relied on as doing, renders it the most constant resource in all physical inquiries where accuracy is desired. And it is surprising what a rapid effect, in equalizing fluctuations and destroying deviations, a moderate multiplication of individual observations has. A better example can hardly be taken than the average height of the quicksilver in the common barometer, which measures the pressure of the air, and whose fluctuations are proverbial. Nevertheless, if we only observe it regularly every day, and, at the end of each month, take an average of the observed heights, we shall find the fluctuations surprisingly diminished in amount: and if we go on for a whole year, or for many years in succession, the annual averages will be found to agree with still greater exactness. This equalizing power of averages, by destroying all such fluctuations as are irregular or accidental, frequently enables us to obtain evidence of fluctuations really regular, periodic in their recurrence, and so much smaller in their amount than the accidental ones, that, but for this mode of proceeding, they never would have become apparent. Thus, if the height of the barometer be observed four times a day, constantly, for a few months, and the averages taken, it will be seen that a regular *daily* fluctuation, of very small amount, takes place, the quicksilver rising and falling twice in the four-and-twenty hours. It is by such observations that we are enabled to ascertain—what no single measure (unless by a fortunate coincidence) could give us any idea, and never any certain knowledge of—the true *sea level* at any part of the coast, or the height at which the water of the ocean would stand, if perfectly undisturbed by winds, waves, or tides; a subject of very great importance, and upon which it would be highly desirable to possess an extensive series of observations, at a great many points on the coasts of the principal continents and islands over the whole globe.

(229.) In all cases where there is a direct and simple relation between the phenomenon observed and a single *datum* on which it depends, every single observation