

Portland Breakwater.

An immense breakwater has just been completed at Portland, on the southern coast of England. The whole work was done by convict labor. It is described as a mole of loose stones, three hundred feet in breadth at the base, one hundred feet in height, and a mile and a half in length. It has cost, in round numbers, £900,000, twice the estimated expense. At the end of mole a first-class fortress will be built.

French Beet-Root Sugar.

According to an official return just published in France, concerning the manufacture of beet-root sugar from the commencement of the season 1860-'61 to the end of the month of April, it appears that the number of establishments in activity were 334, being four more than in the corresponding period of the preceding year. The number of manufactories not at work, but having sugar still in stock, had diminished from twenty-four to fifteen. The quantity made was 97,900,000 kilogrammes, being 27,000,000 less than in the corresponding period of 1860. The quantity delivered for consumption had increased from 6,000,000 to 18,500,000 kilogrammes.

To Remove Ink from Paper, &c.

The process of thoroughly extracting all traces of writing-ink, whether accidentally spilt or written in error, is to alternately wash the paper with a camel hair brush dipped in a solution of cyanuret of potassium and oxalic acid; then when the ink has disappeared, to wash the paper with pure water. By this process cheques have been altered when written on "patent cheque paper," upon which it was supposed by a recent inventor to be impossible to remove writing.—*Septimus Piesse.*

The Separation of Crystallizable from Non-Crystallizable Substances.

The eminent chemist, Graham, Master of the Mint, recently read a paper before the Royal Society in London, on a new mode of separating substances like sugar and salt, which will crystallize, from those such as gum, which will not. Mr. Graham calls the class that will crystallize *crystalloids*, and those that will not, *colloids*.

The *crystalloids* in solution are free from gumminess or viscosity, and are always sapid or have a positive taste.

The solution of *colloids* has always a certain degree of viscosity, and they are insipid or wholly tasteless. Starch, the vegetable gums, tannin, albumen and vegetable and animal extractive matters belong to the class of *colloids*.

Mr. Graham finds that these two classes of substances may be separated from each other by the mysterious operation of osmose. He constructs a vessel in the form of a sieve with a flat hoop of gutta percha and a bottom of animal membrane, like bladder, or of the paper called "vegetable parchment," and pours the solution containing the mixture of the crystalloid and colloid into the vessel to the depth of half an inch, and then floats the vessel on the surface of water. The crystalloid passes down through the membrane by osmose, and the colloid remains. Mr. Graham gives to this mode of separation the very appropriate name of *dialysis*.—*Scientific American.*

The Domes at the Great Exhibition Building.

On the 26th August, the first of the columns which are to support these giant domes was put up, and the contractors undertake to have all complete within six months. The highest portion of these domes will soar some 16 ft. above the Monument of the Fire of London, and persons standing upon the ground within the building will have to cast their eyes up to a height of 180 ft.

or 16 ft. higher than the great transept of the Crystal Palace at Sydenham, to reach the under side of these great globes. Wide as is the span of that great transept, it is 80 feet less than that which will be covered by the dome at Kensington. Each of these domes will be supported by eight cast iron columns, 2 feet in diameter, perfectly round, and without any rib, outer projection, or ornament. They will rise to the height of 108 feet, the upper part being of the same diameter as the lower. Each one of these columns will be formed of five separate lengths, joined together by bolts passing through flanges cast on the inside, so that, when completed, the parts where they are joined will not be perceptible, and will have the appearance of an enormous mast, without, however, its tapering end.

Mineral Wealth of Britain.

Eighty million tons of coal are consumed and exported annually in England. 8,000,000 tons of iron ore are raised, producing 3,826,000 tons of pig iron. Of copper ore 15,968 tons are raised in England, which yield 15,968 tons of metallic copper. The total annual value of British minerals and coals is estimated at £26,993,573 sterling, and of the metals or produce of the minerals £37,121,318 sterling.

Ocean Telegraphs.

The tabular statement of the Committee appointed to report on Ocean Telegraphs shows that at the present time 11,364 miles have been laid, but of these little over 3,000 miles are actually working.

TO INVENTORS AND PATENTEES IN CANADA.

Inventors and Patentees are requested to transmit to the Secretary of the Board short descriptive accounts of their respective inventions, with illustrative wood cuts, for insertion in this Journal. It is essential that the description should be concise and exact. Attention is invited to the continually increasing value which a descriptive public record of all Canadian inventions can scarcely fail to secure: but it must also be borne in mind, that the Editor will exercise his judgment in curtailing descriptions, if too long or not strictly appropriate; and such notices only will be inserted as are likely to be of value to the public.

TO CORRESPONDENTS.

Correspondents sending communications for insertion are particularly requested to write on one side only of half sheets or slips of paper. All communications relating to industry and Manufactures will receive careful attention and reply, and it is confidently hoped that this department will become one of the most valuable in the Journal.

TO MANUFACTURES & MECHANICS IN CANADA.

Statistics, hints, facts, and even theories are respectfully solicited. Manufacturers and Mechanics can afford useful coöperation by transmitting descriptive accounts of LOCAL INDUSTRY, and suggestions as to the introduction of new branches, or the improvement and extension of old, in the localities where they reside.

TO PUBLISHERS AND AUTHORS.

Short reviews and notices of books suitable to Mechanics' Institutes will always have a place in the Journal, and the attention of publishers and authors is called to the excellent advertising medium it presents for works suitable to Public Libraries. A copy of a work it is desired should be noticed can be sent to the Secretary of the Board.