Prof. Flower and the able heads of departments, for all of whom I have the greatest respect; and I am further convinced that much credit is due to them for doing the very utmost that is possible under the circumstances of the case. My strictures on the Museum were intended to apply solely and exclusively to the fundamental *principle* underlying its arrangement, which principle is embodied in the new building as in the old one. I contrasted strongly the principle of moderate-sized rooms as compared with large galleries,—the principle of exhibiting, to the public, on the one hand, strictly limited typical collections; on the other, almost complete series of species,—the principle of making a geographical arrangement the main feature of a museum, as compared with that in which almost no provision at all is made for such an arrangement.

I had always understood that for this fundamental system of arrangement neither the present Director nor the heads of departments of the Museum were in any way responsible, and that in criticising it frankly I should not be considered to reflect on them. So clear was I in my own mind that I was discussing this general system only, that I used some expressions which I now see, with much regret, were capable of being misunderstood. After referring to some of the improvements in the New British Museum, I say, "but the great bulk of the collection still consists of the old specimens exhibited in the old way in an interminable series of overcrowded wall-cases, while all attempt at any effective presentation of the various aspects and problems of natural history as now understood is as far off as ever." To the latter part of this sentence, Prof. Flower objects, as not recognizing the many improvements recently made and still making; but I intended it to apply, as I think the whole context of my article shows, to the *system* and the *building*, which themselves, from the point of view I have taken throughout the article, render any attempt at an "effective" presentation of these aspects and problems impossible. Again, at the end of my article I speak of Prof. Agassiz having said that he intended his museum "to illustrate the history of creation as far as the present state of scientific knowledge reveals that history," and then go on: "It is surely an anomaly that the naturalist who was most opposed to the theory of evolution should be the first to arrange his museum in such a way as best to illustrate that theory, while in the land of Darwin no step has been taken to escape from the monotonous routine of one great systematic series of crowded specimens arranged in lofty halls and palatial galleries, which may excite wonder, but which are calculated to teach no definite lesson." Here I was referring to the fact that the new Museum at South Kensington was constructed and arranged substantially on the same lines as the old one at Bloomsbury, and regretting that the only effective step towards inaugurating a new system of arrangement was not then taken. Prof. Flower, I find, thinks that I imply that no steps are being taken now to render the Museum more instructive and generally interesting. This was very far from my meaning, and I am exceedingly sorry that such an interpretation of my words should have been possible. I visited the Museum several times last summer before leaving for America, and I noted many improvements that were being introduced in all departments; but I could not fail to see that the main principle of the arrangement, both of the building itself and of the collections in it, had not been changed, and it was to this that all my criticisms were directed.

Godalming, September 22. ALFRED R. WALLACE.

The Law of Error.

MR. F. Y. EDGEWORTH has, in NATURE of September 22 (p. 482), replied to Dr. Venn's letter from the mathematical standpoint; perhaps a few words from the meteorological side may not be out of place. The gist of Dr. Venn's remarks lies in his statement that the law of error applies to cases where there are "equal and opposite independent disturbing causes" (September 1, p. 412). Now, the excess and defect of barometrical pressure from the average, depend mainly on anticyclones and cyclones respectively, which though in many respects opposite in character are by no means equal, the latter being much more intense than the former; and there is no reason in the nature of the case why they should be equal, as many of their characteristics are so dissimilar.

As regards the second instance given by Dr. Venn, the chief factor in the variations of temperature at different times of the year is the varying declination of the sun, the rate of change of declination passing through two minima yearly—namely, at the solstices, so named for this very reason. One would naturally expect that about these times the temperature should remain more nearly the same than about the equinoxes; Dr. Venn's curve would consequently give two maxima. The deviations of the temperature of each *day* from the average would not be unlikely to conform to the law of error, but it is evident that a curve formed from the temperatures for the whole year would be of a totally different kind. T. W. BACKHOUSE.

Sunderland, September 26.

Lunar Rainbows.

ON Sunday night, August 28, a lunar rainbow was visible here. As the occurrence seems to be uncommon, some particulars may interest your readers.

We had a very heavy shower before 11 o'clock, with a south-west wind. The rain left off suddenly, as it began, a few minutes past 11; and as the heavy cloud moved away to the north-east it left a gloriously clear sky behind, with the moon, then a little past its first quarter, shining brightly a few degrees above a heavy bank of cloud which lay on the horizon. Looking out of a window on the opposite side of the house, I had the satisfaction of seeing a complete pale white bow in the black cloud to the north-east, which lasted very clear and distinct for about five minutes, when it quickly grew faint as the bank of clouds on the horizon began to rise and obscure the falling moon. The outer edge of the bow was well defined against the intense black of the cloud beyond; the inner edge was much less distinct, and the area within was covered with a slight suffused light, which, however, appeared to diminish as the distance from the bow increased.

The drops of rain were unusually large, and the downpour, while it lasted, was extraordinarily heavy.

A. F. GRIFFITH.

15 Buckingham Place, Brighton, September 22.

A LUNAR rainbow was visible here shortly after 11 o'clock last night. It extended without break through three-quarters of a semicircle, the top of the arch being about 60° high. In colour the bow resembled a moonbeam shining between two clouds, and its brightness was sufficient to cause it to be immediately detected by a casual glance, in spite of the presence of numerous white clouds occupying its centre. The sky just outside the bow appeared darkest, probably by contrast with these clouds. Ten minutes elapsed before the rainbow faded.

Rock Ferry, September 27. S. J. H.

The Perception of Colour.

IS Mr. Stromeyer sure that the observations he made (see NATURE, July 14, p. 246) prove any difference in the rapidity of perception of colour, and that they do not rather show a difference in perception of brightness? It is well known that faint objects are not so quickly perceived as bright ones (see Webb's "Celestial Objects," p. 368 of the 4th edition, under ϵ Pegasi); and as the violet end of the spectrum is much fainter than the rest, the effect described would be produced by the difference in brightness apart from the difference in colour. I have tried Mr. Stromeyer's experiment of rotating the spectrum, and it appears to me that the red as well as the violet end lags behind the middle; though as the red is so much shorter, this is more difficult to see. T. W. BACKHOUSE.

Sunderland, September 15.

Tertiary Outliers on the North Downs.

IN August of last year (NATURE, vol. xxxiv. p. 341), I ventured to draw a distinction between the *unfossiliferous sands* found at certain places on the North Downs and the fossiliferous deposits at Lenham. For reasons assigned, I suggested a certain degree of probability of their being of Bagshot age, and indicating a former extension by overlap of the higher beds of that important Eocene formation. This summer I have had opportunities of examining all the principal outliers referred to; and I must say that I am strongly impressed with the Bagshot character of these unfossiliferous sands, and of the well-rolled flint pebbles associated with them, in some cases (as at Headley) in great quantity. I speak only of those which can be identified with