Water Pipe at West Philadelphia.

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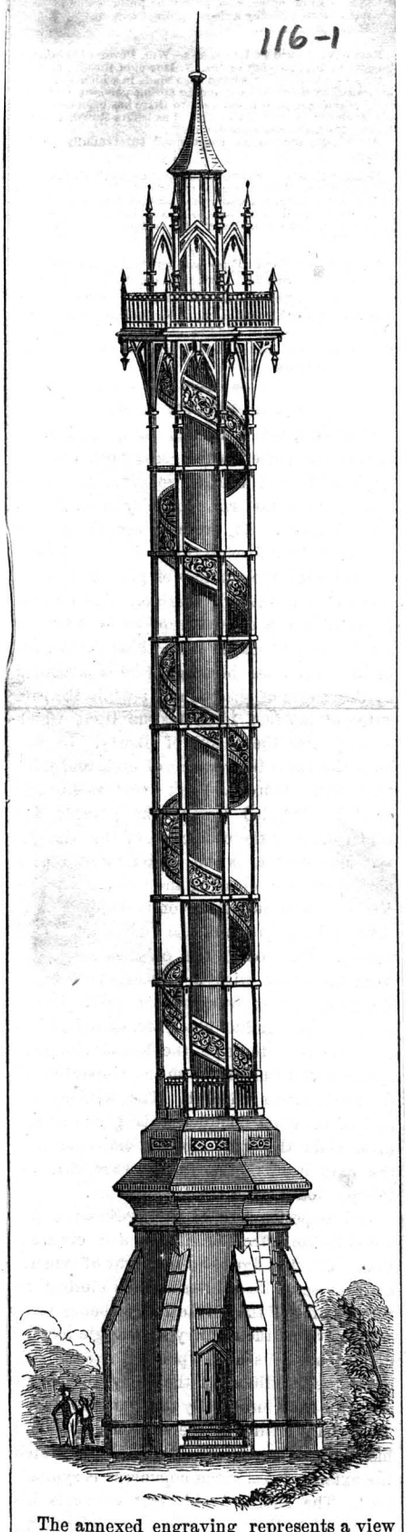

The annexed engraving represents a view of the famous water-pipe at West Philadelphia, designed by Mr. H. Howson, of Camden, N. J., (late of Philadelphia,) and alluded to in a recent number of the SCIENTIFIC AMERICAN.

The central portion of the tower, which consists of the pipe for receiving the water is composed of plate iron, varying in thickness from three-eighths of an inch at the bottom to one-fourth of an inch at the top, and is five feet in diameter and one hundred and thirty feet long. This pipe is riveted to a flange, on a cast iron plate two and a half inches thick, and the latter is securely bolted to the main foundation plate, which is permanently attached to a substantial stone foundation by means of anchor bolts. An opening is left in the stone foundation for the passage of a twelve inch branch pipe, which communicates with the distributing main, and with the interior of the central pipe of the tower. To a hight of thirty-six feet above the ground is built the masonry (cut stone) which forms the pedestal of the column.—

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This is octangular; fifteen feet across, with a circular opening nine feet six inches in diameter, thus leaving an annular space of two feet three inches between the outside of the pipe and inside of the masonry for the spiral stairway. Radiating from the center of the pipe and passing across the annular opening at suitable intervals, are a number of rods connected to both the pipe and the stonework, thus serving the double purpose of connecting the masonry and pipe together, and acting as supports for the steps. At each of the eight corners of the pedestal are built buttresses, twenty-four inches thick, and twenty-two feet across from one buttress to the opposite. The upper part of the stone work is surmounted with a cornice twenty feet across, above which, on each of the eight sides, are cast iron pannels ornamented with gothic tracery. Access to the interior is obtained through a gothic door-way three feet wide and eight feet high. To the top of the masonry are secured cast iron plates, on the corners of which, and in a line with the corners of the stone work, are the eight pedestals for the reception of the series of cluster columns which form the exterior of the shaft. Between these pedestals are ornamental gothic railings. At intervals of ten feet in hight are cast iron rings, which serve as connections for the cluster columns. Spiral string pieces are bolted to the outside of the pipe, and similar pieces to the inside of the columns, both have a number of small flanges to which the steps are bolted separately. To the exterior string piece are secured a series of castings, so carved as to represent a continuous gothic scroll. These are further confined to their places by a suitable hand rail, which is bolted to the cluster columns. By this arrangement the spiral string pieces and the hand rail act as diagonal braces to the columns. The stairway terminates at a landing seventeen feet across, which is composed of plates laid on radiating cast iron beams, one end of which are fastened to the pipe and the other to the corners of the entablature. The whole is supported by the cluster columns and ornamental brackets, securely bolted to both the beams and the columns. Surrounding the landing is an ornamental gothic railing of a similar pattern to that before alluded to. The columns are continued upwards through the platform, and are connected together at the top by gothic arched pieces, and to the pipe by flying buttresses, the tops of the columns themselves being furnished with suitable pinnacles. The top of the pipe is surmounted with a spire of plate iron,—which terminates in a flag staff. The hight from the ground to the platform is one hundred and fifteen feet, from the level of the river to the platform upwards of two hundred and twenty-five feet, and from the ground to the summit of the spire, one hundred and forty feet. The water for supplying the district of West Philadelphia is forced from a subsiding reservoir in connection with the river Schuylkill, by means of two large Cornish engines, also designed by Mr. Howson.—The surplus water not in immediate requisition ascends the interior of the stand pipe, and thus an efficient head is produced. Stand pipes, as adjuncts to water works, have been erected in various localities, among others may be mentioned that at the East London works. These however have generally been made quite plain, without any ornament whatever. A plain pipe erected in a prominent position in so flourishing a district as that of West Philadelphia, would have been somewhat of an eye-sore, and great credit is due to the designer for a structure in which both utility and ornament are combined.

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The people of Philadelphia have exhibited excellent judgment and correct taste, in adopting and carrying out this design, which does great credit to Mr. Howson.

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THE GREAT WORK OF THE AGE.

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Telegraphic Union of the Old and New Worlds.

The United States war steamer Niagara is appointed to leave the port of New York this morning for England, preparatory to performing her part in laying the great submarine telegraph cable which is to connect the opposite shores of Europe and America. In this important work she will be assisted by two English naval steamships and the United States steam frigate Susquehanna, which has been detached from her service on the Mediterranean for the purpose. It is calculated that the expedition on which these vessels are to be employed will be accomplished in two months from the present time, and that direct and instant communication will be established between the New and the Old World.

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This gigantic enterprise was first conceived in this country, and was commenced about four years ago, by a small company of American capitalists residing in our city. In face of all the objections that were urged against it, they persevered with a determination that was proof against all discouragement. It was supposed by some that the laying of a cable across the bed of the Atlantic was an utter impossibility, and that any attempt must end in discomfiture and disastrous pecuniary loss to those who should engage in the attempt. But the New York, Newfoundland and London Telegraph Company was composed of men who were not to be deterred by such fears; and being once convinced of the practicability of the undertaking, they entered upon it with a will and an earnestness that no obstacles could overcome. They contended that if it were possible to lay a submarine telegraph between England and and France, that, with proper means and facilities, the same could be done between America and Europe, and those means and facilities they asserted were at their disposal. The task which they have undertaken is, it must be confessed, a stupendous one; but so many things have conspired to favor those who have undertaken it, that there is little reason now to doubt of its ultimate success. The company consists of the following gentlemen, all of whom have been connected with it since its incorporation:—

PRESIDENT.	DIRECTORS.
Peter Cooper.	Peter Cooper,
TREASURER.	Moses Taylor,
Moses Taylor.	Cyrus W. Field,
ELECTRICIAN.	Marshall O. Roberts,
Samuel F. B. Morse.	

These gentlemen, about three years ago, obtained a charter from the colonial government of Newfoundland, granting them the exclusive privilege for fifty years of running a telegraph across that island and through any of the adjacent waters. They also obtained an appropriation of twenty-five thousand dollars for the construction of a bridle path over the southern portion of the country, which was considered indispensable for the regulation and repair of the telegraph. In addition to this they were secured the interest on two hundred and fifty thousand dollars for twenty years and a present of fifty square miles of land, which the company were allowed the liberty of selecting in any part of the island. These, with other substantial marks of the favor with which the Newfoundland government regarded the enterprise, were willingly bestowed upon the company, with the best wishes for their success. A charter having been previously granted by the governments of Prince Edward Island and New Brunswick, the telegraphic connection—or rather the route of the proposed telegraphic connection—between the United States and St. Johns, on the extreme western point of Newfoundland, was established. In the latter part of last year a complete communication was established between those points, by the successful laying of a submarine cable across the Gulf of St. Lawrence, from Cape Ray to Cape North, the land lines having been completed two or three years previously.

Thus far the company had been successful; but till the connection should be completed between Europe and America, the work for which they had organized could not be said to have been accomplished. Through the agency of Mr. Cyrus W. Field, the whole amount of capital, (£350,000, which is equal to $1,750,000,) has been subscribed—the shares amounting to $5,000 each. The proportions in which these shares have been taken are one hundred and one in London, eighty-eight in America, eighty-six in Liverpool, thirty-seven in Glasgow, twenty-eight in Manchester, and the remainder in other parts of England. The British government have also signified their willingness to pay four per cent on the capital for the privilege of transmitting messages "outward and homeward" through the line, with the understanding, however, that if they should "in any year, at the usual tariff rate amount to a larger sum, such additional payment shall be made as is equivalent thereto." The government of the United Sates will enter into a similar contract with the company, and each government has detached two steamers to co-operate in the laying of the cable across the Atlantic and between the points already stated. An agreement has been made with the Atlantic Telegraph Company, under whose direction it is at present being manufactured, by which they have bound themselves to lay it down and deliver it into the possession of the New York, Newfoundland and London Telegraph Company in perfect working order.

THE PROGRESS OF SUBMARINE TELEGRAPHING.

To our countryman, Prof. S. F. B. Morse, belongs the credit of having been the first, not only to prove the practicability of transmitting messages between distant point on land by means of electricity, but of using the same