

1. *Fixity of the Stars.*—The question necessarily arose after the discovery of the precession, even if such a question had never suggested itself before, whether the stars which were called *fixed*, and to which the motions of the other luminaries are referred, do really retain constantly the same relative position. In order to determine this fundamental question, Hipparchus undertook to construct a *Map* of the heavens; for though the result of his survey was expressed in words, we may give this name to his Catalogue of the positions of the most conspicuous stars. These positions are described by means of *alignations*; that is, three or more such stars are selected as can be touched by an apparent straight line drawn in the heavens. Thus Hipparchus observed that the southern claw of Cancer, the bright star in the same constellation which precedes the head of the Hydra, and the bright star Procyon, were nearly in the same line. Ptolemy quotes this and many other of the configurations which Hipparchus had noted, in order to show that the positions of the stars had not changed in the intermediate time; a truth which the catalogue of Hipparchus thus gave astronomers the means of ascertaining. It contained 1080 stars.

The construction of this catalogue of the stars by Hipparchus is an event of great celebrity in the history of astronomy. Pliny,<sup>1</sup> who speaks of it with admiration as a wonderful and superhuman task (“*ausus rem etiam Deo improbam, annumerare posteris stellas*”), asserts the undertaking to have been suggested by a remarkable astronomical event, the appearance of a new star; “*novam stellam et aliam in ævo suo genitam deprehendit; ejusque motu, qua die fulsit, ad dubitationem est adductus an hoc sæpius fieret, moverenturque et eæ quas putamus affixas.*” There is nothing inherently improbable in this tradition, but we may observe, with Delambre,<sup>2</sup> that we are not informed whether this new star remained in the sky, or soon disappeared again. Ptolemy makes no mention of the star or the story; and his catalogue contains no *bright* star which is not found in the “*Catasterisms*” of Eratosthenes. These *Catasterisms* were an enumeration of 475 of the principal stars, according to the constellations in which they are, and were published about sixty years before Hipparchus.

2. *Constant Length of Years.*—Hipparchus also attempted to ascertain whether successive years are all of the same length; and though, with his scrupulous love of accuracy,<sup>3</sup> he does not appear to have

<sup>1</sup> *Nat. Hist.* lib. ii. (xxvi.)

<sup>2</sup> *A. A.* i. 200.

<sup>3</sup> Ptolem. *Synt.* iii. 2.