

SECTION VI.—WATERWORKS, SEWERAGE AND
GASWORKS.

25 MAY, 1897.—No. 1.

“The Law and Allocation of Underground Water.”¹By JAMES MANSERGH, Vice-President Inst. C.E. (Chairman of the
Section).

In illustration of the difficulties which surround the subject of the right of ownership of underground water, the Chairman gave an account of a recent contest before a Commons Committee between the Corporations of Nottingham and Newark. It was stated that, upon the application of the Nottingham Corporation to the Local Government Board to extend their district of supply for their works by the addition of certain rural parishes, having an aggregate population of something over 3,000, they were met with a storm of opposition, and in the end the powers they sought were not granted. This was mainly because they were known to be making trial borings in the extended area, manifestly with the intention of sinking wells and erecting machinery in order to pump water away for the use of Nottingham. Among the opponents at this inquiry, the Newark Corporation were evidently the most seriously alarmed, because one of the proposed wells was within $2\frac{1}{2}$ miles of the well supplying their own waterworks. Subsequently both Corporations deposited bills in Parliament; that in the case of Newark was to secure a protective zone of 4 miles radius round their well, while that of the Nottingham Corporation was to authorize them to make a group of three wells extending as far in one direction as 10 miles to the north of the site objected to before the inspector of the Local Government Board. A digest was given of the present state of the law on the subject of underground water-rights, and it was shown that, while in the case of surface streams, the law was clear, righteous and intelligible, the law relating to underground water required some amendment. The facts upon which the geological aspect of this particular case were based were set forth,

¹ *Engineering*, vol. lxiii. p. 835; *The Contract Journal*, vol. xxxvi. pp. 985 and 1026; *The Journal of Gas Lighting*, vol. lxix. p. 1240.

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and the question of the amount of the percolation of the rainfall into the pebble-bed area was discussed. Another controversial question concerned the distance apart at which wells in the red sandstone might affect the water-levels in each other by pumping. The result of the protracted fight, which occupied nineteen days, was that the Nottingham Corporation were defeated in respect of two of their proposed wells, and the Newark Corporation acquired possession, not of the zone of protection, bounded by an 8-mile circle, which they sought, but of a somewhat more restricted area, together with larger powers than would seem to have been granted in any previous case.¹

26 MAY, 1897.—No. 1.

“Carburetted Water-Gas.”²

By CORBET WOODALL, M. Inst. C.E.

Allusion was made to the revolution brought about in the entire system of the supply of illuminating gas in the United States by the introduction of carburetted water-gas. It was not until 1890 that such gas was first made for distribution in this country by the Gas-Light and Coke Company at Beckton, and in 1897 the total quantity made in London and the provinces would probably reach 50,000,000 cubic feet daily, or 8 per cent. of the maximum output of the United Kingdom for lighting and other purposes. Water-gas was made by passing steam through a deep bed of incandescent coke or anthracite coal, and, while it was non-luminous when burned, its flame-temperature was even greater than that of ordinary coal-gas. Carburetted water-gas was prepared for lighting purposes by introducing into the water-gas in process of manufacture a hydro-carbon oil or distillate in quantity varying with the illuminating value desired. The plant employed for the manufacture was explained, and the process of first blowing air and then steam through a generator charged with coke to a working depth of from 5 feet to 6 feet was described by reference to a diagram. The gas generated was passed through two chambers, called respectively the carburetter and the superheater, and it was then purified

¹ After this note was read the Newark case came before a Lords Committee, who decided not to confirm the protection given by the Commons.—SEC. INST. C.E.

² *The Engineer*, vol. lxxxiii. p. 542; *Engineering*, vol. lxiii. pp. 742 and 761; *The Journal of Gas Lighting*, vol. lxi. p. 1241; *The Gas World*, vol. xxvi. p. 903.