THE MAREORAMA.

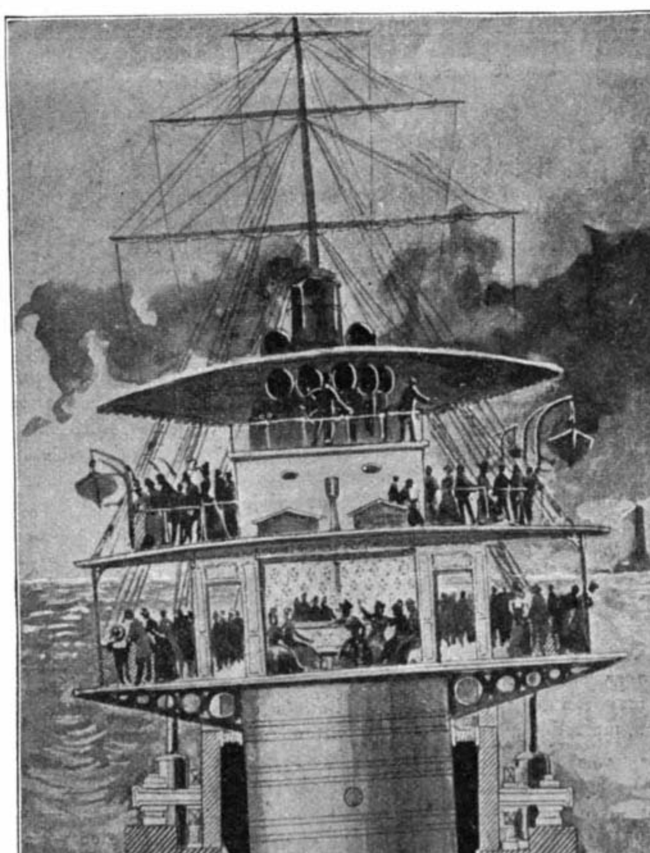
One of the attractions of the Paris Exposition of 1900 will be M. Hugo d'Alesi's "Mareorama," the principal feature of which will consist of a large ocean steamer, the passengers upon which will have an opportunity of making a voyage from Marseilles to Constantinople; that is to say, an imaginary voyage, since the vessel will not move forward at all, the illusion of sailing being produced by an arrangement that has already been employed upon the spectacular stage. The vessel will be mounted upon a spherical pivot, and the only motions that it will have will be those of pitching and rolling, which will be given it through the maneuvering of four pistons. It will be surrounded with genuine boiling and foaming water; and in the ventilators will be placed seawrack and algæ, traversed by a current of air that will become impregnated with marine odors.

The spectators, or the passengers rather, will walk about at their pleasure or sit at ease in rocking chairs upon the deck, which will reproduce that of a genuine steamer with the minutest accuracy, with all the details of masts, rigging, smoking and vibrating funnel, and a crew executing various maneuvers at the command of an experienced captain. At the same time, to the starboard and port of the vessel will unroll canvases fifty feet in height, painted with all the perfection that might be expected from the brush of M. d'Alesi, and representing the port of Marseilles flying to the rear, Frioul, Chateau d'If and fishermen's boats, and then the high seas and the Algerian and Tunisian coasts toward which the vessel will be apparently steering. Over half a mile of canvas will unfold all the sites and episodes of this picturesque voyage. Everyone is acquainted with the phenomenon; the displacement of an object which occupies the entire field of vision gives the stationary spectator the impression that he himself is moving. Thus, when we sit in a motionless train and another train rushes past us, it seems to us that it is our own train that is beginning to move.

"My Mareorama," says M. d'Alesi, "is based upon an analogous illusion. I shall keep up this simulation of a voyage by sea by every means possible. It is my intention to change my canvases after the Exposition is over, and we shall then, perhaps, make a trip to the North Pole."

The Palace of the Mareorama, constructed after the plans of M. Lacau, will be situated on the Champs de Mars, between the Eiffel Tower and the Monlineaux Station. It will be 131 feet in length, 112 feet in width, and 75 feet in height. An immense terrace, covering the entire structure and converted into a hanging garden, will crown the palace. This terrace will be reached through two wide stairways and two large elevators.

For the above particulars and the illustration we are indebted to the Revue International des Expositions de 1900.



THE MAREORAMA.

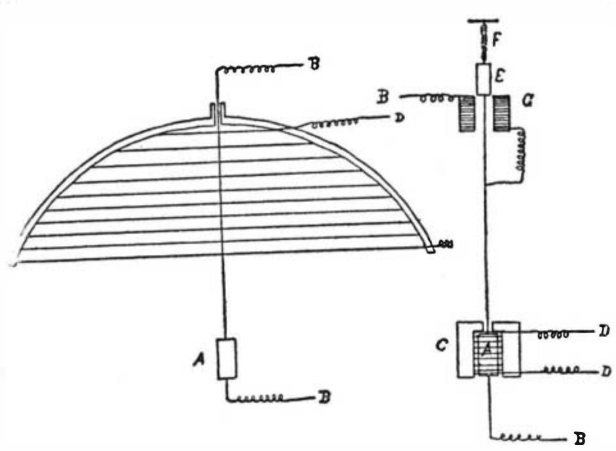
A Children's Museum.

Brooklyn is to have a children's museum similar to those which have been established in St. Petersburg, Vienna, Berlin, Paris, and other European cities. The new Brooklyn Museum will be the first of its kind in this country. The suggestion emanates from Prof. W. H. Goodyear, the Curator of Fine Arts of the Brooklyn Museum, and the trustees of the Institute decided to equip the Bedford Park Museum for children. It will contain specimens and pictures illustrative of art and science. It will be rich in educational material relating to all departments of knowledge, and designed for children's use. Prof. Goodyear has suggested that the basis of the collection, or rather the initial purchase, should be the Musée Scolaire, published in Paris, which consists of over one hundred colored cartoons, each cartoon displaying a combination of specimens wired to the pasteboard, colored designs and text. In this way the making of such substances as glass, paper, cloth, bronze, etc., is illustrated, each cartoon of the series having the materials, processes, and stages of manufacture shown by natural specimens and colored pictures. This was practically what was done a few years ago in the technical museum of the Pratt Institute. Unfortunately, the collection in that museum, which was excellent, had been dispersed, most of the specimens being sent to other departments in the Institute, where, of course, the main idea of the technical museum is entirely lost sight of, so it will be gratifying if Brooklyn will, at last, have a technical museum.

Specimens illustrating zoology, botany, geology, etc., will be added to the new children's museum, and the result will be a complete museum of material for object teaching, the value of which lies in its systematic balance and comprehensive character. If there is a strict regulation prohibiting the acquisition or exhibition of isolated specimens and of incomplete and mixed collections, the result cannot fail to be most gratifying. The collection will be carefully labeled, so that catalogues will be unnecessary, and a competent person will be in charge to explain and help the young visitors. The building is to be repaired and put in order at once for the reception of exhibits, and it will probably be several months before it will be ready for exhibition. The new museum will also serve as a model for schoolroom decoration.

THE NERNST LIGHT.

The Nernst electric light is creating great interest abroad, and the paper of James Swinburne before the Society of Arts, of London, ends with the following sentences: "I feel that I have but feebly shown forth the probable future of what seems to me to be the greatest invention in electric lighting that we have seen for many years. Still, I am sure that I have not been too sanguine." We have already referred to this lamp, and in the current SUPPLEMENT we publish Mr. Swinburne's original paper, as presented before the Society.



PROF. NERNST'S APPARATUS.

Prof. Nernst has achieved a wonderful result by the very simple means of rendering an insulator a conductor by heating it. The knowledge that an insulator could be made to conduct electricity by heating it was known some twenty-three years ago, but apparently no one thought of the simple expedient of heating a very good insulator, then applying a current of suitable potential, and thus obtaining a brilliant light. The result is clearly of great commercial importance, aside from its being interesting from the purely scientific side.

The Nernst light appears to have very practical advantages. It can be made to run singly on a pressure of from 500 to 1,000 volts, and any lamp which can be worked with voltages higher than those possible with the present glow lamp must bring about great economy in electric supply. It does not require a thin glass bell and a vacuum, and thus we get rid of a very serious difficulty, because these bulbs are very fragile and are easily destroyed. In the ordinary incandescent lamp many of them are defective, owing, not to a fault in the filament, but to an imperfect vacuum. Of course, a lamp of the Nernst type would not need regulating machinery and no trimming would be necessary, and on this account it would appear that an ideal form of street lighting has, at last, been found. The possibilities of the carbon filament are about exhausted. There has been little improvement for a long time, and it is a remarkable thing that just when the carbon filament was failing to meet the requirements this new invention should be made, which seems to meet the case. It is very like the discovery of gutta percha at the critical period, which brought electrical cable makers out of their difficulties. As yet the Nernst lamp is in an experimental stage, and it is possible that in time some of the features which militate against its success will be modified. At present the conducting and light-emitting rod when cold is an insulator and must be heated with a match or by some electrical means. While the Nernst lamp is far from being a commercial success as yet, still it is also far from being only the impractical scheme of an inventor. The lamp is based upon sound scientific principles which appeal at once to practical electricians, who have been extraordinarily quick in this instance to see the wonderful potentialities of the lamp.

The operation of Prof. Nernst's apparatus is as follows: The preliminary heating of the magnesia, *A*, the professor accomplishes by placing it in the focus of a reflector, *C*, see left figure. On the inner side of the reflector is a spiral wire of platinum, *D*, which when brought to incandescence by a current produces heat sufficient to render the magnesia a conductor; a current is then passed directly through the oxide by the wire, *B*, and that in the spiral is shut off. A complicated form of lamp is seen in right figure. Here the magnesia, *A*, is placed within a cylinder, *C*, which also incloses a platinum spiral, *D*. As soon as the incandescent spiral has heated the magnesia sufficiently, a current is passed through the oxide by the wire, *B*. Within this circuit is a coil, *G*, which, upon becoming magnetic, draws down the iron bar, *E*, thus lowering the now incandescent magnesia from within the cylinder. Upon breaking the circuit the coil loses its magnetism, and a spring, *F*, raises the iron bar and the magnesia to their former position.

San Pedro Breakwater.

Work on the great San Pedro breakwater, which is to inclose a harbor of refuge on the lower coast of California, has begun. An appropriation of $2,900,000, of which $400,000 is available for each year, has been made by the government, and now this colossal undertaking will be pushed to completion. The plan adopted by the government contemplates a detached breakwater 8,500 feet in length, with two arms of 3,000 and 3,700 feet, connected with a curve of 1,910 feet radius, 1,800 feet long. The shore end begins 2,100 feet from land, in 3½ fathoms, gradually deepening to 8½ fathoms at the west extremity. The breakwater will consist of a random stone substructure surmounted by a structure of more regularly shaped rock roughly placed, carried to a height of 14 feet above mean low water. The superstructure is to be protected at both ends by a block of concrete 40 feet square, carried 20 feet above mean low water. The substructure rests on a base 90 feet wide, and finished 38 feet wide at mean low water, and will have a slope of 1 to 2 horizontal to 1 vertical, the whole height inside. For the 12 feet above the plane of rest on the ocean side the slope is 3 horizontal to 1 vertical. The breakwater will be 20 feet wide at the top. The estimated quantity of material that will be consumed in this structure is 1,781,998 cubic yards of rock of all kinds and 64,000 cubic feet of concrete.

The rock will be obtained on San Clemente Island, 52 miles distant, where the contractors have already driven four tunnels from 50 to 30 feet in length, and built a protective breakwater allowing the barges to be loaded right at the face of the rock. A very large amount of machinery for derricks and other appliances has already been placed upon the island, and men are now at work getting out rock. Air compressors and drills have been ordered, and will soon be on the ground. About 3,000,000 feet of lumber will be required for building barges. Seventy-five men are employed now, but later this force will be much increased. Progress will be rapid as soon as the shipments of stone begin, as the sea at this part of the coast is rarely visited by severe storms. Work can be prosecuted throughout the year.

The new breakwater will afford the only safe and capacious harbor, with the exception of San Diego, between San Francisco and Mazatlan. E. BROWN.

San Francisco.

MR. G. A. SPOTTISWOODE died in London on February 8, 1899. He was the head of the great publishing house of Spottiswoode & Company, and was well known in religious and philanthropic circles.