

The Committee, not feeling satisfied with the results of these analyses, submitted seven of the twelve samples sent to Excise to Dr. Andrew Ure, for his examination and analysis, and they state that after having been employed nearly twenty days, the evidence by Dr. Ure is also not satisfactory.

Mr. Graham and the Messrs. Phillips would appear not to have subjected the samples sent to them to a sufficiently close or rigorous examination. The foreign leaves introduced into the samples were simply picked out by the hand, and the only substance searched for chemically was sugar; and here even these gentlemen do not seem to have been aware, that genuine tobacco frequently contains a small quantity of sugar and other matters convertible by fermentation into alcohol.

Every one of the following substances introduced into the samples sent for analysis was overlooked:—Sulphate of alumina, or alum; carbonate, sulphate, nitrate, and muriate of potash; carbonate of magnesia; carbonate of lime; common salt; nitrate of ammonia; and terra japonica or catechu.

One cause of the above very imperfect results was, that these chemists did not make any complete analysis of genuine tobacco before instituting their examination, in order to ascertain the proportions of extractive and saccharine matter, and the various salts which genuine tobacco contains. Mr. George Phillips, who by his evidence showed that he was most conversant with the method that should be pursued in order to determine whether a sample of tobacco be adulterated or not, did certainly so far analyze genuine tobacco as to ascertain the relative proportions of extractive and woody fibre obtainable from different varieties of tobacco. In these experiments the extractive was procured in the following manner:—

One hundred grains of tobacco, previously dried, were placed in two pints and a half of distilled water, the temperature of this was raised to 176° Fahr., and maintained at that heat for fifty minutes; at the end of that time the infusion was strained, and the insoluble portion retained by the strainer or filtering paper, redried until it ceased to lose

weight; it was then weighed. The loss sustained showed the quantity of soluble matter or extractive. The results obtained by Mr. Phillips were as follow:—

Per-centage of Extractive and Ligneous Matter in different kinds of Tobacco.

	Extractive.	Ligneous Matter.
Virginia, Hand	54·	46·
" " Stripped	54·	46·
" " Stripped	51·	49·
" " Stripped	53·	47·
Kentucky, Hand	50·	50·
" " Stripped	44·2	55·8
" " Stripped	45·2	54·8
" " Stripped	46·7	53·3
Maryland, Leaf	43·1	56·9
" " Stripped	42·3	57·7
Turkey... "	53·2	46·8
Porto Rico	30·	70·
Columbian	38·5	61·5
" " Stripped	39·2	60·8
Virginia, Stalks... ..	51·5	48·5
Kentucky, "	35·9	64·1
" " Stripped	33·6	66·4

Mr. George Phillips states, that he has experimented with between five or six hundred samples of tobacco, and that he never found any to give a higher amount of extractive than fifty-five per cent; also that he found it made no difference whether he experimented with the leaf, or with the cut and manufactured tobacco.

The only other analyses of tobacco which have been made, and which are at all calculated to be of service in determining the question of the adulteration of tobacco, are the following, by Messrs. Brande and Cooper, made in 1845.*

* Brande's Manual of Chemistry, p. 1623, 1848.

TOBACCOS, dried at 212°.	Per cent. of Extract, &c., soluble in Water.	Per cent. of Woody Fibre, &c., insoluble in Water.	Per cent. of Ash after treating with Carbonate of Ammonia.	Per cent. of matter soluble in Water in the Ash.	Per cent. of matter soluble in Hydrochloric Acid in the Ash.	Per cent. of Insoluble matter, as Silica, &c., in the Ash.	Per cent. of Alcohol obtained from fermented Infusion.	Per cent. of Saccharine matter deduced from the obtained Alcohol.
1. Light Missouri, leaf and stalk	49·	54·9	20·97 white	2·17	11·73	5·9		
2. Light Missouri, leaf only.....	50·	47·7	19·7 white	1·77	12·83	5·1	0·75	1·50
3. Dark Missouri, leaf and stalk	50·	52·4	16·47 white	4·2	10·14	2·13		
4. Dark Missouri, leaf only.....	51·	50·6	13·8 white	2·17	8·73	2·9	0·35	0·71
5. Light Virginia, leaf and stalk	51·5	53·1	16·4 gray-white	2·53	8·54	5·33		
6. Light Virginia, leaf only.....	54·	46·1	11·97 green-gray	2·0	6·86	3·11	1·045	2·09
7. Dark Virginia, leaf and stalk	48·5	51·8	14·7 gray	4·8	8·40	1·5		
8. Dark Virginia, leaf only	52·	49·8	12·53 gray	2·63	8·20	1·7	1·46	2·93

- The samples were dried, and the extract and woody fibre were also dried at 212°. The watery infusions of all contained ammoniacal salts. The salts from the ash, which were soluble in water, consisted of sulphates, carbonates, phosphates, and chlorides, the bases being potassa and lime. The solution by hydrochloric acid contained lime, alumina, phosphate of lime, and oxide of iron.
- Contained oxide of manganese in small quantity. Sulphates in watery solution of ash abundant. Hydrochloric solution contained an abundance of lime.

- A trace of manganese; a trace only of phosphoric acid in watery solution.
- Contained abundance of oxide of manganese.
- Abundance of oxide of manganese.
- A mere trace of oxide of manganese, and a trace of oxide of iron; only a trace of alumina.
- A trace of oxide of manganese; quantity of oxide of iron very great; only a trace of alumina.

The next Report will contain Analyses of Tobacco, including several of the unmanufactured leaf.

Correspondence.

"Audi alteram partem."

DISEASE AT CROYDON AND THE REMEDY.

To the Editor of THE LANCET.

SIR,—In THE LANCET of the 23rd inst. is a notice or review of the Reports of Neil Arnott, Esq, M.D., and Thomas Page, Esq., C.E., on the Sanitary Works at Croydon, which fully

prove the calamitous results of a most injudicious system of sewerage adopted at that town.

I consider all subjects connected with sanitary improvements to form a most material portion of the medical policy of the country; and with that view I beg to state my belief that no good sanitary measure can possibly be carried out without the co-operation of the engineering with the medical department.

A very plausible plan may be suggested by an engineer, which when submitted to a committee of competent medical men may at once be condemned by them from its positively injurious

effect upon the living body, and this appears to have been quite the case as regards the new sanitary works at Croydon; for, there does not appear in that case to have been the least co-operation or communication between the engineer of those works and the medical department.

All the inquiries that have been made by the Local Board of Health, the General Board at Gwydyr House, and by Government, agree as to the cause and effect of the very severe epidemic fever at Croydon.

That it has been occasioned by the extremely injudicious mode of carrying out the sanitary works is beyond a doubt, whereby human life has been sacrificed to a fearful extent, and in many cases it has produced the development of disease which might otherwise have remained dormant, such as consumption, strumous affections, &c. It has also occasioned great loss to property, trade has suffered much, and it has been ruinous to schools.

With such an amount of evil it is necessary that the inhabitants of the town should make every legitimate exertion to obtain a remedy, especially as the Report above mentioned clearly points out the cause of the evil.

As regards the carrying out the works, the Local Boards are placed under the direction of the General Board. According to Mr. Page's report (page 51), a plan was submitted from the Croydon Local Board of Health to the General Board, which plan was placed in the hands of the General Board's engineer, who disapproved of it, and who was sent down by order of the General Board with instructions from that Board to the Local Board that no works should be carried out without their engineer's certificate, and no payment be made without his order; so that the whole management of these works was placed in the hands of the General Board, and through these means all the serious evils which have occurred here have been brought about.

The General Board is very desirous of getting rid of the responsibility, and of throwing it upon the shoulders of the Local Board; wherever it rests all parties must admit that a remedy ought to be immediately carried out to remove the danger which is still hanging over the town and the neighbourhood.

The question will naturally be asked—What is the remedy? Although large sums have been expended, would it not be most prudent to advise that a total alteration in the plan and system should be immediately adopted—viz., the main streets to have well-constructed brick sewers, and every large house draining directly into them; and where there is a cluster of small houses, they should be connected by pipe drains of sufficient calibre and thickness, and have the joints properly connected with the main sewers, and the absurd back-drainage system should be altogether exploded? The main sewers ought to terminate in a subterranean culvert, such as is proposed to be executed by the "Wandle Sewerage and Water Company," to which you allude in your review, and for which the inhabitants of Croydon petitioned Parliament long before the commission to Dr. Arnott and Mr. Page was issued, from a conviction that the plan would provide a proper sewage outfall for Croydon, and would abolish the pestiferous filter-house.

The plan proposed, as I understand, by their Bill, is, that a large subterranean brick culvert or sewer is to commence where the present sewage filter-house (which it is proposed to remove) now stands; and this culvert, which is to be about fifteen feet below the surface of the ground, to be well cemented, and to have a fall of fifteen feet per mile, is to be carried along the valley of the Wandle, at about the same depth, near the junction of that river with the Thames at Wandsworth; and it is gratifying to find that in this instance the engineer has been laudably attentive to those medical and sanitary considerations which have been so strangely disregarded by the so-called General Board of Health, for his scheme I find, on inquiry, embraces special engineering works for collecting the sewage at different points along the main sewer, and for deodorizing it by scientific processes, and disposing of it for agricultural purposes, exactly as is recommended in Mr. Page's Report; so that the residual fluid to be passed into the Thames would be rendered innocuous before it reached that river from the proposed new outfall at Wandsworth.

If we have such a plan throughout, no one can doubt its successful and beneficial effects on the town of Croydon, which town is most happily situated for such a system of drainage—in fact, it is almost without a parallel, being situated at the head of a valley which has a fall of one hundred and thirty feet to the Thames, a distance of little more than eight miles and a quarter. A simple system of main-street brick sewers (having sluice-drains running directly into them) terminating in the Company's proposed culvert before described, and taking the whole of our sullage many miles away, cannot be otherwise than most effective in restoring health and prosperity to Croydon; and, as I have shown in my brief description of the plan, whilst effecting this

important end it will not transfer the nuisance elsewhere, (a wrong against which the Report so strongly protests,) but will simply extinguish it. It is to be deeply lamented, that in consequence of either some defect in points of Parliamentary punctilio, or of some blind oversight on the part of the Legislature in mistaking a Sewerage Bill for a mere Water Bill, Croydon should have lost the opportunity of commencing an effectual restorative régime in the present year, and should be exposed to a repetition of the horrors of the last autumn and winter; but the inhabitants (I need not say rate-payers, since the Bill does not propose to tax us) are already bestirring themselves, with the view of bringing before the *Home Office* the consideration of this whole question of a remedy for those evils which, through the energy of Lord Palmerston, have now been thoroughly exposed, and this exposure is undoubtedly the first step towards amendment.

I am, Sir, yours obediently,

Croydon, July, 1853.

GEORGE BOTTOMLEY, F.R.C.S.

THE ADMIRALTY AND ASSISTANT-SURGEONS.

To the Editor of THE LANCET.

SIR,—It is right that it should be generally known that the Board recently appointed by the Admiralty for the examination of medical candidates for admission into the navy, notwithstanding the reduction of qualification, has hitherto had a sinecure of it.

Only two candidates offered themselves prior to the last examination day, and one of these withdrew at the eleventh hour by desire of his father. The "governor" had no doubt learned before it was too late that it was more advisable to give his son a chance somewhere else, than to subject him to the control of a sagacious legislating admiral and his enlightened coadjutors.

I am told that this admiral has more than once spoken disparagingly of the assistant-surgeons of the navy, and in the House of Commons designated them by the name of "sucking" doctors. Can this be true? If so, it showed little wit and less wisdom. But it will open the eyes of the profession and the public to the spirit which animates the Board of Admiralty, and show that the cockpit education acquired by admirals and captains, and the jealousy, and spite, and ignorance of the midshipmen's berth, are carried to the Admiralty, and are indulged in there—nay, even impertinently exhibited in another place, which ought to be kept free from ribaldry.

Now I hear it is reported that the Admiralty, "if not pushed," are to grant before the next session of parliament all that has been so long and so unjustly withheld from the medical department. I do not believe a word of it. There has been already too much mulish obstinacy shown by these heavy-headed, outgrown midshipmen at Whitehall. Our efforts must not be relaxed by any false lures. Must we not cry out for the removal of an act of injustice lest we should offend the perpetrators of it? The possibility of such a thing is a damning commentary on the conduct of the Admiralty. It implies that this Board, which is almost without control, is capable of persevering in a bad course for no other reason than perhaps some rudeness in the mode of demanding that to which we are entitled.

I am, my dear Sir, yours always,

Aug. 1853.

AN OLD MEDICAL OFFICER.

GRATUITOUS ADVICE.

To the Editor of THE LANCET.

SIR,—The subject of the gratuitous services rendered by the profession in this country, and the very inadequate payments made in those cases where salaries are attached to public medical appointments, demands the serious attention of the profession, and thanks are due to you for opening your columns to a discussion of this crying grievance. The evil is not confined to dispensaries and Poor-law appointments, but exists even in the situations held and eagerly sought for by the leaders in the profession. When men like Travers, Green, Roots, &c., consider it an honour and a privilege to hold appointments, and perform onerous duties, the importance and responsibility of which cannot be overrated, receiving as the only direct payment a salary that would be indignantly refused by a fashionable footman, it is easy to understand how the example reacts on younger and less noted members of the profession.

The hospital at which I served a five years' apprenticeship, (one of the oldest, richest, and largest in the metropolis,) had at that time, 1835-40, a staff consisting of three surgeons and three physicians. The salary attached to each of these appointments was £40 a year, paid quarterly. The really remunerative part of the appointment was indirect, and consisted of the sums ex-