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# PUBLIC HEALTH MAGAZINE

AND

LITERARY REVIEW.

Edited by GEO. A. BAYNES, M.D., &c., &c.

SEPTEMBER, 1876.

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# PUBLIC HEALTH MAGAZINE

AND

## LITERARY REVIEW.

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### Original Communications.

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#### THE PNEUMATIC SYSTEM OF SEWERAGE AND ITS APPLICATION TO THE CITY OF MONTREAL.

By R. CARA HARRIS, C.E., Associate Member Inst. C.E.

In the July number of Public Health Magazine some facts were given regarding the great system of sewerage which goes under the name of the Pneumatic System, but the information there given was only in outline, and it is proposed now to enter into public details regarding both of the great systems of sewerage—the water carriage or common system—and the pneumatic or air carriage system.

The subject is wide, and time and labor are required to go into all the relations of the questions involved so as to lay bare the causes which have forced on in a manner the invention of the Pneumatic System. These causes are the defects which have been found in the water carriage system, and have led to its failure. As they become better understood this system will be abandoned.

It is proposed in the course of the following articles to give :

- a. Full details and explanations of the Pneumatic System.
- b. Cost of do., embracing analysis and sale of manure.
- c. Sanitary results as far as ascertained, contrasted with sanitary results of water carriage.
- d. Application to Montreal.
- e. If space permits, a history of the water carriage system, and an account of its present condition.

After long years of trial and incalculable cost, our present system is an admitted failure in almost every sanitary sense.

The costly and magnificent sewerage works of the great cities have been executed by engineers who thought less about medical facts than they did of the engineering problems which they had to solve.

Colonel H , the Engineer of the Sewers of the City of London, masterly report to the Common Council, last January, on the Liernur Pneumatic System of Sewerage, recommending its trial in some of the new districts of the city. But he says at the end of his report that there will arise difficulties in obtaining for it a trial, because "the existing system of sewerage has been so lauded, its sanitary value has been so dwelt upon, its defects so much passed over, it has so many advocates, so many reputations almost in fact depend upon its being reckoned a successful system."

And again "If the government believes in its motto of *salus populi suprema lex*, it will do well to inaugurate a comprehensive, and open enquiry into the results of the present sewerage system, and it will be well for the metropolis or some large town to give the Pneumatic System a fair trial."

The writer of the present article, after a personal professional examination, was completely convinced of its success, and believes that it will be universally adopted before many years.

As an illustration of the high esteem in which it is held by good authorities, the following quotations are given :

LEYDEN.—It is in operation. The resident government engineer of the Rhine lands, writing in answer to the Winchester Corporation, says : "In conclusion, I wish to state that Capt. Liernur has completely solved the sewerage question."

The Mayor and Corporation of Leyden in their Report recommending extension, say : "Since it has been put in operation (1871) the good and regular working has been daily witnessed, and there were no failures to report.

And further on they speak "of the immense beneficial influence it has on the public health, resulting from the fact that excrements are daily removed without polluting the soil, stream or atmosphere in any way, or being a nuisance to anyone."

Speaking of the system financially, in asking for the funds

to extend it, they say: "It is hence a matter of certainty (from experience of the sale of the manure) that all expenses will be repaid and our outlay returned."

AMSTERDAM.—The common Council at Amsterdam, after testifying that the technical results agree in every respect with the assurances of the inventor, say: "The results in a sanitary point of view obtained are in general, but particularly for Amsterdam, of the utmost importance, while it has been demonstrated that the system is capable of removing human excreta from the houses without offending sight or smell before any noxious gases can be developed and escaped."

They then "decree the compulsory application of the system in seven different parts of the city, *remarking that in three of these the inhabitants had themselves demanded it.*"

DORDRECHT.—The Director of Public Works says, and repeats it to the Winchester Corporation: "I consider the system technically and sanitarily perfect, and financially, I have the best expectations of it, from the sale of manure."

SAXONY.—The Commission from this Kingdom, in their Report to the Minister of the Interior, conclude by saying: "We consider the System a great stage in advance in the sewage question, and cannot but recommend that to many an engineer and physician who now oppose it, may be given an opportunity of satisfying themselves of its good working by ocular demonstration."

PRAGUE.—The Report of the Imperial Engineer Department in the first trials at Prague concludes by recommending the extension of the system to all the barracks and military buildings in Prague, and this was at once carried out.

VIENNA.—The verdict of the International Medical Congress is summed up in two sentences from this Report.

"The trials made in the presence of many members of the Congress convinced them that the entire system is capable of doing its task completely. All the various motives occupy such a small space of time, operate so smoothly and without attracting notice, that the invention called forth the utmost admiration unanimately."

The certificate from the Director General of the Vienna Exposition, which was fitted with the Pneumatic System, says among other things: "That the closets and urinals were entirely inodorous, both during use and during the emptying process," and "that so long as the Exhibition lasted, no

“ interruption whatever took place ; that no trouble or nuisance was experienced, and that the whole gave satisfaction in every respect.”

The Board of Health, in their Report made at the request of the Rotterdam city authorities, recommend its adoption by the city. They say : “ Liernur’s Pneumatic System, better than any other, satisfies the demands that, for the sake of cleanliness and Public Health, can be put upon a System for collecting faecal matter. Its practical feasibility, as well from a technical as from a financial point of view, has been sufficiently proved to us.”

MANCHESTER, Charlton Sanitary Authority.—The Chairman writing to us the result of the visit to Holland of their deputation, says: “ The best proof I can give of the strong impression made upon our minds by our visit to Holland, is the fact that we have invited Capt. Liernur to report on our District and help us, if he can, out of the difficulty in which we find ourselves.”

The *Lancet* in its account of the System, says: “ Theoretically it is perfect.”

The “ Engineering ” says: “ Every old system has in a sense failed, and consequently we find that in the United Kingdom generally the whole question has to be treated *de novo*. Capt. Liernur has attempted, and so far as we can judge, with a large amount of success, to grapple with the difficulties of the sewage question, more especially because he disposes of all the dangerous parts of sewage literally without sewerage.”

It is evident that a system of sewerage to be successful must fulfil the following conditions :

1st. It must be able to collect the excrement and filth of a large city, and transport it with speed, certainty and regularity from the city.

2nd. It must do this by mechanical contrivances actuated either by steam or water powers.

3. It must be done without injury to the health of the population.

4. The sewage must be returned to the soil in the form of a portable manure.

To secure these objects, if the system were applied to the City of Montreal, the following means would be taken :

The sewers and drains which are already built along the

streets would only be allowed to receive rain water and the waste household water, and refuse water from trades and factories would only be admitted after being purified.

A system of porous pipes might also be laid to drain the subsoil water into these sewers, so that the subsoil water above a certain level should be always dry.

A system of 5 inch pipes, cast iron, would be laid to carry off all the excreta, chamber slops and the coarse putrescible matter, such as kitchen waste, by means of air suction to a central reservoir, there to be dried into powder, for sale to farmers. It is claimed by Capt. Liernur that the sale of this would have a large profit after paying all expenses.

A main object is to reduce as much as possible the quantity of water mixed with the subsoils. Therefore, the existing water closet arrangements would be changed as follows: The privy for the Pneumatic System consists of a funnel shaped tube—in appearance much the same as that in a water closet—but much deeper, painted a dark color, of such a shape as to avoid being soiled as much as possible.

There is no pan and of course no handle. The funnel shaped tube is in a manner double because at its lower part it is surrounded, but not touched by, in fact overlapped by the upper part of another funnel shaped tube, which last is the real receptacle of the matter. The backs, both of the water tube and of the hopper or inner tube, are vertical, but they taper on their fronts and sides. This shape is to prevent the excreta from soiling them. The outer tube is of glazed earthenware of a dark color, the inner one, or hopper, of iron, with an enamelled surface. At its lower end the hopper terminates in a bent tube or syphon connecting with a vertical soil pipe. The Pneumatic privy is used in the ordinary way. The excreta lie in the syphon tube, any fresh addition to them causes an overflow into the soil pipe. Once in every twenty-four hours the vacuum is let on, and the soil pipes are emptied, but a certain portion always remains in the syphon, acting like a trap. The emptying process requires about one minute of time ordinarily.

The vertical soil pipe is continued upwards to the closets on the upper floors, and finally it passes above the level of the highest closet. It is continued by a smaller pipe to the roof, and may there be furnished with a charcoal filter, if thought desirable to avoid the escape of any gases or germs.

If thought necessary for ventilation, a tube of 2 inches diameter can pass from between the funnels of the pneumatic privy to the outside of the roof, and in the top of this tube can be fixed a Wolpert *Luft-Zäger* or air sucker. This is a very inexpensive apparatus of tin, composed of two cones of tin about 6 inches high, one outside the other, and the space of about half an inch between them. The tube passes up through the cones, and the slightest motion of the air produces a draught upwards through it.

This apparatus is a nicety which is not required, as owing to the depth of the funnel and the small quantity of matter exposed, there can no odor arise. It is to be remembered that the top of the soil pipe passes out through the roof, which ventilates the syphon at the bottom of the privy funnel. The pipe which thus ventilates the privy funnel serves also to admit the atmospheric air which acts as a cushion to drive the fecale before it when the vacuum is let on the pipes once every twenty-four hours. The air required for this purpose does not enter through the seat. Hence may be seen the folly of the absurd remarks which were at one time much regarding this part of the Pneumatic arrangements by some who had not understood it.

The period of twenty-four hours for emptying is fixed upon because it is assumed as a well ascertained fact that no injurious change arises in foecal matter until it is at least thirty hours old—but the process of emptying might just as conveniently be performed every twelve hours. The process only requires a minute or two.

Col. Haywood says: "Generally such of the seats and the interiors of the Pneumatic privies as I inspected were very clean; the funnel shaped hoppers beneath the seats were in most cases contact with foecal matter; in most cases there was no smell in the closets. \* \* \* \* \*  
 "When the cocks were opened, and the excreta lying in the syphons were acted on by the vacuum, there was some commotion in the excreta in the syphons under the closet tubes, and for a few seconds a noise like the bubbling of water when escaping from the neck of a bottle. *But there was no smell in the closets caused by it.* None of the syphons in the closets were cleared out entirely by the operation—sufficient remaining in them to form a trap. I was informed by the Burgomaster that personally he considers the system a complete success."



The writer of this present article can fully confirm what is here stated by Col. Haywood. Examination of the closets in Amsterdam and Lisbon was entirely satisfactory. In Lisbon a closet examined was in a very small house lived in by a family of the poorer classes. It was in the room serving both for living room and kitchen, in a small compartment, distant about ten feet from the fire. It was hot weather, but everything was clean and odorless. This is a practical illustration of the actual working of the system brought into interaction with human house-life. Its success was clearly complete and apparent. It is to be here remarked that the fact of the success of this system extending throughout five or six years ought to be sufficient to render arguments unnecessary.

The bottom of the soil pipe, after it enters the ground, is joined by another syphon to the *branch pipe*, and on this pipe there are other syphons, through all of which the ferule passes to reach the main pipes—there is thus no possibility for bad influences entering into the house from the main pipes.

The apparatus by which the kitchen fat-sediment and putrescible waste is separated from the waste water would be more easily explained by aid of a diagram. The waste water from the sinks passes through a pipe into a small underground well outside the building. At the bottom of this well is a pocket forming a trap by a syphon connecting with the branch pipe from the house; across the top of this pocket is a strainer formed of fine galvanized wire gauze, which allows the water to pass upward through it, and overflow into a waste pipe, through which it passes away into the rainwater sewers. The fat-sediment and kitchen waste is left on the underside of the gauze, and when the Pneumatic blast is let on, it is all sucked away into the pipes with the fecale.

By this form of trap the house is isolated even from the rainwater sewers, so that in the event that the waste and rainwater sewers should give off bad gases, such gases could not enter the house.

The amount of this kitchen waste is more considerable than is generally supposed. As an average per day per inhabitant for the whole town, it has been reckoned by sewerage authorities as equal to about four ounces, in the form of a slush, made up of small fragments coated with fat and pulpy material.

The passage of the fecale and the sink refuse has now been traced in detail into the *branch pipes*. On each branch pipe a

cock is placed so that the pipe can be closed, if repairs should require to be made, without interfering with the action of the other parts of the system.

By the time the fecale has reached the branch pipe, it has assumed the liquidity of water; even the paper has become dissolved, owing to the character of the fluids in which it is immersed. This liquid mass has to be propelled by a cushion of air acting behind it, to the central reservoir. This would not be possible in a level pipe, because the air would over pass the liquid and leave it behind.

The pipes are therefore laid in alternate inclined lines and short upright elbows or *risers*. By gravitation the fecale runs down each inclined length of pipe, until it reaches the next vertical riser, up which it is lifted or pressed by the air. It then runs down the next inclination, and is lifted up the next riser. If other pipes for gas or water occur in the path, they are avoided by putting in risers.

The fecale is thus urged from the branch pipes from every house in the street into a main pipe along the whole length of the street. The main pipe runs into a street reservoir, which is a small cast iron tank, capable of containing 6 or 8 cubic feet—cylinders with spirical ends, so as to be strong enough to resist atmospheric pressure caused by the vacuum inside them. From the street reservoirs, pipes called central pipes convey the fecale to the central reservoir. All the pipes are connected with the reservoirs by cocks, so that the vacuum can be caused to act upon one street at a time if necessary. A vacuum gauge is attached to the street reservoirs, so that the men who officiate can watch the process of emptying, and always be aware when they have sufficient vacuum pressure at work. The process is very speedy, occupying, when done under the observation of the writer, about three minutes—but it is claimed that one minute is generally sufficient. This partly depends upon the quantity to be removed.

It was anticipated at the outset of the system that a difficulty would be encountered, by reason of some houses or streets supplying more fecal matter than others less numerously populated. It was feared this would allow the pipes of one street or house to be emptied sooner than the pipes of another house or street—thus admitting air in one set of pipes, which would destroy the vacuum, and thereby prevent the completion of the emptying of the other pipes. This was avoided by making

the sum of all the vertical risers equal on every branch pipe of one line of main pipes. This causes each branch pipe to represent a barometric tube. If two branch pipes thus constructed communicate respectively, the one with a single house and the other, say, with a barrack, occupied, say, by a thousand soldiers, the one cannot be emptied before the other, because the pipe containing less material will not begin to discharge until so much of the material in the other pipe has been discharged as will suffice to equalize the pressure in the two pipes arising from the columns of fecale.

All the parts of the system being laid six or seven feet under ground, could not be affected by frost. Every pipe in the system is of cast iron, five inches inside diameter. They are laid with socket joint and lead. They require the same care in laying as ordinary gas or water pipes. After use for years they have been taken up, and shewed no trace of corrosion or of clogging.

The fecale having reached the Central Station in the condition of a dark liquid, is ready for conversion into poudrette. It remains in vacuum in the central reservoir, and is drawn off as required into an evaporating chamber, also in vacuum. At this stage the matter which we are calling *fecale* consists of about 90 per cent. of water and 10 per cent. of solids. The yield per head per day is 60 ounces—54 ounces being water, 6 ounces being solids.

Adam Scott, the distinguished writer and lecturer upon the sewage question, gives so clear an account of the process of producing poudrette that it may be copied here with great advantage:—

“The method followed to convert the fecale into a dry powder consists in separating this 90 per cent. of water from the solids by evaporation or distillation. The heat employed is the waste steam of the air pump engine which collects the fecale. To understand the possibility of this, it must be remembered that in few steam engines is there more than 7 per cent. of heat, which the steam takes up in the boiler, converted into motive power, and 93 per cent. escapes in the exhausted steam.

“The heat in question is called latent heat, which is measured in physics by caloric units, one such unit being the amount of heat employed to raise the temperature of one pound of steam by 1° Fabr. So long as steam remains steam,

“the amount of calories necessary for its existence is contained in it, otherwise it would not be steam at all, and this is the case with the waste steam of a high pressure engine. The amount of caloric depends, of course, upon the degree of sensible heat of the steam, and upon the number of pounds of steam there is at one's disposal. It is, in fact, this sensible heat which has been diminished in giving off work. Thus, one pound of steam of 90 pounds per square inch pressure contains 1,179.7 calories, with a sensible heat of 320.5° Fahr. After escaping from the cylinder, however, it will be cooled off to about 212°, but will still contain 1,100 calories, which can be given off to any substance the steam comes in contact with.”

“A sensible heat of 212° Fahr. is, however, too low for evaporating purposes, unless under a much diminished pressure. Captain Liernur, therefore, follows the example of sugar manufacturers in applying that heat to the fluid to be evaporated in combination with a partial vacuum, and as the vapor arising from such a boiling contains still a considerable amount of heat, measurable in calories, he uses it for a second evaporation process. The practicability of this may be understood at once when it is considered that a fluid may be set boiling with the steam of another fluid, and this may be repeated. Sugar manufactories call this process *à double effet*, or *à triple effet*, the last being where vapor of a second boiling is used for a third.

“To economise still further the exhaust steam of the air pump engine, it is conducted through coils of pipes, placed in the flue through which the hot gases and smoke from the boiler pass to the chimney. Its sensible heat, as experience shows, is increased by this process to about 230° Fahr., and the supernatant moisture transformed again into dry steam. The whole becomes thus practically dry steam, containing about 1,152 calories to the pound.

“This dry steam of 230° is now conducted through coils of copper pipes placed in an upright hermetically closed boiler. Into this, about midway in height, the faecal matter is introduced after having been mixed with one per cent. of sulphuric acid in weight to prevent the formation of ammonia during the evaporating process. The admission takes place continuously, and the matter is continuously withdrawn from the bottom, it then having lost about half the water it contained. This loss is occasioned by the evaporation due to the heat of the steam of 230° circulating in the coil of pipes, and

“ due to the fact that the vapors are carried off to a condenser, thus producing a vacuum of 25 inches mercury, under which reduced pressure the boiling point is reached at as low a temperature as 203°.

“ This condenser is formed by the second apparatus. It principally consists of a horizontal copper cylinder, revolving on its own axes, during the time that it receives the vapors of the first apparatus, and is suspended in a shallow trough, into which the already thickened reduced matter from the first apparatus flows.

“ In rotating it becomes on the outside covered with a thin layer of that substance. This thin layer is hence heated nearly to the degree which the vapors of the first apparatus impart to the inside of the second. But this cylinder itself is housed in a hermetically closed vessel, which stands in connection with the air pump engine. By means of an ordinary cold water spray condenser, the pressure within the vessel is kept down to about 13.6 inches mercury, under which the boiling point is reached as low as 375° Fahr. Under the combined effect of this degree of vacuum, and the heat imparted at 203°, the final evaporation of the thin layer in question takes place extremely rapidly, and it becomes a crust baked on the outside of the revolving cylinder. A stationary slanting knife (or *docteur*) placed underneath, meets the cylinder in its turning round and scrapes this crust off in the form of small flakes or shavings, which become the *poudrette*. It faces in a box placed on rollers under the knife. The apparatus can be opened in the evening. The *poudrette* can then be taken out and put in bags for transport to manure markets like guano.

“ Analysis of the water distilled from the *fecale* in this way shows it to be far purer than the standard of drinking water prescribed by the Local Government Board.

The process, above described by Mr. Adam Scott, is at the present time being carried out by the city of Dordrecht in Holland. At Amsterdam, Leyden, Prague, Brünn, Olmutz, &c., the *fecale* is as yet merely decanted in barrels and sold to the farmers as liquid manure, as the apparatus for conversion into *poudrette* is not yet erected in those cities.

This brings us to the question of the value and analysis of the *fecale*—the cost of works, and what return has been already, and may be in future, obtained from the sale. Upon this will be based the next article.

## MORTALITY OF THE CITY AND SUBURBS OF MONTREAL, FOR JULY, 1876.

CLASS.	ORDER.	DISEASES.	Total by Sex.		Total both Sexes.	
			Male.	Female.		
I. ZYMOTIC.	I. Miasmatic.	1. Small Pox.....	17	17	34	
		2. Measles.....				
		3. Scarlatina.....	1	2	3	
		4. Diphtheria.....	2	2	4	
		5. Quinsy.....				
		6. Croup.....	1		1	
		7. Whooping Cough.....	2	5	7	
		8. Typhoid Fever, (Infantile Remittent Fever)	6	3	9	
		9. Typhus, and Infantile Fever.....				
		10. Relapsing Fever.....				
		11. Fevers.....	1	1	2	
		12. Erysipelas.....	2		2	
		13. Metria, (Puerperal Fever).....				
		14. Carbuncle.....				
		15. Influenza.....				
		16. Dysentery.....	9	8	17	
		17. Diarrhœa.....	51	55	106	
		18. Pyæmia.....				
		19. Cholera Infantum.....	84	64	148	
		20. Cholera.....	1	3	4	
		21. Ague.....				
		22. Remittent Fever.....				
		23. Cerebro-Spinal Meningitis.....				
II. CONSTITUTIONAL.	II. Euthetic.	1. Syphilis.....				
		2. Hydrophobia.....				
		3. Glanders.....				
	III. Diathetic.	1. Privation.....				
		2. Purpura and Scurvy.....				
		3. Delirium Tremens } Alcoholism .. .. .				
		4. Intemperance.... }				
	IV. Parasitic.	1. Thrush.....				
		2. Worms, &c.....				
	II. CONSTITUTIONAL.	I. Diathetic.	1. Gout.....	1	1	2
			2. Rheumatism.....	3	1	4
			3. Dropsy and Anæmia.....	1	2	3
4. Cancer.....						
5. Noma (or Canker).....			1		1	
6. Mortification.....			1	1	2	
1. Scrofula.....			16	24	40	
2. Tabes Mesenterica.....			3	2	5	
3. Phthisis (Cons. of Lungs).....						
4. Hydrocephalus.....						
5. Tubercular Meningitis.....						
<i>Carried forward.....</i>			203	192	395	

## MORTALITY OF THE CITY AND SUBURBS OF MONTREAL.—(Con.)

CLASS.	ORDER.	DISEASES.	Total by Sex.		Total both Sexes.	
			Male.	Female.		
		<i>Brought forward</i> .....	203	192	395	
III. LOCAL.	II. Or- gan I. Brain and Nerve System.	1. Cephalitis .....	5	4	9	
		2. Apoplexy .....		1	1	
		3. Paralysis .....	1	4	5	
		4. Insanity .....				
		5. Chorea .....				
		6. Epilepsy .....				
		7. Tetanus .....				
		8. Convulsions .....	11	6	17	
		9. Other Brain diseases, &c. ....	9	8	17	
	II. Or- gan II. Respi- ratory Organs.	1. Carditis, Pericarditis and Endocarditis...	1		1	
		2. Ancurism .....				
		3. Other Heart diseases, &c. ....	5	10	15	
		1. Epi-taxis .....				
		2. Laryngitis and Trachitis .....				
		3. Bronchitis .....	4	4	8	
		4. Pleurisy .....				
	II. Or- gan III. Respi- ratory Organs.	5. Pneumonia .....	6		6	
		6. Asthma .....				
		7. Other Lung diseases, &c. ....	4		4	
		1. Gastritis .....	1	1	2	
		2. Enteritis .....	10	9	19	
		3. Feritonitis .....		2	2	
		4. Ascites .....				
		5. Ulceration of Intestines .....		2	2	
		6. Hernia .....	1		1	
		7. Ileus and Intussusception .....				
	II. Or- gan IV. Or- gans of Di- gestion.	8. Stricture of Intestines .....				
		9. Fistula .....				
		10. Diseases of Stomach and Intestines, &c.				
		11. Pancreas Diseases, &c. ....				
		12. Hepatitis .....				
		13. Jaundice .....				
		14. Liver Disease, &c. ....				
		15. Spleen Disease, &c. ....				
		II. Or- gan V. Urinary Organs.	1. Nephritis .....			
			2. Ischuria .....			
			3. Nephria (Bright's Disease) .....	2		2
			4. Diabetes .....		1	1
			5. Calculus, (Gravel, &c) .....			
			6. Cystitis and Cystorrhœa .....	2		2
			7. Stricture .....	2		2
	8. Kidney Disease, &c. ....					
	II. Or- gan VI. Gen- erative Organs	1. Ovarian Disease .....				
		2. Disease of Uterus, &c. ....		1	1	
	II. Or- gan VII. Or- gans of Loco- motion	1. Arthritis .....				
		2. Joint Disease, &c. ....	1		1	
			<i>Carried over</i> .....	268	245	513

## MORTALITY OF THE CITY AND SUBURBS OF MONTREAL.—(Con.)

CLASS.	ORDER.	DISEASES.	Total by Sex.		Total both Sexes.				
			Male.	Female.					
		<i>Brought over</i> .....	268	245	513				
V. VIOLENT DEATHS. IV. Developmental Diseases	VII. Integumentary System.	1 Abscess.....	10	6	16				
		2 Ulcer.....							
		3 Skin Diseases, &c....							
		I. Of Children.				1 Stillborn.....	43	39	82
						2 Premature Birth.....			
						3 Infantile Debility.....			
	4 Cyanosis.....								
	5 Spina Bifida and other Malformation....								
	6 During Dentition.....								
	II. Of Women	1 Paramenia.....	13	14	27				
		2 Childbirth.....							
	III. Of Old People.	1 Old Age ..	1	4	5				
	IV. Of Nutrition.	2 Atrophy and Debility.....							
	VI. I. Home Accidents or Negligence.	I. Home Accidents or Negligence.	1 Fractures, Contusions, Wounds.....	5	2	7			
			2 Burns and Scalds.....						
			3 Poison.....						
			4 Drowning.....						
			5 Otherwise.....						
		II. Home Accidents or Negligence.	1 Murder, Manslaughter.....	5	2	7			
			2 Execution.....						
		III. Sal. elde.	1 Wounds.....	3	1	2			
			2 Poison.....						
			3 Drowning.....						
			4 Otherwise.....						
		IV. Chirurgici.	1 Chirurgici.....	1	1	1			
			Not known.....						
			Infection purulente.....						
Emesis.....									
Lock Jaw.....									
Total.....			362	322	684				

## FOREIGN HEALTH STATISTICS.

United Kingdom of Great Britain, during three weeks, ending May 27th, 17,383 births and 10,736 deaths were registered in London and twenty other large towns, and the natural increase of the population was 6,667. The mortality from all causes was, per 1,000: In London, 21.33; Edinburgh, 22.33; Glasgow, 26.66; Dublin, 24.66; Portsmouth, 20.33; Norwich, 22.66; Wolverhampton, 66.33; Sunderland, 16.66; Sheffield, 25.66; Birmingham, 22.33; Bristol, 25; Liverpool, 26.33; Salford, 30.66; Oldham, 26.66; Bradford, 26; Leeds, 34.66; Hull, 22; Newcastle-upon-Tyne, 23.66; Leicester, 20; Manchester, 29.33; Nottingham, 22.33. Other foreign cities at most recent dates, per 1,000: Paris, 26; Rome, 34; Vienna, 32; Brussels, 25; Berlin, 24; Hamburg, 27; Calcutta, 33; Bombay, 35; Madras, 34; Amsterdam, 38; Rotterdam, 26; The Hague, 27; Christiania, 32; Breslau, 43; Buda-Pest, 45; Turin, 22; Alexandria, 47; Copenhagen, 26; Munich, 39; Naples, 35.—*The Sanitarian.*



## MORTALITY RETURNS.

83

## TOTAL MORTALITY BY AGES.

Under 1 year.....	457
From 1 to 5 years.....	85
“ 5 to 10 “.....	11
“ 10 to 15 “.....	7
“ 15 to 20 “.....	16
“ 20 to 40 “.....	42
“ 40 to 60 “.....	29
“ 60 to 70 “.....	18
“ 70 to 80 “.....	10
“ 80 to 90 “.....	8
“ 90 to 100 “.....	1
100 years and over.....	..
Not known.....	..
Total.....	684

## TOTAL MORTALITY BY NATIONALITY.

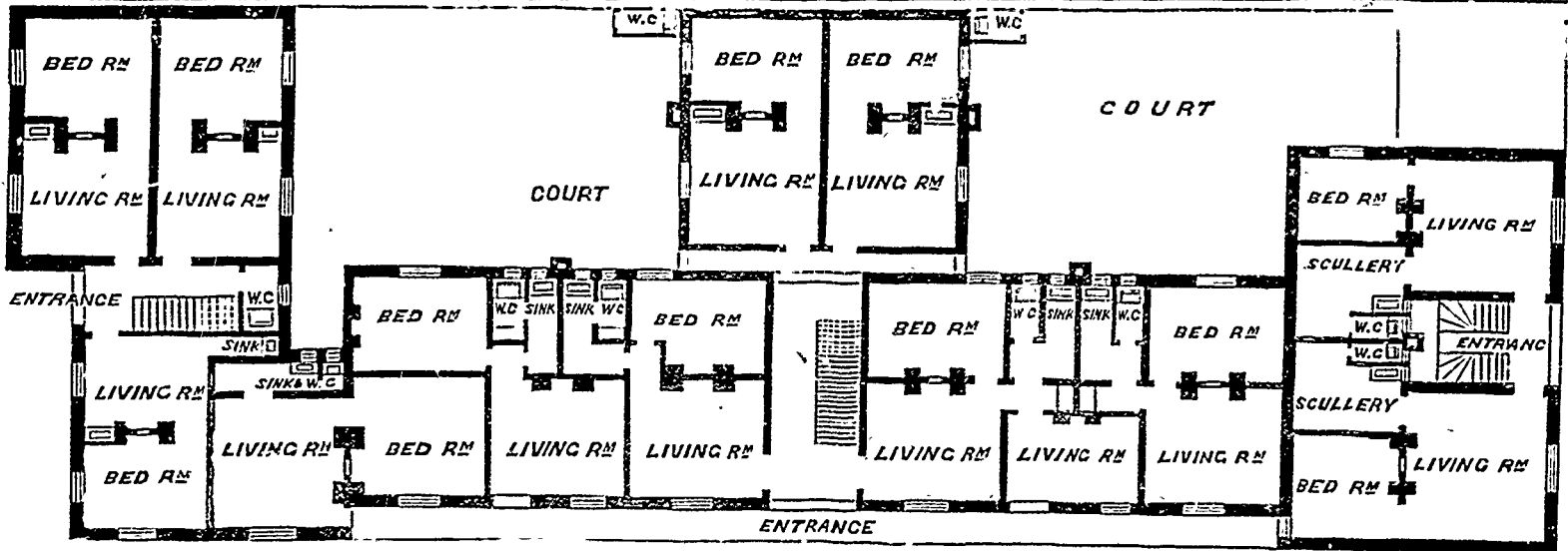
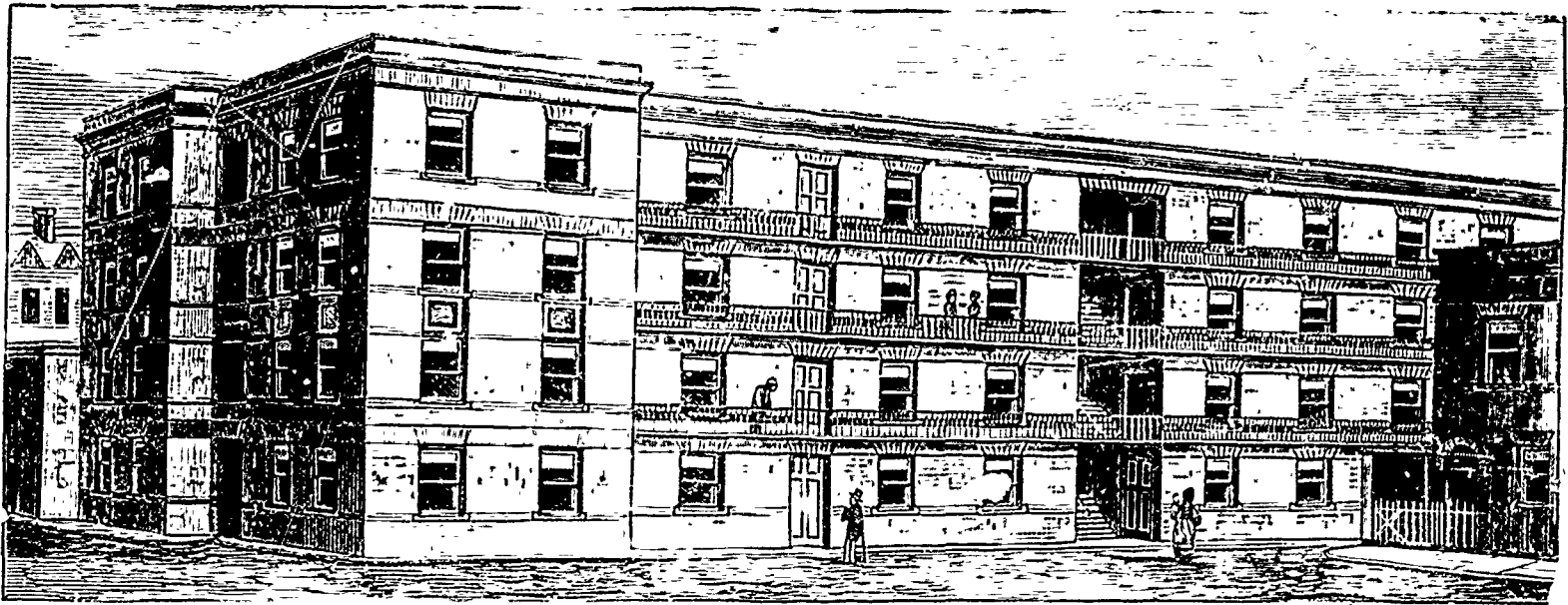
French Canadians.....	487
British Canadians.....	167
Irish.....	9
English.....	10
Scotch.....	3
Other Countries.....	6
Not known.....	2
Total.....	684

## TOTAL BY WARDS.

St. Ann's Ward.....	86
St. Antoine “.....	125
St. Lawrence “.....	69
St. Louis “.....	42
St. James “.....	146
St. Mary “.....	164
West.....	..
Centre.....	10
East.....	10
Not known.....	1
City Hospital.....	3
Hotel Dieu.....	12
Montreal General Hospital.....	11
Other Institutions.....	108
Foundlings.....	5
Outside City Limits.....	167
Total.....	959

N. B.—The foundlings and deaths outside city limits are not included in classification of diseases, ages or nationalities.





FOR EXPLANATION SEE PAGE 96.

## Reviews.

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A MANUAL OF DIET IN HEALTH AND DISEASE. By Thomas King Chambers, M.D., Oxon F.R.C.P., Lond. Hon. Physician to H.R.H., the Prince of Wales, &c., &c., &c., (Henry C. Lea, Philadelphia).

The public have long been in want of a practical work on this subject, free from chemical and botanical technicalities. He divides the subject into three parts—first, the theories of dietetics; man's natural food; the choice of food, describing minutely butcher's meat, fish, poultry and game, garden produce, fruit, groceries and chandlery, dairy produce, alcoholic drinks, water, all of which every householder should endeavor to instruct himself in.

A chapter on the preparation of food is most instructive, and especially useful to those who wish to be good housekeepers, for there is nothing so unwholesome as ill-prepared food. "A good cook is, to a certain extent, born, not made;" but much may be done to improve a young cook, if you see she has a knack for such employment. Dr. Chambers maintains that no kitchen is complete without an open range, and continues by affirming that there is more economy in it than in closed stoves; be this as it may, certainly the roast is more tender and toothsome when roasted as in the days of yore, than now. He concludes the first part by a chapter on digestion, a subject that he is peculiarly competent to handle, having before written a treatise upon it, or rather upon indigestion. There is a table of articles of animal food, which are given in order of their digestibility, beginning with sweet-breads and lamb's trotters, boiled chicken, venison, and so on. This alone is invaluable to the dyspeptic.

The second part begins with the regimen of infancy and motherhood, gradually proceeding to that for childhood and

youth, then to manhood. He says the principal meals for a commercial life should be breakfast and dinner—breakfast before, and dinner after the work, with a light lunch at mid-day. Animal food should be used by a hard worker at both breakfast and dinner, but it is not required at lunch; farinaceous food, vegetables, fruit, should be the staple of the mid-day meal. “The most perfect regimen for the healthy exercise of *thought* is such as would be advised for a growing boy—frequent small supplies of easily soluble mixed food, so as to supply the greatest quantity of nutriment without overloading the stomach or running the risk of generating morbid half-assimilated products.” There is no more fatal habit to a literary man than that of using alcohol as a stimulant between meals. The vital powers go on getting worn out more and more without their cry for help being perceived, and in the end break down suddenly and often irrevocably. When any extraordinary toil is temporarily imposed, extreme temperance or even total abstinence, should be the rule. Much to the point is the experience of Byron’s Sardanapalus:

“The goblet I reserve for hours of ease,  
I war on water.”

In a separate chapter he enters into the injuries to digestion from certain trades, and gives good advice as to the avoidance of such affections. Athletic training has its place, with most minute tabulated rules for those entering for field games, races, &c. Those about to travel have also much to learn from Dr. Chambers’ work. He ends the second part by very valuable deductions drawn from numerous experiments on the effects of alcohol. The third part is devoted to the dietetics of sickness. Much information on this particular branch that can be obtained nowhere else, may be obtained from this work by the medical profession. We have derived much pleasure and profit from the study of its pages, and we advise all who value health to purchase and read for themselves, as it would be impossible to give any idea of the scope of the work in a review

such as this. To the sick we also recommend it. It is a thoroughly practical work, and written in a comprehensive manner.

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LACROSSE—THE NATIONAL GAME OF CANADA—by W. G. Beers, Secretary of the National Lacrosse Association of Canada. (Dawson Brothers).

This little manual of the game of Lacrosse has been received; and, being an old player, we read it with much interest. Rules for the guidance of the game were very necessary, everything being counted fair play in our school days, were it over so palpably foul. It is amusingly written, giving a history of the game, and full instructions how to use the cross in facing, throwing the ball, catching and carrying, dodging and checking, picking up, tipping, frisking, &c. There is an appendix containing the laws of the game. We know of no game that is more calculated to increase the health and pluck of the young Dominion. The book is illustrated with photographs of the first Montreal team, some of whom are still active members of the Montreal Club.

No boy should be without this manual, a cross and ball.

REPORT OF THE BOARD OF HEALTH OF THE CITY OF BROOKLYN—  
From May 8th, 1873, to January 1, 1875.

It contains a mass of information of great value to the City of Brooklyn, and much that will be of use to other cities. First, we have a report from the Sanitary Committee itself, and adopted by the Board of Health, signed by the President, J. T. Conkling, M.D. Then follow the annual report of the Attorney and the statement of the Finance Committee. The Committee's Report on the principal causes of the excessive mortality of 1873 is very interesting as shewing the many removable causes there are for the prevention of diseases. Then follows a report of the Committee on the manufacture and adulter-

ation of candies and liquors—exposing the many deleterious adulterations used. There are three principal adulterations:— (1.) Articles used to supplant sugar, or to give “bulk;” (2.) Coloring matters; (3.) Flavoring extracts. The Report proper ends here.

An appendix to the work then follows, containing the report of the “Register of Vital Statistics” for 1873, and another report for 1874. The Sanitary Superintendent’s Report comes next, followed by the Reports of Drs. Colton, Raymond, Fisk, Reed, Hall, and Corbally—Sanitary Inspectors. There are numerous tables and charts which will be and are of great value. The arrangement is difficult to follow, and much value might be added to the work by issuing an index. There is much in it that we recommend our own Health Authorities to copy.

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**HAY-FEVER, OR SUMMER CATARRH, ITS NATURE AND TREATMENT.** By George M. Beard, A.M., M.D., &c., &c. Harper & Brothers: Franklin Square, New York.

Many are the authors who have endeavored to instruct us upon this subject, and many are the theories that have been propounded. But this treatise describes besides Hay-Fever, its earlier form, “Rose Cold,” its later form “Autumnal Catarrh,” and a middle form, or July cold, hitherto undescribed. It is dedicated to the officers and members of the United States Hay Fever Association,—an association that was formed by the sufferers from this most distressing affection, for the collection of symptoms, &c., and phenomena that accompanied the attacks. The author gives the history of hay-fever, and numerous extracts from the writings of such investigators as Wyman, Blackley, Abbotts Smith, Watson, Salter, Phoebus, Helmboltz, and Moore, and then proceeds to the way in which he procured his evidence by issuing circulars to all the members of the association, and also by sending them to the hotels and places of resort of those suffering from the disease. He then takes up and tabulates the answers to fifty-five searching questions on the

age, occupation, inheritance, temperament, &c., &c., of the sufferers, the symptoms and course of the fever, the diagnosis and prognosis—its prevention and treatment.

His deductions from this mass of information are very conclusive, and we must confess, since reading his work, to have become a convert to his theory, and discarded those of others. The conclusions which will be most likely to excite surprise are those which show the relation of this disease to the nervous system. To those who have given the subject no more thought than is suggested by general observation of cases, and who have been witness of the unquestionable fact that the malady numbers among its subjects some who are otherwise unusually strong, it seems beyond belief "that hay-fever is more markedly hereditary than any disease of which statistics have been gathered; and that the majority of its victims are of the nervous diathesis, and suffer otherwise from an indefinite number of nervous symptoms." He has demonstrated without a doubt that all the irritants that are supposed to cause the disease, such as heat, dust, pollen, &c., or all combined, cannot produce the disease, except when acting on a *predisposed* organization. He continues thus: "The theory taught in this book, that this disease is a complex resultant of a nervous system especially sensitive in this direction, acted upon by the enervating influence of heat, and by any one or several of a large number of vegetable and other irritants, has the advantage over other theories that it accounts for all the phenomena exhibited by the disease in this or in any other country." In this we quite agree. The transmissibility of the disease from parents to children; the temperaments of the subjects; the capricious interchanging of the early, the middle, and the later forms; the periodicity, the persistence of the attacks and their paroxysmal character, the points of resemblance between its symptoms and those of ordinary asthma; the strange idiosyncrasies of different individuals in relation to the different irritants; the fact that it is a modern disease, peculiar to civilization; the fact that its



most abounds where functional nervous disorders are most frequent, and is apparently on the increase *pari passu* with other nervous diseases, and finally, the fact that it is best relieved by those remedies that act on the nervous system—all these otherwise opposing and inconsistent phenomena are by this hypothesis fully harmonized. Any one, but more especially those suffering from this affection, will find ample food for thought in this work, and we advise our readers who are desirous for such valuable information to seek it in Dr. Beard's work.

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#### SIXTH ANNUAL ANNOUNCEMENT OF THE FACULTY OF MEDICINE IN THE UNIVERSITY OF BISHOP'S COLLEGE, LENOXVILLE.

We have received the announcement of this Faculty for the session of 1876-77. As regards the subjects taught, and the time necessarily devoted to their acquirement, the curriculum of one university is pretty much the same as another; and there will be found, therefore, but slight differences in the programme for the students' attendance either in Bishop's College or McGill. The only material difference observable is the determination of McGill University to thrust hygiene into the background, and fairly shelve it by making it an optional subject, whereas her young and enterprising sister comes boldly to the front, and makes hygiene a compulsory subject for her degree of M.D.C.M. It is strange how difficult it is to persuade this old established Institution to keep up to the requirements of the times, the "*pari passu*" is constantly wanting in her, and hence it is, that her competitor, alive to the exigencies of the times, and the popular movements of the day, wisely lays herself out to secure provision to meet the demand, and by this means gains a step in advance of the more ancient and imposing University. We live in essentially practical times, and we cannot afford to slight public opinion. The art of healing must ever go on while accident and disease stalk the earth, but the prevention of disease and the art of preserving health is as noble a science, and as essential to the well-being of mankind, as the remedial art. After the step McGill

University took in raising the lectareship of hygiene to a professorship, we may well ask was it only to dignify the late incumbent of the chair of surgery in Bishop's College by an empty title? Or, did the university honestly determine to give to hygiene its true place of usefulness and importance? Which? If the former, it was an unworthy act, and the present professor may well feel the honor a disgrace, and bitterly regret that he yielded such an important position as Professor of Surgery for an optional subject that any old woman could consequently fill. The Professor of Hygiene in McGill University entered his duties with a full and ardent determination to make this increasingly important subject a popular and useful course, but the damper of an optional, *i. e.*, a disregarded, subject, has cooled him down, and the friends of McGill, who expected better things of her, and hoped that the fresh blood that had been freely put into the old lady's veins during the past year would have brought out this subject into deserved prominence, are alike disappointed, and freely confess that Bishop's College Faculty of Medicine have decidedly stolen a march on her. The attractive manner in which the subjects of the various professors' chairs are elaborated in the calendar of Bishop's College are enough to make an earnest student's mouth water. Compare the pages 11 to 22 in Bishop's College calendar and pages 54, 55, and half of 56 in McGill College calendar, and say is this doing justice to the able men who fill the chairs of McGill, and is this all that can be done to attract a student? And while we compare pages, observe paragraph 11, page 55, and page 16 of Bishop's College on hygiene. If we are to have a calendar, embracing full announcements of all courses in our McGill University, then let us go in for an 8 oz. shot instead of a 4 oz.. it's only a cent more to send per post, and we should get the information we want, and in an attractive form. Certainly its present shape is very fashionable, being cut quite tight to the stomach, but for ourselves, we prefer a little more skirt.

# PUBLIC HEALTH MAGAZINE

AND

LITERARY REVIEW

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SEPTEMBER, 1876.

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## MUNICIPAL MISMANAGEMENT.

### THE BOARD OF HEALTH.

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Our readers, no doubt, are all aware of the public meeting lately held in Mechanics' Hall, called by the Mayor, at the request of a large body of citizens, to take into consideration the present state of the city finances. We attended, as every citizen, who has the interest of the city at heart, should. We were pleased and gratified to hear those who were competent to express their views in regard to the wanton extravagance that has been displayed, and were much struck with a fact that fell from the lips of Sir Francis Hincks. He said that in looking over a pamphlet he wrote 27 years ago, when he was for the second time finance minister, he had found that the present debt of the city of Montreal was greater now than the whole debt of the Province at that time. Is it any wonder, then, that the citizens are indignant. Surely there is something rotten in our municipal affairs, that we are sunk into such a load of debt, without value received. Where has the money gone to? We cannot see, nor are we able to inform our readers. Perhaps the vigilance committee appointed by the meeting, on the 15th, will find out and let us know. We shall wait anxiously for it.

But we now must say a word upon a subject that we regret was not even mentioned at the public meeting, although of more *vital* importance to us than our taxes—we refer to "Public Health." What do we receive from our aldermen to assist us in this? Comparatively a paltry sum when compared with the millions granted to the other committees. What, as we have

said before, is the use of our parks and fine streets, if we and our children are threatened day by day with loathsome diseases which visit us in epidemic forms? What have we to record? Thirty-four deaths from small-pox in July, and in the second week in August no less than twenty-five deaths. Our Board of Health is warned by the health officers that this fearful disease is gaining ground daily, and we may look for one of the most awful visitations of this scourge, before another winter passes over our heads, that we have ever been visited with. We do not blame the Board of Health itself for all this, for we know that they doing the best they can, without money. What we claim is, that some of the funds from our taxation be given them to protect us and our families from disease and death. Thanks to our Mayor and his untiring zeal, he has surmounted many of the difficulties that presented themselves, and has made the Board of Health what it is. When Dr. Hingston was elected Mayor, the health of the city was totally neglected (except what was done by ex-aldermen Kennedy and Alexander) The Board of Health existed only on paper, and its by-laws had been only enforced a few times since its formation. After Dr. Hingston's election (which, by the way, was principally on sanitary grounds), he at once reorganized the Board, and has succeeded in placing it in good working order. The health officers now know their duty, and are made to do it. The meat inspectors are made to make returns of the amount of meat confiscated, from whom taken, and what was the reason for such action; also all diseased animals are seized. The Sanitary Police are also compelled to make daily reports of the places visited. The Sanitary Inspector submits his report also, with the foregoing, to the Board of Health, at its weekly meetings. These meetings are held at 4.30 p.m. on every Wednesday, and are presided over by the Mayor. The business is gone through in an orderly and satisfactory manner which other committees of the corporation should endeavour to imitate.

There is a weekly mortality table also submitted. It is

very complete. The diseases are all properly classified according to age, nationality and district. In fact, it is in such a form that scientific statisticians can, at a glance, compare it with documents of a similar character in other parts of the world. The citizens well know and appreciate Dr. Hingston's exertions as Chief Magistrate, but as President of the Board of Health, he has rendered services infinitely more valuable, though not of so public a nature. While all our press in Ontario, and the Medical Association on this continent are talking of the necessity of establishing Boards of Health for each state and province, Dr. Hingston has succeeded in establishing the Board of Health of this city upon a permanent basis. The work that is done weekly is of incalculable benefit, and the manner in which it is done is a model for others elsewhere. Besides the examining of reports, the Board has acted with a strong and vigorous will in a manner not before attempted. We refer to the ordering of drains through private property, when the interest of health demands it, and without any reference to expropriation. In this way, work has in some instances been commenced within twenty-four hours of the time from the issuing of the order. Some may think that the Mayor has stretched his authority a little too far, but the citizens, knowing it is for the public good, are quite prepared to support him in his actions. There is now a notice of motion before our Council, that the Board shall be elected and represented by a member of the Council from each ward, and we would suggest to Ald. Grenier to add to his motion part of Sec. 3 of the by-law already in existence, viz., "to appoint " ..... an additional number of persons, not less than nine " nor exceeding eighteen citizens, inhabitants of the City of " Montreal, to be assistant members of the said Board of " Health....."

This proceeding is suggested "whenever it shall appear that the city of Montreal is threatened with any formidable epidemic, endemic, or contagious disease." Now, as we have

before said, the health officers have informed the Board that an epidemic of small-pox is at present raging, and will, before the autumn, reach alarming proportions. Now is the time therefore to add greater strength and more scientific support to the present body.

Vaccination and isolation are now acknowledged by the scientific world as the only preventatives of small-pox, and we call upon our Mayor and Board of Health to exercise its powers in this direction as strictly as they have in the matter of drainage.

The by-law on vaccination reads thus:—Sect 10, 24 Vic., Cap. 24—

“ If any father or mother, or person, so having, as aforesaid, the care, nurture or custody of any such child, as aforesaid, shall not cause such child to be vaccinated within the periods prescribed by the act, or shall not, on the eighth day after vaccination has been performed, take, or cause to be taken such child for inspection, according to the provisions of this act respectively contained, then such father or mother, or person having the care, nurture or custody of such child, as aforesaid, so offending, shall be liable to a penalty not exceeding five dollars, recoverable on summary conviction before the Inspector and Superintendent, or Police Magistrate or Stipendiary Magistrate, &c.

How here is machinery that only requires to be set in motion to stamp out the plague spot from amongst us. The by-law with respect to isolation is equally strict, and has been ordered by the Board to be put in force.

THE WORKINGMEN'S DWELLING IMPROVEMENT  
COMPANY—(LIMITED).

*(Vide Wood Cut between pages 84-5.)*

This month we give a view of the tenement block of working men's dwellings which have been erected by the directors of this company on a site which they have secured in Falcon Court and Disney street, Borough, London, England. We have often expressed the opinion that something in this way should be done here for our workingman. It is through them that we have our comforts, and we in turn should see that they have homes that are a comfort to them when they leave their workshops, and not unhealthy dens as many of them are. Of course there are many who can avail themselves of the advantages street cars give them, and have healthy suburban residences, but we refer to the majority who, by reason of their poverty and nature of their occupations, are compelled to reside on the spot, and must of necessity have houses provided for them. It would give us extreme satisfaction to see such a scheme entertained. As to the safety of the investment there seems no reasonable doubt, and if properly managed it should yield a handsome dividend. The public always seem to rush with avidity to secure stock in the many public schemes that are proposed every day, which too many live to regret. Leave these speculators who only offer delusive securities to themselves. We maintain that public enterprise in the direction of the improvement of the social condition of the people ought to be more supported by individual pecuniary help, and we know of no more satisfactory way of investing money than in companies such as this, where not only a safe investment is secured, but the person so investing has the satisfaction of receiving a fair and reasonable interest for his capital, in addition to the gratification also of knowing that his money is doing good to his poorer brethren.

On reference to the plan, between pages 84-5, it will be seen that each floor (of which there are 4) contains twelve distinct dwellings, provided with separate sculleries and other domestic conveniences, and with an entrance of its own from the courts which

surround the site. There will, therefore, be sixty tenements, consisting of 125 rooms, exclusive of sculleries, &c. There are three staircases; one in the centre of the building, which leads to the balconies off which the tenements in the upper floors of the main building are approached or entered, and one at either end in the north and south wings.

The area of the site is about 7,000 square feet, the area of the building itself being 5,250 feet, thus leaving two yards, or recreation grounds, of respectively 900 and 750 square feet. The height of the building is fifty feet. It is proposed to adopt two systems of ventilation, viz., those of Dr. Ancell Ball and Mr. E. G. Banner, both in separate wings, and Dr. Ball's improved stove is to have a trial. Messrs. Brown and Green, of Luton and Bishopsgate Street, have, we are informed, offered to supply, gratis, one of their portable cooking stoves. Shafts for dust and refuse are provided for each floor, with properly contrived double doors to prevent annoyance to intervening tenements when dust is sent down.

The roof is to be flat, composed of asphalt or concrete. The exterior of the building will be faced with stock bricks, and will be of a plain but neat character. The iron balconies in the centre portion of the building will also be very plain, but will add materially to the appearance of the building, as they will relieve the eye from the enormous mass of brickwork which is behind them.

A calculation as to the cost of these dwellings and the rents that can be obtained in this neighbourhood has been made, and we are informed that a fair dividend on the outlay will be obtained, which will leave ample margin for a reasonable interest to be paid to the shareholders. We might add that every means is to be taken to improve the physical condition of the occupiers of the dwellings, and every inducement offered to them in the shape of economy. The principle of co-operation is to be adopted, and we understand that arrangements are being carried on whereby coals and other commodities will be obtained at wholesale prices. A company that will thus consider the requirements of its tenants and the welfare of the people for whose



benefit, as well as their own, they seek to provide with improved healthy homes, ought to receive the support, moral and pecuniary, of all right-thinking Christian men, and we hope to hear of the great success which they will doubtless meet, and which they so richly deserve. In addition to the foregoing, the Company are in negotiation for a site upon which they propose to erect a large and commodious block of buildings, in addition to the ordinary dwellings, containing a Workmen's Club, with accommodation for lodgings for bachelors, smoking, reading, and class-rooms, and also a large hall for lectures, which will be provided and paid for by the Company. This will be a work of greater magnitude than the present; but it should, and will doubtless, meet with equal success.

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### VACCINATION.

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The following facts have been culled from other periodicals for the information of our readers and benefit of the anti-vaccinationists generally:—

“A good deal of opposition continues to be shown towards the vaccination process by the native population of Jamaica. Several epidemics of small-pox prevailed in different parts of the island last year in spite of the great efforts made by the doctors to stamp out the disease. \* \* \* \* The public have resisted all advice in the matter of sanitary and precautionary measures, have courted small-pox by willful and unnecessary exposure to its influences, by refusing \* \* \* the safeguard of vaccination \* \* \* \* The large public institutions where vaccination could be enforced, escaped almost entirely the ravages of the disease, although situated in districts which suffered severely from small-pox.”

Elsewhere we find a letter from an army surgeon, from which there is only one conclusion to be drawn:—

“Corporal W. R., 13th Regt., came back from London, after furlough, on the 14th March. On the 24th of the same month he became sick, with the usual signs of fever. He was taken into hospital, and gave the following history:—‘That he had been staying in London and been to see a favorite niece, who was

down with the small-pox,' and the 'child had it very bad.' On this the man was placed under canvass, and subsequently small-pox developed itself. After a most minute inquiry I found that by an oversight in the regimental orderly-room this man's name had been omitted from the list of men to be re-vaccinated; and going over the book with the Adjutant it was found that this man was the only one in the regiment who had not been re-vaccinated. Here, then, was the only man who had small-pox, and the only one who had not been vaccinated. Small-pox was prevalent enough in Dublin, Belfast, Glasgow, and yet no case occurred amongst the men—he concludes by saying:—

“Of course I include women and children in this statement, and also include the large number of women living in town who were married without leave, but all of whom were re-vaccinated and escaped small-pox.”

We would bespeak the attention of the anti-vaccination school headed by Dr. Coderre, Messrs. St. Pierre, Thibeault, &c. to the following statement of facts also. At a meeting of the Salford Board of Guardians, the Work-house Hospital Surgeon, reported that out of 400 cases of small-pox he could not find any one in which the patient had been attacked after revaccination had been successfully performed. Other medical officers present also bore testimony to the protection afforded by revaccination. The mischievous doctrines promulgated by the anti-vaccinationists will be estimated at their true value by a public who will take the trouble to consider the significance of such facts as these we have now recorded.

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#### MONTREAL SWIMMING CLUB.

At last Montreal can boast that there is a swimming club. That well-known volunteer, Lieut.-Col. Lebranche, has accomplished what many have talked of. With him, as in his soldiering, action was his watchword, and the result is a club of 400 members, and only six days has his office been open. His jovial face might be seen from his office door, as it were inviting all perspiring souls to enter and put down their names, enrolling themselves as members. A few have stood by him, and there is to be a public meeting in a few days for the election of officers and the formation of a programme of future work of which we will duly inform our readers.

## Editorial Notice.

### SYNOPSIS OF METEOROLOGICAL OBSERVATIONS IN JULY, FROM MCGILL COLLEGE OBSERVATORY.

\* Barometer readings reduced to sea-level and temperature of 32° Fahr.  
† Pressure of vapor in inches mercury. ‡ Humidity, relative Saturation, 100  
° Ten inches of snow is taken as equal to one inch of water.

Mean temperature of month, 70.7. Mean of maxima and minima temperature, 70.87. Greatest heat was 87.6 on the 10th; greatest cold was 49.9 on the 25th, —giving a range of temperature for the month of 37.7 degrees. Greatest range of the thermometer in one day was 20.4, on the 25th; least range was 4.9 degrees on the 2nd. Mean range for the month was 14.82 degrees. Mean height of the barometer was 29.9005. Highest reading was 30.188 on the 27th; lowest reading was 29.490, on the 6th, giving a range of 0.698 inches. Mean elastic force of vapor in the atmosphere was equal to .5519 inches of mercury. Mean relative humidity was 72.6. Maximum relative humidity was 97 on the 3rd. Minimum relative humidity was 42 on the 25th. Mean velocity of the wind was 9.15 miles per hour; greatest mileage in one hour was 27 on the 3rd. Mean direction of the wind, W. S. W. Mean of sky clouded was 58 per cent.

Rain fell on 17 days. Total rainfall, 4.33 inches.

### REPORTS of the Medical Health Officers for the City of Montreal for 1875.

These long-looked for reports have come at last, but we regret to say that they do not come up to our expectations. They have been so thoroughly discussed in the public press that we forbear saying anything further about such conflicting documents. We regret that the Board of Health allowed their publication before having received and adopted them in committee, as their inconsistencies reflect upon them.

ERRATA.—The following errata appeared in the August number: On page 36, last line but one from bottom, for "facilities" read "velocities." On page 38, first line, for "free" read "freed." On page 50, line 12, for "wards" read "modes."