

other things which he assumes, are proceedings which mark a man who thinks nothing of introducing fictions of any kind into nature, provided his calculations turn out well." We have already explained that, in attributing *three* motions to the earth, Copernicus had presented his system encumbered with a complexity not really belonging to it. But it will be seen shortly, that Bacon's fundamental objection to this system was his wish for a system which could be supported by sound physical considerations; and it must be allowed, that at the period of which we are speaking, this had not yet been done in favor of the Copernican hypothesis. We may add, however, that it is not quite clear that Bacon was in full possession of the details of the astronomical systems which that of Copernicus was intended to supersede; and that thus he, perhaps, did not see how much less harsh were these fictions, as he called them, than those which were the inevitable alternatives. Perhaps he might even be liable to a little of that indistinctness, with respect to strictly geometrical conceptions, which we have remarked in Aristotle. We can hardly otherwise account for his not seeing any use in resolving the apparently irregular motion of a planet into separate regular motions. Yet he speaks slightly of this important step.<sup>6</sup> "The motion of planets, which is constantly talked of as the motion of regression, or reitency, from west to east, and which is ascribed to the planets as a proper motion, is not true; but only arises from appearance, from the greater advance of the starry heavens towards the west, by which the planets are left behind to the east." Undoubtedly those who spoke of such a motion of *regression*, were aware of this; but they saw how the motion was simplified by this way of conceiving it, which Bacon seems not to have seen. Though, therefore, we may admire Bacon for the steadfastness with which he looked forward to physical astronomy as the great and proper object of philosophical interest, we cannot give him credit for seeing the full value and meaning of what had been done, up to his time, in Formal Astronomy.

Bacon's contemporary, Gilbert, whom he frequently praises as a philosopher, was much more disposed to adopt the Copernican opinions, though even he does not appear to have made up his mind to assent to the whole of the system. In his work, *De Magnete* (printed 1600), he gives the principal arguments in favor of the Copernican system, and decides that the earth revolves on its axis.<sup>7</sup> He connects

<sup>6</sup> *Thema Celi*, p. 246.

<sup>7</sup> *Lib. vi. cap. 3, 4.*