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THE QUALITY OF THE PERTH WATER SUPPLY.

(Reprinted from Perthshire Constitutional, July 31, 1876.)

AT the June meeting of the Water Commission—as reported in our columns of June 21st—an analysis by Dr STEVENSON MACADAM, of Edinburgh, of some water—presumably that of the filtering-tank at Moncreiffe Island—was submitted. After considerable discussion—also reported in our columns—it was resolved to send a request to Dr LINDSAY for a renewed expression of his opinion (presumably) regarding the quality of the Perth water-supply in relation to the health of the inhabitants, as that opinion might have been modified by Dr MACADAM'S analysis. The request was duly made, and a reply in course received. People naturally expected that at the July meeting—as a matter of business routine and official courtesy—it would have been stated that the request had been sent, and a reply received; and it would have been expected also that as much—and the same kind of—publicity should have been given to said request and reply as to the analysis to which both referred. Strangely, however, while the attention of the July meeting—as its proceedings were reported in our issue of July 19th—was in great measure devoted to the consideration of Mr BATEMAN'S Report, submitted subsequently to Dr LINDSAY'S, —for Mr BATEMAN'S is dated 12th July, Dr LINDSAY'S 24th June,—the only references to the earlier Report were the DEAN OF GUILD remarking, at the close of

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the proceedings, that "He had seen it in the papers that Dr LAUDER LINDSAY still adhered to the opinions expressed by him at the Natural Science Society's meeting;" while Mr LOVE said they could afford to take no notice of Dr LAUDER LINDSAY and those who harped upon the same string."

Now, to say the least, there is a striking want of taste in asking a busy professional man to give a professional opinion, and telling him—when this opinion proves to be the opposite of what is wanted—that the askers can afford to take no notice of him! On what ground, then, did the Commission apply to him? It is a strange coincidence that, while the Reports of Dr MACADAM and Mr BATEMAN were received with jubilation, that of Dr LINDSAY was not apparently officially received at all; and that, while the two former Reports give a high opinion of the suitability of the Perth river water for domestic purposes, the third gives most emphatic testimony of its *unsuitability*!

No doubt a paragraph went the round of the papers here and in Dundee, a few days prior to the July meeting of the Perth Water Commission, purporting to give the gist of Dr LINDSAY'S opinion; while his letter itself appeared in our own columns a day or two subsequently. But the paragraph and letter stood alone; whereas the singularity of style of the reply can only be understood by the greater singularity of style in the request or inquiry, and the two documents should, therefore, have been published *together*. Moreover, typographical errors, both in paragraph notices and in the letter itself,—as published,—interfere somewhat (we understand) with the clearness of the views expressed.

It is obviously desirable that the people of Perth should have the fullest and fairest means of judging for themselves of *both* sides of their

Water Question. It is hopeless to expect unanimity in feeling or uniformity in operation so long as opinion is so divided as to whether it is proper to use for drinking purposes the water of a river, polluted by sewage. On this subject, the latter half of Dr LINDSAY'S letter to the Water Commissioners—that which consists of quotations from the Government Blue-Book on Public Water-supply—is most important, as shewing in the most emphatic manner how opposed to truth and fact are the statements of those who regard river sewage as suitable for domestic water-supply. That blue-book contains the evidence of the highest sanitary authorities of this country: including, for instance, (1) the Right Hon. LYON PLAYFAIR, C.B. and M.P., who was formerly Professor of Chemistry in the University of Edinburgh; (2) JOHN SIMON, F.R.S., Chief of the Medical Department of the Privy Council; (3) the late Professor PARKES, of the Army and Navy Medical School, who, it may be remembered, confirmed, by his opinion, the propositions made by Dr LINDSAY at the meeting of the Society of Natural Science in February, and the doing of which, we understand, was one of the last acts of his life; (4) Professor GAIRDNER, of Glasgow, who was long Medical Officer of Health for that important city; (5) the late Dr DUNDAS THOMSON, F.R.S., of London, President of the Association of Metropolitan Officers of Health; (6) Dr TRENCH, Medical Officer of Health for Liverpool; (7) Professor BURDON SANDERSON, of London; (8) Dr SEATON, Dr BUCHANAN, Dr NETTEN RADCLIFFE, and Dr THORNE THORNE, Inspectors connected with the Medical Department of the Privy Council; (9) Sir BENJAMIN BRODIE, formerly Professor of Chemistry in the University of Oxford; (10) Professor OGSTON, of Aberdeen; (11) the late Professor LETHEBY, of London; (12) Dr FARR, F.R.S., Chief of the Medical

Department of the Registry of Births and Deaths for London; and (13) the late Dr BUDD, F.R.S., of Bristol.

Moreover, the future historian of the water-supply of Perth ought to be in possession of a complete series of documents showing the action and attitude from time to time of so important a public body as the Water Commission. And undoubtedly the non-publication of the Commission's appeal to Dr LINDSAY would form a "missing link" in the chain of historical evidence.

For all the reasons above given, we have pleasure in submitting to our readers, in their proper concatenation, the three documents that constitute the correspondence between the Water Commission and Dr LINDSAY as regards the *quality* of the Perth water-supply:—

I. *The Request of the Water Commission*

[which is addressed—facetiously, we presume—to Dr Lindsay, at "Murray's Royal Assylum].

Perth, 23d June, 1876.

DEAR SIR,—At the monthly meeting of the Perth Water Commissioners, held on Tuesday last, I was instructed to send you, which I do, enclosed copy analysis made the other day by Dr Stevenson Macadam as to the present state of the Perth water-supply;—and I beg also to refer you to the annexed excerpt from the Commissioners' meeting authorising me to send the report; and I remain, dear sir, yours truly,

(Signed) ALEX. WILSON.

Clerk to the Commissioners.

[Excerpt from Minute referred to.]

The Clerk read the report which had been received from Dr Stevenson Macadam, in regard to the analysis of the water, and which was considered by the meeting as highly satisfactory. Instruct the Clerk to transmit a copy of the report to Dr Lauder Lindsay, and, having regard to the terms thereof, to ascertain from the Doctor, for the information of the Commissioners, and with the view solely of arriving at a reliable and unmistakable state of the present Perth water-supply, whether he still adheres and continues to be of the same opinion as had been announced by him in his recently-published report on the subject.

II. *Reply of Dr Lindsay.*

Perth, June 24, 1876.

DEAR SIR,—I have to acknowledge receipt this morning

of your letter of yesterday, enclosing (1) excerpt from the minutes of the June monthly meeting of the Perth Water Commissioners, and (2) copy of analysis of waters by Dr Stevenson Macadam, of Edinburgh, and requesting to be informed whether I continue "of the same opinion as had been announced" . . . in a certain "recently-published report on the subject" of (I presume) the water-supply of Perth.

In reply, I will be glad if any opinion of mine can assist the Water Commissioners in "arriving at a reliable and unmistakable" conclusion as to the quality of the Perth river water in relation to the health of the community.

But I am placed somewhat at a loss to understand what it is the Commissioners desire or expect of me, in consequence of the want of precision or specificness in the communications now submitted to me, and above referred to.

For instance, no information is supplied as to what waters were analysed by Dr Macadam, nor under what circumstances they were collected. Neither do you specify to what "recently-published report" of mine you refer; nor the "opinion," formerly announced, regarding which you now request a re-deliverance.

If, however, I am correct in assuming that

- (1) The waters analysed by Dr Macadam were those of the Tay at the point where the Water Commission's filtering-tank is situated; that
- (2) The "recently-published report" is that given in the *Constitutional* of 7th February last, of a paper read before the "Perthshire Society of Natural Science," on "Public Water-Supply, with special reference to the requirements of Perth;" and that
- (3) The special "opinion" quoted is that relating to the suitability of the Tay water below Perth to the domestic needs of the community of Perth,—

my reply is emphatically that my opinion of the *unsuitability* of the water in question, for the domestic supply of Perth, is wholly *unaffected* either by the analyses now submitted, or by any of those which have preceded them.

I may explain—what I did not explain at the "Society of Natural Science"—that the relation of a water-supply to the health of a population is a *medical*, not a *chemical*, question; that though chemical analyses may sometimes assist the physician, quite as frequently they stand in his way; and that they may be not only worthless, but mischievously misleading,—utterly failing, as they too frequently do, to detect the sources of the greatest danger to public health and human life—the germs of zymotic disease.

In such a communication as this, I will not be expected to give in detail my grounds for these strong assertions. Nor is this at all necessary; for it is quite easy to submit a host of evidence—[of a kind that can be appreciated by those who cannot be expected to appreciate the triumphs

or failures of chemistry]—showing what are the risks to human life from the use, for domestic supply, of waters that have been *contaminated with sewage*.

As samples of the kind of common-sense evidence to which I refer, I subjoin one or two quotations from the report on “The Domestic Water-Supply of Great Britain,” published by H.M. “Rivers Pollution Commissioners,” in 1874:—

- (1) P. 17. “*Dangerous* water is . . . river or flowing water . . . which is known, from an actual inspection of the river or stream, to receive *sewage*, either discharged into it directly, or mingling with it as surface drainage.”
- (2) P. 54. “When any portion of the manure consists of human excrements, the organic matter dissolved in the water becomes not merely disgusting, but also dangerous.”
- (3) P. 129. “Even when not contaminated by the actual admission into it of the sewage of towns and villages, (river water) is not of suitable quality for domestic purposes. But when it is further polluted by excremental drainage, its use for drinking and cooking becomes fraught with great risk to health.”
“Dangerous,” though “palatable,” water is “river water to which sewage gains access.”
- (4) P. 221. “Nothing short of abandonment of the inexpressibly-nasty habit of mixing human excrements with our drinking water can confer upon us immunity from the propagation of epidemics, through the medium of potable water.”
- (5) P. 290. “If fatal results had never been known to follow the domestic use of such water, the refined feeling which separates the civilised man from the savage, and which excites loathing at the bare idea of organic matter which has formed part of a human body being supplied for human consumption, ought here to make itself felt, and to secure the rejection of such a beverage.”
- (6) P. 406. “It is difficult to conceive anything more disgusting and dangerous to health than a populous community . . . systematically, and by an elaborate and costly arrangement of reservoirs, pumps, filters, and distributory apparatus, *drinking its own filtered sewage*.”

I have only to add that you are at perfect liberty to make any public use of this communication, which to the Perth Water Commission may seem desirable.—I am, &c.,

(Signed) W. L. LINDSAY.

We are enabled further to bring this correspondence down to date by the following appendix—addressed to us, and to the general public

through us, and not specially to the Water Commission:—

29th July, 1876.

It may save the question being put to me, if I take the opportunity which you offer me of stating that Mr Bateman's Report affects my opinion of the *unsuitability*, for drinking purposes, of the Perth river water—as at present supplied to the city—just as little as did Dr Macadam's analysis. I repeat that the determination of the suitability or unsuitability of any given water for consumption by a given population—the probability or improbability of its giving rise to epidemic or other disease, or to predispositions to disease—is a question with which only the physician—who has specially studied sanitary subjects—is competent to deal.

No number of opinions of mere chemists or engineers can do away with the *fact*, that the Tay at Perth is virtually a *river sewer*, containing the excrements—fluid and solid—of 26,000 people, besides the drainage of overfull graveyards, and the refuse of dyeworks and other public works: in addition to the sewage and refuse of all the towns and villages on higher parts of the river, or on its tributaries above Perth. Nor can any amount of mere chemical or engineering evidence neutralise the generalisation—based on innumerable facts—by the Water-Supply Commissioners of 1874, confirmed as it is by the testimony of sanitary authorities throughout the world: that *the water of a river which receives sewage—and particularly human excrement—should not be used as a source of domestic water-supply if any less objectionable water is obtainable!*

So far as concerns Mr Bateman's Report, I believe him to be

(1) Wrong in even attempting to form any estimate of the suitability of the Perth river water for drinking purposes;

(2) Wrong in *underrating* the quantity per head of water that should be supplied to a community;

(3) Wrong in omitting any estimate of the cost of diverting the sewage of Perth from the river;

(4) Wrong in recommending a large expenditure on mere extension of existing arrangements;

(5) Wrong in substituting pumping by machinery and an elaborate reservoir system for a simple gravitation supply;

(6) Wrong in calling a mere extension of operations to Craigie and Kinnoull “a better water-supply to the city of Perth”; and only

(7) Right when he describes Perth as “now hide-bound, as it were, and confined to a limited area:” when he refers to the unsatisfactory pressure: the uselessness of the present water-supply in case of fire: the inefficiency and insufficiency of the engines: the inadequate supply: when, in short, he points out the too notorious defects and disadvantages of the present system of supply.

(Signed) W. L. LINDSAY.

