

ground diminishes and finally ceases; the motion of a body which falls from a height goes on becoming quicker and quicker; this was accounted for on the usual principle of opposition, by saying that the former is a *violent*, the latter a *natural* motion. And the later writers of this school expressed the characters of such motions in verse. The rule of natural motion was<sup>14</sup>

Principium tepet, medium cum fine calebit.  
Cool at the first, it warm and warmer glows.

And of violent motion, the law was—

Principium fervet, medium calet, ultima friget.  
Hot at the first, then barely warm, then cold.

It appears to have been considered by Aristotle a difficult problem to explain why a stone thrown from the hand continues to move for some time, and then stops. If the hand was the cause of the motion, how could the stone move at all when left to itself? if not, why does it ever stop? And he answers this difficulty by saying,<sup>15</sup> "that there is a motion communicated to the air, the successive parts of which urge the stone onwards; and that each part of this medium continues to act for some while after it has been acted on, and the motion ceases when it comes to a particle which cannot act after it has ceased to be acted on." It will be readily seen that the whole of this difficulty, concerning a body which moves forward and is retarded till it stops, arises from ascribing the retardation, not to the real cause, the surrounding resistances, but to the body itself.

One of the doctrines which was the subject of the warmest discussion between the defenders and opposers of Aristotle, at the revival of physical knowledge, was that in which he asserts,<sup>16</sup> "That body is heavier than another which in an equal bulk moves downward quicker." The opinion maintained by the Aristotelians at the time of Galileo was, that bodies fall quicker exactly in proportion to their weight. The master himself asserts this in express terms, and reasons upon it.<sup>17</sup> Yet in another passage he appears to distinguish between weight and actual motion downwards.<sup>18</sup> "In physics, we call bodies heavy and light from their *power* of motion; but these names are not applied to their actual operations (*ἐνέργειαις*) except any one thinks

<sup>14</sup> Alsted. Encyc. tom. i. p. 687. <sup>15</sup> Phys. Ausc. viii. 10. <sup>16</sup> De Cælo, iv. 1, p. 808.

<sup>17</sup> Ib. iii. 2.

<sup>18</sup> Ib. iv. 1, p. 807.