creatures as we see them on our earth; but that, on the contrary, each celestial body may be inhabited by creatures organized according to the distance of the planet from the sun; that is, adapted to the degree of light produced there by the sun.

For the natural sciences teach us, that solar light is subject to the same laws as our artificial light: it decreases as the distance increases. The planets more remote from the sun are illuminated less than those nearer to it. The ratio in which this light decreases, is precisely the same as that of the terrestrial light illustrated above, viz., according to the square of the distance. In other words, when the distance is double, the intensity of the light is onefourth as great : when three times, oneninth as great; when four times more remote, one-sixteenth as strong, etc.; in short, at every distance as much weaker as the distance multiplied by itself.

Presently we shall see that the planets are illuminated in inverse proportion to their distance from the sun. From this alone we come to the conclusion, that on every planet the living beings must necessarily be differently constituted.

The name of the planet nearest to the sun is Mercury. It is about two and a half times nearer to the sun than our earth, therefore it receives nearly seven times as much light, we can scarcely conceive such an intensity of light and all the consequences resulting from it. If instead of one sun we should happen to have three, there is no doubt that we should go blind; but seven suns, that is seven times the light of our brightest days, we could not endure, even if our eyes were closed; the more so, as our eye-lids, when firmly closed, do not protect us from the sun's light entirely. This is a proof of our assertion, that the living beings on the planet Mercury must be differently organised from us.

Venus, the third planet, is one and a third times nearer to the sun than we are. The light of that planet, therefore, is nearly twice as bright as ours. But inasmuch as even this would be unbearable for us, the creatures on this planet must likewise be different from us.

The fourth planet is the earth we in- feebly illuminated; that their light behabit. The intensity of the sunlight in nefits during the night only, and even

bright summer days is well known to us from experience, although no one has as vot been successful in measuring its degree as precisely as has been done with heat by the thermometer. It is true that in modern times a certain Mr. Schell, in Berlin, proposed to measure light accurately, in a way that elicited the approbation of naturalists, especially of Alexander von Humboldt. However, the experiments proposed by Schell, and other scientists following in his wake have not yet been proporly carried out, though they are useful to photographists. Therefore we do not know, up to the present time, whether there is any difference in the light of two cloudless summer days; just as little are we able to determine how much the moon's light is weaker than the sun's.

The fourth planet's name is Mars; its distance from the sun is one and a half times our distance from the sun. There the sun's light is about half as strong as with us. Now, although we often have days which are half as bright as others, it is yet vory doubtful whether we could live on Mars; for light does not act upon our eyes only, but on our whole body and its health. It is likely that the very want of light there, would prove fatal to us.

The twenty-four newly discovered planets have days that are nearly six times darker than ours. The daylight on these planets is probably as it was with the inhabitants of Europe during the great eclipse of the sun in July, 1851. This light was very interesting for a few minutes, when contrasted with the ordinary every day light, but if it were to continue it would certainly make us melaneholy.

Far worse yet fare the remotor planets. On the planet of Jupiter it is as much as thirty times darker than with us. On Saturn, eighty times. On Uranus, even three hundred times; and upon the last of the planets, Neptune, discovered in 1845, light is nine hundred times more feeble than upon our globe.

Although it is true that all of the remoter planets have many moons or satellites, yet it must not be forgotten that the moons themselves are but vory feebly illuminated; that their light benefits during the night only, and even

364