inhabitants of the earth, to wander, or change their positions in the heavens continually.—The Fixed Stars are so inconceivably distant from us, that a cannon ball would take seven hundred thousand years in reaching Sirius, which is supposed the nearest to us; supposing it discharged from the earth, and continually to fly on with the same velocity it left the cannon's mouth.

19. The particles of light are the swiftest bodies we know of; they fly from the sun to the earth in eight minutes but a cannon ball would be twenty-five years in passing over the same space, which is about ninety-six millions of miles: Nevertheless, there may have been stars, or suns with their systems, created at the same time that our earth was, whose light has never yet reached us. Indeed, could we launch out into space, and fly with ten times the velocity of the particles of light, to the most distant star we see, and so on for ages in the same direction, even there we should find ourselves in the centre of creation, and see as many stars before as we left behind; for space is infinite without top or bottom. Well therefore may it be said, that "the human "understanding is bewildered in the contem- "plation of the wonders of the firmament, that "the giddy fancy turns round, and is entirely "lost and sunk in the abyss of creation!" But the Creator fills all this infinite space, and his power, wisdom, goodness and above all his mercy, are as boundless!

20. As all the planets whether the be primaries or secondaries, are opaque spherical bodies which receive their light and heat from the sun; therefore, that half of each which is next the sun will be illuminated, and the other half will be dark; and each will project a dark shadow behind it, which, because the sun is much the largest body, must end in a point: the shadows of the planets are therefore dark cones, whose lengths will be greater or lesser, according to the planet's magnitude and distance from the sun. The length of the earth's shadow is about one hundred and seven of its diameters, and that of the moon thirty diamaters of the earth: Now since the moon's mean distance from the earth is also thirty diameters of the earth; therefore the moon's shadow at a mean, will just reach the earth; but because her orbit round the earth is elliptical, and of consequence at one time she is nearer to the earth than the mean distance, and at another time more remote; therefore her shadow will sometimes extend a little beyond the earth and sometimes fall short of it: but the earth's