

and decrease at recurring intervals of a little more than eleven years, and the recurrence of these increases of intensity is accompanied by strange perturbations of the magnetic forces manifested upon the earth. rom 83.

There appears to be a deep stratum of hydrogen gas, and of some "congenial element" unknown upon the earth, called "helium," completely enveloping the solar orb, while the "red prominences" are eruptions from this stratum shot out at intervals to a distance of 80,000 or 90,000 miles. Heavy metallic vapours appear to lie beneath this outer stratum and sometimes burst forth above it. The speed with which these "prominences" shoot out is past imagining. Professor Young estimates one which he saw to have had a velocity of 250 miles per second, or 15,000 times that of an express train at its highest speed! On another occasion, he saw "prominence-pillars" ascend with a speed of 166 miles per second till they reached a height of 200,000 miles from the solar surface, and then they faded away like a dissolving cloud. These velocities, we say, pass imagination, and it must suffice us puny mortals to know that the sun is the centre of an intensity—a fury—of activity and force of which we have no adequate conception at all.

Concerning the heat of the sun, a considerable amount of scientific labour has been undertaken to arrive at some idea as to its power, and Professor Langley has estimated by his ray-measure—in which calorific vibrations are converted into electric currents—that it is from 1,800 degs. to 2,000 degs. centigrade!

As to the various theories of solar energy, that of Professor Helmholtz is most generally regarded as true—viz., that the sun is gradually shrinking and its heat gradually dispersing: but the orb is so vast that if its diameter contracted 250 feet every year it would take 9,500 years to contract 450 miles—an amount that would still, at the sun's vast distance, be quite inappreciable to the most powerful instruments. But yet the diminution of size, "without the loss of ponderable substance," causes heat; because the outer portion of the sphere is being gradually pressed in upon the inner and more central parts. Consequently, the heat that is dispersed into space every year is restored. Helmholtz regards the entire life of our solar system as being probably comprised within a period of something like thirty millions of years. of the subtle and difficult problem of the distance of the sun from the earth, and the numerous methods adopted to check and recheck the calculations, it may suffice to say it is now universally admitted that the distance is not considered so great as it was thought to be a few years since; but its distance appears to be between 92 and 93 millions of miles.

Not less important are the conclusions arrived at with regard to certain other of the heavenly bodies by which we are surrounded. Mars is now universally accepted as a kind of duplicate earth, with land and water—which appears to be distributed in ocean basins and a series of long parallel canals—clouds and snow; but at present even the keenest-eyed watchers of the heavens cannot distinguish the presence of human life on this planet. Mars has two moons—one of them not more than six or seven miles in diameter.

At the close of last year no less than 253 minor planets were known to be circulating between Mars

Jupiter. A great revolution in astronomical theory has also occurred with regard to this latter planet, and it is now regarded as a sort of miniature sun which has not had time to cool; for telescope-watchers have been able to discover violent surgings and upheavals on its surface strongly suggestive of sun-spots. Saturn is of even lighter consistence still, and is probably, in the main, a mass of highly-heated vapour kept in constant agitation by processes incident to its cooling. The rings of Saturn are pretty surely ascertained to be a dense aggregate of small bodies circling in independent orbits round the primary planet.

One of the most marvellous theories is that concerning the origin of the moon—as a moon. The latest theory is that it is a "split-off" from the earth, and that, in fact, the earth *did fly asunder from over fast spinning* and that such disruption was what Miss Clerke calls the "birth-throes of the moon."

There is much information concerning comets and the fixed stars that could be added, and it is shown that the varying shapes of the tails of comets are due to the substance of which they are composed—thus the straight tails are of hydrogen and the short, brush-like tails are of pulverulent iron. And as to the fixed stars, there seems no limit to their number. Stars that are far beyond the most powerful telescope register their image, ghostlike—as it were from nowhere—yet most distinctly, on the photographic plate; and astronomers are continually reminded that much as has already been done it is scarcely a beginning of what there is to do and what there is to know. For end there seems none to the Universe of God.—*Nonconformist and Independent.*

IS THIS A MYTH?—A correspondent sends us the subjoined. Whether the story be true or not it illuminates the peculiarities—may we not say the absurdities?—of the doctrine of baptismal regenerations.—"A certain poor woman, becoming the happy mother of twins, sent in haste for the curate of the parish to administer the rite of baptism according to the usage of the Church of England, obedience to which she had been taught to regard as essential to salvation. That clergyman expressed his regret that some delay must occur, owing to a previous engagement. The ball at the castle, some few miles distant, to which he had been asked, passed off brilliantly, and the good curate hurried back to his duties, but only to find the mother in an agony of despair. One child had died. The poor woman implored him to baptise the remaining child, and not a moment too soon, for shortly afterwards that one also died. The curate was asked to bury the two little bodies, but imagine the feelings of the bereaved parent when she was told that only the body of the baptised child could be interred in consecrated ground or have the church service read over it. Without avail she pleaded that the delay was not hers. The good curate stood firm, and the mother was left to her own reflections. The day of the funeral came, and the service duly performed by the curate over the body of the child which he thought he had baptised, but imagine his dismay when he found out that the little coffins had been changed by the astute mother. In vain did he storm; all the consolation he could get was that she thought it no sin to cheat the devil."—*Nonconformist and Independent.*