distance of an earthquake. We measure the distance in time between the arrival of the longitudinal and the transverse waves and from that we know the distance. Although we now know the distance to the earthquake, we do not know where it was. We now look at the first offset in the seismogram for the two components I told you about, because from this we are able to calculate the direction. There is the north and south component and the east and west one. It is not so simple as I am telling you. From the two rectangular components, expressed in microns, we obtain the diagonal of the parallelogram of forces, *i.e.*, the line or vertical plane of the propagating ray, but involving ambiguity of direction; for example, whether it is N.E. or S.W., N. W. or S.E., and so on. Our vertical seismograph, however, which I may mention has mechanical registration and necessarily a very much heavier steady mass than the horizontal seismograph, decides the ambiguity. We are dealing with the first impulse, the longitudinal wave, a wave of compression and dilatation, where the earth particle moves to and fro. In its excursions, the steady mass of the vertical pendulum will move relative to the earth up and down, and this shows itself on the seismogram; that is, on the seismogram we can tell whether the motion at the moment was one of compression or dilatation, and this will determine the ambignity, and give us the definite and unmistakable direction. I may say that in the recent earthquake here, the direction was north-east. It is frequently difficult to measure the horizontal amplitudes satisfactorily.

For finding the geographical position of an earthquake, recorded at two or more stations, I have computed tables for the principal earthquake stations of the world, by means of which the position of the epicentre can be readily found by a simple graphical construction. These tables have been published and are available. By means of these tables one can usually tell in about fifteen minutes whereabouts the earthquake was, of which there are several satisfactory records.

The degree of rigidity of the earth is made known to us through calculations which we can make based on data of earthquakes. In the old days of course the earth was looked upon as solid and unyielding. It was Kelvin that first began to question the rigidity of the earth, and that was in connection with the tides of the ocean. He began to reason that these tides on the ocean were probably not as large as they would be if the earth were absolutely rigid, and he made an investigation, and found that the earth was not absolutely rigid, and that the tides of the ocean were not as large as they should be if the earth were rigid. If the earth were perfectly elastic it would yield to the attraction of the moon equally