

detect a kind of intricate regularity in their motions, which might naturally be described as "a dance." The Chaldeans are stated by Diodorus<sup>2</sup> to have observed assiduously the risings and settings of the planets, from the top of the temple of Belus. By doing this, they would find the times in which the forward and backward movements of Saturn, Jupiter, and Mars recur; and also the time in which they come round to the same part of the heavens.<sup>3</sup> Venus and Mercury never recede far from the sun, and the intervals which elapse while either of them leaves its greatest distance from the sun and returns again to the greatest distance on the same side, would easily be observed.

Probably the manner in which the motions of the planets were originally reduced to rule was something like the following:—In about 30 of our years, Saturn goes 29 times through his *Anomaly*, that is, the succession of varied motions by which he sometimes goes forwards and sometimes backwards among the stars. During this time, he goes once round the heavens, and returns nearly to the same place. This is the cycle of his apparent motions.

Perhaps the eastern nations contented themselves with thus referring these motions to cycles of time, so as to determine their recurrence. Something of this kind was done at an early period, as we have seen.

But the Greeks soon attempted to frame to themselves a sensible image of the mechanism by which these complex motions were produced; nor did they find this difficult. Venus, for instance, who, upon the whole, moves from west to east among the stars, is seen, at certain intervals, to return or move *retrograde* a short way back from east to west, then to become for a short time *stationary*, then to turn again and resume her *direct* motion westward, and so on. Now this can be explained by supposing that she is placed in the rim of a wheel, which is turned edgewise to us, and of which the centre turns round in the heavens from west to east, while the wheel, carrying the planet in its motion, moves round its own centre. In this way the motion of the wheel about its centre, would, in some situations, counterbalance the general motion of the centre, and make the planet retrograde, while, on the whole, the westerly motion would prevail. Just as if we suppose that a person, holding a lamp in his hand in the dark, and at a

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ficit; in quo cursu multa mirabiliter efficiens, tum antecedendo, tum retardando, tum vespertinis temporibus delitescendo, tum matutinis se rursus aperiendo, nihil immutat sempiternis sæculorum ætatibus, quin eadem iisdem temporibus efficiat." And so of the other planets.

<sup>2</sup> Del. *A. A.* i. p. 4.

<sup>3</sup> Plin. *H. N.* ii. p. 204.