much divided as to its value to Canadian commerce, many holding that it would divert the trade of the St. Lawrence, while Mr. Young, with much better reason, argued that it would induce the trade of the Western States, seeking the Atlantic Sea Board, to use the Canadian Lakes and Canals; and at the same time give Canadian produce and lumber quicker and cheaper transit to the best markets. At the last session of Parliament, he obtained another charter for the same project, and he is now, with excellent prospects of success, endeavouring to arrange for the construction of the work. When engaged in mercantile pursuits he was always among the first to show his appreciation of the value of public works in facilitating trade; and, accordingly, when the St. Lawrence canals were opened in 1849, he was the first to despatch a vessel laden with merchandise direct to Chicago; and the first to receive a downward cargo of produce. He was also instrumental in securing the organization of the Water Police Force.

In 1851 Mr. Young was returned to Parliament for the first time as one of the representatives of Montreal, and continued to sit for the same constituency until 1857, when he declined re-nomination. In 1863 he was induced to offer himself for Montreal West, in opposition to the late Hon. Thomas D'Arcy McGee, but was defeated, and has not since sought Parliamentary honours. He entered Parliament as a supporter of Mr. Lafontaine, and on the reconstruction of the cabinet, consequent upon the retirement of Messrs. Baldwin, Lafontaine, and others, in October 1851, Mr. Young was appointed Commissioner of Public Works in the Hincks-Taché Government then formed. He held office only until September following, having disagreed with his colleagues, or, perhaps, to put it more exactly, his colleagues having declined to submit in all things to his opinion. In administrative affairs he is wedded hard and fast to his doctrines of absolute free trade; involving, of course, a strictly revenue tariff, and that tariff based exclusively on the *ad valorem* principle. It need not, therefore, be wondered at, in the light of very recent events, that the Hon. John Young found himself uncomfortable in a cabinet where Mr. (now Sir Francis) Hincks held principal sway. During the early efforts to secure reciprocity with the United States, Mr. Young was sent to represent the views of the Canadian Government at Washington, and in 1863 he undertook a like mission at the instance of the Macdonald-Dorion administration. Of late some of Mr. Young's utterances through the press have given rise to a conviction that he was disposed to favour more intimate political, as well as commercial relations with the United States; but fortunately for his reputation in this respect, a statement unreflectingly made in Parliament by a gentleman of distinction, gave him the opportunity of formally contradicting the assertion that he had expressed annexationist sentiments.

Mr. Young has not heretofore been idle with his pen. In addition to his contributions to the *Economist* during its existence, he has written letters to the press almost innumerable. In 1853 he published, in pamphlet form, his "Views of the Commercial Policy of Canada." Two years later, he published a series of letters to the Commissioner of Public Works on "Canadian Trade and Navigation;" also Letters to the Citizens of Montreal on "The Commerce of the City and the Means of its Further Development." In 1858 appeared letters to the Hon. T. J. J. Loranger, on "Harbour Improvements;" and next year, "Reply to J. C. Trantwine, C. E., on the subject of the Construction of Docks at Montreal;" also "Letters on the Rival routes to the Ocean." In 1866 he also issued a pamphlet on "The Changed Opinions of the Montreal Board of Trade on the Canal to connect the St. Lawrence with Lake Champlain;" and is besides the author of the paper on "Montreal," in the 8th edition of the *Encyclopædia Britannica*. For the foregoing particulars we are mainly indebted to Mr. Fennings Taylor's "Sketches," and Mr. H. J. Morgan's *Bibliotheca Canadensis*.

On Monday evening last, as already mentioned, the Hon. John Young was entertained at a public dinner at the St. Lawrence Hall, Sir Alexander Galt presiding. The Hall was crowded, upwards of two hundred of the most prominent citizens having been present. Letters of apology for non attendance were read from Sir G. E. Cartier, Sir Francis Hincks, Hon. J. S. Macdonald, Hon. P. J. O. Chauveau, &c. The entertainment was, in fact, a complete ovation of which the recipient has just reason to be proud; it was a tribute to an honourable private and an enterprising public character, both of which Mr. Young has been able to carry through life unspotted; and it must surely be gratifying to him now to find that all classes are willing to pay homage to the virtues of the man, even when many of them entirely dissent from the views of the politician.

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The *Orchestra* states that Mr. Boucicault has arranged with Mr. Charles Dickens to dramatize "The Mystery of Edwin Drood."

## MAGNETIC IRON SANDS OF CANADA.

The *American Exchange and Review* contains the following epitome of a letter of Dr. T. Sterry Hunt, on the magnetic iron sands of Canada, of considerable interest to iron and steel masters:

"The sands from the crystalline rocks of Canada are in a large degree a mixture of nearly pure magnetic ore with a titanic iron ore and garnet sand, the last two ingredients not being attracted by the magnet, and the titanic ore containing from 30 to 35 per cent. of titanic acid. The bar iron made from these sands at Moisie is of excellent quality, not alloyed by titanium. The slags, however, contain the titanic acid as silico-titanate. The magnetic portion is separated from the titaniferous sand and from the silex by a magnetic separator which, according to Dr. Hunt, will, in one hour, separate from three tons of sand, containing one ton of magnetic ore, one ton of ore, containing 99 per cent. of magnetic iron, or twenty-four tons in twenty-four hours. It is 6 ft. long by 5 ft. wide, and 4 ft. high. These magnetic sands are said to be found on the north side of the St. Lawrence, in quantities practically inexhaustible, from the Saguenay to Newfoundland, at Batiscan, between Montreal and Quebec, and there is a large accumulation at the mouth of Lake Huron; also, on both shores of Lake Erie, and along the seaboard of Connecticut and Rhode Island. The iron sands of Taranaki, New Zealand, are well-known. Dr. Hunt places considerable reliance upon the magnetic separator for success in working the sands. This separator is the invention of Dr. Larme, Professor of Chemistry in the Laval University, Quebec. The advantage arising from these sands is found in their freedom from phosphorus and sulphur.

"In this connexion it will be interesting to speak of the metallurgical process of reducing these magnetic sands, as performed at Moisie, a name not found in Lippincott's Gazetteer, and, therefore, needing some notice as a place. Moisie is said to be the seat of the most northern ironworks of this continent, and remarkable for the exclusive use of the magnetic sands spoken of above. Moisie is near the mouth of the St. Lawrence, some seventy miles west of Anticosti island, at the mouth of the Moisie river, which empties into the St. Lawrence upon its northern shore. The sands are about half a mile distant on either side of the works, which consist of charcoal bloomeries, or modified Catalan forges, with all their necessary accompaniments. The blast is heated in U pipes, placed in the chimney. The hearths have each a cast-iron frame, are 3 ft. square and high, closed by a plate in front for a foot from the bottom, with slag-holes and with a shelf on the level of the tweer, which is semi-circular, with a radius of an inch, placed on one side at an inclination of 15°. The ore is thrown upon the fire from time to time, as the bloomers see fit, until a bloom is made of the average weight of 200 lb., and after about three hours' work. An interesting fact appertains to the charcoal economies of the place. The charcoal is burned in kilns cylindrical at the bottom and dome-shaped at the top, of about 30 ft. diameter at the base and 25 ft. high, which walls a foot thick, and requiring about 40,000 bricks. They hold about 100 cords apiece, yielding 4,000 bushels of charcoal; require about 25 to 30 days' burning, affording a fine coal at a reckoned cost of 1½ cents a bushel, weighing 15 lb to the bushel, the wood being almost all fir tree and some birch, but small, and hence denser. The wood is supposed to cost at the kiln 80 cents a cord. Ten of these kilns afford about 40,000 bushels a month, a little more than is sufficient to supply four forges. Four forges make about 3 tons of blooms per day, using 1,400 bushels of loal.

"Of the ore, it is interesting to know that the storms work the sand at times as well as could be done by manual labour, leaving the true magnetic ore in irregular patches, and advantage is taken of the beneficial effect of the waves and winds. A patch of sand 100 yards long by 50 yards wide, averaging 2 in. thick, should yield about 7 tons of ore. The separation of the ore from sand and impurities is done by washing tables. The gentleman from whose account we have derived our information for this condensed statement, and who visited the place in October, 1869, gives a very interesting description of the exceeding isolation of the works, and of the unlimited forests around, together with the loneliness of a situation which, as we have stated, is upon the northernmost boundaries of the iron manufactures of the North American continent."

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## SCIENCE AND ART.

A new planet was discovered last month by M. Borrelli, of the Observatory, at Marseilles, a sort of branch of the Imperial Observatory at Paris, officially named the *succursale*, and therefore, some will opine, misnamed. The new celestial acquaintance is the 110th member of the family of planetoids circulating between Mars and Jupiter. It is extremely small, only equally in brightness a star of the 12th magnitude, and consequently invisible to all but the possessors of the finest telescopes. It is necessary to state this condition, for we can recollect people, after reading the late announcement of a new planet's discovery, going out into the night and pitching upon the most conspicuous star in the sky as the novel object, whereas the said object may have been fifty times fainter than the smallest star the naked eye can discover.

PAPER PARCHMENT.—We quote the following from a late lecture at the Royal Institution by Dr. Odling: "When sulphuric acid is diluted with half its volume of water, and blotting-paper is immersed for a quarter of a minute in the mixture, and is then well washed in plenty of water, the blotting-paper is transformed into paper parchment; it has then great tenacity, will not permit the passage of water, and will lift heavy weights. Sized paper requires a longer immersion in the acid to become thus parchmentized. A slip of paper which, when made into a hoop, will just lift a weight of 14lb without breaking, will, after being treated as above with weak sulphuric acid, lift a weight of 75lb without breaking. Mr. Graham, the late Master of the Mint, used parchment paper in his experiments on dialysis, for it has the curious property of permitting none but solutions of crystalline substances to pass through it."

Gustave Doré is putting the final touches upon a picture which fills a canvas some twenty feet by thirty, and whose subject is the sad journey of Christ to Calvary. The character and treatment of the painting are thus described:—The figure of Christ, draped in white, is naturally the central point of the canvas, and indeed the effulgence that beams from the God-head personified fills the picture with its divine light. As Jesus descends the steps that lead from the judgement seat to the highway, the Jewish figures that crowd the corners of the picture, press forward to gaze upon him, while the higher dignitaries in his immediate vicinity fall back, blinded by the excessive light that shines in all his figure. To the right the Roman soldiers, fine stalwart fellows, whose every muscle tells through their thin chain armour, press back the surging crowds; and on the left are people who are rushing forward in anticipation of the coming of the "King of the Jews;" one man, who is running toward the spectator, looks as if he were rushing out of the picture. In the background are the public buildings of Jerusalem, and the sky is dark with tempestuous clouds that seem to be hurrying together to compass the destruction of the city guilty of the greatest crime in history. The work in the picture is immense, but it is the least interest of the composition; for all the multiform types of physiognomy, all the picturesque details of costume, all the touches of beauty are subordinated to the one grand, sublime expression of sorrowful pity that beams out of the divine eyes of Jesus Christ. It is by far the largest canvas the artist has yet filled.

MEANS have been devised whereby a barometer—an aneroid, let us say—shall record its own fluctuations. The instrument is entirely self-acting and self-registering, and consists of a large and powerful aneroid and an eight-day clock, mounted side by side on one stand. Each of these instruments has an eight-inch dial between them, and there is placed in a vertical position a cylinder four inches in diameter. The circumference of this cylinder is furnished with a toothed wheel, which works in an endless screw at the back of the instrument; it has a paper attached to it, ruled to coincide with the barometer scale. This paper, besides being ruled horizontally into inches and tenths, to correspond with the barometric scale, is divided vertically, throughout its entire length of twelve inches, into seven principal and seven minor divisions, indicated by darker and lighter lines. The dark lines represent the noon, and the lighter lines the midnight, of each twenty-four hours. The paper thus lasts one week. Near the paper a pencil, guided by a rod of metal, is moved up and down, as the action takes place in the aneroid, and at every hour the pencil is made to mark the paper by simple mechanism connected with the clock. By this simple means a black-dotted curved line is produced, showing at a glance the height of the barometer—whether it is falling or rising, for how long it has been doing so, and at what rate the change is taking place (whether at the rate of one-tenth per hour or one-tenth in twenty-four hours)—facts which can only be arrived at, when the old instrument is used, by very frequent and regular observations, coupled with a degree of vigilance, which few would care to exercise, notwithstanding the importance to be attached to data of this kind when the weather is the subject of study and investigation.

WHITE OF EGG AS ANTIDOTE FOR CORROSIVE SUBLIMATE.—It is asserted by Peschier, that the white of one egg will render four grains of corrosive sublimate innocuous. Orfila administered to a small dog twelve grains of this poison; after it had acted for about eight minutes, the whites of eight eggs were given; it vomited several times, the pain ceased, and in five days it quite recovered. The white of egg should be beat up in a little water, and it should be given freely, at intervals. A woman, named Rose Maney, poisoned herself with corrosive sublimate; various remedies were tried, but with little benefit. The morning after the poison was taken, the whites of two eggs, beaten up with a little cinnamon water, were given; this dose was repeated every half hour, until she had taken the whites of twelve eggs, when she began to feel easier; and, during the time she had been under this treatment, she had only vomited twice, and other unfavourable symptoms began to disappear. The white of egg treatment was continued until she had taken the whites of thirty-two eggs. She went on progressing favourably, and was eventually cured. Here the albumen was not given till many hours after the poison was first taken. There is another substance which is considered to act as an antidote, namely, gluten. Its properties were discovered by Taddei, an Italian chemist. In administering it, it is usual to mix the gluten with soap, so as to hold it in suspension. If eggs are not at hand, gluten may be thus used. It is easily prepared by kneading dough, made of flour and water, under a tap from which the water is pouring in a small continuous stream; the starch is washed away from the flour, the gluten remaining behind; and this should be rubbed up with soap and rinsed with water. Thenard, the great French chemist, during a lecture, by mistake drank a strong solution of corrosive sublimate. He immediately discovered what he had done, and made the fact known to his class. The excitement produced was intense. He told them to bring him eggs. Eggs were sought for in every direction; in a few minutes larges quantities were obtained by his anxious pupils, and thus the life of this eminent professor was saved. This happened shortly after the discovery of the effects of albumen on corrosive sublimate were discovered by Orfila. A case is also recorded of a gentleman who, by mistake, drank a portion of an alcoholic solution of this substance. He was so alarmed by the taste that he did not finish it. He was, however, seized with a sense of tightness in the throat, burning at the stomach, and purging. Orfila saw him when the symptoms had acquired great severity, having lasted two hours. The administration of white of egg caused a mitigation of his sufferings, and he ultimately recovered.

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## MISCELLANEOUS.

CARBOLIC ACID IN INK AND PASTE.—The *Journal of Chemistry* says that two or three drops of carbolic acid to a bottle of ink will prevent mouldiness; and about thirty drops added to a pint of water used for making paste will prevent its moulding.

The problem of directing the course of balloons at will has apparently been solved by a Frenchman. His invention consists of a powerful exhauster, by which a partial vacuum is formed before the balloon, which is consequently driven forward. The Emperor of the French takes much interest in the idea, and has contributed funds towards carrying it out on a large scale.

LOOKING-GLASSES.—As ladies are fond of looking-glasses, they should be made acquainted with a fact but little known, that the beauty and truth of their reflected images very much depend upon the quality and colour of the glass itself, which is easily detected by merely holding white paper edgeways to the glass, and just so much as the reflected paper varies in colour from the paper applied, in the same proportion are their complexions apparently tinged or darkened by it. Thus many persons are continually imagining they "look ill," and per-