

like. It is a dense heavy, rather lustrous metal, very like lead, to which metal it is also very similar in its physical properties, but is a trifle heavier, and tarnishes perhaps a little quicker. Its colour, however, is not identical. In chemical properties it is similar to mercury, lead, and bismuth. Mr. Crookes is continuing his researches, and we are glad to state that the Royal Society has voted him a grant of 50*l.* towards the expenses of these costly investigations.—*London Review.*

—Had it not been for the watchfulness of the officials, the International Exhibition would have lately stood a good chance of being burnt down on very philosophical principles. In the Japanese Court, Messrs Baring Brothers exhibit two extraordinary quartz spheres, four or five inches in diameter, ground and polished with mathematical nicety. These spheres stood side by side on a mahogany stand in the Japanese Court, attracting but little attention from the public, until one very sunny day a visitor suddenly rushed to the office of the department with the alarming intelligence that "the two glass globes had caught fire!" The officials, on going to the spot found the stand in a blaze, the sun having shone directly through the globes, which, of course, acted as burning-glasses, setting the woodwork on fire. There are now two holes in the mahogany stand large enough to insert the top of the finger. These holes are very interesting, as they are each double, showing perfectly the double refracting properties of the quartz. The spheres have been removed into the Chinese Court, that part of the building being quite in the shade.—*Chemical News.*

—A weak solution of chloride of lime is said to preserve plants from insects if sprinkled over them. Flies are also got rid of in stables and other places by scattering chloride of lime on a plank. If the same substance is mixed with half its weight of some fatty matter, and a narrow band of the composition smeared round a tree, insects will not pass it.—*Ibid.*

—Professor De la Rive has communicated to the "Philosophical Magazine" some interesting researches on Auroræ Boreales. He begins with calling attention to two fundamental points as confirmed by observation and regarded as definitively established.—1. The coincidence of the occurrence of aurora in the northern and southern hemispheres, particularly at Christiania and Hobart Town. 2. That the phenomenon is an atmospheric one. He then proceeds to state that the occurrence of aurora is satisfactorily accounted for by admitting, in conformity with the data furnished by direct observation, that, the waters of the ocean being continually charged with positive electricity, the vapours which arise from them act as a conductor of this electricity, so far as the upper strata of the atmosphere, where, carried towards the Polar regions by the trade winds, they form as it were a positive envelope to the earth, which itself remains charged with negative electricity. But the earth and the highly rarefied air of the elevated atmosphere regions being perfect conductors, they may be regarded as forming the two conducting-plates of a condenser, of which the insulating stratum is the inferior portion of the atmosphere. The two antagonistic electricities must then necessarily be condensed by the mutual influence in those portions of the atmosphere and of the earth to which they are the nearest, consequently in the regions near the poles, and there neutralise themselves in the form of discharges more or less frequent, as soon as their tension reaches the limit which it cannot exceed. These discharges should take place almost simultaneously at the two poles, since, the earth being a perfect conductor, the electric tension should be nearly the same at each. There can only be differences in the intensity of the discharges in one region and the other, and from one instant to another in the same region, since the resistance of the stratum of air which separates the two electricities must constantly vary from sundry causes. It is evident, too, that the neutralization of the opposite electricities would not be effected instantaneously, but, considering the non-conducting power of the medium through which it takes place, by successive discharges more or less continuous and variable in intensity. For details of the interesting experiments by which M. De la Rive believes that he has established the correctness of the foregoing principles, we must refer our readers to the memoir itself.—*Educ. Times.*

#### FINE ARTS AND INDUSTRY.

—Mr. Falardéan, the distinguished Canadian artist who pursued his career so successfully at Florence, lately visited his native country for the first time after an absence of many years. He brought a limited number of works of art, copied from the best masters, which he disposed of among the connoisseurs in Montreal and Quebec.

—Another Canadian, Mr. Anatole Partenais, a native of Industry, who studied sculpture at Paris has just won the second prize at the *School of Fine Arts.*

THE CANADIAN DEPARTMENT AT THE LONDON EXHIBITION.—(*Abridged from a correspondence in a N. S. paper.*) Canada is a world in itself, anxious to make a show and able to do it. The Canadians have bestowed immense pains on their department and have gone to great expense. They have no fewer than four Commissioners here in charge, besides a number of subordinates. Sir W. Logan is here to look to the mineral and geological section, and assuredly he has made the most

of it. The Lumber of Canada is displayed to great advantage in a pyramid whose top reaches not quite to the clouds but sufficiently near them to be alarming. Canada wheat yields only to that of Australia.

The Photograph department is very superior—indeed it is equal if not superior to anything executed in England—especially in *untouched* portraits. Our friends make the most of their magnificent scenery. Here is Niagara in fifty different forms—in oil, in water, in light, in lead, in ink; Niagara with all the heaving icicles and threatening icebergs of winter; Niagara in all the loveliness of summer—in moonlight, in sunlight, from the American side and from the Canadian side. Many other scenes are here in photograph or some other style.

We must confess it—all the lower Provinces together fail to make the impression that Canada easily produces. The space assigned to her is equal to all the rest, and she occupies it well. Her wooden trophy is overdone however, and it is no wonder the *Times* calls for its disappearance. But her minerals, her manufactures, her lumber and timber, her grains—all demonstrate her wealth and greatness. If the Canadians do not become a powerful and opulent people it is not the fault of the country. By a curious oversight, she has no place in the *Official Catalogue* issued by the Commissioners here. No doubt this will be remedied by and by; but it has annoyed the Canadians a good deal. A similar oversight has happened with regard to Prince Edward Island.

—The following is the list of Prizes awarded to Canadians at the London Exhibition.

#### Medals in Class One.

Billings, E. of the Geological Survey: For his published decades on Canadian fossils and his valuable general contributions to paleontology.—English and Canadian Mining Company: For the skill and perseverance with which they have opened their ground, and the discovery of deposits conformable with the stratification.—Foley and Co.: For plans of mines, ores, and lead, smelted in the colony.—Hunt, J. Sterry, of Geological Survey: For the instructively described series of the crystalline rocks of Canada, and his various published contributions to geological chemistry.—Larue and Co.: For excellent cast iron railway wheels made from bog iron ore, which have run 159,000 miles.—Montreal Mining Company: For interesting series of copper ores, accompanied by plans and sections of the workings.—Taylor, A.: For good specimens of crude and prepared gypsum, with plans and sections of the gypsum mines.—The Officers of the Geological Survey of Canada: For an admirably prepared collection of specimens, illustrating the mineral resources of the Province.—Walton, B.: For the discovery of good roofing slates.—West Canada Mining Company: For specimens and plans illustrating a well worked copper mine.—Williams, for Canadian Oil Company: For introducing an important industry by sinking artesian wells in the Devonian Strata for petroleum.

#### Honorable Mentions in Class One.

Davies, W. H. A.: For interesting and instructive specimens from a remarkable deposit.—McCaw, T.: For fine and instructive specimens of ore, running with the stratification, and illustrating the structure of the country.—Sweet, S. and Co.: For fine and instructive specimens of ores, running with the stratification, and illustrating the structure of the country.

#### Class II.—Section A.—Medals.

Benson and Aspiden: Samples of Indian corn starch. For the excellent quality of samples.—Canadian Oil Works: For an extensive exhibition of the derivatives of petroleum.—McNaughton, E. A.: Flour and potato starch. For the excellent quality of samples.—Pearson Brothers: For an extensive exhibition of the derivatives of petroleum.

#### Class III.—Section A.—Medals.

Agricultural Board of Upper Canada: For samples of wheat from various counties, of excellent quality.—Agricultural Society of Huntingdon, Lower Canada. (One medal to grower.): For pens, 40 bushels per acre. Grown by John Penis.—Agricultural Society of Wellington: For wheat of excellent quality.—Agricultural Society of Wentworth and Hamilton. (Three medals to growers.): For blue-stem wheat, grown by J. H. Anderson; for red chaff wheat, grown by John Smith; for potato oats, grown by A. Goric. Very superior in quality.—Boa, W.: For all his samples in collection.—Denison, R. L.: Indian corn stalks. For extraordinary growth.—Erans, W.: For collection of grains and seeds, excellent and interesting.—Fleming, J.: For seeds and grains, as excellent and interesting.—Johnstone, B.: For samples of Soule's winter wheat, of excellent quality.—Logan, J.: For spring wheat of excellent quality.—Peel (County) Agricultural Society, Upper Canada. (Medal to John Lynch, Secretary): For barley, pens, and two kinds of spring wheat, all of excellent quality.—Shaw, A.: For rye of excellent quality.—The Agricultural Society of Beauharnois. (Two medals awarded to growers). For flax seed, grown by C. Burguin, for grass seed, grown by C. Tait.—Wilson, J.: For oatmeal of excellent quality.

#### Hon. Mentions.

The Agricultural Society of Huntingdon, L. C.: For barley grown by Mr. McNaughton.—The Agricultural Society of Wentworth and Hamilton: The collection of wheats. Goodness of quality.—Badham, T.: For