

aged thirty-three, had suffered from stricture for thirteen years, and for the last four had been in the habit of passing bougies himself. Having used a flexible No. 3, instead of a number 4, while the bladder was very full, the bougie slipped from his grasp and disappeared, the ivory knob remaining in his haud; after five days he began to experience pain upon urinating, which increased until the advice of a surgeon was sought. Mr. Lund, aided by the history of the case, detected a soft foreign body in the bladder, and as soon afterwards as the business of the patient permitted, undertook an operation for its removal. Six ounces of water were first injected into the bladder through a small catheter, and the stricture was split by a Holt's dilator. A small sized Coxeter's lithotrite was then introduced, but the foreign body could not be felt—ultimately, the bladder having been partly emptied, the offending substance was found, caught between the blades of the lithotrite and easily withdrawn entire, there being very little deposit on it. The patient was treated as recommended by Mr. Holt for a ruptured urethra, and did well until the fourth day, when, as Mr. Lund thinks, owing to imprudent exertion, severe urethral fever was developed, which went on to the formation of pyæmic abscesses. After a serious illness, prolonged through five months, the patient recovered with the stricture cured. The case is interesting as an illustration of that connection between urethral fever and pyæmia which has attracted the notice of surgeons for some years back. We ourselves would have preferred passing a small staff into the bladder, and removing the foreign body by an external incision, to dragging it through an already lacerated urethra, and can feel no surprise that the latter proceeding was followed by such severe symptoms.

A *Table of Major Operations* performed during twelve months at six hospitals in Liverpool and Manchester, possesses no value and requires no comment.

In commenting upon the volume of last year we expressed the hope that such a field as Manchester, with improved tillage, would yield better fruit, but it would seem that the efforts of the Lancashire surgeons have been directed to increasing the size of their plot rather than to improving the opportunities they already had. To form an imposing annual volume out of short articles or reports of solitary cases, which would find their fitting place in a weekly journal, seems but a poor policy, and one that cannot long survive, no matter how well supported by thick paper and well-leaded type.

S. A.

ART. XVIII.—*Fourth Annual Report of the State Board of Health of Massachusetts.* January, 1873. 8vo. pp. xiii., 473. Boston, 1873.

THOSE readers who retain any recollection of our remarks upon the reports preceding this one, will hardly need to be told that the present volume is a work of great value and extreme interest. The composition of the Board is the same as at the issue of the third report, and with but one exception, the same as the year previous. Dr. Henry I. Bowditch as Chairman, and Dr. George Derby as Secretary, again exhibit their peculiar adaptedness to their positions. As in previous reports, investigations of particular subjects have been committed to men of known eminence in their several departments. Experience and fitness thus continue to govern the constitution and the appointments of the Board.

In their general report, the Board briefly state the principal matters that have engaged their attention during the past year, advert to the results of former

legislation and suggest additional enactments; and direct the notice of the legislature to the essays and reports on special subjects, which have been prepared under their direction.

The first and longest of these papers was prepared by Prof. WM. R. NICHOLS, of the Massachusetts Institute of Technology, and Dr. DERBY. It is in response to a legislative order instructing the Board to investigate the subject of *Sewerage, Sewage, Pollution of Streams, and the Water-supply of Towns*. It was requested that the consideration of the sewage question should embrace, first, utilization as a fertilizer; second, the sanitary results of pouring sewage into the waters of the State; third, the increasing joint use of the water-courses for sewers and as sources of supply for domestic use. Upon these points it was requested that the views of the Board should be fully presented, together with such results of foreign experiment or observation as might be pertinent. The essay elicited by this vote is the first systematic and exhaustive treatment of the subject that has appeared in these volumes, though frequent references to the questions involved have before occurred. As one of the great social problems of our time both in a sanitary and an economic point of view, the disposal of sewage demands the fullest consideration. Every year the increasing density of population adds to the gravity and magnitude of the question. As connected with the purity of our water-supply, the subject is already one of vital moment to our own city. That the meeting of the different requirements of the problem involves great difficulties, renders it all the more important that attention should at once be given to it.

Reference is made, in the paper before us, to the so-called "dry-earth system." While admitted to be practicable and excellent, in certain circumstances and on a limited scale, this plan is shown to be utterly inapplicable and inadequate to the necessities of large cities. No practically obtainable quantity of dry earth would suffice to deodorize and absorb the enormous liquid sewage of a city. Neither could the earth be dried or removed at reasonable cost. The actual excretions alone of each human body would require four or five pounds of earth daily. This in a city of 100,000 inhabitants would amount to 250 tons daily; and this to be distributed, and re-collected, among say 10,000 houses. Even if otherwise practicable, the care and intelligence necessary to the success of this method could not be expected among the lowest classes. We are glad that the Massachusetts Board have applied the touchstone of common sense to the extravagant pretensions of some advocates of this plan, and have shown the utter folly of offering it as a means of relief to large cities. In connection with the detached privies common near country houses and in small villages, the dry-earth system has real advantages. Too often, however, in places where otherwise it would be desirable, the amount of labour required to carry it on will be a fatal objection to its use.

While commending the use of trapped water-closets and waste-pipes emptying into close sewers, the report points out the need of some device to prevent that escape of sewer-gas into houses, which, under certain circumstances, will occur in spite of the best traps. To obviate this trouble it is recommended that the main perpendicular sewer-pipe of each house be carried up above the roof, there to be freely open at the top. If this be impracticable in old houses, a small lead pipe connecting the soil pipe with the upper air will generally answer the purpose. If such an arrangement were made in all houses, pressure would be equalized throughout the whole system of sewers. The sudden influx of water from the streets or the setting back of tide-water from the outlets, would no longer cause foul air to bubble up through every water-closet, since the gases would find free egress and immediate dilution among the rapid cur-

rents of the upper air. Of course, however, the usual traps would be retained at all lower openings into the sewer-pipes.

Different methods of disposing of ashes and kitchen refuse are mentioned, but no suggestions are offered upon this troublesome matter.

To the question, what is in our country the best practicable disposition to be made of the sewage of cities? the answer given is, its discharge into tide-waters or into running streams. To the apparent wastefulness of this course it is replied that the utilization of the material costs more than the value of the product obtained. In many cases, however, the necessity of preserving the water-courses from injurious and offensive contamination imperatively demands a partial purification of the fluids which are poured into them. Here, therefore, processes not warranted by the mere money return may be the means of recovering a portion of the cost rendered necessary upon other grounds. Recognizing fully the great importance and the many aspects of the whole subject, our writers state their belief, founded on thorough investigation and after observation of the varied experiments made of late in England, that sewage may be so treated chemically as that the subsequent addition of its liquid residue to rivers shall not destroy the fish or render the waters offensive or unfit for any purpose except drinking. The expense of such process, if not fully covered by the value of the resulting fertilizers, will yet be reduced to something moderate. As cities and towns increase in number and in population, especially along the borders of our rivers, the contamination of the water, hitherto comparatively slight and tolerable, will become unbearable unless some efficient system of treatment be adopted. Already, indeed, some streams have become a nuisance, near large cities; and in many communities serious anxiety is felt in view of the yearly augmented pollution of the water-supply. It is obvious that the Massachusetts Board have not begun to agitate this question one moment too soon.

Of many plans investigated and described in this paper, for separating the offensive material from sewage before allowing it to enter the rivers, the preference is given to the process technically known as intermittent filtration. By it, it is believed the rivers would remain inoffensive, while vast amounts of fertilizing matter would be secured for agriculture. To cities upon tide-water, it is only recommended that their sewers be extended out sufficiently far to meet a strong current.

To show the exact amount and kind of impurity caused in running streams by the admixture of sewage, minute and careful analyses have been made of water from different points in several Massachusetts rivers, whose shores are most thickly covered with factory towns. The amount of adventitious matter found, is less than would have been expected. Naturally, it varies much at different times—the same stream which is practically pure during spring freshets, is very foul during midsummer droughts. The Board believe that with only reasonable care and cleanliness on the part of the dwellers on their banks, many of these rivers may for many years retain sufficient purity for most purposes, without alteration or diversion of the sewage.

Much of the foul material borne into the streams is deposited on the bottom; some undergoes chemical change of various kinds. The popular notion, that no matter how much filth enters a running stream, it is all destroyed or transformed before floating many miles by oxidation, is, we are told, more consolatory than correct. Some such purification does occur during the seaward flow of contaminated rivers; but is by no means as rapid or as complete as has been believed.

For supplies of pure water for domestic purposes, the Board recommend

recourse to the lakes and ponds so thickly scattered over New England. They advert to the singular abundance and purity of these reservoirs, and forcibly urge the policy of preserving the woodlands that now generally surround them, and of planting new forests upon tracts not available for agriculture, to replace those destroyed in thoughtlessness or cupidity. They desire that the people be made to realize the importance of preserving with jealous care the purity of these fountains.

That the people may hear both sides of an important question, we find, from the pen of Hon. P. E. ALDRICH, a member of the Board, *Additional Analysis of Evidence concerning Intoxicating Liquors*, with a statement of arguments and evidence against encouraging or permitting the sale of light wines and beer. Mr. Aldrich holds opinions directly opposed to those so ably advocated in a former report by Dr. Bowditch. The doctor assumed that men would use stimulants; but that if freely supplied with light and pure wines and beers, they would cease to crave or to use strong liquors. The present writer maintains on the contrary, that people beginning with the lighter potations finally pass to the stronger; and that men once possessed with the craving for spirits are never satisfied again with the weaker beverage. His argument is largely founded upon testimony as to results which followed in Great Britain from the passage of an act favouring the opening of beer-houses. The testimony was elicited by a committee on intemperance, appointed by the lower house of convocation of the province of Canterbury. It was the decided conviction of the committee from the evidence brought before them, that among the fourteen million people comprised in their province, cheap beer had not only failed to supplant spirits, but had unquestionably aggravated the evils it was designed to alleviate. It should, however, be borne in mind that there are other causes in action which may be responsible for that increased intemperance which the committee attribute to cheap beer. The writer of the paper before us, unlike Dr. Bowditch, believes in the right and policy of suppressing by law all sale of stimulants by the glass. Besides the English evidence, he quotes numerous brief and general utterances of various American clergymen, lawyers, and physicians, which support his own views, though giving little or no ground or reason for their opinions.

The increase of intemperance in France should hardly be attributed to cheapness of light wines, to the ignoring of all the influences which for many years have been active in that unfortunate land. If it be true, as alleged, that the wine-growing districts of our own land exhibit increased intemperance and an increased demand for strong liquors, the facts must go far to support the view of the party represented by Mr. Aldrich.

The report by Dr. H. K. OLIVER upon *The Character of Substances used for Flavouring Articles of Food and Drink*, should be read by all housekeepers. It was found that an oil of bitter almonds, containing an alarming proportion of prussic acid, is in common use by confectioners, in a very concentrated form. The danger is augmented by the variable proportion of the acid in different samples. The highest authorities state that the desired flavour is not dependent at all upon the presence of the poison. Of 150 pounds imported into Boston yearly, one-third was used by three wholesale druggists, and nearly all the remainder by a manufacturer of patent medicines. An artificial imitation of the oil, nitro-benzol, used for soaps, and possibly to some extent by confectioners, is a still more deadly poison, though free from prussic acid.

Artificial fruit-essences are largely used for candies, and in soda-water syrups used in the country and at second class shops in the cities. Sickness has been traced to the use of confections thus flavoured.

Jellies, bearing the names of various fruits, are largely artificial. If in this country we escape articles utterly destitute of all fruit, it is because the cheapness of apples affords a convenient base. By far the larger part of the jellies sold in our shops are made of apples, flavoured and coloured to resemble other fruits. The use of essences, ethers, and an immense variety of drugs, in making artificial liquors or in flavouring and improving crude spirits, has long obtained in Massachusetts as elsewhere. The Board believe, however, that such adulteration is, in the large cities, nearly confined to the lowest class of retailers, but unfortunately is a little less rare in the country towns. Beer and ale are found to be free from harmful ingredients.

Extract of vanilla, even when purely made, has been known to undergo poisonous change when long kept.

An admirable practical paper on the *Drainage for Health*, of cellars and yards and the construction and care of wells, sinks, and sewers, should be read by every householder in the rural districts.

Dr. EDWARD JARVIS contributes a paper worthy of his reputation, upon *Infant Mortality*. The expositions given of the influence of food, of locality of residence, of social customs and fashions, and of poverty, ignorance, and prejudice upon infant vitality, are as concise as they are truthful and complete.

The next article is a curious and valuable essay by Dr. GEORGE DERBY upon the *Food of the People of Massachusetts*. It is assumed that experience and observation rather than theoretical considerations should guide us in estimating the value of food. The fact is also noticed, that while a strong man, living in a pure atmosphere, can maintain robust health on a sufficiency of almost any kind of food, yet that to the large numbers living in confined air, to the feebly organized, and to women and children, a choice between different articles of diet may be a matter of supreme importance. Quotations are made from the reports of physicians throughout the State as to the sufficiency, variety, and character of the popular dietary in their districts. These show that to thousands of families, bad cooking, excessive use of pastry and of fried food, poor bread, and sometimes a preponderance of salted meats, are the foci in the household that are accountable for much ill health. Too little variety in diet is thought to be a common fault in both city and country. Men will pine and sicken upon a regimen theoretically perfect if long unvaried. Dr. Derby deprecates in strong terms the enormous consumption of trashy and indigestible pies. He also refers forcibly to the deplorable American habit of bolting the food in the shortest possible time. The excessive use of tea, often made especially harmful by long boiling, is believed to be almost as prevalent and hurtful among the working women of our cities as it is described to be in England by recent writers. The daily consumption of several pints of this potent decoction, to the partial exclusion of nutritious food, is believed to be the frequent cause of serious nervous disturbance and of general ill health.

In a paper called *Analysis of a Correspondence on some of the Causes or Antecedents of Consumption*, Dr. BOWDITCH pursues the investigation of a subject to which under different aspects he has devoted much attention for many years. Printed questions have elicited replies from all parts of the State and from other States and countries. Taken together they form a considerable body of opinion upon a variety of questions connected with this most formidable of diseases. We are interested to learn that Dr. Bowditch hopes to publish at some future time his views on the prevention of consumption.

Prof. H. B. HILL continues in this volume the researches made by order of the Board into the *Adulterations and Impurities of Food*. Twelve samples of

pickles from different sources were examined, and ten of them found to contain sulphate of copper.

In an article upon *The Homes of the Poor in our Cities*, Dr. F. W. DRAPER describes things as he found them in the poorer quarters of eight cities. In all were specimens of every possible fault and evil in the dwellings of the poor. The gloomy picture is brightened, however, by accounts of the excellent provision made by several large manufacturing corporations in the way of homes for their operatives, in which health, comfort, decency, and self-respect are secured to all. That such pestilent holes as disgrace hundreds of our large cities should be allowed to exist for one day, is a reproach alike to worldly wisdom and to morality. Not only the sense of right, but an enlightened regard both to municipal and to national prosperity require that the poor should be enabled and encouraged to live decently and in consonance with the laws of health.

We are certain that it is for the interest of every city to look closely after the health and comfort of its humblest inhabitants. No less sure is it that the well-being of the nation at large requires and warrants that the cities be held closely to their duty. This is a government by the people, and we cannot afford to allow thousands of voters to experience the degrading influences of filth and squalor. We welcome this paper as one well adapted to awaken the public to a sense of duty. The evils depicted are to be found in all our cities. In regard to prevention and cure, Dr. Draper states that ample, or even excessive, legislation already exists in Massachusetts. There seems, however, to be a lack of practical methods of enforcement, and a want of public interest.

In concluding this brief sketch of the report we cannot refrain from again commending the character of the work. There is scarcely one paper but should interest and instruct any intelligent reader. Taken together the annual volumes form no mean introduction to the study of social science and public hygiene.

B. L. R.

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ART. XIX.—*Second Annual Report of the Board of Health of the Health Department, City of New York*, April 11, 1871, to April 10, 1872. 8vo. pp. 408. New York, 1872.

THE general or introductory report of this volume sets forth briefly the aims and labours of the board, and the success or failure of its various endeavours. The condition of the so-called tenement houses is considered by the President to be one of the points most worthy of attention. More than one-half the population of the city inhabit these dwellings. As a witness that the board has not worked in vain, it is found that the mortality in the worst of these has fallen off 15 per cent. during the last four years. In some instances where thorough reconstruction was compelled, the death-rate was reduced 75 per cent. Trades or manufacturing processes injurious to public health have also received constant supervision. One extremely important work has been the underdraining of extensive tracts in the upper part of the island to fit them for occupancy. This one manifestation of foresight has doubtless saved thousands of lives. Reference is made to the extra labour thrown upon the officers by the epidemic of smallpox. So far as power and authority would allow, these gentlemen seem to have discharged their duties admirably.

The same suggestion is made as to the outlets of sewers, that we have noticed