pressure, have enabled the conditions existing on the surface of the sun to be imitated and watched in the laboratory. Mr. Lockyer detects the presence of a spot by a general darkening of the spectrum and the widening of certain of the Frauenhofer lines—phenomena which he attributes to a local increase in the general and selective absorption of the chromosphere. The Frauenhofer lines put on a sudden blackness and width in the case of a spot with steep sides, but expand gradually in a shelving one. This thickening of the absorption lines Lockyer and Frankland have proved, by experiments, to be due to varying pressure; and this variation in pressure they attribute to convection currents in the chromosphere: "Suppose a hydrogen flame to be suddenly projected from the sun in the direction of the earth, the waves of light will be shortened, and the hydroger lines of the spectrum be shifted nearer the violet. If the flame travels from the earth the waves will be lengthened, and the lines shifted nearer to the red end of the spectrum. The line F undergoes strong contortions when seen near the centre of the sun's dise. It is seen, in fact, stopping short in one of the small spots, swelling out prior to disappearance, invisible in a fecula between two small spots, changed into a bright line, and widened out two or three times in the very small spots, becoming bright near a spot, and expanding over it on both sides, and so on. The Frauenhofer lines may thus be looked upon as so many milestones, telling the rapidity of the approach and downrush. Thanks to Angstrom's map of the wave length of the different parts of the spectrum, it is known that the shifting of the F line the ten-millionth part of a millemeter nearer the violet, means a velocity of uprush to the eye of 38 miles per second. The observed alterations of wave-length is such that twenty miles a second is very common."

From this, I presume, we are to gather that Lockyer considers that the same cyclone which whirls the chromosphere up into space projects the heavier vapors of the photosphere into the chromosphere, and thereby leaves a cavity in the photosphere itself. This is filled by a downrush of the chromosphere, which is, consequently, there much thicker than in the surrounding region, and, therefore, more absorbent.

Father Secchi's observations agree, in the main, with the above. He remarks that when the slit of the spectroscope is carried across a solar spot, the relative intensity, as well as the length of the spectral lines, changes. The spectrum is never