending from Montana, Wyoming, Colorado, and New Mexico eastward, to include Ohio, Kentucky, Tennessee, and Alabama, which may be called the Mississippi valley; and the third, or Atlantic slope, extending eastward again to the Atlantic Ocean, and including the Appalachian region from the St. Lawrence to Florida and Georgia. Then the distribution of these three hundred and sixty-four earthquakes has been

Pacific slope	151
Mississippi valley	66
Atlantic slope	147
	364

These numbers indicate that about once in twelve days an earthquake occurs *somewhere* in the United States or Canada, and about once a month one occurs somewhere on the Atlantic slope.

It is quite likely, also, that for every earthquake which is of sufficient intensity to get itself noted in the midst of our busy American life, several lighter tremors may have occurred, which, although not violent enough to attract the attention of any one, would yet have left their record on a properly constructed seismoscope.

So, if any of our readers feel disposed to set up a seismoscope, they need not be deterred by the paucity of shocks in our country. A seismoscope anywhere along our eastern seaboard, or, still better, on the western coast, might fairly be expected to record ten or a dozen shocks in the course of the year, and might detect a much larger number. Such observations would be of high scientific value.

TEMPERATURE AND ITS CHANGES IN THE UNITED STATES.

"For hot, cold, moist, and dry, four champions fierce
Strive here for mastery."
MILTON.

IN the United States the changes of temperature with the seasons are of several types. These are illustrated in the accompanying diagrams, constructed chiefly from our signal-service reports; the thermometric scale being indicated by marks for every twenty degrees Fahrenheit on the left, and for every ten degrees Centigrade on the right, of each local division. The middle horizontal line shows the measure of that arithmetical abstraction commonly known as the mean annual temperature; and the adjoining lines above and below indicate how much variation there may be in the means of different years. In this respect, St. Vincent, Minn., has a much more irregular climate than Key West. The dots connected by a fine, dotted, curved line, represent the mean monthly temperature, beginning with October on the left side, descending to the January minimum, crossing the mean annual line about April, on the way to the July maximum, and descending again to October on the right margin. In illustration of the least annual variation, a curve is introduced for the equatorial station of Singapore, at the extremity of the Malay Peninsula, where the mean annual change is only seven degrees (F.); and, in contrast with this torrid uniformity, we find Yakutsk, Siberia, in the so-called temperate zone, giving the greatest known annual variation, on account of being far north, and far within a great continental region. St. Vincent, the coldest of the signal-service stations, is probably our nearest approach to this extreme variability.

The irregularity of the monthly means in different years is shown by short transverse lines above and below the dots: these are farther apart in winter than in summer, on account of the frequency of winter storms which produce great and sudden