

D. V. finally on Saturday, I will - unless anything very unforeseen intervenes - send it off by Monday's post. I shall like very much indeed to know your mind about 4. I can see no evidence whatever of native light - per contra, as the shadows are absolutely black - complete ink-spots - it seems impossible that his reflected should receive any addition from his native light. ~~It would~~ Such addition w^d require to be very considerable, to have the effect which has been imputed to it - & w^d certainly shew itself, not only in the shadows of the Satⁿ but on the Satⁿ themselves when in the shadow of the planet. - I should like you, who have studied the polariscope, to make out (or you could include the point in your notice for R. A. S.) what is the character of the reflection. It is proved by the gradual fading of the Satⁿ into the disc (or conversely their brightening as they approach the limb -) that ~~more~~ more light is reflected from the centre than the margin of the disc: & the occasional darkening, or even blackening, of the Satⁿ towards the centre proves the difference to be very great, though I do not know that any eye has ever detected it in any direct way. I should fancy that from this something of the character of the reflecting surface might be made out. If dense terrestrial cumuli behave in the same way, we shall get hold of a promising analogy. I do not suppose the Full Moon does this. It w^d be possible - though difficult enough - to make a little artificially illuminated disc traverse the focal image of the Full Moon, or the Satellites do that of 4 - & the

result would be interesting. It would be easier, & perhaps more manageable, to make a white bar traverse the whole field of a low power, illuminated with an uniform light. (I mean uniform throughout its length) but capable of being increased or diminished at pleasure - this made to resemble the disc of the Full Moon would decide the question. - If the dimming of the limbs of 4 is not due to reflection, it must I suppose arise from absorption, & that again w^d infer a considerable thickness of atmosphere above the clouds which if dense enough to darken the limbs, ought to do the same by the satⁿ when the limb is the further part of their orbits. Qu. Would observations of their comparative light in the 2 halves of the orbit - very near the limbs - which had better be barred out - shew any such difference? A big telescope & clockwork w^d be required - to considerable patience - but something might come out of it. However, if the Moon, too, as I have described, shewed a similar degradation of light towards the limb, it w^d be hardly necessary to look further for a "vera causa" - your trade wind speculations interest me much. I fancy considerable heat, & thickness of atmosphere (I mean of the cloudy region) must concur with rapid rotation to produce the effects we see. - By the way please don't lay much stress on the often repeated assertion of the fading of the dark belts towards the limb. With my quib that effect is so questionable that I don't think I sh^d trace it up I did not know it was said to exist - & which is more important, it is not shown in the grand drawing of De la Rue. - The fading of the dark markings which