

that of an ideal seconds-pendulum supposed to be placed at the extremity of the earth's polar axis. To this is in effect equivalent, and derivable from it, as a mere arithmetical conclusion, the space fallen through by a heavy body on the same place by the earth's attraction in a second of time. The modulus so obtained is therefore a measure of the earth's total attractive power (independent of centrifugal force arising from its rotation), as that derived from the length of its diameter is of its total bulk, and equally unalterable and universal. As for the other two which depend on the nature of light, the difficulty and delicacy of the processes they would involve render all idea of resorting to either of them purely visionary.

(10.) The linear dimensions of the earth then, on the one hand, and the linear measure of its attractive force embodied in the pendulum on the other, are the two, and, so far as we can see, the only two available sources of the invariable and universal standard length which we seek. And it is curious to observe that while the French after considering both of them threw aside the pendulum in favour of the metre (or ten millionth of the meridian quadrant); the English on the other hand, by the Act of Parliament in 1824, which repealed the old statute already alluded to (and so threw aside the principle of resorting to an organic type) did in effect, at that time, adopt the pendulum as their ultimate resort. For while that act declares that a certain metallic bar made by Bird in 1760 when at the temperature of 62° Fabr. should, without any further reference to its origin,