

No. IX.

Observations on the Filth of the Thames, contained in a Letter addressed to the Editor of "The Times" Newspaper, by Professor Faraday.

SIR,

I TRAVERSED this day by steam-boat the space between London and Hungerford Bridges between half-past one and two o'clock; it was low water, and I think the tide must have been near the turn. The appearance and the smell of the water forced themselves at once on my attention. The whole of the river was an opaque pale brown fluid. In order to test the degree of opacity, I tore up some white cards into pieces, moistened them so as to make them sink easily below the surface, and then dropped some of these pieces into the water at every pier the boat came to; before they had sunk an inch below the surface they were indistinguishable, though the sun shone brightly at the time; and when the pieces fell edgeways the lower part was hidden from sight before the upper part was under water. This happened at St. Paul's Wharf, Blackfriars Bridge, Temple Wharf, Southwark Bridge, and Hungerford; and I have no doubt would have occurred further up and down the river. Near the bridges the feculence rolled up in clouds so dense that they were visible at the surface, even in water of this kind.

The smell was very bad, and common to the whole of the water; it was the same as that which now comes up from the gully-holes in the streets; the whole river was for the time a real sewer. Having just returned from out of the country air, I was, perhaps, more affected by it than others; but I do not think I could have gone on to Lambeth or Chelsea, and I was glad to enter the streets for an atmosphere which, except near the sink-holes, I found much sweeter than that on the river.

I have thought it a duty to record these facts, that they may be brought to the attention of those who exercise power or have responsibility in relation to the condition of our river; there is nothing figurative in the words I have employed, or any approach to exaggeration; they are the simple truth. If there be sufficient authority to remove a putrescent pond from the neighbourhood of a few simple dwellings, surely the river which flows for so many miles through London ought not to be allowed to become a fermenting sewer. The condition in which I saw the Thames may perhaps be considered as exceptional, but it ought to be an impossible state, instead of which I fear it is rapidly becoming the general condition. If we neglect this subject, we cannot expect to do so with impunity; nor ought we to be surprised if, ere many years are over, a hot season give us sad proof of the folly of our carelessness.

I am, Sir,

Your obedient servant,

M. FARADAY.

Royal Institution, July 7.

No. X.

Report on the Chemical Examinations of Rice-water Discharges.
By R. D. Thomson.

Specific gravity of rice-water fluid.

THE following densities were derived from four cases in St. Thomas's hospital on the 16th October 1854. The specimens were examined as soon after expulsion as possible.

| | Specific Gravity. |
|------|-------------------|
| 1 - | - 1008 |
| 2 - | - 1009 |
| 3 - | - 1008 |
| 4 - | - 1010 |
| Mean | - 1008 |

Although I have found the specific gravity of this fluid in occasional exceptional cases to attain a higher density than the above, which I have quoted as a mean, still the present number is corroborated by a large number of trials made during the preceding and late epidemic. This low density, which corresponds with that of the urine in its most dilute conditions, is sufficient to distinguish the rice-water evacuations from the category of blood serums, which attains a very high specific gravity in cholera; for while the serum of a healthy individual at the same period I have found 1028, that of cholera patients amounted to 1058 in one case, and in another to 1042.

Diffused matter in rice-water excretion.

The amount of matter mechanically diffused through the rice-water evacuations varies very considerably in quantity in different cases, and great difficulty is experienced in estimating with any degree of accuracy the amount, from the obstruction opposed by a filter to the passage of the fluid through its pores. The most abundant matters present are the flocculent bodies which impart the characteristic aspect to the fluid, which have been in their turn viewed as coagulated albumen, epithelial scales, and corpuscles. The amount of silica present in the fluids when these contain much organic matter, is in favour of the idea of the epithelial scales entering into the constitution of the rice-water evacuations. From analogy I think it probable that when this fluid is first exuded into the intestinal canal, it contains fibrine in solution, as is found to be the case with similarly constituted fluids, deposited in the serous cavities, from which fibrine can be separated by the contact action of many solid bodies, such as washed fibrine of blood, and by intermixture with blood serum.