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THE
SANITARY JOURNAL.

DEVOTED TO
PUBLIC HEALTH.

VOL. II.]

NOVEMBER, 1876.

[No. 11.]

Original Communications.

SCHOOL HYGIENE.

Written for the SANITARY JOURNAL by LIFE PRESERVER.

It might prove an interesting and important question for a Court to decide upon, whether or not parents should or could be compelled under the present law of Ontario, to send their children to school in some of our badly constructed, ill-ventilated, disease producing school-houses. Supposing a parent should refuse to have his children exposed to the dangers here referred to,—refuse to send his children to school for the reasons here indicated; and should be fined for thus refusing. Supposing he should refuse to pay the fine, and appeal to the higher courts. Would a learned judge or an intelligent jury sustain a magistrate in fining a man for refusing on such grounds, to comply with the law? Probably the magistrate would be thus sustained. But would it not be a very hard case? Would it not be very hard and very unjust to fine a man because he refused to endanger the health and life of his children? Whether or not there is danger to the health and life of children in many of the public and even high school-houses of this Province, is hardly an open question. They can be no doubt about it. There is not, probably, an intelligent man in the Province but believes the present construction of school buildings very defective, knows very well there is danger to the health, and consequently to the life of the children confined within their walls.

The system of teaching, and general school government, &c., in Ontario, is hardly second to any in the world, and it is to be very much lamented that so little attention has been paid to the locality and structure of school-houses and offices.

“Situated, constructed and furnished, with utter disregard of the nature of the soil, exposure, air and light, they are, in effect, systematic institutions appropriated to the nurture of disease and the acceleration of death.” “Literally, schools for the growth, culture and promotion of scrofula and consumption.” The poisonous effluvia pervading the atmosphere of these unventilated rooms is not only breathed and rebreathed, but it adheres to the walls, furniture and clothing, and is absorbed by the drinking water. “It creates a nidus,” says Dr. Bell, “which is not only in itself poisonous, perpetually lessening the vital force of all who inhabit it, and predisposing to blood poisons of every kind, but it also becomes a hot-bed for the planting and propagation of specific poisons,” as diphtheria, scrofula, &c.

Again, instead of being cheerful and attractive, especially internally, the buildings are monastic and almost penal in design. The windows too are frequently in most objectionable relation to the seats and positions of the pupils.

Few subjects affecting the public health are of greater importance than that of School Architecture, in its most comprehensive sense. It must be born in mind that the school room is a place where children spend a large portion, about one-fourth of their time, during the most susceptible period of life. “Just as the twig is bent, the trees, inclined,” and the intellectual and moral development of children is largely determined by the physical conditions by which they are surrounded.

Physical education and development too, instead of being left to chance, should accompany, if not precede mental and moral education. For the latter must largely depend on the former. Herein lies, perhaps, the greatest defect in our School system. Attention is not given to physical education and development.

If, then, compulsory education is to be fairly carried out, if children are to be compelled to attend school for a certain number of days in each year, suitable school-rooms, constructed in accordance with our present knowlege as to their requirements, should most certainly be first provided.

In selecting a site for buildings, dampness of soil must be most carefully avoided. High ground, especially if sandy or gravelly, is frequently dry. The average level of soil, water should be at least 3 feet below the surface of the ground, or below the cellar, if any. This may be secured by proper drainage. Even a concrete floor will not keep water from a cellar built in a saturated soil, while a cellar story, or that

which is partly underground, should never be used as a regular study room, it may, if dry and of fair height, be used as a play-room for rainy days. It is recommended, in order to give the greatest protection from dampness, to have the yard, for some distance around the school-house paved, as well as well-drained. The neighborhood of ponds or swamps should be avoided.

The space devoted to a school is in cities frequently quite inadequate for a play ground, or even to secure good ventilation and sunlight. Walls should not be erected near a school to a height greater than the distance between them and the school. To avoid the two extremes of sunless exposure on the one hand, and excessive light and heat on the other. Olmsted suggests that the building should point with its four corners to, instead of its sides being toward, the cardinal points of the compass. In this position it receives the direct rays of the sun in every window at some time of the day.

The size and position of the windows are very important points to attend to. Cohn requires that taken collectively, the area of the windows should equal at least one-fifth of the floor space. Better more than less, certainly. Regarding their position, the following extract from a paper, by Dr. Lincoln, of Boston, Sec. Health Department, American Social Science Association., will be valuable.

"The sill had better be placed at least four feet above the floor. Light entering at the level of the eyes only dazzles, and is almost useless for illuminating the tops of desks. Make the interior of the room pleasant and the scholars will not want to look out at the window.

"The top of the window must come as near as possible to the ceiling. By using iron girders we can bring it within eight inches of the latter, and this should be required. The reason for this requisition is, that the most useful light for a scholars' purpose is that which strikes his desk at something near a right angle. This is furnished first by the upper part of the windows, and second by the ceiling; hence the propriety of using every means to secure the thorough illumination of the latter, a point which is neglected in most dwelling houses, churches and schools. Evidently the heads of the windows must be square, and not rounded or pointed, as is the case in certain styles of architecture. Neither is a pier of masonry dividing a window desirable. The roof must not project so as to cut off any appreciable light; nor are verandas at all allowable in the quarter whence light is supplied. There must be no wing or projection, no pier or column in the way of light. These re-

restrictions set a limit to the indulgence of the architect's taste, but they leave room enough within the limit. If projections are forbidden, flat decoration and ornamental brick-work are admitted; and shafts, wide doors, groups of windows, are features which can be seized upon to give a characteristic style to the building, which need be neither ecclesiastical, Hellenic, nor commercial.

"No window should be placed in front of the scholar; for the light thus entering is worse than wasted, blinding him at his work, and tending directly to produce near sight. Windows on the right are slightly objectionable, as throwing a shadow on the page whenever the hand is used, in ciphering, drawing, writing. Windows at the back throw the pupil's own shadow on his book, but this is not a serious matter except for those who sit next a window, and they have light enough at any rate, while for writing they are extremely well placed, as it is usual to turn partly to the left in this exercise. Windows at the left are entirely free from objection, as far as they can be free. The ideal light should come from over the left shoulder, or the right shoulder if one is sitting up and reading; but if looking over a desk this is rather inconvenient, and the best is then a very high light, from the left and a little in front. In brief, the rule for placing windows is—*never* in front: *always* on the left; at the back also, if you choose, but not at the right if you can help it. Light from the left and the back at once does not harm the eye, and practically is quite admissible; the only person to find fault is the teacher, in whose eyes the light will fall directly. These principles commend themselves to common sense, and are in accordance with the highest medical authority in this country; the German authorities agree substantially with what I have said, though they differ among each other in the degree of emphasis with which they forbid the rear and right hand windows. English schools are peculiar, and from the shape of the rooms and the presence of galleries are often hard to light."

Inside, the walls may be colored a light green or neutral grey; the ceiling should be white, thus reflecting the purest and greatest amount of light. Paper hangings should be avoided. For floors, hard pine, saturated in hot linseed oil, is best. No paint should be used in the room in any way. The furniture should be oiled and varnished.

The doors should open outward, and the staircases should be broad and long. These are points that are for the most part, quite disregarded in city schools.

The most important point in the construction of school-

houses, and that which is most neglected, is the provision for ventilation. The amount of necessary cubic space is not considered; the rooms are quite too small for the number of pupils. It would be almost impossible to provide sufficiently ample inlets and outlets without giving rise to most unpleasant and dangerous draughts. A good deal has appeared from time to time in the *SANITARY JOURNAL* about ventilation. It has been shown and is universally admitted by the best authorities, that a cubic space of 1,000 feet is little enough for living rooms for each adult. That is, a cube of 10 feet should be allowed per head in all inhabited rooms. A room 30 feet by 40, 12 feet high, at least would then be required for 15 persons. Even with this cubic space, and with the *best means* for changing and renewing the air, so as to prevent perceptible currents, the atmosphere of such a room would not be so pure as that out of doors, as the external atmosphere. And this should be the standard. It is generally conceded that growing children require as much air as adults. What then must be the state of the atmosphere in a room of the above size, having *no provision whatever* for changing the air, and with doors and windows, perhaps, very tight—very little air entering the cracks and crevices around them, when it contains, for 6 or 7 hours, 60 or 120 children? The thought is not only disgusting, but appalling. Truly hot-beds for the development and growth of disease. Dr. Bell and others give 300 cubic feet, with efficient provision for change, as the lowest possible estimate which should be allowed. This in a room 12 or 13 feet high, would require a floor space for each pupil, of about 25 feet, or 4 feet x 6 feet.

It is not the purpose of this paper to enter into details, to give the amount of impurities exhaled at each respiration, or to give or explain the best methods of ventilation; such would require altogether too much space. But the writer most earnestly desires to draw attention to the great necessity for a change in this matter of school-rooms. The present state of things must greatly devitalize the youths of the present, and the men and women of the future. There is, perhaps, no one thing that has a greater effect in this way.



SEWAGE FARMING.—The Earl of Dudley has offered to take the whole of the sewage from the drainage of Dudley, on to his farm, free of expense, and to find an engineer to undertake the preparing for the sewerage scheme

CITY WELL WATER.

To the Editor of the SANITARY JOURNAL.

SIR.—As touching the danger of using well water in cities, especially in the more densely populated parts, I send you the following. Hundreds more of like wells might be found if looked for in this city.

In the early part of September, at the request of a medical friend, I visited a case of typhoid fever, on Ann street. The case was that of a young girl aged 16 or 17, it was a well marked, severe case, with persistent delirium, which however terminated in recovery. She had not been away from home or knowingly exposed to the contagion of typhoid in any way. I enquired about the water used. The mother replied that the water was beautiful, they had used it for 20 years. On visiting the back yard, however, I found the well from which they had used water for so many years had been filled in two or three years ago, on account of the water getting bad, and another had been dug within 8 or 9 yards of it, which furnished the present supply. This well was 14 or 15 feet deep. The water was perfectly clear, without perceptible smell or taste, and free from "hardness." There were several privy vaults within a distance of 12 yards from it; none nearer than 6 yards. I procured from a druggist a large, clean four quart glass bottle, rinsed it several times with the water of the well, and then filled it with the same and left it with Dr. Ellis for analysis. The following is his report:

"Analysis of water from Dr. ———.

Total solids, grains per gallon	..	...	102
Chlorine	..	...	13.5
Free Ammonia, parts per million	..	..	33
Albuminoid Ammonia	..	..	6.5

"The above represents a very bad water, and unfit for domestic purposes, the well ought to be closed at once."

W. H. ELLIS, M.D.

Public Analyst.

Strange to say, the family still use the water of the well, though urged not to do so at the time. No other cases of disease have yet occurred in the family. Perhaps if two or three more of them suffer from typhoid, the use of the water will be discontinued.

I am yours, etc.,

M. D.

Toronto Oct. 20th, 1876.

AMERICAN PUBLIC HEALTH ASSOCIATION.*

The fourth annual meeting of this Association was held in Boston, October 3 to 6, 1876, (four days.)

Two features were specially prominent throughout—an abundance of excellent material and a very slim audience.

The last and fourth day of the session was a little exceptional; the value of the papers read and the discussions thereon had been so favourably noticed by the press as to have, at the last, apparently attracted the attention which they richly deserved from the first. No one with an eye to civic cleanliness could fail to see how well it is exercised in Boston—how well that city deserves its reputation for effectual sanitary work.

The session was opened by an address of welcome from Professor Wm. Ripley Nichols, Chairman of the Committee of Arrangements, which was followed by an address by the President, Dr. E. M. Snow. He spoke of the loose way in which for many years the boards of health in our cities and towns have conducted their work, and contrasted it with the marked good results which our present State boards are performing in their investigations and requirements of slaughter houses, abattoirs, etc. These boards have power, he said, to do much in the way of the prevention of many of our contagious and fatal diseases, concerning the causes of which we are as yet in comparative ignorance. He paid a deserved compliment to the Massachusetts State Board of Health, which he alluded to as a worthy model from which other States might copy with benefit to themselves. He alluded to the fact that little was known of the specific causes of such diseases as Asiatic cholera, typhoid fever, consumption, small-pox, etc., and concluded by remarking on the importance of the work of the Association.

Sanitary Laws to Regulate the Business of Slaughtering a Necessity was the subject of the first paper, by H. G. Crowell, Esq., member of the Boston Board of Health. Our private slaughter houses, with their poor accommodations for the proper care of blood, offal, etc., the crowded penning of cattle in thickly settled districts, are, he said, the source of foul odors which are detrimental to the public health, the business carried on in this private manner being rude, disgusting and wasteful. He urged that the only safe mode is to have slaughtering done in properly constructed and conducted abattoirs. This system is now in use in nearly all the European cities. In speaking of the advances in this country, reference was particularly made to New York and Boston.

Dr. E. H. Jaes of the Health Department of New York,

* From the *Sanitarian*.

after referring to the several good, bad and indifferent abattoirs, in New York, said that the concentration of the slaughtering business into a few abattoirs, under complete sanitary regulations, where cattle can be inspected, and meat, before distribution, judged good for food by proper persons, is acknowledged to be necessary for the public health.

Dr. Jaes concluded a carefully prepared paper by submitting a resolution: That the concentration of slaughter houses in large abattoirs located at the water side, and below cities when possible, remote from business centres and human dwellings, provided with facilities for utilising all portions of the animal without delay, is regarded as essential to public health and considered conducive to public health.

Expert Testimony and the Public Service of Experts in Matters Affecting Life and Health was the next subject of discussion, opened by Hon. Emory Washburn, of Cambridge. The course pursued in courts where experts are called to testify was reviewed, in contradiction of other witnesses, the latter being allowed only to testify to what they knew personally, while the expert is permitted to give to the jury his theoretical deduction, based upon argument and professional skill, with his argument in support thereof. A supposititious case was given in illustration, wherein a murder by poisoning the weight of evidence rests entirely upon expert testimony, based upon their knowledge and skill in science. But if in nine cases out of ten a certain result followed certain causes and fails in the tenth, then certainty is changed to probability; and herein consists the difficulty in expert testimony. The witness may believe his statement, but nevertheless his knowledge may be empirical; possibly false. They would not, however, be amenable to the laws to punish perjury. Then, again, experts often differ in their conclusions derived from known circumstances, thereby bringing their evidence into disrepute. Mr. Washburn cited many cases where such differences have occurred. In cases where sanity or insanity is concerned, the inner workings of the mind were so complex and varied that it was difficult for experts to testify corroboratively. One who has known the subject for years might judge differently from an expert on the opposite side, whose theory might be logically correct as deducted from his knowledge of the person whose sanity is in question. Another case where experts differ is where the moral insanity of a prisoner is in question, extreme atrocity being looked upon by one witness as evidence of moral insanity, while an expert on the opposite reached a contrary conclusion. This matter of probability was further illustrated

in cases where experts differ on the question of blood corpuscles. The importance and nature of this testimony is, however, becoming better understood each year. The speaker then alluded to certain witnesses who, by omitting certain facts and hiding others, prostitute science to personal pique or private gain, and read from English authorities to prove that witnesses could be found to testify to any theory. They are called upon usually to testify, not to facts, but to opinions. In Prussia they have a toxicologist appointed by the Government, and a board of medical experts; in Scotland experts have to first submit their evidence in writing, after which they are cross-examined orally, and their spoken testimony compared with the written; in France the Government decides who shall be called as experts. The speaker also gave the different plans proposed in England and this country, including that which has been before the Massachusetts Legislature, to have a regularly appointed board of experts, and thus expel from the practice those who testified simply for the pay they received. The paper concluded with a consideration of what men of science owe to themselves, to elevate the character of expert testimony by discountenancing pretenders. The course suggested by Professor Wolcott Gibbs, was that the expert should be called by neither side, but the appointment left with the judge, who should have no bias on either side. It was also thought that the testimony should be given in writing. The testimony when given orally, if a witness hesitates in his answer to the questions of a shrewd lawyer, his very hesitation, which should be considered an evidence of his desire to answer correctly, is represented to the jury to be proof of the worthlessness of his testimony. The paper concluded with a consideration of what plan could be devised by scientific men to correct the system of hired experts. The following resolve which was passed, concluded the paper: That a committee of five be appointed to enquire what methods of obtaining expert testimony prevail in Continental Europe, and to report at the next meeting of the Association a plan of procedure based upon the information thus obtained.

Professor Ordronaux, Commissioner of Lunacy of New York, and Professor of Jurisprudence in Columbia College said. The great difficulty in expert testimony was that we treat all scientific conclusions as definite, but whereas in chemistry everything was certain, in that part of science relating to physiology, or life, there was always present an uncertainty. Skilled testimony was therefore a paradox from its very start. It was not testimony proper, but a judgment of the facts sub-

mitted to it for consideration. The speaker's illustration of the unreliability of the testimony under discussion was both elaborate and able, especially in the difficulty of correctly explaining data. He then referred to the cross-examination of these witnesses, which he defined as a propounding of the most grotesque and absurd questions by the assistant counsel, who has been cramming for a week for the purpose. The cross-examination was therefore utter folly, and the effect was to arouse the indignation of the first-class men, and make them to determine never to testify again, which gradually lowered the class of experts until only the zeroes remained as such. The proper position of experts was that of a body of independent referees.

Expert Supervision of the Construction and Internal Arrangement of Public Institutions, with the view of preventing injury to the Health of their respective inmates, was a subject opened by a paper read by Hon. Dr. Steiner, of Maryland, the gist of which is contained in the following brief statement :

1. The progress of civilization is marked by an increasing interest in the physical, mental and moral wants of man, on the part of the State ;
2. The State is responsible for the supervision and protection of certain physical and mental wants of the people ;
3. In providing for those wants, special institutions are considered indispensable, such as hospitals, etc., schools, etc., and churches, etc. ;
4. Permanent buildings are needed for the accommodation of such institutions ;
5. In these buildings the greatest care should be taken, lest they should, on account of defective construction, be productive of detriment to health ;
6. The injurious consequences of defective construction are manifested mostly, not in violent acute disease, but in maladies of a low type and chronic nature ;
7. These injuries to health are found in houses for religious worship, in buildings designed for educational purposes, and also in those erected for the accommodation of the sick and infirm ;
8. The remedy is to be looked for in two directions, viz., 1, In the alteration of buildings at present employed for such purposes, and 2, In the employment of proper sanitary supervision of all new structures ;
9. Relief from these perils can only come from the employment of competent experts to supervise all plans for public buildings ;
10. To make such expert supervision most effective, it should be made imperative by the State ;
11. The conclusion : In the construction of all public buildings intended to meet the physical, mental or moral wants of communities, the best expert supervision should be insisted upon by the State, so that

no detriment be done to the occupants thereof, in consequence of their faulty location, construction or arrangement.

The evening session was presided over by Rev. E. E. Hale, who on taking the chair, pronounced an excellent but brief address on the progress of intelligence in the preservation of human life. He contradicted the familiar saying that death knows no distinction, and undertook to show that the mortality in the better classes of the community (the result, of course, of their superior sanitary condition) is almost infinitely less than among the poor. During the cholera infantum epidemic of a few years ago 600 infants died. The proportion to his parish would have been ten, but not one baby was lost by his people. In this direction he saw an opening worthy the noblest effort of men and women. Referring to the epitaphs and to the monuments to military greatness in Westminster Abbey, he declared that no man could have a grander epitaph than words which would say, "He found the death-rate of Boston twenty-eight; he left it fourteen."

Professor Austin Flint, of New York, gave a discourse on :
Food in its Relations to Personal and Public Health.—He treated the subject in a popular, rather than a strictly scientific way, and endeavoured to correct certain popular errors. In the first place, he stated that there is no uniformity in the requirements of alimentation, that there is no average to be applied to individuals ; and that while observation and experience will afford a measure of quantity and the selection of kinds of food for considerable bodies of men, there is no means of determining individual cases, excepting by the natural instincts of hunger, appetite and taste, and by personal experience. He spoke chiefly of the instincts, considering personal experience of importance principally as a regulator of the instincts. Hunger was pronounced abnormal, and appetite the normal condition which determines at what time and how much we shall eat. Appetite might lead us to eat too much ; and then experience came in as a regulator. Appetite was not an infallible guide, but the best nevertheless ; and in this connection Dr. Flint criticised in a quietly caustic way the old notion of rising from the table before the appetite is appeased, and of eating only at regular intervals, no matter how strong the appetite may be. The instinct of taste, gustation, the speaker said, was abused even worse than appetite—shamefully abused. Appetite told us when and how much to eat. Here the doctor alluded to the prevalence of poor cooking, and made a complementary observation on Mr. William E. Baker's proposed donation toward founding a college of cookery. His re-

marks on the subject of dyspepsia were rather singular. He said that it was a great mistake to suppose that the chief end of man was to observe the process of digestion, and the sole inference to be drawn from this part of his discourse was that dyspepsia is frequently due to the imagination. He also ridiculed, in a polite way, the notions of people that certain articles of food, wholesome to others, are injurious to or do not agree with them.

Papers were read on Illuminating Gas in its relations to Health, the Health of Factory Operatives, Need of Sanitary Reform in Ship Life, &c.

Dr. H. Bowditch referred at length to a recent epidemic of typhoid fever in England, the causes of which were traced back to milk from a certain dairy, adulterated with water from a stream which had been polluted a long distance above the dairy.

He next introduced Mr. Henley, of England, who gave a concise description of the sanitary system recently established in England, and of the changes through which it was reached. He said that all sanitary matters are now under the charge of local boards, who are required to abate all nuisances, provide pure water and good drainage, and supervise the construction of all new buildings, to the end that proper regard be paid to ventilation, etc. In case of neglect of duty on the part of these local boards an appeal lies to a central board, which forthwith sends an inspector and enforces such action as he may find necessary through a mandamus from the Queen's bench.

After Mr. Henley, Mr. C. T. Lewis, Secretary of New York Chamber of Life Insurance, was introduced, and gave one of the most interesting addresses of the session on :

Ancient and Modern Hygiene Contrasted ; Practical Results and Value of the Progress already Made.—He showed that the duration of human life has steadily increased with the progress of civilization. The causes of this increased average longevity he found in the improved care of infant life ; the care of the sick, of the infirm and the aged ; the avoidance of epidemics and of other calamities, such as famine ; the comparative exemption from personal violence, and the fact that the preservation of health is beginning to be recognized as an end in the organization of society. He then criticised sharply the theory of improving the race by selection, or the survival of the fittest, and declared that the best symbol of human progress is a venerable man decayed in body, but preserving the full energies of a wise, benevolent and vigorous mind. Next, a paper on :

The Rights, Duties, and Privileges of the Community, in

Relation to those of the Individual, in Regard to Public Health was read by Dr. John S. Billings, Surgeon, United States Army. This paper suggested rather than answered questions, chiefly as to the extent to which the community ought to interfere with the individual for the public benefit. One good point was made: that physicians should no longer be regarded as the exclusive conservators of the public health, that duty requiring the services of the lawyer, the engineer and the architect.

A brief paper on Scarlet Fever as it has recently prevailed in Baltimore and Belair, Md., was read by Dr. John Morris, of Baltimore. The line of greatest sickness was along streams of stagnant and almost putrid water, near which are located several slaughter houses, the refuse from which washes into the streams. Though there were cases in the city at points remote from these streams, it was yet a well established fact that the virulence of the disease was greatest along these streams.

Surveys as related to Public Health.—Mr. J. T. Gardner read a paper on the relations of Topographical Surveys and Maps to Public Health. Some relations of general climatic conditions to the health of man have long been recognized; modern investigations have shown that local causes are as active and effective in producing disease, though more subtle and obscure in their operation.

Those natural local conditions most seriously affecting health are the conformation of the earth's surface, and its underlying structure, yet, though this is supported by ample evidence, the exact effects produced are little understood from lack of facts upon which to base conclusions. To determine the laws of action of the surface structure upon health, detailed and exact records of topography and geology over large areas, and public health records of the regions, are absolutely necessary.

The former class of facts must be ascertained by careful topographical and geological surveys and registered in maps, which ought to be followed by an equally accurate sanitary survey, based upon these maps and constantly referred to them. In this manner only the laws of the earth's surface influence and action upon health will be derived from the philosophical and practical study of facts.

Dr. T. Sterry Hunt alluded to the advantages of surveys by boring to such a depth as to ascertain the exact character of the underlying soil, and thus to learn the conditions of underground drainage. In many cases where this had been done it had been found that there were often, where it was to be least expected, large basins in the underlying floor of the soil, in which stagnant waters collected.

Dr. Bell, of Brooklyn, referred to the condition of the Back Bay—the region upon which the hall this Association now occupies rests, together with the magnificent structures all around—saying that the oldest practicing physician in Boston, told him it was in his opinion the healthiest portion of the city. Although it was “made land,” filled over a salt marsh, the five or six feet of soil superimposed upon the plateau was generally clean sand, which has been shown to have some faculty for neutralizing the evil effects which may arise from the moisture beneath.

President Runkle in reference to topographical surveys thought that the greatest objections made by Legislatures was apt to be the expense of making them; yet he believed that the expenses of the best topographical surveys would all be paid by entirely new industries which it would create.

The Sanitary Condition of Country Houses and Grounds was the subject of a paper read by Col. George E. Waring, Sanitary Engineer, in which he denounced the manner in which country houses are at the present time planned and built, all being for appearance and convenience of the owner, without regard to proper sanitary requirements; and to illustrate this, as well as to show the injurious effects on health, Colonel Waring gave several cases where long-continued sickness had occurred from the generation and escape of gases from waste-pipes, water-closets and sinks.

Dr. Harris reported in behalf of the Committee on the proposed sanitary survey of the United States the following resolution: *Resolved*, That it is the opinion of the American Public Health Association that in every State, especially the more populous ones, a thoroughly accurate topographical survey is so essentially necessary as a basis of sanitary surveys and systematic drainage, and also the most desirable hygienic researches and works for prevention of disease, that the execution of such State surveys is a duty which should be undertaken by the States as a duty to the life and welfare of the people. The resolution was adopted. Some other papers were read, and the meeting adjourned to meet in Chicago next year.



DEATH FROM EAR-PIERCING.—In the county Tyrone Ireland the death took place a short time ago of a strong healthy girl of 22 years of age, from erysipelas, consequent upon the piercing of her ears by an amateur.

VIRCHOW ON THE RELATION OF TYPHOID FEVER
TO DRAINAGE.

Professor Virchow, of Berlin, contributes to the *Deutsche Medicinische Wochenschrift*, Nos. 1 and 2, 1876, an interesting paper on the relation of typhoid fever to the cleanliness of towns; and first he shows how the mortality from this disease had been diminished in certain German towns by providing them with a proper system of sewers. Thus, in the case of Hamburg, which has had a regular system of sewers longer than any other German city, the most carefully prepared statistics show that while in the seven years before the introduction of sewers (1838-44) the mean mortality from typhoid fever per thousand deaths from all causes was 48.4, in the nine years (1845-53) while the sewers were in progress it fell to 39.3; while in the first eight years (1854-61) after the works were completed it was 29.3, and in a second period of eight years (1862-69) it diminished to 25.7—that is to say, to almost less than half what it was before the sewers were made. In the years 1872-74 the reports of the medical inspector, Dr. Kraus, revealed the important fact that the proportion of those suffering from typhoid fever was on the average in a thousand living persons 2.68 for the parts of Hamburg in which the sewer system is complete, 3.2 for those districts in which it is nearly but not quite finished, and 4.6 for those which have no sewers at all—namely, the country districts beyond the suburbs. In two of the villages included under the latter category the average sickness per thousand from typhoid fever in 1872 was 7.0 and 6.6. against 2.68 in the city itself—a startling contrast, not at all favourable to the rural districts.

Another example of the influence which may be exerted over the prevalence of typhoid fever by proper measures is shown by the case of Halle. This town during 1852-61 had an average annual mortality from typhoid of 36; in 1862-65 a severe epidemic raised the mortality to 194, 215, 254, and 160 per annum; in 1866-69 the deaths were 62, 65, 65, and 42 respectively; and in 1870 they fell, *with the introduction of a new water-supply*, to 14; Professor Virchow passes on to consider the distribution of mortality from typhoid fever over the different seasons of the year, and he shows that in Berlin the number of deaths from this cause begins to increase with great constancy in July, is very high in August and September and highest in October; in December and January it falls, and reaches its lowest point in March, rising again a very little in April and May, and falling once more low in June. The same state of things holds good for Thuringen, Nassau, Saxony,

Silesia, and French Switzerland, also for Schleswig-Holstein.

On the other hand, this rule no longer applies when the statistics of certain parts of Bavaria, including Munich, are compared with those of Berlin and North Germany, for here speaking generally, the winter and spring, and especially the period from January to April—the best time in North Germany—are the most unfavourable, though the acme is reached in Munich more towards the spring than in the rest of Bavaria, where the winter months suffer most. Both for Munich, however, and the rest of Bavaria, the fact remains that the warmer months show the least mortality from typhoid. For those who are specially interested in this subject Professor Virchow supplies the necessary figures in support of his statements; it is, however, more suitable to our present purpose to give the conclusion to which he has come as to the cause of the difference between the season of greatest typhoid mortality in North and South Germany, taking Bavaria and Munich as representatives of two districts. Both towns are built on a comparatively level and very porous soil, that of Munich being the more porous of the two. Now, in both cases statistics show that the one condition, which bears a constant *but inverse* ratio to the mortality from typhoid is the height of the water in the soil (*Grundwasser*), as estimated by its level in the wells. Now, in Berlin the wells are fullest in the winter or spring, especially in February and April, and they are lowest in the summer or autumn, especially in September, October, and November. In Munich, on the other hand, they are fullest in the summer (July and August), and lowest in the winter (December and January). In both cities, as the water rises the typhoid diminishes, and *vice versa*.

In the course of his paper, Professor Virchow takes occasion to point out the position which he occupies at present with reference to Pettenkofer's theory that the rise and fall of the water in the soil (*Grundwasser*) is the main element in producing typhoid epidemics. He admits the truth of Pettenkofer's theory with regard to certain places—*e.g.*, Munich and Berlin,—but denies that it is universally applicable. He considers that the *Grundwasser* only exerts an influence where the soil contains impure matters, or where it is itself impure. "Pure *Grundwasser*, in a clean soil I so little regard," he says, "as a cause of typhoid, that I never hesitate either to allow it to be used as drinking-water, or even to propose its value."

Although there may be little or nothing that is novel in the contents of Professor Virchow's paper, yet its writer's fame and influence in Germany are so great that all that falls from him deserves consideration.—*Med. Times and Gaz.*

WISCONSIN STATE BOARD.

Last winter the Legislature passed a law providing for the institution of a State Board of Health, conferring upon the Governor the power to appoint the members thereof, and making an appropriation to pay a salary to the Secretary, who is made the executive officer of the Board and the Superintendent of Vital Statistics, together with the expenses of the Board. The other members of the Board devote their time to doing the work contemplated by the law without pay. The term for which each member was to be appointed at the beginning varies from one to seven years; so that the time of one member shall expire each year; afterward the term of each appointee shall be for seven years.

Eleven States now have State Boards of Health. Massachusetts led the way in 1869. She was followed in 1870 by Louisiana and California; in 1872 by Virginia; in 1873 by Minnesota and Michigan; in 1874 by Maryland; in 1875 by Georgia and Alabama; and in 1876 by Wisconsin and Colorado. When the State Board of Health was organized in Michigan, Dr. Hitchcock said that the loss to the people of that State caused by preventable sickness was more than \$2,000,000 per annum. "It is our office, then," said he, "to make the labors of this Board popular with, because useful to, the people of the State. Here," he continues, "is the work for this Board to do; to educate the people in respect to the nature and causation of diseases, and the means for their prevention; to suggest appropriate legislation for compelling, when necessary, the use of these means, and to present argument for such education and legislation, fortified and made cogent by facts, well authenticated cases of disease and death directly traceable to ignorance, neglect or disobedience of the laws of hygiene; and to make it possible by this work that many, if not all, the lives and much of the treasure now needlessly lost to the State may be saved." Imbued with the same spirit, the members of the Wisconsin Board recently met at Madison, and organized for labour.

Dr. E. L. Griffin, of Fon du Lac, was elected President of the Board, and Dr. J. T. Reeve, of Appleton, Secretary.

The following list of subjects for the ensuing year was adopted, and work on each assigned by the President to the several members:

1. Endemic, epidemic and contagious diseases.
2. Hygiene of schools, prisons and public buildings.
3. Sewerage and drainage.
4. Foods, drinks and water supply.
5. Disposal of

excréta and decomposing organic matter. 6. Poisons, and special sources of danger to health and life. 7. Influence of localities, employment and habits of the people on health. 8. Illuminating oils and explosives. 9. Ozone and its relations to health and disease. 10. Ante-natal murder. 11. Mental hygiene. 12. Medical topography of Wisconsin. 13. Influence on health of forest trees and their removal; shade trees near dwellings, etc. 14. Construction and ventilation of public buildings and private houses.

All citizens of the State are invited to co-operate with the Board in its beneficent work. Communications upon local or general causes of disease, studies or statistics upon the topography, geology or water supply of the State in their relations to disease, or upon any other branch of the general subject, are invited from all who are interested in sanitary science, or who have the interest of the State at heart.—*Sanitarian*.



THE INTERNATIONAL HYGIENIC CONFERENCE AT BRUSSELS.

On September 28, in the section of Social Economy, Dr. Boens read a paper on the labour of women and children in mines, and recommended the total exclusion by law of females from this occupation, and the prohibition of the regular employment in any industry of children below the age of twelve.

Dr. Paul, of Antwerp, read a paper on "Sanitary House Construction and Workmen's Houses," from which the following is an extract: "The Belgian workman loves a home of his own and the feeling of possessing property. Near certain manufacturing establishments there are in some countries great buildings where the unmarried workpeople board and live cheaply. The "hotels," so to speak, the philanthropic creation of the masters, have great dormitories, well ventilated and separate living rooms for the two sexes. There is a common kitchen with separate stores, for the use of each lodger. For married workmen, little houses are best. The type of the house must vary according to circumstances, but variety in the same district is desirable for its own sake. The house ought to be attractive, it ought to have an air of individuality, and it must also be constructed with a view to hygiene."

In the Section of General Hygiene, for two days the question of water-supply was before the Section. As regards

mode of distribution, two systems are in force—one the intermittent supply with cisterns, the other the constant supply. The evidence afforded by English practice was that in a sanitary point of view, the constant supply, without cisterns, was best. A sanitary question arises upon the adoption of payment of water by quantity delivered among the poorer classes. It tends to induce that class to restrict the use of water. It is, however, desirable to encourage the use of water. Workmen should be induced to wash off, before eating, the dirt left on them from their occupations. They would be as clean as the upper classes if habits of cleanliness were encouraged from their youth. The question therefore arises as to payment of water. Water is nearly as great a necessity as air. Formerly water was supplied free at public fountains or pumps; and it should be the duty of municipalities to supply at least a certain proportion of water free to every inhabitant of a town at the expense of ratepayers. Of course extra quantities for domestic, manufacturing, or other purposes should be paid for. This was a question upon which he thought the Congress might usefully express an opinion, and which is equally important with that of quality and quantity.

Mr. Edwin Chadwick, C.B., who was the chief executive officer of the first General Board of Health established in London, gave his promised sketch of the progress of sanitary work in England, and partly in Europe, since the last Congress on Hygiene in Brussels in 1852, under the auspices of Leopold I.

Cremation was the next subject of discussion. Dr. Bouchert, of Paris, spoke on the verification of death, a subject which he had studied for thirty years, having written in 1846 a work on it, crowned by the Academy. In 1869 he made investigations into the alterations made in the eye at the moment of death; and Dr. Jaegal, of Vienna, has since pursued the subject with eminent success. The Marquis d'Ourches having offered a prize for the indication of death which could be recognized immediately by uninstructed villagers, Dr. Bouchert invented a thermometer, which, with allowance for the time of year and the temperature of the room, would give plain and certain results. The temperature of the living body, never sinks, he said, below 22° (Centigrade). Most of the speakers agreed that the stories about persons buried alive were usually exaggerated, although there is some foundation in fact for them.

The discussions on the 5th inst. were to a great extent on

the question of sewage. The Liernur system was explained, and Dr. Ali Cohen, Government Sanitary Inspector in the provinces of Friesland and Groningen, in Holland, reported that the system was employed at Amsterdam, Leyden, and Dordrecht, but was inapplicable to rural places. The town of Groningen, which has 40,000 inhabitants, has made by its sewages sold publicly once a week a million and a half of francs in ten years. Mr. Crookes, F.R.S., contributed a paper explaining and recommending the A. B. C. process. This consists in adding alum, blood, clay, charcoal and other ingredients to sewage, and manufacturing a manure from it. He gave a striking illustration of the waste of manure by saying that in consequence of London drainage arrangements the country had lost as much food as if 10,000,000 quartern loaves were daily floating down the Thames to the sea. The Native Guano Company had treated about 5,000,000,000 gallons at Leeds, and have sold over 4,000 tons of their product at £3 los. per ton. Their process converts the deposit into a dry, portable and inoffensive powder. M. Mille described the sewage farms of the Seine at Gennevillers, and illustrated his subject by exhibiting the fruits and vegetables grown on the land, bundles of carrots, great cabbages, red onions white French beans, artichokes, and lucerne. The holdings of the gardeners in the neighbourhood of the works are irrigated by the commission of the Seine, and the value of land has gone up 300 per cent. Complaints have been made of illness being caused by the operation, but they are unfounded. M. Hobrecht, member of the municipality of Berlin, describes the like arrangements made in the German city. An animated debate ensued, not upon the comparative advantages of the dry and wet use of sewage, but upon the question whether sewage can be usefully applied to land at all. At Brussels they are contemplating the establishment of a sewage farm, and the question had thus great local interest. The story of the cows who pined away and died on sewage grass was told over again, and it was answered that sewage must be applied with skill and prudence, and that the land must not be saturated. A speaker suggested that all land must become saturated at last, and asked if any experiment extending over a long time had been made. To this the Conde di Torelli replied that at Milan, owing to the facilities afforded by a certain little river, there had been sewage irrigation with a part of the sewage of the city ever since the fourteenth century, and that the land had not become saturated and malarious, as suggested, in those five centuries. It appeared afterwards, however, that sewage was in this case

applied to certain parcels of land in rotation, and that after some six or seven years of application to one spot of ground it was conducted elsewhere.

In the section of Medical Hygiene, Dr. Kuborn gave the following figures on the mortality of children under the age of one year:—In Sweden, 153 in 1,000; Denmark, 156; Scotland, 156; England, 170; Belgium, 186; Holland, 211; France, 216; Prussia, 220; Spain, 226; Switzerland, 252; Italy, 254; Austria, 303; Russia, 311; Bavaria, 362.

At the meeting of October 3, Dr. Desguins drew a frightful picture of the evil resulting from the abuse of alcoholic drinks. M. Hoghe thought that it was not alcohol, but the deleterious substances with which alcohol is combined in spirituous drink which has not been long kept. It should be the duty of a sanitary police to allow no intoxicating drinks to be sold till they have been allowed to lie for some time for the softening influence of age. This discussion lasted for three hours and a quarter, and every speaker spoke of the moderate use of proper alcoholic drinks, as beer and wine in good condition, as a wholesome thing.



CAUSES OF JEWISH LONGEVITY.—These are stated by the *London Medical Record* as follows: *Keeping two Sundays* in a week, besides which Christian and political holidays. Thus they have about twice as many days of rest as Christians. Their *employments* are devoid of *hazard*, as they do not engage in mining, mechanics, etc. *Dietetics*, as enforced by biblical and traditional commands, are favourable to longevity. The *sentiment de la famille* is better developed in the Jews than in the Christians. This assures to children, and aged and infirm parents a more active solicitude, to the new born a mother's nursing, to the poor a more efficient assistance. Their charity is unequalled, their morality demonstrated by judicial statistics. Their profound faith in Providence gives them a marked serenity of spirit and firmness of character. They rarely use alcoholic liquors to excess. They seldom marry out of their own race, and have little hereditary disease.

IODIDE OF STARCH AS AN ANTIDOTE OF POISON.—Bellein (*Revue Medical and the Laboratory*) recommends a combination of iodine and starch as an antidote to many poisons, as with many it forms insoluble compounds, or at least compounds that are no longer poisonous. With strychnia it forms an exceedingly soluble substance.—*Ibid.*

DRAINAGE AND HEALTH.—To illustrate the importance of the subject of *drainage* and to show that all facts bearing directly or indirectly upon it should enlist our deepest interest, we will notice here the fact that in a recent report of the Privy Council medical officer and the Registrar-General's records show that in England and Scotland the life of the people *gains* from 20 to 25 per cent. in years, and suffers less than half the average sickness and disability in the *well drained* districts. Dr. Wm. Farr's essay on Vital Statistics and new Life Tables, based upon sixty-three of the healthy districts of England, in which the mathematical demonstration is complete; and upon the same grounds the districts themselves give the names of the best breeds of horses, cattle, sheep and fowls in the Kingdom. Industry and the army, says Dr. Farr, receive the best recruits from this population, while they get their worst from the low parts of sickly towns."—*Drainage for health*—*Dr. Lyster*.

SUNSHINE.—The world wants more sunshine in its disposition in its business, in its charities, in its theology. For ten thousand of the aches and irritations of men and women we recommend sunshine. It soothes better than morphine. It stimulates better than champagne. It is the best plaster for a wound. The Good Samaritan poured out into the fallen traveler's gash more of this than of oil. Florence Nightingale used it on the Crimean battle-fields. Take it into all the alleys, on board all the ships, by all the sick beds. Not a phial full, not a cupful, not a decanter full, but a soul full. It is good for spleen, for liver complaint, for neuralgia, for rheumatism, for falling fortunes, for melancholy. Perhaps heaven itself is only more sunshine.—*Sanitarian*.

TWO NEW SOURCES OF LEAD POISONING.—In the *Gazette Med.*, of May 6, 1876, Dr. Gilbert called attention to two new sources of lead poisoning. In one case the editor of a newspaper had suffered from two years from severe gastric disturbances, the explanation of which was ultimately found in a lead line on the gums, and the supply of the poison was found in the red lead colouring of the stamps which the patient moistened with his tongue every day in large numbers. In the second case the patient consumed so many of the little French *cahons*, such as are used by smokers, as to become poisoned by the lead in the metallic film with which they are "silvered." On chemical analysis each box was found to contain about a third of a grain of lead.—*New York Medical Record*.

THE SANITARY JOURNAL.

Communications solicited from Medical Men and others on all subjects pertaining to
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INDIVIDUAL HYGIENE.

Public hygiene refers to the masses of the people, to providing them with pure air, pure water, and pure food. Individual hygiene has reference to individual or personal health, and is a most important branch of sanitary science. Public health laws, however stringent, can hardly now in their application reach individuals in their personal habits and relations of life. Pure air, water, and food may be provided in abundance, and public bathing places, yet many will not keep themselves personally clean, will be intemperate in eating and drinking and other matters, overwork themselves, or perhaps not take sufficient exercise; in short, pay little or no attention personally to the laws of health. In some this will arise from ignorance, in others, from indifference or idleness. Nearly all will be found in the lower classes; and these require to be taught and influenced by the higher. The principles of personal or, we may add, domestic hygiene, must become matters of conviction among the higher classes that they may help the lower, who are unable or unwilling, or do not know how, to help themselves.

There are those who have long believed that careful obedience to sanitary law in private life—with, of course, the avoidance of insanitary conditions as regards surrounding circumstances, as of the habits of others or of locality—will give comparative immunity from infectious and epidemic diseases. It is well known that when inoculating for small-pox was practiced during the latter three-fourths of last century, those who were inoculated after a period of hygienic treatment and preparation suffered comparatively very little from the dis-

ease—had it, in short, very lightly. It can hardly be doubted that if it were possible for all to live as it were in continued preparation, to live strictly in accordance with the laws of health, epidemics of small-pox would at once become less severe, and would soon entirely cease, and the disease would become extinct, without the aid of vaccination.

The explanation of much that has heretofore seemed to be generally difficult to understand in the production, spread, and fatality of infectious diseases, which was put forth by Dr. Alfred Carpenter, in his admirable address before the British Medical Association, published in the *SANITARY JOURNAL* for September last, page 282, will undoubtedly be proved to be something more than an hypothesis. He supposes every case of zymotic or epidemic disease to be due to, three factors—*x*, *y*, *z*; partly *centric* elements (those which are proper to the body), and partly *eccentric* elements (or those which act upon it from without). The centric elements are represented by *x*. This may consist only of *U*, the used-up material, or formed material of Beale, which is always in the act of formation, and ought, in a state of perfect health, to be always perfectly removed, but which may not, from some fault in excretion, as inactive skin, liver, &c., be duly removed, and then $x = U$ and $E - E$, the EXCESS of used-up matter; and *x* may differ in both quality and quantity; it will be modified by personal character, by habits, &c., and even by attainments, but especially by attention to, or neglect of, sanitary and moral laws. Furthermore, it will vary according to the circumstances of the community among whom the person resides, the moral and the sanitary state, or the habitual neglect of sanitary law in which that community may indulge. It forms the soil in which the contagium-particles of disease can live the food on which they can thrive and multiply. The germ or living organism, the specific contagium of any kind of zymotic disease, which has to be introduced from without, is represented by *z*. And *y* represents the meteorological conditions, such as temperature, moisture, and certain atmospheric states, which are required for the rapid increase of epidemics. “The fatal-

ity of the disease," he says, "will depend upon the quantity of E, (the excess of used-up matter,) in the factor x ; the rapidity of growth will depend upon certain meteorological states represented by Y ; but the character of the disease itself will depend upon z. We can diminish x to a minimum by personal, municipal, and sanitary arrangements ; we cannot alter Y ; but we can impede the introduction of z, and prevent epidemic disease, unless it can be shown that zymotic diseases may arise *sua sponte*." Zymotic diseases, therefore, would have its power for evil more in the condition of the recipient than in the quality of z.

If the excretory organs are all in a healthy state, and capable of eliminating all excess of used up matter, there is no soil, no food, for the disease germs. Just as the *Penicillum glaucum*, upon which fermentation depends, requires the sugar and the temperature to produce alcohol, so the disease germ, the contagium particle, requires the food upon which it increases and multiplies, and also certain meteorological states, for its full development. Now the healthy action and vigour of the excretory organs depends more on individual than on public hygiene. Consequently, while the prevention of the introduction and spread of disease germs is chiefly a matter of public health proper, the depriving them of soil or food for growth or multiplication is largely a matter of attention to personal or individual sanitary laws.

Obviously, the danger from chronic diseases, and acute inflammations would be reduced to a minimum by strict and careful attention to individual health laws. As we have said then, individual hygiene is a most important branch of sanitary science, and it is very desirable that a knowledge of it should be diffused among the masses, and that they should at the same time be encouraged and aided into bringing such knowledge into practice.

Indisputable facts seem to show that a highly trained intellect is antagonistic to reproductive activity.

Annotations.

THE INTRODUCTORIES AT THE LONDON HOSPITAL SCHOOLS AND PREVENTIVE MEDICINE.

Although our space is limited, we cannot resist the temptation to notice, and to quote some brief extracts from, the able addresses at the opening early in October of some of the London Medical Schools. They will show how important a branch of the science of medicine preventive medicine is regarded by leading men in Great Britain, and what they think of its future. There, however, much encouragement is given to workers in that branch, here there is little or none. Dr. Andrew Clark, F.R.C.P., &c., at the London Hospital School, dwelt on the extensive ground covered by medicine in its relations to the individual, to society, and to the State. He said:—"To prevent and to cure disease, to prolong life and to put back death,—these are the broad objects of our art. Thus stated, how narrow they seem! and yet, when we penetrate their meaning, how vast are the interests which they are found to cover; into what conditions or relations of human life do they not enter? The well-being of the individual, as it is affected by development and education, by the regulation of labour and the formation of habit, by the discipline of the emotions and the control of the will; the continued existence of society, made increasingly difficult by growing complexity in the conditions of civilized life; and even the safety of the State, in so far as it may be imperilled by the ravages of epidemics, the evil effects of manufactures upon the health of crowded populations, and the improper hygiene of fleets and armies;—are all, more or less, dependent upon obedience to laws which it is the business of our art to discover and proclaim.

"But medicine not only involves vast interests,—it establishes, and for its existence it must maintain, and for its progress it must continue to multiply, the most intimate relations with every other form of knowledge. There is none into which it does not lead us; none with which it does not necessitate some degree of acquaintance; none which does not lend it aid. Nor is the entire domain of the physical sciences sufficient for its needs and purposes. With the facts of the mental and of the moral worlds it seeks as close, and it holds as necessary a relation. And thus throughout the whole realm

of nature to its utmost bounds medicine lays down its lines of inquiry, and establishes its channels of communication. It is the metropolis of the kingdom of knowledge, and we are the privileged denizens thereof. Here we are brought face to face with the mysteries of nature, of life of man, and of the Eternal which enfolds them."

Descartes, he said, "was not dreaming, but prophesying, when he said, that if ever it became possible to perfect mankind, the means of doing so would be found in the medical sciences."

Dr. Maudsley, of University College, dwelt on the excellence of the method of medical study as a means of intellectual and moral training. By it the mind is trained "systematically in conformity with the order of nature, through patient observation and careful induction; to know nature by becoming her servant and interpreter. And to know Man finally through Nature, of which he was the present culmination, the thorough knowledge of his environment and of those his relations to it which constitute his life, must be the foundation of a scientific medicine." He depicted in glowing phrases the intrinsic nobility of medicine as a profession, its fruitfulness in benefits to mankind, and the grandeur and reach of its aspirations for the future; pointing out, however, that while, when followed truly for its higher aim—that is, "to relieve the suffering, and to minister to the comfort of man's estate, to lessen the sum of human sorrow on earth,"—no other profession affords such great and constant opportunities of doing good, yet, if pursued merely as a money-getting means, "it assuredly causes the deepest demoralisation of him who so uses it, as best things turned to the basest ends breed the greatest corruption." But Dr. Maudsley dwells most fondly and eloquently on the great object of the prevention of disease. Formerly it was the practice to treat the body as if it were an entirely independent kingdom, without regard to its essential relations with what was outside it, and to try to drive out the enemy which was supposed to have taken possession of it, by pills and potions, as barbarous nations do by charms and ceremonies. Now, however, all this was changed. Through recognition of the relations of the organism to its environment we had risen to a conception of the *prevention of disease—the great purpose of medicine*, which it was earnestly prosecuting at the present time. It was probable we should attain earlier and larger success in preventing the diseases of communities than in curing the diseases of the individual. To show what encouraging success had already been gained, several diseases were

enumerated, which, very fatal 200 years ago, were now harmless or extinct; and others which would probably soon be almost extinct. It is in this direction, he says, "that the future course of medicine lies clearly open, and to this end we must work; it will rise to the true height of its great vocation when it watches over communities and ministers to the welfare and development of the race." He thinks that one needs not a prophet's imagination to foresee a time when preventive medicine shall have reached such a degree of perfection "that the occurrence of epidemic disease will be felt as a gross reproach to the community, and when there will be comparatively little for the practitioner to do in the treatment of particular disease."

His creed is the creed of evolution; and he hopes that the medical science of the future "will have a great deal to say in the way of instruction respecting the highest concerns of man's nature, and the conduct of his life; that it will enter a domain which has hitherto been given up exclusively to the moral philosopher and the preacher." These have failed to make men good; and it is for the medical investigator to come to their aid—"to discover those laws which have been in operation through the past to make man the superior being which he is, and to determine his future action in intelligent conformity with them; not only to cure disease of body and mind, as it has aimed to do in time past, and to prevent disease, as its larger aim now is, but to carry on the development of his nature, moral, intellectual, and physical, to its highest reach." In this way the physician is to succeed in teaching man, and making him practise his duty to his neighbour and his posterity, though the preacher has failed so to do. The true preacher will most gladly welcome all the aid preventive medicine can give him in making men wiser, better, and more teachable; and we have no doubt that in that good work preventive medicine may take a large share.

Dr. Wiltshire, who gave the Introductory at St. Mary's Hospital, also devoted much of the time at his command to a consideration of the high importance of preventive medicine. "Their first aim and paramount duty was to *prevent disease*, and failing that, to *cure or relieve* it. The two great branches of medicine were, then, preventive medicine (hygiene) and curative medicine. In the former the relations of the profession, as a body, were with the State; in the latter they were with individuals, and were personal. In public health they had been the pioneers, and almost the sole workers, though they were the only losers by promoting healthfulness. Great

triumphs undoubtedly awaited them in the noble field of sanitary science." He insisted on the duty of each generation to hand down to posterity as clean a bill of health, moral and physical, as possible; and that it is now abundantly clear that the tendency to vice and crime may be largely diminished, just as physical disease may be lessened or prevented by constant, full, and careful attention to sanitary science and art. The logical inference is—as drawn by Dr. Wiltshire—that a healthy and vigorous population being the greatest wealth of a State, statesmen must in the future pay more and more attention to all that is embodied in the famous "*Sanitas, sanitatum, omnia sanitas*" paraphrase of Lord Beaconsfield.

Dr. Evans, at the Middlesex Hospital, treated of the subjects and objects of medical education. He insisted on the paramount importance of practical work, and exhorted the students to study their fellow-men, as in the practice of their profession they would have to treat individuals, not disease. He also spoke of the rising importance of preventive medicine, and of the increasing influence, through it, of medical men with the public.

Dr. Bruce, of Charing Cross Hospital School, closed his address by saying, "I am guilty of no exaggeration when I say that those who now direct medical education in England hold potentially in their hands not only the health and happiness of the coming generation, but the whole future fortune of this great land."

MICHIGAN STATE BOARD OF HEALTH.

The quarterly meeting of the above was held on Oct. 10, '76. The members of this Board are evidently working men in the cause of public health, and it is gratifying to find so much being done and at so little cost, about \$3,000 per annum. The people of the state cannot but regard this amount as very well invested. Through the kindness of the sec. Dr. Baker, we have received an abstract of proceedings, from which are the following extracts:

Dr. Kedzie presented two drawings illustrating the proper "ventilation of railroad cars," ordered to be published in the annual report.

A paper on the "water-supply in Michigan," was presented by Dr. Kedzie. The paper treated of the geological formation of the state as affecting the water-supply, the mechanical and chemical effects of the different kinds of soil upon the water filtered through them, of the impurities usually found in water-supplies, of graveyards and other sources from which

these impurities frequently arise, and of methods of improving the quality of water now used. It stated that the only *sure* way to detect impurities in water is by a careful chemical analysis, yet there are tests which can be applied by anyone, which give strong *probable* evidence, such as smell before and during boiling, taste, and especially Heisch's test, which consists in the addition of a half-teaspoonful of pure sugar to a pint of the water in a bottle partly filled, set in a warm, well lighted place for 48 hours. The presence of cloudy matter indicates impurities. The paper is to be published in the annual report.

Dr. Baker presented additional material for a paper on the "death-rate as influenced by age, climates etc.," consisting of tables, charts, maps, diagrams, etc., and mentioned that he had found a way by which a comparison of the death-rates of different states could be made without the necessity of computing a life table for each locality. Dr. Hitchcock read a paper on criminal abortion showing that the present laws in this state have been derived from views held in past ages, and are not in conformity with our present knowledge of physiology. The paper will be published in the Report.

Dr. Hazlewood read a paper upon "Water," based largely upon the replies of correspondents to a circular sent out by the Board. He stated the chemical composition of water, the impurities usually found, the amount needed by each person daily for all purposes, which he placed at 100 gals. at least, the healthfulness of different kinds of water, the sources of the water-supply of this state, the way to obtain the best cistern water, and the danger of using water which has been in contact with lead-pipe. The paper will be published in the Report.

Dr. Baker read a report on methods of collecting vital statistics, in which he urged an amendment to the present law, which he held would increase the value of statistics and not materially increase the cost of collecting. A proposed circular of instruction relative to the restriction and prevention of scarlet fever was discussed at length and is to be revised and issued for the benefit of the public health in Michigan. A number of other papers and reports were read, as were also replies relative to prevailing diseases, etc.

SANITARY PROGRESS IN AUSTRALIA.—In Melbourne, Sydney, and other colonial cities and towns the influence of a strong pressure of public opinion has led to energetic measures on the part of the local authorities, who, availing themselves of the rather extensive powers recently conferred by the colonial

legislatures, are doing something to prove that with them sanitary reform will be found a practical reality instead of an **unsubstantial** fiction, and already there are indications of the benefits which must inevitably result from the systematic continuance of their labours.

A movement has been originated in Sydney, having for its object the formation of a Colonial Health Association. Such an organization, it is urged, might effect much in the way of promoting the spread of information and the growth of a sound and permanent public feeling upon matters connected with the sanitary conditions of the colonial community.

POISONED SLEEP.—Referring to the death of a Presbyterian clergyman from an overdose of chloral—"not an excessive dose but operating upon a system debilitated by disease, and this pernicious drug, the *Lancet* says:—"It is humiliating to feel compelled to characterize the use of sleep-producers and anodynes as an act of folly, because the profession is not wholly free from the imputation of bolstering up the practice by a mistaken mode of prescribing; and by an implied, if not expressed sanction of the lay use of such potent drugs as chloral and the compounds of which its essential principle is the active ingredient. We have not hesitated to insist, and there is no reason why we should not repeat, that in our judgment the practice of recommending patients to employ these 'remedies,' even occasionally, is unprofessional and unsound."

ARSENICAL WALL-PAPER.—Mr. Lewin Hill, Tottenham, Eng., sends the following to the *Lancet*: A bedroom in my house was recently repapered with a light, but certainly not a bright, green paper. On the very first night on which the room was used the occupant complained of pain in the throat and of mineral taste in the mouth; and fortunately the room was not used again until the paper had been removed. An analysis of the paper showed that the paper contained a large quantity of arsenic, while its unglazed condition rendered it most dangerous.

THE MISCHIEVOUS SUCKING-BOTTLE.—Dr. Emerson in an interesting paper on Cholera Infantum, in the *Boston Medical Journal*, pronounces such a condemnation upon the sucking-bottle, as to call for more active denunciation than it has yet received, "There is a point," he says, "which I wish to allude to—namely, the great habit among the rich and the poor of the nursing-bottle with the flexible tube. It is an invention

of which Herod might have been proud. It is always in the baby-waggon and the crib, in hot sun or close air. The child falls asleep with the nipple in its mouth. The mouth is usually never washed; the bottle and tube are, 'with scalding water and soda,' so the mothers say, if you ask. Smell, it and see what you think."

HYGIENE AND PHTHISIS.—Dr. Austin Flint in his work on Phthisis, gives the history of over 670 cases of consumption. His conclusions drawn from the hygienic treatment are as follows: Benefits derived in a large proportion of cases from change of residence, and is due more to incidental circumstances than to any climatic agency. Change of habits from the indoor and sedentary to out-door and active is more favourable than any hygienic measure. To this last the benefit derivable from a change of occupation is generally due. Sea voyages are very often productive of good. The author has seen many cases in which alcohol in large quantities seemed to do good, and he says he has seen no instances of bad moral effects from the habitual use of stimulants in phthisis. He has seen cases where as much as a pint of whisky has been taken with benefit daily by a girl of 18. One notable fact is that in many of the instances in which arrest of the disease, partial or complete, took place, there was no medicinal treatment to speak of.

INTERNATIONAL HYGIENE.—"There is a universal language which lends itself to our aspirations and to our relations with each other; it is the language of the heart. National barriers are lowered before our fraternal legions, for the work of hygienic life saving, and social economy extend to a federation of peoples, which is called humanity, and humanity recognizes no frontiers." Such were the words of the President of the International Hygienic Congress in his opening address at the recent meeting at Brussels.

PRESERVING LIFE AT SEA.—An American, named Nash, has, according to the *Furniture Gazette*, conceived the excellent idea of converting the ordinary furniture of a ship into life-preservers, which he effects by simply providing stools with cork seats. Two discs of cork are fastened upon a base board, another board is placed over them, and the whole is bolted together. There is no air-chamber to become punctured, and therefore useless, and the cork will always float and support persons clinging to the stool.

IN LEBANON county, Penn., two hundred cases of small-pox were traced to the funeral of a man who had died of small-pox. The funeral was public and largely attended.

SPECIAL—PLEASE READ ATTENTIVELY.**PROSPECTIVE AND RETROSPECTIVE.**

With the next number, the **SANITARY JOURNAL** will complete its second volume. We take the opportunity this month rather than next, to place its position fairly and fully before its readers, and trust all will be so good as to read the following, and understand its position:—

Two years ago last July the first number was sent forth on its mission to a large number of leading men throughout Canada. It was believed by a few persons that the time had arrived when an effort ought to be made to awaken the people of this fair country to the importance of giving timely attention to the subject of public health—that of preventing sickness and premature death, the most important subject that can engage the attention of a people. It was known the death-rate in parts of the country was large, and that the death-rate in other countries had been greatly reduced by attention to sanitary matters. No attention seemingly had as yet been given to the subject in this country.

It was not with expectations of pecuniary gain that the **JOURNAL** was started, but rather with grave fears of loss and ultimate failure. The very favorable reception it received, however, by the press and medical men and others of high standing, far exceeded expectations, and it was continued, every alternate month for the first year.

Owing to a natural disinclination to pay in advance for a new publication, the public were not asked to do so in the case of the **SANITARY JOURNAL**, and it was sent to a large number of medical men and others with a circular in the first two or three numbers requesting the return of the number if not wanted. The natural conclusion was, that those who did not return a number but continued to receive the **JOURNAL** regularly from the Post Office for several months, wished it continued and intended to pay for it.

A large number receiving it in this way, and the editor receiving many highly complimentary letters from men of known reputation, wishing it success and hoping it would be continued, it was believed there was sufficient encouragement to warrant its continuance the second year and also the second volume. At times during the past year such encouragement has been received as led to hope that it would be safe to enlarge it on commencing the third volume, nevertheless, on the whole, the receipts are yet far from sufficient to pay actual outlay for publishing, because so few comparatively of those who have been receiving it from the first have paid for it. We have no doubt for the most part there are good intentions, but the little matter is deferred to a more convenient period.

Now, to put the matter fairly and “squarely” before all in arrears, and they number several hundreds, we have no alternative but to

discontinue publishing the JOURNAL at the end of the year—we dare not attempt to continue—unless each and every one will be good enough to remit at an early day the small amount of indebtedness. We have now spent many hundreds of dollars on it over and above receipts, and we cannot continue it any longer at a direct loss. We again enclose to each a statement of amount due to end of Volume II., and if each and every one will remit the amount with little or no delay, not *one* thinking, as some do sometimes, that the small amount of his indebtedness can make but little difference, we will not only continue the JOURNAL, giving our time and labor, but will enlarge it for next year, giving about half as much more reading matter, and endeavor to make other improvements, without increasing the price.

The JOURNAL is far from being all we could desire, but we have done the best we could under the circumstances, and many others besides ourselves would regret to have it discontinued. It is the only Journal of the kind published in the Province. One would think there ought to be at least one thousand persons in it alone, saying nothing of the other Provinces, who would, and could with profit to themselves and families, as well as to the country generally, support a Journal of the kind, however humble it might be.

If sustained, we can only promise to do in the future as we have endeavoured to do in the past—to diffuse, as far as we are able, a knowledge of sanitary science, and to advocate public health legislation; to elevate the medical profession, and to change its present relations with the public. We believe with Dr. Maudesley and others, that the profession may attain “earlier and large success in preventing the diseases of communities than in curing the diseases of the individual;” that the public can pay better for prevention than for cure, so far as it is possible to prevent; and that the time may not be far off when the physician shall be paid by the year to watch the health of families and prevent sickness, so far as possible, most surgical and special cases being extra.

We again thank those who have paid us in advance for the JOURNAL, and assure them if we are not so sustained now during the next few weeks, as to be enabled to continue it, we will return them the money paid on account of next year. But we have considerable hope yet in the future, and find it most difficult to believe that those who have now received the JOURNAL for nearly two years—received full value, will force us to discontinue the work because of their omission to pay.