

telegraphs was placed; the wire then descended, and a plate of zinc attached to its extremity was plunged into the mud of the river; a similar plate was attached to the extremity at the north side, and was immersed in the water. The circuit was thus completed by the entire breadth of the Thames, and the telegraphs acted as well as if the circuit was entirely metallic.

The peculiar construction of the present signal telegraph, enabled a magneto-electric machine to be substituted for a voltaic battery. This source of electric action not being subject to cessation or diminution, the attention necessary for keeping a voltaic battery in order, was dispensed with, and the instruments were always ready for action, without any previous preparation.

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June 13, 1843.

The PRESIDENT in the Chair.

The following were balloted for and elected :—Robert Benson Dockray and Robert Bald, as Members; Edward Zohrab, Andrew Liddell, William Llewellyn, junior, Bergarius Sörenson, William Alcard, William Henry Hatcher, Andrew Henry Roosmalecocq, Henry Lewis Renny, Arthur John Dodson, and James Hann, as Associates.

No. 627. “Description of a Plan, adopted for carrying off an accumulation of Water from the Warehouses, Cellars, &c., near the Wet Dock at the Port of Ipswich.” By George Hurwood, Assoc. Inst. C. E.

The paper states that in consequence of the formation of the wet Drainage dock at Ipswich, the water from the land-springs, which was formerly at Ipswich. carried away by the river, accumulated to such an extent, as to cause serious inconvenience to the owners of the warehouses, cellars, &c., many of them being beneath the level of the ordinary tides. It was difficult to find a remedy for this, as nearly the whole of the line, affected by the water, was at so low a level, that a discharge could only be effected at the lowest ebb of the tide, and a general sewer could not have been constructed at a moderate expense, because from the lowness of the level, water would have accumulated constantly in it, and any casual increase from rain or other causes, would have been sufficient to inundate the adjoining buildings.

The plan designed by the author, and which has been executed, had for its object, the construction of a sewer which should drain these buildings alone, and at the ebb tide should carry off the accumulated

water, being at the same time of sufficient size to contain the water, which was prevented from being discharged by the flowing tide. It was required therefore to be water-tight, and branch drains were necessary from all the points where water penetrated.

To insure the success of the plan, every precaution was taken for preventing the influence of the tide in the general sewer, retarding the discharge or operating upon the lateral sewers.

At the end of the main sewer was placed a cast-iron frame, upon which were hung three tide-flaps with brass facings, accurately fitted, and balanced by levers and counterweights. By this means the water was discharged at any height, and without any considerable head of water being required to open the flaps. Each cellar was connected with the main drain by an iron pipe, with a well-balanced valve at its end, so that the water could have an easy exit; but as soon as any accumulation within the sewer occurred, the valves closed.

The sewers were built of brick, in mortar made from blue lias lime. The dimensions varied from 12 inches to 24 inches in diameter, and the cost of the latter size was 12s. 8d. per yard, including excavating, laying, filling, &c.

The plan is stated to have proved very successful, and as particular regulations are enforced, to prevent any admission to the sewers, of other than the water which filter through the natural strata of the chalk-basin, the water in the sewers is fit for domestic or manufacturing purposes.

The communication is illustrated by a drawing, showing the situation of the town and dock of Ipswich, with the extent of the lines of sewers, and the details of their construction, and that of the tide and other flaps.

No. 640. "Description of a Mode of obtaining the perfect Ventilation of Lamp-Burners." By James Faraday.

Ventilation of Lamp-Burners.

The paper commences by stating, that in consequence of the injury sustained by the books in the library of the Athenæum Club, and the complaints made by the members of the vitiated state of the air in the rooms, the attention of Professor Faraday was drawn to the subject, and that he suggested the trial of various plans for effecting the removal of the products of combustion, and for the ventilation of the lamp-burners.

The author then assumes, that all substances used for the purpose of illumination, may be represented by oil and coal-gas; for although tallow and wax are also employed, yet as they cannot be burnt until