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ought to be capable of sustaining 3 lb. 10 oz. 386 grs. If it be weaker it will break. And this is the force or effort which the hand must steadily exert, to draw the stone in towards itself, out of the direction in which it would naturally proceed if let go; and to keep it revolving in a circle at that distance.

(15.) Now, what the string does to the stone in the sling, that, in the case of the sun retaining the earth in its orbit, is done—that same office is performed—that *effort* (in some mysterious way which the human mind is utterly incapable of comprehending) is exerted—that pull communicated; in an instant of time, and so far as we can discover, without any material tie; by the force of gravitation. We know the time the earth takes to revolve about the sun. It is a year; of so many days, hours, minutes and seconds; and we know its distance—95,000,000 of miles, which may easily be turned into yards. Well, now, suppose a stone or a lump of lead of a ton weight to be tied to the sun by a string, and slung round it in such a circle and in such a time. Then, on the very same principles, and by the same rules of arithmetic, one may calculate the amount of pull, or tension of the string, and it will be found to come out 1 lb. 6 oz. 51 grs.

(16.) We all know what sort of lifting power—what amount of muscular force—it takes to sustain a pound weight. Multiply this by 2240 and you have the muscular effort necessary to sustain a ton. It would require three or four strong horses straining with all their might. Well, now, it is one of the peculiarities of this mysterious