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THE
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[No. 7.

Original Communication.

ON LEAD-POISONING.

In his late work on Therapeutics and Materia Medica, Dr. Stille observes: "Poisoning by water contaminated with lead is probably of more frequent occurrence than is generally supposed, for in some of the most deplorable instances of this accident, the real cause of the mischief remained unsuspected for a long time." And in noticing the sources of lead-poisoning, he remarks: "There are some among them that act secretly and insiduously, and often undermine health and even destroy life without a suspicion existing of their real character." When we consider how very commonly lead, or some of its salts, is used in the manufacture of vessels for holding foodstuffs, and of pipes for conveying water; how prone most foods and drinks are to chemical change and to acquire acidulous properties, and how soluble are some of the salts of lead; and finally, what a very small quantity or proportion of lead may give rise to symptoms of poisoning, the truth of Dr. Stille's remarks becomes very apparent.

Lead is not dissolved by perfectly pure water, but when oxygen and free carbonic acid are present, especially if the latter is in abundance, a soluble salt of the metal, lead-bicarbonate is formed, which readily dissolves in water. Water containing chlorides (as common salt), organic matter, nitrates and nitrites, or vegetable acids, dissolves lead readily. Acidulous foods, when cooked or kept in vessels lined or largely soldered with lead, or in earthen vessels glazed with lead, if

moisture is present, frequently acquire poisonous qualities by dissolving a portion of the metal.

While the stomach and the lungs are the ordinary channels of entrance of the poison into the system, there cannot be a doubt that most mucous membranes and the denuded cutis, and even the sound skin, when compounds of lead are constantly or repeatedly applied to it, are capable of absorbing sufficient to give rise to the characteristic symptoms of lead-poisoning. Lotions of lead subacetate or acetate applied to the excoriated skin have frequently given rise to this effect, as have also lead ointments employed as dressings for open sores, and even adhesive plasters when used to draw together the edges of large ulcers.¹ Some years ago several cases of lead poisoning were traced to the use of snuff containing lead oxide or by having become impregnated by being packed in leaden cases.² It is well known that type-setters are liable to that peculiar form of lead-poisoning vulgarly called "*dropped hands*;" and that cases of lead poisoning have occurred in consequence of employing cosmetics containing lead. According to the *Gazette des Hopitaux*, May, 1874, Dr. Manouvriez had made enquiries into the experience of thirty workmen who were brought more or less by the nature of their occupations into contact with lead, and had arrived at the conclusion that the local symptoms of paralysis, change of sensibility, etc., result from the direct absorption of the poison through the skin. "In those who were right-handed, it was always the right upper extremity that was affected; while in the left-handed the symptoms were, for the most, confined to the left upper extremity. A worker in white-lead, whose feet were most frequently brought into play (in the process of stamping), was first affected in these parts. Two right-handed workmen happened to be seized with paralysis in the left arms and hands; but in their case it transpired that it was the left upper extremity which had come in contact with the lead." A writer, J. F. B., in the *British Medical Journal*, October, 1874, mentioned the following cases:—

"An elderly lady, who had been advised to use a hair-wash to cool her head, came under my notice, complaining constantly of griping pain in the bowels, for which no cause could be assigned. I was induced to look at her gums, when the 'blue mark' was visible. A tablespoonful of the wash was directed to be used once a week. The composition was sold for a charitable purpose." * *

"A blacksmith had suffered for six months from general muscular

1. Stille's Therapeut. and Mat. Med. 2. American Jour. of Med. Sci., Oct. 1857.

weakness, dyspepsia, great tenderness over the bowels, and constipation. On examining the gums, the 'blue mark' * was visible. Here the cause of the disease was at first hidden by the fact of the muscles of the back, loins and thighs being most paralysed; but on enquiry I found he was a horse-shoer, and that these muscles come more into use. Eight months previously, on only one occasion, he made a little putty with white-lead, and had no recollection of being brought into contact with lead in any other form." He also gives the case of a baker's man who "complained of cramp and muscular weakness in his back and arms. The blue mark was visible. Two months since, the kitchen where he sleeps, and which is used for the culinary purposes of the family, was painted. Here the muscles of the arms and back are most used in wheeling his cart and often stooping."

Lead colic has been produced by sleeping in a freshly painted room; and the disease is more likely to be caused if heat is used to hasten the drying of the paint. Most medical men are familiar with the case mentioned by Dr. Watson, (*Practice of Physic*), in which a woman presented well-marked symptoms of lead poisoning, colic, dropped hands, &c., and the source of the poison was a number of bird-cages which had been painted green a few months previous, in the room she habitually occupied. But, as Dr. Sille observes, "more than all, water which has dissolved the oxide or carbonate of lead, in its contact with reservoirs or pipes of this metal, is a fruitful source of all the forms" of lead-poisoning.

Leaden pipes being so universally employed in cities to supply water to the houses, cases of lead-poisoning would surely be of very frequent occurrence did not most waters contain salts of lime—calcium carbonate, calcium sulphate, or calcium phosphate (which last Frankland has found to have a great protective power)—by means of which a thin coating of an insoluble salt of lead is formed, which closely invests the metal and prevents further action of the water. Hence, waters which act least upon lead are those containing these calcium salts.

The amount of dissolved lead which will sometimes produce symptoms of poisoning is very minute. Dr. Angus Smith

* This is a peculiar symptom, just observed, it appears, in Europe in 1334, by Dr. H. Burton, and described by him as "a narrow leaden-blue line," about 1-20 of an in. in width, along the attachment between the teeth and the gums. It is believed to be a local effect, produced by the action of the sulphur contained in the food, or eructations from the stomach upon the lead in the saliva, and which tends to lodge along the line mentioned.

refers to cases of lead paralysis in which as little as $\frac{1}{100}$ of a grain per gallon was in the water.¹ Adams also speaks of $\frac{1}{100}$ of a grain per gallon causing poisoning.² Calvert found that water which had been decidedly injurious in Manchester contained from $\frac{1}{10}$ to $\frac{3}{10}$ of a grain per gallon. In the somewhat celebrated case of the poisoning of Louis Philips' family at Claremont, in 1848, the amount of lead was $\frac{7}{10}$ of a grain per gallon of the water used. A brief history of this case may be interesting to some of the readers of the SANITARY JOURNAL. In it the cause of the mischief was for a long time unsuspected. Of thirty-eight persons in the family, thirteen were affected, though only three were seriously ill; thus illustrating that there are peculiarities of constitution which increase the susceptibility to the poison. The water which supplied the palace was the same as that which had been used there for thirty years. It was brought in leaden pipes from a natural pool two miles distant. The pool, in which had accumulated a quantity of animal and vegetable detritus, had recently been cleansed, and it is believed that the exposure of the interior of the pipe to the air during the process of cleansing must have caused the removal of some of the crust which had lined it, and prevented the action of the water upon it, so that the water, when allowed to again flow through the pipes, became contaminated. The following case was reported by Dr. Anderson, (*American Jour. of Med. Science*,) in 1853. Ten of the workmen of a saw mill on the Cape Fear River were affected with unequivocal symptoms of lead-poisoning, caused by the use of water, originally of unusual purity, which was conveyed a distance of two thousand feet in a leaden pipe to a reservoir at the mill. A case has recently been mentioned by Prof. Chandler, of New York,³ of a gentleman who, being troubled with dyspepsia, had been ordered to breakfast daily on wheaten grits. "Soon after commencing this treatment, symptoms of lead-poisoning were developed, and it was discovered that the cook had been in the habit of preparing the patients breakfast with the first water drawn in the morning from the Croton pipes, in which the water had been 'standing' throughout the night."

The following remarks of Dr. B. W. Richardson⁴ applying to Great Britain, are more or less applicable to Canada, and may serve to arouse sanitarians to constantly guard against

1. Parks' Practical Hygiene. 2. Trans. of Amer. Med. Soc. 1852.
3. Proceedings of the N. Y. Public Health Association, Mar. 1875. 4. Wilson's Hand Book of Hygiene.

such sources of contamination. "Contamination of water," he says, "both hard and soft, impure and pure, by lead, is, in all parts of the kingdom, and, under every variety of circumstances, the cause or source of various obscure diseases of man (and also, doubtless, of the lower animals), of the nature specially of dyspepsia and colic. This proposition was abundantly proved by cases of minor diseases induced by lead contamination of various of the hard or impure waters of London."

There are numerous other vehicles besides water by which lead is introduced into the system, giving rise to symptoms of poisoning. Cider, beer, and wine sometimes become impregnated with lead by being conveyed through leaden pipes. According to Wilson, Sir George Baker, in his investigations with regard to the Devonshire colic, which formerly prevailed to a great extent, found that eighteen bottles of cider which he examined contained $4\frac{1}{2}$ grains of lead, which arose from lead being employed in the construction of the cider troughs. A contributor to the *British Medical Journal*, February, 1874, has pointed out another source of lead-poisoning—viz: that of the metallic caps of bottles in which soda water and potassa water are sometimes kept. Confectionery is sometimes rendered poisonous by the preparations of lead used to color it.

Regarding prophylactics in lead-poisoning:—It has been suggested that, by employing some artificial protection to the skin of lead workers, the absorption of the poison might be prevented. The LANCET last year mentioned several cases of lead-poisoning which occurred at Chatham dockyard among workmen employed between the double bottoms of armor-plated ships, and stated that Dr. Jack, R.N., had recommended that each man employed in this kind of work should be provided with canvas suits to prevent the lead adhering to the clothes. Suspected cosmetics should be avoided, and washes containing salts of lead should not be used, even by medical men, when any other sort of lotion can be safely substituted. When the use of water from leaden supply pipes to the houses is unavoidable, the risk may be sometimes greatly obviated by rejecting the first portion drawn in the morning, or that which has been "standing" for a time in the pipes. Finally, the manufacture of certain foods and drinks might be subjected to a certain degree of inspection, with the view of preventing the employment of leaden vessels in their manufacture.

I will conclude this paper with a brief notice of an interesting case of lead-poisoning, given in the *Brit. Med. Jour.*, April 1875, as read by Dr. Dowse before the Clinical Society

of London. The patient was a painter by trade, had suffered on several occasions from painters' colic, and had had chronic paralysis, upon which suddenly supervened general paralysis. Upon chemical examination after death, the substance of the brain and cord was found to contain about 1-250th of a grain of lead in each drachm.

B. C.

VACCINATION AND SANITARY LEGISLATION.

[This was received too late for the last number; it has already appeared, and at much greater length, in the *Montreal Gazette*.]—ED.

To the Editor of the Gazette.

SIR,—I have received the following letter on the subject of vaccination:—

DEAR DOCTOR,—According to promise, I give you some facts anent vaccination. Early in January I was called to a case of small-pox, occurring in a family of seven children. The case was that of a young girl, aged 11. She had been previously vaccinated, and it had taken well. The attack was very mild. There is now hardly a mark on her face. As she was convalescing, an elder sister, aged 14, whose vaccination mark was not so good, was taken ill with the disease, and she had it a little more severely, but it was never at any time a serious case. As this last one was convalescing, a brother, aged 7, well vaccinated in infancy, was laid up with the disease and had not more than fifty pustules out on the whole body. About the same time this little fellow was ill, an older brother, aged 16 or 17, previously vaccinated in infancy, but the mark was an indifferent one, fell ill. This was the worst case of all, but life was never in danger. The two youngest of the family—a boy and girl—had never been vaccinated, and to save them from the disease, they were vaccinated with kine lymph I am in the habit of receiving from Boston. Both arms took well. These two children were allowed to remain in the same bedroom with the sick ones and occasionally were on their beds. I had some difficulty in persuading the parents to allow the operation, but what I wish to bring to your notice is the fact, these two children never took the disease, and they were always in close propinquity to four cases of variola, one of them rather severe. If it be possible to intensify the morbid poison of this disease, it would have been so in this case, as three of the children were in a small bedroom. Of course, any medical man can relate his experiences of the great benefits of vaccination, but in face of the present insane opposition, it should be our duty to bring to your notice any such cases where the benefits of vaccination have been so well marked.

Yours very sincerely,

JAMES PERRIGO.

I am exceedingly thankful to Dr. Perrigo for the above information.

I shall take this opportunity to make known to the public what course has been taken to establish in Montreal a permanent Bureau of Vaccine in virtue of a Bill of Public Health.

The following are the principal clauses of the Bill :

1. To establish a permanent bureau of vaccine in the Province of Quebec in order to be able to constantly procure animal and humanized lymph and supply the medical men of the Province of Quebec.
2. To appoint public vaccinators in the different municipalities of the Province of Quebec.
3. Vaccinators to be supplied with lymph by the bureau only.
4. Written instructions on the art of vaccinating and selecting lymph, also registers according to certain forms to be distributed to every public vaccinator and medical man applying for lymph.
5. Public vaccinators to report at stated periods to the Bureau of Vaccination vaccinations performed by them.
6. To be empowered to act as health officers in their respective districts, and take such necessary preventive measures to prevent the spread of epidemic diseases and insure the health of their district, such as vaccination and isolation.

Spurious vaccinations are no doubt owing to the want of a proper organization to furnish the pure lymph, and to follow up vaccination. The want of proper sanitary legislation for the Province of Quebec would probably somewhat retard the excellent benefits which would otherwise be derived from the Bureau of Vaccine. I can, however, state that the medical profession of the Province of Quebec is so alive to the question of vaccination that no medical man applying to the Bureau for lymph would refuse to conform himself to the rules and regulations of the Bureau.

And should we find that it would be absolutely necessary to obtain legislation for the Province of Quebec, could we not apply to the Federal Legislature to adopt sanitary measures for the whole Dominion? Each Province ought to be interested in passing general laws, the object of which would be to insure public health throughout the Dominion.

A report on Public health has already been adopted by the Ottawa Legislature, Dr. Brouse, one of the principal movers in in this question, has taken the matter in hand. The report recommends that there should be a Bureau of Sanitary Science and vital Statistics attached to some of the Departments.

Montreal and Toronto should take advantage of the session at Ottawa to prevail upon the Federal Legislature to enact sanitary laws for the whole Dominion.

Dr. Playter, Editor of the Toronto SANITARY JOURNAL, has already drawn the attention of Sanitarians to this question.

Should we not join him in the work ?

Yours,

A. B. LAROCQUE, M.D.,
Health Officer.

To the Editor of the SANITARY JOURNAL.

SIR,—Is there not danger to the health of the inhabitants of certain parts of this city through a copious supply of water from the public water-works before provision is made, as by the constructions of sewers, for an equally copious outflow of waste water and sewerage ? It appears we have about one mile of sewers to three miles of streets, and water from the reservoir will, it is to be supposed, be supplied to many parts which are not provided with sewers. I very much fear the liberal supply of water to these parts will tend to create greater nuisances than what we have at present. An opinion on the above, given in your valuable JOURNAL, would oblige, and might be of some public benefit,

Yours, &c.,

ENQUIRER.

Toronto, June 2, 1875.

[There is great danger to health from a too copious supply of water to those parts of the city which are not provided with sewers. Last October the attention of the Committee on Sewers in Boston, U.S., was drawn to this same question, and the Committee finally recommended that the sewers should be put down before the water-pipes were laid. The *Boston Medical and Surgical Journal* in commenting upon it observes, "the soil around dwelling-houses ordinarily absorbs the sewerage of the inmates when the water used is pumped from wells, but when the supply comes from the public water-works the primitive methods of drainage into back yards will no longer avail, and dangerous nuisances result. We believe

it would be altogether the best policy to make the rule a fixed and unalterable one—that *the sewers shall go before the service-pipes.*” The italicizing is ours, and we may add that though the soil around dwellings is ordinarily permitted to absorb the sewerage when the water used is from wells, it ought not *even then* to be permitted to do so.—ED. SANT. JR.]

[To the Editor of the Sanitary Journal.]

SIR,—May I request you to send me the SANITARY JOURNAL for which please receive the enclosed two dollars, for I think the journal is a most desirable work, not only for professional men, but for the whole community.

I have been requested to ask, whether rain water from the clean roof of a house would not be more wholesome for domestic use than surface water, subject to the filterings through the soil from privies and other collections of impurities into wells. An answer in your journal might be of use as a hint to those in some parts of this town, where we have a porous surface soil with clay beneath, in which some dig their wells.

I am sir, yours, &c.,

GEORGE KAINS.

St. Thomas, 10th May, 1875.

[Unquestionably, rain water from a clean roof would be much more wholesome than surface water, subject to the filterings you speak of, which indeed constitutes probably the most insalubrious and objectionable of all waters; while rain water, especially after rain has been falling for a short time and removed most impurities from the air and roofs, is the purest of all natural waters, and as Parks says, “its purity and its great æration make it both healthy and pleasant.”—ED. SANT. JR.]

“ Old men and young, beware ! beware !
 A pipe of tobacco is Satan’s snare ;
 Not surer the net for a bird is spread,
 By the pipe’s sweet note to capture led,
 Than the whiffs which the lovers of smoking take,
 Are sure to lead to the Stygian lake.”

WATER POISONING AS A CAUSE OF DISEASE.

BY THOMAS H. BAILEY, M.D., NEW YORK.

[Read before the New York Medical Library and Journal Association, Feb. 6th, 1875.—From the Sanitarian.]

Upon the gradual deviations which mark the course of civilization, scientists have based a theory which they term Cycloidal, according to which we are passing through and into an era analogous to a pre-existing one. Some foundation for this is seen in numerous objects extant, denoting a high state of civilization among certain of the ancients, and the history of its subsequent decline; nothing, however, historic or pre-historic, points to an age so enlightened and practical, so free from superstition and doubt, as the present, and it is not at all probable that the useful sciences and arts have ever before been so fully developed. Phenomena, which were viewed with superstition and awe in past ages, are to-day explained through simple and natural laws. Medicine has not dropped behind her sister sciences in this grand, forward movement of the nineteenth century, and the star of her ascendancy has never before attained the altitude occupied at present.

Preventive medicine, which, during the dark ages, and for some time following, seems almost to have been ignored or forgotten, has of late attracted much attention, and I desire to offer this, my slight contribution, to the general fund of information already collected upon this important subject.

Among the ruins of different ancient cities stand the remains of extensive and well arranged aqueducts and sewers, showing an appreciation of the necessity for pure water, and a knowledge of the injurious effects of bad sewerage. In the laws of Moses are found directions governing the disposal of dead bodies and effete matter generally, and the Israelites, during their days of prosperity, not only built in Jerusalem extensive and costly sewers and aqueducts—the ruins of which may be seen to-day—but also arranged for utilizing their sewage for purposes of fertilization. Notwithstanding the knowledge possessed by some of the ancients, and the surmises which were thrown out from time to time, during the middle ages, respecting the connection of poisoned wells with the origin of disease, only within the past few years has the subject of water poisoning, as a cause of disease, prominently invaded medical literature, and while it is evident that the majority of medical men in England, if not in this country,

are satisfied that a connection does exist between them, this idea is ably and energetically opposed by acute observers who are not willing to admit the septic origination of any epidemic disease. Foremost among this number may be mentioned Dr. Budd of Bristol.* * * *

The opinions of Piedvacke, which are much the same as those of Liebermeister, Pratt, Budd, and others. The removal of the Cimetiere des Innocens, at Paris, in 1785, without the appearance of any epidemic. The revolting condition of the Thames in 1858, which, according to Dr. McWilliam,* did not affect the health of the river police or the population along its banks. The testimony of Parent du Chatelet regarding the horrible Montfaucon of Paris. The experiments of the late Dr. Barker, of Bedford, and others, on animals, by exposing them to the air of cesspools and different gasses, the products of decomposition, and later the arguments of Professor Tyndall, in connection with other arguments and experiments, have been advanced in opposition to the spontaneous origin of certain diseases. Although the foregoing facts, experiments and arguments are interesting *per se*, they are insufficient for the weighty evidence necessary to prove a point. For example, the reasons for not, as a rule, being able to trace the origin of diseases to manure heaps, pig sties, stagnant pools, and various accumulations of decomposed or decomposing matter found around dwellings in the rural districts are obvious. These various masses of decomposing matter are freely exposed to, and rendered harmless, or measureably so, by nature's three great disinfectants, viz., earth, air, and water. The effect of these active natural agents, however, may be, and are at times, overpowered; as for example, when they are confined in given quantities with large masses of decomposed matter, or matter subject to decomposition. This is the case in sewers, cesspools, and privies, and in manure pits if they be covered, or partially so, and not supplied with drains to carry off the liquid portions. In such instances, the preponderance of putrid matter over the natural disinfectants is so great, that they are not only rendered powerless, but are swallowed up as it were, and go to augment the poisonous mass. Now, it was found by Drs. Barker, Richardson, and others, in the experiments before mentioned, that in animals exposed over sewers or to gasses, the products of decomposition, certain systematic disturbances

* Several professional gentlemen, of high standing in London, say many who used this water were undoubtedly affected by it.

followed, such as acceleration of the respiration, jactitation of the muscles, tremors, insalivation, diarrhoea, and vomiting, and when the experiments were pushed further, narcotism, coma, and death. Because no evidence of the lesions peculiar to enteric fever were found after careful post mortem examinations of several of these cases, certain observers have advanced these experiments as valuable evidence against the spontaneous origin of this disease. In so doing, they ignore the fact that no evidence points to any of these animals as being susceptible to enteric fever. Experiments made upon different animals and applied to man are not always reliable. This applies with much greater force to plant life, as some of the very elements most conducive to vegetables are poisonous to animals. * * * *

Nothing positive is as yet known regarding the primary nature of so-called zymotic poisons; much has been written and many theories have been advanced, some of which are very ingenious. But the highest powers of the microscope, according to Dr. Burden Sanderson and others, fail to detect in water known to be zymotic, the existence of bacteria, germs, or zymotic units. Their existence, therefore, is simply inferential.

The "organic germ" theory, which at present is being so vigorously pushed by Professor Tyndall, was long ago overturned by the experiments of Dr. Angus Smith and Jabez Hogg. The former showing that the air of towns was deleterious mainly through the emanations from human beings, manufactories, &c., and not from "organic germs;" and the latter calling attention to the fact, that Professor Tyndall confused "organic germs" with "organic particles," and demonstrating that "organic germs," as "spores of fungi," existed in very small proportions in the atmosphere, and were often absent entirely.

The views of Dr. Lenonel Beale, are probably the latest contribution to this subject. He expresses his belief in the origin of fever germs, "within the body by a process of disintegration from living matter of the body itself." These fever germs may "arise anew," not formed or evolved in the world outside the body however. "They are neither microscopic fungi or derived from them." Filth favors, while good water and well arranged sewerage prevent, the generation of these germs, and a community possessing these preventive agents, would not suffer, though "exposed to the assaults of a host of fever germs in the highest state of morbid activity."*

* London Med. Times & Gazette, Nov. 21, 1874, p. 580.

While Dr. Beale's views seem to be remarkably sound, I cannot see that the inferred existence of "fever germs," either inside or outside the body, is of any practical value. To establish a working basis, and place the matter within reach of any or all professional men and the public generally, it should be presented in the simplest and clearest form of which our present knowledge admits.

That water contaminated with the dejecta of enteric fever patients may and does engender the same disease, we can consider as an established fact, since even Dr. Budd and Professor Tyndall admit it. Dr. Murchinson, who has justly been termed the great apostle of parthenogenesis, collected a number of cases in support of the origin of disease anew through the introduction into the system of putrid matter or gases the products of decomposition. It has been suggested that many of the cases "may be accounted for on the explanation of Dr. Budd, viz., the transmission by sewers of the poison from intestinal discharges." "There still, however, remains a puzzling residuum."* We are not obliged, however, to depend upon the cases collected by Dr. Murchinson. In the passage of time, other cases have been brought to light, which have not only added to the weight of evidence in confirmation of Dr. Murchinson's views, but have also awakened a public interest through which, in Great Britain at least, sanitary laws have been passed and measures instituted, which bid fair to wipe out of existence, in the United Kingdom, diseases arising from accumulations of filth.

It is impossible for me to quote at length in a paper of this description, from the many interesting reports respecting this matter, which have appeared in current medical literature, during the past few years. A brief allusion to some of the most important will, however, pave the way to the conclusions derived from personal experience, which I propose to lay before you.

"During March, 1865, the attention of Dr. Perry, physician to the Glasgow Royal Infirmary, was directed to the existence of epidemic typhoid fever in the neighbourhood of the Garnkirk Fire Clay Company's works." † Here the fever originated among the workmen, to all appearances *de novo*. The drinking water was found to be contaminated with sewage and human excrement. The cause was removed and the epidemic ceased; not until, however, more than fifty cases

* Chas. E. Prior.

† Braithwaite's Retrospect, Jan. 1869, p. 17.

occurred. Although a number of these cases were removed, the fever was not communicated to any outsiders (which in connection with other facts goes to show the non-communicability of this disease.) Dr. Perry says, that in "the commencement of this epidemic, the type of fever was somewhat indefinite," some of the cases being declared bronchitis.

Dr. John Ewens, Cerne Abbas Dorset,* mentioned several cases which came under his notice, where enteric fever undoubtedly originated from impure water, foremost among which are the epidemic in the village of Cheselborne and the outbreak in the hamlet of Watcombe. In the former, the people of the village had been subject to severe epidemics from time to time; finally wells were sunk, a pure water supply secured, and the fever disappeared. The Watcombe outbreak was due to the use of water from a well situated below the level of the surrounding country. The fever was confined to the inhabitants who used this water. Adjoining houses obtaining water from other sources were free from the disease.

The appearance of enteric fever in the village of Haseton, as mentioned by Dr. Latham,† was attributed to a man who came to lodge there while recovering from fever; and its spread was supposed to be through contagion. Subsequent discoveries, however, proved it to be due to a stream of water running directly through the village, into which drains from the houses emptied, and the poorer classes drew water for cooking purposes. After the people ceased using this water no fresh cases occurred.

Dr. Latham also speaks of the Islington case, where enteric fever was communicated to over 70 families out of 140 who were supplied with milk from a certain dairy when the milk cans were washed in water from a tank communicating with drains. Milbank prison, London,‡ was, for thirty years or over, the scene of serious epidemics of dysentery, diarrhoea, enteric fever and cholera. All these ceased to prevail on the discontinuance of the Thames water and substitution of artesian wells.

Dr. Blaxall,§ in his report upon epidemic typhoid in the town of Sherborne, shows that sewage air arising from an intermittent water supply, will contaminate drinking water and generate enteric fever.

Dr. Grimshaw, of Dublin,* relates an instance with

* Lancet, Aug. 12th, 1871, p. 250.

† Lancet, July 15th, 1871, p. 81.

‡ Lancet, June 15th, 1872, p. 820.

§ Lancet, Aug. 30th, 1873, p. 304.

* Med. Press and Circular, June 18th and July 2nd, 1873, pp. 529, 3.

respect to a school in that city, which was attended by both sexes. Typhoid fever appeared among the males, and was found to arise from the latrines used by them, they being so "badly drained that twice daily, at the rise of the tide, the drainage was driven back into the area in which the latrines were situated, thus poisoning the atmosphere of the place."

"Many examples," says Dr. Grimshaw, "of the connection of this disease with drinking water impregnated with sewage matter, are found in the reports of the medical officers of the Privy Council for England." In our own country two striking instances have lately occurred, which, in a general way, have been brought to the notice of the public. I allude to "the sickness at the Gregory House, Lake Mahopac," which occurred during the past summer, and later, the outbreak of typhoid fever at "St. Mary's Hall," an institute for young ladies, situated at Burlington, New Jersey. Personal experience in the former case places me in a position not only to add a contribution to the valuable knowledge already collected, but also to assist in establishing the origin *de novo* of enteric fever through impure or poisonous drinking water. Before proceeding directly with my subject, a brief sketch of Lake Mahopac, the Gregory House and surroundings, and some events which have transpired there during the past five years, will enable you to more clearly understand the case in all its bearings.

Lake Mahopac is the largest and most beautiful of a chain of lakes which lie embosomed in the mountains of Putnam county in this State. * * * On a plateau at the eastern extremity of the lake stands the Gregory House, named after the original owner and proprietor, Mr. L. H. Gregory, "under whose supervision the arrangements of sewerage and water supply were constructed. The water was conveyed from the lake to the hotel through earthenware pipes into a brick reservoir by gravitation, and as the ground to the rear of the hotel is lower than the surface of the lake, the water flows into a hydraulic ram, whence it is forced into the house. The construction of a large extension to the hotel necessitated the use of a small steam engine, and for this purpose another reservoir connected with the first one was built under the house, to supply the water for the steam engine. Subsequently to this (in 1871) a steam laundry was constructed, and the new engine did the work of the laundry and the pumping for the house, consequently the use of the smaller engine and its reservoir was discontinued. The connection, however, between

the two reservoirs was not cut, and from this most stupid and criminal blunder originated much suffering and several fatal cases of typhoid fever.”*

The Gregory House and its surroundings passed from the hands of its original owner into those of “the Lake Mahopac Land Improvement Company,” some time between the fall of 1870 and the spring of 1871. I spent the summer preceding this sale at the house, and remember that little or no sickness occurred there. During the month of August, the following summer, 1871, I visited Lake Mahopac for a few days, and remember, while there, being called in by a brother physician to see a case of typhoid fever in the Gregory House. I at that time heard of several other cases of fever in the house, being pronounced by the physician in attendance pernicious intermittent or typho-malarial fever. From what I have since learned, I judge these were also cases of typhoid fever. I have been informed through reliable sources, that during the summer alluded to, diarrhoea and vomiting prevailed among the guests and servants of the house. The attention of Mr. J. S. Ramsey, who was then proprietor, was called to the matter, and he ascertained the trouble arose from impure water in the disused reservoir before mentioned, which, with the gases thereby generated, contaminated the drinking water. So soon as the reservoir was cleaned the trouble ceased.

In 1872, I was at Lake Mahopac during the entire season, and though stopping at another hotel, was frequently in the Gregory House—in fact, had patients there. Both the guests and servants were, as far as I know, entirely free from any unusual sickness. I have since been told that during this season care was taken to keep the water in the disused reservoir free from impurities. The following summer, 1873, found me again at Lake Mahopac, and I remember being requested by the physician stopping at the Gregory House, to see a patient for him, he being disabled by a severe attack of diarrhoea and vomiting, and quite a number of the guests and servants were for several days similarly affected; that this was due to poisoned water there seems to be no doubt, as I have lately been informed that the disused reservoir had for some time previous to this been neglected, and when proper attention was paid to it this sickness ceased. The facts here mentioned were brought out only after the thorough and searching investigation which followed the occurrences of last summer, and incidents which at the time of their occurrence

* Gen'l E. L. Viele, SANITARIAN, Nov. 1874, p. 371.

appeared devoid of peculiar significance, now assist in forming a chain of valuable evidence, from which it appears that septic poisoning produces peculiar and characteristic effects which are particularly manifested in the intestinal tract, and if pushed far enough will in a certain number of cases result in "septic enteritis" or enteric fever.

The Gregory House was opened last summer, 1874, on the 18th day of June, under the proprietorship of Mr. S. E. Crittenden, who had previously been a stranger to the place. I was at the house during the entire season. Before the 1st of July the hotel was well filled, containing, including servants, about 500 people. On Monday night, June 29th, I was called to see several cases presenting the same general symptoms, namely, profuse diarrhoea, vomiting and prostration. Cases of this description continued to occur more or less frequently, until about the middle of July. I was at first led to attribute the cause to change of air, diet, and sudden and remarkable atmospheric changes, more especially so as the day preceding the appearance of the first cases, was one of the hottest and most depressing I had ever experienced in this climate, and the persons attacked had been particularly exposed to the rays of the sun. I soon, however, began to suspect a local cause, and instituted a thorough investigation of the culinary department, and sewerage arrangements. This, at first, failed to develop any satisfactory results; finally, however, the disused reservoir under the house—the existence of which had previously been unknown to me—was discovered and found to contain stagnant water, which was not improved by contributions received through a pipe from the kitchen floor, it was not, however, in any way connected with sewerage pipes or drains, and could not possibly receive any human excreta. In the reservoir connected with this, and through which flowed the water from the lake to the dam, was found an accumulation of mud and leaves which extended into, and occluded the mouth of the connecting pipe, and acted as a valve preventing water from running into, but not precluding the passage of water or gas from the disused reservoir. The transmission of impure water occurred whenever the disused reservoir was filled above a certain level from heavy and continued rains or from scrubblings of the kitchen floor. This accounts for the intermittent character of the attacks of diarrhoea and vomiting. The water used for cooking and drinking was mostly drawn from the pipes before they entered the tanks situated at the top of the house, and, therefore had

no opportunity of ridding itself of impurities through exposure to the air. Under these circumstances only a very small quantity of poisonous matter or gas was necessary to contaminate a large body of water.

After securing the connection between these two reservoirs, and thereby insuring a pure water supply, no new cases occurred. On reviewing this case, we find clear and undeniable evidence in favor of the *de novo* origin of disease. No experiment could be devised to more fully and clearly demonstrate a fact than this accidental and unfortunate occurrence does. We find here an opportunity of putting all *excremental* complications entirely out of the question. Here, water contaminated with putrid matter and gases is found to produce certain characteristic symptoms, which, when the poison is ingested in sufficient quantities, are in a certain number of cases followed by intestinal lesions. Here, cause and effect are clearly demonstrated. In the summer of 1870, the reservoir under the house being then in use, there is no cause for sickness, and the inmates of the Gregory House are free from any unusual sickness. In 1871 a change is made. The reservoir under the house is abandoned and allowed to fill with impure water; the effect is, an epidemic of cholera morbus, followed by several cases of typhoid fever; the cause is found and remedied, and the diarrhœa and vomiting cease. During the summer of 1872, care is taken to keep the water pure, and no sickness occurs. In 1873, the reservoir is for a time neglected, and again the effects are made manifest, for a short time only, however, as the remedy is soon applied. Again, in 1874, the reservoir, through ignorance of its existence, is neglected, and the effects were produced as I have related, and the trouble was stopped when the reservoir was attended to. * * * *

From eight hundred to one thousand people were to a more or less extent exposed to the poisonous water at the Gregory House last summer. About one hundred of these, or ten per cent., were primarily affected. About twenty-five, or two and a half per cent., developed febrile symptoms; about fifteen, or one and a half per cent., showed typhoidal symptoms; and about five, or one-half per cent., proved fatal—two of these were guests, and three servants.

Dr. Jacobi so aptly and clearly delineated the effect of putrid matter when introduced in various ways and quantities into the human system, in his excellent article on septic enteritis, read before this association not long since, that little or nothing is left for me to say.

The special character of septic poison is as yet unknown. Chemistry has failed to discover it, and the microscope to reveal it. We know, however, that poisoned or contaminated water will engender disease. And this country would do well to follow the example of Great Britain, and establish a health board under the control of the national government, that would reach every hamlet and rural district in the land.

134 Lexington avenue, New York, Feb. 1st, 1875.

ON THE TEMPERANCE QUESTION.

Extract from Valedictory address to the Graduates in Medicine and Surgery, McGill University, delivered on behalf of the Medical Faculty at the Annual Convocation on Wednesday, 31st March, 1875, by William Osler, M.D., L.R.C.P.L., Lecturer on Institutes of Medicine.

[From the Canada Medical and Surgical Journal, Montreal.]

A word now on the Temperance question, which is becoming an all important one in Canada for us as medical men. That alcohol is a medicine, and a valuable one, nobody not blinded by prejudice denies; but bear in mind that it is a dangerous remedy, and one that should not be, as it is, so generally recommended by practitioners.

There are many conditions, for which alcohol is now freely prescribed, quite amenable to treatment by other medicinal agents combined with a careful regulation of diet. When you do order it, give positive directions about the quantity, and the length of time it is to be continued. Inattention to these matters, especially in patients suffering from any of the neuroses, is occasionally the starting point of dangerous drinking habits. Medical men, more than any other, have opportunities of observing the commencement of such habits, and care should be exercised, lest this tendency be fostered by the form of treatment employed. No class of individuals can better wage war against the indiscriminate drinking habits of the public than the Doctors, and the laity will hearken to their admonitions on this point; even when the exhortations of the Divines are treated with contempt. Example, gentlemen, is better than precept, and by becoming teetotallers yourselves, you will neither injure your health nor damage your professional prospects. Too many valuable lives in our profession are sacrificed yearly to intemperance; and, now is the time for you, with minds still "wax to receive and marble to retain," to lay the foundation of good sober habits.

RESULTS OF VACCINATION.

There was not a case of small pox in Boston for the year ending May 1st, which is the first time the remark could have been made with truth for twenty years.

We extract the above from the *Boston Herald* of Monday, 17th May, 1875, and the gentleman who kindly sent it to us adds: "*Boston a ete vaccinee il y a deux ans; quel argument pour le Dr. Coderre.*" Truly it is an argument which is unanswerable, but one which has been oft repeated. Casper, of Berlin, gives the returns of death by small pox in that city for three decennial periods. From 1792 to 1801 there perished in Berlin, from small pox, 4,453 persons. In the year 1800 vaccination was introduced and practiced extensively; from 1802 to 1811 the death rate from small pox was reduced to 2,955; and in the next decennial period the deaths from small pox were further reduced to 500 souls. Take the instance of Sweden: from the official government returns we learn that in the year 1799, 11,500 persons perished by small pox; in 1800, there were 12,800 deaths from that malady. In the year 1800 vaccination was introduced into Sweden, and rendered compulsory; in the year 1801, the deaths from small pox were reduced to 6,000, and in 1822 there were only 11 cases of death from small pox recorded as occurring throughout Sweden. We have always considered it a fearful mistake on the part of our legislators the neglect to enforce a rigid compulsory system of vaccination throughout the length and breadth of this land.—*Canada Medical and Surgical Journal.*

WILL INFERIOR DOCTORS ANSWER FOR CHILDREN?—Many of the advocates for the medical employment of women declare that they do not wish them to become learned doctresses, but only qualified to treat the diseases of their own sex and of children; but those who make this strange proposition are evidently ignorant of its nature. For, while the entire economy of woman is dominated by the utero-ovarian apparatus, the diseases of this apparatus cannot be isolated from all the others, and consequently from her entire pathology; and as for children, they are susceptible of as numerous and as complicated diseases as adults, the only difference being that *more knowledge and perspicacity are required for their detection.* Formerly there was in Belgium, and there still is in France, a second and inferior class of medical practitioners termed *officiers de sante*, and this was abolished on the ex-

press ground that the lower classes were as well entitled to have highly educated attendants as those who were better off.—*Medical Times and Gazette*.

THE SANITARY ASSOCIATION OF MONTREAL.—We observe that a number of prominent citizens of Montreal have formed themselves into an association with the above title, their professed object being to improve, if possible, the sanitary condition of that city. The association is not in any way antagonistic to the legally constituted health department, but is desirous of seconding the efforts of the health department in every way in its power. Great good may result from the formation of this association. There are many subjects which will legitimately engage its attention, but we believe its mission lies in arousing public and individual attention to the urgency of adopting sanitary measures; in other words, in educating the masses in subjects with which they should be familiar, leaving the details of enforcing sanitary regulations to the police.—*Med. & Surg. Journal*.

[A Sanitary Association has had existence in Montreal for a year or two, and we had been informed that it was to be reorganized, with a view to its more efficient working; the one above referred to is then probably the same association newly organized. We have no doubt it will be the means of doing much good, and, as before observed, should be glad to learn of one being formed in Toronto.—Ed.]

AMATEUR PHYSICIANS.—If a layman is recommended by any one to take or do something for an ailment, and it is promptly followed by the removal of the thing complained of, he forthwith, from that single instance, becomes enthusiastic, and the very next time he meets with one who has similar "symptoms," he prescribes with great confidence, and if that is also successful, he, in a very short time, will be found giving the same prescription for every thing, it at once becomes in his estimation a panacea, a universal remedy, a cure for everything. It would require scores of such successes and a whole year's, or even five years' observation, for an experienced physician to have a hundredth part of the confidence in any remedy, simply because he knows the uncertainties of remedies, and how rare it is that the same conditions are found in two cases.—*Hall's Journal*.

DIET VS. WHIPPING.—We wish to make a plea for the cross and fretful little ones who are so often treated with great injustice in being punished. Mothers feed their children all

sorts of irritating condiments and indigestible articles of food, and then wonder at the perversity of the little ones, because they cry without apparent cause, are restless and discontented, dissatisfied with their playthings, and generally unhappy. They forget that children, even small children, only five or six years of age, or younger, have stomachs as well as themselves. Yes, and nerves, too, as well as their mammas. Indigestible food has the same effect upon small stomachs as upon larger and older ones. Too much food, or food taken too often, will as surely give rise to indigestion and suffering in children as in adults. What wonder, then, that they should manifest the same traits as characterize older dyspeptics? They are cross, and peevish, and fretful, because they cannot help being so; just as an old dyspeptic is morose and gloomy and hypochondriac. Their delicate nerves are irritated, and everything jars upon them. They are wholly wretched, and give expression to their misery in cries. They are told to "hush;" but they don't know how to keep still. They cannot control their feelings. Then they must have their ears slapped or pulled, or they must be shut up in the closet or the cellar until good behavior is promised. Scenes like this are frequent enough. They are all wrong—terrible mistakes.—*Health Reformer.*

VEGETATION AS A DISINFECTANT.—In a paper advocating the utilization of sewage for agricultural purposes, Dr. Alfred Carpenter says that, if a certain weight of rye-grass seed be sown in wet sand, without allowing the contact of any water which contains nitrogenous matter, the plants will grow to a certain size, that is, until they have used up all the matter contained in the seed, and then growth is, to a great extent, arrested. This has been shown experimentally by growing rye-grass under glass. All growth has been arrested for want of nourishment. On adding to the water solutions of fresh organic matter (meat-juice), the plant has at once begun to grow, and in a few days has doubled its size, while a test set of plants to which such organic matter has not been added has remained stationary. Another basin and glass cover with sand not containing rye-grass, but to which organic matter had been added, became putrid in a few days, but no such putridity appeared when the rye-grass was growing. A fourth case had put into it an amount of nitrate of ammonia corresponding to the amount estimated to be contained in the meat-juices which were used in the first case; but here the growth of the plant was by no means so luxuriant as when the living nitrogenous

matter was added: although a fresh start was made, the plant soon dwindled away and died. Thus it appears that living vegetation acts as a powerful disinfectant, assimilating directly the nitrogenous principles of organic substances.—*Popular Science Monthly for July, 1875.*

DON'T ALWAYS KISS THE BABY.—The promiscuous kissing of children is a pestilential practice. Do you remember calling on your dear friend Mrs. Brown the other day with a strip of flannel round your neck, and when little Flora came dancing into the room, didn't you pounce upon her demonstratively, call her a precious little pet, and kiss her? Then you serenely proceeded to describe the dreadful sore throat that kept you from prayer-meeting the night before. You had no design on the dear child's life, we know; nevertheless you killed her! Killed her as surely as if you had fed her with strychnine or arsenic. Your caresses were fatal. Two or three days after, the little pet began to complain of a sore throat, too. The symptoms grew rapidly alarming; and when the doctor came, the single word "diphtheria" sufficed to explain them all. To-day a little mound in Greenwood is the sole memento of your visit.

"Evil is wrought by want of thought,
As well as by want of heart."

—*Scientific American.*

HOW TO CLOTHE CHILDREN.—Dr. Ulrich, of Bremen, has been giving some advice on this subject lately. He says the clothes must not be narrow across the chest and shoulders, nor too wide over the back; the arm-holes should be exactly at the sides, and not, as they too often are, far forward; the top button of a boy's jacket is frequently much too tight, and drags down the head and neck, while it raises the back and flattens the chest. It is of the first importance, when measuring a child for clothes, to see that the head is high and the chest full.—*Med. and Surg. Reporter.*

WHY ARE BRAIN WORKERS LONG LIVED?—Dr. Geo. M. Beard, in a recent pamphlet, gives the following reasons for the long life of those who live by brain labor:

- (1) Brain work is inherently and essentially healthy.
- (2) Brain workers have less worry and more comfort and happiness than muscle workers.
- (3) Brain workers live under better sanitary conditions than muscle workers.

(4) The nervous temperament which usually predominates in brain workers is antagonistic to fatal acute inflammatory diseases and favorable to long life.

(5) Brain workers can adapt their labors to their moods and hours and periods of greatest capacity for labor better than muscle workers.—*Detroit Review of Medicine.*

TYPHOID AND MILK.—An epidemic of enteric fever has for some time past prevailed at Crosshill, a suburb of Glasgow. Patient investigation into the conditions of the outbreak proved pretty conclusively that the disease originated and was spread through the medium of contaminated milk. The sanitary authorities have now warned milk-vendors against purchasing their supplies from any of the suspected farms, a list of which is given, and they furthermore recommend the inhabitants to boil their milk before using it. This precaution is a very necessary one, and joined with other measures of supervision which have been adopted will, we hope, speedily arrest the progress of the epidemic.—*Exchange.*

TOTAL ABSTINENCE.—At the recent annual festival of a temperance society, Sir Henry Thompson, who spoke at length, declared his belief in the principles held by those who formed that gathering. He considered that habitual, or, as it was usually called, moderate drinking was a thing which people should avoid, if they wished to have a sound mind in a sound body. It is a somewhat remarkable fact, that many of the most hard-worked professional men in London are habitual abstainers from alcohol, and have been so for some years, on the basis of personal experience, and from the fact that they have found the use of alcohol to interfere with their physical health and mental activity.—*Medical and Surgical Reporter.*

PREVENTIVE MEDICINE is now pressing its claims with an emphasis never before heard. The race demands of the profession not only to repair the ravages of disease but to save them from its power. *Prof. R. C. Kedzie.*

IS IT CONSCIENCE MONEY?—Holloway, the London charlatan made a fortune by the sale of cathartic pills, and has now devoted a portion of the proceeds to founding an asylum for idiots. Punch proposes the following inscription to be placed on the front of the building :

Not oft is fate so just ; see wealth restored
Back to the simple source from which it poured.

THE SANITARY JOURNAL,

DEVOTED TO PUBLIC HEALTH.

VOL. I.

TORONTO, JULY 1ST, 1875.

No. 7.

TYPHOID FEVER.

A large proportion of this number of the JOURNAL is devoted to the consideration of typhoid fever; but this subject is at the present time one of the most important pertaining to public health, and too much attention cannot be given to it. There is reason to fear the disease is largely on the increase in Canada, and reason to apprehend that the number of cases of it will continue to multiply at a still more rapid rate from year to year if the people generally do not at once turn their attention more toward the sources from whence the disease appears to emanate, and employ prompt and efficient means to remove the existing causes and prevent others arising. If the people will not do this we can hardly hope to much longer escape outbreaks of the disease, much more terrible than have yet been heard of in our comparatively new country; such outbreaks as from time to time cut down hundreds in the towns and cities of Great Britain and even in the United States.

It is now very generally believed that typhoid has a spontaneous origin—that it will arise *de novo* from accumulations of excreta, especially when these accumulations are in any way connected with defective drainage and the water supply; though a few, led by Dr. Budd and Professor Tyndall, still adhere to the belief that the disease never has a spontaneous origin, but always springs from a specific germ, derived from a pre-existing case of fever. There are many and very strong facts, however, on the other side, and the weight of

evidence certainly appears to be strongly opposed to this pre-existing germ theory. Indeed, after weighing the evidence on both sides, it appears difficult to conceive how any one can doubt that the disease may, and most frequently does, arise spontaneously, in the fermentation of faecal matter. And it is worth while here to notice the pertinent remarks of the *British Medical Journal* upon Professor Tyndall's late attempt to settle this important question; they are as follows:—"It is not a little remarkable that a philosopher who maintains that even the human race has, by a process of evolution, in the course of countless ages, sprung from something lower in the scale of organisation even than organisms, which he compares to 'drops of oil suspended in a mixture of alcohol and water,' and who seems to agree with Lucretius in affirming that "nature is seen to do all things spontaneously of herself without the meddling of the gods," should yet maintain that the poison of typhoid fever, can never arise except from a previous case of typhoid fever, and must therefore have existed from all eternity, before even man himself existed." If, then, typhoid fever may arise spontaneously, as above, thousands of hotbeds for its propagation are strewed over this country, waiting, as it were, for certain favorable conditions to enable them to shoot forth the germs of disease and death. Not only in most cities and towns and villages, but even in country places, in connection with farm houses, are abominable faecal accumulations, such as ought not to be tolerated for a single hour by a civilized people. But how can we have them removed? Centuries would be required to so educate the masses as that each and every head of a family would attend to the proper cleansing of his own premises, and to the keeping of them entirely free from all collections of filth, and therefore we want sanitary laws giving power to a sufficient number of efficient officers to see that every dwelling and its surroundings in the Dominion is kept in a proper sanitary condition. Let us not wait until we are actually frightened into it by frequent and alarming outbreaks of the fever, as appears to have been the case in Great Britain. Let us profit by the experience of others. Experi-

ence teaches, it is said; but why await the suffering experience brings—the trials of self-experience? Why wait until hundreds or thousands of human creatures fall victims to the deadly miasm?

THE CHANGE.

This is the first number of the monthly series of the *SANITARY JOURNAL*. In future it will be issued promptly the first of each month. An enlargement, by which it will contain more reading matter, is in contemplation for the first of next year, when the second volume will commence; the subscription price, however, will not be increased.

We sincerely thank those of our friends—chiefly members of our own profession, though many leading men outside of it—who have sent us such kind wishes for the “success” of our “enterprise,” who wish us “a great measure of success” and “any amount of prosperity” in our “praiseworthy undertaking” and “valuable *JOURNAL*.” Especially do we thank those who have at the same time promised to do, and have doubtless done, all they could “to forward its interest.” These kind wishes and promises, together with assurances from many that they are “much pleased with” and “greatly interested in” the *JOURNAL*, are a source of very great gratification to us, while they undoubtedly tend to add to that measure of success in the enterprise which, in consideration of its entirely new character in this country, may be regarded as, at least, large; and assuredly if it does not in the end prove an entire success it will be our misfortune and not our fault.

We are not at all surprised, knowing well the benevolent character of medical men as a class, at the kindly interest thus manifested by many of them in preventive medicine, but it is a matter of surprise that it is so difficult to prevail upon them to write upon the subject, and give the public generally, as well as their medical brethren, the benefit of their experience, as, for example, as to the apparent effects of defective drainage

and ventilation, and of impure water, the proportion or amount of preventable disease coming under their observation, etc., when so many of them write upon curative medicine. Time will change, probably reverse, the order of these. We trust the period of time required to effect the change will not be long.

It appears necessary to remind those of our friends who have not yet sent in the amount of subscription, that the publication of the JOURNAL is attended with great expense, and it is yet drawing heavily on our private purse. Will they please take this hint?

In future the price of the JOURNAL will be TWO DOLLARS per annum. Two dollars will pay for it from number one to the end of the present year—twelve numbers.



LIFE AT HIGH PRESSURE.—A great deal is now being said and written by both medical men and others upon the dangers and disadvantages of the present high pressure mode of living. It is a universal law that “intensity and duration of action are inversely proportional.” The term of use of express railway stock is much shorter than that used for slow traffic. The human system is no more an exception to the law than is the railway stock. We have in mind now a gentleman, hardly more than a wreck of what he might now be had his life been kept at a lower tension; but a “short life and a merry one” was his motto. “Wealth, social position, and fame,” says the *Lancet*, “have been placed within the reach of a much larger portion of the population than they were before accessible to. But they are only to be obtained at the expense of strenuous, unremitting energy—of work at high pressure.” “Existence becomes like a dream.” The chief remedy appears to be in “the regeneration first of all of the modes of living, of the tastes and style of the opulent leaders of society, and the transmission of their influence through the lower ranks,” who usually strive over much to follow these opulent leaders. The venerable journal above mentioned appears to think this subject concerns no profession more than our own, and earnestly

commends to the members of it one "wise suggestion," that those in it "who work over hard need not work over long—they might yield the vacant place to younger and needier "aspirants." In this connection we propose to give some figures relating to the increase of heart disease, to which this high pressure system of living is believed to give rise,—figures which should cause at least the intelligent classes to attend more closely to individual hygiene, which should warn them to have more care not to kill themselves for the sake of living. It has been found * that the total number of deaths of males at all ages from heart disease during the twenty years, from 1851 to 1870, increased in number from 5,746 to 12,428. The percentage of deaths from this cause per 1000 of population living was, between the years 1851 and 1856, 755; it increased to 1,085 from 1866 to 1870. This increase was entirely in connection with the working years of social life. There was no change in the percentage of deaths from this cause in males under 25 years of age. Between the ages of 20 and 45 it increased from 553 to 709, and almost exclusively in males.

SUMMER MORTALITY OF INFANTS.—The infant mortality in cities during July and August exceeds, sometimes greatly, that of any other proportional period of the year. The causes of this are referred to in a late number of the *Philadelphia Medical and Surgical Reporter*, as follows:—"Dirty streets, the sale of spoiled vegetables and meats, of watered and inferior milk, the neglect of individual cleanliness, and the use of nostrums containing opium. All of these are removable, and that man neglects his plain duty as a citizen, a physician, and a christian, who neglects to use his best endeavors to diminish them." The *Reporter* recommends that which has been strongly advocated by philanthropists—the removal of the young children of large numbers of poor families to temporary residences in the country. The *Tribune* says:—"There are farm houses which could be hired for a small sum, furnished with cheap portable beds, tables, and kitchen furniture, and a

*Lumleian Lectures, by Dr. Quain, College of Physicians, London, Eng.

matron provided, all at the expense of a few hundred dollars. There is no need of the usual cumbrous machinery and red-tape organization of a hospital. Two or three good women to give the money, one honest, sensible one to spend it, and the thing is done. Let the children be sent, each with its mother, for a fortnight or three weeks, and the child's life will be saved, and the mother taught to believe that there is some practical meaning and help in Christianity." This matter is well worthy the consideration of some of the charitably disposed ladies of Toronto, Montreal, and other cities of Canada. And it is not yet too late, even this year, with a little prompt action, to carry out such a scheme. The last week or two of July, and probably the early part of August, is the period of greatest fatality. Undoubtedly the life of many a little fellow creature might be saved by being sent from the city to the country for a short period at this season.

UNHEALTHY HOMES AND INTEMPERANCE.—Some months ago (SANT. JOUR., Nov. 1874.) we endeavoured to draw the attention of temperance workers and others to the amount of intemperance arising from neglect of sanitary administration—from insanitary homes. Usually intemperance is erroneously regarded as the cause, instead of the effect, of the unhappiness and filth in the overcrowded, ill-ventilated, and dark habitations of the poor. Thousands leave their squalid and wretched abodes of misery and seek temporary comfort in the stimulus and semi-oblivion afforded by alcohol. Recently the London *Lancet* has drawn attention to this subject, and says "there is no question which demands more serious attention on the part of the Legislature than the improvement of the dwellings of the poor." "There is no doubt," continues the *Lancet*, "that much of the morning spirit-drinking amongst working men is due to the foul and close atmosphere in which they are compelled to sleep." A communication in the *Manchester Guardian* from an M.D. is also noticed by the *Lancet*, which "calls attention to the question of unhealthy dwellings as a cause of intemperance, particularly in women;" and argues that "they are particularly liable to be led into the habit of dram drinking by the weariness and depression induced by the want of air and light in their homes."

THE PEABODY DWELLINGS.—No better evidence of the good effect of comfortable homes upon health and longevity could be expected than the following, from the *London Lancet*, April 17, 1875 :—“ In a paper read before the Statistical Society on ‘Improved Dwellings and their Beneficial Effect upon Health and Morals,’ it was stated that the average annual rate of mortality during the eight years ending 1874, in the improved dwellings erected by the Metropolitan Association for improving the dwellings of the industrial classes, did not exceed 14 per 1,000 whereas the average rate in the whole of London during that period was 24 per 1,000.”

A COURSE OF LECTURES on Sanitary Science is now (May 22nd, 1875, *Med. Times and Gazette*) being delivered by members of the Dublin Sanitary Association. They are intended to be of a popular type, and the public are admitted. According to the *British Medical Journal*, a course of lectures on State Medicine is being delivered by Dr. De Chaumont, under the auspices of the society of Apothecaries, London, England. Sanitary matters are apparently in very a progressive state in England.

IS BRANDY WARMING?—A man, according to the *Boston Medical and Surgical Journal*, was brought to the hospital in a comatose state from “having drunk three champagne bottles full of brandy” the day previous. His temperature was found to be only 76 deg. Fahr. Twelve hours later it arose to 91 deg. Fahr.; and not very long after the man became sensible.

CURIOUS STATISTICS.—Dr. Schwalbe has collected the following curious statistics of the mortality of Berlin : The death rate among those inhabiting the cellars was 25·3 per 1000 ; among the ground floor inhabitants it was 22 ; in first floor rooms it was 21·6 ; in second floor 21·8 ; in third floor 22·6 ; and in fourth floor or higher 28·2. The mortality being greater in the cellars and highest room ; those in the attics in Berlin however it is stated are poorer than those in the cellars.

FACTUALITY.—The next number of the **SANITARY JOURNAL** will contain an article on "Drainage, with special reference to the Ventilation of Drains," by Dr. W. Oldright, Lecturer on Sanitary Science, Toronto School of Medicine, also an article by a medical writer, on the "Disposal of Sewage, as Effecting the Water Supply."

THE POPULAR SCIENCE MONTHLY.—Conducted by Prof. E. L. Youmans. Terms, \$5 per annum. D. Appleton & Co., New York. This is very generally regarded as one of the very best periodicals of its kind published in the world. Among its contributors are many of the ablest minds known to science; and it is doing a good work in popularizing science and developing the reasoning power. The July number is out, and, as usual, is replete with valuable and interesting matter.

IMPROVEMENT IN THE CANADIAN MONTHLY.—"The publishers of this Magazine announce that "owing to the large number of articles available for publication with which our contributors are kind enough to favor, us the management have determined upon compressing the printed matter by lessening the space between the lines, by which means additional matter, equal to about fifteen of our present pages of large type, will be published each month." The price will continue as heretofore, \$3 50 per annum. The change will take effect this July.

Sixth Annual Report of the State Board of Health of Massachusetts, Jan., 1875, replete with new and rich material for Sanitary Science. We shall have occasion to refer to it again.

The **SANITARIAN**, edited by A. N. Bell, M.D., New York. Monthly, p.p. 48; \$3 per annum. This contains a large proportionate amount of original matter affecting public health, by prominent medical scholars. We have been pleased to draw largely from its pages, and cannot but believe it must render valuable aid in the advancement of Sanitary Science.

THE HEALTH REFORMER, edited by J. H. Kellogg, M.D. This is a monthly, published at Battle Creek, Michigan, at \$1 per annum. It takes a strong position against tobacco and alcoholic beverages, and although we cannot endorse its views on fats, salt, and animal foods (excepting perhaps, pork), it will undoubtedly do good work in the cause of health.

ERRATUM.—At page 195, in foot note, for, just observed, it appears, in Europe in 1334, read, first observed, it appears, in Europe in 1834.