abyss; and so constituted that through all eternity it can never bend its path, or return, or tarry in its course.

If we were to accept this theory, it would little or nothing diminish our wonder at the structure of the universe. We might well continue to admire the evidence of contrivance, if such a machinery should be found to produce all the effects which flow from the law of gravitation.

7. The arguments for and against the necessity of the law of the inverse square of the distance in the force of gravity, were discussed with great animation about the middle of the last century. Clairault, an eminent mathematician, who did more than almost any other person for the establishment and development of the Newtonian doctrines, maintained, at one period of his researches, not only that the inverse square was not the *necessary* law, but also that it was not the *true* law. The occasion of this controversy was somewhat curious.

Newton and other astronomers had found that the line of the moon's *apsides* (that is of her greatest and least distances from the earth) moves round to different parts of the heavens with a velocity twice as great as that which the calculation from the law of gravitation seems at first to give. According to the theory, it appeared that this line ought to move round once in eighteen years; according to observation, it moves round once in nine years. This difference, the only obvious failure of the theory of gravitation, embarrassed mathematicians exceedingly. It is true, it was afterwards discovered that the apparent discrepancy arose from a mistake; the calculation, which is long and laborious, was supposed to have been carried far enough to get close to the truth; but it appeared afterwards that the residue which had been left out as insignificant, produced, by an unexpected turn in the reckoning, an effect as large as that which had been taken for the whole. But this discovery was not made till afterwards; and in