To Mr. M. N. W.

Sir,—Your views, respecting the principles upon which the solutions we have given of the third question in the tenth number of the Amaranth depend, are incorrect. Both solutions are obviously founded upon the assumption that the sun is the source of heat, but *the result I obtained remains unaffected, whether the heat is in the whole mass of the sun, or only in the surface; while on the contrary, that which you obtained is equally erroneous by either supposition.* To be convinced of the truth of this, it is only necessary to conceive the sun to be surrounded by two hollow spheres, one coinciding with its surface, and the other at the earth's mean distance from it, and the heat, whether merely in the surface or otherwise, is immaterial to pass through the one to the other.— Now as the area of the second is larger, the heat must be spread over a greater surface, and consequently its effect upon a given space proportionally less. Hence if the concave surfaces of these imaginary spheres, which are respectively equal to two-thirds of those of their circumscribed cylinders, be computed, they will represent the ratio of the intensities of the heat acting upon equal portions of them. Assuming the diameter of the former unity, that of the latter, by the question, is 212; whence their surfaces are 3 1416, and 141196 0704, the ratio required; or dividing the greater by the less, the quotient is 44944, from which it follows that *the heat acting upon one square inch, mile, or any other unit of measure, at the former, is diffused over 44944 square inches, miles, or units of the same measure at the latter, and that its effect must be therefore that much less.* But the surface of the sun coincides with the former, and an indefinitely small portion of the surface of the earth, under the ecliptic, may be supposed to coincide with the latter, whence the truth of my former solution is manifest. The results are the same, because the surfaces of spheres are proportional to the squares of their diameters. It is evident from the above that "the effect of heat is inversely as the square of the distance" only when the surface is at right angles; and it may be easily shewn that it varies as the co-sine of the inclination.

If these remarks fail to make you sensible of your mistake, I shall consider it fruitless to make any further attempt; every one who is competent to judge must know which is right; the fallacy of your reasoning had been pointed out to me by a young man who attends the School of the Mechanics' Institute, and who is well qualified to investigate the matter, before I saw your observations in the last Amaranth. I am aware the answer you have given is laid down in some scientific works, but would not hesitate to say it is wrong, even if it were in Sir Isaac Newton's Principia. I wrote this in good part and trust it will be taken so. Shortly after the question appeared, at the request of a friend, I gave a solution of it; I saw yours in Mr. Shives' office some days afterwards, and left the true answer for you to substitute instead of your own;—a circumstance which may satisfy you that I did not wish to subscribe my name to any thing of this kind; as you, however, persisted, I had no alternative but to show that you were wrong, or leave others under the apprehension that I was wrong myself; I have chosen the first, with what propriety, I leave for your own candour to decide.

I am Yours Respectfully,

February, 1842, R. MATTHEWSON.

The Nova Scotia New Monthly Magazine—*Simson & Kirk*, Halifax—32 pp. octavo. The first Number of this work is now before us, and we hail its appearance with pleasure, as a valuable addition to our Colonial Literature. The contents of the present number are rich and varied—the original articles written with good taste and judgment, and the selected ones are from the choicest works of the day. From the energy and resources of the publishers, we are led to believe that the "*New Monthly*" will become very popular. Subscriptions received at the Circulating Library, Germain-street;—price, per annum, including postage, 8s. 9d.

Errata.—In the "*Story of Deara, Princess of Meath*," on the second column of page 79, read, "The plighted faith," &c. instead of "The plighted path," as at present it appears.

Agents for The Amaranth.