

marchus, an intimate friend of Eudoxus, they went together to Athens, and communicated to Aristotle the invention of Eudoxus, and with his help improved and corrected it.

Probably at first this hypothesis was applied only to account for the general phenomena of the progressions, retrogradations, and stations of the planet; but it was soon found that the motions of the sun and moon, and the circular motions of the planets, which the hypothesis supposed, had other *anomalies* or irregularities, which made a further extension of the hypothesis necessary.

The defect of uniformity in these motions of the sun and moon, though less apparent than in the planets, is easily detected, as soon as men endeavor to obtain any accuracy in their observations. We have already stated (Chap. I.) that the Chaldeans were in possession of a period of about eighteen years, which they used in the calculation of eclipses, and which might have been discovered by close observation of the moon's motions; although it was probably rather hit upon by noting the recurrence of eclipses. The moon moves in a manner which is not reducible to regularity without considerable care and time. If we trace her path among the stars, we find that, like the path of the sun, it is oblique to the equator, but it does not, like that of the sun, pass over the same stars in successive revolutions. Thus its *latitude*, or distance from the equator, has a cycle different from its revolution among the stars; and its *Nodes*, or the points where it cuts the equator, are perpetually changing their position. In addition to this, the moon's motion in her own path is not uniform; in the course of each lunation, she moves alternately slower and quicker, passing gradually through the intermediate degrees of velocity; and goes through the cycle of these changes in something less than a month; this is called a revolution of *Anomaly*. When the moon has gone through a complete number of revolutions of Anomaly, and has, in the same time, returned to the same position with regard to the sun, and also with regard to her Nodes, her motions with respect to the sun will thenceforth be the same as at the first, and all the circumstances on which lunar eclipses depend being the same, the eclipses will occur in the same order. In  $6585\frac{1}{3}$  days there are 239 revolutions of anomaly, 241 revolutions with regard to one of the Nodes, and, as we have said, 223 lunations or revolutions with regard to the sun. Hence this Period will bring about a succession of the same lunar eclipses.

If the Chaldeans observed the moon's motion among the stars with any considerable accuracy, so as to detect this period by that means,