THE

SYSTEM OF THE WORLD.

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TRANSLATED FROM THE FRENCH

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IN TWO VOLUMES.

VOL. II.

LONDON:

PRINTED FOR RICHARD PHILLIPS, BRIDGE STREET, BLACKFRIARS.

1809.

W. Flint, Printer, Old Bailey.

little from each other, it arises that this system can only oscillate to a certain extent, from which its deviation must be extremely limited; the mean motions of rotation and revolution of these different bodies are uniform, and their mean distances to the foci of the principal forces which animate them, are uniform. It seems that nature has disposed every thing in the heavens to insure the duration of the system by views similar to those which she appears to us so admirably to follow upon Earth, to preserve the individual and insure the perpetuity of the species.

Let us now look beyond the solar system. Innumerable suns, which may be the foci of as many planetary systems, are spread out in the immensity of space, and at such a distance from the Earth, that the entire diameter of it, seen from their centre, is insensible. Many stars experience both in their colour and splendour, periodical variations, very remarkable; there are some which have appeared all at once, and disappeared after having for some

time spread a brilliant light. What prodigious change must have operated on the surface of these great bodies, to be thus sensible at the distance which separates them from us, and how much they must exceed those which we observe on the surface of the Sun? All these bodies which are become invisible, remain in the same place where they were observed, since there was no change during the time of their appearance, there exist then in space obscure bodies as considerable, and perhaps as numerous as the stars. A luminous star, of the same density as the Earth, and whose diameter should be two hundred and fifty times larger than that of the Sun, would not, in consequence of its attraction, allow any of its rays to arrive at us; it is therefore possible that the largest luminous bodies in the universe, may, through this cause, be invisible. A star, which, without being of this magnitude, should yet considerably surpass the Sun, would perceptibly weaken the velo-

city of its light, and thus augment the extent of its aberration. This difference in the aberration of stars and their situation, observed at the moment of their transient splendor, the determination of all the changeable stars, and the periodical variations of their light; in a word, the motions peculiar to all those great bodies, which, influenced by their mutual attraction, and probably by their primitive impulses, describe immense orbits, should, relatively to the stars, be the principal objects of future astronomy.

It appears that these stars, far from being disseminated at distances nearly equal in space, are united in various groups, each consisting of many millions of stars. Our Sun, and the most brilliant stars, probably make part of one of these groups, which, seen from the point where we are, seems to encircle the heavens, and forms the milky way. The great number of stars which are seen at once in the field of a large telescope, directed towards this