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ELECTRICITY AT THE GREAT EXPOSITION.

The extent to which electricity has been put into use for all purposes will be fully demonstrated at the World's Columbian Exposition. It should not by any means discourage inventors from further investigation in this direction. Instead, it should stimulate such investigation. The commercial and business world does not fully trust electric inventions, but is rapidly getting to do so, because of the rapid improvement of late in the quality and efficiency of such apparatus.

Especially will it illustrate the latest practice in the utilization of electricity for lighting and power purposes.

In studying the many exhibits it is not probable that the average inventor, however keen his perceptions may be, can make radical improvements in the present method of producing electric light or power, and from a financial standpoint it is just as well that this is so, for the most money is almost invariably made by minor devices that are economic short cuts, so to speak, to accomplish a desired end. The department of electricity has probably been given more rein than any other department in the Exposition, on the basis that anything electrical should go in the Electricity building. Because of this apparent favoritism, classifications of exhibits in other buildings have not been observed, and while this breaking up of classifications has a demoralizing effect on the arrangement of exhibits, it has a redeeming feature in the fact that it concentrates all the applications of electricity in one place. An inventor who has in mind a certain principle which he wishes to demonstrate, and which he is endeavoring to study out, will thus have every advantage offered him in this building for observing the applications of electric energy, as demonstrated and as possible of demonstration, and he can readily tell whether this energy will be of service to him in perfecting his invention.

THE NAME OF ROBERT FULTON FOR A WAR STEAMER.

We elsewhere illustrate and describe a famous war ship, the Fulton the First, built in 1814. With her sides impenetrable by the artillery of those days, with her machinery and boilers in great part below the water line, and her paddle wheel in her center, she was in those days an almost invincible craft. It is on record that she excited the apprehensions of the British government, the most extraordinary qualities of destructiveness being attributed to her. As it happened, she never had a chance to figure in war, the treaty of Ghent and its results being communicated about the time of her completion.

She appears as the first steam man-of-war ever built. She is really the cornerstone of the navy of to-day, and in her Fulton may be said to hold an undisputed priority. It seems fitting that this country should in some way acknowledge his work. In the English navy, the names of ships are hereditary. After one ship has passed out of service, a second one, naturally of improved construction, will be built, and to her will be awarded the name of her predecessor. In this way, one after the other, a long and honorable lineage under the identical name may be established. After the destruction of the Fulton the First our navy made a second essay in the construction of a war steamer, and in 1837 and 1838 a ship was built, propelled by steam and fitted with sails, which was termed the Fulton the Second. She was provided with protective wooden bulwarks, beveled as far as possible to cause the enemy's shot to glance off. Although she made a trip to the West Indies and back, she was not designed nor suited for use in ocean work. The well known Charles H. Haswell was her chief engineer. Subsequently in 1851 this ship was rebuilt and was termed the Fulton the Third.

In our present steam navy Robert Fulton should receive due commemoration as its founder. His name should be given to our most advanced ship, and it should be understood that hereafter, as such ship would pass out of service or would fall from the first rank, the name should pass to the best ship in the navy.

THE NEW U. S. ARMY MAGAZINE RIFLE.

In December last we described the gun decided upon by a board of army officers, after unusually prolonged and severe tests, as the future service piece of the United States army. The gun selected is known as the Krag-Jorgensen, of Danish origin, but considerably changed to meet the trying tests that were made, and, by order of the department, work was commenced in November last, at the gun shop of the Springfield armory, to alter the old machinery and get ready new machinery necessary for the production of the new gun in large quantities. There was, however, such general disappointment at the selection of a gun of foreign pattern that Congress decided to grant another opportunity for competitive trials. The board of officers on magazine arms, by whom the examinations are made, consists of: Col. E. S. Otis, Lieut.-Col. R. H. Hall, and Major H. B. Freeman, of the infantry; Lieut.-Col. J. P. Farley and Capt. S. E. Blunt, recorder, of the ordnance

department; and Capt. G. S. Anderson, of the cavalry. The board is the same as in the former trials, except that Col. Otis, its president, has been added to it. The new series of tests has been going on since March 30, at the Springfield armory.

Among the guns entered for trial were the Spencer-Lee of 0.45 caliber, peculiar in that respect, and originally offered for test many years ago; the well-known Lee gun, adopted in foreign countries, but now offering a new 1893 model, 0.30 caliber, with a direct forward and backward bolt action; the Savage gun, 0.30 caliber, improved from last year; the Blake, 0.30 caliber, also improved from last year; four Durst rifles, two of the 0.30 and the others of 0.303 caliber, modified from last year; the Gillette, 0.30 caliber, presented by Lieut. Cassius E. Gillette, of the engineers, and containing parts of the Springfield rifle; the White, invented by Lieut. H. K. White, of the Marine Corps, which was slightly injured in a trial on April 1 and withdrawn for repairs; the Brooks, of Portland, Me.; two Russell-Livermore guns of 0.303 caliber, presented by Major W. R. Livermore, of the engineers, and a new 0.30 caliber Livermore gun, with his latest improvements; the Acton, from Aurora, Ill., and the Hampden, of Springfield.

In the trial of the improved Lee gun, on April 6, about 800 rounds were fired, the gun being improved over the gun of this inventor, which was tested by the board last year, and was then very successful upon all points except the dust test. The gun has a 10-shot clip, which can be used as rapidly as its old 5-clip, and the weight of the gun with the magazine loaded is less than nine pounds.

The Lee magazine gun has been for several years in use in the United States naval service, and was highly recommended by the United States Army Board in 1882. Its inventor is a Scotchman, for several years resident here, and there are many modifications of the Lee gun, including the Spencer-Lee, the Remington-Lee and the Lee-Speed, the recently adopted arm of the English army.

The Hampden gun, which made a splendid record before the board last year, has been materially improved, and much is expected of it in the present series of trials. This gun was shown in the SCIENTIFIC AMERICAN of December 29. It is the invention of Mr. T. B. Wilson, formerly a mechanic in the government shops at Springfield, and a member of the team of American marksmen who went abroad four years ago.

The short time which inventors have had to perfect their pieces and get ready an arm adapted to meet the severe tests prescribed by the board will operate to the disadvantage of competitors. Such arms as the government has called for cannot be studied out and constructed in a day. The reports must be in by July 1. Whatever may be the decision of the board, the activity of inventors in this special department has been stimulated by the competition, and any distinctively American arm which can be perfected within a short period and shown to have advantages over the arm selected will have a good chance for final adoption.

A Remarkable Meteor.

E. S. Martin, writing to *Astronomy*, says: December 9, 1892, about 9 o'clock P. M., a remarkable and magnificent meteor shot out from the constellation Andromeda and moved slowly and majestically toward the northeastern point of the horizon. When first seen here, it was about the size and color of an orange, but rapidly increased in brilliancy and size until, before it disappeared below the horizon, it was of the apparent size of the full moon and was surrounded by a mass of glowing vapor, which further increased its size to that of the head of a flour barrel. It soon became intensely brilliant, flashing at times a greenish blue light, throwing off sparks "fast and furiously," and left behind it a dense stream of vapor, 30° to 40° in length.

A gentleman who was at Jacksonville, N. C. (about 50 miles N. E. from Wilmington), and saw it gave me the same description of the meteor in every particular. To-day, I learned that the same meteor was observed at Washington, N. C. (about 125 miles N. by E. from this city). The writer says: "We saw the meteor which passed over, going in a northeastwardly direction. It did not seem to be very high and was going at a rapid rate. It was about the size of a man's head with a tail of some length, and small pieces were flying off and it was a beautiful sight."

It must have passed to sea about the neighborhood of Norfolk, Va., and probably fell into the ocean.

We are indebted to Major David P. Heap, Corps of Engineers, U. S. A., for a copy of the "Annual Report of the Lighthouse Board" for the year 1892. There are almost one thousand lighthouses and beacon lights and thirty-two lightships. Over three thousand persons are employed to operate and maintain the various works and appliances used as aids to navigation. The total expenditures are about \$2,500,000 per annum. Electrical lights are now being introduced in some places.