

the centre of our earth, it is credible that the sun, the moon, and the other lights, have a similar affection, by which they remain round as we see them; but none of these centres is necessarily the centre of the universe."

The most obvious and important physical difficulty attendant upon the supposition of the motion of the earth was thus stated: If the earth move, how is it that a stone, dropped from the top of a high tower, falls exactly at the foot of the tower? since the tower being carried from west to east by the diurnal revolution of the earth, the stone must be left behind to the west of the place from which it was let fall. The proper answer to this was, that the motion which the falling body received from its tendency downwards was *compounded* with the motion which, before it fell, it had in virtue of the earth's rotation: but this answer could not be clearly made or apprehended, till Galileo and his pupils had established the laws of such Compositions of motion arising from different forces. Rothman, Kepler, and other defenders of the Copernican system, gave their reply somewhat at a venture, when they asserted that the motion of the earth was communicated to bodies at its surface. Still, the facts which indicate and establish this truth are obvious, when the subject is steadily considered; and the Copernicans soon found that they had the superiority of argument on this point as well as others. The attacks upon the Copernican system by Durret, Morin, Riccioli, and the defence of it by Galileo, Lansberg, Gassendi,<sup>13</sup> left on all candid reasoners a clear impression in favor of the system. Morin attempted to stop the motion of the earth, which he called breaking its wings; his *Alæ Terræ Fractæ* was published in 1643, and answered by Gassendi. And Riccioli, as late as 1653, in his *Almagestum Novum*, enumerated fifty-seven Copernican arguments, and pretended to refute them all: but such reasonings now made no converts; and by this time the mechanical objections to the motion of the earth were generally seen to be baseless, as we shall relate when we come to speak of the progress of Mechanics as a distinct science. In the mean time, the beauty and simplicity of the heliocentric theory were perpetually winning the admiration even of those who, from one cause or other, refused their assent to it. Thus Riccioli, the last of its considerable opponents, allows its superiority in these respects; and acknowledges (in 1653) that the Copernican belief appears rather to increase than diminish under the condemnation of the decrees of the Cardinals. He applies to it the lines of Horace:<sup>14</sup>

<sup>13</sup> Del. *A. M.* vol. i. p. 594.

<sup>14</sup> *Almag. Nov.* p. 102.