

spots exert any slight influence on our atmosphere, my tables would, perhaps, rather tend to show that the years which exhibit a *larger number of spots* had a *smaller number of fine days* than those exhibiting few spots." (Schum., *Astron. Nachr.*, No. 638, § 221.)

"William Herschel named the brighter streaks of light which are seen only toward the Sun's circumference, *faculæ*, and the vein-like streaks visible only toward the center of the Sun's disk, shallows (*Astr. Nachr.*, No. 350, p. 243). I am of opinion that the *faculæ* and shallows are both derived from the same conglobate luminous clouds, which appear more intensely bright at the circumference, but, being less luminous in the center of the Sun's disk than the surface, exhibit the appearance of shallows. I think it preferable to designate all the brighter portions of the Sun as *luminous clouds*, dividing them, according to their form, into globate and vein-like. These luminous clouds are irregularly distributed over the Sun, and when more strongly manifested occasionally impart a *mottled* or *marbled* appearance to the disk. This is often distinctly visible over the entire circumference of the Sun, and sometimes even to its poles, but yet always most decidedly manifested in the two proper zones of the spots, even when no spots are visible in those regions. At such times these bright zones of Sun-spots vividly remind one of Jupiter's belts.

"The fainter portions lying between the vein-like luminous clouds on the general surface of the Sun are deeper indentations, and always present a shagreen-like gray, sand-like appearance, reminding the observer of a mass of uniformly-sized grains of sand. On this shagreen-like surface we may occasionally notice exceedingly small faint gray (not black) *pores*, which are further intersected by very delicate dark veins. (*Astr. Nachr.*, No. 473, p. 286.) These *pores*, when present in large masses, form gray nebulous groups, constituting the penumbrae of the Sun-spots. Here the pores and black points may be seen spreading from the nucleus to the circumference of the penumbra, generally in a radiating form, which occasions the identity of configuration so frequently observed to exist between the penumbra and the nucleus."

The signification and connection of these varying phenomena can never be manifested in their entire importance to the inquiring physicist until an uninterrupted series of representations of the Sun's spots* can be obtained by the aid of

* Sir John Herschel, *Observations at the Cape*, p. 434.