

decreases as the square of the distance increases. Let us next examine what must happen to the waters when the moon is at the meridian of any one place.—The surface of the waters being immediately under the moon is then nearer that planet than any other part of the globe; hence this part of the sea must be elevated towards the moon, by forming an eminence, the summit of which must be opposite to the moon's centre; for the formation of this eminence the waters at the bottom, as well as at the surface, contribute their share, in proportion to the proximity they are in of the moon, which acts upon them in the inverse ratio of the squares of their distances: thus the surface of that part of the sea is first raised; the surface of the neighbouring parts will be likewise elevated, but to a less height, and the water at the bottom of all these parts will be raised by the same cause; so that all this part of the sea growing higher and forming an eminence, it is necessary that the water of the remote parts, and on which this force of attraction does not act, proceeds with precipitation to replace the waters which are thus elevated and drawn towards the moon. This is what produces the flux, or high tide, which