

hundred feet below us, and there he was enveloped in mist. Mr. Joseph Beek skillfully pioneered the way to a future determination of the nature of the light of the corona by means of an ingenious polarizing apparatus; and Mr. Bonomi made some exquisite drawings timed on the spot, of the wonderful light visible round his horizon. Both these gentlemen were attached to the party who accompanied Mr. de la Rue. But there can be no doubt that the most important contributions to our knowledge of the real features of a solar eclipse were made at Miranda de Ebro, through the skill, the perseverance, and the genius of self-reliance exhibited by the last-named gentleman.

The reader who may feel interested in the subject of this article, will find in the South Kensington Museum, a magnificent model of the Tudela railway, and the remarkable country through which it passes near to our station, executed by its talented engineer, and the pilot of the *Himalaya* expedition, Mr. C. Vignolles. He may also see at that institution enlarged positive copies from the *actual* negatives, taken by Mr. de la Rue in Spain. These impressions were displayed in the International Exhibition of 1862, and were afterwards presented to the South Kensington Museum.

Of course the question recurs again, What, after all, are those mysterious tongues of coloured light, or those substantial prominences of which so much has been written, and which even now excite so lively a curiosity? This much may be said, it is at least something to know that they are *real existences*, and not, as some philosophers have imagined them to be, mere interactions of waves of light; it is still more to know *where* they are, and now we are sure they are entities attached to the sun. It is more, also, to be assured that they are not connected in locality with solar spots, for they are abundantly visible in many parts of the sun's photosphere, where spots have never been known to occur. What then, are they after all?

It may be they are enormous masses, and, in some instances, detached masses, of cloud-like vapours floating in an atmosphere, surrounding the incandescent photosphere of the sun, and being illuminated from below, become, by reflection, visible to us. It may be they are masses of incandescent materials similar to those which constitute the sun's photosphere itself, but less luminous because lower in temperature.

We have not now the space at our command to enter at any length upon those modern speculations regarding the nature of the sun's envelopes, which are proposed in explanation of solar phenomena when viewed through powerful telescopes, or observed during solar total eclipses such as we have described. Nevertheless a few rapid remarks may be acceptable to some of our readers. The sun's photosphere, as now seen with all the aids of recent scientific inventions, appears to be strongly mottled and porous: it does not resemble a continuous blazing sheet, but by some of our best observers is described as broken up into detached filaments, more or less elongated in form; and the average surface which each of these filaments presents to the eye probably exceeds the area of Great Britain. These detached entities are presumed to be vaporous, cloud-like masses of elementary substances chiefly metallic, and in a state of vehement incandescence; they are presumed to float in some intensely heated transparent medium, and are to us the source of solar heat and light.

Sometimes, and it is believed in recurring cycles of about ten years, this photosphere, towards its equatorial parts, becomes violently disturbed; as it were, by cyclones, and in places is whirled or torn into holes of an unknown but enormous depth, occasionally large enough to receive the entire terrestrial globe. In the depths of these holes are seen dark areas constituting what appear to the eye to be solar spots. These dark areas or spots are probably portions of a luminous atmosphere below the photosphere, but appearing to be dark through contrast with the intolerable brightness of that which is above it. Within this dark area Mr. Dawes observed (and others have confirmed the observation) a still darker area, which, as far as we know, may be the dark body of the sun itself, or it may be another envelope possessing a lower degree of luminosity than the two others described above it. These are the main appearances disclosed by the telescope, except so far as that the photosphere itself is often observed, in places, to be piled up like gigantic waves above the general level of the luminous surface: these are called *faculae*. There are competent philosophers who begin to suspect that they see evidences of *fiery tides* on the sun's surface caused by the action of the nearer planets.

The other phenomena surrounding the solar disc, but which are visible solely during a total eclipse, we have already described, and we shall now merely add that Father Secchi believes that he has seen more than once either the real prominences themselves, or something analogous, when viewed on the *dark background of a solar spot*. But, strange to say, so rapid has been the progress of physical knowledge during the six or seven years since the *Himalaya* started from Plymouth in 1860, with its freight of astronomers, that the next eclipse of the sun will probably suffice for the deciphering of the enigma in which the real nature of these coloured prominences is at present involved. Nor shall we have to wait long for the opportunity. In August next, 1868, there will be visible over a large area of Central India a total solar eclipse, the duration of which will, fortunately, be double that which we have endeavoured to describe. We have reason to believe that skillful and properly instructed persons have undertaken to apply to these mysterious lights, among other suitable processes, the simple but efficacious methods of spectrum analysis.



## OFFICIAL NOTICES.

EXTRACT FROM THE MINUTES OF THE COUNCIL OF PUBLIC INSTRUCTION, JULY 7TH, 1866.—"Provision being made by the School Law for the publication of a *Journal of Education*, the Council of Public Instruction directs that the said *Journal* be made the medium of official notices in connexion with the Educational Department."

T. H. RAND,  
Secy to C. P. I.

### I.

The following Order of the Council of Public Instruction, made in October last, under authority of the 12th sub-division of the 6th Sec. of the *Law concerning Public Schools*, is re-published for the guidance of Inspectors, after the annual meetings in October next:—

"In cases where sections failed to determine, in annual meeting, which member of the Board of Trustees should retire from office, and to fill the annual vacancy in the Trusteeship, it shall be the duty of the Inspector to determine which Trustee shall retire; and the Commissioners shall fill such vacancy in the manner directed by Law."

September, 1867.

### II.

The Council of Public Instruction has been pleased to make the following appointments:

To constitute the Provincial Board of Examiners—

Department of Language:

REV. J. M. HENSLEY, D.D., *King's College*.

Department of History and Geography:

REV. THOMAS J. DALY, *St. Mary's College*.

Department of Mathematics:

D. F. HIGGINS, M.A., *Acadia College*.

Department of School Management, Teaching, &c.:

REV. JAMES ROSS, D.D., *Dalhousie College*.

September 26th, 1867.

### III. Holidays and Vacations.

Notice is hereby given to Trustees of Schools and others, that CHAPTER XI. of the *COMMENTS AND REGULATIONS OF THE COUNCIL OF PUBLIC INSTRUCTION*. "Of Time in Session, Holidays, and Vacations" has been revised as follows:

#### HOLIDAYS.

The following Regulations have been added to SECTION 3, of the Chapter above named:

a. When for any cause the Trustees of a school shall deem it desirable that any prescribed Teaching Day should be given as a Holiday, the school or schools may be kept in session on the Saturday of the week in which such Holiday has been given, and such Saturday shall be held to be in all respects a legal Teaching Day.

b. When, owing to illness, or for any other just cause, a teacher loses any number of prescribed teaching days, such teacher shall have the privilege of making up for such lost days, to the extent of six during any Term, by teaching on Saturdays; But

c. No school shall be kept in session more than five days per week for any two consecutive weeks;

2. Nor shall any Teacher teach more than FIVE DAYS PER WEEK on the average (vacations not being counted) during the period of his engagement in any term.

The Anniversary of the QUEEN'S BIRTHDAY shall be a Holiday in all the Public Schools, as heretofore.

#### VACATIONS.

The following Regulations have been made in lieu of SECTION 4, of the Chapter above named:—

1. The CHRISTMAS VACATION shall remain as heretofore, the "eight days" being held to mean week-days other than Saturdays.

2. Instead of two vacations during the summer term (a week at seed time and a fortnight at harvest) as heretofore, THREE WEEKS (15 week-days other than Saturdays,) shall hereafter be given as vacation during the summer term, at such time or times as the Trustees shall decide: Nevertheless

3. In order that the due Inspection of Schools as required by law, may not be interfered with, each Inspector shall have power, notwithstanding anything in the foregoing Regulations, to give notice of the day or days on which he proposes to visit any school or schools in his county for the purposes of Inspection, and to require that on the day or days so named such school or schools shall be kept in session.

July, 1867.

### IV. To Teachers not supplied with Registers.

As a much larger number of schools are in operation this term than was anticipated, the edition of Registers is insufficient to supply a copy for each teacher engaged. All teachers who have been unable to procure a Register are notified that till the close of the present term, Oct. 31st, a careful record of the daily attendance of pupils will be accepted as a compliance with the requirements of the school law with respect to registration. In every such case, before signing the certificate contained in the TRUSTEES' RETURN, the teacher is authorized to erase the words "the prescribed Register," and insert in their stead, "a record of the daily attendance of the pupils."

May, 1867.