evidently the *immediate sources of the solar light and heat*, by whatever mechanism or whatever processes they may be enabled to develop and, as it were, elaborate these elements from the bosom of the non-luminous fluid in which they appear to float. Looked at in this point of view, we cannot refuse to regard them as *organisms* of some peculiar and amazing kind; and though it would be too daring to speak of such organization as partaking of the nature of life, yet we do know that vital action is competent to develop both heat, light, and electricity. These wonderful objects have been seen by others as well as by Mr Nasmyth, so that there is no room to doubt of their reality. To be seen at all, however, even with the highest magnifying powers our telescopes will bear when applied to the sun, they can hardly be less than a thousand miles in length, and two or three hundred in breadth.

(41.) Next as to the actual size of the spots themselves: the distance of the sun is so vast, that a single second of angular measure on its surface as seen from the earth corresponds to 460 miles; and since, to present a distinguishable *form*, so as to allow of a certainty, for instance, that it is round or square, in the best telescopes, an object must present a surface of at least a second in diameter, it follows that to be seen at all so as to make out its shape, a spot must cover an area of not less than two hundred thousand square miles. Now, spots of not very irregular, and what may be called a compact form, of two minutes in extent, covering, that is to say, an area of between seven and eight hundred millions