seen in them. Red, white and blue in the stars and stripes, in the tricolour of France, and the Union Jack. The Italians have chosen a tricolour of red, green, and white. Other of the European nations have yellow and black. The Turks hoist a green flag. The standard of each nation floats on its own territory, and in time of war on others' territory; but when, in such a case, armies want to communicate peacefully one with another, they lay the national flag aside, and take a white flag, called a *flag of truce*. Explain truce. A soldier carrying such a flag as this may go into the centre of the enemy's camp; the flag shows that he comes with a peaceful message, none will harm him. "White is the emblem of Peace." (W. B.)

V.—White emblematizes one thing more. The Bible tells us that the inhabitants of Heaven are clothed in white. It speaks of heavenly armies riding on white horses. (Rev. vii. 9, and xix. 8 and 14.) What kind of place is Heaven? What kind of people its inmates? When these are described as being clothed in white, of what is white the emblem? "Of Purity, or Holiness. (W. B.)

The Bible tells us of the high priest of the Jews, the type of Christ. once a year he went into the most holy place to make intercession for the people; and then he wore white garments only—he represented a holy advocate. The Bible tells of a great white throne, set for the judgment where the dead, small and great, shall stand before God. The throne is a holy throne.

Summary.—From the board:

White is the emblem of Innocence.
White is the emblem of Festivity.
White is the emblem of Peace.
White is the emblem of Purity and Holness.

1. Lessons may be given on Black:
   As emblematic of Sorrow.
   As emblematic of Despair.
   As emblematic of Guilt.
   As emblematic of Death.

2. On emblematic Mourning:
   The Chinese wear White. Why?
   The Turks wear Blue or Violet. Why?
   English and Americans wear Black. Why?

3. On Railway Signals:
   White means Safety. Why?
   Green means Caution. Why?
   Red means Danger. Why?

4. On common Flowers as Symbols:
   Rose, Lily, Violet, Harebell, Forget-me-not, } Showing how much their symbolical meaning depends on their color.

5. On Colour as indicating Flavour. According to Linnæus, red indicates an acid or sour taste. As example—cranberries, barberries, currants, mulberries; herbs that turn red towards autumn, as sorrel and bloodydock.

Green indicates an alkaline taste. As examples—leaves and unripe fruit.

Yellow a bitter taste; as gentian, aloes, celandine.

White indicates a sweet taste, as white currants, white cherries, apples, sugar, &c.

Black indicates a nauseous, disagreeable taste; as deadly nightshade, sumac.

On Colours as Sacred Emblems:

In the tabernacle: In the garments of the high priest.

A CRATER IN THE MOON.

BY J. BIRMINGHAM.

NOT among the countless phenomena that we see around us, and the myriad wonders of the distant sky, is there one that bears witness to creative design more forcibly than the airless moon; and in the naked form of our satellite appears, I think, the most obvious objection to what is called the Nebular Hypothesis, at least as it is held in a spirit of unbelief. A tendency among gases to intermingle is a well-known natural law; and if, without intelligent interference, a vapoury chaos became concentrated into a world of orbs, it has never been shown how certain elements which are abundant in the principal bodies of a system, could be absent in the only secondary which we are enabled closely to examine. The polar snows of Mars, the changeable nature of the markings on his disk, and other unmistakeable signs, show him to possess seas and clouds, like the earth, and the spectroscope has detected aqueous vapour in the remoter planets. How is it, then, that the moon also, in the gathering of its mass, did not include the constituents of air and water? Many varieties of constitution appear, indeed, in the spectrum analysis of the stars. For instance, the *element hydrogen, which* we know, on the eminent authority of Mr. Huggins, to be widely diffused through nature, is not recognized in some of them, such as *Betelguese* and *Beta Pegasi*; and if we grant that all matter originally existed in a gaseous state, it may be maintained, generally, that any difference in the composition of the bodies of the universe points to an interference and a fiat opposed to any natural law that can be surmised by the nebular cosmogonists. However, the differences between distant suns are not, of course, so striking as those that are exhibited by bodies closely allied to each other, like the earth and the moon. It may be worthy of remark, also, that the exception to a common arrangement in our system should be found in a *satellite*—a fact that seems to indicate (as we may say with all reverence) a special object in creative plan, enabling the moon, devoid of ocean or atmosphere, to give us precisely and unalterably the degree of light that is most beneficial conjointly with the circumstances of size, *mass, and distance, which* are connected with essential qualities other than light-giving; and we may regard the nature of the lunar surface as contributing to the same effect.

In this surface, as we may fairly speculate, are only the crystalline rocks, as fresh as they were left by the producing fires. No moisture within to break them up in the swelling frost, no rain, no storm, no air, to waste them away by chemical or mechanical forces. In the brighter parts are, probably, the glistening planes of the felspar, the glassy sheets of the mica, the fretted lustre of the quartz, and the varied glitter of countless minerals unworn and undimmed, and covered by aqueous strata or vegetation. Many a metal in unoxydized brilliancy may there be doing a service that we little consider. So, also, in wide formations, may the stones esteemed the rarest and most precious on earth; and jewels, such as based the structure revealed at Patmos, and far removed from the cupidity of man, may be shining for his real benefit in the distant satellite. But the moon is not all thus bright. There are large shadowy areas, whose extent serves, no doubt, to attemper her light to a designed amount. The rock products of fire are often of sombre aspect; and the dusky tracts which constitute the flat portions of the lunar surface, are, it may be, vast overflows of trap. Those wide districts are by no means of uniform shading as they appear to the naked eye. The telescope proves them of different tints, in which red, blue, and green predominate, and the colours that were at one time ascribed to vegetation, are, more likely due to the various rocks. Greenstones and porphyries of many hues, and other minerals, may assist in dimly variegating the broad level, and the black columns of the basalt, with a development compared to which the wonders of Antrim or Staffa would dwindle into specks, may *rise above the plain undistinguishable by any optic power* that we possess.

To prove indisputably the volcanic nature of the moon's surface, nothing appeared to be wanting since the invention of the telescope but the sight of an actual eruption; and, though there are a few other instances on record of appearances significative of such an occurrence, yet none seem to have been near so striking or so well observed as the recent obscuration of a crater situated in the dark plain known as the *Mare Serenitatis*. An event of this kind makes the friends of science doubly rejoice that the moon has no cloud-bearing envelope. If she had, our acquaintance with her surface would be slight indeed; and we should, in a great degree be debarred from some of the most interesting branches of astronomical inquiry. It is generally considered that in the case of primary planets, with the exception of *Mars*, we see only the light reflected from their clouds; and it seems certain that if the clouds in a lunar atmosphere did not completely shut out the disk from our view, they would at least prevent any close examination, such as could lead to a discovery like the obscuration of the crater above referred to.

This crater, called LINNÉ after the great Swedish naturalist of that name, which has been classically corrupted into Linnæus, was first observed by Riccioli in 1653; and since that time its features have been recorded by various other observers. It is described as a deep cavity some 5½ miles in diameter, and an easy object for the telescope. Even at the time of full moon, when the shadows that give prominence to lunar details are lost in the general illumination, Linné was not difficult to detect; and it was, therefore, with no little surprise that the distinguished observer Schmidt, of the Athens observatory, perceived, in October last, only an appearance like a white luminous cloud in place of the deep, shadowy crater.

It is on the line of sunrise or sunset on the moon—technically called the *terminator*—that the structure of her surface is best observed. Here *it is, when the direct sudden shafts of day strike full on each bristling* peak, and while still an ebon-black and impenetrable night fills the intermediate valleys, that the difference of feature and the contrast of height and hollow are most distinctly visible. This boundary between night and day, with a sharpness unmodified by any twilight, presents a jagged outline more remarkable than the edges of a piece of lead suddenly cooled from a melted state by immersion in water. The bright and the dark indents of a hundred shapes and sizes are continually changing as the sunlight advances; and slender filaments, seemingly as fragile as if they ought to yield to the brush of a feather, may be seen curving brightly into the lunar night, and gradually gathering up their proportions from the darkness until they shine out in complete development as "ring mountains."

It was under these circumstances, when the crater in question ought to be best defined, that Schmidt made the discovery of its obscuration. But Linné seems to have been obscured before. Schröter saw it in November 1788, as a small ill-defined patch on the moon's surface Since then, however, and up to October, 1866, it appeared as a crater with distinct outlines and walls of considerable brightness.

The configuration of the lunar surface is, indeed, considered by some philosophers not to show any greater igneous action than what might be betrayed by the earth itself were its covering of sedimentary strata removed. In a most instructive and eloquent paper on "the Lesser Light" by Mr. Carpenter, of the Royal Greenwich Observatory [see *Once a Week*, December 10, 1864], he says, speaking of the earth, "Suppose the alluvial deposits, the shelly sedimentary strata, the surface soils and detritus of all kinds cleansed away so as to lay bare the original igneous crust, that crust, so far as geological reasoning can picture to us, would present an appearance similar to the moon."* Yet, although it may be quite true that the moon has never been more subject to volcanic disturbance than the earth, it still seems reasonable to suppose that she was, at least, equally so; and we are *not led by analogy*

* There are various places on the earth where the character of lunar scenery is considered to be tolerably well represented,—such as the Phlegræan Fields of Naples, the district of the Puy-de-Dome, the Caldera of Palma, in the Canary Islands, &c., but it strikes me that one of the nearest approaches to a *ring mountain*, with central hill and crater, is described in Atkinson's "Travels in Siberia and Chinese Tartary," p. 401. The ring, however, like many in the moon, is broken. Atkinson says,—"To the south rose *half a mountain* in a precipice of not less than 2,500 feet above the lakes, while, on the north side, at a distance of about 900 yards, are cliffs corresponding in outline to those opposite. Between these precipices, at the head of the valley, a vast dome-like form rises. . . . It was a most singular place—a complete chaos of granite, slate, jasper, and porphyry, heaped up in the utmost confusion. . . . After scrambling over large blocks we stood on what appeared to be the outward rim of a vast circle formed by a confused mass of rocks thrown together in the wildest manner, about twenty yards broad, from which the stones sloped down to a great bowl or crater from 300 to 400 yards in diameter, and about 60 feet deep. This was covered with blocks of stone of every size from a cube of 12 inches to a mass weighing 50 tons. Standing on the brim, I examined the precipices on either side, and could not help concluding that the mountain had been burst asunder by this mass of matter when heaved up." Apart from any theory of formation, the resemblance between this and a crater in the moon seems very remarkable.