IS THE MOON INHABITED !

The writer of these remarks has repeatedly had the above uestion put to him : in return he would put the following : What evidence have we of the habitability of the moon ? Some writers have indulged in the speculation that, with the large telescopes now in existence, armies of soldiers, troops of ele-phants and such like may be detected on the march, and others have surmised that buildings might be seen and the styles of architecture ascertained. The ideas such extraordinary statements may induce in the minds of the uneducated render it desirable to examine a little into the probability of obtaining such results. The diameter of the moon is 2,163 miles; but, as it never remains at the same distance from the earth, being sometimes nearer and sometimes further, it never presents the same apparent diameter as seen in the sky. When nearest the earth it is seen under the largest angle, or 33" 33 20"; but when furthest from the earth it is seen under the smallest angle, or 29' 23 65". Now it follows from the relation between the real and apparent diameters of the moon, at its means distance from the earth, that a second of arc, written thus (1''), is the angle under which a mile and a little more than the tenth of a mile, written thus, 1.139, is seen at the centre of the moon's disk ; again, as a second is pretty well the smallest distance that can be clearly discerned, it follows that a building on the moon to be clearly seen—we may say to be seen at all—must be about a square mile in extent, and then it would be seen only as a spot, light or dark according as the materials of which it was built reflected a larger or smaller quantity of light.

There are some very level plains on the surface of the moon, surrounded by mountains. One such plain has been very carefully examined; it is about 60 miles in diameter. The mountain wall rises to a height of 3,000 feet on the south, 3,200 on the west and north, and 3,800 on the east. On the wall are four lofty pinnacles of rock, three on the west and one on the east. The highest, which is on the east, rises to the height of 7,418 feet above the level interior; the next highest is on the west; its altitude is 7,258 feet; the two lower rocks are respectively 6,396 and 5,128 feet above the interior.

Let us place ourselves, in imagination, within the confines of this mountain cinctured plain and view from its centre its girdling rocks at a distance of 30 miles; they would appear from this point under a vertical angle of very little more than one degree, and the highest rock on the east would subtend an angle of less than three. It is believed that no other portion of the moon has undergone so close a scrutiny as this. For three years has its surface or floor been examined, during sunshine upon it, with telescopes able to bring small objects into view, and the results carefully discussed, from which it appears that nowhere on this plain has anything at all approaching the nature of a building or a collection of buildings been detected. At various intervals, as many as 36 small white spots have been seen during the three years, but never the whole together. Ten of these spots have been ascertained to consist of volcanic cones the bases having an average diameter of about one mile; the base of the largest, near the centre of the plain, certainly does not exceed two miles. With the exception of these natural productions nothing sufficiently elevated above the surface to cast a shadow at sunrise or sunset exists on this plain ; there are, indeed, some remarkable variations of brightness upon it ; for example, about the middle of the day, when the sun is highest, it appears very dark, almost black, but there is nothing to induce the opinion that a patch of a different tint exists anywhere on this plain, such as might be supposed to arise from a collection of buildings covering a space of four or five miles in extent. From such facts as these, the results of close and unremitting observation into which conjecture is not permitted to enter, we are forced to the conclu-sion that the evidence we possess of the habitability of the moon is very scanty. Indeed, it does not even furnish a clue by which we might institute a series of observations likely to lead to a positive result.

It must, however, be remembered that the walled plain, Plato, to which the foregoing remarks refer, is but a very small part of the moon's surface, and it would be manifestly unsafe to draw any conclusions on the above question from the examination of so small a part, carefully as that part has been examined. While there may be great difficulty in detecting any evidence of artificial construction, it is beginning to be ascertained that there is not so much difficulty as formerly in detecting instances of physical change. The discovery in May, 1877, by Dr. Klein, of a dark spot north-west of Hyginus, where nothing of the kind had been seen before, combined with the celebrated case of Linné, will go far to show that changes of a physical character and of

sufficient magnitude to be seen from the earth are now in operstion, and will doubtless open up a line of research by which we may learn something of the nature of the forces at work within the moon, and form more accurate notions of our satellite than those to which we have been treated of late years, such as a "burnt up cinder," "a dead world," or one reduced to its last stage of existence. So far as we are able to judge of the mundane processes going on around us, there is a perpetual cycle of recurring physical events by which decay is replaced by renovation. We have on our own globe instances of very ancient formations, and others of a most recent date : the same alternation of ancient and recent tracts is found on the moon, and it would not be difficult from careful observation to assign the spochs of some of the most striking series of changes. Indeed a chronological arrangement of the large grey plains, of the craters in their n-ighborhoods previously existing and of those opened upon their surfaces, has been attempted upon a large scale, but it is evident that the study of the more minute objects is likely to be attended with results upon which a more correct system of lunsr topography can be raised, which, in its turn, will conduct the student to a satisfactory system of selenology .- English Mechanic.

▲ PREVENTIVE OF SUICIDE.

We lately had a paragraph from distinguished Eastern students of insanity to the fact that suicide was not necessarily the result of insanity. Dr. G. A. Shurtleff, the able Superintendent of the Insane Asylum, at Stockton, in a paper on Suicide, read before the San Joaquin County Medical Society, bears the following testimony to the influence of religion as a preventive of suicide:

"There is nothing which, in contemplation of the final hour, so solemnly and profoundly affects man, or so surely influences his acts, as an unquestioned and steadfast belief in what concerns his condition beyond this brief, mortal life. This is religion, and if born and trained in its faith, it becomes an organized element of his mind, an acquired instinct, which is more likely to direct his thoughts and acts in these matters than aught which depends solely on the logic of human evidence and knowledge. Through this faith a belief in things unseen and not of this world, which lie beyond the reach of science, of human reason and of natural evidence, is established. The weapons which would assail it are human and of the earth, and do not extend to the mysterizes of another world, which are seen only by the eye of faith. This professed belief itself must be mind, control over the conduct of him who arows it.

"I can say positively, from my own extensive observation, that the precepts of the Christian religion, especially as taught in their long-established forms, exert a strong influence even the disordered as well as the rational mind in deterring from suicide those who put a sincere and absolute trust in its faith. I have often heard expressed, under suicidal thoughts and tempt ations, the irresistible conviction of the tried and chaste Imogen:

'Against self-slaughter There is a prohibition so divine That cravens my weak hand.'"

THE DRAINAGE OF CITIES.—A strong argument in favor of good drainage in cities has been furnished by the experience of St. Louis. The number of deaths in 1860 was nearly 6,000, and the average mortality for the succeeding four years was 6,600. The city then had a population of 150,000. In 1870 the deaths numbered 6,670, and although there was a considerably increased mortality in 1872 and 1873, the average number of deaths for the last four years has been but 6,400, with a steady decrease. Yet the last census gave St. Louis a population of 310,000, and it is now estimated at not less than 460,000. As a fact, the mortality last year was less than the average during the period between 1860 and 1870. At the date first named, St. Louis had practically no sewers, and no rapid extension of the system was attempted until 1865. Since then such improvements have been made in this direction that the city now has 180 miles of sewers. As no other great changes have been witnessed in a santary point of view, it is concluded that the decreased number of deaths must be attributed to the devolopment of the sewer system.

THE Paris Jardin d'Acclimatation has just secured 14 girafes, 7 elephants, 10 lions, 2 young hippopotami, 70 dog faced baboons, and a number of antelopes, panthers, birds, etc. These animals were captured on the banks of the White Nile.